THE HONG KONG UNIVERSITY OF SCIENCE & TECHNOLOGY

MEMORANDUM

To	:	CUS Chair and Members (see distribution list)
cc	:	President, Provost, CPS Secretariat *(without enclosures)*
From	:	Prof Anirban MUKHOPADHYAY, Secretary of CUS
Date	:	10 March 2021
Subject	:	Agenda for the 168th CUS meeting to be held on 17 March 2021

The 168th CUS meeting will be held on **Wednesday, 17 March 2021 at 9:30 a.m.** via the online platform **Zoom**.

AGENDA

1. Welcome

2. Confirmation of the Minutes of the 167th Meeting Held on 13 January 2021   (Enclosed)

3. Matters Arising from the Last Minutes   (CUS 09/21)

(Non-reserved items: 4-15)

FOR DISCUSSION

4. Final Proposal of New Bachelor of Science Program in Sustainable and Green Finance   (CUS 10/21)

5. Final Proposal of Minor Program in Literature and Chinese Creative Writing   (CUS 11/21)

6. Extended Major Program in Artificial Intelligence: Adding of "Business+Artificial Intelligence" and Electives   (CUS 12/21)

7. Dual Degree Program in Technology and Management: (i) BEng in Aerospace Engineering; and (ii) BSc in Integrative Systems and Design with BBA Programs   (CUS 13/21)

8. Curricula and Discipline Titles for Individual Candidates under the Framework of Individualized Interdisciplinary Major   (CUS 14/21)

9. Integrated Bachelor-Master Pathways   (CUS 15/21)

10. Review of the Terms of Reference of the Committee on Undergraduate Core Education   (CUS 16/21)

11. New Courses   (CUS 17/21)

12. New Common Core Courses   (CUS 18/21)

FOR INFORMATION

13. Minor Changes to Courses and Programs   (CUS 19/21)

14. Revised Membership and Terms of Reference of Senate Committee on Undergraduate Studies   (CUS 20/21)

ANY OTHER BUSINESS

15. Date of Next Meeting: Wednesday, 12 May 2021 at 9:30 a.m.

(Reserved item: 16)

FOR DISCUSSION

16. Potential Graduates by Fall/Winter 2020-21   (CUS 21/21)
   [to be tabled]

Enclosure

Distribution

Chair and Members:		Observers:	Secretariat:
Prof Andrew HORNER	Miss Wing-Yau LOK	Ms Renee KOU	Ms Anne LUK
Prof Melody CHAO	Prof Pak-Wo LEUNG	Mr Tony LAU	Ms Janet TANG
Mr Tung-Wai CHEUK	Prof Philip MOK	Dr Trevor WEBB	
Mr Chung-Tat CHOR	Prof Emily NASON		
Prof King-Lau CHOW	Mr James PRINCE		
Prof Jimmy FUNG	Prof Kevin TAM		
Prof Allen HUANG	Prof Melinda WHONG		
Prof Baoling HUANG	Prof Tim WOO		
Prof Stanley LAU	Prof Carine YIU		

THE HONG KONG UNIVERSITY OF SCIENCE & TECHNOLOGY

Minutes of the 167th meeting of the Senate Committee on Undergraduate Studies (CUS) held on 13 January 2021 (Wednesday) at 9:30a.m. via the online platform Zoom.

Present:	Prof Andrew HORNER (Chair)	Prof Anirban MUKHOPADHYAY (Secretary)
	Prof Melody CHAO	Prof King-Lau CHOW
	Prof Jimmy FUNG	Prof Allen HUANG
	Prof Baoling HUANG	Prof Stanley LAU
	Prof Pak-Wo LEUNG	Prof Philip MOK
	Prof Emily NASON	Prof Kevin TAM
	Prof Melinda WHONG	Prof Tim WOO
	Prof Carine YIU	
In attendance:	Prof Kar Yan TAM *(for agenda item #5)*	Ms Renee KOU
	Prof Betty LIN *(for agenda item #6)*	Dr Trevor WEBB
	Prof Chi Ming CHAN *(for agenda item #8)*	
Apologies:	Mr Chung Tat CHOR	Mr Tung Wai CHEUK
	Mr Pak-Ho FONG	Mr Tony LAU
	Miss Wing Yau LOK	Mr James PRINCE
Secretariat:	Ms Anne LUK	Ms Janet TANG

Action

Welcome

1. The Chair extended his welcome to two new members: Prof Baoling HUANG and Prof Carine YIU; and Ms Janet TANG who newly joined the CUS Secretariat.

Confirmation of the Minutes of the 166th Meeting Held on 11 November 2020

2. The minutes of the 166th meeting held on 11 November 2020 were confirmed as an accurate record of the meeting.

Matters Arising from the Last Minutes (CUS 01/21)

3. The Chair drew members' attention to Senate's approval for the proposed revisions to the Regulations for Examinations and Declaration Statement of Academic Integrity under the HKUST Academic Honor Code. The latter was updated in connection with the changes made to the Regulations for Examinations. Both documents were approved at the Senate's 152nd meeting on 8 December 2020 for immediate implementation.

Oral Report by the Chair

4. Members were briefed on the Co-terminal Degree 4+1 Pathway for BSc RMBI and MSc FinTech, which would be discussed by the Committee on Postgraduate Studies. Key features of the initiative included:

(a) Up to 5 BSc RMBI students would be given conditional offer to MSc FinTech in Year 3. These students would be allowed to start taking up to 14 credits of MSc FinTech courses, free of charge, in Year 4. Students could have the credits earned in Year 4 transferred to the MSc FinTech program and complete the remaining credits in Year 5;

(b) RMBI students who took the FinTech Option would not be allowed to join the 4+1 pathway. Proper advising should be provided by the program leader/unit;

(c) The initiative would not involve any changes to the curriculum structure, admission requirements, and the award of diploma of the BSc RMBI program; and

(d) Given that all credits taken by a UG student would be counted towards the overall CGA, the CPS Secretariat was invited to note the possible impact on the credit transfer matter.

Initial Proposal for the New Bachelor of Science Program in Sustainable and Green Finance (CUS 02/21)

5. Prof Allen HUANG gave a presentation on the initial proposal:
   (a) Sustainable and green energy had been a hot topic around the world. All initiatives would require financing particularly in improving technologies; hence, green finance had been at the forefront of all major finance centres;
   (b) The proposal would be a joint school program between SBM and IPO, targeting to admit students for 2022-23 with an initial intake of 30;
   (c) Required courses concerning the finance-related and environment-related areas would bear similar weighting;
   (d) An advisory committee comprising external green finance experts would be formed to help enhancing the curriculum; and
   (e) The Sustainable and Green Finance (SGFN) program would differ from the existing Environmental Management and Technology (EVMT) program in terms of program objectives, curriculum and career placement. SGFN aimed to nurture sustainable and green finance experts to fill the talent gap and help develop Hong Kong into a leader international green finance center. Hence, more than one-third of the requirements would be business-related. And students would take up placement or internship in the finance industry. EVMT aimed to develop environmental management expert, with a heavy focus on environmental courses (only 12 SBM courses). Students would take up placement in non-government organizations, government sectors in the environmental consultancy field.

6. Members' observations and comments are summarized as follows:
   (a) The program, likely to be the first of its kind in Hong Kong, aimed to fill the huge gap in the market due to strong demand at the top level for green finance experts, as reflected by various stakeholders. Green finance would be a priority development for SBM. The proposed program would be a major key to make HKUST a center of excellence in green finance;
   (b) Members expressed concern if students from Schools other than SBM could join the program. They were assured that the program aimed to recruit the best students, no matter which Schools they were from. A detailed pathway and Major admissions criteria would be worked out by SBM/IPO for providing a clearer picture on the feasibility of admitting

students from outside SBM/ENVR;

(c) The new ENVR courses would be open to students from other Majors as free electives;

(d) SBM/IPO had had a long discussion about the program title. Having taken into account the common usage in the community (e.g., Hong Kong Exchange's Sustainable & Green Exchange, Green and Sustainable Banking as used by the Hong Kong Monetary Authority), "Sustainable and Green Finance" was adopted as the title for the program. With "Sustainable" being a broad topic, "Green" would add emphasis to the environment component of the program. The title would be confirmed after collecting further opinions from external experts;

(e) Since it was planned that the program be included as a new initiative in the Planning Exercise Proposal, an initial discussion of the proposal at CUS would be meaningful; and

(f) SBM/IPO to coordinate with URAO so that potential students could have a better understanding about the program.

7. Members expressed general support for the initiative. SBM and IPO were invited to include in its final proposal its feedback to comments from CUS.

Dual Degree Program in Technology and Management: 11 BEng/BSc Programs with Four More BBA Programs (CUS 03/21)

8. Prof Betty LIN briefed members on the following key program features:

(a) Since its inception in 2003, T&M DDP had been attracting very good students.

(b) The proposal to include BBA in Economics, Finance, Marketing and Management was to cater for students' request for more BBA Major choices and considering that such dual degree programs (e.g., HKU's Global Engineering and Business Program with 8 options of an accelerated Engineering degree plus 5 options of business Majors) managed to attract good high school applicants.

(c) The newly proposed options could provide more focused training to students that would be beneficial to their career development.

(d) SENG had been very supportive of the proposal. In fact, the Aerospace Engineering and Industrial Engineering and Engineering Management would be the next in the pipeline for submitting their proposal to CUS for consideration.

(e) Credit loading for the newly added BBA Majors, ranging from 20 to 25, would be less demanding as compared to GBM (29 credits), and

(f) It was projected that Finance would be very popular, the quota for which would be 15, and 5 each for Economics, Marketing and Management while the quota for GBM would remain unchanged.

9. Members' observations and comments are summarized as follows:

(a) GBM students could take any electives courses from the SBM departments; while students from the other BBA Majors would be required to take specific courses related to their Major. Students from GBM Majors might not have priority to some popular SBM courses as their counterparts in other BBA Major did.

(b) In response to the enquiry about whether the GBM Major would be

absorbed into the other four Majors, it would all depend on students' interest. As some students might not want to specialize in any SBM business Major.

(c) The quota for T&M DDP students was additional ones. BBA students would not be disadvantaged.

(d) If students had taken all the required courses to fulfil the degree requirement, students could self-declare the Major concerned.

(e) Students would be required to fulfil the English requirements for each School; and it was noted that there might be some overlapping. However, Schools concerned preferred to maintain the existing English requirements for different reasons (e.g., for accreditation purposes). CLE considered that it would be meaningful to consolidate the English courses and was rethinking about the matter and would discuss with the Schools accordingly.

10. Members resolved to approve the Dual Degree Program in Technology and Management: 11 BEng/BSc Programs with Four More BBA Programs.

Final Proposal for the Revised Framework of the Undergraduate Common Core Program (CUS 04/21)

11. Prof Anirban MUKHOPADHYAY briefed Members on how the final proposal for the revised Framework addressed comments from CUS/Senate:

(a) CUCE would remain responsible for overseeing the Common Core Program. The Provost Office had been requested to provide the needed support and resources;

(b) The current practice of allowing students to complete the Chinese Communication requirement even after Year 1 would be continued;

(c) The course design for the Behavioral Foundations of University Education: Habits, Mindsets, and Wellness would take into account students who might have special needs;

(d) Different UxOP components would be piloted in advance of Fall 2024;

(e) Mechanisms would be devised and implemented using clear and consistent rubrics integrated into the scaffolding structure;

(f) Double counting of credits would be allowed for Minor programs;

(g) "Creative and Computational Arts (A)" under the Broadening group would be named as "Arts" for simplicity purpose;

(h) Due consideration was given to the suggestion of implementing the revamp in a phased manner, and it was concluded that it would not be feasible;

(i) Analysis of the current course offerings suggested that further sub-dividing the "Social Analysis" area by School would not serve the broadening objective and therefore was not incorporated;

(j) Due to the complexity of the program change, Senate had given approval that the course proposals for the required courses be submitted later using a revised course proposal form; and

(k) Subject to Senate's approval for the revised Framework, a Working Group on Review of the Common Core Program which advises and makes recommendation on the implementation of the revised Framework would be formed. It would comprise representatives who have the expertise/experience in setting up support systems.

[Post meeting notes: It was subsequently clarified that CUS could appoint a Working Group at its discretion and Senate's approval would not be required. The new Working Group on Review of the Common Core Program which advises the implementation of the revised Framework had been formed by CUS and placed under CUCE on 10 February 2021.]

12. Members' observations and comments are summarized as follows:
    (a) The transition arrangements to take care of two cohorts of students taking courses from the current Common Core Framework and the revised one would be worked out in the short future. Prof Tim WOO gave a brief account on the general demand on common core courses for the two cohorts by year as a reference. The Working Group, comprising School representatives, would consolidate feedback from Schools on the details and recommend to CUCE for consideration and implementation accordingly;
    (b) It was confirmed that the moving from the foundations level to the broadening level would require the completion of all the foundation level required courses except for the Chinese Communication course; Moving from the broadening level to the experiencing level would be slightly flexible, subject to the general scaffolding structure and the requirements of the individual UxOP; and
    (c) Given the loading of the foundation level courses, there was concern that students might have insufficient exposure to the different areas before choosing their Major. CUCE was aware of the matter and would look into it.

13. Members resolved to endorse the proposal for onward submission to the Senate for approval.

Major Program Changes for Bachelor of Science in Integrative Systems and Design (CUS 05/21)

14. Prof Chi Ming CHAN gave a presentation on the proposed changes to the program as follows:
    (a) The Division of Integrative System and Design was formed in 2018. Changes made to the program seemed frequent as the Division had been trying to enhance the program after acquiring better understanding of the curriculum and students' needs.
    (b) Under the current curriculum, students had to take 12 credits of Math, Science and Engineering courses in Year 1. Students would then proceed to take the 2nd to 4th year projects, which accounted for 23 credits.
    (c) The program would like to equip students with strong design and technical fundamental skills, which were considered essential for the 2nd to 4th year projects. As technical fundamental skills were missing from the current curriculum, 3 courses amounting to 10 credits were proposed to be added. To maintain the 120-credit requirement for graduation, the credits for Product Management and Entrepreneurship electives and Project-related electives would be reduced accordingly. Further adjustment included adding a Design elective and converting a level 3 Design elective to a level 2 fundamental course.

15. Members' observations and comments are summarized as follows:

    (a) The proposed changes, though reasonable with an internally consistent logic, resulted in more heavily engineering-focused curriculum. The initial design of the program was to combine design and engineering, with an aim to focus on design thinking with technology being one component and a tool used in design thinking process, which was quite broad. There had been expectations that the program should be more interdisciplinary.

    (b) Concern was raised in previous CUS/Senate meetings that the ISDN program might have shifted too much towards the engineering side, and hence deviated from the original design of the program which was design thinking and entrepreneurship. Members anticipated that the proposed changes might raise a similar issue at the Senate again.

    (c) It was noted that the design fundamentals and electives, account for 18 and 3 credits, respectively, totaling 21 credits of the program; and the engineering fundaments accounted for 10 credits only. Under the Project-relative electives (15 credits), students could take electives from other Schools (e.g., SBM). However, it was felt that electives were not critical in determining the nature of a program;

    (d) ISDN was invited to: ISDN

        i. review the title and the content of the courses so that they could better integrate into the design thinking framework. For instance, re-title those courses which sounded like hard-core engineering courses, revisit the content of the newly proposed courses to emphasize practical aspects and applications, and how they would be implemented in an experiential learning and project-based style consistent with the program's stated all-experiential learning approach. The review should ensure that courses ISDN students took should have more of the design thinking rather than the engineering flavor;

        ii. take the opportunity to address the issue that students in Hong Kong might not have a good understanding about integrative system and design, as reflected in the drop in the admission rate; and

        iii. ensure that if having the curriculum moved towards more engineering-focused was considered beneficial to make the program stronger, such direction should be in line with the senior management's expectation.

16. In view of the need to review the program in a number of aspects, some of the   CUS
    ISD new course/course change proposals submitted for approval by the CUS   Secretariat
    (under CUS 06/21) would be put on hold as further changes might be required.
    The CUS Secretariat would liaise with SENG to identify the courses in question.

    [Post meeting notes:
    Confirmed with SENG/ISD that except for ISDN 4330, all the following new course/ course change proposals concerning the program change of BSc ISDN would be put on hold as follows:
    - *PHYS 1001 - removal from the curriculum (CUS 05/21);*
    - *ISDN 2601, ISDN 2602, and ISDN 3601- new course proposals (CUS 06/21);*
    - *ISDN 3200 - major course change/credit change (CUS 06/21); and*
    - *ISDN 2300 - minor course change (CUS 07/21).]*

New Course and Major Course Changes (CUS 06/21)

17. No request for un-starring of the agenda items were received. With an understanding that all proposals were fully examined by the CUS Secretariat, the Committee approved all course proposals without further deliberation at the meeting, except those related to the BSc ISDN program change proposal which were being put on hold (see post-meeting notes under para. 16).

Items for Information

18. The following paper would be available for information to Members upon request:
(a) Minor Changes to Courses and Programs (CUS 07/21)

Potential Graduates by Fall 2020-21 (CUS 08/21)

19. Detailed minutes related to this reserved item are given in the Attachment to the minutes.

Date of Next Meeting: Wednesday, 17 March 2021 at 9:30am

20. There being no other business, the meeting was adjourned at 11:35am.

DRAFT

THE HONG KONG UNIVERSITY OF SCIENCE & TECHNOLOGY

Minutes of the 167th meeting of the Senate Committee on Undergraduate Studies (CUS) held on 13 January 2021 (Wednesday) at 9:30a.m. via the online platform Zoom.

Present:	Prof Andrew HORNER (Chair)	Prof Anirban MUKHOPADHYAY (Secretary)
	Prof Melody CHAO	Prof King-Lau CHOW
	Prof Jimmy FUNG	Prof Allen HUANG
	Prof Baoling HUANG	Prof Stanley LAU
	Prof Pak-Wo LEUNG	Prof Philip MOK
	Prof Emily NASON	Prof Kevin TAM
	Prof Melinda WHONG	Prof Tim WOO
	Prof Carine YIU	
In attendance:	Prof Kar Yan TAM (*for agenda item #5*)	Ms Renee KOU
	Prof Betty LIN (*for agenda item #6*)	Dr Trevor WEBB
	Prof Chi Ming CHAN (*for agenda item #8*)	
Apologies:	Mr Chung Tat CHOR	Mr Tung Wai CHEUK
	Mr Pak-Ho FONG	Mr Tony LAU
	Miss Wing Yau LOK	Mr James PRINCE
Secretariat:	Ms Anne LUK	Ms Janet TANG

Action

Welcome

1. The Chair extended his welcome to two new members: Prof Baoling HUANG and Prof Carine YIU; and Ms Janet TANG who newly joined the CUS Secretariat.

Confirmation of the Minutes of the 166th Meeting Held on 11 November 2020

2. The minutes of the 166th meeting held on 11 November 2020 were confirmed as an accurate record of the meeting.

Matters Arising from the Last Minutes (CUS 01/21)

3. The Chair drew members' attention to Senate's approval for the proposed revisions to the Regulations for Examinations and Declaration Statement of Academic Integrity under the HKUST Academic Honor Code. The latter was updated in connection with the changes made to the Regulations for Examinations. Both documents were approved at the Senate's 152nd meeting on 8 December 2020 for immediate implementation.

Oral Report by the Chair

4. Members were briefed on the Co-terminal Degree 4+1 Pathway for BSc RMBI and MSc FinTech, which would be discussed by the Committee on Postgraduate Studies. Key features of the initiative included:

(a) Up to 5 BSc RMBI students would be given conditional offer to MSc FinTech in Year 3. These students would be allowed to start taking up to 14 credits of MSc FinTech courses, free of charge, in Year 4. Students could have the credits earned in Year 4 transferred to the MSc FinTech program and complete the remaining credits in Year 5;

(b) RMBI students who took the FinTech Option would not be allowed to join the 4+1 pathway. Proper advising should be provided by the program leader/unit;

(c) The initiative would not involve any changes to the curriculum structure, admission requirements, and the award of diploma of the BSc RMBI program; and

(d) Given that all credits taken by a UG student would be counted towards the overall CGA, the CPS Secretariat was invited to note the possible impact on the credit transfer matter.

Initial Proposal for the New Bachelor of Science Program in Sustainable and Green Finance (CUS 02/21)

5. Prof Allen HUANG gave a presentation on the initial proposal:

(a) Sustainable and green energy had been a hot topic around the world. All initiatives would require financing particularly in improving technologies; hence, green finance had been at the forefront of all major finance centres;

(b) The proposal would be a joint school program between SBM and IPO, targeting to admit students for 2022-23 with an initial intake of 30;

(c) Required courses concerning the finance-related and environment-related areas would bear similar weighting;

(d) An advisory committee comprising external green finance experts would be formed to help enhancing the curriculum; and

(e) The Sustainable and Green Finance (SGFN) program would differ from the existing Environmental Management and Technology (EVMT) program in terms of program objectives, curriculum and career placement. SGFN aimed to nurture sustainable and green finance experts to fill the talent gap and help develop Hong Kong into a leader international green finance center. Hence, more than one-third of the requirements would be business-related. And students would take up placement or internship in the finance industry. EVMT aimed to develop environmental management expert, with a heavy focus on environmental courses (only 12 SBM courses). Students would take up placement in non-government organizations, government sectors in the environmental consultancy field.

6. Members' observations and comments are summarized as follows:

(a) The program, likely to be the first of its kind in Hong Kong, aimed to fill the huge gap in the market due to strong demand at the top level for green finance experts, as reflected by various stakeholders. Green finance would be a priority development for SBM. The proposed program would be a major key to make HKUST a center of excellence in green finance;

(b) Members expressed concern if students from Schools other than SBM could join the program. They were assured that the program aimed to recruit the best students, no matter which Schools they were from. A detailed pathway and Major admissions criteria would be worked out by SBM/IPO for providing a clearer picture on the feasibility of admitting

students from outside SBM/ENVR;

(c)　The new ENVR courses would be open to students from other Majors as free electives;

(d)　SBM/IPO had had a long discussion about the program title. Having taken into account the common usage in the community (e.g., Hong Kong Exchange's Sustainable & Green Exchange, Green and Sustainable Banking as used by the Hong Kong Monetary Authority), "Sustainable and Green Finance" was adopted as the title for the program. With "Sustainable" being a broad topic, "Green" would add emphasis to the environment component of the program. The title would be confirmed after collecting further opinions from external experts;

(e)　Since it was planned that the program be included as a new initiative in the Planning Exercise Proposal, an initial discussion of the proposal at CUS would be meaningful; and

(f)　SBM/IPO to coordinate with URAO so that potential students could have a better understanding about the program.

7.　Members expressed general support for the initiative. SBM and IPO were invited to include in its final proposal its feedback to comments from CUS.　　　　SBM, IPO

Dual Degree Program in Technology and Management: 11 BEng/BSc Programs with Four More BBA Programs (CUS 03/21)

8.　Prof Betty LIN briefed members on the following key program features:

(a)　Since its inception in 2003, T&M DDP had been attracting very good students.

(b)　The proposal to include BBA in Economics, Finance, Marketing and Management was to cater for students' request for more BBA Major choices and considering that such dual degree programs (e.g., HKU's Global Engineering and Business Program with 8 options of an accelerated Engineering degree plus 5 options of business Majors) managed to attract good high school applicants.

(c)　The newly proposed options could provide more focused training to students that would be beneficial to their career development.

(d)　SENG had been very supportive of the proposal. In fact, the Aerospace Engineering and Industrial Engineering and Engineering Management would be the next in the pipeline for submitting their proposal to CUS for consideration.

(e)　Credit loading for the newly added BBA Majors, ranging from 20 to 25, would be less demanding as compared to GBM (29 credits), and

(f)　It was projected that Finance would be very popular, the quota for which would be 15, and 5 each for Economics, Marketing and Management while the quota for GBM would remain unchanged.

9.　Members' observations and comments are summarized as follows:

(a)　GBM students could take any electives courses from the SBM departments; while students from the other BBA Majors would be required to take specific courses related to their Major. Students from GBM Majors might not have priority to some popular SBM courses as their counterparts in other BBA Major did.

(b)　In response to the enquiry about whether the GBM Major would be

absorbed into the other four Majors, it would all depend on students' interest. As some students might not want to specialize in any SBM business Major.

(c) The quota for T&M DDP students was additional ones. BBA students would not be disadvantaged.

(d) If students had taken all the required courses to fulfil the degree requirement, students could self-declare the Major concerned.

(e) Students would be required to fulfil the English requirements for each School; and it was noted that there might be some overlapping. However, Schools concerned preferred to maintain the existing English requirements for different reasons (e.g., for accreditation purposes). CLE considered that it would be meaningful to consolidate the English courses and was rethinking about the matter and would discuss with the Schools accordingly.

10. Members resolved to approve the Dual Degree Program in Technology and Management: 11 BEng/BSc Programs with Four More BBA Programs.

Final Proposal for the Revised Framework of the Undergraduate Common Core Program (CUS 04/21)

11. Prof Anirban MUKHOPADHYAY briefed Members on how the final proposal for the revised Framework addressed comments from CUS/Senate:

(a) CUCE would remain responsible for overseeing the Common Core Program. The Provost Office had been requested to provide the needed support and resources;

(b) The current practice of allowing students to take complete the Chinese Communication requirement even after Year 1 would be continued;

(c) The course design for the Behavioral Foundations of University Education: Habits, Mindsets, and Wellness would take into account students who might have special needs;

(d) Different UxOP components would be piloted in advance of Fall 2024;

(e) Mechanisms would be devised and implemented using clear and consistent rubrics integrated into the scaffolding structure;

(f) Double counting of credits would be allowed for Minor programs;

(g) "Creative and Computational Arts (A)" under the Broadening group would be named as "Arts" for simplicity purpose;

(h) Due consideration was given to the suggestion of implementing the revamp in a phased manner, and it was concluded that it would not be feasible;

(i) Analysis of the current course offerings suggested that further sub-dividing the "Social Analysis" section area by School would not serve the broadening objective and therefore was not incorporated;

(j) Due to the complexity of the program change, Senate had given approval that the course proposals for the required courses be submitted later using a revised course proposal form; and

(k) Subject to Senate's approval for the revised Framework, a Working Group on Review of the Common Core Program which oversees advises and makes recommendation on the implementation of the revised Framework would be formed. It would comprise representatives who have the expertise/experience in setting up support systems.

[Post meeting notes: It was subsequently clarified that CUS could appoint a Working Group at its discretion and Senate's approval would not be required. The new Working Group on Review of the Common Core Program which ~~oversees~~ advises the implementation of the revised Framework ~~would therefore be~~ had been formed by CUS and placed under CUCE on 10 February 2021.]

12. Members' observations and comments are summarized as follows:
    (a) The ~~Working Group would work out the~~ transition arrangements to take care of two cohorts of students taking courses from the current Common Core Framework and the revised one would be worked out in the short future. Prof Tim WOO gave a brief account on the general demand on common core courses for the two cohorts ~~had already worked out a process flow chart projecting the number of students and courses needed~~ by year as a reference. The Working Group, comprising School representatives, ~~in consultation with the~~ would consolidate feedback from Schools ~~would work out~~ on the details and recommend to CUCE for consideration and implementation accordingly;
    (b) It was confirmed that the moving from the foundations level to the broadening level would require the completion of all the foundation level required courses except for the Chinese Communication course; Moving from the broadening level to the experiencing level would be slightly flexible, subject to the general scaffolding structure and the requirements of the individual UxOP; and
    (c) Given the loading of the foundation level courses, there was concern that students might have insufficient exposure to the different areas before choosing their Major. ~~The Working Group~~ CUCE was aware of the matter and would look into it~~; and~~
    (d) ~~The Working Group, in consultation with Schools, would work out the details regarding the transition of school sponsored courses to foundation courses~~.

13. Members resolved to endorse the proposal for onward submission to the Senate for approval.

Major Program Changes for Bachelor of Science in Integrative Systems and Design (CUS 05/21)

14. Prof Chi Ming CHAN gave a presentation on the proposed changes to the program as follows:
    (a) The Division of Integrative System and Design was formed in 2018. Changes made to the program seemed frequent as the Division had been trying to enhance the program after acquiring better understanding of the curriculum and students' needs.
    (b) Under the current curriculum, students had to take 12 credits of Math, Science and Engineering courses in Year 1. Students would then proceed to take the 2nd to 4th year projects, which accounted for 23 credits.
    (c) The program would like to equip students with strong design and technical fundamental skills, which were considered essential for the 2nd to 4th year projects. As technical fundamental skills were missing from the current curriculum, 3 courses amounting to 10 credits were proposed to be added. To maintain the 120-credit requirement for graduation, the credits for

Product Management and Entrepreneurship electives and Project-related electives would be reduced accordingly. Further adjustment included adding a Design elective and converting a level 3 Design elective to a level 2 fundamental course.

15. Members' observations and comments are summarized as follows:

(a) The proposed changes, though reasonable with an internally consistent logic, resulted in more heavily engineering-focused curriculum. The initial design of the program was to combine design and engineering, with an aim to focus on design thinking with technology being one component and a tool used in design thinking process, which was quite broad. There had been expectations that the program should be more interdisciplinary.

(b) Concern was raised in previous CUS/Senate meetings that the ISDN program might have shifted too much towards the engineering side, and hence deviated from the original design of the program which was design thinking and entrepreneurship. Members anticipated that the proposed changes might raise a similar issue at the Senate again.

(c) It was noted that the design fundamentals and electives, account for 18 and 3 credits, respectively, totaling 21 credits of the program; and the engineering fundaments accounted for 10 credits only. Under the Project-relative electives (15 credits), students could take electives from other Schools (e.g., SBM). However, it was felt that electives were not critical in determining the nature of a program;

(d) ISDN was invited to: ISDN

    i. review the title and the content of the courses so that they could better integrate into the design thinking framework. For instance, re-title those courses which sounded like hard-core engineering courses, revisit the content of the newly proposed courses to emphasize practical aspects and applications, and how they would be implemented in an experiential learning and project-based style consistent with the program's stated all-experiential learning approach. The review should ensure that courses ISDN students took should have more of the design thinking rather than the engineering flavor;

    ii. take the opportunity to address the issue that students in Hong Kong might not have a good understanding about integrative system and design, as reflected in the drop in the admission rate; and

    iii. ensure that if having the curriculum moved towards more engineering-focused was considered beneficial to make the program stronger, such direction should be in line with the senior management's expectation.

16. In view of the need to review the program in a number of aspects, some of the ISD new course/course change proposals submitted for approval by the CUS (under CUS 06/21) would be put on hold as further changes might be required. The CUS Secretariat would liaise with SENG to identify the courses in question.   CUS Secretariat

[Post meeting notes:
Confirmed with SENG/ISD that except for ISDN 4330, all the following new course/ course change proposals concerning the program change of BSc ISDN would be put on hold as follows:
- *PHYS 1001 - removal from the curriculum (CUS 05/21);*

- *ISDN 2601, ISDN 2602, and ISDN 3601- new course proposals (CUS 06/21);*
- *ISDN 3200 - major course change/credit change (CUS 06/21); and*
- *ISDN 2300 - minor course change (CUS 07/21).]*

New Course and Major Course Changes (CUS 06/21)

17. No request for un-starring of the agenda items were received. With an understanding that all proposals were fully examined by the CUS Secretariat, the Committee approved all course proposals without further deliberation at the meeting, except those related to the BSc ISDN program change proposal which were being put on hold (see post-meeting notes under para. 16).

Items for Information

18. The following paper would be available for information to Members upon request:
(a) Minor Changes to Courses and Programs (CUS 07/21)

Potential Graduates by Fall 2020-21 (CUS 08/21)

19. Detailed minutes related to this reserved item are given in the Attachment to the minutes.

Date of Next Meeting: Wednesday, 17 March 2021 at 9:30am

20. There being no other business, the meeting was adjourned at 11:35am.

Matters Arising from the Minutes of the Meeting
Held on 13 January 2021

1. **Minutes Paras. 11 to 13: Final Proposal for the Revised Undergraduate Common Core Program (CUS 04/21)**

    The final proposal was submitted to the Senate for consideration at its 153rd Senate meeting on 3 February 2021. The proposal was approved and formal documentation of Senate's resolution is awaited.

Matters Arising from the Minutes of the Meeting
Held on 11 November 2020

2. **Minutes Paras. 4 to 6: Final Proposal for the New Undergraduate Minor Program in Music and Creative Arts (CUS 46/20)**

    The final proposal was submitted to the Senate for consideration at its 153rd Senate meeting on 3 February 2021. The proposal was not approved and formal documentation of Senate's resolution is awaited.

3. **Minutes Paras. 11 to 13: Major Program Changes to the BBA Program in Operations Management (CUS 48/20)**

    Senate resolution extracted from the confirmed minutes of the 152nd Senate meeting: "The Department of Information Systems, Business Statistics and Operations Management proposed to offer an additional Supply Chain Management Option, under the BBA Program in Operations Management, in view of strong demand in the market for related skills and students' interest in logistics and supply chain management courses as indicated in a recent survey conducted by the Department. Members supported the proposed addition of an option and agreed that the new option might help enhancing students' employability.

    The proposed offering of the new option under the BBA Program in Operations Management, which will be launched from the Spring term 2020-21 and be applicable to the student cohort of 2017-18 intake and thereafter, was <u>moved</u>, <u>seconded</u> and <u>carried</u>."

4. **Minutes Paras. 14 to 17: Final Proposal for the General Framework of Extended Major and the Extended Major Program in Artificial Intelligence (CUS 49/20)**

    Senate resolution extracted from the confirmed minutes of the 152nd Senate meeting: "Following Senate's initial approval of the general framework of "Major+X", i.e. "Science (Group A) + Artificial Intelligence (AI)" and "Engineering + AI" at the last meeting in October 2020, the final proposal for the proposed framework of "Extended Major", which had incorporated details on program learning outcomes benchmarking, student demand and curriculum of the framework, was presented to

the Senate. In view of the possibility of introducing more major programs and increasing number of emerging areas "X", proposals for addition / deletion of the major programs and the emerging area "X", as well as changes of curriculum of the emerging area "X" under the framework would be expected in future. With the Senate's consent, the review and approval of all these proposals would be delegated to CUS hereafter. The President reminded Members that the proposed framework might entail manpower issue that needs to be dealt with by the individual School / IPO.

The general framework of Extended Major and the Extended Major Program in AI, with effect from Fall term 2021-22, was <u>moved</u>, <u>seconded</u> and <u>carried</u>."

5. **Minutes Paras. 19 to 23: Initial Proposal for the Revised Undergraduate Common Core Program (CUS 52/20)**

Senate resolution extracted from the confirmed minutes of the 152nd Senate meeting: "Members expressed their views on the merit of having a more simplified proposal as well as a more flexible implementation plan to allow possible changes by phases. Professor Mukhopadhyay thanked Members' comments and sought Senate's consent to submit the revised Common Core framework to Senate in February 2021, while leaving the new course proposals under the framework, which might require further preparation and consultation work, to be submitted to Senate at its subsequent meetings. The Senate appreciated the time needed for new course development and agreed to this arrangement. Also, CUS would appoint a Working Group to work out the implementation details if needed. In concluding the discussion, the President thanked Members' active participation and opinions expressed on this subject, and asked CUS, via the Steering Committee, to refine the proposal by taking into consideration comments of Senate Members."

Matters Arising from the Minutes of the Meeting
Held on 16 September 2020

6. **Minutes Para. 18: Minor Program Changes (CUS 40/20)**

Subsequent to the meeting, and SHSS requested the following, respectively:
(a) SSCI updated the changes to BSc Ocean Science and Technology - the effective cohort for replacing *OCES 2011 A Practicum on Wetland Conservation* with *LIFS 2011 A Practicum on Wetland Conservation* under Ocean Science and Technology Electives be revised as 2019-20 onwards; and
(b) SHSS updated the changes to BSc Global China Studies – changes to track requirements should apply to 2017-18 intake and beyond; and the change to Thematic Area Electives under Social Science Track should take effect from 2018/19 intake and beyond.

COMMITTEE ON UNDERGRADUATE STUDIES

Paper for: Discussion/Decision

Title: **Final Proposal of New Bachelor of Science Program in Sustainable and Green Finance**

Purpose: The School of Business and Management and Interdisciplinary Programs Office submit the final proposal of introducing the new BSc Program in Sustainable and Green Finance for implementation with effect from Fall 2022-23 for consideration by CUS

Submitted by: School of Business and Management and Interdisciplinary Programs Office

Prepared by: CUS Secretariat

BACKGROUND

1.   At the 167th meeting held on 13 January 2021, the CUS discussed the initial plan for the new BSc Program in Sustainable and Green Finance. Comments and issues raised by CUS were subsequently conveyed to the School of Business and Management (SBM) and Interdisciplinary Programs Office (IPO) by the Secretariat (Appendix 1). SBM and IPO were required to address the issues and concerns, and provide responses in the final program proposal.

FINAL PROPOSAL

2.   The final proposal (Appendix 2) has addressed the suggestions given by CUS. The key areas are listed below and details are available in Section (h) of Appendix 2.

    (a) The criteria for program-based admission and Major selection exercises have been set out;
    (b) New ENVR courses would be open as free electives for students from other Majors; and
    (c) Recommended study pathway (Attachment 3 of Appendix 2) has been worked out; and
    (d) SBM/IPO will work closely with URAO to enable students to have a better understanding of the program.

3.   Subject to approval by the Senate, the new BSc Program will be launched in Fall 2022-23.

ACTION SOUGHT

4.   CUS is invited to consider and recommend as appropriate to the Senate for approval the proposed new BSc Program in Sustainable and Green Finance as presented in Appendix 2 for introduction in Fall 2022-23.

From:	Senate Committee on Undergraduate Studies
To:	Kar Yan TAM; Huamin QU
Cc:	Anirban Mukhopadhyay; Andrew Brian HORNER; Jimmy C H FUNG; LUK Anne; Janet TANG
Subject:	Initial Proposal for the New Bachelor of Science Program in Sustainable and Green Finance
Date:	14 January 2021 17:45:06

To: Prof Ka Yan TAM, Dean of School of Business Management
       Prof Huamin QU, Director, Interdisciplinary Programs Office

From: CUS Secretariat (*for* Prof Anirban MUKHOPADHYAY, Secretary of CUS)

cc: Prof Andrew HORNER, Chair of CUS
       Prof Jimmy FUNG, Head, Division of Environment & Sustainability

Subject: Initial Proposal for the New Bachelor of Science Program in Sustainable and Green Finance

At its 167th meeting on 13 January 2021, the Committee on Undergraduate Studies (CUS) considered the Initial Proposal for the New Bachelor of Science Program in Sustainable and Green Finance (BSc SGFN) submitted by the School of Business Management (SBM) and Interdisciplinary Programs Office (IPO).

Members expressed broad general support for the initiative; and CUS would like to share with SBM and IPO its observations/comments below; and invite SBM and IPO to address them when presenting the proposal for final approval.

(a)   The program, likely to be the first of its kind in Hong Kong, aims to fill the huge gap in the market due to strong demand at the top level for green finance experts, as reflected by various stakeholders. Green finance would be a priority development for SBM. The proposed program would be a major key to make HKUST a centre of excellence in green finance;

(b)   Members' concern about whether students from Schools other than SBM could join the program was heard. Members were assured that the program aims to recruit the best students, and there was no intention of barring any students from joining the program. A detailed pathway and Major admissions criteria to be worked out by SBM/IPO would provide a clearer picture on the feasibility of admitting students from outside SBM/ENVR;

(c)   The new ENVR courses would be open to students from other Majors as free electives;

(d)   SBM/IPO had had a long discussion about the program title. Having taken into account the common usage in the community (e.g., Hong Kong Exchange's Sustainable & Green Exchange, Green and Sustainable Banking as used by the Hong Kong Monetary Authority), "Sustainable and Green Finance" was adopted as the title for the program. The title would be confirmed after collecting further opinion from external experts;

(e)   There was plan to include the initiative in the Planning Exercise Proposal. An initial discussion of the proposal at CUS would be meaningful.

(f)   SBM/IPO to coordinate with URAO so that potential students could have a better understanding about the program.

It is hoped that the comments will help your preparation of the final proposal. CUS looks forward to receiving the final proposal from the SBM and IPO. Please note that the final proposal should come with new course proposals for all the planned new required courses

for the curriculum.

Should further details/clarification be needed, please contact Ms Anne LUK (ext. 6009) or Ms Janet TANG (ext. 5735) of the Secretariat.

THE HONG KONG UNIVERSITY OF SCIENCE AND TECHNOLOGY
Approval of New Undergraduate Program

Intial Proposal ☐   Final Proposal ☑

Section 1: General Information

a)   The program is a :   Major ⦿   Minor ◯   Other ◯

b)   Title: (in English)   Bachelor of Science in Sustainable and Green Finance

       (in Chinese)   理學士 (可持續發展及綠色金融)

c)   School/IPO proposing this program: School of Business and Management

                                                                      Interdisciplinary Programs Office

d)   Offering Department(s):   School of Business and Management

                                                    Division of Environment & Sustainability

e)   Expected term for the launch of the program::   Fall 2022-23

Section 2: Submission and Recommendation

Proposal Submission and Recommendation

Offering Department/Program Unit	Position	Name	Date
School of Business and Management	Associate Dean	Prof Allen HUANG	19-Feb-21
Division of Environment & Sustainability	Head of Dept	Prof Alexis LAU	19-Feb-21

Recommending School/IPO	Position	Name	Date
School of Business and Management	Associate Dean	Prof Allen HUANG	19-Feb-21
Interdisciplinary Programs Office	Chair of IUSC	Prof Jimmy FUNG	19-Feb-21

Concurrence

School/Dept/Program Unit	Position	Name	Date

THE HONG KONG UNIVERSITY OF SCIENCE AND TECHNOLOGY
APPROVAL OF NEW UNDERGRADUATE PROGRAM

a) **Educational Objectives and Alignment of Objectives with Role and Mission**

Sustainable and Green Finance is an emerging discipline that aims to increase the level of financial flows from the public, private and not-for-profit sectors to sustainability development priorities at the national and global levels. The consent among signing nations of the landmark U.N. Paris Agreement in 2015 is to strengthen the global response to the threat of climate change by keeping a global temperature rise this century well below 2 degrees Celsius above pre-industrial levels. Mainland China is a strong advocate of the Agreement and aims to achieve zero carbon emission by 2060. Hong Kong also sets its carbon neutrality target in 2050. This collective effort among nations with clear milestones and targets under the Paris Agreement or their own national agendas will create tremendous opportunities for professionals who can lead and integrate Environmental, Social and Governance (ESG) strategies into finance and investments.

According to a recent report of Boston Consulting Group, China will have to invest up to HK$118 trillion over the next three decades in technologies and infrastructure to achieve the said target. These investment opportunities will create a huge demand for professionals who are knowledgeable of finance, sustainability, climate change, and related technological solutions. There is a huge gap between the supply and demand for talent in Sustainable and Green Finance worldwide. Currently, there is no undergraduate program in Hong Kong that focuses on green finance while universities in Europe and the US have started to launch programs in recent years. In response to this surging demand, the School of Business and Management (SBM) is collaborating with the Division of Environment and Sustainability (ENVR) to offer a 4-year Bachelor of Science program in Sustainable and Green Finance. With a strong Environment Division and a reputable Business School, HKUST is in a unique position to develop a new program to fill the talent gap and help develop Hong Kong into a leading international green finance center.

The proposed program will equip students with the essential knowledge and skills in Sustainable and Green Finance. It intends to nurture students to be effective leaders and managers in ESG, impact investment, financing of sustainable and green projects, development of sustainable and green instruments and products, and other related fields. Students are required to complete a selected set of courses from SBM, ENVR, and other academic units to fulfill the degree requirements. The curriculum will embrace a wide range of topics related to Sustainable and Green Finance. The courses will span multiple disciplines, including climate and ESG, finance and risk management, statistics and programming, big data, operations management, public policy, among others.

The proposed program aligns strongly with HKUST's vision and mission. In particular, the interdisciplinary nature of the program will provide students with a broad-based learning experience that cuts across business as well as environment, science, and technology. Its holistic curriculum will equip students with a solid foundation of knowledge and skills to function effectively in related fields, enhance students' creativity and critical thinking skills, and provide students with a global outlook on the development of Sustainable and Green Finance. The graduates of this program will be in good demand, and they will contribute to the economic and social development of Hong Kong, the Greater Bay Area, and beyond.

This program will include a total of 118-119 credits, including:

- University Common Core (Revamped): 30 credits
- Business and Finance Required Courses: 24 credits
- Environment and Sustainability Required Courses: 24 credits
- Other Required Courses: 22-23 credits
- Finance and Sustainability Electives: 18 credits

For details, please refer to Attachment 1: Curriculum Requirements.

b)	**Student Demand and Demand for Graduates**

To moderate the adverse impacts of climate changes is a shared priority of developed and developing nations. The goal to "green the brown" will create tremendous opportunities in new energy technologies, development of financial markets such as carbon pricing and trading to facilitate the replacement of fossil energy, digitization of infrastructure of transportation to save energy consumption, the market for green bonds and other instruments to fund sustainability projects. Hong Kong, as an international financial center, can play an important role in this development that will span decades.

In the Chief Executive's Policy Address 2020, Mrs. Carrie Lam said, "We will develop green finance to boost investments conducive to reduce carbon emissions, build a low-carbon economy which is more resilient to climate change, and enhance public education and publicity. I cordially invite all sectors to work together to promote low-carbon transformation in Hong Kong in a bid to strive towards the goal of carbon neutrality by 2050." (https://www.policyaddress.gov.hk/2020/eng/policy.html). Subsequent to the announcement of the Policy Address, Professor Arthur Li, Chairman of the Council for Sustainable Development (SDC), expressed that "It is a challenge for Hong Kong to strive to achieve carbon neutrality before 2050, which requires collaborative efforts across the government, businesses, non-profit sector, and individuals. Yet, at the same time, it offers new opportunities for the Hong Kong economy, intensifies the development of green enterprises, and creates jobs. Hong Kong, as an advanced international metropolis, should capitalise on its well-developed infrastructure, enable its talents to realise their

potential, and promote local research and development. We should seize this opportunity and work together so that Hong Kong can strive to achieve carbon neutrality before 2050." (https://www.info.gov.hk/gia/general/202011/25/P2020112500723p.htm)

There is a great demand for talent in Sustainable and Green Finance. However, there is a worldwide shortage of talent in Sustainable and Green Finance. A report produced by Macquarie Infrastructure and Real Assets of Macquarie Group Limited in January 2020 points out that although more than 90 percent of real asset investors expect to increase their focus on sustainability over the next five years, there is an absence of in-house ESG expertise, especially in the US and Asia. (https://www.macquarie.com/hk/en/about/news/2020/focus-on-esg-intensifies-as-real-asset-investors-seek-returns-reveals-new-macquarie-infrastructure-and-real-assets-report.html) The shortage of talent pool is also found in Europe. Natalie Basiratpour, a director at recruitment firm Octavius Finance in London, was interviewed by eFinancialCareers and said, "there's a tendency for funds to hire people with ESG experience from not for profits and elsewhere and to sit them alongside people with existing investing talent, with the intention that ESG experts will influence the outcomes." (https://news.efinancialcareers.com/uk-en/3004891/esg-jobs-and-pay-finance)

Talent is the key to develop Hong Kong into a green finance center and to prepare for the carbon neutrality challenge. There is no degree program in Sustainable and Green Finance in Hong Kong as of today. While there exist local degree programs in either finance or environment, but they tend to focus on silo traditional disciplines with little integration between finance and environment, which is the essence of this emerging discipline. From all indications we received from the government, regulators, and industry, there is already a huge demand for professionals in Sustainable and Green Finance, and the talent gap will only be widened in the future.

| c) | **Arrangements for Admission and Selection (if relevant)** |

A hybrid admission model will be adopted for this program. For an initial class size of 30, 18 will be directly recruited and admitted from secondary schools, and 12 will be admitted through the major selection exercise from SBM at the end of year 1. This hybrid model allows some students with dual interests across two distinct disciplines to follow a coordinated and integrated curriculum so they can adapt their study earlier to pursue their interests. At the same time, it preserves the opportunity for those who have not decided their interest in admission to HKUST but who later find that they are interested in studying Sustainable and Green Finance.

For admission requirements, we will combine the current requirements of SBM and ENVR for the new program. For HKDSE, the proposed minimum requirements are 433233 (for English, Chinese, Mathematics, Liberal Studies, and two other electives), with a weighting of 2 for English and Mathematics

and 1.5 for the best elective score from Chemistry/Economics/Physics/M1/M2. Interviews may be conducted as part of the selection.

For students admitted to the joint program who wish to exit the major, they can transfer to SBM or ENVR (as an undeclared major for SBM) after the first term (application deadline is in the Winter term before Spring term starts) so that the students can enroll in the relevant courses in the School that they wish to opt-in.   This will ensure that the students will still be able to follow the new curriculum without further delay and will be able to graduate in time.   After this opt-out deadline, students may still transfer to SBM or ENVR through program transfer.

| d) | **Estimated Student Enrollment (for majors/minors)** |

The initial intake in 2022-23 will be 30 students.

| e) | **Consultation with Stakeholders** |

SBM has consulted its School Advisory Council at its meeting held on 8 October 2020. The Council consists of local and international business leaders from various professional industries. Strong support has been obtained from the Council on the School's strategic development on Sustainable and Green Finance.

We have also interviewed the following stakeholders to solicit their views on the degree program in Sustainable and Green Finance and the demand for talent in Hong Kong:

Title and Institution	Name
Secretary of Financial Services and Treasury Bureau	Christopher Hui
Former Undersecretary of Environment	Christine Loh
Chief Executive of Hong Kong Monetary Authority	Eddie Yue
Deputy Executive of Hong Kong Monetary Authority	Arthur Yuen
Senior Director, Head of International Affairs & Sustainable Finance Securities and Futures Commission	Christine Kung
Head of Banking Policy, Hong Kong Monetary Authority	Daryl Ho
Managing Director, Head of Green and Sustainable Finance, Markets Division, Hong Kong Exchanges and Clearing Limited	Grace Hui
Chairman, World Green Organization (Hong Kong)	Albert Yip
President, EFMD	Eric Cornuel

Their comments and advice are very consistent that such a degree program will increase the talent pool and capacity of Hong Kong in the area of Sustainable and Green Finance. On Nov 19, 2020, we invited Daryl Ho (Head of Banking Policy of HKMA) to brief our faculty on the issues and priorities of HKMA on climate and Green Finance so that colleagues in planning the curriculum have first-hand information on the development of the industry and its trajectory.

To make our Sustainable and Green Finance Program stay relevant and meet the changing needs of the industry, we are in the process of establishing the Advisory Committee on the Program with a view to

provide advice on its curriculum enhancement. The Advisory Committee consists of senior executives of highly respected firms and international corporations, as well as our alumni from the related field. The term for serving on the Committee is 2 years.

f)	Benchmarking

We have conducted a benchmarking study and found no degree program in Sustainable and Green Finance offered by UGC institutions at this point. We have also reviewed overseas programs in related areas. Please refer to a separate table in Attachment 2 for benchmarking the University of Leeds, the University of Reading, the University of Warwick, our existing Quantitative Finance major and our existing Environment Management and Technology major, and the proposed program.

g)	Resources

Some courses in the program are existing courses offered by SBM and ENVR. Additional resources will be needed to develop new interdisciplinary courses, to identify suitable capstone projects and advisors for the students, and to support program administration (e.g., recruitment and admission, student advising). Particularly, 2 to 3 new faculty in this area will be needed for all these new courses.

h)	Responses to Issues and Questions Raised by the CUS on the Initial Proposal

Responses to comments raised by CUS at its 167th meeting on January 13, 2021.

1) **Comment:** The program, likely to be the first of its kind in Hong Kong, aims to fill the huge gap in the market due to strong demand at the top level for green finance experts, as reflected by various stakeholders. Green finance would be a priority development for SBM. The proposed program would be a major key to make HKUST a centre of excellence in green finance.

   Response: Yes, we hope to help develop Hong Kong into a leading international green finance center.

2) **Comment:** Members' concern about whether students from Schools other than SBM could join the program was heard. Members were assured that the program aims to recruit the best students, and there was no intention of barring any students from joining the program. A detailed pathway and Major admissions criteria to be worked out by SBM/IPO would provide a clearer picture on the feasibility of admitting students from outside SBM/ENVR.

   Response: A recommended study pathway has been prepared (Attachment 3 Recommended Study Pathway). Program-based admitted students are required to take introductory courses such as Business Statistics, Fundamental of Business Finance, Coding and Business Analytics, Introduction to Sustainability, etc, in Year 1.

   As for major selection criteria, the following tentative requirements are proposed:

   - Minimum Requirements: CGA 3.0 or above; B- or above in MATH1003 or equivalent; C+ or above in LANG 1002 & 1003
   - Ranking Criteria: Holistic assessment based on CGA, selected course performance, CV profile, personal statement, and interview performance

3) **Comment:** The new ENVR courses would be open to students from other Majors as free electives.

   Response: No problem with this.

4) **Comment:** SBM/IPO had had a long discussion about the program title. Having taken into account the common usage in the community (e.g., Hong Kong Exchange's Sustainable & Green Exchange, Green and Sustainable Banking as used by the Hong Kong Monetary Authority), "Sustainable and Green Finance" was adopted as the title for the program. The title would be confirmed after collecting further opinions from external experts.

   Response: We shall keep "Sustainable and Green Finance" as the program title.

5) **Comment:** There was plan to include the initiative in the Planning Exercise Proposal. An initial discussion of the proposal at CUS would be meaningful.

   Response: Noted.

6) **Comment:** SBM/IPO to coordinate with URAO so that potential students could have a better understanding about the program.

   Response: We shall work with URAO accordingly.

7) **Comment:** It is hoped that the comments will help your preparation of the final proposal. CUS looks forward to receiving the final proposal from the SBM and IPO. Please note that the final proposal should come with new course proposals for all the planned new required courses for the curriculum.

   Response: New course proposals for most of the courses are enclosed (Attachment 4 BSc SGFN New Course Proposals).   The exception is FINA 4733 Green Finance Case Analyses, which will be targeted for submission in Fall 2024 or Fall 2025 at the latest.

| i) | **Intended Learning Outcomes** |

Graduates from the program are expected to:

1. have a broad understanding of sustainable and green business functions and integrate these functions to adopt an inter-disciplinary approach and formulate effective and innovative solutions to tackle complex real-world problems.
2. have in-depth grasp of Sustainable and Green Finance knowledge and skills, and transfer acquired knowledge and skills to meet changes and challenges in different fields.
3. engage in activities that lead to impact of societal improvement
4. make effective ESG finance decisions supported by analytical and quantitative techniques.
5. have the ability to create and innovate with divergent thinking.
6. communicate effectively with people of different levels and work areas.
7. work independently, collaborate effectively in teams, and lead a team to success.
8. demonstrate a global outlook and function effectively in multi-cultural and international settings.
9. effectively use information technology and sources of information in work applications.
10. understand professional and ethical responsibility, and recognize the importance of a sustainable and green living society.

| j) | **Program Management** |

Both SBM and ENVR are fully committed to the program. SBM and ENVR will each appoint a faculty member as a Co-Director to jointly manage the program. An Executive Committee will be formed consisting of the two Co-Directors and administrative representatives from SBM and ENVR (Heads and/or

Associate Deans) as members. The Committee will meet at least quarterly or more often as needed to discuss strategic and administrative matters and to ensure the program's smooth operation. Administratively, the program will be housed under SBM. The proposed program management arrangements will be reviewed after 2 years or earlier if major issues come up.

k)	**Transitional Arrangement**

N/A

Bachelor of Science in Sustainable and Green Finance

Curriculum Requirements

This program will include a total of 118-119 credits, including:
• University Common Core (Revamped): 30 credits
• Business and Finance Required Courses: 24 credits
• Environment and Sustainability Required Courses: 24 credits
• Other Required Courses: 22-23 credits
• Sustainable and Green Finance Electives: 18 credits

School of Business and Management - BSc in Sustainable and Green Finance

(For students admitted in 2022-23 under the 4-year degree)

BSc in Sustainable and Green Finance

Students taking the BSc Program in Sustainable and Green Finance as their first major are exempted from the School Requirements. However, they are still required to complete the University requirements in addition to the major requirements for graduation. For details please refer to the respective sections on this website.

Students may use no more than 6 credits earned from courses offered in pure online delivery mode to satisfy the graduation requirements of a degree program. This 6-credit limit does not apply to credits obtained through the credit transfer procedures of the University.

For students graduating with an additional major, they must take all the requirements specified for that major, within which they must complete at least 20 single-counted credits. These 20 credits cannot be used to fulfill any other requirements for graduation except for the 120-credit degree requirement.

Major Requirements

Required Course(s)

				Credit(s) attained
FINA/ ISOM/ MGMT			Business and Finance Required Courses (Courses from the specified list)	24
FINA		3103	Intermediate Investments	3
FINA		3203	Derivative Securities	3
FINA		3810	Bloomberg Market Concepts Certification	0
FINA		4303	Fixed Income Securities	3
FINA		4703	ESG Investing	3

FINA	4513	Risk Management	3
FINA	4733	Green Finance Case Analyses (TBD)**	3
ISOM	3780	Sustainable Supply Chain Management **	3
MGMT	3170	Managing CSR (Corporate Social Responsibility)	3
ENVR/ SUST		Environment and Sustainability Required Courses (Courses from the specified list)	24
ENVR	2080	Circular Economy and Life Cycle Assessment **	3
ENVR	3110	Sustainable Development	3
ENVR	3310	Green Business Strategy	3
ENVR	3005	Environmental Sustainability Risks and Challenges**	3
ENVR	4320	ESG Management and Reporting	3
ENVR	4340	Social Sustainability Risks and Challenges**	3
ENVR	4350	Governing Green Finance: National and International Perspectives and Approaches**	3
SUST	1000	Introduction to Sustainability	3
FINA/ ISOM/ MGMT/ LABU/ MATH		Other Required Courses from the specified list (Students should take FINA 2203 OR FINA 2303; and take MATH 1003 OR MATH 1012 OR MATH 1013 OR MATH 1020 OR MATH 1023.)	22-23
SBMT	1111	Business Student Induction	0
FINA	2203	Fundamentals of Business Finance	3
FINA	2303	Financial Management	3
ISOM	2020	Coding for Business	1
ISOM	2500	Business Statistics	3
ISOM	2600	Introduction to Business Analytics	1
ISOM	2700	Operations Management	3
MGMT	2130	Business Ethics and Social Responsibility	2
LABU	2040	Business Case Analyses	3
LABU	2060	Effective Communication in Business	3
MATH	1003	Calculus and Linear Algebra	3
MATH	1012	Calculus IA	4
MATH	1013	Calculus IB	3
MATH	1020	Accelerated Calculus	4
MATH	1023	Honors Calculus I	3

Elective(s)

	Minimum Credit(s) attained
Sustainable and Green Finance Electives (Courses from the specified elective lists, of which at least 6 credits should be taken from each Area.)	18

Area A: Finance

FINA   Any FINA courses at 3000- or 4000-level.

Area B: Sustainability (at least 3 credits have to be above 3000-level)

ENVR	1070	Thinking Big: Systems Thinking for Environmental Problems	3
ENVR	1080	The Smart Consumer - Uncovering the Hidden Story behind the Product Label	3
ENVR	1170	Big History, Sustainability and Climate Change	3
ENVR	2010	Environmental Science Fundamentals	3
ENVR	3220	Energy Sources and Usage	3
ENVR	3420	Environmental Law and Regulations	3
ENVR	4480	Climate Modeling and Risk Assessment	3

**Remarks on course(s):
- FINA 4733: The course is a new course subject to approval.
- ISOM 3780: The course is a new course subject to approval.
- ENVR 2080: The course is a new course subject to approval.
- ENVR 3005: The course is a new course subject to approval.
- ENVR 4340: The course is a new course subject to approval.
- ENVR 4350: The course is a new course subject to approval.

Bachelor of Science in Sustainable and Green Finance
Benchmarking

Program Name	Proposed New Program: Bachelor of Science in Sustainable and Green Finance	HKUST: Bachelor of Science in Quantitative Finance (QFIN)	HKUST: Bachelor of Science in Environmental Management and Technology (EVMT)	University of Leeds: Bachelor of Arts in Environment and Business	University of Reading: Bachelor of Science in Finance (Sustainable Finance)	University of Warwick: Bachelor of Arts and Sciences in Global Sustainable Development and Business Studies
Program Objective	The proposed program will equip students with the essential knowledge and skills in Sustainable and green finance to fill the talent gap and help develop Hong Kong into a leading international green finance center.	Equip students with knowledge and skills to solve complex financial problems and be well prepared for professional qualifications. Graduates are typically employed by investment banks, commercial banks, hedge fund, asset management firms, brokerage firms, insurance companies, consulting firms, the Big Four auditors, private equity firms, government agencies as well as many other types of both small and large well-known corporations.	Equip students with a focus on solving complex environmental problems in the complex world to pursue a career in environmental management.	Combines the study of environmental and sustainability issues with sound business and management practice. Graduates will work in private companies, non-governmental organisations or the public sector in the areas of environmental consultancy and management, corporate social responsibility.	Develop the key skills and knowledge to meet the changes in financial world by gaining expertise in sustainable finance and business ethics. Studies will be underpinned by core modules on the essentials of business and finance, giving graduates a thorough understanding of the financial sector.	A holistic approach to exploring issues surrounding sustainability, including climate change, energy security, and wealth inequality. Graduates will have developed critical knowledge of sustainability, and the skills necessary to transfer this knowledge into the world of business.
Degree Type	Bachelor of Science in Sustainable and Green Finance	Bachelor of Science in Quantitative Finance	Bachelor of Science in Environmental Management and Technology	Bachelor of Arts in Environment and Business	Bachelor of Science in Finance (Sustainable Finance)	Bachelor of Arts and Sciences in Global Sustainable Development and Business Studies
Duration of Study	4 years	4 years	4 years	3 years (4 years with placement year)	3 years (4 years with placement year)	3 years (3 years with integrated study abroad programme) (4 years with study abroad or placement year)
Admission	Direct admission	Direct admission	Direct admission	Direct admission	Direct admission	Direct admission
Credit Requirements	120 credits	120 credits	120 credits	360 credits	Not stated on the website	360 credits
Programme Requirements	**University Common Core (Revamped) (30 credits)** **Major Requirements (70 credits)** *(i) Business and Finance Required Courses (24 credits)* • FINA3103 - Intermediate Investments (3 credits) • FINA3203 – Derivatives Securities (3 credits) • FINA3810 - Bloomberg Market Concepts Certification (0 credit) • FINA4303 - Fixed Income Securities (3 credits) • FINA4703 - ESG Investing (3 credits) • FINA4513 - Risk Management (3 credits) • FINA4733 - Green Finance Case Analyses (TBD) (3 credits) • ISOM3780 - Sustainable Supply Chain Management (3 credits) • MGMT3170 - Managing CSR (Corporate Social Responsibility) (3 credits)	**University Common Core (36 credits)** **School Requirements (33-34 credits)** • FINA2303 - Financial Management (3 credits) • ACCT2010 - Principles of Accounting I (3 credits) • ECON2103/2113 - Principles of Microeconomics/Microeconomics (3 credits) • ECON2123/3123 - Macroeconomics/ Macroeconomic Theory I (3 credits) • ISOM2010 - Introduction to Information Systems (3 credits) • ISOM2020 - Coding for Business (1 credit) • ISOM2500 - Business Statistics (3 credits) • ISOM2600 - Introduction to Business Analytics (1 credit) • MGMT2010 - Business Ethics and the Individual (2 credits) • MGMT2130 - Business Ethics and Social Responsibility (2 credits)	**University Common Core (36 credits)** **Fundamental Courses (10 -11 credits)** • COMP 1021/1022P/ISOM 2010 - Introduction to Computer Science/ Introduction to Computing with Java/ Introduction to Information Systems (3 credits) • LANG2082 - Communication for Environmental Management and Technology I (2 credits) • LANG2083 - Communication for Environmental Management and Technology II (2 credits) • MATH1003/1012/1013/1020/1023 - Calculus and Linear Algebra/ Calculus IA/ Calculus IB/ Accelerated Calculus/ Honors Calculus I (3-4 credits) **Business Requirements (21 credits)** • ECON2103/2113 - Microeconomics (3 credits) • MGMT2110 - Organizational Behavior (3 credits)	**Year 1 (120 credits)** *Compulsory Modules* • Understanding Social Enterprises (10 credits) • Sustainable Development (20 credits) • Skills for Environmental Social Science (10 credits) • Introduction to Business, Environment and Corporate Responsibility (20 credits) • Environmental Science for Environmental Management (20 credits) *Optional Modules (Choose 20 to 40 credits)* • Foundation Mathematics for Social Sciences* (10 credits) *Students WITHOUT A-Level Maths or equivalent or AS Level Maths with a grade of A-C are required to study the course. Students who have completed A-Level Maths or	**Year 1 (120 credits)** *Compulsory Modules* • Introductory Securities and Markets (20 credits) • Introductory Finance/Trading Simulation I (20 credits) • Introductory Economics for Business and Finance (20 credits) • Introductory Quantitative Techniques for Business and Finance (20 credits) • Ethics in Investment Management (BSc) (20 credits) • Business in Practice: Accounting for Managers (20 credits) **Year 2 (Not stated the no. of credits)** *Compulsory Modules* • Corporate Finance (20 credits) • Portfolio Management (BSc) (20 credits) • Financial Modelling (20 credits)	**Year 1 (120 credits)** *GSD Modules (60 credits)* • Economic Principles of Global Sustainable Development (15 credits) • Environmental Principles of Global Sustainable Development (15 credits) • Social Principles of Global Sustainable Development (15 credits) • Core Global Sustainable Development Project module (15 credits) *Business Studies Modules (60 credits)* • Choice of optional first year modules offered by Warwick Business School **Year 2 (120 credits)** *GSD Modules (30 credits)* • Health and Sustainable Development (30 credits)

Program Name	Proposed New Program: Bachelor of Science in Sustainable and Green Finance	HKUST: Bachelor of Science in Quantitative Finance (QFIN)	HKUST: Bachelor of Science in Environmental Management and Technology (EVMT)	University of Leeds: Bachelor of Arts in Environment and Business	University of Reading: Bachelor of Science in Finance (Sustainable Finance)	University of Warwick: Bachelor of Arts and Sciences in Global Sustainable Development and Business Studies
	(ii) Environment and Sustainability Required Courses (24 credits) • SUST 1000 - Introduction to Sustainability (3 credits) • ENVR2080 - Circular Economy and Life Cycle Assessment (3 credits) • ENVR3110 - Sustainable Development (3 credits) • ENVR3310 - Green Business Strategy (3 credits) • ENVR3005 - Environmental Sustainability Risks and Challenges (3 credits) • ENVR4320 - ESG Management and Reporting (3 credits) • ENVR4340 - Social Sustainability Risks and Challenges (3 credits) • ENVR4350 – Governing Green Finance: National and International Perspectives and Approaches (3 credits) *Other Required Courses (22-23 credits)* • SBMT1111 Business Student Induction (0 credit) • FINA2203 or 2303 - Financial Management (3 credits) • ISOM2020 - Coding for Business (1 credit) • ISOM2500 - Business Statistics (3 credits) • ISOM2600 - Introduction to Business Analytics (1 credit) • ISOM2700 - Operations Management (3 credits) • LABU2040 - Business Case Analyses (3 credits) • LABU2060 - Effective Communication in Business (3 credits) • MATH 1003 or 1012 or 1013 or 1020 or 1023 Calculus (3-4 credits) • MGMT2130 - Business Ethics and Social Responsibility (2 credits) **Electives Requirements (18 credits)** *Area A: Finance* • Any FINA courses at 3000- or 4000-level *Area B: Sustainability*	• SBMT1111 - Business Student Induction (0 credit) • LABU2040 - Business Case Analyses (3 credits) • LABU2060 - Effective Communication in Business (3 credits) • MATH1003/1012/1013/1020/1023 - Calculus and Linear Algebra/ Calculus IA/ Calculus IB/ Accelerated Calculus/ Honors Calculus I (3-4 credits) **Major Requirements (41-45 credits)** • FINA2101 - Introduction to Finance (1 credit) • FINA3103 - Intermediate Investments (3 credits) • FINA3203 - Derivative Securities (3 credits) • FINA3303 - Intermediate Corporate Finance (3 credits) • FINA3810 - Bloomberg Market Concepts Certification (0 credits) • FINA4803 - Quantitative Trading (3 credits) • ECON3334 - Introduction to Econometrics (4 credits) • ISOM3230 - Business Applications Programming (3 credits) • MATH1014/1024 - Calculus (3 credits) • MATH2011/2023 - Multivariable Calculus (3 credits) • QFIN - Restricted Electives (18 credits)	• FINA2203 - Fundamentals of Business Finance (3 credits) • ISOM2500 - Business Statistics (3 credits) • ENVR 3310 - Green Business Strategy (3 credits) • ENVR3410 - Economics for Environment Policy and Management (3 credits) • ENVR4320 - ESG Management and Reporting (3 credits) **Environment Requirements (21 credits)** • ENVR1170 - Big History, Sustainability and Climate Change (3 credits) • ENVR2010 - Environmental Science Fundamentals (3 credits) • ENVR2030 - Material and Energy Balance for Environmental Management (3 credits) • ENVR3110 - Sustainable Development (3 credits) • ENVR3210 - Environmental Technology (3 credits) • ENVR3220 - Energy Sources and Usage (3 credits) • ENVR3420 - Environmental Law and Regulations (3 credits) **Professional Development Courses (11 credits)** • ENVR1001 - EVMT Orientation (0 credits) • ENVR2001 - Academic and Professional Development I (1 credit) • ENVR3001 - Academic and Professional Development II (1 credit) • ENVR4001 - Academic and Professional Development III (1 credit) • ENVR4980 - Environmental Management and Technology Capstone Project I (3 credits) • ENVR4990 - Environmental Management and Technology Capstone Project II (3 credits) • LANG3081 - Communication for Environmental Management and Technology III (2 credits) **Elective Courses (12 credits)**	equivalent or already have AS Level Maths Grade C or above must NOT enrol in the course. • An Introduction to Law: What is Law? (10 credits) • Introduction to Enterprise and Entrepreneurship (10 credits) • Introduction to Management (10 credits) • Introduction to Effective Decision Making (10 credits) • Organisational Behaviour (20 credits) • Natural Hazards (10 credits) • Ecology (10 credits) • Atmosphere (10 credits) • Environmental Politics and Policy (10 credits) *Discovery Modules (take up to 20 credits)* The opportunity to broaden the studies beyond the core discipline, as represented by the Discovery Themes, is integrated into many programmes of study within the available combinations of compulsory and optional modules. **Year 2 (120 credits)** *Compulsory Modules* • Managing Innovation in Business (10 credits) • Personal Development for Careers in the Environmental Sector (10 credits) • Tools and Techniques for Business, Environment and Corporate Responsibility (20 credits) • Research in the Environmental Social Sciences (30 credits) • Economics and Sustainability (10 credits) *Optional Modules (Choose 20 to 40 credits)* • International Law (20 credits) • Leadership in Business (10 credits) • Anthropology for Business (10 credits) • Principles of Marketing (10 credits) • Principles of Corporate Strategy (10 credits)	*Optional Modules* • Introductory Econometrics for Finance (20 credits) • Trends in Finance (20 credits) • FX and International Debt Markets (20 credits) *Work Placement* • Work Mini-Placement (0 credits) **Year 3 (Not stated the no. of credits)** *Compulsory Modules* • Management of Risk (20 credits) • Derivative Securities (20 credits) • New Directions in Business and Corporate Social Responsibility (20 credits) • Responsible Investment and Sustainability Reporting (20 credits) *Optional Modules* • Financial Engineering (20 credits) • Research Project (BSc) (20 credits) • Private Equity and Venture Capital (20 credits) • Finance and Occupational Pensions (20 credits) • Bonds and Money Markets (20 credits) • Fintech and Cryptocurrencies (20 credits)	• Security, Sovereignty and Sustainability in the Global Food System (30 credits) • Inequalities and Sustainable Development: Inclusion and Dignity for All (30 credits) *GSD Focus Module(s) (30 credits)* *Business Studies Modules (60 credits)* **Year 2 (Integrated year with Terms 2 and 3 spent abroad)** Term 1 (60 credits) *GSD module (15 credits)* • Health and Sustainable Development (15 credits) • Security, Sovereignty and Sustainability in the Global Food System (15 credits) • Inequalities and Sustainable Development: Inclusion and Dignity for ALL (15 credits) *GSD Focus Module (15 credits)* *Business Studies Modules (30 credits)* Term 2 & 3 (Spent abroad) **Final Year (120 credits)** *GSD Modules (30 credits)* *GSD Focus Module(s) (30 credits)* *Business Studies Modules (60 credits)*

Program Name	Proposed New Program: Bachelor of Science in Sustainable and Green Finance	HKUST: Bachelor of Science in Quantitative Finance (QFIN)	HKUST: Bachelor of Science in Environmental Management and Technology (EVMT)	University of Leeds: Bachelor of Arts in Environment and Business	University of Reading: Bachelor of Science in Finance (Sustainable Finance)	University of Warwick: Bachelor of Arts and Sciences in Global Sustainable Development and Business Studies
	• ENVR1070 - Thinking Big: Systems Thinking for Environmental Problems (3 credits) • ENVR1080 - The Smart Consumer - Uncovering the Hidden Story behind the Product Label (3 credits) • ENVR1170 - Big History, Sustainability and Climate Change (3 credits) • ENVR2010 - Environmental Science Fundamentals (3 credits) • ENVR3220 - Energy Sources and Usage (3 credits) • ENVR3420 - Environmental Law and Regulations (3 credits) • ENVR4480 - Climate Modeling and Risk Assessment (3 credits)			• Advanced Management Decision Making (10 credits) • Climate Change: Society and Human Dimensions (10 credits) • People, Sustainability, and the Environment (20 credits) • Environmental Impact Assessment (10 credits) • Environmental Policy and Governance (10 credits) • Managing Biodiversity (10 credits) • Transport, Energy and Environment (10 credits) *Discovery Modules (Take up to 20 credits)* **Year 3 (120 credits)** *Compulsory Modules* • International Business Management (20 credits) • Environmental Research Project (40 credits) • Business and Sustainable Development (10 credits) *Optional Modules (choose 30 to 50 credits)* • Geographers into Teaching: School Placements (20 credits) • Law and the Environment II: Governing the Environment (10 credits) • Environmental Law (20 credits) • Enterprise Consultancy (20 credits) • Current Issues in Decision Making (20 credits) • Managing Innovation and Technology (20 credits) • Environmental Risk: Science, Policy and Management (10 credits) • Sustainable Consumption (10 credits) • Strategic Energy Issues (10 credits) *Discovery modules (take up to 20 credits)*		
Website	N/A	http://www.bm.ust.hk/fina/programs/bsc-in-quantitative-finance/bsc-qf-overview	http://www.evmt.ust.hk/programs/undergraduate-program/bsc-in-evmt/program-introduction/	https://courses.leeds.ac.uk/a467/environment-and-business-ba	https://www.icmacentre.ac.uk/study/undergraduate/bsc-finance-sustainable-finance#modules	https://warwick.ac.uk/fac/arts/schoolforcross-facultystudies/gsd/prospectivestudents/undergraduate/jointhonours/gsdbusiness

Recommended Study Pathway

Bachelor of Science in Sustainable and Green Finance

University Common Core (Revamped)	30 credits
Business and Finance Required Courses	24 credits
Environment and Sustainability Required Courses	24 credits
Other Required Courses	22-23 credits
Finance and Sustainability Elective Courses	18 credits
	= 118-119 credits

Year 1 Fall			Year 1 Spring			Year 2 Fall			Year 2 Spring		
Course Code	Course Name	Credit	Course Code	Course Name	Credit	Course Code	Course Name	Credit	Course Code	Course Name	Credit
ISOM 2500	Business Statistics	3	FINA 2203	Fundamentals of Business Finance	3	LABU 2040	Business Case Analyses	3	LABU 2060	Effective Communication in Business	3
MATH 1003	Calculus and Linear Algebra	3	ISOM 2700	Operations Management	3	ENVR 3110	Sustainable Development	3	FINA 3103	Intermediate Investments	3
SBMT 1111	Business Student Induction	0	ISOM 2020	Coding for Business	1	ENVR 2080	Circular Economy and Life Cycle Assessment	3	FINA 3203	Derivative Securities	3
SUST 1000	Introduction to Sustainability	3	ISOM 2600	Introduction to Business Analytics	1	ISOM 3780	Sustainable Supply Chain Management	3	FINA 3810	Bloomberg Market Concepts Certification	0
Cognitive Foundations of University Education: Critical Thinki		3	Behavioral Foundations of University Education: Habits, Mindsets		3	Common Core Broadening 1		3	ENVR Elective		3
LANG1002		3	Chinese Communication		3				Common Core Broadening 2		3
			LANG1003		3						
		15			17			15			15

Year 3 Fall			Year 3 Spring			Year 4 Fall			Year 4 Spring		
Course Code	Course Name	Credit	Course Code	Course Name	Credit	Course Code	Course Name	Credit	Course Code	Course Name	Credit
FINA 4303	Fixed Income Securities	3	FINA 4513	Risk Management	3	FINA 4703	ESG Investing	3	FINA 4733	Green Finance Case Analyses (TBD)	3
MGMT 2130	Business Ethics and Social Responsibility	2	MGMT 3170	Managing CSR (Corporate Social Responsibility)	3	ENVR 4320	ESG Management and Reporting	3	ENVR 4350	Governing Green Finance: National and International Perspectives and Approaches	3
ENVR 3310	Green Business Strategy	3	ENVR 3005	Environmental Sustainability Risks and Challenges	3	ENVR 4340	Social Sustainability Risks and Challenges	3	FINA Elective (3000-level)		3
FINA Elective (3000-level)		3	ENVR Elective		3	FINA Elective (3000-level)		3	ENVR Elective (3000-level)		3
Common Core Broadening 3		3	Common Core Broadening 4		3	UxOP (UROP, UTOP, UPOP, UCOP)		3	Additional Credits for graduation (Min. 120)		3
		14			15			15			15

THE HONG KONG UNIVERSITY OF SCIENCE AND TECHNOLOGY

BSc in Sustainable and Green Finance
New Courses

FINA 4513 Risk Management	3 credits

Description

This course covers the role of risk management in supporting companies as they strive to balance the internal and external risk factors surrounding the operation of their business model against their various stakeholder obligations. Topics include a review of basic hedging strategies (knowledge of futures and options is pre-requisite), the theory and evidence on the value of corporate risk management, review of the major surveys of risk management practices, business-case studies highlighting advanced derivatives and risk-management strategies, an illustrative model of integrated enterprise risk-management (featuring Monte-Carlo simulation), and student-led risk-management audits.

FINA 4703 ESG Investing	3 credits

Description

This course focuses on the relevance of sustainability factors on financial performance of firms and securities. Topics in this course include the market terminology, practices, usages and impact of environmental, social and governance (ESG) factors and climate risk. Students will learn to analyze complex financial problems, adapt investment strategies to meet business needs, propose solutions that maximize stakeholder value, and apply ESG related concepts to the process of investment management and valuation.

ISOM 3780 Sustainable Supply Chain Management	3 credits

Description

This course is designed for students interested in sustainable supply chain management. Sustainable supply chain management involves integrating operationally, environmentally and financially viable practices into the complete supply chain lifecycle, from product design and development, to material selection, manufacturing, transportation, warehousing, distribution, consumption, return and disposal. The objective is to foster organizations to optimize their cost savings and profitability with environmentally sustainable considerations. This is a hands on course, with heavy emphasis on case studies drawn from successful implementations of sustainable practices of global companies across the globe. For SGFN and non-OM students only.

The proposed course will be offered in a blended learning mode. Concurrence from the Center for Education Innovation (CEI) is pending.

ENVR 2080 Circular Economy and Life Cycle Assessment	3 credits

Description

This course identifies the purpose of green finance as a means to promote and enable sustainable and resource-conserving economic systems.

While viable benchmarks and concepts for sustainable development exist, economic decision-makers and financial institutions by and large still focus on economic profit, leaving environmental and societal sustainability outside of their cost-benefit assessments. In order to provide an alternative approach that guides financial investment towards green ventures, the course offers insights into sustainable development concepts and respective assessment mechanisms for sustainable corporate performance. These concepts and mechanisms are exemplified in the Circular Economy (CE) and Life Cycle Assessment (LCA), which constitute increasingly important elements in sustainable development.

By adopting a multidisciplinary perspective, the classes cover the fundamentals of sustainable concepts, benchmarks on how to measure sustainable performance in the economic domain (i.e., at the corporate-, meso- and system-level) and empirical cases on how green finance has and can make a difference to promote sustainable growth.

ENVR 3005	Environmental Sustainability: Risks and Challenges	3 credits

Description

Human development is fundamentally supported by natural resources. Environmental sustainability ensures the responsible consumption of these resources while maintaining their regenerations without sacrificing the needs of future generations. The course covers the general understanding of key factors contributing to the rates of non-renewable resource depletion, renewable resources recovery, and pollution generation. Emergent challenges to environmental sustainability include energy, food, land use, water resource, and novel chemicals. Risks associated with these challenges like climate change, water scarcity, and soil degradation, ecosystem health, and biodiversity loss will be assessed. These risks will become catastrophic if no proper action is taken in view of the current rate of human development. Hence, the course outlines the fundamental concepts and practices of managing environmental risks: prevention, preparedness, response, and recovery (PPRR). Fundamental risk analysis techniques will also be introduced to identify and quantify the environmental risks.

ENVR 4340	Social Sustainability: Risks and Challenges	3 credits

Description

Social sustainability is the least defined and least understood of the different ways of approaching sustainability. Nevertheless, reflecting on countries or regions where internal conflicts are fierce, it is clear that environmental or economic sustainability would be difficult without social stability or sustainability. In this course, referencing the Sustainable Development Goals (SDG) championed by the United Nations, we shall examine the challenges regarding social sustainabilities. This course shall first provide a review of the SDGs, highlighting the SDGs related to social sustainability and using them to discuss how their progress is measured and improved in various counties. The course shall also discuss existing and emerging challenges to social sustainability and the risks and impacts when countries fail to improve upon these goals. Case studies and quantitative analyses will be used as much as possible.

ENVR 4350	Governing Green Finance: National and International Perspectives and Approaches	3 credits

Description

This course covers the study of the instruments of green finance and the organizations and/or institutions that design, implement, and monitors them, in short, the actors of and the dynamics in the governance of green finance. The course offers students an opportunity to review, evaluate, assess, appraise, and critique the various approaches and perspectives around the instruments, institutions, and challenges of green finance, nationally, regionally, and internationally. The course uses examples from cities, national governments, countries/states, regional institutions, and the United Nations to illustrate the processes of governing green finance. Using an interdisciplinary lens, the course uses concepts from public administration, public policy, international relations, development studies, science and technology studies, and human geography to shed light and bring out a critical analysis of the multiple actors and institutions of green finance governance, and their interests. This interactive course heavily relies on the learners' active engagement in class activities through pair or small-group discussions, role plays, and debates.

Note: The required course FINA 4733 Green Finance Case Analyses will be offered only in Fall 2024 or Fall 2025. The course proposal would be submitted nearer the time it is offered.

COMMITTEE ON UNDERGRADUATE STUDIES

Paper for: Discussion/Decision

Title: **Final Proposal of Minor Program in Literature and Chinese Creative Writing**

Purpose: The School of Humanities and Social Science submitted the final proposal of introducing the Undergraduate Minor Program in Literature and Chinese Creative Writing in Fall 2021-22 for consideration by CUS

Submitted by: School of Humanities and Social Science

Prepared by: CUS Secretariat

BACKGROUND

1. At the 166th meeting held on 11 November 2020, the CUS discussed the initial plan for the new Undergraduate Minor Program in Literature and Chinese Creative Writing (former title is "Literature and Creative Arts") ("文學與中文創意寫作本科副修課程"). Comments and issues raised by CUS were subsequently conveyed to the School of Humanities and Social Science (SHSS) by the Secretariat (Appendix 1). SHSS was required to address the issues and concerns, and provide responses in the final program proposal.

FINAL PROPOSAL

2. SHSS has submitted the final proposal for the new Minor program in Literature and Chinese Creative Writing, as presented in Appendix 2. Responses of SHSS to CUS's comments on the proposed Minor program and the program curriculum are provided in Section (h) of Appendix 2.

3. Subject to approval by the Senate, the new Minor Program will be launched in Fall 2021-22.

ACTION SOUGHT

4. CUS is invited to consider and recommend as appropriate to the Senate for approval the proposed new Undergraduate Minor Program in Literature and Chinese Creative Writing as presented in Appendix 2 for introduction in Fall 2021-22.

Senate Committee on Undergraduate Studies

From:	Senate Committee on Undergraduate Studies
Sent:	13 November 2020 14:26
To:	Carine Yiu
Cc:	Andrew Brian HORNER; A Christian DANIELS; Shengqing WU; SAI LOK NAM; LUK Anne; Anirban Mukhopadhyay
Subject:	CUS comments on the Initial Proposal for the New Minor Program in Literature and Creative Arts

To: Prof Carine YIU, Associate Dean of Humanities and Social Science

From: CUS Secretariat (*for* Prof Anirban MUKHOPADHYAY, Secretary of CUS)

cc: Prof Andrew HORNER, Chair of CUS
    Prof Christian DANIELS, Head, Division of Humanities
    Prof Shengeqing WU, Division of Humanities
    Dr Sai Lok NAM, Division of Humanities

Subject: CUS comments on the Initial Proposal for the New Minor Program in Literature and Creative Arts

At its meeting on 11 November 2020, the Committee on Undergraduate Studies (CUS) considered the initial proposal for the new Minor Program in Literature and Creative Arts submitted by the School of Humanities and Social Science (SHSS). Members expressed broad general support for the initiative.

CUS would like to share with SHSS its comments/suggestions as follows; and SHSS is invited to address them when presenting the proposal for final approval.

 (a) The title of a program should tell students what the program is about (i.e., what was expected from the students). The proposed title "Literature and Creative Arts" was not an accurate reflection of the program as:
   i. The program had a strong emphasis on Chinese creative writing; and
   ii. Students could take as few as one General Creative Arts or Music elective. It might not worth including this area in the program title.

 (b) The program title "Literature and Creative Arts" overlapped with "Music and Creative Arts", another Minor program of the Division. This might confuse students. A more distinct title would be needed as content-wise the programs were very different.

 (c) Collecting feedback from students would help to decide the best title that could appeal to students and at the same time reflect the focus of the program.

 (d) Changes to the program title might require respective changes to the program intended outcomes.

 (e) Since the program had the aspiration to go beyond Chinese Literature in the future, and that students could choose courses with English as the medium of instruction for the electives, adding an English required course might help to attract more students to take the program.

 (f) Clarification regarding the relationship between the 3-credit Chinese Communication course (which was not just about Chinese proficiency) and the required courses; and how they related to the Minor program would be needed.

It is hoped that the comments will help your preparation for the final proposal. The CUS looks forward to receiving the final proposal from the School. Please note that the final proposal should come with new course proposals for all the planned new required courses for the curriculum.

For details regarding the CUS meeting and paper submission schedule, please contact Ms Anne LUK of the Secretariat at ext. 6009.

THE HONG KONG UNIVERSITY OF SCIENCE AND TECHNOLOGY
Approval of New Undergraduate Program

Intial Proposal ☐   Final Proposal ☑

Section 1: General Information

a)   The program is a :   Major ◯   Minor ⦿   Other ◯

b)   Title: (in English)   Undergraduate Minor Program in Literature and Chinese Creative Writing

      (in Chinese)   文學與中文創意寫作本科副修課程

c)   School/IPO proposing this program: School of Humanities & Social Science

d)   Offering Department(s):   Division of Humanities

e)   Expected term for the launch of the program::   2021-22 Fall

Section 2: Submission and Recommendation

Proposal Submission and Recommendation

Offering Department/Program Unit	*Position*	*Name*	*Date*
Division of Humanities	Head of Dept	Prof Christian DANIELS	7-Dec-20

Recommending School/IPO	*Position*	*Name*	*Date*
School of Humanities & Social Science	Dean	Prof Kellee TSAI	11-Dec-20

Concurrence

School/Dept/Program Unit	*Position*	*Name*	*Date*
School of Science	Associate Dean	Prof Pak Wo LEUNG	17-Dec-20
School of Engineering	Associate Dean	Prof Philip MOK	15-Dec-20
School of Business and Management	Associate Dean	Prof Allen H HUANG	7-Jan-21
Interdisciplinary Programs Office	Associate Director	Prof Jimmy FUNG	17-Dec-20

THE HONG KONG UNIVERSITY OF SCIENCE AND TECHNOLOGY
APPROVAL OF NEW UNDERGRADUATE PROGRAM

Use this form to identify the supporting information provided.

a) **Educational Objectives and Alignment of Objectives with Role and Mission**

The Undergraduate Minor Program in Literature and Chinese Creative Writing will introduce students to the broad world of literature and creative writing. Its foundations will consist of a research embedded learning of literary writing through hands-on practice, academic study, and aesthetic appreciation. (see **Annex 1: Proposed Curriculum** for an outline of course requirements). This structure will provide academic rigor and discipline with a wide selection of writing, literature (both on Chinese and Western literature), and film courses, while also training students to be linguistically articulate and expressive and to gain insights into a more universal application of their creativity. What makes our proposed program unique in Hong Kong is its inclusion and integration of a general creative arts component. Students in the Literature and Chinese Creative Writing Minor can choose to further broaden their artistic and intellectual horizons by taking up to 2 courses in other creative arts and music.

Every student, before entering the college, most likely has experiences being touched by a poem, a personal essay, a story or a novel. Literature plays an important role in campus cultural life as well as in the personal lives of a large segment of our student population. Our education mission is to provide them with opportunities to get a feel for and try their hands at what it takes to write a poem, a story, or a moving essay. The aim of teaching literature and writing is to help students develop the critical skills necessary to analyze and interpret literary texts and traditions, and thereby enhance their critical thinking abilities, intercultural literacy, and their appreciation of language and literature in everyday life as well as their abilities of expressing themselves in effective ways. In being introduced to key concepts concerning aesthetics and politics and urged to engage in literary canons from refreshingly new perspectives, students will learn to appreciate the richness of the texts and cultures through the prisms of contemporary theories of nationality, gender, class, and other identities and affiliations. Moreover, creative writing courses offer students rare opportunities to work with internationally renowned writers to gain hands-on experience and substantially develop their Chinese writing skills that are significant for their intellectual, emotional, and career developments in the future.

The program offers a variety of literature, Chinese creative writing and art courses via the Division of Humanities led by distinguished writers in which students learn the value of creativity and literary expression and its applications in the other fields of study and their everyday life. The current creative courses HUMA 3202 and 3203 (Chinese Creative Writing), taught by internationally-renowned Chinese writers (e.g. Prof. Liu Zaifu, Prof. Yan Lianke, Mr. Lo Yi-ching), have been designed specifically to train students' literary creativities. The publication of *Banbi*

haishui (Half an Ocean of Writing) by Beijing shiyue publishing house in 2017, a collection of students' creative stories through the course taught by Prof. Yan Lianke, is the testimony of our students' enthusiasm, talents, and creativity. Further, Luo Xu (penname: Yinguang), a MACC student, published a novel titled *Going Up Mountains* (*Shangshan*) by Beijing Lianhe chuban gongsi in 2019. Chen Xuran, an undergraduate student at the Business School, is going to publish a novel, titled *Hong Kong Passion* (*Xianggang jiqing*) this year, by the INK, a renowned press in Taiwan. Both Luo and Chen took courses with Liu Zaifu, Yan Lianke, and Lo Yi-chin in the recent years.

Since 2013, the creative writing program, with the support from the HUMA, IAS and Tin Ka Ping Cultural Foundation, has organized and offered an impressive record of well-received events, talks, and poetry readings, with the participation of Nobel Laureate Gao Xingjian, internationally renowned writers Liu Zaifu, Pai Hsien yung, Su Tong, Chi Zijian, Li Er, Liang Hong, Su Ting, Wang Xiaoni, film director Peng Xiaolian, and many others. The program also hosted large-size conferences on contemporary Chinese Science Fiction and other topics, and participated in the International Poetry Nights in Hong Kong in 2017 and 2019. All of these literary events and activities have been greatly appreciated by both UG and PG students as well as audiences beyond our campus. In addition to five tenured and tenure-track professors and lecturers (Jianmei Liu, Shengqing Wu, Daisy Du, Xiaolu Ma and), the program also include the prominent writer Prof. Lianke Yan (IAS Sin Wai Kin Professor of Chinese Culture and Chair Professor of Humanities) and regular visiting professors and writers (Prof. Zaifu Liu and Mr. Lo Yi-ching). Given the modest size of the faculty in literature, the creative writing program has emphatically established its reputation, creating one of the most active and exciting literary scenes among the university campuses in Hong Kong.

b) Student Demand and Demand for Graduates

Due to the unique situation during the 2019-2020 academic year, we conducted student surveys in spring 2020 in five UG classes with approximately 50% response rate. See the chart below. A majority of students expressed their interest in taking the creative writing courses as minor program. The well-attended literary events also speak for students' interest and demands. See the **Annex 2: Creative Writing Events** in excel.

Do you have any interest in taking the Creative Writing (Literature) course as your minor program?
82 responses

- Yes, I do
- No, I don't

29.3%

70.7%

Do you have any interest in taking the Creative Writing (Literature) course as your minor program?
82 responses

- Yes, I do
- No, I don't

29.3%

70.7%
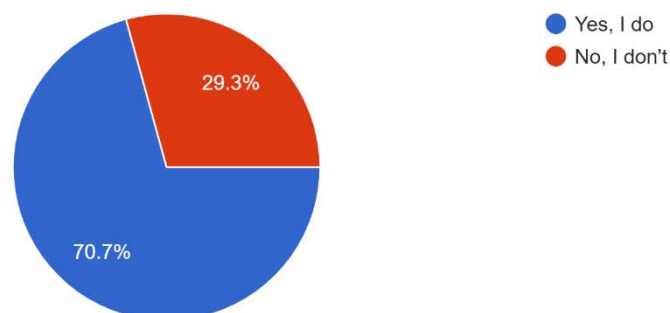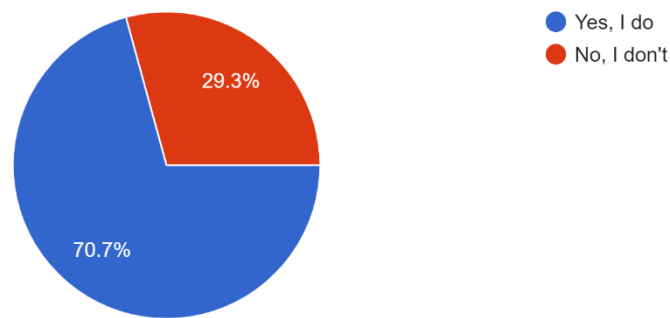
c) **Arrangements for Admission and Selection (if relevant)**

Any undergraduate student with a CGA of 2.0 or above may enroll in the Literature and Chinese Creative Writing Minor Program. They must declare their intention to enroll in the minor program no earlier than the second regular term of their second year of study, but no later than the last day of the add/drop period in the first regular term of their final year of study. Students who wish to withdraw from the minor program should apply before the last day of the add/drop period in the second regular term of their final year of study. While the CGA requirement for the proposed Literature and Chinese Creative Writing Minor is higher than that of our currently offered Minor in Humanities (1.5), the Division is in the process of reviewing the existing minor program and plans to raise the requirement in the near future. The CGA requirement is also set at 2.0 for the Undergraduate Minor Program in Music and Creative Arts currently under review.

Entrance to the minor program concentration will be through assessment of 1-2 writing samples in 1-2 literary genres (e.g., poetry or short story) in the semester PRIOR to declaring intention to pursue the minor. Two faculty members or visiting writers will form an ad hoc panel to make the selections based upon the qualities of writing samples (1,500-5,000 word story OR one to two short poems). Prof. Jianmei Liu or other faculty member in literature will lead this effort in the admission process. For the student who has already taken a course in the Required Courses with a B grade or better, the requirement for submitting the writing samples can be waived.

d) **Estimated Student Enrollment (for majors/minors)**

Every year the enrollment numbers for this Minor can be adjusted depending on demand, manpower, and available seats in literature, creative writing and creative arts courses. A rough estimation is 30 per year. The enrollment figures for HUMA 3202 (Chinese Creative Writing: Reading Literary Classics and Writing Essays) and HUMA 3203 (Chinese Creative Writing: Reading Literary Classics and Writing Novels) in the past four years ranged from 30 to 64.

Kellee Tsai, Dean, School of Humanities and Social Science

Christian Daniels, Head, Division of Humanities

Liu Zaifu, Tin Ka Ping Distinguished Visiting Scholar of Chinese Literature

Yan Lianke, IAS Sin Wai Kin Professor of Chinese Culture and Chair Professor

Lo Yi-Ching, Writer and visiting instructor

Jianmei Liu, Professor, Chinese Literature, HUMA; director of the Creative Writing program

Shengqing Wu, Professor, Chinese Literature, HUMA

Charles W H Chan, Associate Professor, Philosophy, HUMA; Chair, Curriculum Committee

Daisy Du, Associate Professor, Chinese Literature and Film, HUMA

Huan Jin, Assistant Professor, Chinese Literature, HUMA

Xiaolu Ma, Assistant Professor, Chinese and Comparative Literature, HUMA

Sai Lok Nam, Lecturer 1, HUMA; Undergraduate Programs Coordinator

Ilari Kaila, Composer-in-Residence/Lecturer 1, HUMA; member of Curriculum Committee

Isaac Droscha, Lecturer in Music, HUMA; manager of SHSS office for events and creative arts courses

f) Benchmarking

We have consulted similar degree programs in North America (especially Harvard, MIT, Wesleyan University and others) as well as sister institutions in Hong Kong (Hong Kong Baptist University, Chinese University of Hong Kong, and Hong Kong Open University). While our proposed minor is benchmarked against the academic rigor of equivalent degree programs, we have also looked to other local universities to identify the unique role for HKUST's creative arts education.

Our findings:

1) In any full-fledged university in North America, there are the creative writing major, minor or concentrations, all of which are typically hosted within the English major in the English Department. At the MIT, the program of "writing major, minor, concentration" offers "introductory writing as well as advanced coursework in the areas of Creative Writing, Nonfiction Writing, and Science Writing."

2) In term of curriculum, all the equivalent Minors in Writing that we have surveyed typically consist of six courses with the combination of 2-3 literature courses (which meet the core requirements for the English major) as well as 1-3 writing courses. That is to suggest, the students are required to have a rigorous study and gain a general knowledge and understanding of literary history and the theoretical understanding of the texts. On top of that, the students will be asked to engage in creative writing in different genres to develop writing skills. Students will learn that writing is a practice that entails maintaining balance between creativity and discipline, experimentation and acquired convention,

critical insights and textual engagement. The curricular design of our Minor in Literature and Chinese Creative Writing follows the model and criteria set up by these institutions.

3) Founded in 1990, the Department of Humanities and Creative Writing at Hong Kong Baptist University is the first unique undergraduate program in Hong Kong dedicated to offering a broad liberal arts education. While there are creative writing faculty in their department, it is unclear to us how the major or minor in creative writing is structured.   The Chinese Literature Department at the Chinese University of Hong Kong has been long established and renowned. Funded by the UGC in 2016, the Chinese Literature Department offered creative writing courses to UG students campus wide and trained students majoring in Chinese creative writing. Its first class of this major was launched in the 2016-17 academic year. Hong Kong Open University is currently recruiting the first class of students for the Master of Arts in Chinese Creative Writing, the very first program of this kind in Hong Kong. These new developments in our sister institutions suggest growing interest and acknowledgement of the importance of creative writing in university education. Our proposed program, Minor in Literature and Creative Writing, will be the first one and unique of its kind in Hong Kong universities, and it will play a leadership role in spearheading this mission in literature and language education. Our curriculum, designed to cultivate students' creative abilities, caters to the diversity of the student body at our university that has different educational, cultural, and disciplinary backgrounds.

g)   Resources

While no additional resources are currently required to launch the program, for its potential development in the future there will be demand for equipment and/or infrastructure for courses expanding into the realms of English Creative writing, Multi-media Artistic Practice (Film, Visual Arts, Music and Literature), Social Engagement and Impact through Creativity, and others.

h)*   Responses to Issues and Questions Raised by the CUS on the Initial Proposal

Comment and Question from CUS on Nov 13, 2020

>> (a) The title of a program should tell students what the program is about (i.e., what was expected from the students). The proposed title "Literature and Creative Arts" was not an accurate reflection of the program as:

    i.   The program had a strong emphasis on Chinese creative writing; and

    ii.   Students could take as few as one General Creative Arts or Music elective. It might not worth including this area in the program title.

>> (b)   The program title "Literature and Creative Arts" overlapped with "Music and Creative Arts", another Minor program of the Division. This might confuse students. A more distinct title would be needed as content-wise the programs were very different.

>> (c) Collecting feedback from students would help to decide the best title that could appeal to students and at the same time reflect the focus of the program.

>> (d) Changes to the program title might require respective changes to the program intended outcomes.

HUMA reply: Thanks for the suggestion, the title is changed to "Undergraduate Minor Program in Literature

and Chinese Creative Writing"

>> (e) Since the program had the aspiration to go beyond Chinese Literature in the future, and that students could choose courses with English as the medium of instruction for the electives, adding an English required course might help to attract more students to take the program.

HUMA reply: Appreciate the suggestions from committees, HUMA will consider it in the coming future.

>> (f) Clarification regarding the relationship between the 3-credit Chinese Communication course (which was not just about Chinese proficiency) and the required courses; and how they related to the Minor program would be needed.

HUMA reply: There is currently no correlation between the Minor and the C-Comm. We don't plan to change the Required Courses (Chinese creative writing courses) into common core courses in near future, due to enrollment concern. Teaching creative writing and cultivating students' literary creativity require individualized attention and approaches from the instructor.

i)*	Intended Learning Outcomes

PILO 1: Build a solid foundation of the fundamentals of writing skills, literary theory, and appreciation.

PILO 2: Gain a deeper understanding of the arts in general, and literature and language in particular through academic study, aesthetic appreciation, and creative work.

PILO 3: Develop creative and critical thinking applicable to other intellectual, scholarly, and creative pursuits.

PILO 4: Acquire a sensitive mind that fosters an ability to listen to a broad spectrum of literary traditions, cultures, and aesthetic outlooks.

PILO 5: Learn collaborative skills through creative and academic group work and integrate language into everyday life practices

j)*	Program Management

The program will be administered by the Division of Humanities and overseen by the already existing Creative Arts Curriculum Panel.

k)*	Transitional Arrangement

N/A

Required for final proposal only.

(For all students in the Program)

Undergraduate Minor Program in Literature and Chinese Creative Writing

The minor will give students an intensive exposure to creativity of literature both in English and Chinese, allowing them to be trained on two areas: creative writing in Chinese and knowledge in Chinese and world literature, film and literary theories. Any undergraduate student with a CGA of 2.0 or above may apply for the Literature and Chinese Creative Writing Minor Program. Students applying the program will be asked to submit 1-2 writing samples, in Chinese, in 1-2 literary genres (e.g, poetry or short story). Selection will be made based upon the assessment by the selection panel of the program on the qualities of the submitted writing samples. For students who have already taken one of the required courses and attained B grade or above, the requirement for submitting the writing samples can be waived. Students may apply for the minor program no earlier than the second regular term of their second year of study, but no later than the last day of the add/drop period in the first regular term of their final year of study. Students who wish to withdraw from the minor program should apply before the last day of the add/drop period in the second regular term of their final year of study.

Minor Requirements

To graduate with a minor in Literature and Chinese Creative Writing, students must have enrolled in the minor program and complete a minimum total of 18 credits and all of its requirements, as well as all the requirements of their major program of study; and have attained an average grade point of at least 2.0 in courses taken in the minor program.

A maximum total of 6 credits completed successfully outside HKUST can be transferred to the Minor Program. Courses accepted for credit transfer must normally be at a level equivalent to 1000-level or above at HKUST.

Out of the total credits required by the minor program, at least 9 credits should be single-counted within the minor and are not used to fulfill any other requirements for graduation except the 120-credit degree requirement.

Courses used to fulfill the requirements of other minor programs offered by the School of Humanities and Social Science cannot be used to count toward the Literature and Chinese Creative Writing Minor Program.

Students may use no more than 6 credits earned from courses offered in pure online delivery mode to satisfy the graduation requirements of a degree program. This 6-credit limit does not apply to credits obtained through the credit transfer procedures of the University.

Required Course(s)

			Credit(s) attained
HUMA		HUMA 3202 OR HUMA 3203 OR HUMA 3204	3
	HUMA 3202	Chinese Creative Writing: Reading Literary Classics and Writing Essays	3
	HUMA 3203	Chinese Creative Writing: Reading Literary Classics and Writing Novels	3
	HUMA 3204	Chinese Creative Writing-Reading Literary Classics and Writing	3

Elective(s)

		Minimum credit(s) required
HUMA/HART	Literature and Creative Arts Electives [Courses from the specified elective list, of which at least 9 credits (3 courses) from Group 1 courses, and at least 3 credits (1 course) from Group 2 or Group 3. Out of the Group 1 courses taken, at least 1 course should be at 2000-level or above. Course taken as Required Course may not be counted towards this elective requirement.]	15

Group 1: Literature and Film Fundamentals

HUMA 1210	Chinese Women on Screen	3
HUMA 1231	Popular Culture of East Asia	3
HUMA 1250	Themes in Literature: Love and Death	3
HUMA 1300	Introduction to Western Literature	3
HUMA 1301	World Literature and Film	3
HUMA 2200	Masterpieces of World Literature	3
HUMA 2210	Western Short Stories	3
HUMA 2220	China in Film: Modern Chinese Culture and Identities	3
HUMA 2240	Masterpieces of Chinese Literature	3
HUMA 2250	Modern Chinese Fiction (1917-1949)	3
HUMA 2260	Contemporary Chinese Fiction (1949-present)	3
HUMA 2280	Identity Goes Global: From Border Crossing to Boundary Remaking	3
HUMA 2300	Traditional Chinese Poetry: Early Chinese Poetry	3
HUMA 2310	Traditional Chinese Fiction	3
HUMA 2320	Chinese Drama	3
HUMA 3000C	Entering the World of Art Films, Independent Films, and Documentary Film	3
HUMA 3200	Questions of Humanity in World Literature	3
HUMA 3201	Animation: A Global Perspective	3
HUMA 3202	Chinese Creative Writing: Reading Literary Classics and Writing Essays	3
HUMA 3203	Chinese Creative Writing: Reading Literary Classics and Writing Novels	3
HUMA 3204	Chinese Creative Writing-Reading Literary Classics and Writing	3
HUMA 3210	Traditional Chinese Poetry: Tang and Song Poetry	3
HUMA 3220	Modern Chinese Poetry	3
HUMA 3240	The Gothic Imagination in Literature and Film	3
HUMA 3250	Independent Cinema in Contemporary China	3
HUMA 4000D	Hollywood Goes to Asia: Transnational Asian Media	4
HUMA 4000E	The Foreigners' Look at China	3
HUMA 4000G	Global Hong Kong in Literature and Film	4
HUMA 4000J	The Search for Identity: On Self and Community	3
HUMA 4220	Verbal and Visual Representation of China	3
HUMA 4250	Masterpieces of Modern Literature	3

Group 2: General Creative Arts and Music

HUMA 1100	Music of the World	3
HUMA 1102	Enjoyment of Classical Music	3
HUMA 1671	Cantonese Opera in Hong Kong Culture	3
HUMA 1672	Studio Arts Workshops: Cantonese Opera	1

HUMA 2101	Enjoyment of Western Opera	3
HUMA 2103	Introduction to Music Composition	3
HUMA 2104	Music Theory I: Introduction to Tonal Music	3
HUMA 2105	Music, Drama and Theatre	3
HUMA 2107	Introduction to Electronic Music Composition	3
HUMA 3102	Making Chamber Music A	2
HUMA 3103	Making Chamber Music B	2
HUMA 3104	Music Theory II: Fundamentals of Harmony and Counterpoint	3
HUMA 3105	Making Choral Music	3
HUMA 3150	Independent Study in Creative Arts	1-2

Group 3: Studio Arts

HART	Any HART courses

Creative Writing Events

EVENT	DATE	ORGANIZER/SPONSOR	SPEAKER	NUMBER OF PARTICIPANTS	REMARKS
40th Lecture -- Gao Xingjian and Mo Yan：Comparisons Between Two Nobel Literary Laureates 高行健與莫言：兩位諾貝爾文學獎得主的寫作風格比較論	Dec. 15, 2013	Hong Kong Museum of History	Prof. Liu Zaifu		
A Close Look at Nobel Literary Prize 漫談諾貝爾文學獎 面對荒誕的世界，文學何為？— 中國當代文學研討會	Apr. 10, 2013 Oct. 10, 2013	田家炳基金會 田家炳基金會/香港科技大學賽馬會高等研究院、人文社會科學學院、人文學部	陳邁平、陳建華 余華、閻連科、劉再復、李歐梵、黃子平、陳平原、許子東、王堯、黃念欣、黃平、渡言、宋子江、魏靐、吳國坤、梁淑雯、楊慶祥、季進、劉劍梅、邵棟燁、Carlos Rojas		
文學中的哲學	Oct. 15, 2014	田家炳基金會			
An International Workshop on Gao Xingjian's Literary Works 高行健作品研討會 要怎樣的文學－2000年諾貝爾文學獎得主高行健先生 與 劉再復教授對話	Oct. 24, 2014 Oct. 24, 2014	田家炳基金會/香港科技大學賽馬會高等研究院/人文社會科學學院/人文學部 田家炳基金會/香港科技大學賽馬會高等研究院/人文社會科學學院/人文學部	高行健、劉再復		
HUMA Seminar Lecture by Chi Zijian: Literature Is A Melancholy Journey 遲子建講座：文學是傷懷的旅行	Nov. 14, 2014	田家炳基金會/香港科技大學賽馬會高等研究院/人文社會科學學院/人文學部	遲子建		
Fantasies of the Self: Multiples, Illusions, and Poems in the Photographic Culture of Modern China 任郎相對喚真真：[	Nov. 22, 2014	Hong Kong Museum of History	Prof. WU Shengqing		
Lecture by Yan Lianke: China and Literature in Spiritual Realism 閻連科講座：神實主義的中國與文學	Nov. 26, 2014	田家炳基金會/香港科技大學賽馬會高等研究院/人文社會科學學院/人文學部	閻連科		
The Mirror and the Lamp: Reading Contemporary Chinese Novels 鏡與燈：閱讀當代中國小說	Nov. 30, 2014	Hong Kong Museum of History	Prof. Liu Jianmei		
Having Dialogue with Su Tong: Literature in My Heart與蘇童近距離對話: 我心目中的文學	Oct. 16, 2015	田家炳基金會/香港科技大學賽馬會高等研究院/人文社會科學學院/人文學部	蘇童		
Chinese Creative Writing Program Fall semester of 20152015年秋季 中國文學創作研究專題	Oct. 28-Nov. 18, 2015	田家炳基金會/香港科技大學賽馬會高等研究院/人文社會科學學院/人文學部	蘇童、舒婷、李洱		
Having Dialogue with Su Tong: Read Masterpieces of World Literature 與蘇童近距離對話: 閱讀經典文學	Nov. 6, 2015	田家炳基金會/香港科技大學賽馬會高等研究院/人文社會科學學院/人文學部	蘇童		
I am Misted – The Creation of Two Poems 我的被朦朧：兼談兩首詩歌的創作	Nov. 11, 2015	田家炳基金會/香港科技大學賽馬會高等研究院/人文社會科學學院/人文學部	舒婷		
Dialoguing with Shu Ting: Creative Writing on Poetry 近距離與舒婷對話：談詩歌創作	Nov. 13, 2015	田家炳基金會/香港科技大學賽馬會高等研究院/人文社會科學學院/人文學部	舒婷		
What If Jia Baoyu Grows Up? 賈寶玉長大後怎麼辦？	Nov. 18, 2015	田家炳基金會/香港科技大學賽馬會高等研究院/人文社會科學學院/人文學部	李洱		
Dialoguing with Li Er: Creative Writing on Fiction 近距離與李洱對話：談小說創作	Nov. 20, 2015	田家炳基金會/香港科技大學賽馬會高等研究院/人文社會科學學院/人文學部	李洱		
中國當代文學如何走向世界	Mar. 29, 2015	田家炳基金會	季進		
The Whys and Whynots of the Literary Nobel 你不了解的諾貝爾文學獎內幕	Apr. 3, 2016	田家炳基金會/香港科技大學賽馬會高等研究院/人文社會科學學院/人文學部	Kjell ESPMARK		
文學‧空間‧記憶 主題研討會	Apr. 19, 2016	田家炳基金會/香港科技大學賽馬會高等研究院/人文社會科學學院/人文學部/《明報月刊》			
《中國當代文學的艱困與掙扎》文學‧空間‧記憶 主題研討會重磅環節	Apr. 19, 2016	田家炳基金會/香港科技大學賽馬會高等研究院/人文社會科學學院/人文學部/《明報月刊》	閻連科		
以小搏大—書寫香港三部曲	Apr. 25, 2019	田家炳基金會/香港科技大學賽馬會高等研究院/人文社會科學學院/人文學部	施叔青		
The Utopian Imagination in Chinese Literature 中國文學中的烏托邦想像	Sept. 11, 2016	Hong Kong Museum of History	Prof. Liu Jianmei		
The Splendor of Modern and Contemporary Chinese Literature 中國現當代文學的風華	Sept. 28, 2016	田家炳基金會/香港科技大學賽馬會高等研究院/人文社會科學學院/人文學部	陳平原、陳曉明、賀桂梅、夏曉虹、邵元寶、楊揚、程光煒、王堯、黃心村、李歐梵、劉再復、劉劍梅、許子東、林幸謙、葛亮、魏時煜		
文學的順變和守恆 Literature: Following Changes and Guarding Eternity	Oct. 24, 2016	田家炳基金會/香港科技大學賽馬會高等研究院/人文社會科學學院/人文學部	韓少功		
寫作者的視野 Vision of the Writer	Nov. 22, 2016	田家炳基金會/香港科技大學賽馬會高等研究院/人文社會科學學院/人文學部	薛憶溈		
對話《紅樓夢》Red Chamber – Dialogue between Liu Zaifu and Bright Sheng	Nov. 29, 2016	田家炳基金會/香港科技大學賽馬會高等研究院/人文社會科學學院/人文學部	劉再復、盛宗亮		
Hetero-China, Hetero-Time, and Un-Hetero-Literature [第一百講]異中國、異時代與無異的文學	Mar. 26, 2017	Hong Kong Museum of History	閻連科、劉劍梅		
Labyrinth: Fantasy and Reality on the Snake Path of Narration 迷宮：敘述蛇道上的夢幻與現實	Mar. 29, 2017	田家炳基金會	閻連科、劉劍梅		
Literature and Philosophy International Symposium 文學與哲學國際研討會	Jun. 19-20, 2017	田家炳基金會/香港科技大學賽馬會高等研究院/人文社會科學學院/人文學部	閻連科、梁 鴻、陳 朗、劉劍梅、戴 勁、林 崗、邵元寶、楊揚、戴錦華、張濤華、陳建華、樊星、王宇、宋紅嶺、黃心村、李躍力、王 堯、季 進		
International Poetry Nights In Hong Kong – 香港國際詩歌之夜2017 古老的敵意 Ancient Enmity	Nov.24, 2017	田家炳基金會/香港科技大學賽馬會高等研究院/人文社會科學學院/人文學部	Major Jackson, George Szirtes, Gabeba Baderoon, Lorna Crozier,陳東東、林舜玲、平田俊子、文貞姬		
《紅樓夢》的三維閱讀	Feb. 8, 2018	香港理工大學中國文化學系/香港孔子學院	劉再復		
文學人性論	Mar. 2, 2018	田家炳基金會/香港科技大學賽馬會高等研究院/人文社會科學學院/人文學部	閻連科		
胡風：使人理想的代價	Mar. 10, 2018	香港城市大學出版社/商務印書館	劉再復、魏時煜		
非虛構空間：女導演彭小蓮和女作家梁鴻對談	Apr. 6, 2018	田家炳基金會/香港科技大學賽馬會高等研究院/人文社會科學學院/人文學部	彭小蓮、梁鴻		
「請你記住我」電影放映及對談會	Apr. 11, 2018	田家炳基金會/香港科技大學賽馬會高等研究院/人文社會科學學院/人文學部	彭小蓮		
華語科幻 Science Fiction and Its Variations in The Sinophone World	May 30-31, 2018	田家炳基金會/香港科技大學賽馬會高等研究院/人文社會科學學院/人文學部	王德威、陳冠中、閻連科、韓松、駱以軍、董啟章、伊格言、陳楸帆、劉劍梅、宋明煒、嚴鋒、羅鵬、黃心村、陳綾琪、吳盛青、閻連科		
2018香港科技大學學生電影節	Jun. 1, 2018				
"嚴霜的遊戲"，當代詩的一個脈絡：從顧城、楊小濱、車前子、咬石談起	Oct. 10, 2018	田家炳基金會/香港科技大學賽馬會高等研究院/人文社會科學學院/人文學部	臧棣、顧愛玲	150	
雙語讀詩會: Bridging Across Languages and Cultures: A Bilingual Poetry Reading	Oct. 11, 2018	田家炳基金會/香港科技大學賽馬會高等研究院/人文社會科學學院/人文學部	王小妮、臧棣、顧愛玲	150	
詩和我們的關係	Oct. 12, 2018	田家炳基金會/香港科技大學賽馬會高等研究院/人文社會科學學院/人文學部	王小妮		
說不完的故事	Oct. 19, 2018	田家炳基金會/香港科技大學賽馬會高等研究院/人文社會科學學院/人文學部	駱以軍	200	
香港作家聯會30週年系列活動 文學講座：我的創作觀	Nov.3, 2018	田家炳基金會/香港科技大學賽馬會高等研究院/人文社會科學學院/人文學部/香港作家聯會	鐵凝、李敬澤、舒婷、鄭愁予、張曉風、張香華、李昂、施叔青、駱以軍、李蘭妮、戴小華、原甸 駱以軍 李蘭妮 戴小華 原甸	300	
黃燦然：做一個詩人	Nov.7, 2018	田家炳基金會/香港科技大學賽馬會高等研究院/人文社會科學學院/人文學部	黃燦然	150	
A Bilingual Poetry Reading	Nov.8, 2018	田家炳基金會/香港科技大學賽馬會高等研究院/人文社會科學學院/人文學部	陳東東、黃燦然、池凌雲、[	150	
源於飢餓的寫作，或從最小的可能性開始/我的寫作及其周邊	Nov.9, 2018	田家炳基金會/香港科技大學賽馬會高等研究院/人文社會科學學院/人文學部	陳東東、池凌雲	150	
Winds, Dreams, Theater: A Genealogy of Emotion-Realms through the Lens of The Peory Pavilion	Nov.14, 2018	HUMA	Ling Hon Lam		
Representation of China in British and Amercian Poetry I	Feb. 19, 2019	田家炳基金會/香港科技大學賽馬會高等研究院/人文社會科學學院/人文學部	Donald Berger		
電影《翠絲》放映交流會	Feb. 26, 2019	田家炳基金會/香港科技大學賽馬會高等研究院/人文社會科學學院/人文學部	舒琪		
The Prose Poem: A Novel on a Page	Mar. 14, 2019	田家炳基金會/香港科技大學賽馬會高等研究院/人文社會科學學院/人文學部	Donald Berger		
Representation of China in British and Amercian Poetry II	Mar. 19, 2019	田家炳基金會/香港科技大學賽馬會高等研究院/人文社會科學學院/人文學部	Donald Berger		
對話《紅樓夢》	Mar. 21, 2019	田家炳基金會/香港科技大學賽馬會高等研究院/人文社會科學學院/人文學部	白先勇、劉再復	800	
超現實語境中的非虛構寫作	Apr.11, 2019	田家炳基金會/香港科技大學賽馬會高等研究院/人文社會科學學院/人文學部	梁鴻	200	
The Art of Poetry: Useless but Essential	Apr.16, 2019	田家炳基金會/香港科技大學賽馬會高等研究院/人文社會科學學院/人文學部	Donald Berger		
文學的興與衰	Apr.17, 2019	田家炳基金會/香港科技大學賽馬會高等研究院/人文社會科學學院/人文學部	張煒、閻連科	200	
五四之後：當代人文的三個方向：夏志清、李歐梵、劉再復國際學術研討會	May 9-10, 2019	田家炳基金會/香港科技大學賽馬會高等研究院/人文社會科學學院/人文學部/蘇州大學/哈佛大學		200	
		HUMA			
人文與商業-一個人類學博士的商業之道	May 16, 2019		龔百榮		

COMMITTEE ON UNDERGRADUATE STUDIES

Paper for: Discussion/Decision

Title: **Extended Major Program in Artificial Intelligence: Adding of "Business+Artificial Intelligence" and Electives**

Purpose: To add "Business+Artificial Intelligence" to the Extended Major Program in Artificial Intelligence for 2021-22 intake for consideration by the CUS

Submitted by: Interdisciplinary Programs Office

Prepared by: CUS Secretariat

BACKGROUND

1.   The Senate, at its 152nd meeting on 8 December 2020, approved the general framework of the "Extended Major" academic structure and the Extended Major Program in Artificial Intelligence ("Major+AI"). "Engineering+AI" and "ScienceA+AI" were the first two "Major+AI" Extended Major programs approved for offering in 2021-22. In the same meeting, the Committee on Undergraduate Studies (CUS) was also delegated the authority to approve new "Major+X" programs, adding an existing Major to an existing "X", changes to "X" curriculum and deletion of "Major+X" or "X".

2.   While the School of Business and Management (SBM) did not participate in the admission of "Major+AI+ via JUPAS 2021, the School is interested in offering the Extended Major via the Major selection for the 2021-2022 intake. The Interdisciplinary Programs Office (IPO) has therefore put forth a proposal on "Business+AI" Extended Major program for consideration and approval by the CUS. The proposal was endorsed by the Interdisciplinary Undergraduate Studies Committee (IUSC) at its meeting on 19 February 2021.

PROPOSED ARRANGEMENTS

3.   10 SBM Majors will participate in the "Business+AI" Extended Major Program. They are:

a) Professional Accounting (ACCT)
b) Economics (ECON)
c) Finance (FINA)
d) Global Business (GBUS)
e) Information Systems (IS)

f) Marketing (MARK)
g) Management (MGMT)
h) Operations Management (OM)
i) Economics and Finance (ECOF)
j) Quantitative Finance (QFIN)

4.   The initial quota is 30. It can be increased for future cohorts if the demand is high and the curriculum is proven manageable by "Business+AI" students. To help students make informed decisions, the declaration of the "Business+AI" for SBM students will take place only after Year 2 Winter Term, which is after Major declaration in Year 2 Fall Term.

5.   The "Business+AI" Extended Major program proposal, with details on the curriculum and the sample pathways, are presented in Appendix 1.

6.   IPO and participating Schools have also taken the opportunity to review the list of electives offered under the "Major+AI" curriculum in view of the potential increase in intake. To provide students from different backgrounds with more choices, in terms of both variety and level, the list of electives for the "Major+AI" will be expanded (Appendix 2).

ACTION SOUGHT

7.   CUS is invited to consider and approve as appropriate:
(a) the proposed addition of "Business+AI" to the Extended Major Program in AI, effective 2021-22 intake (via Major selection exercise only), as presented in Appendix 1; and
(b) addition of electives to "Major+AI" program (Appendix 2).

The HONG KONG UNIVERSITY OF SCIENCE AND TECHNOLOGY
Interdisciplinary Undergraduate Studies Committee

Adding "Business+AI" to "Major+X" Extended Major Program

BACKGROUND

1. The Senate, at its 152nd meeting on 8 December 2020, approved the general framework of the new academic structure "Extended Major" and the Extended Major Program in Artificial Intelligence (hereunder referred to as "Major+AI"). "Engineering+AI" and "ScienceA+AI" are the first two "Major+AI" Extended Major programs approved for offering in 2021-22.

2. In the meetings of SBM's School Administrative Committee (SAC) and the Committee on Undergraduate Programs (CUP), Department Heads and UG Coordinators reviewed the final proposal of "Major+X" Extended Major for SENG and SSCI for the 2021 intake. Although SBM has decided not to participate in the admission of "Major+AI" Extended Major via JUPAS 2021, members of both Committees' expressed the interest to offer "Major+AI" via major selection for the same intake.

3. SBM met with representatives from SENG, SSCI, IPO, AI-XAC and CSE on 30 November 2020 to discuss the preliminary proposal for "Business+AI" Extended Major program. Based on the feedback from meeting participants, SBM adjusted the quota and offered support in offering and coordinating AI courses (see Attachment 1).

4. The following paragraphs outlined the proposal for "Business+AI" program.

PROPOSAL FOR "BUSINESS+AI" EXTENDED MAJOR PROGRAM

5. **Participating Majors and Quota**

    a) A total of 10 SBM majors would participate in the "Business+AI" Extended Major program via major selection, namely Professional Accounting (ACCT), Economics (ECON), Finance (FINA), Global Business (GBUS), Information Systems (IS), Marketing (MARK), Management (MGMT), Operations Management (OM), Economics and Finance (ECOF), and Quantitative Finance (QFIN).

    b) The quota of "Business+AI" Extended Major program for 2021/22 intake is **30**. Hence, the maximum intake of "Major+AI" will be increased from 260 to 290.

Route	First-Year-First-Degree Quota	Major Selection Quota	Intake Size
Program-based Admission (PBA)	ScienceA+AI : 40 Engineering+AI : 150		190
School-based Admission (SBA)		ScienceA+AI : 40 Engineering+AI : 30 Business+AI : 30	100
Total			290

    c) The quota could be increased for future cohorts if the demand is high and the curriculum is proven manageable by "Business+AI" students.

6. **Application Timeline**
   Although it would be best to align with SENG and SSCI to offer the AI Extended Major during the major selection exercise in Year 1 Spring (i.e. Spring 2022), SBM have concerns about students' choosing the AI Extended Major without knowing their major program (as majority of SBM students declare major in Year 2 Fall). It was proposed that the declaration of AI by SBM students of 2021/22 intake should happen **at the end of the third term** in Winter 2023 after all SBM students have declared a major, considering that students may want to ensure that there are synergies between their major and AI before making a decision. This will hopefully reduce the dropout rate.

7. **Advising**
   a) SBM advising team would advise students on the challenge posed by technical AI courses and the rigorous workload (average of two AI courses per term). SBM would also ask students' preference for the AI extended major in the first term to estimate the no. of interested students and offer them proper advising.
   b) Students not qualified or ready for the AI extended major would not be enrolled into the "Business+AI" program. SBM is fine to tighten the enrollment requirement whenever necessary, e.g. by setting more subject requirements.

8. **Tentative Selection Criteria**
   a) Eligibility: Meeting the admission cutoff of the 2021 intake of "Engineering/ScienceA+AI"
   b) Minimum Requirement: CGA at B or above, and B- in both MATH1014 and ISOM2020
   c) Ranking Criteria: CGA of Fall 2022-23 (50%) as well as XCGA (50%) based on a combination of courses as listed below:
      • MATH1012/1013 Calculus IA/B*
      • MATH1014 Calculus II
      • ISOM2020 Coding for Business
      • ISOM2500 Business Statistics
      • ISOM2600 Introduction to Business Analytics
      * MATH1020 considered meeting the requirement if transferred.

9. **Capstone Projects**
   a) Following the approved "Major+X" framework, "Major+AI" students from majors that have capstone project/FYP requirement will register capstone project/FYP offered by their major PLUS IDPO4990 "Interdisciplinary Capstone Design" (0 credit), which together constitute "FYP+" in the course registration system and ensure that the capstone project/FYP have strong "AI" elements. Those from majors that do not require capstone project/FYP should take IDPO4991 "Interdisciplinary Capstone Project" (3 credits) designed for AI.
   b) Currently, except GBUS and QFIN, all SBM majors do not require a capstone project. Therefore, students from all participating majors except GBUS and QFIN will enroll in IDPO4991 in their final year.
   c) "GBUS+AI" students should take IDPO4991 (3 credits) in addition to GBUS's Capstone Project (GBUS4910 Capstone Project) where AI is not a necessary component in it.
   d) "QFIN+AI" students should take either i) FINA4803 Quantitative Trading (QFIN Capstone Project) with AI elements and IDPO4990 (0 credit) or ii) IDPO4991 (3 credits) to fulfill the AI Extended Major requirement on capstone project.
   e) Students taking IDPO4991 (3 credits) are required to take 6 credits of AI electives; those taking capstone project of the major and IDPO4990 (0 credit) will take 9 credits of AI electives.
   f) SBM faculty will jointly supervise these capstone projects with IPO faculty.

10. **SBM Courses Contributing to the AI Extended Major**
    The following SBM courses will be added to the AI Curriculum. A MGMT faculty will also represent SBM in discussion of the new ethics course for AI.
    • ACCT4720 Equity Investment with Machine Learning (3 credits)
    • ISOM3390 Business Programming in R (3 credits)

11. **Sample Study Pathways**
    a) The "Major+AI" curriculum is the same that for SENG and SSCI students (see <u>Attachment 2</u>).
    b) Based on the mathematics background upon admission, regular SBM students will follow either Pathways 1 or 2 (see <u>Attachment 3</u>) to complete their Major Foundation Courses in order to choose a major by the end of the third term the latest.
    c) Both groups will take the AI Seminar and Design Thinking Courses (IDPO2010 & IDPO2020) in the same term in Year 3 Fall.
    d) SBM would need help from CSE/SENG to enroll "Business+AI" students in Pathway 1 to take COMP1021 and those in Pathway 2 to take COMP2011 in Year 2 Spring after they declare the AI Extended Major in Winter 2022-23.

12. **Admissions 2022/23**
    SBM have decided that "Business+AI" will not participate in the Program-based Admission 2022, in view that SBM currently have many PBA routes (and may have a new program in 2022-23). The School would observe SBM students' interest in AI first.

<u>ACTION</u>

13. According to the procedure approved by the Senate, existing majors adding to an approved "Major+X" program do not need approval by the Senate. The proposal should be reviewed and endorsed by XAC and IUSC for recommendation to the CUS for final approval. And the entire approval process ends at the CUS.

14. IUSC is invited to consider and endorse as appropriate, the introduction of "Business+AI" to the "Major+AI" program. Upon endorsement, the proposal would be submitted to CUS for final approval.

<u>PRESENTATION</u>

15. The paper will be presented in IUSC meeting to be held on 19 Feb 2021.

<u>Attachments:</u>
1 – Proposal from SBM for "Business+AI" program
2 – Curriculum framework of "Major+AI" Extended Major program
3 – Proposed pathways for "Business+AI" program

Prepared by IPO and SBM
15 Jan 2021

THE HONG KONG UNIVERSITY OF SCIENCE & TECHNOLOGY
SCHOOL OF BUSINESS AND MANAGEMENT

MEMORANDUM

To : Professor Huamin Qu, Director of IPO

From : Professor Allen Huang, Associate Dean (Undergraduate Programs), SBM

C.c. : Professor Albert Chung and Professor Philip Mok, Associate Deans of SENG

Professor Pak Wo Leung and Professor Shing Yu Leung, Associate Deans of SSCI

Date : November 12, 2020

Subject : Requesting Quota of Major+AI Extended Major for SBM 2021 Intake via Major Selection

---

At the recent meetings of the School Administrative Committee (SAC) and the Committee on Undergraduate Programs (CUP), SBM Department Heads and UG Coordinators have reviewed the final proposal of the Major+AI Extended Major offered by SENG and SSCI for the 2021 intake. Even though SBM has decided not to participate in the admission of Major+X Extended Major via JUPAS, members at both Committees have expressed the interest to offer Major+AI via major selection for the same intake. After some initial discussions with IPO and SENG, SBM would like to formally submit our request for IPO's consideration. Below is our preliminary proposal.

1. Participating Programs and Quota

   At this stage, a total of 10 SBM programs would participate in the Major+AI Extended Major through major selection and they are Professional Accounting (ACCT), Economics (ECON), Finance (FINA), Global Business (GBUS), Information Systems (IS), Marketing (MARK), Management (MGMT), Operations Management (OM), Economics and Finance (ECOF) and Quantitative Finance (QFIN). We would like to offer a total of 50 seats to our students through major selection (5 seats per program on average).

2. Application Timeline

   We understand that it would be best to align with SENG and SSCI to offer the Extended Major during the major selection exercise in Year 1 Spring (in 2022). However, when discussing about the timeline, CUP members expressed their concerns about students' choosing the AI Extended Major without knowing their major program (as majority of SBM students declare major in Year 2 Fall) and proposed that the declaration of AI should happen at the end of the third term in Winter 2023 after all SBM students have declared a major. It does make sense as students may want to ensure that there are synergies between their major and AI before making a decision. This will hopefully also reduce the dropout rate.

3. Selection Criteria

   Tentatively, below are the eligibility, minimum requirement and selection criteria:
   - Eligibility: Meeting the admission cutoff of the 2021 intake of SSCI/SENG+AI

- Minimum Requirement: B- in MATH1014
- Ranking Criteria: CGA of Fall 2022-23 (50%) as well as XCGA (50%), a combination of courses that are relevant to AI

XCGA may include the following courses if we can arrange to declare AI in Year 2 Fall:

a. MATH1012/1013 Calculus IA/B
b. MATH1014 Calculus II
c. ISOM2010 Introduction to Information Systems
d. ISOM2020 Coding for Business
e. ISOM2500 Business Statistics
f. ISOM2600 Introduction to Business Analytics
g. ISOM2700 Operations Management

4. Capstone Project

Except GBUS, all SBM programs do not require a capstone project. Therefore, students from all programs except GBUS will enroll in IDPO4991 Interdisciplinary Capstone Project in their final year. SBM faculty will jointly supervise these capstone projects with IPO faculty.
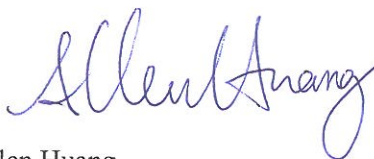
5. Courses to be Contributed to AI Extended Major

We understand that currently our ISOM Department has offered three courses (one background and two elective courses) in the curriculum, namely ISOM3230 Business Applications Programming, ISOM3340 Developing AI Applications and ISOM3360 Data Mining for Business Analytics. We shall further explore with Departments if more courses related to AI can be offered for the AI Extended Major.

6. Sample Study Pathways

Based on the mathematics background upon admission, regular SBM students follow either Pathways 1 or 2 to complete their Major Foundation Courses in order to choose a major by the end of the third term the latest. Because of the two different study plans, we have prepared two sample study pathways (BSc QFIN+AI and BBA OM+AI) as enclosed for your consideration. Please note that both groups will take the seminar and design thinking courses (IDPO2010 & IDPO2020) in the same term in Year 3 Fall. We may also need to seek help from SENG/COMP to enroll SBM students in Pathway 1 to take COMP1021 and those in Pathway 2 to take COMP2011 in Year 2 Spring after they declare the AI Extended Major in Winter 2022-23.

I would be most happy to meet with you or your delegates as well as SENG/SSCI colleagues to discuss further about our proposal. Meanwhile, please feel free to contact Ms Ka Yee Lee at Ext. 7546 or via email bmkayee@ust.hk should you have any questions. Thank you for your consideration.

Allen Huang
Associate Dean (Undergraduate Programs)
School of Business and Management

Encl.

From:	Ka Yee LEE
To:	Matthew CHIK
Cc:	Shirley Tang; Huamin Qu; Allen H HUANG; Bui Se Isabella FU
Subject:	RE: Meeting on SBM participating in Major+AI [10:30am, 30 Nov]
Date:	Monday, 21 December 2020 12:46:24 pm
Attachments:	AI Capstone Project Requirement.msg
	image001.jpg
	image002.jpg

Dear Matthew,

Once again, many thanks for the meeting notes. Below are our responses to your questions (point 5a-c):

5a. SBM to confirm the quota of the first intake
The quota for SBM Major+AI for 2021-22 intake via major selection is 30.

5b. SSCI and SBM to provide a list of courses which can be contributed to the AI curriculum
The following SBM courses can be added to the AI curriculum:
- ACCT4720 Equity Investment with Machine Learning (3 credits)
- ISOM3390 Business Programming in R (3 credits)

5c. Schools and IPO to coordinate on the Ethics course (might also include SHSS)
Our MGMT faculty Professor Yong Kim (yhk@ust.hk) has kindly agreed to represent the School to discuss about the new ethics course for AI.

As regards the admission of Major+AI in 2022-23, we have decided not to participate as well because we currently have many PBA routes (and may have a new program in 2022-23) and we would like to observe SBM students' interest in AI.

I've also attached the message that I sent last week about the comments from GBUS and QFIN on their capstone projects for AI for your information again.

Please feel free to contact me should you have any further questions. Many thanks again for your help!

Best,
Ka Yee

From: Matthew CHIK
Sent: Wednesday, December 2, 2020 12:47 PM
To: Allen H HUANG <acahuang@ust.hk>; Shing Yu LEUNG <masyleung@ust.hk>; Nevin L ZHANG <lzhang@ust.hk>; achung <achung@cse.ust.hk>; Philip K T MOK <eemok@ust.hk>; P. W. Leung <phleung@ust.hk>; dyyeung <dyyeung@cse.ust.hk>; Huamin Qu <huamin@cse.ust.hk>; Jimmy C H FUNG <majfung@ust.hk>; Shirley Tang <egtang@ust.hk>; Ka Yee LEE <bmkayee@ust.hk>; Patricia S C LAI <egpat@ust.hk>; Anthea CHENG <ssanthea@ust.hk>
Subject: RE: Meeting on SBM participating in Major+AI [10:30am, 30 Nov]

Dear all

Thanks for attending the zoom meeting on 30 Nov 2020. Below please find the brief notes for your reference. Kindly follow up on the action items (see Point #5) and update us by 23 Dec 2020.

1. Quota:
   - SBM was suggested to reduce the quota of the 1st cohort from 50 to 30 to ensure students taking Business+AI can manage and complete the AI extended major successfully. The quota could be increased for future cohorts if the demand is high and the curriculum is proven manageable by Business+AI students.

2. Advising:
   - SBM advising team would advise students on the challenge posed by technical AI courses and the rigorous workload (average of two AI courses per term). SBM would ask students' preference for the extended major in the first term to estimate the no. of interested students and offer them proper advising.
   - Prof Allen Huang assured that students not qualified or ready for the AI extended major would not be enrolled. The School is fine to tighten the enrollment requirement whenever necessary, e.g. setting more subject requirements.

3. Concern on course quotas:
   - COMP3211 (required course without alternatives) would be the major bottleneck limiting the expansion of Major+AI. DY noted that CSE would introduce COMP2211 in Spring 2022, which is less technical and can be an alternative of COMP3211 in the future.
   - CSE urge commitment from other participating schools to share existing AI-related courses or offer new ones for Major+AI program, in order to
     - i.   relieve the bottleneck to enable expansion of quota of Major+AI program,
     - ii. share burden on course offering and
     - iii. provide more variety and level of courses for students from different background.
   - CSE is planning to offer a Common Core Course named COMP1944 (Artificial Intelligence Ethics) starting from Fall 2021. The AI extended major will also offer IDPO4120 (Ethics in AI) as an elective course in the AI curriculum. Prof Allen Huang would check if SBM could contribute in developing ethics courses. IPO shall coordinate among Schools on offering of the ethics course.
   - SBM Year 1 students will take ISOM2020 (Coding for Business) in Year 1 Spring or Year 2 Fall as a School requirement course. They may not be able to take fundamental COMP courses to fulfill the pre-requisite requirement of COMP2011 (Programming with C++), i.e. COMP1021 or COMP1022P. As advised by CSE, SBM students could take a placement test. Students who pass the test can directly enroll into COMP2011 without having to take its prerequisites.

4. Capstone Project:

- Prof. Huamin Qu clarified that IPO would play a coordinator role to make sure that the AI Capstone Projects have AI components. If the students' major department does not have enough faculty members specialized in AI, IPO can help coordinate the manpower for supervision of the Capstone Project.
- Participating schools and IPO agreed that it is hard to predict the enrollment and make manpower plan at this point. It was also understood that GZ faculty and Research Assistant Professors (RAPs) could be tapped on. However, if the University could not provide sufficient resources, the quota would be inevitably adjusted downward.

5. Follow-up Items (by 23 Dec 2020):

   a. SBM to confirm the quota of the first intake
   b. SSCI and SBM to provide a list of courses which can be contributed to the AI curriculum
   c. Schools and IPO to coordinate on the Ethics course (might also include SHSS)

Cheers,

Matthew

Interdisciplinary Programs Office
The Hong Kong University of Science and Technology
Tel: +852 3469 2071

From: Matthew CHIK
Sent: Thursday, 26 November, 2020 2:18 PM
To: Allen H HUANG <acahuang@ust.hk>; Shing Yu LEUNG <masyleung@ust.hk>; Nevin L ZHANG <lzhang@ust.hk>; achung <achung@cse.ust.hk>; Philip K T MOK <eemok@ust.hk>; P. W. Leung <phleung@ust.hk>; dyyeung <dyyeung@cse.ust.hk>; Huamin Qu <huamin@cse.ust.hk>; Jimmy C H FUNG <majfung@ust.hk>; Shirley Tang <egtang@ust.hk>; Ka Yee LEE <bmkayee@ust.hk>; Patricia S C LAI <egpat@ust.hk>; Anthea CHENG <ssanthea@ust.hk>
Cc: Maggie NG <maggien@ust.hk>
Subject: RE: Meeting on SBM participating in Major+AI [10:30am, 30 Nov]

Dear all,

Please find the meeting details as follows:
Direct Link: https://hkust.zoom.us/j/91066792633?pwd=TW5mYmRNTzdmK1NndmhUdGhrMGVQUT09
Meeting ID: 910 6679 2633
Passcode: 555968

Attached are the memo prepared by SBM and also the ppt slides to be presented during the meeting.

See you all on Monday.

Cheers,
Matthew

(For students admitted in 2021-22 under the 4-year degree)   *[Revised on February 2021]*

Extended Major Program in Artificial Intelligence (AI)

Extended Major is an add-on element to enrich the existing majors. Students should declare their Extended Major (i) upon admission to HKUST for guaranteed enrollment in the Extended Major with a Major or (ii) during the Major Selection Exercise in Spring term of their Year 1. Students who wish to withdraw from the Extended Major should apply before the last day of the add/drop period in the first regular term of their final year of study.

The Extended Major in Artificial Intelligence is available for combination with Science Majors (BSc programs in Mathematics, Ocean Science and Techonology, Physics), any Engineering Majors or Business Majors (BBA/BSc programs in Professional Accounting, Economics, Finance, Global Business, Information Systems, Marketing, Management, Operations Management, Economics and Finance, and Quantitative Finance). It is designed for students with fundamental knowledge in calculus (e.g. MATH 1014/MATH 1020/MATH 1024), statistics (ISOM2500/MATH2411) and programming (COMP 1021/COMP 1022P/ISOM 3230), but also open to other students, given that they may be required to take one or two additional courses to acquire relevant foundation.

To graduate with an Extended Major in AI, students must have enrolled in the Extended Major, complete a minimum of 22 credits and all of its requirements, as well as the requirements of the major program of study; and have attained an average grade point of at least 2.15 in courses taken within the Extended Major.

Students must take all the Extended Major requirement, within which they must complete at least 12 single-counted credits. These 12 credits cannot be used to fulfill any other requirements for graduation except for the 120-credit degree requirement. For credit transfer, students can transfer a maximum total of 6 credits to the Extended Major program.

Extended Major Requirements   Total: 22 - 23

Required Course(s)   13-17

IDPO	2010A		Cross-disciplinary Seminar in Artificial Intelligence	0
IDPO	2020		Cross-disciplinary Design Thinking	3
COMP			Note: COMP 2011 OR COMP 2012 OR COMP 2012H	4 - 5
COMP	2011		Programming with C++	4
COMP	2012		Object-Oriented Programming and Data Structures	4
COMP	2012H		Honors Object-Oriented Programming and Data Structures	5
COMP	3211		Fundamentals of Artificial Intelligence	3
COMP/IDPO/MATH			Note: COMP 4211 OR IDPO 4110 OR MATH 4432	3
COMP	4211		Machine Learning	3
IDPO	4110		Practical Machine Learning	3
MATH	4432		Statistical Machine Learning	3
IDPO			*Note: IDPO 4990 OR IDPO 4991*	0 - 3
			IDPO 4990 is for students with Final Year Project requirement in their Major	
IDPO	4990		Interdisciplinary Capstone Design	0
IDPO	4991		Interdisciplinary Capstone Project	3

Elective Course(s)

				Minimum credit(s) required
			Students taking IDPO4990 should take a minimum of 9 credits	6-9
			Students taking IDPO4991 should take a minimum of 6 credits	
ACCT	**4720** *(new)*		**Equity Investment with Machine Learning**	**3**
COMP	4221		Introduction to Natural Language Processing	3
COMP	4321		Search Engines for Web and Enterprise Data	3
COMP	4331		Data Mining	3
COMP	4332		Big Data Mining and Management	3
COMP/ELEC/MATH			Note: COMP 4421 OR ELEC 4130 OR MATH 4336	
COMP	4421		Image Processing	3
ELEC	4130		Digital Image Processing	3
MATH	4336		Introduction to Mathematics of Image Processing	3
COMP	4451		Game Programming	3
COMP/DASC			Note: COMP 4462 OR DASC 3240	
COMP	4462		Data Visualization	3
DASC	3240		Data Visualization in Science	3
COMP	4471		Deep Learning in Computer Vision	3
COMP	4641		Social Information Network Analysis and Engineering	3
COMP	4901K		Machine Learning for Natural Language Processing	3
COMP	4901L		Foundations of Computer Vision	3
DASC	**3250** *(new)*		**Numerical Methods and Machine Learning for Data Analytics in Science**	**3**
DASC	**4400** *(new)*		**Data Analytics in Information Science**	**3**
ELEC	4230		Deep Learning for Natural Language Processing	3
IEDA	**3010** *(new)*		**Prescriptive Analytics**	**3**
IEDA	**3560** *(new)*		**Predictive Analytics**	**3**
IDPO	4120		*Ethics of Artificial Intelligence*	3
ISOM	3340		Developing AI Applications	1
ISOM	3360		Data Mining for Business Analytics	3
ISOM	**3390** *(new)*		**Business Programming in R**	**3**
MATH	**3425** *(new)*		**Stochastic Modeling**	**3**
MATH	**4335** *(new)*		**Optimization**	**3**
PHYS	**4058** *(new)*		**Information Physics**	**3**
PHYS	**4811** *(new)*		**Contemporary Applications of Physics: Machine Learning in Physics**	**1**

The Hong Kong University of Science and Technology
School of Business and Management
An Example on Student's Pathway (2022-23 "SBA+X" Admission)

Attachment 1 (P.2)

|< *Declaration of major*

School:		School of Business and Management		Student's Pathways (i.e. Study Pattern)								
Department:		Department of Finance				Pathway 2						
Program:		BSc in Quantitative Finance + Extended Major in Artificial Intelligence (AI)		Background: HKDSE 4 Core + 2 Elec								
				Profile: Normative								

Course Offering Dept (course code prefix)	Course Code	Course Title / Courses List	Credits	Year 1 Fall	Year 1 Spring	Year 2 Fall	Year 2 Spring	Year 3 Fall	Year 3 Spring	Year 4 Fall	Year 4 Spring	Sub-total
School Requirements												
ISOM	2010	Introduction to Information Systems	3		3							3
ISOM	2020	Coding for Business	1		1							1
ISOM	2500	Business Statistics	3	3								3
ISOM	2600	Introduction to Business Analytics	1		1							1
ACCT	2010	Principles of Accounting I	3	3								3
ECON		Note: ECON 2103 OR ECON 2113^	3	3	[3]							3
ECON	2103	Principles of Microeconomics	3									
ECON	2113	Microeconomics	3									
ECON		Note: ECON 2123 OR ECON 3123 (Students who wish to pursue BSc ECOF must take ECON 3123)				3						3
ECON	2123	Macroeconomics	3									
ECON	3123	Macroeconomic Theory I	3									
FINA	2303	Financial Management	3		3							3
MGMT	2010	Business Ethics and the Individual	2		2							2
MGMT	2130	Business Ethics and Social Responsibility	2					2	[2]			2
SBMT	1111	Business Student Induction	0	0								0
LABU	2040	Business Case Analyses	3			3	[3]					3
LABU	2060	Effective Communication in Business	3			[3]	3					3
MATH		Note: MATH 1003 OR MATH 1012 OR MATH1013 OR MATH 1020 OR MATH 1023	3-4	3								3
MATH	1003	Calculus and Linear Algebra	3									
MATH	1012	Calculus IA	4									
MATH	1013	Calculus IB	3									
MATH	1020	Accelerated Calculus	4									
MATH	1023	Honors Calculus I	3									
Required credits for School Requirements			33-34									33
Major Requirements												
Major Required Courses and Electives												
FINA	2101	Introduction to Finance	1				1					1
FINA	3103	Intermediate Investments	3				3					3
FINA	3203	Derivative Securities	3					3				3
FINA	3303	Intermediate Corporate Finance	3						3			3
FINA	3810	Bloomberg Market Concepts Certification	0				0					0
FINA	4803	Quantitative Trading	3								3	3
ECON	3334	Introduction to Econometrics	4					4				4
ISOM	3230	Business Applications Programming	3				3					3
MATH		Note: MATH 1014 OR MATH 1024 (Students taken MATH 1020 to fulfill the School Requirements may ne exempted from this requirment)	0-3		3							3
MATH	1014	Calculus II	3									
MATH	1024	Honors Calculus II	3									
MATH		Note: MATH 2011 OR MATH 2023	3-4						3			3
MATH	2011	Introduction to Multivariable Calculus	3									
MATH	2023	Multivariable Calculus	4									
QFIN		Restricred Electives (Courses from the specified elective list, of which at least 3 credits from Area A, at least 6 credits from Area B, and at least 9 credits from Area C)	18						6	6	6	18
Required credits for Major Required Courses and Electives			41-45									44
AI Requirements												
Recommended Background Courses												
COMP/ISOM		Note: COMP 1021 OR COMP 1022P OR ISOM 3230	3			[3]						0
COMP	1021	Introduction to Computer Science	3									
COMP	1022P	Introduction to Computing with Java	3									
ISOM	3230	Business Applications Programming	3									
		Remarks: 1) COMP 1021 is an exclusion to ISOM 2020 . Students must complete ISOM2020 prior to COMP 1021. 2) ISOM 3230 has ISOM 2010 as prerequisite (For non-BSc in Quantitative Finance students).										
MATH		Note: MATH 1014 OR MATH 1020 OR MATH 1024	3-4			[3]						0
MATH	1014	Calculus II	3									
MATH	1020	Accelerated Calculus	4									
MATH	1024	Honors Calculus II	3									
		Remarks: 1) Only students who studied MATH1003 (A- or above), MATH1012, MATH1013, MATH1020 or MATH1023 are eligible to further study in these MATH courses.										
ISOM/MATH		Note: ISOM 2500 OR MATH 2411	3-4	[3]								0
ISOM	2500	Business Statistics	3									
MATH	2411	Applied Statistics	4									
Required credits for AI Recommended Background Courses			9-11									0
Major Required Courses and Electives												
IDPO	2010A	Cross-disciplinary Seminar in Artificial Intelligence	0					0				0
IDPO	2020	Cross-disciplinary Design Thinking	3					3				3
COMP		Note: COMP 2011 OR COMP 2012 OR COMP 2012H	4-5				4					4
COMP	2011	Programming with C++	4									
COMP	2012	Object-Oriented Programming and Data Structures	4									
COMP	2012H	Honors Object-Oriented Programming and Data Structures	5									
COMP	3211	Fundamentals of Artificial Intelligence	3						3			3
COMP/IDPO/MATH		Note: COMP 4211 OR IDPO 4110 OR MATH 4432	3							3		3
COMP	4211	Machine Learning	3									
IDPO	4110	Practical Machine Learning	3									
MATH	4432	Statistical Machine Learning	3									
IDPO		Note: IDPO 4990 OR IDPO 4991	0-3							3		3
IDPO	4990	Interdisciplinary Capstone Design	0									
IDPO	4991	Interdisciplinary Capstone Project	3									
SBM/SENG/SSCI/IPO		AI Electives	6-9						3		3	6
Required credits for AI Required Courses and Electives			22-26									22
University CORE												
CORE	C3 - C12	U CORE - Others	30	0	0	3	3	3	6	9	6	30
CORE	C1 & C2	U CORE - English Language	6	3	3							6
Sub-total for University CORE			36									36

						Term load (excl. free credits)						
				15	16	16	17	17	18	18	18	
							135#					

|< *Declaration of major*

Notes:

[ ] denotes the course is also offered in other terms as indicated and students have the flexibility to take the course in one of these terms.

To graduate, students should complete at least 120 credits in approved courses. They may need to take courses additional to the required and elective courses as specified above to meet this minimum credit requirement.

>> The content of this example is not necessarily equivalent to a complete list of graduation requirements of the program. Students should refer to the Program Catalog/UG Curriculum Handbook for updated graduation requirements. For up-to-date information on course offering and scheduling, students should check it out from respective School and Department.

The Hong Kong University of Science and Technology
School of Business and Management
An Example on Student's Pathway (2022-23 "SBA+X" Admission)

<< *Declaration of major*

School:		School of Business and Management		Student's Pathways (i.e. Study Pattern)								
Department:		Department of Information Systems, Business Statistics and Operations Management		Pathway 1								
Program:		BBA in Operations Management + Extended Major in Artificial Intelligence (AI)		Background: HKDSE 4 Core + 2 Elec Profile: Normative								
Course Offering Dept (course code prefix)	Course Code	Course Title / Courses List	Credits	Year 1 Fall	Year 1 Spring	Year 2 Fall	Year 2 Spring	Year 3 Fall	Year 3 Spring	Year 4 Fall	Year 4 Spring	Sub-total
School Requirements												
ISOM	2010	Introduction to Information Systems	3			3						3
ISOM	2020	Coding for Business	1			1						1
ISOM	2500	Business Statistics	3		3							3
ISOM	2600	Introduction to Business Analytics	1			1						1
ISOM	2700	Operations Management	3			3	[3]					3
ACCT	2010	Principles of Accounting I	3	3								3
ACCT	2200	Principles of Accounting II	3					3				3
ECON ECON ECON	2103 2113	Note: ECON 2103 OR ECON 2113^ Principles of Microeconomics Microeconomics	3 3 3	3	[3]							3
ECON ECON ECON	2123 3123	Note: ECON 2123 OR ECON 3123 (Students who wish to pursue BSc ECOF must take ECON 3123) Macroeconomics Macroeconomic Theory I	3 3				[3]	3				3
FINA	2303	Financial Management	3			3						3
MARK	2120	Marketing Management	3		3	[3]						3
MGMT	2010	Business Ethics and the Individual	2	2								2
MGMT	2110	Organizational Behavior	3		[3]	3						3
MGMT	2130	Business Ethics and Social Responsibility	2						2	[2]		2
SBMT	1111	Business Student Induction	0	0								0
LABU	2040	Business Case Analyses	3				3	[3]				3
LABU	2060	Effective Communication in Business	3				[3]	3				3
MATH MATH MATH MATH MATH MATH	1003 1012 1013 1020 1023	Note: MATH 1003 OR MATH 1012 OR MATH1013 OR MATH 1020 OR MATH 1023 Calculus and Linear Algebra Calculus IA Calculus IB Accelerated Calculus Honors Calculus I	3-4 3 4 3 4 3	3								3
		Required credits for School Requirements	45-46									45
Major Requirements												
Major Required Courses and Electives												
ISOM	3710	Business Modeling and Optimization	4					4				4
ISOM	3770	Global Supply Chain Management	4						4			4
ISOM		OM Electives (Any 4 ISOM courses coded between 3500 and 3999; 4500 and 4999. Students taking the Business Analytics Option can only use courses in the specified elevtive list to fulfill this requirement.)	12							6	3 3	12
		Required credits for Major Required Courses and Electives	20									20
Option Requirements												
Business Analytics Option												
ISOM	3360	Data Mining for Business Analytics	3					3	[3]			3
ISOM	3900	Decision Analytics	3						3			3
		Required credits for Business Analytics Option	6									6
AI Requirements												
Recommended Background Courses												
COMP/ISOM COMP COMP ISOM	1021 1022P 3230	Note: COMP 1021 OR COMP 1022P OR ISOM 3230 Introduction to Computer Science Introduction to Computing with Java Business Applications Programming **Remarks:** 1) COMP 1021 is an exclusion to ISOM 2020 . Students must complete ISOM2020 prior to COMP 1021. 2) ISOM 3230 has ISOM 2010 as prerequisite (For non-BSc in Quantitative Finance students).	3 3 3 3					3				3
MATH MATH MATH MATH	1014 1020 1024	Note: MATH 1014 OR MATH 1020 OR MATH 1024 Calculus II Accelerated Calculus Honors Calculus II **Remarks:** 1) Only students who studied MATH1003 (A- or above), MATH1012, MATH1013, MATH1020 or MATH1023 are eligible to further study in these MATH courses.	3-4 3 4 3			3	[3]					3
ISOM/MATH ISOM MATH	2500 2411	Note: ISOM 2500 OR MATH 2411 Business Statistics Applied Statistics	3-4 3 4		[3]							0
		Required credits for AI Recommended Background Courses	9-11									6
Major Required Courses and Electives												
IDPO	2010A	Cross-disciplinary Seminar in Artificial Intelligence	0					0				0
IDPO	2020	Cross-disciplinary Design Thinking	3					3				3
COMP COMP COMP COMP	2011 2012 2012H	Note: COMP 2011 OR COMP 2012 OR COMP 2012H Programming with C++ Object-Oriented Programming and Data Structures Honors Object-Oriented Programming and Data Structures	4-5 4 4 5					4				4
COMP	3211	Fundamentals of Artificial Intelligence	3							3		3
COMP/IDPO/MATH COMP IDPO MATH	4211 4110 4432	Note: COMP 4211 OR IDPO 4110 OR MATH 4432 Machine Learning Practical Machine Learning Statistical Machine Learning	3 3 3 3						3			3
IDPO IDPO IDPO	4990 4991	Note: IDPO 4990 OR IDPO 4991 Interdisciplinary Capstone Design Interdisciplinary Capstone Project	0-3 0 3								3	3
SBM/SENG/SSCI/IPO		AI Electives	6-9							3	3	6
		Required credits for AI Required Courses and Electives	22-26									22
University CORE												
CORE	C3 - C12	U CORE - Others	30	0	3	3	0	0	3	9	12	30
CORE	C1 & C2	U CORE - English Language	6	3	3							6
		Sub-total for University CORE	36									36
		Term load (excl. free credits)		14	18	17	16	16	18	18	18	
		**129 (w/o option)	135 (w/ option)#**										

<< *Declaration of major*

Notes:

[ ] denotes the course is also offered in other terms as indicated and students have the flexibility to take the course in one of these terms.

\# To graduate, students should complete at least 120 credits in approved courses. They may need to take courses additional to the required and elective courses as specified above to meet this minimum credit requirement.

>> The content of this example is not necessarily equivalent to a complete list of graduation requirements of the program. Students should refer to the Program Catalog/UG Curriculum Handbook for updated graduation requirements. For up-to-date information on course offering and scheduling, students should check it out from respective School and Department.

THE HONG KONG UNIVERSITY OF SCIENCE AND TECHNOLOGY
Changes to Existing Undergraduate Program

Section 1: General Information

a) The program is a : Major ◯   Minor ◌   Other ◉

b) Title: Extended Major in Artificial Intelligence

c) School/IPO recommending the change(s): Interdisciplinary Programs Office

d) Offering Department(s): Interdisciplinary Programs Office

e) Effective term for the change(s) proposed: Fall 2021-22

f) Changes proposed applicable to student cohorts of: Fall 2021-22 and thereafter

Section 2: Submission and Recommendation

Proposal Submission and Recommendation

Offering Department/Program Unit	Position	Name	Date
Interdisciplinary Programs Office	Director	Prof Huamin QU	3-Feb-21

Recommending School/IPO	Position	Name	Date
Interdisciplinary Programs Office	Chair of IUSC	Prof Jimmy FUNG	22-Feb-21

Concurrence

School/Dept/Program Unit	Position	Name	Date
School of Engineering	Associate Dean	Prof Philip MOK	21-Jan-21
School of Science	Associate Dean	Prof Pak Wo LEUNG	28-Jan-21
School of Business and Management	Associate Dean	Prof Allen HUANG	29-Jan-21
School of Humanities & Social Science	Associate Dean	Prof Carine YIU	27-Jan-21
Dept of Accounting	Head of Dept	Prof Mingyi HUNG	27-Jan-21
Dept of Industrial Engineering & Decision Analytics	UG Coordinator	Prof Jiheng ZHANG	21-Jan-21
Dept of Information Systems, Business Statistics & Operations Management	Deputy Head of Dept	Prof Kai Lung HUI	21-Jan-21
Dept of Mathematics	UG Coordinator	Dr Tsz Kin LAM	21-Jan-21
Dept of Physics	UG Coordinator	Prof Bradley A FOREMAN	22-Jan-21
X Academic Committee	UG Coordinator	Prof Huamin QU	3-Feb-21

Section 3: Recommended Change

The following changes are recommended:

☐ Change to the program title

New program title: _____

◼ Change in enrollment requirements

Please specify the change: Pending approval of Business+AI program, business students of 2021/22 cohort are also eligible for enrolling into the AI Extended Major through Major Selection Exercise in Winter 2023. The tentative quota of the Business+AI program is 30.

☐ Addition/deletion* of an Option, track or concentration of a major   *(*delete as appropriate)*

Name of Option/track/concentration: _____

☐ Changes to required course(s)

Course code:	☐ Add	☐ Remove
Course code:	☐ Add	☐ Remove
Course code:	☐ Add	☐ Remove

◼ Changes to elective requirements

(Details: Add courses to the list of elective requirements)

☐ Other changes

(Details:)

Section 4: Documentation Required

Please indicate if documentation is attached

a)	Reasons for proposing the changes	◼
b)	Feedback from stakeholders, including student feedback	☐
c)	Revised curriculum	◼
d)	Revised sample student pathways	☐
e)	Impact on educational objectives and intended learning outcomes	☐
f)	Transitional arrangements	☐

a) Reasons for proposing the changes

In anticipation of the large intake (290 students per cohort), IPO and participating schools propose adding the following courses to the elective requirement to share burden on course offering and provide more variety and levels of courses for students from different backgrounds.

Estimated enrollment

Major+X program	2021-22	2022-23	2023-24	2024-25
Engineering + AI	150	150 + 180	150 + 180 + 180	150 + 180 + 180 + 180
Science A + AI	40	40 + 80	40 + 80 + 80	40 + 80 + 80 + 80
Business + AI		30	30 + 30	30 + 30 + 30
Total	190	480	770	1060

Courses proposed for Major+AI elective requirement:

ACCT	4720	Equity Investment with Machine Learning	3-credit
DASC	3250	Numerical Methods and Machine Learning for Data Analytics in Science	3-credit
DASC	4400	Data Analytics in Information Science	3-credit
IEDA	3010	Prescriptive Analytics	3-credit
IEDA	3560	Predictive Analytics	3-credit
ISOM	3390	Business Programming in R	3-credit
MATH	3425	Stochastic Modeling	3-credit
MATH	4335	Optimization	3-credit
PHYS	4058	Information Physics	3-credit
PHYS	4811	Contemporary Applications of Physics: Machine Learning in Physics	1-credit

The revised curriculum is available in <u>Attachment 2</u> to <u>Appendix 1</u> "Adding "Business+AI" to "Major+X" Extended Major Program".

COMMITTEE ON UNDERGRADUATE STUDIES

Paper for: Discussion/Decision

Title: **Dual Degree Program in Technology and Management: (i) BEng in Aerospace Engineering; and (ii) BSc in Integrative Systems and Design with BBA Programs**

Purpose: The Interdisciplinary Programs Office submits two proposals of the deviation arrangements for two new dual degree programs – BEng in Aerospace Engineering and BSc in Integrative Systems and Design, with BBA in Economics, BBA in Finance, BBA in General Business Management, BBA in Management and BBA in Marketing to take effect from Fall 2021-22 for consideration by the CUS

Submitted by: Interdisciplinary Programs Office

Prepared by: CUS Secretariat

BACKGROUND

1.   Under the four-year degree, students will declare their Major under respective schools, while they have also the option to enroll in the dual degree program under which students may earn two different degrees by fulfilling all the requirements of both degree programs.

2.   At its 124th CUS meeting in May 2012, CUS approved the deviation arrangements for the first batch of nine BEng and BBA dual degree programs under the four-year degree curriculum. With the demand for more combinations of dual degree program, the Interdisciplinary Programs Office (IPO) has submitted two proposals regarding pre-approved deviation arrangements for two new dual degree programs - BEng in Aerospace Engineering and BBA and BSc in Integrative Systems and Design and BBA.

PROPOSED ARRANGEMENTS

3.   The proposed deviation arrangements follow the framework as approved in May 2012 which are summarized as follows:

     (a) *Minimum 120-credit requirement:* in the attached normative study plans, the total credits students will earn when completing the newly proposed BEng/BSc and BBA dual degree programs range from 182 to 191, and would not be required to complete additional credits.

(b) *University Common Core requirement:* students must complete all the requirements of the University Common Core, and may count this to both degrees.

(c) *University English Language requirement:* The English Language requirements of the dual degree program combine requirements of the University, School of Engineering (SENG) and School of Business and Management (SBM), with the 6-credit University English Core courses being counted towards both degrees (see *Attachment C* of Appendices 1 and 2).

(d) *Substitution and waiver of courses and requirements for School and major requirements:* Details of the substitution and waiver arrangements are set out in *Attachment A* of Appendices 1 and 2.

(e) *Additional requirement:* Students in the dual degree program are required to take an additional non-credit bearing course TEMP 1010 *Technology and Management Professional Activities*, in addition to the School and major requirements, with an intention to enhance their academic and/or personal development (see *Attachment A* of Appendices 1 and 2).

4.   The deviation arrangements have been reviewed and agreed by the SENG and SBM.

5.   The deviations from curriculum proposed in paragraph 3 could apply to all students enrolled in the two dual degree programs. Any further deviation from the curriculum that may be necessary for individual student, or further curricular changes, will be subject to approval by SENG and SBM, following the current policy and procedures for approving deviations from curriculum.

6.   The changes are proposed to take effect from Fall 2021-22, applicable to 2020-21 cohort and beyond.

TOTAL CREDITS AND STUDY PATHWAYS
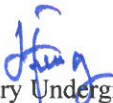
7.   For the reference of the Committee, the study pathways for students directly admitted to the Dual Degree Program, as well as those admitted from the Schools of Engineering, and Business and Management are presented in *Attachment B* of Appendices 1 and 2. Provided that there is sufficient overlap of courses between the Common Core and School/Major Requirements, students may further benefit from reduced requirements of 15 credits.

ACTION SOUGHT
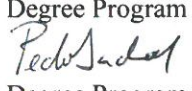
8.   CUS is invited to

(i)   consider and approve as appropriate the proposed deviation arrangements for the dual degree programs under the four-year curriculum set out above in paragraph 3 and in *Attachment A* of Appendices 1 and 2; and

(ii)   note for information the total credits needed to complete the proposed dual degree programs, and the students' study pathways as presented in *Attachment B* of Appendices 1 and 2.

MEMORANDUM

To:	CUS Secretariat
via:	Prof. Jimmy Fung
Chair, Interdisciplinary Undergraduate Studies Committee
From:	Prof. Kai Lung Hui
Co-director of Dual Degree Program in Technology & Management
&	Prof. Pedro Sander
Co-director of Dual Degree Program in Technology & Management
Date:	10th February, 2021
Our Ref:	402/DDP
Subject:	Proposed 5Y Curriculum of Dual Degree Program in Technology & Management (BEng in Aerospace Engineering and BBA)

Dual Degree Program in Technology & Management (T&M-DDP) would like to propose the 5-year curriculum for BEng in Aerospace Engineering and BBA with effect from Fall 2021-22. This change will have effect on the 2020-2021 cohort onwards. The new curriculum will include 5 new majors. The program structure is listed below.

**Total:
5 new majors**	BEng in Aerospace Engineering	and	BBA in Economics
			BBA in Finance
			BBA in General Business Management
			BBA in Management
			BBA in Marketing

Students can admit to T&M-DDP via program-based admission or school-based admission. Program-based admission students will be admitted to T&M-DDP in their first year and school-based admission students will be admitted to T&M-DDP in their second year. Students will declare their major via the Major Selection Exercises (MSE) at the ends of their first year and second year for BEng/BSc degree and BBA degree of T&M-DDP respectively. Pathway templates of all new majors for program-based admission students and two sets of sample pathway for school-based admission students are presented to demonstrate their study progress *(see Attachment B)*.

The program requirements of T&M-DDP are devised by combining the requirements of the BEng/BSc program and the BBA program. This will apply in the proposed 5-year curriculum with the following taken into consideration:

1. Deviation from Curriculum
   The course substitutions and waivers that are applicable in the existing BEng/BSc&BBA Dual Degree program will continue to apply in the proposed Dual Degree programs of BEng in Aerospace Engineering and BBA (s*ee Attachment A).*

2. Additional Dual Degree Requirements
   Additional requirements specifically for the Dual Degree Program, including TEMG1010 and TEMG3950 are presented in the pathway templates (see *Attachment B*) and "Deviation from Curriculum" (see *Attachment A*).

3. English Language Requirements
   The English Language requirements of BEng in Aerospace Engineering and BBA are a combination of the requirements of university, AE, SENG and SBM (see *Attachment C*).

4. Double Counting of Common Core Requirements
   The double-counting policy applicable to existing BEng/BSc&BBA Dual Degree programs, which is to apply double-counting policy to each degree separately will continue to apply in the proposed Dual Degree programs.

   For BEng in Aerospace Engineering, students may reuse up to 9 credits of courses to count towards both the School Requirements and the University Common Core Requirements.

   For BBA degree in all Dual Degree programs, students may reuse up to 6 credits of courses to count towards both the School Requirements and the University Common Core Requirements.

   By combining the two degrees, students can double-count up to 15 credits. The total credits requirements are as follow:

Total Credits Requirements	
Without double-counting of Common Core Requirements	After double-counting of Common Core Requirements is applied
191-182	176-167

Below please find the concurrence obtained from departments/schools in concern,

School/Dept.	Approval	Name	Date
MAE	Yes / ~~No~~	Prof. Baoling HUANG, UG Coordinator	19 Feb 2021
ECON	Yes / ~~No~~	Prof. Wooyoung LIM	10 Feb 2021
FINA	Yes / ~~No~~	Prof. Ekkachai SAENYASIRI	19 Feb 2021
MARK	Yes / ~~No~~	Prof. Jiewen HONG	16 Feb 2021
MGMT	Yes / ~~No~~	Prof. Yaping GONG	16 Feb 2021
SENG	Yes / ~~No~~	Prof. Philip L. T. MOK, Associate Dean of Engineering	18 Feb 2021
SBM	Yes / ~~No~~	Prof. Allen HUANG, Associate Dean (UG Programs)	19 Feb 2021

For consideration and approval please. Thank you very much.

Encl.

A. Attachment A – Deviation from Curriculum
B. Attachment B – Suggested pathways of Dual Degree programs of BEng in Aerospace Engineering and BBA
C. Attachment C – English language requirements of Dual Degree programs of BEng in Aerospace Engineering and BBA

Deviation from curriculum
for Dual Degree Program

Degree Program 1:   *BEng in Aerospace Engineering (AE)*

Degree Program 2:   *BBA in Economics (ECON) OR*

                                 BBA in Finance (FINA) OR

                                 BBA in General Business Management (GBM) OR

                                 BBA in Management (MGMT) OR

                                 BBA in Marketing (MARK)

Degree Program	Original requirements specified for the degree program		Substituted/ Waived/ Additional Req't/ Others	Proposed substituted course/ requirement		Remarks
	Course code/ requirement	Credits		Course code/ requirement	Credits	
ECON/FINA/GBM/ MGMT/MARK	SBMT 1111	0	Waived	-	-	DDP students do not need to join this non-credit bearing development course originally designed for Business students
AE	ENGG 1010	0	Substituted	SBMT 1111	0	*[For non-SENG year 1 students admitted to T&M-DDP via School-based admission]* DDP students do not need to join this non-credit bearing development course originally designed for Engineering students.
AE	-	-	Additional Req't	TEMG 1010	0	DDP students should take this non-credit bearing course to enhance their academic development
ECON/FINA/GBM/ MGMT/MARK	-	-	Additional Req't	TEMG 1010	0	DDP students should take this non-credit bearing course to enhance their academic development
AE	-	-	Additional Req't	TEMG 3950	3	DDP students should take this 3-credit course to enhance their problem-solving skills.
ECON/FINA/GBM/ MGMT/MARK	-	-	Additional Req't	TEMG 3950	3	DDP students should take this 3-credit course to enhance their problem-solving skills.
ECON/FINA/GBM/ MGMT/MARK	ISOM 2010	3	Substituted	COMP 1021 OR COMP 1022P OR COMP 2011	3 OR 4	COMP 1021, COMP 1022P and COMP 2011 are more advanced computing courses as compared to ISOM 2010. Students should take one of these three COMP courses instead of ISOM 2010
ECON/FINA/GBM/ MGMT/MARK	ISOM 2020	1	Substituted	COMP 1021 OR COMP 1029P	1 OR 3	COMP 1021 and COMP 1029P are similar coding courses as compared to ISOM 2020. Students should take one of these two COMP courses instead of ISOM 2020

The Hong Kong University of Science and Technology
Interdisciplinary Programs Office
An Example on Student's Pathway

Course Offering Dept. (course code prefix)	Course Code	Course Title / Courses List	Credits	Year 1 Fall	Year 1 Spring	Year 2 Fall	Year 2 Spring	Year 3 Fall	Year 3 Spring	Year 4 Fall	Year 4 Spring	Year 5 Fall	Year 5 Spring	Sub-total	Remarks
School:		School of Engineering and School of Business Management				<< Declaration of BEng major		<< Declaration of BBA major		Student's Pathway						
Program:		Dual Degree Program (BEng in Aerospace Engineering and BBA in General Business Management)													

BEng in Aerospace Engineering
Major Requirements
Engineering Fundamental Courses

Dept	Code	Title	Credits	Y1F	Y1S	Y2F	Y2S	Y3F	Y3S	Y4F	Y4S	Y5F	Y5S	Sub-total	Remarks
COMP / COMP / COMP	1021 / 1022P / 2011	Note: COMP1021 OR COMP1022P OR COMP2011; Introduction to Computer Science; Introduction to Computing with Java; Programming with C++	3-4 / 3 / 3 / 4	3										3	This course will also be used to substitute ISOM 2010
ENGG	1010	Academic Orientation	0	0	0									0	
LANG	2030	Technical Communication I	3						3					3	
MATH / MATH / MATH / MATH / MATH / MATH	1012 / 1013 / 1014 / 1020 / 1023 / 1024	Note: [(MATH 1012 OR MATH 1013 OR MATH 1023) AND (MATH 1014 OR MATH 1024)] OR [MATH 1020]; Calculus IA; Calculus IB; Calculus II; Accelerated Calculus; Honors Calculus I; Honors Calculus II	4-7 / 4 / 3 / 3 / 4 / 3 / 3	3	3									6	
MATH	2011	Introduction to Multivariable Calculus	3		3									3	
MATH / MATH / MATH	2111 / 2350 / 2351	Note: MATH2111 OR MATH2350 OR MATH2351; Matrix Algebra and Applications; Applied Linear Algebra and Differential Equations; Introduction to Differential Equations	3 / 3 / 3				3							3	
PHYS / PHYS	1112 / 1312	Note: PHYS1112 OR PHYS1312; General Physics I with Calculus; Honors General Physics I	3 / 3		3									3	
CHEM/LIFS/ PHYS		Science 1000-level course (Any 1 course of the subject and level as specified)	3		(3)									0	
		Required credits for Engineering Fundamental Courses	22-26											21	

Major Required Courses and Electives

Dept	Code	Title	Credits	Y1F	Y1S	Y2F	Y2S	Y3F	Y3S	Y4F	Y4S	Y5F	Y5S	Sub-total	Remarks
MECH	1907	Introduction to Aerospace Engineering	3			3								3	
MECH	1990	Industrial Training	0			0*	0^							0	
MECH	2020	Statics and Dynamics	3			3								3	
MECH	2040	Solid Mechanics I	3				3							3	
MECH	2210	Fluid Mechanics	3				3							3	
MECH	2310	Thermodynamics	3			3								3	
MECH	2410	Engineering Materials I	3						3					3	
MECH	3400	Introduction to Composite Materials	3							3				3	
MECH	3610	Control Principles	3					3						3	
MECH	3620	Aircraft Design	3								3			3	
MECH	3640	Aerodynamics	3							3				3	
MECH	3650	Aircraft Structural Analysis	3							3				3	
MECH	3660	Gas Turbines and Jet Propulsion	3								3			3	
MECH	3670	Aircraft Performance and Stability	3								3			3	
MECH	3680	Avionics Systems	3						3					3	
MECH	3690	Aerospace Engineering Laboratory	3								3			3	
MECH	4980	Final Year Aerospace Design Project	6									3	3	6	
ELEC	2420	Basic Electronics	3					3						3	
ENGG	2010	Engineering Seminar Series	0			0	0	0	0					0	
LANG	4034	Technical Communication II for Mechanical and Areospace Engineering	3								3			3	
MECH		MECH Electives in Aerospace (2 courses from the specified elective list)	6									3	3	6	
		Required credits for Major Requirements Courses and Electives	63											63	

BBA in General Business Management
School Requirements

Dept	Code	Title	Credits	Y1F	Y1S	Y2F	Y2S	Y3F	Y3S	Y4F	Y4S	Y5F	Y5S	Sub-total	Remarks
ACCT	2010	Principles of Accounting I	3	3										3	
ACCT	2200	Principles of Accounting II	3		3									3	
ECON / ECON	2103 / 2113	Note: ECON 2103 OR ECON 2113; Principles of Microeconomics; Microeconomics	3 / 3		3									3	
ECON / ECON	2123 / 3123	Note: ECON 2123 OR ECON 3123; Macroeconomics; Macroeconomic Theory I	3 / 3			3								3	
FINA	2303	Financial Management	3				3							3	
ISOM	2010	Introduction to Information Systems	3	---	---	---	---	---	---	---	---	---	---	0	Substituted by COMP 1021/1022P/2011
ISOM	2020	Coding for Business	1					1						1	
ISOM	2500	Business Statistics	3	3										3	
ISOM	2600	Introduction to Business Analytics	1					1						1	
ISOM	2700	Operations Management	3						3					3	
MARK	2120	Marketing Management	3				3							3	
MGMT	2010	Business Ethics and the Individual	2				2							2	
MGMT	2110	Organizational Behavior	3				3							3	
MGMT	2130	Business Ethics and Social Responsibility	2							2				2	
SBMT	1111	Business Student Induction	0	---	---	---	---	---	---	---	---	---	---	0	Waived for DDP students
LABU	2040	Business Case Analyses	3					3						3	
LABU	2060	Effective Communication in Business	3								3			3	
MATH / MATH / MATH / MATH / MATH	1003 / 1012 / 1013 / 1020 / 1023	Note: MATH 1003 OR MATH 1012 OR MATH 1013 OR MATH 1020 OR MATH 1023; Calculus and Linear Algebra; Calculus IA; Calculus IB; Accelerated Calculus; Honors Calculus I	3-4 / 3 / 4 / 3 / 4 / 3	(3)										0	DDP students should take MATH 1012 or MATH 1013 or MATH 1020 or MATH 1023 to satisfy the requirements of both BEng and BBA degrees
		Required credits for School Requirements	45-46											39	

Major Requirements
Major Required Courses and Electives

Dept	Code	Title	Credits	Y1F	Y1S	Y2F	Y2S	Y3F	Y3S	Y4F	Y4S	Y5F	Y5S	Sub-total	Remarks
SB&M		SB&M Electives (Any 9 courses offered by the departments under SB&M, of which at least 4 courses are of 3000-level or above.)	29						6		3	3	7	10	29
		Required credits for Major Required Courses and Electives	29											29	

Additional Requirements
Requirements for Dual Degree Program
Required Courses

Dept	Code	Title	Credits	Y1F	Y1S	Y2F	Y2S	Y3F	Y3S	Y4F	Y4S	Y5F	Y5S	Sub-total	Remarks
TEMG	1010	Technology and Management Professional Activities	0	0	0	0	0	0	0	0	0	0	0	0	
TEMG	3950	Case-based Problem Solving	3		3									3	
		Required credits for Additional Requirements	3											3	

University CORE

Dept	Code	Title	Credits	Y1F	Y1S	Y2F	Y2S	Y3F	Y3S	Y4F	Y4S	Y5F	Y5S	Sub-total	Remarks
CORE	C3 - C12	U CORE - Others	30	3		6		3	6		3	6	3	30	
CORE	C1 & C2	U CORE - English Language	6	3	3									6	
		Sub-total for University CORE	36											36	

	Term load (excl. free credits)											
	18	18	21	20	20	20	18	18	19	19	
	191##										

<< Declaration of BEng major   << Declaration of BBA major

Notes:

( ) indicates the reuse of the same course to fulfill more than one requirement.

* Courses offered in winter term

^ Courses offered in summer term

--- denotes the course/requirement is either waived or substituted

To graduate, students should complete all requirements as specified for DDP.

**Remarks on course(s):

>> The content of this example is not necessarily equivalent to a complete list of graduation requirements of the program. Students should refer to the Program Catalog/UG Curriculum Handbook for updated graduation requirements. For up-to-date information on course offering and scheduling, students should check it out from respective School and Department.

The Hong Kong University of Science and Technology
Interdisciplinary Programs Office
An Example on Student's Pathway

AEFINA 2020-21 Intake (Via DDP PBA)

<< Declaration of BEng major   << Declaration of BBA major

School:		School of Engineering and School of Business Management							Student's Pathway							
Program:		**Dual Degree Program (BEng in Aerospace Engineering and BBA in Finance)**														
Course Offering Dept. (course code prefix)	Course Code	Course Title / Courses List	Credits	Year 1 Fall	Year 1 Spring	Year 2 Fall	Year 2 Spring	Year 3 Fall	Year 3 Spring	Year 4 Fall	Year 4 Spring	Year 5 Fall	Year 5 Spring	Sub-total	Remarks

BEng in Aerospace Engineering
Major Requirements
Engineering Fundamental Courses

Dept	Code	Title	Credits	Y1F	Y1S	Y2F	Y2S	Y3F	Y3S	Y4F	Y4S	Y5F	Y5S	Sub-total	Remarks
COMP / COMP / COMP	1021 / 1022P / 2011	Note: COMP1021 OR COMP1022P OR COMP2011 — Introduction to Computer Science / Introduction to Computing with Java / Programming with C++	3-4 / 3 / 3 / 4	3										3	This course will also be used to substitute ISOM 2010
ENGG	1010	Academic Orientation	0	0	0									0	
LANG	2030	Technical Communication I	3						3					3	
MATH / MATH / MATH / MATH / MATH / MATH	1012 / 1013 / 1014 / 1020 / 1023 / 1024	Note: [(MATH 1012 OR MATH 1013 OR MATH 1023) AND (MATH 1014 OR MATH 1024)] OR [MATH 1020] — Calculus IA / Calculus IB / Calculus II / Accelerated Calculus / Honors Calculus I / Honors Calculus II	4-7 / 4 / 3 / 3 / 4 / 3 / 3	3	3									6	
MATH	2011	Introduction to Multivariable Calculus	3			3								3	
MATH / MATH / MATH	2111 / 2350 / 2351	Note: MATH2111 OR MATH2350 OR MATH2351 — Matrix Algebra and Applications / Applied Linear Algebra and Differential Equations / Introduction to Differential Equations	3 / 3 / 3				3							3	
PHYS / PHYS	1112 / 1312	Note: PHYS1112 OR PHYS1312 — General Physics I with Calculus / Honors General Physics I	3 / 3	3										3	
CHEM/LIFS/ PHYS		Science 1000-level course (Any 1 course of the subject and level as specified)	3	(3)										0	
		Required credits for Engineering Fundamental Courses	22-26											21	

Major Required Courses and Electives

Dept	Code	Title	Credits	Y1F	Y1S	Y2F	Y2S	Y3F	Y3S	Y4F	Y4S	Y5F	Y5S	Sub-total	Remarks
MECH	1907	Introduction to Aerospace Engineering	3			3								3	
MECH	1990	Industrial Training	0		0*	0^								0	
MECH	2020	Statics and Dynamics	3			3								3	
MECH	2040	Solid Mechanics I	3				3							3	
MECH	2210	Fluid Mechanics	3				3							3	
MECH	2310	Thermodynamics	3			3								3	
MECH	2410	Engineering Materials I	3					3						3	
MECH	3400	Introduction to Composite Materials	3						3					3	
MECH	3610	Control Principles	3					3						3	
MECH	3620	Aircraft Design	3							3				3	
MECH	3640	Aerodynamics	3						3					3	
MECH	3650	Aircraft Structural Analysis	3						3					3	
MECH	3660	Gas Turbines and Jet Propulsion	3							3				3	
MECH	3670	Aircraft Performance and Stability	3						3					3	
MECH	3680	Avionics Systems	3					3						3	
MECH	3690	Aerospace Engineering Laboratory	3							3				3	
MECH	4980	Final Year Aerospace Design Project	6									3	3	6	
ELEC	2420	Basic Electronics	3					3						3	
ENGG	2010	Engineering Seminar Series	0		0	0	0	0						0	
LANG	4034	Technical Communication II for Mechanical and Aerospace Engineering	3								3			3	
MECH		MECH Electives in Aerospace (2 courses from the specified elective list)	6									3	3	6	
		Required credits for Major Requirements Courses and Electives	63											63	

BBA in Finance
School Requirements

Dept	Code	Title	Credits	Y1F	Y1S	Y2F	Y2S	Y3F	Y3S	Y4F	Y4S	Y5F	Y5S	Sub-total	Remarks
ACCT	2010	Principles of Accounting I	3	3										3	
ACCT	2200	Principles of Accounting II	3		3									3	
ECON / ECON	2103 / 2113	Note: ECON 2103 OR ECON 2113 — Principles of Microeconomics / Microeconomics	3 / 3		3									3	
ECON / ECON	2123 / 3123	Note: ECON 2123 OR ECON 3123 — Macroeconomics / Macroeconomic Theory I	3 / 3			3								3	
FINA	2303	Financial Management	3				3							3	FINA 2303 is a major pre-requisite
ISOM	2010	Introduction to Information Systems	3	---	---	---	---	---	---	---	---	---	---	0	Substituted by COMP 1021/1022P/2011
ISOM	2020	Coding for Business	1					1						1	
ISOM	2500	Business Statistics	3	3										3	
ISOM	2600	Introduction to Business Analytics	1					1						1	
ISOM	2700	Operations Management	3						3					3	
MARK	2120	Marketing Management	3				3							3	
MGMT	2010	Business Ethics and the Individual	2				2							2	
MGMT	2110	Organizational Behavior	3				3							3	
MGMT	2130	Business Ethics and Social Responsibility	2					2						2	
SBMT	1111	Business Student Induction	0	---	---	---	---	---	---	---	---	---	---	0	Waived for DDP students
LABU	2040	Business Case Analyses	3					3						3	
LABU	2060	Effective Communication in Business	3								3			3	
MATH / MATH / MATH / MATH / MATH	1003 / 1012 / 1013 / 1020 / 1023	Note: MATH 1003 OR MATH 1012 OR MATH 1013 OR MATH 1020 OR MATH 1023 — Calculus and Linear Algebra / Calculus IA / Calculus IB / Accelerated Calculus / Honors Calculus I	3-4 / 3 / 4 / 3 / 4 / 3	(3)										0	DDP students should take MATH 1012 or MATH 1013 or MATH 1020 or MATH 1023 to satisfy the requirements of both BEng and BBA degrees
		Required credits for School Requirements	45-46											39	

Major Requirements
Major Required Courses and Electives

Dept	Code	Title	Credits	Y1F	Y1S	Y2F	Y2S	Y3F	Y3S	Y4F	Y4S	Y5F	Y5S	Sub-total	Remarks
FINA	3001	Key Skills for Finance Professionals (A)	1					1						1	
FINA	3103	Intermediate Investments	3					3						3	
FINA	3203	Derivative Securities	3						3					3	
FINA	3303	Intermediate Corporate Finance	3						3					3	
FINA	3810	Bloomberg Market Concepts Certification	0					0						0	
ACCT / ACCT / ACCT	3010 / 3020 / 3030	Note: (ACCT 3010 AND ACCT 3020) OR ACCT 3030 — Financial Accounting I / Financial Accounting II / Intermediate Financial Accounting for Non-Accounting Majors	3-6 / 3 / 3 / 3						3					3	
ISOM / ISOM	3230 / 3400	Note: ISOM 3230 OR ISOM 3400 — Business Applications Programming / Python Programming for Business Analytics	3 / 3 / 3						3					3	DDP students who took COMP 1021 in BEng requirements are required to take ISOM 3230
FINA		FINA 3000-level or above Electives (Any 3 courses of the subject and level as specified)	9								3	3	3	9	
		Required credits for Major Required Courses and Electives	25-28											25	

Additional Requirements
Requirements for Dual Degree Program
Required Courses

Dept	Code	Title	Credits	Y1F	Y1S	Y2F	Y2S	Y3F	Y3S	Y4F	Y4S	Y5F	Y5S	Sub-total	Remarks
TEMG	1010	Technology and Management Professional Activities	0	0	0	0	0	0	0	0	0	0	0	0	
TEMG	3950	Case-based Problem Solving	3		3									3	
		Required credits for Additional Requirements	3											3	

University CORE

Dept	Code	Title	Credits	Y1F	Y1S	Y2F	Y2S	Y3F	Y3S	Y4F	Y4S	Y5F	Y5S	Sub-total	Remarks
CORE	C3 - C12	U CORE - Others	30	3		6		3	6			6	6	30	
CORE	C1 & C2	U CORE - English Language	6	3	3									6	
		Sub-total for University CORE	36											36	

	Term load (excl. free credits)										
18	18	21	20	20	21	18	18	18	15		

187##

<< Declaration of BEng major   << Declaration of BBA major

Notes:
( ) indicates the reuse of the same course to fulfill more than one requirement.
* Courses offered in winter term
^ Courses offered in summer term
--- denotes the course/requirement is either waived or substituted
To graduate, students should complete all requirements as specified for DDP.

**Remarks on course(s):

>> The content of this example is not necessarily equivalent to a complete list of graduation requirements of the program. Students should refer to the Program Catalog/UG Curriculum Handbook for updated graduation requirements. For up-to-date information on course offering and scheduling, students should check it out from respective School and Department.

The Hong Kong University of Science and Technology
Interdisciplinary Programs Office
An Example on Student's Pathway

AEECON 2020-21 Intake
(Via DDP PBA)

<< Declaration of BEng major   << Declaration of BBA major

Course Offering Dept. (course code prefix)	Course Code	Course Title / Courses List	Credits	Year 1 Fall	Year 1 Spring	Year 2 Fall	Year 2 Spring	Year 3 Fall	Year 3 Spring	Year 4 Fall	Year 4 Spring	Year 5 Fall	Year 5 Spring	Sub-total	Remarks
School:		School of Engineering and School of Business Management													
Program:		Dual Degree Program (BEng in Aerospace Engineering and BBA in Economics)													
BEng in Aerospace Engineering															
Major Requirements															
Engineering Fundamental Courses															
COMP	1021	Note: COMP1021 OR COMP1022P OR COMP2011 / Introduction to Computer Science	3-4 / 3	3										3	This course will also be used to substitute ISOM 2010
COMP	1022P	Introduction to Computing with Java	3												
COMP	2011	Programming with C++	4												
ENGG	1010	Academic Orientation	0	0	0									0	
LANG	2030	Technical Communication I	3						3					3	
MATH	1012	Note: [(MATH 1012 OR MATH 1013 OR MATH 1023) AND (MATH 1014 OR MATH 1024)] OR [MATH 1020] / Calculus IA	4-7 / 4	3	3									6	
MATH	1013	Calculus IB	3												
MATH	1014	Calculus II	3												
MATH	1020	Accelerated Calculus	4												
MATH	1023	Honors Calculus I	3												
MATH	1024	Honors Calculus II	3												
MATH	2011	Introduction to Multivariable Calculus	3			3								3	
MATH	2111	Note: MATH2111 OR MATH2350 OR MATH2351 / Matrix Algebra and Applications	3				3							3	
MATH	2350	Applied Linear Algebra and Differential Equations	3												
MATH	2351	Introduction to Differential Equations	3												
PHYS	1112	Note: PHYS1112 OR PHYS1312 / General Physics I with Calculus	3		3									3	
PHYS	1312	Honors General Physics I	3												
CHEM/LIFS/ PHYS		Science 1000-level course (Any 1 course of the subject and level as specified)	3		(3)									0	
		Required credits for Engineering Fundamental Courses	22-26											21	
Major Required Courses and Electives															
MECH	1907	Introduction to Aerospace Engineering	3			3								3	
MECH	1990	Industrial Training	0			0*	0^							0	
MECH	2020	Statics and Dynamics	3			3								3	
MECH	2040	Solid Mechanics I	3				3							3	
MECH	2210	Fluid Mechanics	3				3							3	
MECH	2310	Thermodynamics	3			3								3	
MECH	2410	Engineering Materials I	3						3					3	
MECH	3400	Introduction to Composite Materials	3						3					3	
MECH	3610	Control Principles	3					3						3	
MECH	3620	Aircraft Design	3							3				3	
MECH	3640	Aerodynamics	3							3				3	
MECH	3650	Aircraft Structural Analysis	3							3				3	
MECH	3660	Gas Turbines and Jet Propulsion	3								3			3	
MECH	3670	Aircraft Performance and Stability	3							3				3	
MECH	3680	Avionics Systems	3						3					3	
MECH	3690	Aerospace Engineering Laboratory	3								3			3	
MECH	4980	Final Year Aerospace Design Project	6									3	3	6	
ELEC	2420	Basic Electronics	3					3						3	
ENGG	2010	Engineering Seminar Series	0			0	0	0	0					0	
LANG	4034	Technical Communication II for Mechanical and Aerospace Engineering	3								3			3	
MECH		MECH Electives in Aerospace (2 courses from the specified elective list)	6									3	3	6	
		Required credits for Major Requirements Courses and Electives	63											63	
BBA in Economics															
School Requirements															
ACCT	2010	Principles of Accounting I	3	3										3	
ACCT	2200	Principles of Accounting II	3		3									3	
ECON	2103	Note: ECON 2103 OR ECON 2113 / Principles of Microeconomics	3		3									3	ECON 2103/2113/2123 is a major prerequisite
ECON	2113	Microeconomics	3												
ECON	2123	Note: ECON 2123 OR ECON 3123 / Macroeconomics	3			3								3	
ECON	3123	Macroeconomic Theory I	3												
FINA	2303	Financial Management	3				3							3	
ISOM	2010	Introduction to Information Systems	3	---	---	---	---	---	---	---	---	---	---	0	Substituted by COMP 1021/1022P/2011
ISOM	2020	Coding for Business	1				1							1	
ISOM	2500	Business Statistics	3	3										3	
ISOM	2600	Introduction to Business Analytics	1				1							1	
ISOM	2700	Operations Management	3					3						3	
MARK	2120	Marketing Management	3				3							3	
MGMT	2010	Business Ethics and the Individual	2				2							2	
MGMT	2110	Organizational Behavior	3				3							3	
MGMT	2130	Business Ethics and Social Responsibility	2				2							2	
SBMT	1111	Business Student Induction	0	---	---	---	---	---	---	---	---	---	---	0	Waived for DDP students
LABU	2040	Business Case Analyses	3					3						3	
LABU	2060	Effective Communication in Business	3							3				3	
MATH	1003	Note: MATH 1003 OR MATH 1012 OR MATH 1013 OR MATH 1020 OR MATH 1023 / Calculus and Linear Algebra	3-4	(3)										0	DDP students should take MATH 1012 or MATH 1013 or MATH 1020 or MATH 1023 to satisfy the requirements of both BEng and BBA degrees
MATH	1012	Calculus IA	4												
MATH	1013	Calculus IB	3												
MATH	1020	Accelerated Calculus	4												
MATH	1023	Honors Calculus I	3												
		Required credits for School Requirements	45-46											39	
Major Requirements															
Major Required Courses and Electives															
ECON	3014	Managerial Microeconomics	4					4						4	
ECON	3024	Managerial Macroeconomics	4						4					4	
ECON	3334	Introduction to Econometrics	4							4				4	
ECON	4670	Economics Research and Communication	0								0			0	
ECON		ECON 4000-level Electives (Any 3 courses of the subject and level as specified)	11							4	4	3		11	
		Required credits for Major Required Courses and Electives	23											23	
Additional Requirements															
Requirements for Dual Degree Program															
Required Courses															
TEMG	1010	Technology and Management Professional Activities	0	0	0	0	0	0	0	0	0	0	0	0	
TEMG	3950	Case-based Problem Solving	3		3									3	
		Required credits for Additional Requirements	3											3	
University CORE															
CORE	C3 - C12	U CORE - Others	30	3		3			6		3	9	6	30	
CORE	C1 & C2	U CORE - English Language	6	3	3									6	
		Sub-total for University CORE	36											36	
		Term load (excl. free credits)		18	18	18	20	20	19	19	19	19	15	185##	

<< Declaration of BEng major   << Declaration of BBA major

Notes:

( ) indicates the reuse of the same course to fulfill more than one requirement.
* Courses offered in winter term
^ Courses offered in summer term
--- denotes the course/requirement is either waived or substituted
To graduate, students should complete all requirements as specified for DDP.

**Remarks on course(s):

>> *The content of this example is not necessarily equivalent to a complete list of graduation requirements of the program. Students should refer to the Program Catalog/UG Curriculum Handbook for updated graduation requirements. For up-to-date information on course offering and scheduling, students should check it out from respective School and Department.*

The Hong Kong University of Science and Technology
Interdisciplinary Programs Office
An Example on Student's Pathway

AEMARK 2020-21 Intake (Via DDP PBA)

<< Declaration of BEng major << Declaration of BBA major

School:		School of Engineering and School of Business Management													
Program:		**Dual Degree Program (BEng in Aerospace Engineering and BBA in Marketing)**													

Course Offering Dept. (course code prefix)	Course Code	Course Title / Courses List	Credits	Year 1 Fall	Year 1 Spring	Year 2 Fall	Year 2 Spring	Year 3 Fall	Year 3 Spring	Year 4 Fall	Year 4 Spring	Year 5 Fall	Year 5 Spring	Sub-total	Remarks
BEng in Aerospace Engineering															
Major Requirements															
Engineering Fundamental Courses															
COMP	1021	Note: COMP1021 OR COMP1022P OR COMP2011 / Introduction to Computer Science	3-4 / 3	3										3	This course will also be used to substitute ISOM 2010
COMP	1022P	Introduction to Computing with Java	3												
COMP	2011	Programming with C++	4												
ENGG	1010	Academic Orientation	0	0	0									0	
LANG	2030	Technical Communication I	3						3					3	
MATH	1012	Note: [(MATH 1012 OR MATH 1013 OR MATH 1023) AND (MATH 1014 OR MATH 1024)] OR [MATH 1020] / Calculus IA	4-7 / 4	3	3									6	
MATH	1013	Calculus IB	3												
MATH	1014	Calculus II	3												
MATH	1020	Accelerated Calculus	4												
MATH	1023	Honors Calculus I	3												
MATH	1024	Honors Calculus II	3												
MATH	2011	Introduction to Multivariable Calculus	3		3									3	
MATH	2111	Note: MATH2111 OR MATH2350 OR MATH2351 / Matrix Algebra and Applications	3			3								3	
MATH	2350	Applied Linear Algebra and Differential Equations	3												
MATH	2351	Introduction to Differential Equations	3												
PHYS	1112	Note: PHYS1112 OR PHYS1312 / General Physics I with Calculus	3	3										3	
PHYS	1312	Honors General Physics I	3												
CHEM/LIFS/ PHYS		Science 1000-level course (Any 1 course of the subject and level as specified)	3	(3)										0	
		Required credits for Engineering Fundamental Courses	22-26											21	
Major Required Courses and Electives															
MECH	1907	Introduction to Aerospace Engineering	3		3									3	
MECH	1990	Industrial Training	0		0*	0^								0	
MECH	2020	Statics and Dynamics	3		3									3	
MECH	2040	Solid Mechanics I	3			3								3	
MECH	2210	Fluid Mechanics	3			3								3	
MECH	2310	Thermodynamics	3		3									3	
MECH	2410	Engineering Materials I	3					3						3	
MECH	3400	Introduction to Composite Materials	3						3					3	
MECH	3610	Control Principles	3				3							3	
MECH	3620	Aircraft Design	3							3				3	
MECH	3640	Aerodynamics	3						3					3	
MECH	3650	Aircraft Structural Analysis	3						3					3	
MECH	3660	Gas Turbines and Jet Propulsion	3							3				3	
MECH	3670	Aircraft Performance and Stability	3							3				3	
MECH	3680	Avionics Systems	3						3					3	
MECH	3690	Aerospace Engineering Laboratory	3							3				3	
MECH	4980	Final Year Aerospace Design Project	6									3	3	6	
ELEC	2420	Basic Electronics	3				3							3	
ENGG	2010	Engineering Seminar Series	0		0	0	0	0						0	
LANG	4034	Technical Communication II for Mechanical and Areospace Engineering	3								3			3	
MECH		MECH Electives in Aerospace (2 courses from the specified elective list)	6									3	3	6	
		Required credits for Major Requirements Courses and Electives	63											63	
BBA in Marketing															
School Requirements															
ACCT	2010	Principles of Accounting I	3	3										3	
ACCT	2200	Principles of Accounting II	3		3									3	
ECON	2103	Note: ECON 2103 OR ECON 2113 / Principles of Microeconomics	3		3									3	
ECON	2113	Microeconomics	3												
ECON	2123	Note: ECON 2123 OR ECON 3123 / Macroeconomics	3		3									3	
ECON	3123	Macroeconomic Theory I	3												
FINA	2303	Financial Management	3			3								3	
ISOM	2010	Introduction to Information Systems	3	---	---	---	---	---	---	---	---	---	---	0	Substituted by COMP 1021/1022P/2011
ISOM	2020	Coding for Business	1					1						1	
ISOM	2500	Business Statistics	3	3										3	
ISOM	2600	Introduction to Business Analytics	1					1						1	
ISOM	2700	Operations Management	3						3					3	
MARK	2120	Marketing Management	3				3							3	MARK 2120 is a major pre-requisite
MGMT	2010	Business Ethics and the Individual	2				2							2	
MGMT	2110	Organizational Behavior	3				3							3	
MGMT	2130	Business Ethics and Social Responsibility	2			2								2	
SBMT	1111	Business Student Induction	0	---	---	---	---	---	---	---	---	---	---	0	Waived for DDP students
LABU	2040	Business Case Analyses	3				3							3	
LABU	2060	Effective Communication in Business	3								3			3	
MATH	1003	Note: MATH 1003 OR MATH 1012 OR MATH 1013 OR MATH 1020 OR MATH 1023 / Calculus and Linear Algebra	3-4 / 3	(3)										0	DDP students should take MATH 1012 or MATH 1013 or MATH 1020 or MATH 1023 to satisfy the requirements of both BEng and BBA degrees
MATH	1012	Calculus IA	4												
MATH	1013	Calculus IB	3												
MATH	1020	Accelerated Calculus	4												
MATH	1023	Honors Calculus I	3												
		Required credits for School Requirements	45-46											39	
Major Requirements															
Major Required Courses and Electives															
MARK	3220	Marketing Research	4					4						4	
MARK	3420	Consumer Behavior	4						4					4	
MARK	4210	Strategic Marketing	4									4		4	
MARK		MARK 3000-level or above Electives (Any 3 courses of the subject and level as specified)	12							4	4	4		12	
		Required credits for Major Required Courses and Electives	24											24	
Additional Requirements															
Requirements for Dual Degree Program															
Required Courses															
TEMG	1010	Technology and Management Professional Activities	0	0	0	0	0	0	0	0	0	0	0	0	
TEMG	3950	Case-based Problem Solving	3		3									3	
		Required credits for Additional Requirements	3											3	
University CORE															
CORE	C3 - C12	U CORE - Others	30	3		6		3	6		6	6		30	
CORE	C1 & C2	U CORE - English Language	6	3	3									6	
		Sub-total for University CORE	36											36	
		Term load (excl. free credits)		18	18	21	20	20	19	19	19	16	16		
								186##							

<< Declaration of BEng major << Declaration of BBA major

Notes:

( ) indicates the reuse of the same course to fulfill more than one requirement.

* Courses offered in winter term

^ Courses offered in summer term

--- denotes the course/requirement is either waived or substituted

To graduate, students should complete all requirements as specified for DDP.

Remarks on course(s):

>> The content of this example is not necessarily equivalent to a complete list of graduation requirements of the program. Students should refer to the Program Catalog/UG Curriculum Handbook for updated graduation requirements. For up-to-date information on course offering and scheduling, students should check it out from respective School and Department.

The Hong Kong University of Science and Technology
Interdisciplinary Programs Office
An Example on Student's Pathway

AEMGMT 2020-21 Intake
(Via DDP PBA)

				<< Declaration of BEng major		<< Declaration of BBA major									
School:		School of Engineering and School of Business Management		Student's Pathway											
Program:		Dual Degree Program (BEng in Aerospace Engineering and BBA in Management)													
Course Offering Dept. (course code prefix)	Course Code	Course Title / Courses List	Credits	Year 1 Fall	Year 1 Spring	Year 2 Fall	Year 2 Spring	Year 3 Fall	Year 3 Spring	Year 4 Fall	Year 4 Spring	Year 5 Fall	Year 5 Spring	Sub-total	**Remarks**

BEng in Aerospace Engineering
Major Requirements
Engineering Fundamental Courses

Dept	Code	Title	Credits	Y1F	Y1S	Y2F	Y2S	Y3F	Y3S	Y4F	Y4S	Y5F	Y5S	Sub-total	Remarks
COMP COMP COMP	1021 1022P 2011	Note: COMP1021 OR COMP1022P OR COMP2011 / Introduction to Computer Science / Introduction to Computing with Java / Programming with C++	3-4 3 3 4	3										3	This course will also be used to substitute ISOM 2010
ENGG	1010	Academic Orientation	0	0	0									0	
LANG	2030	Technical Communication I	3						3					3	
MATH MATH MATH MATH MATH MATH	1012 1013 1014 1020 1023 1024	Note: [(MATH 1012 OR MATH 1013 OR MATH 1023) AND (MATH 1014 OR MATH 1024)] OR [MATH 1020] / Calculus IA / Calculus IB / Calculus II / Accelerated Calculus / Honors Calculus I / Honors Calculus II	4-7 4 3 3 4 3 3	3	3									6	
MATH	2011	Introduction to Multivariable Calculus	3			3								3	
MATH MATH MATH	2111 2350 2351	Note: MATH2111 OR MATH2350 OR MATH2351 / Matrix Algebra and Applications / Applied Linear Algebra and Differential Equations / Introduction to Differential Equations	3 3 3				3							3	
PHYS PHYS	1112 1312	Note: PHYS1112 OR PHYS1312 / General Physics I with Calculus / Honors General Physics I	3 3		3									3	
CHEM/LIFS/ PHYS		Science 1000-level course (Any 1 course of the subject and level as specified)	3	(3)										0	
		Required credits for Engineering Fundamental Courses	22-26											21	

Major Required Courses and Electives

Dept	Code	Title	Credits	Y1F	Y1S	Y2F	Y2S	Y3F	Y3S	Y4F	Y4S	Y5F	Y5S	Sub-total	Remarks
MECH	1907	Introduction to Aerospace Engineering	3			3								3	
MECH	1990	Industrial Training	0			0*	0^							0	
MECH	2020	Statics and Dynamics	3			3								3	
MECH	2040	Solid Mechanics I	3				3							3	
MECH	2210	Fluid Mechanics	3				3							3	
MECH	2310	Thermodynamics	3			3								3	
MECH	2410	Engineering Materials I	3					3						3	
MECH	3400	Introduction to Composite Materials	3						3					3	
MECH	3610	Control Principles	3					3						3	
MECH	3620	Aircraft Design	3							3				3	
MECH	3640	Aerodynamics	3						3					3	
MECH	3650	Aircraft Structural Analysis	3						3					3	
MECH	3660	Gas Turbines and Jet Propulsion	3							3				3	
MECH	3670	Aircraft Performance and Stability	3						3					3	
MECH	3680	Avionics Systems	3						3					3	
MECH	3690	Aerospace Engineering Laboratory	3							3				3	
MECH	4980	Final Year Aerospace Design Project	6									3	3	6	
ELEC	2420	Basic Electronics	3					3						3	
ENGG	2010	Engineering Seminar Series	0		0	0	0	0						0	
LANG	4034	Technical Communication II for Mechanical and Areospace Engineering	3							3				3	
MECH		MECH Electives in Aerospace (2 courses from the specified elective list)	6									3	3	6	
		Required credits for Major Requirements Courses and Electives	63											63	

BBA in Management
School Requirements

Dept	Code	Title	Credits	Y1F	Y1S	Y2F	Y2S	Y3F	Y3S	Y4F	Y4S	Y5F	Y5S	Sub-total	Remarks
ACCT	2010	Principles of Accounting I	3	3										3	
ACCT	2200	Principles of Accounting II	3		3									3	
ECON ECON	2103 2113	Note: ECON 2103 OR ECON 2113 / Principles of Microeconomics / Microeconomics	3 3		3									3	
ECON ECON	2123 3123	Note: ECON 2123 OR ECON 3123 / Macroeconomics / Macroeconomic Theory I	3 3			3								3	
FINA	2303	Financial Management	3				3							3	
ISOM	2010	Introduction to Information Systems	3	---		---		---		---		---		0	Substituted by COMP 1021/1022P/2011
ISOM	2020	Coding for Business	1					1						1	
ISOM	2500	Business Statistics	3	3										3	
ISOM	2600	Introduction to Business Analytics	1					1						1	
ISOM	2700	Operations Management	3								3			3	
MARK	2120	Marketing Management	3				3							3	
MGMT	2010	Business Ethics and the Individual	2				2							2	
MGMT	2110	Organizational Behavior	3				3							3	MGMT 2110 is a major pre-requisite
MGMT	2130	Business Ethics and Social Responsibility	2					2						2	
SBMT	1111	Business Student Induction	0	---	---	---	---	---	---	---	---	---	---	0	Waived for DDP students
LABU	2040	Business Case Analyses	3				3							3	
LABU	2060	Effective Communication in Business	3							3				3	
MATH MATH MATH MATH MATH	1003 1012 1013 1020 1023	Note: MATH 1003 OR MATH 1012 OR MATH 1013 OR MATH 1020 OR MATH 1023 / Calculus and Linear Algebra / Calculus IA / Calculus IB / Accelerated Calculus / Honors Calculus I	3-4 3 4 3 4 3	(3)										0	DDP students should take MATH 1012 or MATH 1013 or MATH 1020 or MATH 1023 to satisfy the requirements of both BEng and BBA degrees
		Required credits for School Requirements	45-46											39	

Major Requirements
Major Required Courses and Electives

Dept	Code	Title	Credits	Y1F	Y1S	Y2F	Y2S	Y3F	Y3S	Y4F	Y4S	Y5F	Y5S	Sub-total	Remarks
MGMT MGMT	3110 3120	Note: MGMT 3110 OR MGMT 3120 (For students in the Consulting Option, they will use MGMT 3110 to fulfill the Option Requirements and should take MGMT 3120 to fulfill this requirement.) / Human Resources Management / Managerial Leadership	4 4 4						4					4	Students in the Consulting Option must take MGMT 3120
MGMT MGMT	3130 3140	Note: MGMT 3130 OR MGMT 3140 (Students in the Consulting Option must take MGMT 3140 to fulfill this requirement.) / Judgement and Decision Making in Organizations / Negotiation	4 4 4					4						4	Students in the Consulting Option must take MGMT 3140
MGMT MGMT	4210 4220	Note: MGMT 4210 OR MGMT 4220 (Students in the Consulting Option or in the Corporate Social Responsibility and Sustainability Option must take MGMT 4210 to fulfill this requirement.) / Corporate Strategy / Entrepreneurship and Innovation	3-4 3 4								3			3	Students in the Consulting Option must take MGMT 4210 / Students in the CSR Option must take MGMT 4210
MGMT		MGMT 3000-level or above Electives (Any 3 courses of the subject and level as specified. Courses taken as Option Required Courses may not be counted towards the elective requirement.)	9							3	3	3		9	Students in the Consulting Option are recommended to take MGMT 4220 and a new course in Simulating Strategy to fulfill the major elective requirement
		Required credits for Major Required Courses and Electives	20-21											20	

Additional Requirements
Requirements for Dual Degree Program
Required Courses

Dept	Code	Title	Credits	Y1F	Y1S	Y2F	Y2S	Y3F	Y3S	Y4F	Y4S	Y5F	Y5S	Sub-total	Remarks
TEMG	1010	Technology and Management Professional Activities	0	0	0	0	0	0	0	0	0	0	0	0	
TEMG	3950	Case-based Problem Solving	3		3									3	
		Required credits for Additional Requirements	3											3	

University CORE

Dept	Code	Title	Credits	Y1F	Y1S	Y2F	Y2S	Y3F	Y3S	Y4F	Y4S	Y5F	Y5S	Sub-total	Remarks
CORE	C3 - C12	U CORE - Others	30	3		3		3	6			9	6	30	
CORE	C1 & C2	U CORE - English Language	6	3	3									6	
		Sub-total for University CORE	36											36	

		Term load (excl. free credits)													
				18	18	18	20	20	19	18	18	18	15		
								182##							

<< Declaration of BEng major   << Declaration of BBA major

Notes:
( ) indicates the reuse of the same course to fulfill more than one requirement.
[ ] denotes the course is also offered in other terms as indicated and students may take the course in one of these subject to advice by the program office.
* Courses offered in winter term
^ Courses offered in summer term
--- denotes the course/requirement is either waived or substituted
To graduate, students should complete all requirements as specified for DDP.

**Remarks on course(s):

>> The content of this example is not necessarily equivalent to a complete list of graduation requirements of the program. Students should refer to the Program Catalog/UG Curriculum Handbook for updated graduation requirements. For up-to-date information on course offering and scheduling, students should check it out from respective School and Department.

The Hong Kong University of Science and Technology
Interdisciplinary Programs Office
An Example on Student's Pathway

AEFINA 2020-21 Intake
(Via SENG Yr 1)

School:		School of Engineering and School of Business Management					<< Declaration of BEng major	<< Declaration of BBA major	Student's Pathway							
Program:		**Dual Degree Program (BEng in Aerospace Engineering and BBA in Finance)**														
Course Offering Dept. (course code prefix)	Course Code	Course Title / Courses List	Credits	Year 1 Fall	Year 1 Spring	Year 2 Fall	Year 2 Spring	Year 3 Fall	Year 3 Spring	Year 4 Fall	Year 4 Spring	Year 5 Fall	Year 5 Spring	Sub-total	Remarks

BEng in Aerospace Engineering

Major Requirements

Engineering Fundamental Courses

Dept.	Code	Course Title / Courses List	Credits	Y1F	Y1S	Y2F	Y2S	Y3F	Y3S	Y4F	Y4S	Y5F	Y5S	Sub-total	Remarks
COMP COMP COMP	1021 1022P 2011	Note: COMP1021 OR COMP1022P OR COMP2011 Introduction to Computer Science Introduction to Computing with Java Programming with C++	3-4 3 3 4	3										3	This course will also be used to substitute ISOM 2010
ENGG	1010	Academic Orientation	0	0	0									0	
LANG	2030	Technical Communication I	3						3					3	
MATH MATH MATH MATH MATH MATH	1012 1013 1014 1020 1023 1024	Note: [(MATH 1012 OR MATH 1013 OR MATH 1023) AND (MATH 1014 OR MATH 1024)] OR [MATH 1020] Calculus IA Calculus IB Calculus II Accelerated Calculus Honors Calculus I Honors Calculus II	4-7 4 3 3 4 3 3	3	3									6	
MATH	2011	Introduction to Multivariable Calculus	3			3								3	
MATH MATH MATH	2111 2350 2351	Note: MATH2111 OR MATH2350 OR MATH2351 Matrix Algebra and Applications Applied Linear Algebra and Differential Equations Introduction to Differential Equations	3 3 3				3							3	
PHYS PHYS	1112 1312	Note: PHYS1112 OR PHYS1312 General Physics I with Calculus Honors General Physics I	3 3		3									3	
CHEM/LIFS/ PHYS		Science 1000-level course (Any 1 course of the subject and level as specified)	3		(3)									0	
		Required credits for Engineering Fundamental Courses	22-26											21	

Major Required Courses and Electives

Dept.	Code	Course Title / Courses List	Credits	Y1F	Y1S	Y2F	Y2S	Y3F	Y3S	Y4F	Y4S	Y5F	Y5S	Sub-total	Remarks
MECH	1907	Introduction to Aerospace Engineering	3			3								3	
MECH	1990	Industrial Training	0			0*	0^							0	
MECH	2020	Statics and Dynamics	3			3								3	
MECH	2040	Solid Mechanics I	3				3							3	
MECH	2210	Fluid Mechanics	3				3							3	
MECH	2310	Thermodynamics	3			3								3	
MECH	2410	Engineering Materials I	3						3					3	
MECH	3400	Introduction to Composite Materials	3							3				3	
MECH	3610	Control Principles	3					3						3	
MECH	3620	Aircraft Design	3								3			3	
MECH	3640	Aerodynamics	3							3				3	
MECH	3650	Aircraft Structural Analysis	3							3				3	
MECH	3660	Gas Turbines and Jet Propulsion	3								3			3	
MECH	3670	Aircraft Performance and Stability	3							3				3	
MECH	3680	Avionics Systems	3						3					3	
MECH	3690	Aerospace Engineering Laboratory	3								3			3	
MECH	4980	Final Year Aerospace Design Project	6									3	3	6	
ELEC	2420	Basic Electronics	3					3						3	
ENGG	2010	Engineering Seminar Series	0		0	0	0	0						0	
LANG	4034	Technical Communication II for Mechanical and Areospace Engineering	3								3			3	
MECH		MECH Electives in Aerospace (2 courses from the specified elective list)	6									3	3	6	
		Required credits for Major Requirements Courses and Electives	51											63	

BBA in Finance

School Requirements

Dept.	Code	Course Title / Courses List	Credits	Y1F	Y1S	Y2F	Y2S	Y3F	Y3S	Y4F	Y4S	Y5F	Y5S	Sub-total	Remarks
ACCT	2010	Principles of Accounting I	3			3								3	
ACCT	2200	Principles of Accounting II	3						3					3	
ECON ECON	2103 2113	Note: ECON 2103 OR ECON 2113 Principles of Microeconomics Microeconomics	3 3				3							3	
ECON ECON	2123 3123	Note: ECON 2123 OR ECON 3123 Macroeconomics Macroeconomic Theory I	3 3					3						3	
FINA	2303	Financial Management	3					3						3	FINA 2303 is a major pre-requisite
ISOM	2010	Introduction to Information Systems	3	---	---	---	---	---	---	---	---	---	---	0	Substituted by COMP 1021/1022P/2011
ISOM	2020	Coding for Business	1					1						1	
ISOM	2500	Business Statistics	3			3								3	
ISOM	2600	Introduction to Business Analytics	1					1						1	
ISOM	2700	Operations Management	3						3					3	
MARK	2120	Marketing Management	3				3							3	
MGMT	2010	Business Ethics and the Individual	2				2							2	
MGMT	2110	Organizational Behavior	3				3							3	
MGMT	2130	Business Ethics and Social Responsibility	2						2					2	
SBMT	1111	Business Student Induction	0	---	---	---	---	---	---	---	---	---	---	0	Waived for DDP students
LABU	2040	Business Case Analyses	3					3						3	
LABU	2060	Effective Communication in Business	3									3		3	
MATH MATH MATH MATH MATH	1003 1012 1013 1020 1023	Note: MATH 1003 OR MATH 1012 OR MATH 1013 OR MATH 1020 OR MATH 1023 Calculus and Linear Algebra Calculus IA Calculus IB Accelerated Calculus Honors Calculus I	3-4 3 4 3 4 3	(3)										0	DDP students should take MATH 1012 or MATH 1013 or MATH 1020 or MATH 1023 to satisfy the requirements of both BEng and BBA degrees
		Required credits for School Requirements	45-46											39	

Major Requirements

Major Required Courses and Electives

Dept.	Code	Course Title / Courses List	Credits	Y1F	Y1S	Y2F	Y2S	Y3F	Y3S	Y4F	Y4S	Y5F	Y5S	Sub-total	Remarks
FINA	3001	Key Skills for Finance Professionals (A)	1					1						1	
FINA	3103	Intermediate Investments	3					3						3	
FINA	3203	Derivative Securities	3								3			3	
FINA	3303	Intermediate Corporate Finance	3							3				3	
FINA	3810	Bloomberg Market Concepts Certification	0					0						0	
ACCT ACCT ACCT	3010 3020 3030	Note: (ACCT 3010 AND ACCT 3020) OR ACCT 3030 Financial Accounting I Financial Accounting II Intermediate Financial Accounting for Non-Accounting Majors	3-6 3 3 3							3				3	
ISOM ISOM	3230 3400	Note: ISOM 3230 OR ISOM 3400 Business Applications Programming Python Programming for Business Analytics	3 3						3					3	DDP students who took COMP 1021 in BEng requirements are required to take ISOM 3230
FINA		FINA 3000-level or above Electives (Any 3 courses of the subject and level as specified)	9								3	3	3	9	
		Required credits for Major Required Courses and Electives	25-28											25	

Additional Requirements

Requirements for Dual Degree Program

Required Courses

Dept.	Code	Course Title / Courses List	Credits	Y1F	Y1S	Y2F	Y2S	Y3F	Y3S	Y4F	Y4S	Y5F	Y5S	Sub-total	Remarks
TEMG	1010	Technology and Management Professional Activities	0	0	0	0	0	0	0	0	0	0	0	0	
TEMG	3950	Case-based Problem Solving	3			3								3	
		Required credits for Additional Requirements	3											3	

University CORE

Dept.	Code	Course Title / Courses List	Credits	Y1F	Y1S	Y2F	Y2S	Y3F	Y3S	Y4F	Y4S	Y5F	Y5S	Sub-total	Remarks
CORE	C3 - C12	U CORE - Others	30	9	9							6	6	30	
CORE	C1 & C2	U CORE - English Language	6	3	3									6	
		Sub-total for University CORE	36											36	

| | | Term load (excl. free credits) | | 18 | 18 | 21 | 21 | 20 | 20 | 18 | 18 | 18 | 15 | | |
| | | | | | | | | 187## | | | | | | | |

<< Declaration of BEng major   << Declaration of BBA major

Notes:

( ) indicates the reuse of the same course to fulfill more than one requirement.

* Courses offered in winter term

^ Courses offered in summer term

--- denotes the course/requirement is either waived or substituted

To graduate, students should complete all requirements as specified for DDP.

**Remarks on course(s):

>> The content of this example is not necessarily equivalent to a complete list of graduation requirements of the program. Students should refer to the Program Catalog/UG Curriculum Handbook for updated graduation requirements. For up-to-date information on course offering and scheduling, students should check it out from respective School and Department.

The Hong Kong University of Science and Technology
Interdisciplinary Programs Office
An Example on Student's Pathway

AEFINA 2020-21 Intake
(Via SBM Yr 1)

School:		School of Engineering and School of Business Management				<< Declaration of BEng major	<< Declaration of BBA major	Student's Pathway							

Course Offering Dept. (course code prefix)	Course Code	Course Title / Courses List	Credits	Year 1 Fall	Year 1 Spring	Year 2 Fall	Year 2 Spring	Year 3 Fall	Year 3 Spring	Year 4 Fall	Year 4 Spring	Year 5 Fall	Year 5 Spring	Sub-total	Remarks
BEng in Aerospace Engineering															
Major Requirements															
Engineering Fundamental Courses															
COMP COMP COMP	1021 1022P 2011	Note: COMP1021 OR COMP1022P OR COMP2011 Introduction to Computer Science Introduction to Computing with Java Programming with C++	3-4 3 3 4			3								0	This course will also be used to substitute ISOM 2010
ENGG	1010	Academic Orientation	0	---	---	---	---	---	---	---	---	---	---	0	Substituted by SBMT 1111
LANG	2030	Technical Communication I	3						3					3	
MATH MATH MATH MATH MATH MATH	1012 1013 1014 1020 1023 1024	Note: [(MATH 1012 OR MATH 1013 OR MATH 1023) AND (MATH 1014 OR MATH 1024)] OR [MATH 1020] Calculus IA Calculus IB Calculus II Accelerated Calculus Honors Calculus I Honors Calculus II	4-7 4 3 3 4 3 3	3	3									6	
MATH	2011	Introduction to Multivariable Calculus	3			3								3	
MATH MATH MATH	2111 2350 2351	Note: MATH2111 OR MATH2350 OR MATH2351 Matrix Algebra and Applications Applied Linear Algebra and Differential Equations Introduction to Differential Equations	3 3 3				3							3	
PHYS PHYS	1112 1312	Note: PHYS1112 OR PHYS1312 General Physics I with Calculus Honors General Physics I	3 3			3								3	
CHEM/LIFS/ PHYS		Science 1000-level course (Any 1 course of the subject and level as specified)	3			(3)								0	
Required credits for Engineering Fundamental Courses			22-26											18	
Major Required Courses and Electives															
MECH	1907	Introduction to Aerospace Engineering	3			3								3	
MECH	1990	Industrial Training	0			0*	0^							0	
MECH	2020	Statics and Dynamics	3			3								3	
MECH	2040	Solid Mechanics I	3				3							3	
MECH	2210	Fluid Mechanics	3				3							3	
MECH	2310	Thermodynamics	3			3								3	
MECH	2410	Engineering Materials I	3						3					3	
MECH	3400	Introduction to Composite Materials	3							3				3	
MECH	3610	Control Principles	3					3						3	
MECH	3620	Aircraft Design	3								3			3	
MECH	3640	Aerodynamics	3							3				3	
MECH	3650	Aircraft Structural Analysis	3							3				3	
MECH	3660	Gas Turbines and Jet Propulsion	3								3			3	
MECH	3670	Aircraft Performance and Stability	3							3				3	
MECH	3680	Avionics Systems	3						3					3	
MECH	3690	Aerospace Engineering Laboratory	3								3			3	
MECH	4980	Final Year Aerospace Design Project	6									3	3	6	
ELEC	2420	Basic Electronics	3					3						3	
ENGG	2010	Engineering Seminar Series	0			0	0	0	0					0	
LANG	4034	Technical Communication II for Mechanical and Aeorospace Engineering	3								3			3	
MECH		MECH Electives in Aerospace (2 courses from the specified elective list)	6									3	3	6	
Required credits for Major Requirements Courses and Electives			51											63	
BBA in Finance															
School Requirements															
ACCT	2010	Principles of Accounting I	3	3										3	
ACCT	2200	Principles of Accounting II	3						3					3	
ECON ECON	2103 2113	Note: ECON 2103 OR ECON 2113 Principles of Microeconomics Microeconomics	3 3				3							3	
ECON ECON	2123 3123	Note: ECON 2123 OR ECON 3123 Macroeconomics Macroeconomic Theory I	3 3					3						3	
FINA	2303	Financial Management	3					3						3	FINA 2303 is a major pre-requisite
ISOM	2010	Introduction to Information Systems	3	---	---	---	---	---	---	---	---	---	---	0	Substituted by COMP 1021/1022P/2011
ISOM	2020	Coding for Business	1					1						1	
ISOM	2500	Business Statistics	3			3								3	
ISOM	2600	Introduction to Business Analytics	1					1						1	
ISOM	2700	Operations Management	3						3					3	
MARK	2120	Marketing Management	3		3									3	
MGMT	2010	Business Ethics and the Individual	2				2							2	
MGMT	2110	Organizational Behavior	3				3							3	
MGMT	2130	Business Ethics and Social Responsibility	2				2							2	
SBMT	1111	Business Student Induction	0	0	0									0	
LABU	2040	Business Case Analyses	3					3						3	
LABU	2060	Effective Communication in Business	3								3			3	
MATH MATH MATH MATH MATH	1003 1012 1013 1020 1023	Note: MATH 1003 OR MATH 1012 OR MATH 1013 OR MATH 1020 OR MATH 1023 Calculus and Linear Algebra Calculus IA Calculus IB Accelerated Calculus Honors Calculus I	3-4 3 4 3 4 3	(3)										0	DDP students should take MATH 1012 or MATH 1013 or MATH 1020 or MATH 1023 to satisfy the requirements of both BEng and BBA degrees
Required credits for School Requirements			45-46											39	
Major Requirements															
Major Required Courses and Electives															
FINA	3001	Key Skills for Finance Professionals (A)	1					1						1	
FINA	3103	Intermediate Investments	3					3						3	
FINA	3203	Derivative Securities	3								3			3	
FINA	3303	Intermediate Corporate Finance	3							3				3	
FINA	3810	Bloomberg Market Concepts Certification	0					0						0	
ACCT ACCT ACCT	3010 3020 3030	Note: (ACCT 3010 AND ACCT 3020) OR ACCT 3030 Financial Accounting I Financial Accounting II Intermediate Financial Accounting for Non-Accounting Majors	3-6 3 3 3							3				3	
ISOM ISOM	3230 3400	Note: ISOM 3230 OR ISOM 3400 Business Applications Programming Python Programming for Business Analytics	3 3 3						3					3	DDP students who took COMP 1021 in BEng requirements are required to take ISOM 3230
FINA		FINA 3000-level or above Electives (Any 3 courses of the subject and level as specified)	9								3	3	3	9	
Required credits for Major Required Courses and Electives			25-28											25	
Additional Requirements															
Requirements for Dual Degree Program															
Required Courses															
TEMG	1010	Technology and Management Professional Activities	0	0	0	0	0	0	0	0	0	0	0	0	
TEMG	3950	Case-based Problem Solving	3			3								3	
Required credits for Additional Requirements			3											3	
University CORE															
CORE	C3 - C12	U CORE - Others	30	9	6				3			6	6	30	
CORE	C1 & C2	U CORE - English Language	6	3	3									6	
Sub-total for University CORE			36											36	

				Term load (excl. free credits)									
	18	18	18	20	20	21	18	18	18	15
					184##					

<< Declaration of BEng major   << Declaration of BBA major

Notes:

( ) indicates the reuse of the same course to fulfill more than one requirement.
* Courses offered in winter term
^ Courses offered in summer term
--- denotes the course/requirement is either waived or substituted
To graduate, students should complete all requirements as specified for DDP.

**Remarks on course(s):

>> The content of this example is not necessarily equivalent to a complete list of graduation requirements of the program. Students should refer to the Program Catalog/UG Curriculum Handbook for updated graduation requirements. For up-to-date information on course offering and scheduling, students should check it out from respective School and Department.

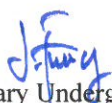**English Language Requirements of SENG, SBM and DDP students**

4Y

SENG **SBM** **DDP (AE+ECON/FINA/GBM/MGMT/MARK)**
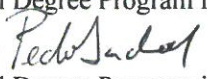
Course code_SENG	Course title_SENG	Credits_SENG	Course code_SBM	Course title_SBM	Credits_SBM	Course code_DDP	Course title_DDP	Credits_DDP	Remarks
U Core	English Language	6	U Core	English Language	6	U Core	English Language	6	university requirement
LANG 2030	Technical Communication I	3	LABU 2040	Business Case Analyses	3	LANG 2030	Technical Communication I	3	SENG requirement
LANG 4034	Technical Communication II for Mechanical and Areospace Engineering	3	LABU 2060	Effective Communication in Business	3	LABU 2040	Business Case Analyses	3	SBM requirement
						LABU 2060	Effective Communication in Business	3	SBM requirement
						LANG 4034	Technical Communication II for Mechanical and Areospace Engineering	3	SENG requirement
	Total	12		Total	12		Total	18	

MEMORANDUM

To:	CUS Secretariat
via:	Prof. Jimmy Fung
	Chair, Interdisciplinary Undergraduate Studies Committee
From:	Prof. Kai Lung Hui
	Co-director of Dual Degree Program in Technology & Management
&	Prof. Pedro Sander
	Co-director of Dual Degree Program in Technology & Management
Date:	10th February, 2021
Our Ref:	402/DDP
Subject:	Proposed 5Y Curriculum of Dual Degree Program in Technology & Management (BSc in Integrative System and Design and BBA)

Dual Degree Program in Technology & Management (T&M-DDP) would like to propose the 5-year curriculum for BSc in Integrative System and Design and BBA with effect from Fall 2021-22. This change will have effect on the 2020-2021 cohort onwards. The new curriculum will include 5 new majors. The program structure is listed below.

Total: 5 new majors	BSc in Integrative System and Design	and	BBA in Economics
			BBA in Finance
			BBA in General Business Management
			BBA in Management
			BBA in Marketing

Students can admit to T&M-DDP via program-based admission or school-based admission. Program-based admission students will be admitted to T&M-DDP in their first year and school-based admission students will be admitted to T&M-DDP in their second year. Students will declare their major via the Major Selection Exercises (MSE) at the ends of their first year and second year for BEng/BSc degree and BBA degree of T&M-DDP respectively. Pathway templates of all new majors for program-based admission students and three sets of sample pathway for school-based admission students are presented to demonstrate their study progress *(see Attachment B)*.

The program requirements of T&M-DDP are devised by combining the requirements of the BEng/BSc program and the BBA program. This will apply in the proposed 5-year curriculum with the following taken into consideration:

1. Deviation from Curriculum
   The course substitutions and waivers that are applicable in the existing BEng/BSc&BBA Dual Degree program will continue to apply in the proposed Dual Degree programs of BSc in Integrative System and Design and BBA (S*ee attachment A).*

2. Additional Dual Degree Requirements
   Additional requirements specifically for the Dual Degree Program, including TEMG1010 and TEMG3950 are presented in the pathway templates (see *attachment B*) and "Deviation from Curriculum" (see *attachment A*).

3. English Language Requirements
   The English Language requirements of BSc in Integrative System and Design are a combination of the requirements of university, ISD, SENG and SBM (see *attachment C*).

4. Double Counting of Common Core Requirements
   The double-counting policy applicable to existing BEng/BSc&BBA Dual Degree programs, which is to apply double-counting policy to each degree separately will continue to apply in the proposed Dual Degree programs.

   For BSc in Integrative System and Design, students may reuse up to 9 credits of courses to count towards both the School Requirements and the University Common Core Requirements.

   For BBA degree in all Dual Degree programs, students may reuse up to 6 credits of courses to count towards both the School Requirements and the University Common Core Requirements.

   By combining the two degrees, students can double-count up to 15 credits. The total credits requirements are as follow:

Total Credits Requirements	
Without double-counting of Common Core Requirements	After double-counting of Common Core Requirements is applied
191-182	176-167

Below please find the concurrence obtained from departments/schools in concern,

School/Dept.	Approval	Name	Date
ISD	Yes / ~~No~~	Prof. Chi Ming CHAN	22 Feb 2021
ECON	Yes / ~~No~~	Prof. Wooyoung LIM	10 Feb 2021
FINA	Yes / ~~No~~	Prof. Ekkachai SAENYASIRI	19 Feb 2021
MARK	Yes / ~~No~~	Prof. Jiewen HONG	16 Feb 2021
MGMT	Yes / ~~No~~	Prof. Yaping GONG	17 Feb 2021
SENG	Yes / ~~No~~	Prof. Philip L. T. MOK, Associate Dean of Engineering	18 Feb 2021
SBM	Yes / ~~No~~	Prof. Allen HUANG, Associate Dean (UG Programs)	19 Feb 2021

For consideration and approval please. Thank you very much.

Encl.

A. Attachment A – Deviation from Curriculum
B. Attachment B – Suggested pathways of Dual Degree programs of BSc in Integrative System and Design and BBA
C. Attachment C – English language requirements of Dual Degree programs of BSc in Integrative System and Design and BBA

Deviation from curriculum
for Dual Degree Program

Degree Program 1:   *BSc in Integrative Systems and Design (ISD)*
Degree Program 2:   *BBA in Economics (ECON) OR*
                                       BBA in Finance (FINA) OR
                                       BBA in General Business Management (GBM) OR
                                       BBA in Management (MGMT) OR
                                       BBA in Marketing (MARK)

Degree Program	Original requirements specified for the degree program		Substituted/ Waived/ Additional Req't/ Others	Proposed substituted course/ requirement		Remarks
	Course code/ requirement	Credits		Course code/ requirement	Credits	
ECON/FINA/GBM/ MGMT/MARK	SBMT 1111	0	Waived	-	-	DDP students do not need to join this non-credit bearing development course originally designed for Business students
ISD	ENGG 1010	0	Substituted	SBMT 1111	0	*[For non-SENG year 1 students admitted to T&M-DDP via School-based admission]* DDP students do not need to join this non-credit bearing development course originally designed for Engineering students.
ISD	-	-	Additional Req't	TEMG 1010	0	DDP students should take this non-credit bearing course to enhance their academic development
ECON/FINA/GBM/ MGMT/MARK	-	-	Additional Req't	TEMG 1010	0	DDP students should take this non-credit bearing course to enhance their academic development
ISD	-	-	Additional Req't	TEMG 3950	3	DDP students should take this 3-credit course to enhance their problem-solving skills.
ECON/FINA/GBM/ MGMT/MARK	-	-	Additional Req't	TEMG 3950	3	DDP students should take this 3-credit course to enhance their problem-solving skills.
ECON/FINA/GBM/ MGMT/MARK	ISOM 2010	3	Substituted	COMP 1021 OR COMP 1022P	3	COMP 1021 and COMP 1022P are more advanced computing courses as compared to ISOM 2010. Students should take one of these two COMP courses instead of ISOM 2010
ECON/FINA/GBM/ MGMT/MARK	ISOM 2020	1	Substituted	COMP 1021 OR COMP 1029P	1 OR 3	COMP 1021 and COMP 1029P are similar coding courses as compared to ISOM 2020. Students should take one of these two COMP courses instead of ISOM 2020

Attachment B

The Hong Kong University of Science and Technology
Interdisciplinary Programs Office
An Example on Student's Pathway

IDGBM 2020-21 Intake
(Via DDP PBA)

School:		School of Engineering and School of Business Management		Student's Pathway											
Program:		Dual Degree Program (BSc in Integrative Systems and Design and BBA in General Business Management)													
Course Offering Dept. (course code prefix)	Course Code	Course Title / Courses List	Credits	Year 1 Fall	Year 1 Spring	Year 2 Fall	Year 2 Spring	Year 3 Fall	Year 3 Spring	Year 4 Fall	Year 4 Spring	Year 5 Fall	Year 5 Spring	Sub-total	Remarks

<< Declaration of BSc major << Declaration of BBA major

BSc in Integrative Systems and Design

Major Requirements

Engineering Fundamental Courses

Dept	Code	Title	Credits	Y1F	Y1S	Y2F	Y2S	Y3F	Y3S	Y4F	Y4S	Y5F	Y5S	Sub-total	Remarks
COMP / COMP	1021 / 1022P	Note: COMP1021 OR COMP1022P; Introduction to Computer Science / Introduction to Computing with Java	3 / 3	3										3	This course will also be used to substitute ISOM 2010
ENGG	1010	Academic Orientation	0	0	0									0	
LANG	2030	Technical Communication I	3						3					3	
MATH MATH MATH MATH MATH MATH	1012 1013 1014 1020 1023 1024	Note: [(MATH 1012 OR MATH 1013 OR MATH 1023) AND (MATH 1014 OR MATH 1024)] OR [MATH 1020]; Calculus IA / Calculus IB / Calculus II / Accelerated Calculus / Honors Calculus I / Honors Calculus II	4-7 / 4 / 3 / 3 / 4 / 3 / 3	3	3									6	
PHYS PHYS PHYS PHYS	1001 1111 1112 1312	Note: PHYS1001 OR PHYS1111 OR PHYS1112 OR PHYS1312; Physics and the Modern Society / General Physics I / General Physics I with Calculus / Honors General Physics I	3 / 3 / 3 / 3	3										3	
		Required credits for Engineering Fundamental Courses	13-16											15	

Major Required Courses and Electives

Dept	Code	Title	Credits	Y1F	Y1S	Y2F	Y2S	Y3F	Y3S	Y4F	Y4S	Y5F	Y5S	Sub-total	Remarks
ISDN	1002	Redefining Problems for the Real Needs	3			3								3	
ISDN	1004	Sketching	1			1								1	
ISDN	1006	Human-centered Innovation	3			3								3	
ISDN	2001	Second Year Design Project I	1					1						1	
ISDN	2002	Second Year Design Project II	4						4					4	
ISDN	2200	Systems Thinking and Design	3			3								3	
ISDN	2300	Digital Design	3			3								3	
ISDN	2400	Physical Prototyping	3						3					3	
ISDN	3001	Third Year Design Project I	4							4				4	
ISDN	3002	Third Year Design Project II	4								4			4	
ISDN	4001	Final Year Design Project I	5									5		5	
ISDN	4002	Final Year Design Project II	5										5	5	
LANG	4032	Technical Communication II for IEDA and ISDN	3						3					3	
ISDN/ENGG/IEDA ISDN/ENTR/IEDA/SBM ISDN		Design Electives (5 credits from the specified elective list); Product Management and Entrepreneurship Electives (9 credits from the specified elective list); Project-related Electives (22 credits from the specified elective list. Students should seek approval of their advisor for the choices of courses)	36			5	3	3	3	7	3	3		27	DDP students could use FINA 2303, ISOM 2700 and MARK 2120 to satisfy the requirement of Product Management and Entrepreneurship Electives
		Required credits for Major Requirements Courses and Electives	78											69	

BBA in General Business Management

School Requirements

Dept	Code	Title	Credits	Y1F	Y1S	Y2F	Y2S	Y3F	Y3S	Y4F	Y4S	Y5F	Y5S	Sub-total	Remarks
ACCT	2010	Principles of Accounting I	3			3								3	
ACCT	2200	Principles of Accounting II	3						3					3	
ECON / ECON	2103 / 2113	Note: ECON 2103 OR ECON 2113; Principles of Microeconomics / Microeconomics	3 / 3			3								3	
ECON / ECON	2123 / 3123	Note: ECON 2123 OR ECON 3123; Macroeconomics / Macroeconomic Theory I	3 / 3					3						3	
FINA	2303	Financial Management	3				3							3	This course will also be used to substitute FINA 2203
ISOM	2010	Introduction to Information Systems	3	---	---	---	---	---	---	---	---	---	---	0	Substituted by COMP 1021/1022P
ISOM	2020	Coding for Business	1								1			1	
ISOM	2500	Business Statistics	3			3								3	
ISOM	2600	Introduction to Business Analytics	1								1			1	
ISOM	2700	Operations Management	3						3					3	
MARK	2120	Marketing Management	3				3							3	
MGMT	2010	Business Ethics and the Individual	2			2								2	
MGMT	2110	Organizational Behavior	3				3							3	
MGMT	2130	Business Ethics and Social Responsibility	2				2							2	
SBMT	1111	Business Student Induction	0	---	---	---	---	---	---	---	---	---	---	0	Waived for DDP students
LABU	2040	Business Case Analyses	3						3					3	
LABU	2060	Effective Communication in Business	3							3				3	
MATH MATH MATH MATH MATH	1003 1012 1013 1020 1023	Note: MATH 1003 OR MATH 1012 OR MATH 1013 OR MATH 1020 OR MATH 1023; Calculus and Linear Algebra / Calculus IA / Calculus IB / Accelerated Calculus / Honors Calculus I	3-4 / 3 / 4 / 3 / 4 / 3	(3)										0	DDP students should take MATH 1012 or MATH 1013 or MATH 1020 or MATH 1023 to satisfy the requirements of both BEng and BBA degrees
		Required credits for School Requirements	45-46											39	

Major Requirements

Major Required Courses and Electives

Dept	Code	Title	Credits	Y1F	Y1S	Y2F	Y2S	Y3F	Y3S	Y4F	Y4S	Y5F	Y5S	Sub-total	Remarks
SB&M		SB&M Electives (Any 9 courses offered by the departments under SB&M, of which at least 4 courses are of 3000-level or above.)	29						6	3	3	7	10	29	
		Required credits for Major Required Courses and Electives	29											29	

Additional Requirements

Requirements for Dual Degree Program

Required Courses

Dept	Code	Title	Credits	Y1F	Y1S	Y2F	Y2S	Y3F	Y3S	Y4F	Y4S	Y5F	Y5S	Sub-total	Remarks
TEMG	1010	Technology and Management Professional Activities	0	0	0	0	0	0	0	0	0	0	0	0	
TEMG	3950	Case-based Problem Solving	3		3									3	
		Required credits for Additional Requirements	3											3	

University CORE

Dept	Code	Title	Credits	Y1F	Y1S	Y2F	Y2S	Y3F	Y3S	Y4F	Y4S	Y5F	Y5S	Sub-total	Remarks
CORE	C3 - C12	U CORE - Others	30	9	6		3	3		3	3	3		30	
CORE	C1 & C2	U CORE - English Language	6	3	3									6	
		Sub-total for University CORE	36											36	

Term load (excl. free credits)

Y1F	Y1S	Y2F	Y2S	Y3F	Y3S	Y4F	Y4S	Y5F	Y5S
18	18	21	20	21	19	19	19	18	18

191##

<< Declaration of BEng major << Declaration of BBA major

Notes:

( ) indicates the reuse of the same course to fulfill more than one requirement.

* Courses offered in winter term

^ Courses offered in summer term

--- denotes the course/requirement is either waived or substituted

To graduate, students should complete all requirements as specified for DDP.

**Remarks on course(s):

>> The content of this example is not necessarily equivalent to a complete list of graduation requirements of the program. Students should refer to the Program Catalog/UG Curriculum Handbook for updated graduation requirements. For up-to-date information on course offering and scheduling, students should check it out from respective School and Department.

The Hong Kong University of Science and Technology
Interdisciplinary Programs Office
An Example on Student's Pathway

IDFINA   **2020-21 Intake**
(Via DDP PBA)

School:	School of Engineering and School of Business Management			<< Declaration of BSc major << Declaration of BBA major — Student's Pathway											
Program:	**Dual Degree Program (BSc in Integrative Systems and Design and BBA in Finance)**															
Course Offering Dept. (course code prefix)	Course Code	Course Title / Courses List	Credits	Year 1 Fall	Year 1 Spring	Year 2 Fall	Year 2 Spring	Year 3 Fall	Year 3 Spring	Year 4 Fall	Year 4 Spring	Year 5 Fall	Year 5 Spring	Sub-total	Remarks

BSc in Integrative Systems and Design

Major Requirements

Engineering Fundamental Courses

Dept	Code	Title	Credits	Y1F	Y1Sp	Y2F	Y2Sp	Y3F	Y3Sp	Y4F	Y4Sp	Y5F	Y5Sp	Sub	Remarks
COMP / COMP	1021 / 1022P	Note: COMP1021 OR COMP1022P; Introduction to Computer Science; Introduction to Computing with Java	3 / 3	3										3	This course will also be used to substitute ISOM 2010
ENGG	1010	Academic Orientation	0	0	0									0	
LANG	2030	Technical Communication I	3						3					3	
MATH / MATH / MATH / MATH / MATH / MATH	1012 / 1013 / 1014 / 1020 / 1023 / 1024	Note: [(MATH 1012 OR MATH 1013 OR MATH 1023) AND (MATH 1014 OR MATH 1024)] OR [MATH 1020]; Calculus IA; Calculus IB; Calculus II; Accelerated Calculus; Honors Calculus I; Honors Calculus II	4-7 / 4 / 3 / 3 / 4 / 3 / 3	3	3									6	
PHYS / PHYS / PHYS / PHYS	1001 / 1111 / 1112 / 1312	Note: PHYS1001 OR PHYS1111 OR PHYS1112 OR PHYS1312; Physics and the Modern Society; General Physics I; General Physics I with Calculus; Honors General Physics I	3 / 3 / 3 / 3		3									3	
		Required credits for Engineering Fundamental Courses	13-16											15	

Major Required Courses and Electives

Dept	Code	Title	Credits	Y1F	Y1Sp	Y2F	Y2Sp	Y3F	Y3Sp	Y4F	Y4Sp	Y5F	Y5Sp	Sub	Remarks
ISDN	1002	Redefining Problems for the Real Needs	3			3								3	
ISDN	1004	Sketching	1			1								1	
ISDN	1006	Human-centered Innovation	3				3							3	
ISDN	2001	Second Year Design Project I	1					1						1	
ISDN	2002	Second Year Design Project II	4						4					4	
ISDN	2200	Systems Thinking and Design	3			3								3	
ISDN	2300	Digital Design	3			3								3	
ISDN	2400	Physical Prototyping	3						3					3	
ISDN	3001	Third Year Design Project I	4							4				4	
ISDN	3002	Third Year Design Project II	4								4			4	
ISDN	4001	Final Year Design Project I	5									5		5	
ISDN	4002	Final Year Design Project II	5										5	5	
LANG	4032	Technical Communication II for IEDA and ISDN	3						3					3	
ISDN/ENGG/IEDA; ISDN/ENTR/IEDA/SBM; ISDN		Design Electives (5 credits from the specified elective list); Product Management and Entrepreneurship Electives (9 credits from the specified elective list); Project-related Electives (22 credits from the specified elective list. Students should seek approval of their advisor for the choices of courses)	36				5	3	3	3	7	3	3	27	DDP students could use FINA 2303, ISOM 2700 and MARK 2120 to satisfy the requirement of Product Management and Entrepreneurship Electives
		Required credits for Major Requirements Courses and Electives	78											69	

BBA in Finance

School Requirements

Dept	Code	Title	Credits	Y1F	Y1Sp	Y2F	Y2Sp	Y3F	Y3Sp	Y4F	Y4Sp	Y5F	Y5Sp	Sub	Remarks
ACCT	2010	Principles of Accounting I	3			3								3	
ACCT	2200	Principles of Accounting II	3				3							3	
ECON / ECON	2103 / 2113	Note: ECON 2103 OR ECON 2113; Principles of Microeconomics; Microeconomics	3 / 3			3								3	
ECON / ECON	2123 / 3123	Note: ECON 2123 OR ECON 3123; Macroeconomics; Macroeconomic Theory I	3 / 3					3						3	
FINA	2303	Financial Management	3				3							3	FINA 2303 is a major pre-requisite
ISOM	2010	Introduction to Information Systems	3	---	---	---	---	---	---	---	---	---	---	0	Substituted by COMP 1021/1022P
ISOM	2020	Coding for Business	1					1						1	
ISOM	2500	Business Statistics	3			3								3	
ISOM	2600	Introduction to Business Analytics	1					1						1	
ISOM	2700	Operations Management	3								3			3	
MARK	2120	Marketing Management	3				3							3	
MGMT	2010	Business Ethics and the Individual	2				2							2	
MGMT	2110	Organizational Behavior	3				3							3	
MGMT	2130	Business Ethics and Social Responsibility	2					2						2	
SBMT	1111	Business Student Induction	0	---	---	---	---	---	---	---	---	---	---	0	Waived for DDP students
LABU	2040	Business Case Analyses	3					3						3	
LABU	2060	Effective Communication in Business	3							3				3	
MATH / MATH / MATH / MATH / MATH	1003 / 1012 / 1013 / 1020 / 1023	Note: MATH 1003 OR MATH 1012 OR MATH 1013 OR MATH 1020 OR MATH 1023; Calculus and Linear Algebra; Calculus IA; Calculus IB; Accelerated Calculus; Honors Calculus I	3-4 / 3 / 4 / 3 / 4 / 3	(3)										0	DDP students should take MATH 1012 or MATH 1013 or MATH 1020 or MATH 1023 to satisfy the requirements of both BEng and BBA degrees
		Required credits for School Requirements	45-46											39	

Major Requirements

Major Required Courses and Electives

Dept	Code	Title	Credits	Y1F	Y1Sp	Y2F	Y2Sp	Y3F	Y3Sp	Y4F	Y4Sp	Y5F	Y5Sp	Sub	Remarks
FINA	3001	Key Skills for Finance Professionals (A)	1					1						1	
FINA	3103	Intermediate Investments	3					3						3	
FINA	3203	Derivative Securities	3							3				3	
FINA	3303	Intermediate Corporate Finance	3						3					3	
FINA	3810	Bloomberg Market Concepts Certification	0					0						0	
ACCT / ACCT / ACCT	3010 / 3020 / 3030	Note: (ACCT 3010 AND ACCT 3020) OR ACCT 3030; Financial Accounting I; Financial Accounting II; Intermediate Financial Accounting for Non-Accounting Majors	3-6 / 3 / 3 / 3						3					3	
ISOM / ISOM	3230 / 3400	Note: ISOM 3230 OR ISOM 3400; Business Applications Programming; Python Programming for Business Analytics	3 / 3 / 3						3					3	DDP students who took COMP 1021 in BEng requirements are required to take ISOM 3230
FINA		FINA 3000-level or above Electives (Any 3 courses of the subject and level as specified)	9							3	3	3		9	
		Required credits for Major Required Courses and Electives	25-28											25	

Additional Requirements

Requirements for Dual Degree Program

Required Courses

Dept	Code	Title	Credits	Y1F	Y1Sp	Y2F	Y2Sp	Y3F	Y3Sp	Y4F	Y4Sp	Y5F	Y5Sp	Sub	Remarks
TEMG	1010	Technology and Management Professional Activities	0	0	0	0	0	0	0	0	0	0	0	0	
TEMG	3950	Case-based Problem Solving	3		3									3	
		Required credits for Additional Requirements	3											3	

University CORE

Dept	Code	Title	Credits	Y1F	Y1Sp	Y2F	Y2Sp	Y3F	Y3Sp	Y4F	Y4Sp	Y5F	Y5Sp	Sub	Remarks
CORE	C3 - C12	U CORE - Others	30	9	6				3			6	6	30	
CORE	C1 & C2	U CORE - English Language	6	3	3									6	
		Sub-total for University CORE	36											36	

Term load (excl. free credits)										
18	18	19	19	18	19	19	20	20	17	

187##

<< Declaration of BEng major   << Declaration of BBA major

Notes:

( ) indicates the reuse of the same course to fulfill more than one requirement.

* Courses offered in winter term

^ Courses offered in summer term

--- denotes the course/requirement is either waived or substituted

To graduate, students should complete all requirements as specified for DDP.

**Remarks on course(s):

>> The content of this example is not necessarily equivalent to a complete list of graduation requirements of the program. Students should refer to the Program Catalog/UG Curriculum Handbook for updated graduation requirements. For up-to-date information on course offering and scheduling, students should check it out from respective School and Department.

The Hong Kong University of Science and Technology
Interdisciplinary Programs Office
An Example on Student's Pathway

IDECON 2020-21 Intake
(Via DDP PBA)

	<< Declaration of BSc major	<< Declaration of BBA major

School:	School of Engineering and School of Business Management							Student's Pathway							
Program:	Dual Degree Program (BSc in Integrative Systems and Design and BBA in Economics)															
Course Offering Dept. (course code prefix)	Course Code	Course Title / Courses List	Credits	Year 1 Fall	Year 1 Spring	Year 2 Fall	Year 2 Spring	Year 3 Fall	Year 3 Spring	Year 4 Fall	Year 4 Spring	Year 5 Fall	Year 5 Spring	Sub-total	Remarks

BSc in Integrative Systems and Design

Major Requirements

Engineering Fundamental Courses

Dept	Code	Title	Credits	Y1F	Y1S	Y2F	Y2S	Y3F	Y3S	Y4F	Y4S	Y5F	Y5S	Sub-total	Remarks
COMP / COMP	1021 / 1022P	Note: COMP1021 OR COMP1022P / Introduction to Computer Science / Introduction to Computing with Java	3 / 3	3										3	This course will also be used to substitute ISOM 2010
ENGG	1010	Academic Orientation	0	0	0									0	
LANG	2030	Technical Communication I	3					3						3	
MATH / MATH / MATH / MATH / MATH / MATH	1012 / 1013 / 1014 / 1020 / 1023 / 1024	Note: [(MATH 1012 OR MATH 1013 OR MATH 1023) AND (MATH 1014 OR MATH 1024)] OR [MATH 1020] / Calculus IA / Calculus IB / Calculus II / Accelerated Calculus / Honors Calculus I / Honors Calculus II	4-7 / 4 / 3 / 3 / 4 / 3 / 3	3	3									6	
PHYS / PHYS / PHYS / PHYS	1001 / 1111 / 1112 / 1312	Note: PHYS1001 OR PHYS1111 OR PHYS1112 OR PHYS1312 / Physics and the Modern Society / General Physics I / General Physics I with Calculus / Honors General Physics I	3 / 3 / 3 / 3		3									3	
Required credits for Engineering Fundamental Courses			13-16											15	

Major Required Courses and Electives

Dept	Code	Title	Credits	Y1F	Y1S	Y2F	Y2S	Y3F	Y3S	Y4F	Y4S	Y5F	Y5S	Sub-total	Remarks
ISDN	1002	Redefining Problems for the Real Needs	3			3								3	
ISDN	1004	Sketching	1			1								1	
ISDN	1006	Human-centered Innovation	3				3							3	
ISDN	2001	Second Year Design Project I	1					1						1	
ISDN	2002	Second Year Design Project II	4						4					4	
ISDN	2200	Systems Thinking and Design	3			3								3	
ISDN	2300	Digital Design	3			3								3	
ISDN	2400	Physical Prototyping	3						3					3	
ISDN	3001	Third Year Design Project I	4							4				4	
ISDN	3002	Third Year Design Project II	4								4			4	
ISDN	4001	Final Year Design Project I	5									5		5	
ISDN	4002	Final Year Design Project II	5										5	5	
LANG	4032	Technical Communication II for IEDA and ISDN	3						3					3	
ISDN/ENGG/IEDA ISDN/ENTR/IEDA/SBM ISDN		Design Electives (5 credits from the specified elective list) / Product Management and Entrepreneurship Electives (9 credits from the specified elective list) / Project-related Electives (22 credits from the specified elective list. Students should seek approval of their advisor for the choices of courses)	36				5	3	3	3	7	3	3	27	DDP students could use FINA 2303, ISOM 2700 and MARK 2120 to satisfy the requirement of Product Management and Entrepreneurship Electives
Required credits for Major Requirements Courses and Electives			78											69	

BBA in Economics

School Requirements

Dept	Code	Title	Credits	Y1F	Y1S	Y2F	Y2S	Y3F	Y3S	Y4F	Y4S	Y5F	Y5S	Sub-total	Remarks
ACCT	2010	Principles of Accounting I	3			3								3	
ACCT	2200	Principles of Accounting II	3						3					3	
ECON / ECON	2103 / 2113	Note: ECON 2103 OR ECON 2113 / Principles of Microeconomics / Microeconomics	3 / 3		3									3	ECON 2103/2113/2123 is a major prerequisite
ECON / ECON	2123 / 3123	Note: ECON 2123 OR ECON 3123 / Macroeconomics / Macroeconomic Theory I	3 / 3				3							3	
FINA	2303	Financial Management	3					3						3	
ISOM	2010	Introduction to Information Systems	3	---	---	---	---	---	---	---	---	---	---	0	Substituted by COMP 1021/1022P
ISOM	2020	Coding for Business	1					1						1	
ISOM	2500	Business Statistics	3			3								3	
ISOM	2600	Introduction to Business Analytics	1					1						1	
ISOM	2700	Operations Management	3					3						3	
MARK	2120	Marketing Management	3				3							3	
MGMT	2010	Business Ethics and the Individual	2				2							2	
MGMT	2110	Organizational Behavior	3				3							3	
MGMT	2130	Business Ethics and Social Responsibility	2					2						2	
SBMT	1111	Business Student Induction	0	---	---	---	---	---	---	---	---	---	---	0	Waived for DDP students
LABU	2040	Business Case Analyses	3					3						3	
LABU	2060	Effective Communication in Business	3						3					3	
MATH / MATH / MATH / MATH / MATH	1003 / 1012 / 1013 / 1020 / 1023	Note: MATH 1003 OR MATH 1012 OR MATH 1013 OR MATH 1020 OR MATH 1023 / Calculus and Linear Algebra / Calculus IA / Calculus IB / Accelerated Calculus / Honors Calculus I	3-4 / 3 / 4 / 3 / 4 / 3	(3)										0	DDP students should take MATH 1012 or MATH 1013 or MATH 1020 or MATH 1023 to satisfy the requirements of both BEng and BBA degrees
Required credits for School Requirements			45-46											39	

Major Requirements

Major Required Courses and Electives

Dept	Code	Title	Credits	Y1F	Y1S	Y2F	Y2S	Y3F	Y3S	Y4F	Y4S	Y5F	Y5S	Sub-total	Remarks
ECON	3014	Managerial Microeconomics	4					4						4	
ECON	3024	Managerial Macroeconomics	4						4					4	
ECON	3334	Introduction to Econometrics	4							4				4	
ECON	4670	Economics Research and Communication	0								0			0	
ECON		ECON 4000-level Electives (Any 3 courses of the subject and level as specified)	11								4	4	3	11	
Required credits for Major Required Courses and Electives			23											23	

Additional Requirements

Requirements for Dual Degree Program

Required Courses

Dept	Code	Title	Credits	Y1F	Y1S	Y2F	Y2S	Y3F	Y3S	Y4F	Y4S	Y5F	Y5S	Sub-total	Remarks
TEMG	1010	Technology and Management Professional Activities	0	0	0	0	0	0	0	0	0	0	0	0	
TEMG	3950	Case-based Problem Solving	3		3									3	
Required credits for Additional Requirements			3											3	

University CORE

Dept	Code	Title	Credits	Y1F	Y1S	Y2F	Y2S	Y3F	Y3S	Y4F	Y4S	Y5F	Y5S	Sub-total	Remarks
CORE	C3 - C12	U CORE - Others	30	9	3				3	3	6	6		30	
CORE	C1 & C2	U CORE - English Language	6	3	3									6	
Sub-total for University CORE			36											36	

Term load (excl. free credits)											
18	18	19	19	18	20	20	18	18	17	185##

	<< Declaration of BEng major	<< Declaration of BBA major

Notes:

( ) indicates the reuse of the same course to fulfill more than one requirement.

* Courses offered in winter term

^ Courses offered in summer term

--- denotes the course/requirement is either waived or substituted

To graduate, students should complete all requirements as specified for DDP.

Remarks on course(s):

>> The content of this example is not necessarily equivalent to a complete list of graduation requirements of the program. Students should refer to the Program Catalog/UG Curriculum Handbook for updated graduation requirements. For up-to-date information on course offering and scheduling, students should check it out from respective School and Department.

The Hong Kong University of Science and Technology
Interdisciplinary Programs Office
An Example on Student's Pathway

				<< Declaration of BSc major	<< Declaration of BBA major										
School:		School of Engineering and School of Business Management		Student's Pathway											
Program:		Dual Degree Program (BSc in Integrative Systems and Design and BBA in Marketing)													
Course Offering Dept. (course code prefix)	Course Code	Course Title / Courses List	Credits	Year 1 Fall	Year 1 Spring	Year 2 Fall	Year 2 Spring	Year 3 Fall	Year 3 Spring	Year 4 Fall	Year 4 Spring	Year 5 Fall	Year 5 Spring	Sub-total	**Remarks**

BSc in Integrative Systems and Design
Major Requirements
Engineering Fundamental Courses

Dept	Code	Title	Credits	Y1F	Y1S	Y2F	Y2S	Y3F	Y3S	Y4F	Y4S	Y5F	Y5S	Sub	Remarks
COMP	1021	Note: COMP1021 OR COMP1022P / Introduction to Computer Science	3	3										3	This course will also be used to substitute ISOM 2010
COMP	1022P	Introduction to Computing with Java	3												
ENGG	1010	Academic Orientation	0	0	0									0	
LANG	2030	Technical Communication I	3						3					3	
MATH	1012	Note: [(MATH 1012 OR MATH 1013 OR MATH 1023) AND (MATH 1014 OR MATH 1024)] OR [MATH 1020] / Calculus IA	4	3	3									6	
MATH	1013	Calculus IB	3												
MATH	1014	Calculus II	3												
MATH	1020	Accelerated Calculus	4												
MATH	1023	Honors Calculus I	3												
MATH	1024	Honors Calculus II	3												
PHYS	1001	Note: PHYS1001 OR PHYS1111 OR PHYS1112 OR PHYS1312 / Physics and the Modern Society	3		3									3	
PHYS	1111	General Physics I	3												
PHYS	1112	General Physics I with Calculus	3												
PHYS	1312	Honors General Physics I	3												
		Required credits for Engineering Fundamental Courses	13-16											15	

Major Required Courses and Electives

Dept	Code	Title	Credits	Y1F	Y1S	Y2F	Y2S	Y3F	Y3S	Y4F	Y4S	Y5F	Y5S	Sub	Remarks
ISDN	1002	Redefining Problems for the Real Needs	3			3								3	
ISDN	1004	Sketching	1		1									1	
ISDN	1006	Human-centered Innovation	3			3								3	
ISDN	2001	Second Year Design Project I	1				1							1	
ISDN	2002	Second Year Design Project II	4				4							4	
ISDN	2200	Systems Thinking and Design	3			3								3	
ISDN	2300	Digital Design	3			3								3	
ISDN	2400	Physical Prototyping	3						3					3	
ISDN	3001	Third Year Design Project I	4							4				4	
ISDN	3002	Third Year Design Project II	4								4			4	
ISDN	4001	Final Year Design Project I	5									5		5	
ISDN	4002	Final Year Design Project II	5										5	5	
LANG	4032	Technical Communication II for IEDA and ISDN	3						3					3	
ISDN/ENGG/IEDA ISDN/ENTR/IEDA/SBM ISDN		Design Electives (5 credits from the specified elective list) / Product Management and Entrepreneurship Electives (9 credits from the specified elective list) / Project-related Electives (22 credits from the specified elective list. Students should seek approval of their advisor for the choices of courses)	36			5	3	2	3	7	3	3		27	DDP students could use FINA 2303, ISOM 2700 and MARK 2120 to satisfy the requirement of Product Management and Entrepreneurship Electives
		Required credits for Major Requirements Courses and Electives	78											69	

BBA in Marketing
School Requirements

Dept	Code	Title	Credits	Y1F	Y1S	Y2F	Y2S	Y3F	Y3S	Y4F	Y4S	Y5F	Y5S	Sub	Remarks
ACCT	2010	Principles of Accounting I	3			3								3	
ACCT	2200	Principles of Accounting II	3				3							3	
ECON	2103	Note: ECON 2103 OR ECON 2113 / Principles of Microeconomics	3			3								3	
ECON	2113	Microeconomics	3												
ECON	2123	Note: ECON 2123 OR ECON 3123 / Macroeconomics	3				3							3	
ECON	3123	Macroeconomic Theory I	3												
FINA	2303	Financial Management	3				3							3	
ISOM	2010	Introduction to Information Systems	3	---	---	---	---	---	---	---	---	---	---	0	Substituted by COMP 1021/1022P
ISOM	2020	Coding for Business	1					1						1	
ISOM	2500	Business Statistics	3			3								3	
ISOM	2600	Introduction to Business Analytics	1					1						1	
ISOM	2700	Operations Management	3							3				3	
MARK	2120	Marketing Management	3				3							3	MARK 2120 is a major pre-requisite
MGMT	2010	Business Ethics and the Individual	2		2									2	
MGMT	2110	Organizational Behavior	3			3								3	
MGMT	2130	Business Ethics and Social Responsibility	2				2							2	
SBMT	1111	Business Student Induction	0	---	---	---	---	---	---	---	---	---	---	0	Waived for DDP students
LABU	2040	Business Case Analyses	3						3					3	
LABU	2060	Effective Communication in Business	3								3			3	
MATH	1003	Note: MATH 1003 OR MATH 1012 OR MATH 1013 OR MATH 1020 OR MATH 1023 / Calculus and Linear Algebra	3-4	(3)										0	DDP students should take MATH 1012 or MATH 1013 or MATH 1020 or MATH 1023 to satisfy the requirements of both BEng and BBA degrees
MATH	1012	Calculus IA	4												
MATH	1013	Calculus IB	3												
MATH	1020	Accelerated Calculus	4												
MATH	1023	Honors Calculus I	3												
		Required credits for School Requirements	45-46											39	

Major Requirements
Major Required Courses and Electives

Dept	Code	Title	Credits	Y1F	Y1S	Y2F	Y2S	Y3F	Y3S	Y4F	Y4S	Y5F	Y5S	Sub	Remarks
MARK	3220	Marketing Research	4					4						4	
MARK	3420	Consumer Behavior	4						4					4	
MARK	4210	Strategic Marketing	4									4		4	
MARK		MARK 3000-level or above Electives (Any 3 courses of the subject and level as specified)	12							4	4	4		12	
		Required credits for Major Required Courses and Electives	24											24	

Additional Requirements
Requirements for Dual Degree Program
Required Courses

Dept	Code	Title	Credits	Y1F	Y1S	Y2F	Y2S	Y3F	Y3S	Y4F	Y4S	Y5F	Y5S	Sub	Remarks
TEMG	1010	Technology and Management Professional Activities	0	0	0	0	0	0	0	0	0	0	0	0	
TEMG	3950	Case-based Problem Solving	3		3									3	
		Required credits for Additional Requirements	3											3	

University CORE

Dept	Code	Title	Credits	Y1F	Y1S	Y2F	Y2S	Y3F	Y3S	Y4F	Y4S	Y5F	Y5S	Sub	Remarks
CORE	C3 - C12	U CORE - Others	30	9	6		3		3		6	3		30	
CORE	C1 & C2	U CORE - English Language	6	3	3									6	
		Sub-total for University CORE	36											36	

Term load (excl. free credits)										
18	18	21	20	18	20	20	18	18	15
				186##					

<< Declaration of BEng major << Declaration of BBA major

Notes:

( ) indicates the reuse of the same course to fulfill more than one requirement.

* Courses offered in winter term

^ Courses offered in summer term

--- denotes the course/requirement is either waived or substituted

To graduate, students should complete all requirements as specified for DDP.

Remarks on course(s):

>> The content of this example is not necessarily equivalent to a complete list of graduation requirements of the program. Students should refer to the Program Catalog/UG Curriculum Handbook for updated graduation requirements. For up-to-date information on course offering and scheduling, students should check it out from respective School and Department.

The Hong Kong University of Science and Technology
Interdisciplinary Programs Office
An Example on Student's Pathway

IDMGMT 2020-21 Intake
(Via DDP PBA)

				<< Declaration of BSc major		<< Declaration of BBA major	Student's Pathway									

School: School of Engineering and School of Business Management

Program: Dual Degree Program (BSc in Integrative Systems and Design and BBA in Management)

Course Offering Dept. (course code prefix)	Course Code	Course Title / Courses List	Credits	Year 1 Fall	Year 1 Spring	Year 2 Fall	Year 2 Spring	Year 3 Fall	Year 3 Spring	Year 4 Fall	Year 4 Spring	Year 5 Fall	Year 5 Spring	Sub-total	Remarks

BSc in Integrative Systems and Design

Major Requirements

Engineering Fundamental Courses

Dept.	Code	Title	Credits	Y1F	Y1S	Y2F	Y2S	Y3F	Y3S	Y4F	Y4S	Y5F	Y5S	Sub	Remarks
COMP	1021	Note: COMP1021 OR COMP1022P / Introduction to Computer Science	3	3										3	This course will also be used to substitute ISOM 2010
COMP	1022P	Introduction to Computing with Java	3												
ENGG	1010	Academic Orientation	0	0	0									0	
LANG	2030	Technical Communication I	3					3						3	
MATH	1012	Note: [(MATH 1012 OR MATH 1013 OR MATH 1023) AND (MATH 1014 OR MATH 1024)] OR [MATH 1020] / Calculus IA	4	3	3									6	
MATH	1013	Calculus IB	3												
MATH	1014	Calculus II	3												
MATH	1020	Accelerated Calculus	4												
MATH	1023	Honors Calculus I	3												
MATH	1024	Honors Calculus II	3												
PHYS	1001	Note: PHYS1001 OR PHYS1111 OR PHYS1112 OR PHYS1312 / Physics and the Modern Society	3		3									3	
PHYS	1111	General Physics I	3												
PHYS	1112	General Physics I with Calculus	3												
PHYS	1312	Honors General Physics I	3												
		Required credits for Engineering Fundamental Courses	13-16											15	

Major Required Courses and Electives

Dept.	Code	Title	Credits	Y1F	Y1S	Y2F	Y2S	Y3F	Y3S	Y4F	Y4S	Y5F	Y5S	Sub	Remarks
ISDN	1002	Redefining Problems for the Real Needs	3			3								3	
ISDN	1004	Sketching	1		1									1	
ISDN	1006	Human-centered Innovation	3				3							3	
ISDN	2001	Second Year Design Project I	1				1							1	
ISDN	2002	Second Year Design Project II	4						4					4	
ISDN	2200	Systems Thinking and Design	3			3								3	
ISDN	2300	Digital Design	3			3								3	
ISDN	2400	Physical Prototyping	3						3					3	
ISDN	3001	Third Year Design Project I	4					4						4	
ISDN	3002	Third Year Design Project II	4							4				4	
ISDN	4001	Final Year Design Project I	5									5		5	
ISDN	4002	Final Year Design Project II	5										5	5	
LANG	4032	Technical Communication II for IEDA and ISDN	3						3					3	
ISDN/ENGG/IEDA ISDN/ENTR/IEDA/SBM ISDN		Design Electives (5 credits from the specified elective list) / Product Management and Entrepreneurship Electives (9 credits from the specified elective list) / Project-related Electives (22 credits from the specified elective list. Students should seek approval of their advisor for the choices of courses)	36			5	3	3	3	7	3	3		27	DDP students could use FINA 2303, ISOM 2700 and MARK 2120 to satisfy the requirement of Product Management and Entrepreneurship Electives
		Required credits for Major Requirements Courses and Electives	78											69	

BBA in Management

School Requirements

Dept.	Code	Title	Credits	Y1F	Y1S	Y2F	Y2S	Y3F	Y3S	Y4F	Y4S	Y5F	Y5S	Sub	Remarks
ACCT	2010	Principles of Accounting I	3			3								3	
ACCT	2200	Principles of Accounting II	3						3					3	
ECON	2103	Note: ECON 2103 OR ECON 2113 / Principles of Microeconomics	3			3								3	
ECON	2113	Microeconomics	3												
ECON	2123	Note: ECON 2123 OR ECON 3123 / Macroeconomics	3					3						3	
ECON	3123	Macroeconomic Theory I	3												
FINA	2303	Financial Management	3				3							3	
ISOM	2010	Introduction to Information Systems	3	---	---	---	---	---	---	---	---	---	---	0	Substituted by COMP 1021/1022P
ISOM	2020	Coding for Business	1					1						1	
ISOM	2500	Business Statistics	3			3								3	
ISOM	2600	Introduction to Business Analytics	1					1						1	
ISOM	2700	Operations Management	3									3		3	
MARK	2120	Marketing Management	3				3							3	
MGMT	2010	Business Ethics and the Individual	2				2							2	
MGMT	2110	Organizational Behavior	3				3							3	MGMT 2110 is a major pre-requisite
MGMT	2130	Business Ethics and Social Responsibility	2								2			2	
SBMT	1111	Business Student Induction	0	---	---	---	---	---	---	---	---	---	---	0	Waived for DDP students
LABU	2040	Business Case Analyses	3					3						3	
LABU	2060	Effective Communication in Business	3								3			3	
MATH	1003	Note: MATH 1003 OR MATH 1012 OR MATH 1013 OR MATH 1020 OR MATH 1023 / Calculus and Linear Algebra	3	(3)										0	DDP students should take MATH 1012 or MATH 1013 or MATH 1020 or MATH 1023 to satisfy the requirements of both BEng and BBA degrees
MATH	1012	Calculus IA	4												
MATH	1013	Calculus IB	3												
MATH	1020	Accelerated Calculus	4												
MATH	1023	Honors Calculus I	3												
		Required credits for School Requirements	45-46											39	

Major Requirements

Major Required Courses and Electives

Dept.	Code	Title	Credits	Y1F	Y1S	Y2F	Y2S	Y3F	Y3S	Y4F	Y4S	Y5F	Y5S	Sub	Remarks
MGMT	3110	Note: MGMT 3110 OR MGMT 3120 (For students in the Consulting Option, they will use MGMT 3110 to fulfill the Option Requirements and should take MGMT 3120 to fulfill this requirement.) / Human Resources Management	4 / 4						4					4	Students in the Consulting Option must take MGMT 3120
MGMT	3120	Managerial Leadership	4												
MGMT	3130	Note: MGMT 3130 OR MGMT 3140 (Students in the Consulting Option must take MGMT 3140 to fulfill this requirement.) / Judgement and Decision Making in Organizations	4 / 4					4						4	Students in the Consulting Option must take MGMT 3140
MGMT	3140	Negotiation	4												
MGMT	4210	Note: MGMT 4210 OR MGMT 4220 (Students in the Consulting Option or in the Corporate Social Responsibility and Sustainability Option must take MGMT 4210 to fulfill this requirement.) / Corporate Strategy	3-4 / 3								3			3	Students in the Consulting Option must take MGMT 4210. Students in the CSR Option must take MGMT 4210
MGMT	4220	Entrepreneurship and Innovation	4												
MGMT		MGMT 3000-level or above Electives (Any 3 courses of the subject and level as specified. Courses taken as Option Required Courses may not be counted towards the elective requirement.)	9							3	3	3		9	Students in the Consulting Option are recommended to take MGMT 4220 and a new course in Simulating Strategy to fulfill the major elective requirement
		Required credits for Major Required Courses and Electives	20-21											20	

Additional Requirements

Requirements for Dual Degree Program

Required Courses

Dept.	Code	Title	Credits	Y1F	Y1S	Y2F	Y2S	Y3F	Y3S	Y4F	Y4S	Y5F	Y5S	Sub	Remarks
TEMG	1010	Technology and Management Professional Activities	0	0	0	0	0	0	0	0	0	0	0	0	
TEMG	3950	Case-based Problem Solving	3		3									3	
		Required credits for Additional Requirements	3											3	

University CORE

Dept.	Code	Title	Credits	Y1F	Y1S	Y2F	Y2S	Y3F	Y3S	Y4F	Y4S	Y5F	Y5S	Sub	Remarks
CORE	C3 - C12	U CORE - Others	30	9	6			3		3		6	3	30	
CORE	C1 & C2	U CORE - English Language	6	3	3									6	
		Sub-total for University CORE	36											36	

Term load (excl. free credits)									
18	18	19	19	19	20	19	19	17	14

182##

<< Declaration of BEng major   << Declaration of BBA major

Notes:

( ) indicates the reuse of the same course to fulfill more than one requirement.

[ ] denotes the course is also offered in other terms as indicated and students may take the course in one of these subject to advice by the program office.

* Courses offered in winter term

^ Courses offered in summer term

--- denotes the course/requirement is either waived or substituted

To graduate, students should complete all requirements as specified for DDP.

**Remarks on course(s):

>> The content of this example is not necessarily equivalent to a complete list of graduation requirements of the program. Students should refer to the Program Catalog/UG Curriculum Handbook for updated graduation requirements. For up-to-date information on course offering and scheduling, students should check it out from respective School and Department.

The Hong Kong University of Science and Technology
Interdisciplinary Programs Office
An Example on Student's Pathway

IDFINA   2020-21 Intake
(Via SENG Yr 1)

School:		School of Engineering and School of Business Management														
Program:		Dual Degree Program (BSc in Integretive Systems and Design and BBA in Finance)			<< Declaration of BSc major		<< Declaration of BBA major	Student's Pathway								
Course Offering Dept. (course code prefix)	Course Code	Course Title / Courses List	Credits	Year 1 Fall	Year 1 Spring	Year 2 Fall	Year 2 Spring	Year 3 Fall	Year 3 Spring	Year 4 Fall	Year 4 Spring	Year 5 Fall	Year 5 Spring	Sub-total	Remarks

BSc in Integrative Systems and Design

Major Requirements

Engineering Fundamental Courses

Dept	Code	Title	Credits	Y1F	Y1S	Y2F	Y2S	Y3F	Y3S	Y4F	Y4S	Y5F	Y5S	Sub-total	Remarks
COMP COMP	1021 1022P	Note: COMP1021 OR COMP1022P Introduction to Computer Science Introduction to Computing with Java	3 3	3										3	This course will also be used to substitute ISOM 2010
ENGG	1010	Academic Orientation	0	0	0									0	
LANG	2030	Technical Communication I	3						3					3	
MATH MATH MATH MATH MATH MATH	1012 1013 1014 1020 1023 1024	Note: [(MATH 1012 OR MATH 1013 OR MATH 1023) AND (MATH 1014 OR MATH 1024)] OR [MATH 1020] Calculus IA Calculus IB Calculus II Accelerated Calculus Honors Calculus I Honors Calculus II	4-7 4 3 3 4 3 3	3	3									6	
PHYS PHYS PHYS PHYS	1001 1111 1112 1312	Note: PHYS1001 OR PHYS1111 OR PHYS1112 OR PHYS1312 Physics and the Modern Society General Physics I General Physics I with Calculus Honors General Physics I	3 3 3 3		3									3	
		Required credits for Engineering Fundamental Courses	13-16											15	

Major Required Courses and Electives

Dept	Code	Title	Credits	Y1F	Y1S	Y2F	Y2S	Y3F	Y3S	Y4F	Y4S	Y5F	Y5S	Sub-total	Remarks
ISDN	1002	Redefining Problems for the Real Needs	3			3								3	
ISDN	1004	Sketching	1			1								1	
ISDN	1006	Human-centered Innovation	3				3							3	
ISDN	2001	Second Year Design Project I	1					1						1	
ISDN	2002	Second Year Design Project II	4						4					4	
ISDN	2200	Systems Thinking and Design	3			3								3	
ISDN	2300	Digital Design	3			3								3	
ISDN	2400	Physical Prototyping	3						3					3	
ISDN	3001	Third Year Design Project I	4							4				4	
ISDN	3002	Third Year Design Project II	4								4			4	
ISDN	4001	Final Year Design Project I	5									5		5	
ISDN	4002	Final Year Design Project II	5										5	5	
LANG	4032	Technical Communication II for IEDA and ISDN	3						3					3	
ISDN/ENGG/IEDA ISDN/ENTR/IEDA/SBM ISDN		Design Electives (5 credits from the specified elective list) Product Management and Entrepreneurship Electives (9 credits from the specified elective list) Project-related Electives (22 credits from the specified elective list. Students should seek approval of their advisor for the choices of courses)	36				5	3	3	3	7	3	3	27	DDP students could use FINA 2303, ISOM 2700 and MARK 2120 to satisfy the requirement of Product Management and Entrepreneurship Electives
		Required credits for Major Requirements Courses and Electives	78											69	

BBA in Finance

School Requirements

Dept	Code	Title	Credits	Y1F	Y1S	Y2F	Y2S	Y3F	Y3S	Y4F	Y4S	Y5F	Y5S	Sub-total	Remarks
ACCT	2010	Principles of Accounting I	3			3								3	
ACCT	2200	Principles of Accounting II	3					3						3	
ECON ECON	2103 2113	Note: ECON 2103 OR ECON 2113 Principles of Microeconomics Microeconomics	3 3				3							3	
ECON ECON	2123 3123	Note: ECON 2123 OR ECON 3123 Macroeconomics Macroeconomic Theory I	3 3					3						3	
FINA	2303	Financial Management	3				3							3	FINA 2303 is a major pre-requisite
ISOM	2010	Introduction to Information Systems	3	---	---	---	---	---	---	---	---	---	---	0	Substituted by COMP 1021/1022P
ISOM	2020	Coding for Business	1					1						1	
ISOM	2500	Business Statistics	3			3								3	
ISOM	2600	Introduction to Business Analytics	1					1						1	
ISOM	2700	Operations Management	3								3			3	
MARK	2120	Marketing Management	3				3							3	
MGMT	2010	Business Ethics and the Individual	2				2							2	
MGMT	2110	Organizational Behavior	3				3							3	
MGMT	2130	Business Ethics and Social Responsibility	2						2					2	
SBMT	1111	Business Student Induction	0	---	---	---	---	---	---	---	---	---	---	0	Waived for DDP students
LABU	2040	Business Case Analyses	3				3							3	
LABU	2060	Effective Communication in Business	3							3				3	
MATH MATH MATH MATH MATH	1003 1012 1013 1020 1023	Note: MATH 1003 OR MATH 1012 OR MATH 1013 OR MATH 1020 OR MATH 1023 Calculus and Linear Algebra Calculus IA Calculus IB Accelerated Calculus Honors Calculus I	3-4 3 4 3 4 3	(3)										0	DDP students should take MATH 1012 or MATH 1013 or MATH 1020 or MATH 1023 to satisfy the requirements of both BEng and BBA degrees
		Required credits for School Requirements	45-46											39	

Major Requirements

Major Required Courses and Electives

Dept	Code	Title	Credits	Y1F	Y1S	Y2F	Y2S	Y3F	Y3S	Y4F	Y4S	Y5F	Y5S	Sub-total	Remarks
FINA	3001	Key Skills for Finance Professionals (A)	1					1						1	
FINA	3103	Intermediate Investments	3					3						3	
FINA	3203	Derivative Securities	3								3			3	
FINA	3303	Intermediate Corporate Finance	3						3					3	
FINA	3810	Bloomberg Market Concepts Certification	0					0						0	
ACCT ACCT ACCT	3010 3020 3030	Note: (ACCT 3010 AND ACCT 3020) OR ACCT 3030 Financial Accounting I Financial Accounting II Intermediate Financial Accounting for Non-Accounting Majors	3-6 3 3 3						3					3	
ISOM ISOM	3230 3400	Note: ISOM 3230 OR ISOM 3400 Business Applications Programming Python Programming for Business Analytics	3 3 3						3					3	DDP students who took COMP 1021 in BEng requirements are required to take ISOM 3230
FINA		FINA 3000-level or above Electives (Any 3 courses of the subject and level as specified)	9							3	3	3		9	
		Required credits for Major Required Courses and Electives	25-28											25	

Additional Requirements

Requirements for Dual Degree Program

Required Courses

Dept	Code	Title	Credits	Y1F	Y1S	Y2F	Y2S	Y3F	Y3S	Y4F	Y4S	Y5F	Y5S	Sub-total	Remarks
TEMG	1010	Technology and Management Professional Activities	0	0	0	0	0	0	0	0	0	0	0	0	
TEMG	3950	Case-based Problem Solving	3				3							3	
		Required credits for Additional Requirements	3											3	

University CORE

Dept	Code	Title	Credits	Y1F	Y1S	Y2F	Y2S	Y3F	Y3S	Y4F	Y4S	Y5F	Y5S	Sub-total	Remarks
CORE	C3 - C12	U CORE - Others	30	9	9							6		30	
CORE	C1 & C2	U CORE - English Language	6	3	3									6	
		Sub-total for University CORE	36											36	

Term load (excl. free credits)										
18	18	19	20	18	19	18	20	20	17	

187##

<< Declaration of BEng major   << Declaration of BBA major

Notes:

( ) indicates the reuse of the same course to fulfill more than one requirement.

* Courses offered in winter term

^ Courses offered in summer term

--- denotes the course/requirement is either waived or substituted

To graduate, students should complete all requirements as specified for DDP.

**Remarks on course(s):

>> The content of this example is not necessarily equivalent to a complete list of graduation requirements of the program. Students should refer to the Program Catalog/UG Curriculum Handbook for updated graduation requirements. For up-to-date information on course offering and scheduling, students should check it out from respective School and Department.

The Hong Kong University of Science and Technology
Interdisciplinary Programs Office
An Example on Student's Pathway

IDFINA **2020-21 Intake**
(Via SBM Yr 1)

<< Declaration of BSc major   << Declaration of BBA major

School:		School of Engineering and School of Business Management							Student's Pathway						
Program:		Dual Degree Program (BSc in Integrative Systems and Design and BBA in Finance)														
Course Offering Dept. (course code prefix)	Course Code	Course Title / Courses List	Credits	Year 1 Fall	Year 1 Spring	Year 2 Fall	Year 2 Spring	Year 3 Fall	Year 3 Spring	Year 4 Fall	Year 4 Spring	Year 5 Fall	Year 5 Spring	Sub-total	Remarks

BSc in Integrative Systems and Design
Major Requirements
Engineering Fundamental Courses

Dept	Code	Title	Credits	Y1F	Y1S	Y2F	Y2S	Y3F	Y3S	Y4F	Y4S	Y5F	Y5S	Sub-total	Remarks
COMP / COMP	1021 / 1022P	Note: COMP1021 OR COMP1022P; Introduction to Computer Science / Introduction to Computing with Java	3 / 3			3								3	This course will also be used to substitute ISOM 2010
ENGG	1010	Academic Orientation	0	---	---	---	---	---	---	---	---	---	---	0	
LANG	2030	Technical Communication I	3						3					3	
MATH MATH MATH MATH MATH MATH	1012 1013 1014 1020 1023 1024	Note: [(MATH 1012 OR MATH 1013 OR MATH 1023) AND (MATH 1014 OR MATH 1024)] OR [MATH 1020]; Calculus IA / Calculus IB / Calculus II / Accelerated Calculus / Honors Calculus I / Honors Calculus II	4-7 / 4 / 3 / 3 / 4 / 3 / 3	3	3									6	
PHYS PHYS PHYS PHYS	1001 1111 1112 1312	Note: PHYS1001 OR PHYS1111 OR PHYS1112 OR PHYS1312; Physics and the Modern Society / General Physics I / General Physics I with Calculus / Honors General Physics I	3 / 3 / 3 / 3				3							3	
		Required credits for Engineering Fundamental Courses	13-16											15	

Major Required Courses and Electives

Dept	Code	Title	Credits	Y1F	Y1S	Y2F	Y2S	Y3F	Y3S	Y4F	Y4S	Y5F	Y5S	Sub-total	Remarks
ISDN	1002	Redefining Problems for the Real Needs	3			3								3	
ISDN	1004	Sketching	1			1								1	
ISDN	1006	Human-centered Innovation	3				3							3	
ISDN	2001	Second Year Design Project I	1					1						1	
ISDN	2002	Second Year Design Project II	4						4					4	
ISDN	2200	Systems Thinking and Design	3			3								3	
ISDN	2300	Digital Design	3			3								3	
ISDN	2400	Physical Prototyping	3						3					3	
ISDN	3001	Third Year Design Project I	4							4				4	
ISDN	3002	Third Year Design Project II	4								4			4	
ISDN	4001	Final Year Design Project I	5									5		5	
ISDN	4002	Final Year Design Project II	5										5	5	
LANG	4032	Technical Communication II for IEDA and ISDN	3						3					3	
ISDN/ENGG/IEDA ISDN/ENTR/IEDA/SBM ISDN		Design Electives (5 credits from the specified elective list); Product Management and Entrepreneurship Electives (9 credits from the specified elective list); Project-related Electives (22 credits from the specified elective list. Students should seek approval of their advisor for the choices of courses)	36				5	3	3	3	7	3	3	27	DDP students could use FINA 2303, ISOM 2700 and MARK 2120 to satisfy the requirement of Product Management and Entrepreneurship Electives
		Required credits for Major Requirements Courses and Electives	78											69	

BBA in Finance
School Requirements

Dept	Code	Title	Credits	Y1F	Y1S	Y2F	Y2S	Y3F	Y3S	Y4F	Y4S	Y5F	Y5S	Sub-total	Remarks
ACCT	2010	Principles of Accounting I	3	3										3	
ACCT	2200	Principles of Accounting II	3						3					3	
ECON / ECON	2103 / 2113	Note: ECON 2103 OR ECON 2113; Principles of Microeconomics / Microeconomics	3 / 3		3									3	
ECON / ECON	2123 / 3123	Note: ECON 2123 OR ECON 3123; Macroeconomics / Macroeconomic Theory I	3 / 3					3						3	
FINA	2303	Financial Management	3				3							3	FINA 2303 is a major pre-requisite
ISOM	2010	Introduction to Information Systems	3	---	---	---	---	---	---	---	---	---	---	0	Substituted by COMP 1021/1022P
ISOM	2020	Coding for Business	1					1						1	
ISOM	2500	Business Statistics	3			3								3	
ISOM	2600	Introduction to Business Analytics	1					1						1	
ISOM	2700	Operations Management	3						3					3	
MARK	2120	Marketing Management	3				3							3	
MGMT	2010	Business Ethics and the Individual	2				2							2	
MGMT	2110	Organizational Behavior	3		3									3	
MGMT	2130	Business Ethics and Social Responsibility	2				2							2	
SBMT	1111	Business Student Induction	0	0	0									0	Waived for DDP students
LABU	2040	Business Case Analyses	3						3					3	
LABU	2060	Effective Communication in Business	3								3			3	
MATH MATH MATH MATH MATH	1003 1012 1013 1020 1023	Note: MATH 1003 OR MATH 1012 OR MATH 1013 OR MATH 1020 OR MATH 1023; Calculus and Linear Algebra / Calculus IA / Calculus IB / Accelerated Calculus / Honors Calculus I	3-4 / 3 / 4 / 3 / 4 / 3	(3)										0	DDP students should take MATH 1012 or MATH 1013 or MATH 1020 or MATH 1023 to satisfy the requirements of both BEng and BBA degrees
		Required credits for School Requirements	45-46											39	

Major Requirements
Major Required Courses and Electives

Dept	Code	Title	Credits	Y1F	Y1S	Y2F	Y2S	Y3F	Y3S	Y4F	Y4S	Y5F	Y5S	Sub-total	Remarks
FINA	3001	Key Skills for Finance Professionals (A)	1					1						1	
FINA	3103	Intermediate Investments	3					3						3	
FINA	3203	Derivative Securities	3							3				3	
FINA	3303	Intermediate Corporate Finance	3						3					3	
FINA	3810	Bloomberg Market Concepts Certification	0					0						0	
ACCT ACCT ACCT	3010 3020 3030	Note: (ACCT 3010 AND ACCT 3020) OR ACCT 3030; Financial Accounting I / Financial Accounting II / Intermediate Financial Accounting for Non-Accounting Majors	3-6 / 3 / 3 / 3						3					3	
ISOM ISOM	3230 3400	Note: ISOM 3230 OR ISOM 3400; Business Applications Programming / Python Programming for Business Analytics	3 / 3 / 3						3					3	DDP students who took COMP 1021 in BEng requirements are required to take ISOM 3230
FINA		FINA 3000-level or above Electives (Any 3 courses of the subject and level as specified)	9							3	3	3		9	
		Required credits for Major Required Courses and Electives	25-28											25	

Additional Requirements
Requirements for Dual Degree Program
Required Courses

Dept	Code	Title	Credits	Y1F	Y1S	Y2F	Y2S	Y3F	Y3S	Y4F	Y4S	Y5F	Y5S	Sub-total	Remarks
TEMG	1010	Technology and Management Professional Activities	0	0	0	0	0	0	0	0	0	0	0	0	
TEMG	3950	Case-based Problem Solving	3			3								3	
		Required credits for Additional Requirements	3											3	

University CORE

Dept	Code	Title	Credits	Y1F	Y1S	Y2F	Y2S	Y3F	Y3S	Y4F	Y4S	Y5F	Y5S	Sub-total	Remarks
CORE	C3 - C12	U CORE - Others	30	9	6				3		6	6		30	
CORE	C1 & C2	U CORE - English Language	6	3	3									6	
		Sub-total for University CORE	36											36	

Term load (excl. free credits)										
18	18	19	19	18	22	19	20	17	17	
				187##						

<< Declaration of BEng major   << Declaration of BBA major

Notes:

( ) indicates the reuse of the same course to fulfill more than one requirement.

* Courses offered in winter term

^ Courses offered in summer term

--- denotes the course/requirement is either waived or substituted

To graduate, students should complete all requirements as specified for DDP.

**Remarks on course(s):

The Hong Kong University of Science and Technology
Interdisciplinary Programs Office
An Example on Student's Pathway

IDFINA **2020-21 Intake**
(Via ISD Yr 1)

<< *Declaration of BSc major*   << *Declaration of BBA major*

School:			School of Engineering and School of Business Management													Student's Pathway	
Program:			**Dual Degree Program (BSc in Integrative Systems and Design and BBA in Finance)**														
Course Offering Dept. (course code prefix)	Course Code	Course Title / Courses List	Credits	Year 1 Fall	Year 1 Spring	Year 2 Fall	Year 2 Spring	Year 3 Fall	Year 3 Spring	Year 4 Fall	Year 4 Spring	Year 5 Fall	Year 5 Spring	Sub-total	**Remarks**
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

BSc in Integrative Systems and Design
Major Requirements
Engineering Fundamental Courses

Dept	Code	Title	Credits	Y1F	Y1S	Y2F	Y2S	Y3F	Y3S	Y4F	Y4S	Y5F	Y5S	Sub-total	Remarks
COMP / COMP	1021 / 1022P	Note: COMP1021 OR COMP1022P Introduction to Computer Science Introduction to Computing with Java	3 / 3	3										3	This course will also be used to substitute ISOM 2010
ENGG	1010	Academic Orientation	0	0	0									0	
LANG	2030	Technical Communication I	3						3					3	
MATH MATH MATH MATH MATH MATH	1012 1013 1014 1020 1023 1024	Note: [(MATH 1012 OR MATH 1013 OR MATH 1023) AND (MATH 1014 OR MATH 1024)] OR [MATH 1020] Calculus IA Calculus IB Calculus II Accelerated Calculus Honors Calculus I Honors Calculus II	4-7 4 3 3 4 3 3	3	3									6	
PHYS PHYS PHYS PHYS	1001 1111 1112 1312	Note: PHYS1001 OR PHYS1111 OR PHYS1112 OR PHYS1312 Physics and the Modern Society General Physics I General Physics I with Calculus Honors General Physics I	3 3 3 3		3									3	
		Required credits for Engineering Fundamental Courses	13-16											15	

Major Required Courses and Electives

Dept	Code	Title	Credits	Y1F	Y1S	Y2F	Y2S	Y3F	Y3S	Y4F	Y4S	Y5F	Y5S	Sub-total	Remarks
ISDN	1002	Redefining Problems for the Real Needs	3	3										3	
ISDN	1004	Sketching	1	1										1	
ISDN	1006	Human-centered Innovation	3		3									3	
ISDN	2001	Second Year Design Project I	1					1						1	
ISDN	2002	Second Year Design Project II	4						4					4	
ISDN	2200	Systems Thinking and Design	3			3								3	
ISDN	2300	Digital Design	3			3								3	
ISDN	2400	Physical Prototyping	3						3					3	
ISDN	3001	Third Year Design Project I	4							4				4	
ISDN	3002	Third Year Design Project II	4								4			4	
ISDN	4001	Final Year Design Project I	5									5		5	
ISDN	4002	Final Year Design Project II	5										5	5	
LANG	4032	Technical Communication II for IEDA and ISDN	3						3					3	
ISDN/ENGG/IEDA ISDN/ENTR/IEDA/SBM ISDN		Design Electives (5 credits from the specified elective list) Product Management and Entrepreneurship Electives (9 credits from the specified elective list) Project-related Electives (22 credits from the specified elective list. Students should seek approval of their advisor for the choices of courses)	36			5	3	3	3	3	7	3	3	27	DDP students could use FINA 2303, ISOM 2700 and MARK 2120 to satisfy the requirement of Product Management and Entrepreneurship Electives
		Required credits for Major Requirements Courses and Electives	78											69	

BBA in Finance
School Requirements

Dept	Code	Title	Credits	Y1F	Y1S	Y2F	Y2S	Y3F	Y3S	Y4F	Y4S	Y5F	Y5S	Sub-total	Remarks
ACCT	2010	Principles of Accounting I	3			3								3	
ACCT	2200	Principles of Accounting II	3						3					3	
ECON / ECON	2103 / 2113	Note: ECON 2103 OR ECON 2113 Principles of Microeconomics Microeconomics	3 / 3				3							3	
ECON / ECON	2123 / 3123	Note: ECON 2123 OR ECON 3123 Macroeconomics Macroeconomic Theory I	3 / 3					3						3	
FINA	2303	Financial Management	3				3							3	FINA 2303 is a major pre-requisite
ISOM	2010	Introduction to Information Systems	3	---	---	---	---	---	---	---	---	---	---	0	Substituted by COMP 1021/1022P
ISOM	2020	Coding for Business	1					1						1	
ISOM	2500	Business Statistics	3			3								3	
ISOM	2600	Introduction to Business Analytics	1					1						1	
ISOM	2700	Operations Management	3						3					3	
MARK	2120	Marketing Management	3				3							3	
MGMT	2010	Business Ethics and the Individual	2			2								2	
MGMT	2110	Organizational Behavior	3				3							3	
MGMT	2130	Business Ethics and Social Responsibility	2				2							2	
SBMT	1111	Business Student Induction	0	---	---	---	---	---	---	---	---	---	---	0	Waived for DDP students
LABU	2040	Business Case Analyses	3				3							3	
LABU	2060	Effective Communication in Business	3						3					3	
MATH MATH MATH MATH MATH	1003 1012 1013 1020 1023	Note: MATH 1003 OR MATH 1012 OR MATH 1013 OR MATH 1020 OR MATH 1023 Calculus and Linear Algebra Calculus IA Calculus IB Accelerated Calculus Honors Calculus I	3-4 3 4 3 4 3	(3)										0	DDP students should take MATH 1012 or MATH 1013 or MATH 1020 or MATH 1023 to satisfy the requirements of both BEng and BBA degrees
		Required credits for School Requirements	45-46											39	

Major Requirements
Major Required Courses and Electives

Dept	Code	Title	Credits	Y1F	Y1S	Y2F	Y2S	Y3F	Y3S	Y4F	Y4S	Y5F	Y5S	Sub-total	Remarks
FINA	3001	Key Skills for Finance Professionals (A)	1					1						1	
FINA	3103	Intermediate Investments	3					3						3	
FINA	3203	Derivative Securities	3							3				3	
FINA	3303	Intermediate Corporate Finance	3						3					3	
FINA	3810	Bloomberg Market Concepts Certification	0					0						0	
ACCT ACCT ACCT	3010 3020 3030	Note: (ACCT 3010 AND ACCT 3020) OR ACCT 3030 Financial Accounting I Financial Accounting II Intermediate Financial Accounting for Non-Accounting Majors	3-6 3 3 3						3					3	
ISOM ISOM	3230 3400	Note: ISOM 3230 OR ISOM 3400 Business Applications Programming Python Programming for Business Analytics	3 3 3						3					3	DDP students who took COMP 1021 in BEng requirements are required to take ISOM 3230
FINA		FINA 3000-level or above Electives (Any 3 courses of the subject and level as specified)	9							3	3	3		9	
		Required credits for Major Required Courses and Electives	25-28											25	

Additional Requirements
Requirements for Dual Degree Program
Required Courses

Dept	Code	Title	Credits	Y1F	Y1S	Y2F	Y2S	Y3F	Y3S	Y4F	Y4S	Y5F	Y5S	Sub-total	Remarks
TEMG	1010	Technology and Management Professional Activities	0	0	0	0	0	0	0	0	0	0	0	0	
TEMG	3950	Case-based Problem Solving	3			3								3	
		Required credits for Additional Requirements	3											3	

University CORE

Dept	Code	Title	Credits	Y1F	Y1S	Y2F	Y2S	Y3F	Y3S	Y4F	Y4S	Y5F	Y5S	Sub-total	Remarks
CORE	C3 - C12	U CORE - Others	30	6	6	3	3					6	6	30	
CORE	C1 & C2	U CORE - English Language	6	3	3									6	
		Sub-total for University CORE	36											36	

Term load (excl. free credits)

	Y1F	Y1S	Y2F	Y2S	Y3F	Y3S	Y4F	Y4S	Y5F	Y5S
	19	18	20	20	18	19	17	17	17	

187##

<< *Declaration of BEng major*   << *Declaration of BBA major*

Notes:

( ) indicates the reuse of the same course to fulfill more than one requirement.

* Courses offered in winter term

^ Courses offered in summer term

--- denotes the course/requirement is either waived or substituted

To graduate, students should complete all requirements as specified for DDP.

**Remarks on course(s):

>> The content of this example is not necessarily equivalent to a complete list of graduation requirements of the program. Students should refer to the Program Catalog/UG Curriculum Handbook for updated graduation requirements. For up-to-date information on course offering and scheduling, students should check it out from respective School and Department.

English Language Requirements of SENG, SBM and DDP students

4Y

SENG			SBM			DDP (ID+ECON/FINA/GBM/MGMT/MARK)			
Course code_SENG	Course title_SENG	Credits_SENG	Course code_SBM	Course title_SBM	Credits_SBM	Course code_DDP	Course title_DDP	Credits_DDP	Remarks
U Core	English Language	6	U Core	English Language	6	U Core	English Language	6	university requirement
LANG 2030	Technical Communication I	3	LABU 2040	Business Case Analyses	3	LANG 2030	Technical Communication I	3	SENG requirement
LANG 4032	Technical Communication II for IEDA and ISDN	3	LABU 2060	Effective Communication in Business	3	LABU 2040	Business Case Analyses	3	SBM requirement
						LABU 2060	Effective Communication in Business	3	SBM requirement
						LANG 4032	Technical Communication II for IEDA and ISDN	3	SENG requirement
	Total	12		Total	12		Total	18	

<u>COMMITTEE ON UNDERGRADUATE STUDIES</u>

Paper for:	Discussion/Decision
Title:	**Curricula and Discipline Titles for Individual Candidates under the Framework of Individualized Interdisciplinary Major**
Purpose:	The Interdisciplinary Programs Office has submitted the curricula and discipline titles for two candidates under the framework of Individualized Interdisciplinary Major for consideration by CUS
Submitted by:	Interdisciplinary Programs Office
Prepared by:	CUS Secretariat

<u>BACKGROUND</u>

1.   At its 127th meeting held on 25 June 2015, the Senate approved the introduction of the framework of Individualized Interdisciplinary Major (IIM), under which students may create their own BSc program in IIM with self-defined curriculum and discipline title to meet their academic goal that cannot be satisfied by any existing major offered by the University. Students completed the program will be conferred an award of BSc in Individualized Interdisciplinary Major (*interdisciplinary study title*) 【理學士 (跨學科自選主修 - 跨學科名稱)】. Students admitted to Schools or other majors may apply for IIM from the Spring term of their first year of study but no later than the Spring term of their second year of study.

2.   The Senate also delegated the authority to the CUS to approve the curriculum and discipline title for individual IIM students upon recommendation by the Individualized Major Advisory Committee (IMAC) and the Interdisciplinary Undergraduate Studies Committee (IUSC) under the Interdisciplinary Programs Office (IPO).

<u>PROPOSED CURRICULA & DISCIPLINE TITLES</u>

3.   With endorsement by the IMAC and IUSC, the IPO has recently submitted the proposed curricula and discipline titles for 2 IIM candidates, as follows:

Candidate	Proposed IIM
1	BSc in Individualized Interdisciplinary Major (Medical Engineering) 理學士 (跨學科自選主修 – 醫學工程)
2	BSc in Individualized Interdisciplinary Major (Anthropomorphism in Interactive Systems) 理學士 (跨學科自選主修 – 交互系統擬人論)

4.   The proposed curricula (including benchmarking summary) of the selected candidates are presented in <u>Appendix 1</u>. They have been reviewed and confirmed by the IMAC and IUSC to have conformed to the approved framework as set out in <u>Appendix 2</u>, and that its scope cannot be satisfied by any existing Major offered by the University.

<u>ACTION SOUGHT</u>

5.   CUS is invited to consider and approve as appropriate the proposed curricula and discipline titles under the framework of IIM as presented in <u>Appendix 1</u> for the two individual candidates.

Summary of the Proposed Curricula and Discipline Titles and
Supplementary Information on Individualized Major Advisory Committee (IMAC)
for Individual IIM Candidates

Candidate	Proposed discipline title	Proposed curriculum (in credits)			Total required credits discounting 9 credits reused for UCore
		Fundamental courses	**Required courses**	**Electives**	
1	BSc in Individualized Interdisciplinary Major (Medical Engineering) 理學士(跨學科自選主修－醫學工程)	**6-7**	**66**	**18+**	**117+**
	IMAC membership Chair: Prof King-Lau CHOW (IIM Program Director, *ex-officio*) Members: Prof Yi-Kuen LEE (MAE) *(Primary faculty advisor)* Prof Tsz Wai WONG (CBE) Prof Bertram E SHI (ECE)				
2	BSc in Individualized Interdisciplinary Major (Anthropomorphism in Interactive Systems) 理學士(跨學科自選主修－交互系統擬人論)	**6-7**	**60**	**18+**	**111+**
	IMAC membership Chair: Prof King-Lau CHOW (IIM Program Director, *ex-officio*) Members: Prof Pan HUI (CSE) *(Primary faculty advisor)* Prof Qifeng CHEN (CSE) Prof King-Lau CHOW (LIFS)				

Title of the Proposed IIM:	(English) BSc in Individualized Interdisciplinary Major (Medical Engineering)
	(Chinese) 理學士 (跨學科自選主修 - 醫學工程)

Proposed Course List

Part A: Fundamental Courses

No.	Course Code	Course Title	No. of Credits	Remarks
1	COMP 1021 OR COMP 1022P OR COMP1022Q OR ISOM 2010	Introduction to Computer Science Introduction to Computing with Java Introduction to Computing with Excel VBA Introduction to Information System	3	Required by IIM framework
2	MATH 1003 OR MATH 1012 OR MATH 1013 OR MATH 1020 OR MATH 1023	Calculus and Linear Algebra Calculus IA Calculus IB Accelerated Calculus Honors Calculus I	3-4	

Total no. of credits earned for Fundamental Courses: **6-7**

Part B: Required Courses (including 3 IIMP courses and at least 48 credits self-planed courses, of which at least 12 credits must be at 3000-level or above.)

No.	Course Code	Course Title	No. of Credits	Remarks
1	IIMP 2000	Academic and Professional Development	0	Required by IIM framework
2	IIMP 4980	Interdisciplinary Capstone Project I	3	
3	IIMP 4990	Interdisciplinary Capstone Project II	3	
4	BIEN 1010	Introduction to Biomedical Engineering (S&T)	3	Self-planned courses
5	BIEN 2410	Cellular and Systems Physiology for Engineers	3	
6	BIEN 3010	Biodesign: A taste of solving real-life healthcare problems	3	
7	BIEN 3410	Introduction to Bioinstrumentation and Bioimaging	3	
8	ELEC 2100	Signals and Systems	4	
9	ELEC 2400	Electronic Circuits	4	
10	ELEC 3200	System Modelling, Analysis and Control	4	
11	ELEC 4220	Introduction to Robotics: From Mobile robots to manipulator	4	
12	ELEC 4250	Robotic Manipulation and Mobility	3	
13	ELEC 4810	Introduction to Bioinstrumentation and Biosensors	4	
14	LIFS 1901	General Biology I	3	
15	MECH 2020	Statics and Dynamics	3	
16	MECH 2907	Mechatronic Design and Prototyping	3	
17	MECH 4710	Introduction to Robotics	3	
18	PHYS 1113	Lab for Gen. Physics I	1	
19	PHYS 1112	General Physics I	3	
20	PHYS 1114	General Physics II	3	
21	LANG 2030	Technical Communication I	3	Eng Lang endorsed by CLE
22	LANG 4035	Technical Communication II for Chemical and Biological Engineering	3	

Total no. of credits earned for Required Courses: **66**

Part C: Elective Courses (at least 18 credits self-planed courses, of which at least 9 credits must be at 3000-level or above.)

No.	Course Code	Course Title	No. of Credits	Remarks
1	COMP 2011	C++ Programming	3	Self-planned courses
2	COMP 3211	Fundamentals of Artificial Intelligence	3	
3	COMP 4211	Machine Learning	3	
4	ELEC 2600	Probability and random processes in engineering	4	
5	ELEC 3300	Introduction to Embedded Systems	4	
6	ELEC 4820	Medical Imaging	3	
7	ISDN 2200	Systems Thinking and Design	3	
8	MATH 2011	Multivariable Calculus	3	
9	MATH 2111	Matrix Algebra and Applications	3	
10	MATH 2351	Introduction to Differential Equations	3	
11	MECH 2520	Design and Manufacturing I	3	
12	MECH 3030	Mechanisms of Machinery	3	

13	151-0621-00L	Microsystems: Process Technology and Integration	3	
14	227-0993-10L	Bioelectronics and Biosensors	3	
15	376-1714-00L	Biocompatible Materials	2	
16	376-0021-00L	Materials and Mechanics in Medicine	2	Courses from ETH Zurich
17	151-0601-00L	Theory of Robotics and Mechatronics	2	
18	151-0604-00L	Microrobotics	2	
19	227-0385-10L	Biomedical Imaging	2	

Total no. of credits earned for Elective Courses: **18+**

Part D: University Common Core Courses (including LANG 1002 and LANG 1003) (36 credits)

Total no. of credits earned for University Common Core Courses: **36**

Total no. of credits of IIM   **126+**
Total required credits discounting 9 reused credits for Common Core   **117+**

* To graduate, student should complete at least 120 credits. He/she may need to take courses additional to the required and elective courses as specified above to meet this minimum credit requirement.

Title of the Proposed IIM: **(English) BSc in Individualized Interdisciplinary Major (Anthropomorphism in Interactive Systems)**
(Chinese) 理學士 (跨學科自選主修 –交互系統擬人論)

Proposed Course List

Part A: Fundamental Courses

No.	Course Code	Course Title	No. of Credits	Remarks
1	COMP 1021 OR COMP 1022P OR COMP1022Q OR ISOM 2010	Introduction to Computer Science Introduction to Computing with Java Introduction to Computing with Excel VBA Introduction to Information System	3	Required by IIM framework
2	MATH 1003 OR MATH 1012 OR MATH 1013 OR MATH 1020 OR MATH 1023	Calculus and Linear Algebra Calculus IA Calculus IB Accelerated Calculus Honors Calculus I	3-4	

Total no. of credits earned for Fundamental Courses: **6-7**

Part B: Required Courses (including 3 IIMP courses and at least 48 credits self-planed courses, of which at least 12 credits must be at 3000-level or above.)

No.	Course Code	Course Title	No. of Credits	Remarks
1	IIMP 2000	Academic and Professional Development	0	Required by IIM framework
2	IIMP 4980	Interdisciplinary Capstone Project I	3	
3	IIMP 4990	Interdisciplinary Capstone Project II	3	
4	COMP 2011	Programming with C++	4	Self-planned courses
5	COMP 2012	Object-Oriented Programming and Data Structures	4	
6	COMP 2711	Discrete Mathematical Tools for Computer Science	4	
7	COMP 3711	Design and Analysis of Algorithms	3	
8	COMP 4411	Computer Graphics	3	
9	COMP 4461	Human-Computer Interaction	3	
10	ELEC 2600	Probability and Random Processes in Engineering	4	
11	ELEC 4230	Deep Learning for Natural Language Processing	3	
12	ISDN 3300	Interaction Design	2	
13	MATH 1014	Calculus II	3	
14	MATH 2011	Introduction to Multivariable Calculus	3	
15	SOSC 1960	Discovering Mind and Behavior	3	
16	SOSC 2210	Social Psychology	3	
17	SOSC 2980	Personality Psychology	3	
18	SOSC 2990	Developmental Psychology	3	
19	LANG 2030	Technical Communication I	3	Eng Lang endorsed by CLE
20	LANG 4030	Technical Communication II for CSE & CPEG	3	

Total no. of credits earned for Required Courses: **60**

Part C: Elective Courses (at least 18 credits self-planed courses, of which at least 9 credits must be at 3000-level or above.)

No.	Course Code	Course Title	No. of Credits	Remarks
1	COMP 2611	Computer Organization	4	Self-planned courses
2	COMP 3111	Software Engineering	4	
3	COMP 3511	Operating Systems	3	
4	COMP 4421	Image Processing	3	
5	COMP 4431	Multimedia Computing	3	
6	COMP 4471	Deep Learning in Computer Vision	3	
7	COMP 4521	Mobile Application Development	3	
8	ELEC 1100	Introduction to Electro-Robot Design	4	
9	ELEC 2100	Signals and Systems	4	
10	ELEC 2200	Digital Circuits and Systems	4	
11	ELEC 3170	Digital Media and Multimedia Applications	4	
12	ELEC 4310	Embedded System Design	4	
13	ENTR 3360	From Product Innovations to Successful Technology Startups	3	
14	ENTR 4911	IT Entrepreneurship	3	
15	HUMA 2595	Science, Technology and Modern Life	3	
16	ISDN 2300	Digital Design	3	

17	ISDN 2400	Physical Prototyping	3
18	ISDN 3100	Design for Sustainability	2
19	ISDN 3350	Global Product Development	3
20	ISDN 4320	Design Thinking	3
21	ISOM 1380	Technology and Innovation: Social and Business Perspective	3
22	ISOM 4020	Innovation Management and Technology Entrepreneurship	3
23	MARK 3420	Consumer Behaviour	4
24	MARK 4450	Brand Management	4
25	MATH 2111	Matrix Algebra and Applications	3
26	MGMT 2110	Organizational Behaviour	3
27	MGMT 3140	Negotiation	4
28	MGMT 4220	Entrepreneurship and Innovation	4

Total no. of credits earned for Elective Courses: **18+**

Part D: University Common Core Courses (including LANG 1002 and LANG 1003) (36 credits)

Total no. of credits earned for University Common Core Courses: **36**

Total no. of credits of IIM **120+**
Total required credits discounting 9 reused credits for Common Core **111+**

* To graduate, student should complete at least 120 credits. He/she may need to take courses additional to the required and elective courses as specified above to meet this minimum credit requirement.

Benchmarking for BSc in IIM (Medical Engineering) - Candidate 1

Name of Institution	HKUST	John Hopkins University	Stevens Institute of Technology	University of Hong Kong	University of Tuebingen and University of Stuttgart Cross-Uni Program
Name of Program	BSc in IIM (Medical Engineering)	BSc in Biomedical Engineering	BSc in Biomedical Engineering	BSc in Biomedical Engineering	Bsc. In Medizin Technik (Medical Technology/Engineering)
Number of Credits	133	129	143	240	180 (European Credits)
List of Required Courses	BIEN 1010 Introduction to Biomedical Engineering BIEN 2410 Cellular and Systems Physiology for Engineers BIEN 3010 Biodesign: A taste of solving real life healthcare problems BIEN 3410 Introduction to Bioinstrumentation and Bioimaging ELEC 1100 Introduction to ElectroRobot Design ELEC 2100 Signals and Systems ELEC 2400 Electronic Circuits ELEC 3200 System Modelling, Analysis and Control ELEC 4220 Introduction to Robotics: From Mobile Robots to Manipulator ELEC 4250 Robotic Manipulation and Mobility ELEC 4810 Introduction to Bioinstrumentation and Biosensors LIFS 1901 General Biology I MECH 1906 Mechanical Engineering for Modern Life MECH 2020 Statics and Dynamics MECH 2520 Design and Manufacruring I MECH 2907 Mechatronic Design and Prototyping MECH 4710 Introduction to Robotics PHYS 1112 General Physics I + PHYS 1113 Laboratory for Gen. Physics I PHYS 1114 General Physics II MATH 1020 Accelerated Calculus COMP 1022P Intrduction to Java Programming LANG 2030H Technical Communication I (Honours) LANG 4035 Technical Communication II SCIE 1120 Chemistry and Life University common core courses	Physics I and II with Labs Introductory Chemistry I and II with Labs Calculus I, II and III Linear Algebra and Differential Equations At least one additional semester of statistics (300-level and higher) Humanities and Social Sciences (18 credits) Biomedical Engineering Base Camp Structural Biology of Cells + laboratory Molecules and Cells Statistical Physics Biological Models and Simulations Linear Signals and Systems Nonlinear Dynamics of Biological Systems Linear Systems and Controls Systems Biology of the Cell Biomedical Data Science + Laboratory Computational Medicine + Laboratory Neuroengineering Laboratory Build and Imager	General Chemistry I and II Introduction to Programming Engineering Graphics + Design Differential Calculus Multivariable Calculus Mechanics and Mechanics of Solids Circuits and Systems Differential Equations Electricity and Magnetism Introduction to Biomedical Engineering Biology and Biotechnology Thermodynamics Materials Processing Biomedical Digital Signal Processing Biomaterials Biomechanics Cell Biology Probability and Statistics for Engineers Transport in Biological Systems Engineering Economics Engineering Physiology Bioethics Organic Chemistry I and II Biosystems Simulation and Control Medical Instrumentation and Imaging	Funamental Mechanics Electricity and Electronics Computer Programming Thermofluid Mechanics Calculus and Ordinary differential equations Linear algebra, probability and statistics Fundamentals of Chemistry and biology for biomedical engineering Engineering in biology and medicine Life Sciences I (Biochemistry) and II (Cell Biology and Physiology) Biomedical Signals and linear systems Multivariable Calculus and partial differential equations Biomechanics for Biomedical engineering Life Sciences III (Physiology) Medical Imaging Biomaterials science and engineering Statistics and Mathematical Analysis for biomedical engineering	Higher Mathematics I, II and III Experimental Physics I and II Human Biology I, II and III Technical Mechanics Introduction to Chemistry Biomechanics Introduction to Biochemistry Foundations in Optics Foundations in System Dynamics and Control Systems Building Medical Devices Materials for Implants Electronics Bio and Chemical Sensors Computer Science and Programming
List of Elective Courses	COMP 2011 C++ Programming COMP 3211 Fundamentals of Artificial Intelligence COMP 4211 Machine Learning MATH 2011 Multivariable Calculus MATH 2111 Matrix Algebra and Applications MATH 2351 Introduction to Differential Equations ELEC 2600 Probability and Random Processes in Engineering ELEC 4820 Medical Imaging ISDN 2200 Systems Thinking and Design 151-0621-00L Microsystems: Process Technology and Integration 227-0993-10L Bioelectronics and Biosensors 376-1714-00L Biocompatible Materials 376-0021-00L Materials and Mechanics in Medicine 151-0601-00L Theory of Robotics and Mechatronics 151-0604-00L Microrobotics 227-0385-10L Biomedical Imaging	Focus Area: Imaging and Medical Devices.Choose 21 credits from: Structure of Materials / Mechanical and Electronic Properties of Materials Biomaterials I / Materials Characterisation / Biomaterials II / Micro and Nano structured materials and devices / Bio-inspired Processing of Audio-Visual Signals / Intro to Mechatronics / Microprocessor Lab I / Control Systems / Programmable Device Lab / Signals, Systems and Machine Learning / Image Processing and Analysis / Computation for Engineering / FPGA Synthesis Lab / Design of Biomedical Instruments and Systems / Medical Imaging Systems and Analysis / Digital Signal Processing / Information Theory / Electronics Design Lab / Advanced Microprocessor Lab / Advanced ECE Engineering team project / Control Systems Design / Bio-photonics lab / CAD Design of Digital VLSI Systems / Ultrasound and Photoacoustic Beamforming / Microfabrication Lab / Wavelets and Filter Banks / Random Signal Analysis / Magnetic Resonance in Medicine / Engineering Design Process / Computer-Aided Design / Robot Sensors and Actuators / Molecular Spectroscopy and Imaging / Effective and Economic design for biomedical instrumentation / Robot Devices Kiinematics, Dynamics and Control / Biosensing and BioMEMS / Haptic Interface design for HRI / Robot devices, kinematics, dynamics and control / Colloids and nanoparticles / Optimisation / Dynamical Systems / Applied Statistics and Data Analysis / Intro to Probability / Intro to Stochastic Processes / Intro to Statistics / Monte Carlo Methods / Data Mining / Graph Theory / Mathematical Image Analysis / Statistical Theory / Nonlinear Optimisation / Applied Bioelectrical Engineering / Rehabilitation Engineering / X-Ray imaging and Computed Tomography / Learning Theory / Imaging Instrumentation / Build an Imager / Biomedical Photonics / Surgery for Engineers / Augmented Reality / Computer Integrated Surgery / Computer Vision / Algorithms for Sensor Based Robotics / Intro to Machine Learning / Deep Learning / Electronics and Instrumentation	Humanities and free electives	Choose 30 credits from the following electives: Contemporary topics in Biomedical Technology Biomedical instrumentation and systems Biomedical signals processing and modeling in medical applications Control and instrumentation Stem cells biotechnologies in regenerative medicine Biomaterials design and applications Cell and tissue engineering Biomechanics and biomedical technologies Molecular and cellular biomechanics Transport phenomena in biological systems Advanced physiological science Electromagnetics in biomedicine Biophotonics Magnetic Resonance Imaging Biomedical Ultrasonics Essential Molecular Biology Essential Proteomics Genome science Sequence Bioinformatics University Core electives	**Choose two concentration fields from:** Bioimplants, Sensors and Signals, electrical sensors, medical optics, software automation, minimally invasive surgical technologies, nanoanalytics in medicine, medical imaging technologies. Materials for Medical applications, Biomechanics, Control Systems, Interfacial Engineering, Medical Device Design and Construction
Website		https://www.bme.jhu.edu/academics/undergraduate/undergraduate-degree-requirements/	https://www.stevens.edu/schaefer-school-engineering-science/departments/biomedical-engineering/undergraduate-programs/mission-objectives-outcomes	https://engg.hku.hk/home/syllabuses/Syllabuses-BME-18-19-4Y.pdf	https://www.student.uni-stuttgart.de/studiengang/Medizintechnik-B.Sc-00001./?page=studienaufbau#studienaufbau-freitext-3-0

Benchmarking for BSc in IIM (Anthropomorphism in Interactive Systems) - Candidate 2

Name of Institution	HKUST	HKUST	CUHK	HKUST
Name of Program	**BSc in IIM (Anthropomorphism In Interactive Systems)**	**BEng in Computer Science**	**Psychology**	**BEng in Computer Engineering**
Number of Credits	120	120	123	120
List of Required Courses	IIMP 2000 Academic and Professional Development IIMP 4980 Interdisciplinary Capstone Project I IIMP 4990 Interdisciplinary Capstone Project II COMP 1021 Introduction to Computer Science COMP 2011 Programming with C++ COMP 2012 Object-Oriented Programming and Data Structures COMP 2711 Discrete Mathematical Tools for Computer Science COMP 3711 Design and Analysis of Algorithms COMP 4411 Computer Graphics COMP 4461 Human-Computer Interaction ELEC 2600 Probability and Random Processes in Engineering ELEC 4230 Deep Learning for Natural Language Processing ISDN 3300 Interaction Design MATH 1014 Calculus II MATH 2011 Introduction to Multivariable Calculus HUMA 1000 Cultures and Values HUMA 1620 Human Culture and Society HUMA 2330 Anime HUMA 3630 Community and Cultural Identity SOSC 1960 Discovering Mind and Behavior SOSC 2210 Social Psychology SOSC 2980 Personality Psychology SOSC 2990 Developmental Psychology	COMP 1021 Introduction to Computer Science COMP 2011 Programming with C++ COMP 2012 Object-Oriented Programming and Data Structures COMP 2711 Discrete Mathematical Tools for Computer Science COMP 2611 Computer Organization COMP 3111 Software Engineering COMP 3511 Operating Systems COMP 3711 Design and Analysis of Algorithms MATH 1014 Calculus II	PSYC 1000 General Psychology PSYC 2190 Physiological Psychology PSYC 2240 Sensation and Perception PSYC 2540 Developmental Psychology PSYC 2620 Social Psychology PSYC 2650 Personality Psychology	COMP 1021 Introduction to Computer Science COMP 2011 Programming with C++ COMP 2012 Object-Oriented Programming and Data Structures COMP 2711 Discrete Mathematical Tools for Computer Science COMP 2611 Computer Organization COMP 3111 Software Engineering COMP 3511 Operating Systems COMP 3711 Design and Analysis of Algorithms MATH 1014 Calculus II MATH 2011 Introduction to Multivariable Calculus ELEC 1100 Introduction to Electro-Robot Design ELEC 2100 Signals and Systems
List of Elective Courses	COMP 2611 Computer Organization COMP 3111 Software Engineering COMP 3511 Operating Systems COMP 4421 Image Processing COMP 4431 Multimedia Computing COMP 4471 Deep Learning in Computer Vision COMP 4521 Mobile Application Development ELEC 1100 Introduction to Electro-Robot Design ELEC 2100 Signals and Systems ELEC 2200 Digital Circuits and Systems ELEC 3170 Digital Media and Multimedia Applications ELEC 4310 Embedded System Design ENTR 3360 From Product Innovations to Successful Technology Startups ENTR 4911 IT Entrepreneurship HUMA 2595 Science, Technology and Modern Life ISDN 2300 Digital Design ISDN 2400 Physical Prototyping ISDN 3100 Design for Sustainability ISDN 3350 Global Product Development ISDN 4320 Design Thinking ISOM 1380 Technology and Innovation: Social and Business Perspective ISOM 4020 Innovation Management and Technology Entrepreneurship MARK 3410 Promotion and Advertising Management MARK 3420 Consumer Behaviour MARK 4450 Brand Management MATH 2111 Matrix Algebra and Applications MGMT 2110 Organizational Behaviour MGMT 3140 Negotiation	COMP 4411 Computer Graphics COMP 4421 Image Processing COMP 4431 Multimedia Computing COMP 4461 Human-Computer Interaction COMP 4471 Deep Learning in Computer Vision COMP 4521 Mobile Application Development	PSYC 1030 Psychology of Personal Growth PSYC 1040 Perspectives in Human Sexuality PSYC 1050 Consciousness PSYC 3001 Special Topics in Cognitive Science PSYC 3002 Special Topics in Education and Human Development PSYC 3003 Special Topics in Social and Industrial-Organizational Psychology PSYC 3610 Culture and Psychology PSYC 3630 Culture, Groups and Social Behaviour PSYC 3640 Psychology of Gender PSYC 3660 Emotion and Motivation	COMP 4411 Computer Graphics COMP 4421 Image Processing COMP 4431 Multimedia Computing COMP 4461 Human-Computer Interaction COMP 4521 Mobile Application Development ELEC 3170 Digital Media and Multimedia Applications ELEC 4310 Embedded System Design ELEC 4230 Deep Learning for Natural Language Processing
Website	N/A	https://ugadmin.ust.hk/prog_crs/ug/202021/pdf/20-21comp.pdf	https://joinus.psy.cuhk.edu.hk/index.php/courses2	http://ugadmin.ust.hk/prog_crs/pdf/ug/cpeg.pdf

Past Record on the Approved Discipline Titles for Individual IIM Candidates

Candidate	Approved discipline title	Year of approval
1	BSc in Individualized Interdisciplinary Major (Bionics) 理學士(跨學科自選主修 - 仿生學)	2016
2	BSc in Individualized Interdisciplinary Major (Computational Cognitive Science) 理學士(跨學科自選主修 - 計算認知科學)	2016
3	BSc in Individualized Interdisciplinary Major (Environmental Geoscience) 理學士(跨學科自選主修 - 環境地球科學)	2016
4	BSc in Individualized Interdisciplinary Major (Bioenergy Management) 理學士(跨學科自選主修 - 生物能源管理學)	2016
5	BSc in Individualized Interdisciplinary Major (Human-Computer Interaction) 理學士(跨學科自選主修 – 人機互動)	2017
6	BSc in Individualized Interdisciplinary Major (Behavioral Consumer Science) 理學士(跨學科自選主修 – 消費行為科學)	2019
7	BSc in Individualized Interdisciplinary Major (Brain Computer Interface) 理學士(跨學科自選主修 – 腦機介面)	2019
8	BSc in Individualized Interdisciplinary Major (Human-Computer Interaction) 理學士(跨學科自選主修 –人機互動)	2020
9	BSc in Individualized Interdisciplinary Major (Built Environmental Design) 理學士(跨學科自選主修 –建築環境設計)	2020

(For students admitted in 2020-21 under the 4-year degree)

Curriculum Framework of BSc Program in Individualized Interdisciplinary Major

This is an individualized program with curriculum and discipline title initiated by the student and approved by the University. Student completed the program will be conferred an award of BSc in Individualized Interdisciplinary Major *(interdisciplinary study title)*.

In addition to the requirements of their major programs, students are required to complete the University requirements for graduation. For details please refer to the respective section on this website.

Some courses can be used to fulfill both Major and University Common Core Requirements. Students may reuse a maximum of 9 credits of these courses to count towards both Requirements.

Students may use no more than 6 credits earned from courses offered in pure online delivery mode to satisfy the graduation requirements of a degree program. This 6-credit limit does not apply to credits obtained through the credit transfer procedures of the University.

For students graduating with an additional major, they must take all the requirements specified for that major, within which they must complete at least 20 single-counted credits. These 20 credits cannot be used to fulfill any other requirements for graduation except for the 120-credit degree requirement.

Major Requirements

Fundamental Course(s)

			Credit(s) attained
COMP/ISOM		Note: COMP 1021 OR COMP 1022P OR ISOM 2010	3
COMP	1021	Introduction to Computer Science	3
COMP	1022P	Introduction to Computing with Java	3
ISOM	2010	Introduction to Information Systems	3
MATH		Note: MATH 1003 OR MATH 1012 OR MATH 1013 OR MATH 1020 OR MATH 1023	3-4
MATH	1003	Calculus and Linear Algebra	3
MATH	1012	Calculus IA	4
MATH	1013	Calculus IB	3
MATH	1020	Accelerated Calculus	4
MATH	1023	Honors Calculus I	3

Required Course(s)

			Credit(s) attained
IIM		Note: Courses planned by the students (with endorsement by the Individualized Major Advisory Committee and approved by the University, of which at least 12 credits must be at 3000-level or above.)	At least 48
IIMP	2000	Academic and Professional Development	0
IIMP	4980	Interdisciplinary Capstone Project I	3
IIMP	4990	Interdisciplinary Capstone Project II	3
LANG		Note: English language courses planned by the students (with endorsement by the Individualized Major Advisory Committee, the Center for Language Education and approved by the University.)	6

Elective(s)

		Minimum credit(s) required
IIM	Courses planned by the students (with endorsement by the Individualized Major Advisory Committee and approved by the University, of which at least 9 credits must be at 3000-level or above.)	18

COMMITTEE ON UNDERGRADUATE STUDIES

Paper for: Discussion

Title: **Integrated Bachelor-Master Pathways**

Purpose: To consider the general framework for integrated Bachelor-Master pathways based on a recent initiative (BSc RMBI + MscFinTech) approved by the Committee on Postgraduate Studies

Prepared by: CUS Secretariat

BACKGROUND

1.   At the 167th Committee on Undergraduate Studies (CUS) meeting, the Chair gave an oral report on the Co-terminal Degree 4+1 Pathway proposal, which was shared by the Committee on Postgraduate Studies (CPS). Under this initiative, a special admission pathway is created for selected undergraduate students from the Bachelor of Science Program in Risk Management and Business Intelligence (BSc RMBI) to start taking Master of Science Program in Financial Technology (MSc FinTech) courses in their final year, and be admitted to MSc FinTech as full-time students in the following year with credit transfer.

2.   Since the proposal did not involve any changes to the curriculum structure, admission requirements, and the award of diploma of the BSc RMBI program, the Chair reported the initiative for Members' reference. No further discussion on the matter was undertaken by CUS then.

3.   CPS at its 168th meeting on 13 January 2021 approved the proposal subject to the condition that a more appropriate title, e.g., "dual degree opportunity", be adopted to accurately reflect the fact that student would complete their BSc RMBI and MSc FinTech degrees sequentially. The title Dual Degree 4+1 Pathway (BSc RMBI + MSc Fintech) was eventually adopted.

INTEGRATED BACHELOR-MASTER PATHWAYS

4.   Given the flexibility of the BSc RMBI + MSc Fintech proposal, the possibility for extending the framework to similar offerings in the future was discussed at the Deans' meeting on 9 February 2021. Input collected by Deans/IPO from respective units indicate that:
   (a) There is general support for the initiative as it aligns with the University's trimodal framework and can serve as an incentive to attract local students to pursue a postgraduate degree. It is suggested that the offering should be on a selected basis (as with Extended Majors). Cross-School and CWB-GZ pathways appear to have greater interest and attractiveness;

(b) It appears to be most pragmatic to offer "accelerated admission" to the postgraduate program in the 3rd year of undergraduate study (like RMBI + FinTech), based on selection criteria and quotas. Students would then be able to plan their study accordingly, possibly taking postgraduate courses in their senior year and benefiting by earlier admission, earlier graduation, and/or discounted fees for the taught postgraduate program;

(c) While there are points on favor of a "3+2" pathway, a "4+1" pathway has broader appeal. It is also administratively simpler because students can fall back to graduating with only an undergraduate degree;

(d) In the future, the University may consider offering one or two combinations on trial basis for entry-level admission offer with JUPAS code; and

(e) To name the framework "Integrated Bachelor-Master Pathways" as "Dual Degree" has other connotations.

5. In order to consider the proposal from the perspective of all stakeholders, the "Integrated Bachelor-Master Pathways" framework is brought up to the CUS for discussion. A summary of the BSc RMBI + MSc Fintech proposal is presented in the <u>Appendix</u> for members' reference.

ACTION SOUGHT

6. CUS members are invited to share their views, consider any potential drawbacks and pitfalls regarding the "Integrated Bachelor-Master Pathways" by making reference to the summary of the BSc RMBI + MSc Fintech proposal presented in the <u>Appendix</u>.

Summary of Co-terminal Degree 4+1 Pathway (BSc RMBI + MSc FinTech)

1.   The Master of Science Program in Financial Technology (MSc FinTech) was launched in 2019/20 jointly by the Schools of Science (SSCI), Engineering (SENG), and Business and Management (SBM). Students are required to complete 30 credits of coursework, including 16 credits of core courses and 14 credits of elective courses, in one-year full-time or two-year part-time mode of study. The program admitted 57 and 64 students respectively in the first two cohorts.

2.   To broaden student diversity and retain locally-educated talents to pursue FinTech study, the Schools propose introducing a Co-terminal Degree 4+1 Pathway (BSc RMBI + MSc FinTech) from the Fall Term, 2023/24 intake cohort, which is a special admission pathway for selected undergraduate students from the Bachelor of Science Program in Risk Management and Business Intelligence (BSc RMBI) to start taking MSc FinTech courses in their final year, and be admitted to MSc FinTech as full-time students in the following year with credit transfer.

3.   The proposed admission pathway targets BSc RMBI students who are well educated in mathematics, computing, finance, and operations and risks, all being important constituent subjects for FinTech. Streaming these students to MSc FinTech will allow them to allocate more time to co-curricular activities in MSc FinTech such as overseas exchange and internships.

4.   The Schools anticipate that adding such a co-terminal BSc + MSc degree pathway in FinTech will help HKUST become a leading powerhouse in FinTech education, and establish BSc RMBI and MSc FinTech as flagship FinTech programs in Asia. It will also help identify and nurture more FinTech talents for the local economy.

5.   A summary of the BSc RMBI and MSc FinTech proposal is provided in the table below. The impact of the proposal on the BSc RMBI's curriculum is presented in the Attachment.

	Proposed Co-terminal Degree 4+1 Pathway (BSc RMBI + MSc FinTech)	**Regular Admission Pathway (for reference)**
Admission Requirements:	- Follow the University's general and English admission requirements	
Additional Selection Criteria:	- Programming and mathematics background is preferred. - Satisfactory GMAT or GRE score is highly recommended. - No minimum work experience required for full-time applicants, and at least two years of full-time post-qualification work experience is highly recommended for part-time applicants.	
	- BSc RMBI students in Year 3 or above (from 2019/20 cohort) - Not opted for FinTech Option in BSc RMBI - CGA: 3.3 or above - Completed at least 100 UG credits (incl. transferred credits)	

Admission Process:	- BSc RMBI students to apply in Year 3 - Successful applicants will receive an early conditional offer before Year 4 and accept offer by settling a deposit	- UG students to apply in final year - Successful applicants will receive a conditional offer before graduation and accept offer by - settling a deposit
Duration and Mode of Study:	- 1 year, full-time	- 1 year, full-time - 2 years, part-time
Curriculum:	- Minimum 30 credits - Selected BSc RMBI students will take up to 14 credits of MSc FinTech courses in Year 4 - They will enter MSc FinTech with credit transfer upon completion of BSc RMBI and - complete the remaining credits	- Minimum 30 credits
Credit Transfer:	- Maximum 14 credits - (surplus MSc FinTech credits taken during BSc RMBI)	- Maximum 6 credits

Proposed Pathway for BSc RMBI Students (Total: 136-138 Credits)

Proposed Study Pattern for *BSc RMBI (PBA) + MSc FinTech

Year 1 Fall		Year 1 Spring		Year 2 Fall		Year 2 Spring		Year 3 Fall		Year 3 Spring		Year 4 Fall		Year 4 Spring	
LANG 1002 English for University Studies I	3	LANG 1003 English for University Studies II	3	LABU 2051 Business Case Analyses I	2	LABU 2052 Business Case Analyses II	2	MATH 2011 Introduction to Multivariable Calculus	3	RMBI 4310 Advanced Data Mining for Risk Management and Business Intelligence	3	RMBI 4980 Capstone Project I	4	RMBI 4990 Capstone Project II	4
MATH 1012/1013/1020/1023 Calculus	3-4	MATH 1014/1024 Calculus	3	MATH 2111/MATH 2121 Matrix Algebra and Applications/Linear Algebra	3-4	RMBI 3110 Introduction to Risk Management and Business Intelligence	3	COMP4331/ISOM3360 Data Mining/Data Mining for Business Analytics	3	ISOM3710 Management Science	4	COMP4651/ISOM3370 Cloud Computing and Big Data Systems/Big Data Technologies	3	RMBI4210 Quantitative Methods for Risk Management	3
COMP 1021/1022P/1022Q Introduction to Computing	3	ISOM 2010 Introduction to Information Systems	3	MATH2411 Applied Statistics	4	FINA 2303 Financial Management	3	ISOM 3540 Introduction to Probability Models	3	RM/BI Area	3	RM/BI Area	3	Common Core	3
ACCT 2010 Principles of Accounting	3	MGMT 2010 Business Ethics and the Individual	2	ISOM 2700 Operations Management	3	ECON 2123/ECON3123 Macroeconomics	3	Common Core	3	Common Core	3	FinTech core	2	FinTech core	2
ECON 2103/ECON 2113 Microeconomics	3	Common Core	3	MGMT 2130 Business Ethics and Social Responsibility	2	RM/BI Area	3	Common Core	3	Common Core	3	FinTech core	2	FinTech core	2
		Common Core	3	Common Core	3	# Common Core	3	# Common Core	3			FinTech core	2	FinTech core	2
												FinTech core	2		
RMBI 2001	0	RMBI 2001	0	RMBI 2001	0	RMBI 2001	0	RMBI 2001	0	RMBI 2001	0	RMBI 2001	0	RMBI 2001	0
Total credit	15-16		17		17-18		17		18		16		18		16

14 Credits (MScFinTech)

Total: 134-136 Credits

Remarks:
*not allowed to opt for FinTech Option in RMBI program
suggest taking these courses in Year 4 of the original RMBI PBA pathway
Yellow texts: FinTech core courses. Selected students are only allowed to take these courses in UG Year 4 and should not take more than 14 credits in the two semesters

Original BSc RMBI Curriculum

				Year 1				Year 2				Year 3				Year 4	
Fall	Cr	Spring	Cr	Fall	Cr	Spring	Cr	Fall	Cr	Spring	Cr	Fall	Cr	Spring	Cr		

Fall	Cr	Spring	Cr	Fall	Cr	Spring	Cr	Fall	Cr	Spring	Cr	Fall	Cr	Spring	Cr
LANG 1002 English for University Studies I	3	LANG 1003 English for University Studies II	3	LABU 2051 Business Case Analyses I	2	LABU 2052 Business Case Analyses II	2	MATH 2011 Introduction to Multivariable Calculus	3	RMBI 4310 Advanced Data Mining for Risk Management and Business Intelligence	3	RMBI 4980 Capstone Project I	4	RMBI 4990 Capstone Project II	4
MATH 1012/1013/1020/1023 Calculus	3-4	MATH 1014/ 1024 Calculus	3	MATH 2111/ MATH 2121 Matrix Algebra and Applications/ Linear Algebra	3-4	RMBI 3110 Introduction to Risk Management and Business Intelligence	3	COMP4331/ ISOM3360 Data Mining/ Data Mining for Business Analytics	3	ISOM3710 Management Science	4	COMP4651/ ISOM3370 Cloud Computing and Big Data Systems/ Big Data Technologies	3	RMBI4210 Quantitative Methods for Risk Management	3
COMP 1021/ 1022P/ 1022Q Introduction to Computing	3	ISOM 2010 Introduction to Information Systems	3	MATH2411 Applied Statistics	4	FINA 2303 Financial Management	3	ISOM 3540 Introduction to Probability Models	3	RM/BI Area	3	RM/BI Area	3	Common Core	3
ACCT 2010 Principles of Accounting	3	MGMT 2010 Business Ethics and the Individual	2	ISOM 2700 Operations Management	3	ECON 2123/ ECON3123 Macroeconomics	3	Common Core	3	Common Core	3	Common Core	3	Common Core	3
ECON 2103/ ECON 2113 Microeconomics	3	Common Core	3	MGMT 2130 Business Ethics and Social Responsibility	2	RM/BI Area	3	Common Core	3	Common Core	3				
		Common Core	3	Common Core	3										
RMBI 2001	0	RMBI 2001	0	RMBI 2001	0	RMBI 2001	0	RMBI 2001	0	RMBI 2001	0	RMBI 2001	0	RMBI 2001	0
Total Credit	15-16		17		17-18		14		15		16		13		13

COMMITTEE ON UNDERGRADUATE STUDIES

Paper for: Discussion/Decision

Title: **Review of the Terms of Reference of the Committee on Undergraduate Core Education**

Purpose: To consider the proposed changes to the Terms of Reference of the Committee on Undergraduate Core Education

Submitted by: Committee on Undergraduate Core Education

Prepared by: CUS Secretariat

BACKGROUND

1.   The Committee on Undergraduate Core Education (CUCE) was established in December 2008 by the Senate as one of its standing committees and was subsequently repositioned in June 2012 as a sub-committee under the Senate Committee on Undergraduate Studies (CUS). Its primary roles include advising and making recommendations to the CUS on policies, regulations, procedures, quality and performance relating to the University Common Core Program, as well as overseeing the provision of general education during the transition period from three-year to four-year undergraduate programs.

REVISED FRAMEWORK OF THE UNIVERSITY COMMON CORE PROGRAM

2.   The existing Common Core Program was implemented for more than eight years from 2012. A revised framework of the Common Core Program was recommended by the University's Steering Committee on Review of the Common Core and was endorsed by the CUS at its 167th meeting on 13 January 2021 and approved by the Senate at its 153rd meeting on 3 February 2021.

3.   It was proposed that the CUCE should maintain its leading role in overseeing the Common Core Program and expanded its functions to also oversee and recommend implementation of the Program during the transition period from the existing framework to the new framework. The Undergraduate Core Education (UCE) Team, Center for Education Innovation will continue be the executive arm for coordination and execution.

<u>TERMS OF REFERENCE OF CUCE</u>

4.   In connection with the above, some adjustment in the terms of reference of the CUCE will be necessary to effect the required changes. The proposed revisions made to the terms of reference are highlighted in the <u>Appendix</u>. With only two students left under the three-year undergraduate curriculum, it is also recommended that the corresponding terms from the terms of reference be removed. Some editorial changes are also proposed.

5.   The CUCE considered and endorsed at its 10 February 2021 meeting the proposal to revise the terms of reference of the CUCE as presented in the <u>Appendix</u>.

<u>ACTION SOUGHT</u>

6.   CUS is invited to consider and approve as appropriate the proposed changes to the Terms of Reference of the Committee on Undergraduate Core Education (CUCE), as presented in the <u>Appendix</u>, to take immediate effect.

Committee on Undergraduate Core Education

(Revisions are highlighted in yellow for easy reference)

Terms of reference

1. To advise and make recommendations to the Senate Committee on Undergraduate Studies on policies and regulations, and to monitor and review procedures, quality and performance relating to the university core curriculum ~~in the four-year~~ of undergraduate degree programs, including, but not limited to:

    (a) developing policies and regulations relating to the university core curriculum of ~~the four-year~~ undergraduate degree programs;

    (b) developing guiding principles, criteria and learning outcomes for common core courses consistent with the objectives of the university core curriculum;

    (c) reviewing and approving courses for inclusion in the University Common Core Program;

    (d) coordinating and providing an overview of the offering of courses and activities for the university core curriculum;

    (e) monitoring and reviewing periodically the quality of common core courses and the University Common Core Program under a quality assurance framework; and

    (f) recommending implementation and other support for the university core curriculum.

2. ~~To oversee the provision of general education in three-year undergraduate programs during the transition period from three-year to four-year undergraduate programs.~~

3. To oversee and recommend implementation of the University Common Core Program during the transition period from the existing 36-credit distributional framework to the new 30-credit scaffolding framework.

Powers

1. To co-opt such additional voting members as may be required but not exceeding one-third of formal membership of the Committee.

2. To form any working groups as considered necessary.

Membership

Chairman:
   Appointed by the Chairman of the Senate Committee on Undergraduate Studies, on the recommendation of the Provost
   ▪ Professor Garvin Percy DIAS

Secretary and Member:
   Academic Director (Undergraduate Core Education), *ex officio*
   ▪ Professor Kam Tim WOO

Members:
   1. One representative each from the Schools of Science, Engineering, and Business & Management appointed by the Chairman of the Senate Committee on Undergraduate Studies in consultation with the Deans
       ▪ Professor Bradley FOREMAN, School of Science
       ▪ Professor Chii SHANG, School of Engineering
       ▪ Professor Jing WANG, School of Business & Management

   2. One representative from each of the two Divisions of the School of Humanities and Social Science appointed by the Chairman of the Senate Committee on Undergraduate Studies in consultation with the Dean of Humanities and Social Science
       ▪ Dr Sai Lok NAM, Division of Humanities
       ▪ Professor Agnes KU, Division of Social Science

3. One representative from the Center for Language Education appointed by the Chairman of the Senate Committee on Undergraduate Studies in consultation with the Dean of Humanities and Social Science
   - Mr Edward LI

4. One non-Freshman student nominated by the HKUST Students' Union and appointed by the Chairman of the Senate Committee on Undergraduate Studies
   - Mr Ryan LEE

5. One member of the Senate Committee on Undergraduate Studies appointed by the Chairman of the Senate Committee on Undergraduate Studies
   - Professor Stanley LAU

Co-opted Member:
1. One representative from the Interdisciplinary Programs Office nominated by the Director of the Interdisciplinary Programs Office
   - Professor Arthur LAU

Resource Persons:
1. Acting Dean of Students, or nominee
   - Professor King L. CHOW

2. Academic Registrar
   - Mr James PRINCE

Term:
For the student member, one year, renewable
For others, two years, renewable

<u>COMMITTEE ON UNDERGRADUATE STUDIES</u>

Paper for: Discussion/Decision

Title: **New Courses**

Purpose: To approve proposals of introducing new courses for implementation in Summer 2020-21 and beyond

Submitted by: Schools

Prepared by: CUS Secretariat

<u>BACKGROUND</u>

1.   The Senate, at its 5th meeting held on 17 December 1991, delegated the authority to the CUS to approve new undergraduate courses with the proviso that approvals and disapprovals be reported to the Senate for information.

<u>NEW COURSES</u>

2.   The CUS Secretariat has received 11 proposals for introducing new courses.

School	Course code	Title	
New Courses (*Appendix*)*			
SSCI	MATH 4343 [(2)]	Introduction to Graph Theory	*(4 credits)*
	MATH 4632 [(2)#]	Machine Learning with Structured Data	*(3 credits)*
SENG	COMP 4222 [(2)#]	Machine Learning with Structured Data	*(3 credits)*
SBM	FINA 4513 [(2)]	Risk Management	*(3 credits)*
	FINA 4703 [(2)]	ESG Investing	*(3 credits)*
SHSS	HUMA 4620 [(2)]	Geopolitics	*(3 credits)*
	SHSS 1050 [(1)]	Humanities and Social Science Co-op Program	*(3 credits)*
IPO	ENVR 2080 [(3)]	Circular Economy and Life Cycle Assessment	*(3 credits)*

	ENVR 3005 (3)	Environmental Sustainability: Risks and Challenges	*(3 credits)*
	ENVR 4340 (3)	Social Sustainability: Risks and Challenges	*(3 credits)*
	ENVR 4350 (4)	Governing Green Finance: National and International Perspectives and Approaches	*(3 credits)*

(1)   to take effect in Summer 2020-21
(2)   to take effect in Fall 2021-22
(3)   to take effect in Fall 2023-24
(4)   to take effect in Spring 2023-24

 #   MATH 4632 and COMP 4222 are alternate codes of the same course under the multi-coding arrangement.
*   Starred items NOT to be discussed at the meeting, unless they are un-starred per members' request.

3.   All proposals have been vetted by the CUS Secretariat and all starred items will be approved directly without further deliberation, unless members request to un-star the proposed course(s) for discussion. Details of the above new courses are provided in the Appendix. The appendix is available at http://ugadmin.ust.hk/cus-documents/cus168/.

ACTION SOUGHT

4.   CUS is invited to consider, and approve as appropriate, 11 new undergraduate courses for implementation in Summer 2020-21 and beyond as presented in the Appendix.

THE HONG KONG UNIVERSITY OF SCIENCE AND TECHNOLOGY
Approval of Undergraduate Course

Section 1: Academic Administration [1]

1.1 Catalog

a) Course to be effective from: Academic Year   **2021-22**   Term   **Fall**

b) Department Code [3]:   **MATH**   Subject Area [3]:   *Mathematics*   Course Number [4]:   **MATH 4343**

   Previous Course Code [5]:   **MATH 4821B**

c) Full Title [6] *(max. 100 characters)*:   **Introduction to Graph Theory**

d) Abbreviated Title [7] *(max. 30 characters)*:   **Intro to Graph Theory**

e) Course Credits [8]:   ☑ Fixed: **4**   ◯ Range: From _____ To _____

f) Catalog Description [9] *(word limit = 150)*:

> This course is to equip students with basic knowledge of graph theory that will be needed in mathematics, computer science, and engineering (in particular network analysis).
>
> Topics include but not restricted to: Euler tours and Chinese postman problem, Hamilton cycles and traveling salesman problem; minimum spanning trees and searching algorithms; block decomposition, ear decomposition, connectivity and edge connectivity; network flows, Ford-Fulkerson (Max-Flow Min-Cut) theorem, augmenting-path algorithm; planar graphs, Euler formula, duality, classification of Platonic solids, Kuratowski (planarity) theorem; maximum matchings and perfect matchings, matchings in bipartite graphs, matchings in general graphs, Tutte-Berge theorem, Petersen theorem; probabilistic method, page rank problem, random walks; cycle spaces and bond spaces, graph Laplace operator, matrix-tree theorem; Four-Color problem, colorings and flows, chromatic number and flow number, chromatic polynomials, flow polynomials, Tutte polynomials; matroids.

g) Grading Type [10]:   ☑ Letter Grades   ◯ Distinction/Credit/Pass/Fail   ◯ Pass/ Fail
                                          ◯ Distinction/Pass/Fail   ☐ Others *(please specify)*: _____

h) ☑ Prerequisites [11]:

Course Code / Public Exam	Course Title / Exam Subject and Level / Grade attained
MATH 2343	Discrete Structure

i) ☐ Corequisites [12]:

Course Code	Course Title

j) ☐ Exclusions [13]:

Course Code / Public Exam	Course Title / Exam Subject and Level / Grade attained

k) ☐ Co-listing [14]:   ☐ Multi-coding [14]:

Course Code	Course Title

l)   Other Enrollment Restrictions[15]   ✓ No   ◯ Yes

  ☐ Instructor's approval required

  ☐ Restricted to specified student group(s)
      (please specify, e.g. year and program of study): _____

  ☐ Others *(please specify):* _____

m)   Medium of Instruction/Materials[16]:   ✓ English   ◯ Others, (Pls specify and provide a justification in Section 1.3):

  _____

n)   Allow course repetition for credit[17]:   ✓ No   ◯ Yes

1.2   Contribution of course to Programs of Study [Check all appropriate boxes below]

☑ Major

Program of Study	As		
BSc(MATH)	☐ Required Course	☑ Elective	☐ Prerequisite
BSc(MAEC)	☐ Required Course	☑ Elective	☐ Prerequisite

☑ Minor

Program of Study	As		
Minor in MATH	☐ Required Course	☑ Elective	☐ Prerequisite

☐ Common Core

Others (pls specify):	Program of Study	As		
		☐ Required Course	☐ Elective	☐ Prerequisite

1.3   Rationale for Introducing this course and other relevant information [18]

Graph is everywhere; network is the most popular example of graphs. With the development network analysis, neural networks, and graph learning, graph theory becomes more and more popular, useful and be needed for students of mathematics, computer science and engineering. Except its traditional applications to computer science and engineering, graph theory also becomes applicable to social sciences such as organization structure, social hierarchy, consistency choice, social networks, etc.

The course has been offered three times under the request of students. Syllabus and contents are relatively fixed. The instructor have had prepared almost all written notes. It's time to have the course regularly offered rather than a seminar course again and again.

The course is targeted to senior undergraduate students and first-year postgraduate students. Exceptional year-2 students need approval of the course instructor to take the course.

Section 2A: Learning Outcomes and Alignment *(for courses not proposed to be Common Core Courses)*

2.1 Key Course Intended Learning Outcomes *(Should not normally exceed six or eight outcomes)*

Upon completion of this course, students are expected to be able to do the following:

	Course ILOs	Nature of the learning outcomes (A - Knowledge/Content Related; B - Academic Skills/Competencies; C - Others)
1	Formulate related problems in graph language and graph models.	A, B
2	Master standard useful matrix methods such as incidence matrix, Laplace matrix, matrix-tree formula, and graph Fourier transforms, etc.	A, B
3	Master basic concepts, ideas, techniques and core theorems of graph theory that may be applicable to network analysis and other practical problems.	A, B
4	Demonstrate abilities in applying algorithms, graph analytic skills, and theoretical thinking for software development.	A, B, C
5	Demonstrate ability in working with unsolved problems and explore new problems for future advanced studies.	A, B, C
6		
7		
8		

2.2 Contribution of Learning Outcomes to Programs of Study identified in Section 1.2
(Please also complete Section 4.1)

	Program of study 1: _BSc(MATH)_____ Program ILOs	To be achieved through these course ILOs *(Write CILO-1, CILO-2, etc.)*
1	Explain knowledge, principles and use of quantitative techniques in mathematical sciences at college level.	CILO-1, CILO-2, CILO-3, CIOL-4
2	Model real-world problems and information mathematically, and make independent judgment by applying structural and analytical approaches.	CILO-1, CILO-2, CILO-4
3	Apply logical, analytic, and highly numerate methods to execute tasks and solve real-world mathematical problems.	CILO-1, CILO-2, CILO-3, CIOL-4
4	Work independently and collaborate effectively in a team.	CILO-4, CILO-5
5	Show appreciation of mathematical sciences and its interface with human activities, and arouse audience's interest in the beauty, logic and precision of mathematical sciences.	CILO-1, CILO-2, CILO-3, CIOL-4, CILO-5
6		

	Program of study 2: _____ Program ILOs	To be achieved through these course ILOs *(Write CILO-1, CILO-2, etc.)*
1		
2		
3		
4		
5		
6		

Section 2B: Additional Information[2] *(for courses not proposed to be Common Core Courses)*

2.3   Planned Teaching & Learning Arrangement

<table>
<tr><td colspan="2">Teaching & Learning Arrangement</td><td>Weekly Scheduled Hours/ Estimated Weekly Learning Hours</td><td>Indicate which course ILOs this activity serves to achieve
<i>(Write CILO-1, CILO-2, etc.)</i></td><td>Additional Information
<i>(optional)</i></td></tr>
<tr><td rowspan="7"><i>Face-to face activities</i></td><td>☑ Lecture*</td><td>3</td><td>CILO-1, CILO-2, CILO-3, CIOL-4</td><td></td></tr>
<tr><td>☑ Tutorial*</td><td>1</td><td>CILO-1, CILO-2, CILO-3, CIOL-4</td><td></td></tr>
<tr><td>☐ Seminar/Small-class*</td><td></td><td></td><td></td></tr>
<tr><td>☐ Laboratory*</td><td></td><td></td><td></td></tr>
<tr><td colspan="4">*Does the above scheduled component(s) involve structured active learning activities? [19]
◉ No
◯ Yes   <i>If yes, please specify for each scheduled component, the percentage and the type of active learning involved in the "Additional Information" column.</i></td></tr>
<tr><td>☐ Others (e.g. fieldtrip, visit, etc.), <i>pls specify:</i>
_____</td><td></td><td></td><td></td></tr>
<tr><td rowspan="2"><i>Online activities</i></td><td>☐ Online lecture videos</td><td></td><td></td><td></td></tr>
<tr><td>☐ Other online learning tasks, <i>pls specify:</i>

_____</td><td></td><td></td><td></td></tr>
<tr><td colspan="2">The total learning hours of the course# is equivalent to ___120___ hours [8]
<i># including both scheduled instructional hours and hours for self-study activities & assessment</i></td><td colspan="3"></td></tr>
</table>

- For course adopting a pedagogic approach other than lecture, tutorial and laboratory, please indicate the pedagogy used:

◯ Blended learning [20]   ◯ Pure online delivery [21]

◯ Experiential learning [22]   ◯ Others, *pls specify:*_____

2.4   Planned Assessment Weightings

<table>
<tr><td>Assessment Task</td><td>Proportion of Final Grade (%)</td><td>Indicate which course ILOs this task is to assess
<i>(Write CILO-1, CILO-2, etc.)</i></td><td>Additional Information <i>(optional)</i></td></tr>
<tr><td>☑ In-class test</td><td>0</td><td></td><td></td></tr>
<tr><td>☑ Mid-term test</td><td>30</td><td>CILO-1, CILO-2, CILO-3, CIOL-4</td><td></td></tr>
<tr><td>☑ Final exam</td><td>50</td><td>CILO-1, CILO-2, CILO-3, CIOL-4</td><td></td></tr>
<tr><td>☑ Written assignment</td><td>10</td><td>CILO-1, CILO-2, CILO-3, CIOL-4</td><td>Homework assignment</td></tr>
<tr><td>☐ Project report</td><td></td><td></td><td></td></tr>
<tr><td>☐ Presentation</td><td></td><td></td><td></td></tr>
<tr><td>☐ Learning portfolio</td><td></td><td></td><td></td></tr>
<tr><td>☑ Course participation</td><td>10</td><td></td><td></td></tr>
<tr><td>☐ Peer evaluation</td><td></td><td></td><td></td></tr>
<tr><td>☐ Others (e.g. proctored online exam, etc.), <i>pls specify:</i>
_____</td><td></td><td></td><td></td></tr>
</table>

2.5 **Course Duration**

(•) 1 term   ( ) 2 terms   ( ) Others, *pls specify:* _____

2.6 **Planned Frequency of Offerings** *[Check all appropriate boxes]***:**

[ ] Every Fall   [ ] Every Winter

[✓] Every Spring   [ ] Every Summer

[ ] No fixed pattern

[✓] Other *(pls specify):*   Either every Fall or every Spring but not both, avoid the semester with MATH 3343

2.7 **Course outline attached**   (✓) No   ( ) Yes

- **Internationalization:**

Internationalization in a course refers to course content and/or pedagogic approaches which incorporate an intercultural and international perspective. Examples may include:
- Collaboration with overseas institutions to develop and adopt international course content, or to arrange international field trip
- Insertion of international theme as part of the course
- Integrating the course content with international material as examples or case studies
- Elements to provide global diversified perspectives and/or practices around the world

Please briefly list or summarize any component(s) in the course that contributes to internationalizing the curriculum:

NA

2.8 **Resources**

Request extra resources for teaching this course?   (✓) No   ( ) Yes

Section 4: Development, Concurrence and Approval

4.1 Contribution to the Program Learning Outcomes

The course is confirmed by the following Major/Minor program department(s)/unit(s) as indicated in Section 1.2 that it would contribute appropriately to overall program learning outcomes.

Department/Program unit	Position	Name	Date
Dept of Mathematics	UG Coordinator	Dr Tsz Kin LAM	1-Feb-21

4.2 Approvals

Recommendation from offering department(s) and School(s)/IPO

Offering Department/Program Unit	Position	Name	Date
Dept of Mathematics	UG Coordinator	Dr Tsz Kin LAM	1-Feb-21

Recommending School/IPO	Position	Name	Date
School of Science	Associate Dean	Prof Pak Wo LEUNG	19-Feb-21

Concurrence from other Schools or departments/units

School/Dept/Program Unit	Position	Name	Date

THE HONG KONG UNIVERSITY OF SCIENCE AND TECHNOLOGY
Approval of Undergraduate Course

Section 1: Academic Administration [(1)]

1.1 *Catalog*

a) Course to be effective from: Academic Year   **2021-22**   Term   **Fall**

b) Department Code[(3)]:   **MATH**   Subject Area[(3)]:   *MATH*   Course Number [(4)]:   **4632**

    Previous Course Code[(5)]:   **MATH4824B (Alternate code: COMP 4901K)**

c) Full Title[(6)] *(max. 100 characters)*:   **Machine Learning with Structured Data**

d) Abbreviated Title[(7)] *(max. 30 characters)*:   **ML with Structured Data**

e) Course Credits[(8)]:   ✓ Fixed: **3**   ◯ Range: From   To

f) Catalog Description[(9)] *(word limit = 150)*:

> This course provides an introduction to statistical machine learning algorithms for structured data such as text sequences, taxonomy trees, relational databases (such as knowledge bases), and graphs (including graph databases such as biomedical graphs and large heterogeneous information networks such as knowledge graphs), and using programming tools such as Python to implement them for real problems. It will use some of the following practical problems such as text and graph classification, statistical relational learning, information extraction, sequence modeling, graph modeling, protein 3D structure prediction, QA system, etc. as illustrations to demonstrate the power of the statistical learning algorithms.

g) Grading Type[(10)]:   ✓ Letter Grades   ◯ Distinction/Credit/Pass/Fail   ◯ Pass/ Fail

        ◯ Distinction/Pass/Fail   ☐ Others *(please specify)*:

h) ✔ Prerequisites[(11)]:

Course Code / Public Exam	Course Title / Exam Subject and Level / Grade attained
(COMP 2011 OR COMP 2012 OR COMP 2012H) AND	Programming with C++ OR Object-Oriented Programming and Data Structures OR Honors Object-Oriented Programming and Data Structures
(COMP 2711 OR COMP 2711H OR MATH 2343) AND	Discrete Mathematical Tools for Computer Science OR Honors Discrete Mathematical Tools for Computer Science OR Discrete Structures
(MATH 2111 OR MATH 2121 OR MATH 2131)	Matrix Algebra and Applications OR Linear Algebra OR Honors in Linear and Abstract Algebra I

i) ☐ Corequisites[(12)]:

Course Code	Course Title

j) ✔ Exclusions[(13)]:

Course Code / Public Exam	Course Title / Exam Subject and Level / Grade attained
COMP 4901K	Machine Learning for Natural Language Processing
MATH 4824B	Machine Learning for Natural Language Processing

k)   ☐ Co-listing(14):   ☑ Multi-coding(14):

Course Code	Course Title
COMP 4222	Machine Learning with Structured Data

l)   Other Enrollment Restrictions(15)   ☑ No   ◯ Yes

☐ Instructor's approval required

☐ Restricted to specified student group(s)
(please specify, e.g. year and program of study): _____

☐ Others *(please specify):* _____

m)   Medium of Instruction/Materials(16):   ☑ English   ◯ Others, (Pls specify and provide a justification in Section 1.3): _____

n)   Allow course repetition for credit(17):   ☑ No   ◯ Yes

1.2   Contribution of course to Programs of Study *[Check all appropriate boxes below]*

☑ Major

Program of Study	As		
BEng(COMP) BSc(COSC) BSc(DSCT) BSc(MATH)	☐ Required Course	☑ Elective	☐ Prerequisite

☐ Minor

Program of Study	As		
	☐ Required Course	☐ Elective	☐ Prerequisite

☐ Common Core

☐ Others (pls specify):

Program of Study	As		
	☐ Required Course	☐ Elective	☐ Prerequisite

1.3   Rationale for Introducing this course and other relevant information [18]

The course is an interdisciplinary course which needs both computer science background and mathematics background. The algorithms introduced in this course will enrich both CSE and Math students' knowledge. The spectral graph theory is highly related to Math, which is the foundation of development of graph neural networks. Then the realization and implementation of machine learning algorithms of structured data is highly related to CSE techniques. The students are required to work in small groups for a number of homework assignments. During the course, there will be some projects requires students working as teams to work on some real world problems. It will encourage students from Math and CSE (especially DCST), CPEG, and other departments to register and to work together to bring different background knowledge working on interesting real problems. The students will be merged in one Canvas session so they can collaborate with each other to work on the assignments/projects. This will enable students to form multidisciplinary teams. The course especially fits the DCST program with complementary contents in additional to existing machine learning and optimization courses to deal with more complex data structures. The multi-coded courses will be identical to students enrolled in both course codes. The evaluation, examination, projects, assignments will be identical.

Section 2A: Learning Outcomes and Alignment *(for courses not proposed to be Common Core Courses)*

2.1 Key Course Intended Learning Outcomes *(Should not normally exceed six or eight outcomes)*

Upon completion of this course, students are expected to be able to do the following:

	Course ILOs	Nature of the learning outcomes (A - Knowledge/Content Related; B - Academic Skills/Competencies; C - Others)
1	Explain the basic principles behind machine learning algorithms for structured data	A
2	Implement programs for structured prediction tasks	B
3	Formulate machine learning solutions to domain problems	B
4	Demonstrate the ability to understand of the complexity of real world problems	B

2.2 Contribution of Learning Outcomes to Programs of Study identified in Section 1.2
(Please also complete Section 4.1)

	Program of study 1: _BEng(COMP) Program ILOs	To be achieved through these course ILOs *(Write CILO-1, CILO-2, etc.)*
1	PO1. An ability to apply knowledge of computing and mathematics appropriate to the discipline.	CLIO-1
2	PO2. An ability to apply knowledge of a computing specialisation, and domain knowledge appropriate for the computing specialisation to the abstraction and conceptualisation of computing models.	CLIO-2, CLIO-3
3	PO3. An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution.	CLIO-2, CLIO-3
4	PO4. An ability to design, implement and evaluate a computer-based system, process, component, or program to meet desired needs.	CLIO-2, CLIO-3, CLIO-4
5	PO5. An ability to function effectively in teams to accomplish a common goal.	CLIO-4
6	PO6. An understanding of professional, ethical, legal, security and social issues and responsibilities.	
7	PO7. An ability to communicate effectively with a range of audiences	CLOI-4
8	PO8. An ability to analyze the local and global impact of computing on individuals, organizations, and society.	
9	PO9. Recognition of the need for, and an ability to engage in, continuing professional development.	
10	PO10. An ability to use current techniques, skills, and tools necessary for computing practices.	CLOI-4

	Program of study 2: BSc(COSC) Program ILOs	To be achieved through these course ILOs *(Write CILO-1, CILO-2, etc.)*
1	Explain knowledge, principles and use of IT skills in mathematical and computer sciences at college level. (Knowledge)	CILO-1
2	Evaluate information critically, and make independent judgment by applying principles and methods in mathematical and computer sciences. (Judgment)	CILO-1,CILO-3
3	Apply quantitative, analytic methods and IT skills to execute tasks and solve problems in mathematical and computer sciences. (Execution)	CILO-2
4	Work independently and collaborate effectively in a team. (Interpersonal Skill and Leadership)	CILO-3,CILO-4
5	Communicate effectively, both in oral and written forms, about mathematical knowledge to audience. (Communication)	CILO-3,CILO-4
6	Self-evaluate their own learning progress, and develop motivation and skills for lifelong learning. (Self-reflection)	

7	Recognize the importance of complying with ethics of science and academic integrity. (Ethical Practice)	
8	Show appreciation of mathematical and computer sciences and its interface with human activities, and arouse audience's interest in the beauty, logic and precision of mathematical and computer sciences. (Appreciation)	CILO-1
9	View issues in mathematical sciences with reference to the practices of the international science community. (International Outlook)	

	Program of study 3: BSc(DSCT) Program ILOs	To be achieved through these course ILOs *(Write CILO-1, CILO-2, etc.)*
1	The ability to understand data problems arising in the areas of commerce and industry etc.	CILO-3,CILO-4
2	The ability to model data problems using different mathematical tools.	CILO-1
3	The ability to design and implement efficient algorithms to solve different mathematical models for data problems.	CILO-2
4	The ability to interpret the results provided by different algorithms and apply them to the data problems to gain meaningful insights or offer predictions.	CILO-3,CILO-4

	Program of study 4: BSc(MATH-AM) Program ILOs	To be achieved through these course ILOs *(Write CILO-1, CILO-2, etc.)*
1	Explain knowledge, principles and use of quantitative techniques in mathematical sciences at college level. (Knowledge)	CILO-1
2	Model real-world problems and information mathematically, and make independent judgment by applying structural and analytical approaches. (Judgment)	CILO-1
3	Apply logical, analytic, and highly numerate methods to execute tasks and solve real-world mathematical problems. (Execution)	CILO-1
4	Work independently and collaborate effectively in a team. (Interpersonal Skill and Leadership)	CILO-2,CILO-3
5	Communicate effectively, both in oral and written forms, about mathematical knowledge to audience. (Communication)	CILO-4
6	Self-evaluate their own learning progress, and develop motivation and skills for lifelong learning. (Self-reflection)	CILO-4
7	Recognize the importance of complying with ethics of science and academic integrity. (Ethical Practice)	
8	Show appreciation of mathematical sciences and its interface with human activities, and arouse audience's interest in the beauty, logic and precision of mathematical sciences. (Appreciation)	CILO-1
9	View issues in mathematical sciences with reference to the practices of the international science community. (International Outlook)	

Section 2B: Additional Information[2] *(for courses not proposed to be Common Core Courses)*

2.3 Planned Teaching & Learning Arrangement

	Teaching & Learning Arrangement	Weekly Scheduled Hours/ Estimated Weekly Learning Hours	Indicate which course ILOs this activity serves to achieve *(Write CILO-1, CILO-2, etc.)*	Additional Information *(optional)*
Face-to-face activities	☑ Lecture*	3 hours	CILO-1, CILO-2, CILO-3, CILO-4	
	☑ Tutorial*	1-hour	CILO-1, CILO-2, CILO-3, CILO-4	
	☐ Seminar/Small-class*			
	☐ Laboratory*			
	*Does the above scheduled component(s) involve structured active learning activities? [19] ☑ No ◯ Yes *If yes, please specify for each scheduled component, the percentage and the type of active learning involved in the "Additional Information" column.*			
	☐ Others (e.g. fieldtrip, visit, etc.), *pls specify:* _____			
Online activities	☐ Online lecture videos			
	☐ Other online learning tasks, *pls specify:* _____			
The total learning hours of the course# is equivalent to __120__ hours [8] *# including both scheduled instructional hours and hours for self-study activities & assessment*			

- For course adopting a pedagogic approach other than lecture, tutorial and laboratory, please indicate the pedagogy used:

◯ Blended learning [20]   ◯ Pure online delivery [21]

◯ Experiential learning [22]   ◯ Others, *pls specify:*_____

2.4 Planned Assessment Weightings

Assessment Task	Proportion of Final Grade (%)	Indicate which course ILOs this task is to assess *(Write CILO-1, CILO-2, etc.)*	Additional Information *(optional)*
☐ In-class test			
☐ Mid-term test			
☑ Final exam	40%	CILO-1, CILO-3	
☑ Assignments	30%	CILO-1, CILO-2, CILO-3	
☑ Final Project	20%	CILO-2, CILO-3, CILO-4	
☑ Presentation	10%	CILO-3, CILO-4	
☐ Learning portfolio			
☐ Course participation			
☐ Peer evaluation			
☐ Others (e.g. proctored online exam, etc.), *pls specify:* _____			

2.5   *Course Duration*

(✓) 1 term   ( ) 2 terms   ( ) Others, *pls specify:* _____

2.6   *Planned Frequency of Offerings* [Check all appropriate boxes]:

[ ] Every Fall   [ ] Every Winter

[ ] Every Spring   [ ] Every Summer

[ ] No fixed pattern

[✓] Other *(pls specify):*   This course (COMP4222/MATH4632) will be taught every two years. The other PG co-listed course (COMP5222/MATH5471) will be taught with similar purpose.

2.7   *Course outline attached*   ( ) No   (✓) Yes

- **Internationalization:**

Internationalization in a course refers to course content and/or pedagogic approaches which incorporate an intercultural and international perspective. Examples may include:
- Collaboration with overseas institutions to develop and adopt international course content, or to arrange international field trip
- Insertion of international theme as part of the course
- Integrating the course content with international material as examples or case studies
- Elements to provide global diversified perspectives and/or practices around the world

Please briefly list or summarize any component(s) in the course that contributes to internationalizing the curriculum:

2.8   *Resources*

Request extra resources for teaching this course?   ( ) No   (✓) Yes

Textbook / Reference Books
- Jurafsky and Martin (2008), Speech and Language Processing, 2nd edition.
- Noah Smith (2011), Linguistic structure prediction, Online.
- Lise Getoor and Ben Taskar (2007). Introduction to Statistical Relational Learning. The MIT Press.
- Pedro Domingos and Daniel Lowd, Markov Logic: An Interface Layer for AI, Morgan & Claypool, 2008.

Course Outline of COMP4222 (multi-coding with MATH4632)

Week	Topics	Briefly outline what this topic will cover *(Include reading assignments if available)*	Indicate which course ILOs this topic is related to *(Write CILO-1, CILO-2, etc.)*
1	Introduction	Introduction to the course and context of the content.	CILO-1
2	Structured perceptron and its generalizations with global optimization methods	Introduction to structure prediction problems and the basic algorithms, Relational Markov networks and conditional random fields	CILO-1
3	Graph based semi-supervised learning	Spectral graph theory, graph Laplacian	CILO-1
4	Introduction to deep learning	Introduction basic deep learning concepts for structured data, e.g., CNN, RNN on node classification, link prediction over sequences, trees, and graphs	CILO-1
5	Network embedding	Deepwalk, node2vec, heterogeneous information network embeddings, etc.	CILO-1
6	Deep sets	Generalize deep learning algorithms to set data, Transformer Networks	CILO-1
7	Graph neural networks	General graph neural networks: Graph CNN, GraphSage, Message Passing Networks	CILO-1
8	Graph isomorphism and subgraph isomorphisms	Graph Isomorphism Networks and applications such as summary statistics, counting, other NP hard problems	CILO-1
9	Deep graph generation	Generative models for graphs	CILO-1
10	Application 1: Knowledge graph base QA System	QA system using existing knowledge graphs	CILO-3, CILO4
11	Application 2: Protein 3D structure prediction	AlphaFold and others in biomedical data	CILO-3, CILO4
12	Student project presentations	Knowledge sharing	CILO-2, CILO-3, CILO4
13	Student project presentations	Knowledge sharing	CILO-2, CILO-3, CILO4

Section 3: Learning Outcomes and Alignment *(for Common Core Course)*

3.1 ***Course Objectives:*** *Please outline what this course aims to achieve*

Alignment with Common Core program goals (Details here): Check the appropriate box(es) below to indicate which Common Core goal(s) this course aims to achieve, and explain briefly how this course would help to achieve the selected Common Core goal(s).

Section 4: Development, Concurrence and Approval

4.1 Contribution to the Program Learning Outcomes

The course is confirmed by the following Major/Minor program department(s)/unit(s) as indicated in Section 1.2 that it would contribute appropriately to overall program learning outcomes.

Department/Program unit	Position	Name	Date
Dept of Computer Science and Engineering	UG Coordinator	Dr Qiong LUO	14-Jan-21
Dept of Mathematics	Program Director	Prof Mo MU	18-Jan-21
Dept of Mathematics	UG Coordinator	Dr Tsz Kin LAM	19-Jan-21

4.2 Approvals

Recommendation from offering department(s) and School(s)/IPO

Offering Department/Program Unit	Position	Name	Date
Dept of Computer Science and Engineering	UG Coordinator	Dr Qiong LUO	14-Jan-21
Dept of Mathematics	UG Coordinator	Dr Tsz Kin LAM	19-Jan-21

Recommending School/IPO	Position	Name	Date
School of Engineering	Associate Dean	Prof Philip MOK	19-Feb-21
School of Science	Associate Dean	Prof Pak Wo LEUNG	19-Feb-21

Concurrence from other Schools or departments/units

School/Dept/Program Unit	Position	Name	Date
Interdisciplinary Programs Office	UG Coordinator	Prof Betty LIN	15-Jan-21

THE HONG KONG UNIVERSITY OF SCIENCE AND TECHNOLOGY
Approval of Undergraduate Course

Section 1: Academic Administration [(1)]

1.1 Catalog

a) Course to be effective from: Academic Year **2021-22** Term **Fall**

b) Department Code[(3)]: **CSE** Subject Area[(3)]: *COMP* Course Number [(4)]: **4222**

Previous Course Code[(5)]: **COMP 4901K (Alternate code: MATH4824B)**

c) Full Title[(6)] *(max. 100 characters)*: **Machine Learning with Structured Data**

d) Abbreviated Title[(7)] *(max. 30 characters)*: **ML with Structured Data**

e) Course Credits[(8)]: ✓ Fixed: **3** ◯ Range: From ___ To ___

f) Catalog Description[(9)] *(word limit = 150)*:

This course provides an introduction to statistical machine learning algorithms for structured data such as text sequences, taxonomy trees, relational databases (such as knowledge bases), and graphs (including graph databases such as biomedical graphs and large heterogeneous information networks such as knowledge graphs), and using programming tools such as Python to implement them for real problems. It will use some of the following practical problems such as text and graph classification, statistical relational learning, information extraction, sequence modeling, graph modeling, protein 3D structure prediction, QA system, etc. as illustrations to demonstrate the power of the statistical learning algorithms.

g) Grading Type[(10)]: ✓ Letter Grades ◯ Distinction/Credit/Pass/Fail ◯ Pass/ Fail
◯ Distinction/Pass/Fail ☐ Others *(please specify)*: ___

h) ✓ Prerequisites[(11)]:

Course Code / Public Exam	Course Title / Exam Subject and Level / Grade attained
(COMP 2011 OR COMP 2012 OR COMP 2012H) AND	Programming with C++ OR Object-Oriented Programming and Data Structures OR Honors Object-Oriented Programming and Data Structures
(COMP 2711 OR COMP 2711H OR MATH 2343) AND	Discrete Mathematical Tools for Computer Science OR Honors Discrete Mathematical Tools for Computer Science OR Discrete Structures
(MATH 2111 OR MATH 2121 OR MATH 2131)	Matrix Algebra and Applications OR Linear Algebra OR Honors in Linear and Abstract Algebra I

i) ☐ Corequisites[(12)]:

Course Code	Course Title

j) ✓ Exclusions[(13)]:

Course Code / Public Exam	Course Title / Exam Subject and Level / Grade attained
COMP 4901K	Machine Learning for Natural Language Processing
MATH 4824B	Machine Learning for Natural Language Processing

k) ☐ Co-listing(14): ☑ Multi-coding(14):

Course Code	Course Title
MATH 4632	Machine Learning with Structured Data

l) Other Enrollment Restrictions(15)   ☑ No   ◯ Yes

   ☐ Instructor's approval required

   ☐ Restricted to specified student group(s)
   (please specify, e.g. year and program of study): _____

   ☐ Others *(please specify):* _____

m) Medium of Instruction/Materials(16):   ☑ English   ◯ Others, (Pls specify and provide a justification in Section 1.3):

n) Allow course repetition for credit(17):   ☑ No   ◯ Yes

1.2 Contribution of course to Programs of Study *[Check all appropriate boxes below]*

☑ Major

Program of Study	As		
BEng(COMP) BSc(COSC) BSc(DSCT) BSc(MATH)	☐ Required Course	☑ Elective	☐ Prerequisite

☐ Minor

Program of Study	As		
	☐ Required Course	☐ Elective	☐ Prerequisite

☐ Common Core

☐ Others (pls specify):

Program of Study	As		
	☐ Required Course	☐ Elective	☐ Prerequisite

1.3 Rationale for Introducing this course and other relevant information (18)

The course is an interdisciplinary course which needs both computer science background and mathematics background. The algorithms introduced in this course will enrich both CSE and Math students' knowledge. The spectral graph theory is highly related to Math, which is the foundation of development of graph neural networks. Then the realization and implementation of machine learning algorithms of structured data is highly related to CSE techniques. The students are required to work in small groups for a number of homework assignments. During the course, there will be some projects requires students working as teams to work on some real world problems. It will encourage students from Math and CSE (especially DCST), CPEG, and other departments to register and to work together to bring different background knowledge working on interesting real problems. The students will be merged in one Canvas session so they can collaborate with each other to work on the assignments/projects. This will enable students to form multidisciplinary teams. The course especially fits the DCST program with complementary contents in additional to existing machine learning and optimization courses to deal with more complex data structures. The multi-coded courses will be identical to students enrolled in both course codes. The evaluation, examination, projects, assignments will be identical.

Section 2A: Learning Outcomes and Alignment *(for courses not proposed to be Common Core Courses)*

2.1 Key Course Intended Learning Outcomes *(Should not normally exceed six or eight outcomes)*

Upon completion of this course, students are expected to be able to do the following:

	Course ILOs	Nature of the learning outcomes (A - Knowledge/Content Related; B - Academic Skills/Competencies; C - Others)
1	Explain the basic principles behind machine learning algorithms for structured data	A
2	Implement programs for structured prediction tasks	B
3	Formulate machine learning solutions to domain problems	B
4	Demonstrate the ability to understand of the complexity of real world problems	B

2.2 Contribution of Learning Outcomes to Programs of Study identified in Section 1.2
(Please also complete Section 4.1)

	Program of study 1: _BEng(COMP) Program ILOs	To be achieved through these course ILOs *(Write CILO-1, CILO-2, etc.)*
1	PO1. An ability to apply knowledge of computing and mathematics appropriate to the discipline.	CLIO-1
2	PO2. An ability to apply knowledge of a computing specialisation, and domain knowledge appropriate for the computing specialisation to the abstraction and conceptualisation of computing models.	CLIO-2, CLIO-3
3	PO3. An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution.	CLIO-2, CLIO-3
4	PO4. An ability to design, implement and evaluate a computer-based system, process, component, or program to meet desired needs.	CLIO-2, CLIO-3, CLIO-4
5	PO5. An ability to function effectively in teams to accomplish a common goal.	CLIO-4
6	PO6. An understanding of professional, ethical, legal, security and social issues and responsibilities.	
7	PO7. An ability to communicate effectively with a range of audiences.	CLIO-4
8	PO8. An ability to analyze the local and global impact of computing on individuals, organizations, and society.	
9	PO9. Recognition of the need for, and an ability to engage in, continuing professional development.	
10	PO10. An ability to use current techniques, skills, and tools necessary for computing practices.	CLOI-4

	Program of study 2: BSc(COSC) Program ILOs	To be achieved through these course ILOs *(Write CILO-1, CILO-2, etc.)*
1	Explain knowledge, principles and use of IT skills in mathematical and computer sciences at college level. (Knowledge)	CILO-1
2	Evaluate information critically, and make independent judgment by applying principles and methods in mathematical and computer sciences. (Judgment)	CILO-1,CILO-3

3	Apply quantitative, analytic methods and IT skills to execute tasks and solve problems in mathematical and computer sciences. (Execution)	CILO-2
4	Work independently and collaborate effectively in a team. (Interpersonal Skill and Leadership)	CILO-3,CILO-4
5	Communicate effectively, both in oral and written forms, about mathematical knowledge to audience. (Communication)	CILO-3,CILO-4
6	Self-evaluate their own learning progress, and develop motivation and skills for lifelong learning. (Self-reflection)	
7	Recognize the importance of complying with ethics of science and academic integrity. (Ethical Practice)	
8	Show appreciation of mathematical and computer sciences and its interface with human activities, and arouse audience's interest in the beauty, logic and precision of mathematical and computer sciences. (Appreciation)	CILO-1
9	View issues in mathematical sciences with reference to the practices of the international science community. (International Outlook)	

	Program of study 3: BSc(DSCT) Program ILOs	To be achieved through these course ILOs *(Write CILO-1, CILO-2, etc.)*
1	• The ability to understand data problems arising in the areas of commerce and industry etc.	CILO-3,CILO-4
2	• The ability to model data problems using different mathematical tools.	CILO-1
3	• The ability to design and implement efficient algorithms to solve different mathematical models for data problems.	CILO-2
4	• The ability to interpret the results provided by different algorithms and apply them to the data problems to gain meaningful insights or offer predictions.	CILO-3,CILO-4

	Program of study 4: BSc(MATH-AM) Program ILOs	To be achieved through these course ILOs *(Write CILO-1, CILO-2, etc.)*
1	Explain knowledge, principles and use of quantitative techniques in mathematical sciences at college level. (Knowledge)	CILO-1
2	Model real-world problems and information mathematically, and make independent judgment by applying structural and analytical approaches. (Judgment)	CILO-1
3	Apply logical, analytic, and highly numerate methods to execute tasks and solve real-world mathematical problems. (Execution)	CILO-1
4	Work independently and collaborate effectively in a team. (Interpersonal Skill and Leadership)	CILO-2,CILO-3
5	Communicate effectively, both in oral and written forms, about mathematical knowledge to audience. (Communication)	CILO-4
6	Self-evaluate their own learning progress, and develop motivation and skills for lifelong learning. (Self-reflection)	CILO-4
7	Recognize the importance of complying with ethics of science and academic integrity. (Ethical Practice)	
8	Show appreciation of mathematical sciences and its interface with human activities, and arouse audience's interest in the beauty, logic and precision of mathematical sciences. (Appreciation)	CILO-1
9	View issues in mathematical sciences with reference to the practices of the international science community. (International Outlook)	

Section 2B: Additional Information[(2)] *(for courses not proposed to be Common Core Courses)*

2.3 Planned Teaching & Learning Arrangement

Teaching & Learning Arrangement		Weekly Scheduled Hours/ Estimated Weekly Learning Hours	Indicate which course ILOs this activity serves to achieve *(Write CILO-1, CILO-2, etc.)*	Additional Information *(optional)*
Face-to face activities	☑ Lecture*	3 hours	**CILO-1, CILO-2, CILO-3, CILO-4**	
	☑ Tutorial*	1-hour	**CILO-1, CILO-2, CILO-3, CILO-4**	
	☐ Seminar/Small-class*			
	☐ Laboratory*			
	*Does the above scheduled component(s) involve structured active learning activities? [(19)] ⊘ No ◯ Yes *If yes, please specify for each scheduled component, the percentage and the type of active learning involved in the "Additional Information" column.*			
	☐ Others (e.g. fieldtrip, visit, etc.), *pls specify:* _____			
Online activities	☐ Online lecture videos			
	☐ Other online learning tasks, *pls specify:* _____			
The total learning hours of the course# is equivalent to ____120_____ hours [(8)] *# including both scheduled instructional hours and hours for self-study activities & assessment*				

- For course adopting a pedagogic approach other than lecture, tutorial and laboratory, please indicate the pedagogy used:

  ◯ Blended learning [(20)]   ◯ Pure online delivery [(21)]

  ◯ Experiential learning [(22)]   ◯ Others, *pls specify:*_____

2.4 Planned Assessment Weightings

Assessment Task		Proportion of Final Grade (%)	Indicate which course ILOs this task is to assess *(Write CILO-1, CILO-2, etc.)*	Additional Information *(optional)*
☐	In-class test			
☐	Mid-term test			
☑	Final exam	40%	**CILO-1, CILO-3**	
☑	Assignments	30%	**CILO-1, CILO-2, CILO-3**	
☑	Final Project	20%	**CILO-2, CILO-3, CILO-4**	
☑	Presentation	10%	**CILO-3, CILO-4**	
☐	Learning portfolio			
☐	Course participation			
☐	Peer evaluation			
☐	Others (e.g. proctored online exam, etc.), *pls specify:* _____			

2.5 *Course Duration*

    (✓) 1 term   ( ) 2 terms   ( ) Others, *pls specify:* _____

2.6 *Planned Frequency of Offerings* [Check all appropriate boxes]**:**

    [ ] Every Fall   [ ] Every Winter

    [ ] Every Spring   [ ] Every Summer

    [ ] No fixed pattern

    [✓] Other *(pls specify):*   This course (COMP4222/MATH4632) will be taught every two years. The other PG co-listed course (COMP5222/MATH5471) will be taught with similar purpose.

2.7 *Course outline attached*   ( ) No   (✓) Yes

- **Internationalization:**

Internationalization in a course refers to course content and/or pedagogic approaches which incorporate an intercultural and international perspective. Examples may include:
- Collaboration with overseas institutions to develop and adopt international course content, or to arrange international field trip
- Insertion of international theme as part of the course
- Integrating the course content with international material as examples or case studies
- Elements to provide global diversified perspectives and/or practices around the world

Please briefly list or summarize any component(s) in the course that contributes to internationalizing the curriculum:

2.8 *Resources*

    Request extra resources for teaching this course?   ( ) No   (✓) Yes

Textbook / Reference Books

- Jurafsky and Martin (2008), Speech and Language Processing, 2nd edition.
- Noah Smith (2011), Linguistic structure prediction, Online.
- Lise Getoor and Ben Taskar (2007). Introduction to Statistical Relational Learning. The MIT Press.
- Pedro Domingos and Daniel Lowd, Markov Logic: An Interface Layer for AI, Morgan & Claypool, 2008.

Course Outline of COMP4222 (multi-coding with MATH4632)

Week	Topics	Briefly outline what this topic will cover *(Include reading assignments if available)*	Indicate which course ILOs this topic is related to *(Write CILO-1, CILO-2, etc.)*
1	Introduction	Introduction to the course and context of the content.	CILO-1
2	Structured perceptron and its generalizations with global optimization methods	Introduction to structure prediction problems and the basic algorithms, Relational Markov networks and conditional random fields	CILO-1
3	Graph based semi-supervised learning	Spectral graph theory, graph Laplacian	CILO-1
4	Introduction to deep learning	Introduction basic deep learning concepts for structured data, e.g., CNN, RNN on node classification, link prediction over sequences, trees, and graphs	CILO-1
5	Network embedding	Deepwalk, node2vec, heterogeneous information network embeddings, etc.	CILO-1
6	Deep sets	Generalize deep learning algorithms to set data, Transformer Networks	CILO-1
7	Graph neural networks	General graph neural networks: Graph CNN, GraphSage, Message Passing Networks	CILO-1
8	Graph isomorphism and subgraph isomorphisms	Graph Isomorphism Networks and applications such as summary statistics, counting, other NP hard problems	CILO-1
9	Deep graph generation	Generative models for graphs	CILO-1
10	Application 1: Knowledge graph base QA System	QA system using existing knowledge graphs	CILO-3, CILO4
11	Application 2: Protein 3D structure prediction	AlphaFold and others in biomedical data	CILO-3, CILO4
12	Student project presentations	Knowledge sharing	CILO-2, CILO-3, CILO4
13	Student project presentations	Knowledge sharing	CILO-2, CILO-3, CILO4

Section 4: Development, Concurrence and Approval

4.1 Contribution to the Program Learning Outcomes

The course is confirmed by the following Major/Minor program department(s)/unit(s) as indicated in Section 1.2 that it would contribute appropriately to overall program learning outcomes.

Department/Program unit	Position	Name	Date
Dept of Computer Science and Engineering	UG Coordinator	Dr Qiong LUO	14-Jan-21
Dept of Mathematics	Program Director	Prof Mo MU	18-Jan-21
Dept of Mathematics	UG Coordinator	Dr Tsz Kin LAM	19-Jan-21

4.2 Approvals

Recommendation from offering department(s) and School(s)/IPO

Offering Department/Program Unit	Position	Name	Date
Dept of Computer Science and Engineering	UG Coordinator	Dr Qiong LUO	14-Jan-21
Dept of Mathematics	UG Coordinator	Dr Tsz Kin LAM	19-Jan-21

Recommending School/IPO	Position	Name	Date
School of Engineering	Associate Dean	Prof Philip K.T. MOK	18-Feb-21
School of Science	Associate Dean	Prof Pakwo LEUNG	19-Feb-21

Concurrence from other Schools or departments/units

School/Dept/Program Unit	Position	Name	Date
Dual Degree Program in Technology and Management	UG Coordinator	Prof Betty LIN	15-Jan-21

THE HONG KONG UNIVERSITY OF SCIENCE AND TECHNOLOGY
Approval of Undergraduate Course

Section 1: Academic Administration [(1)]

1.1 Catalog

a) Course to be effective from: Academic Year   2021-22   Term   Fall

b) Department Code[(3)]:   FINA   Subject Area[(3)]:   FINA   Course Number [(4)]:   4513

   Previous Course Code[(5)]:

c) Full Title[(6)] *(max. 100 characters)*:   Risk Management

d) Abbreviated Title[(7)] *(max. 30 characters)*:

e) Course Credits[(8)]:   ☑ Fixed: 3   ◯ Range: From   To

f) Catalog Description[(9)] *(word limit = 150)*:

> This course covers the role of risk management in supporting companies as they strive to balance the internal and external risk factors surrounding the operation of their business model against their various stakeholder obligations. Topics include a review of basic hedging strategies (knowledge of futures and options is pre-requisite), the theory and evidence on the value of corporate risk management, review of the major surveys of risk management practices, business-case studies highlighting advanced derivatives and risk-management strategies, an illustrative model of integrated enterprise risk-management (featuring Monte-Carlo simulation), and student-led risk-management audits.

g) Grading Type[(10)]:   ☑ Letter Grades   ◯ Distinction/Credit/Pass/Fail   ◯ Pass/ Fail

   ◯ Distinction/Pass/Fail   ☐ Others *(please specify)*:

h) ☑ Prerequisites[(11)]:

Course Code / Public Exam	Course Title / Exam Subject and Level / Grade attained
FINA 3103	Intermediate Investments
FINA 3203	Derivative Securities

i) ☐ Corequisites[(12)]:

Course Code	Course Title

j) ☐ Exclusions[(13)]:

Course Code / Public Exam	Course Title / Exam Subject and Level / Grade attained

k) ☐ Co-listing[(14)]:   ☐ Multi-coding[(14)]:

Course Code	Course Title

l) Other Enrollment Restrictions[(15)]   ☑ No   ◯ Yes

   ☐ Instructor's approval required

   ☐ Restricted to specified student group(s)
      (please specify, e.g. year and program of study):

   ☐ Others *(please specify)*:

m)   Medium of Instruction/Materials[16]:   ☑ English   ◯ Others, (Pls specify and provide a justification in Section 1.3):

_____

n)   Allow course repetition for credit[17]:   ☑ No   ◯ Yes

1.2   Contribution of course to Programs of Study *[Check all appropriate boxes below]*

☑ Major

Program of Study	As		
BBA in Finance	☐ Required Course	☑ Elective	☐ Prerequisite

☐ Minor

Program of Study	As		
	☐ Required Course	☐ Elective	☐ Prerequisite

☐ Common Core

☑ Others (pls specify):

Program of Study	As		
BSc in Sustainable and Green Finance	☑ Required Course	☐ Elective	☐ Prerequisite

1.3   Rationale for Introducing this course and other relevant information [18]

This course dovetails with proposed course FINA 4703 ESG Investing. Whereas ESG Investing mainly focuses on the security-investing (*aka* asset-pricing) side of things, educating students in their role of delegated portfolio managers, socially-responsible investors, and stewards of the funds under their charge, this course on risk management takes the standpoint of corporate managers, such the CEO, CFO, or CRO, who take the signals conveyed to them *via* these ESG-savvy capital markets as guideposts chanelling their quest for profit maximization, and who should optimally internalize the demands of an increasingly ESG-sensible stakeholder audience.

Newly-priced risk factors canvased in the ESG Investing course, such as climate risk, find their counterparts in this corporate risk-management course, where the resulting premia enter the cost of capital and advanced securities such as weather derivatives enter optimal hedging strategies. These contemporary risks gain prominence alongside traditional risk factors such as foreign exchange, interest rates (green-bond premia affecting credit spreads), and commodities (renewal and non-renewable). These new considerations and sophisticated finance tools need to be integrated into managerial thinking and the calculus of shareholder-value maximization. This course invites students to gain the insights and skills needed to do so.

Section 2A: Learning Outcomes and Alignment *(for courses not proposed to be Common Core Courses)*

2.1 *Key Course Intended Learning Outcomes (Should not normally exceed six or eight outcomes)*

Upon completion of this course, students are expected to be able to do the following:

	Course ILOs	Nature of the learning outcomes (A - Knowledge/Content Related; B - Academic Skills/Competencies; C - Others)
1	Situate risk-management in an organization's value-adding chain.	A
2	Compare and contrast traditional and contemporary price-risk factors.	A
3	Tailor advanced derivatives and hedging strategies to preserve and add value.	A, B
4	Model causes and effects of risk factors using enterprise risk-management.	B
5	Conduct a structured and principled corporate risk-management audit.	B

2.2 *Contribution of Learning Outcomes to Programs of Study identified in Section 1.2*
(Please also complete Section 4.1)

	Program of study 1: BBA in Finance Program ILOs	To be achieved through these course ILOs *(Write CILO-1, CILO-2, etc.)*
1	Graduates will be critical and creative thinkers who make effective decisions supported by analytical and quantitative techniques	CILO-1, 2, 3, 4, 5
2	Graduates will be effective communicators in oral and written English for general business applications.	CILO-5
3	Graduates will have broad understanding of the core business functions and integrate these functions to solve business problems	CILO-1, 2, 3, 4, 5
4	Graduates will have in-depth grasp of their area of business concentration or major.	CILO-1, 2, 3
5	Graduates will be effective team members and leaders	CILO-5
6	Graduates will be effective in multi-cultural and international settings	
7	Graduates will be effective users of information technology and sources of information in business applications.	CILO-3, 4
8	Graduates will understand their professional and ethical responsibility.	CILO-1, 2, 4, 5

	Program of study 2: BSC in Sustainable and Green Finance Program ILOs	To be achieved through these course ILOs *(Write CILO-1, CILO-2, etc.)*
1	have a broad understanding of Sustainable and green business functions and integrate these functions to adopt an inter-disciplinary approach and formulate effective and innovative solutions to tackle complex real-world problems.	CILO-4, 5
2	have in-depth grasp of Sustainable and green finance knowledge and skills, and transfer acquired knowledge and skills to meet changes and challenges in different fields.	CILO-1, 2, 3, 4, 5
3	engage in activities that lead to impact of societal improvement	CILO-4, 5
4	make effective ESG finance decisions supported by analytical and quantitative techniques.	CILO-3, 4, 5
5	have the ability to create and innovate with divergent thinking.	CILO-3, 4
6	communicate effectively with people of different levels and work areas.	CILO-1, 2, 5
7	work independently, collaborate effectively in teams, and lead a team to success.	CILO-5
8	demonstrate a global outlook and function effectively in multi-cultural and international settings.	
9	effectively use information technology and sources of information in work applications.	CILO-3, 4
10	understand professional and ethical responsibility, and recognize the importance of a sustainable and green living society.	CILO-1, 2, 4, 5

Section 2B: Additional Information[(2)] *(for courses not proposed to be Common Core Courses)*

2.3   Planned Teaching & Learning Arrangement

	Teaching & Learning Arrangement	Weekly Scheduled Hours/ Estimated Weekly Learning Hours	Indicate which course ILOs this activity serves to achieve *(Write CILO-1, CILO-2, etc.)*	Additional Information *(optional)*
Face-to face activities	☑ Lecture*	3	CILO-1, 2, 3, 4, 5	
	☐ Tutorial*			
	☐ Seminar/Small-class*			
	☐ Laboratory*			
	*Does the above scheduled component(s) involve structured active learning activities? [(19)] ⊘ No ◯ Yes *If yes, please specify for each scheduled component, the percentage and the type of active learning involved in the "Additional Information" column.*			
	☐ Others (e.g. fieldtrip, visit, etc.), *pls specify:* _____			
Online activities	☐ Online lecture videos			
	☐ Other online learning tasks, *pls specify:* _____			

The total learning hours of the course# is equivalent to ___120___ hours [(8)]
 # including both scheduled instructional hours and hours for self-study activities & assessment

- *For course adopting a pedagogic approach other than lecture, tutorial and laboratory, please indicate the pedagogy used:*

◯ Blended learning [(20)]   ◯ Pure online delivery [(21)]

◯ Experiential learning [(22)]   ◯ Others, *pls specify:*_____

2.4   Planned Assessment Weightings

Assessment Task	Proportion of Final Grade (%)	Indicate which course ILOs this task is to assess *(Write CILO-1, CILO-2, etc.)*	Additional Information *(optional)*
☑ In-class test	10	CILO-1, 2, 3, 4, 5	
☑ Mid-term test	20	CILO-1, 2, 3, 4, 5	
☑ Final exam	30	CILO-1, 2, 3, 4, 5	
☑ Written assignment	15	CILO-1, 2, 3, 4, 5	
☑ Project report	10	CILO-1, 2, 3, 4, 5	
☑ Presentation	5	CILO-1, 2, 3, 4, 5	
☐ Learning portfolio			
☑ Course participation	5	CILO-1, 2, 3, 4, 5	
☑ Peer evaluation	5	CILO-1, 2, 3, 4, 5	
☐ Others (e.g. proctored online exam, etc.), *pls specify:* _____			

2.5 Course Duration

(✓) 1 term   ( ) 2 terms   ( ) Others, *pls specify:* _____

2.6 Planned Frequency of Offerings [Check all appropriate boxes]:

[ ] Every Fall   [ ] Every Winter

[ ] Every Spring   [ ] Every Summer

[✓] No fixed pattern

[ ] Other *(pls specify):* _____

2.7 Course outline attached

(✓) No   ( ) Yes

• **Internationalization:**

Internationalization in a course refers to course content and/or pedagogic approaches which incorporate an intercultural and international perspective. Examples may include:
- Collaboration with overseas institutions to develop and adopt international course content, or to arrange international field trip
- Insertion of international theme as part of the course
- Integrating the course content with international material as examples or case studies
- Elements to provide global diversified perspectives and/or practices around the world

Please briefly list or summarize any component(s) in the course that contributes to internationalizing the curriculum:

2.8 Resources

Request extra resources for teaching this course?   ( ) No   (✓) Yes

BBA FINA Program ILOs (22 June 2018)

(1) **Goal:** Graduates will be critical and creative thinkers who make effective decisions supported by appropriate analytical techniques.

Objectives: Graduates will:

- Analyze the core issues and weigh the significance of key assumptions used in business decision-making scenarios.
- Solve business problems using appropriate analytical techniques.

(2) **Goal: Graduates will be effective communicators in oral and written English for general business applications.**

Objectives: Graduates will:

- Produce professional quality business documents in English.
- Deliver professional quality presentations in English.

(3) **Goal:** Graduates will have broad understanding of the core business functions and integrate these functions to solve business problems.

Objectives: Graduates will:

- Identify the key functional areas that are involved in specific business problems and articulate contributions made by these functional areas to the overall well-being of an organization.
- Connect different functional areas to formulate integrated solutions.

(4) **Goal:** Graduates will have in-depth grasp of financial knowledge and applications.

Objectives: Graduates will:

- Demonstrate substantial knowledge in finance.
- Apply financial skills and techniques to solve financial problems.

(5) **Goal:** Graduates will be effective team leaders and members.

Objectives: Graduates will:

- Demonstrate an understanding of the various roles played within the team.
- Collaborate and lead positively by actively seeking and engaging in discussion of the views of others while showing sensitivity to opposing views.

(6) **Goal:** Graduates will be effective in multi-cultural and international settings.

Objectives: Graduates will:

- Demonstrate a global outlook and an understanding of cultural diversity.
- Apply business concepts and theories to make proper business decisions in international settings.

(7) Goal: Graduates will be effective users of information technology and sources of information in business applications.

   Objectives: Graduates will:

- Demonstrate proficiency in using IT applications in business and management.
- Locate, gather, organize and evaluate information using appropriate information technology and systems**.**

(8) Goal: Graduates will understand their professional and ethical responsibility

   Objectives: Graduates will:

- Demonstrate an understanding of the role played by managers in ensuring the integrity of the firm and maintaining appropriate levels of social responsibility.
- Identify the activities/issues in their chosen profession that may present ethical challenges, and articulate the consequences associated with unethical behavior.

Section 4: Development, Concurrence and Approval

4.1 Contribution to the Program Learning Outcomes

The course is confirmed by the following Major/Minor program department(s)/unit(s) as indicated in Section 1.2 that it would contribute appropriately to overall program learning outcomes.

Department/Program unit	Position	Name	Date
Dept of Finance	Head of Dept	Prof Chu ZHANG	23-Feb-21

4.2 Approvals

Recommendation from offering department(s) and School(s)/IPO

Offering Department/Program Unit	Position	Name	Date
Dept of Finance	Head of Dept	Prof Chu ZHANG	23-Feb-21

Recommending School/IPO	Position	Name	Date
School of Business and Management	Associate Dean	Prof Allen HUANG	23-Feb-21

Concurrence from other Schools or departments/units

School/Dept/Program Unit	Position	Name	Date

THE HONG KONG UNIVERSITY OF SCIENCE AND TECHNOLOGY
Approval of Undergraduate Course

Section 1: Academic Administration [1]

1.1 Catalog

a) Course to be effective from: Academic Year 2021-22   Term Fall

b) Department Code[3]: FINA   Subject Area[3]: FINA   Course Number [4]: 4703

Previous Course Code[5]: _____

c) Full Title[6] *(max. 100 characters)*: ESG Investing

d) Abbreviated Title[7] *(max. 30 characters)*: _____

e) Course Credits[8]: (✓) Fixed: 3   ( ) Range: From _____ To _____

f) Catalog Description[9] *(word limit = 150)*:

> This course focuses on the relevance of sustainability factors on financial performance of firms and securities. Topics in this course include the market terminology, practices, usages and impact of environmental, social and governance (ESG) factors and climate risk. Students will learn to analyze complex financial problems, adapt investment strategies to meet business needs, propose solutions that maximize stakeholder value, and apply ESG related concepts to the process of investment management and valuation.

g) Grading Type[10]: (✓) Letter Grades   ( ) Distinction/Credit/Pass/Fail   ( ) Pass/ Fail

( ) Distinction/Pass/Fail   [ ] Others *(please specify)*: _____

h) [✓] Prerequisites[11]:

Course Code / Public Exam	Course Title / Exam Subject and Level / Grade attained
FINA3103	Intermediate Investments

i) [ ] Corequisites[12]:

Course Code	Course Title

j) [ ] Exclusions[13]:

Course Code / Public Exam	Course Title / Exam Subject and Level / Grade attained

k) [ ] Co-listing[14]:   [ ] Multi-coding[14]:

Course Code	Course Title

l) Other Enrollment Restrictions[15]   (✓) No   ( ) Yes

[ ] Instructor's approval required

[ ] Restricted to specified student group(s)
(please specify, e.g. year and program of study): _____

[ ] Others *(please specify)*: _____

m)   Medium of Instruction/Materials[16]:   ✓ English   ○ Others, (Pls specify and provide a justification in Section 1.3):

_____

n)   Allow course repetition for credit[17]:   ✓ No   ○ Yes

1.2   Contribution of course to Programs of Study [Check all appropriate boxes below]

☑ Major

Program of Study	As		
BBA in Finance	☐ Required Course	☑ Elective	☐ Prerequisite

☐ Minor

Program of Study	As		
	☐ Required Course	☐ Elective	☐ Prerequisite

☐ Common Core

☐ Others (pls specify):

Program of Study	As		
	☐ Required Course	☐ Elective	☐ Prerequisite

1.3   Rationale for Introducing this course and other relevant information [18]

Those market players who originally shinned away from ESG themes are now looking for integration of this ESG into their core strategies. ESG is now becoming part of their fiduciary duties. Green bonds are used as a way to express commitment to ESG approach and raise funding for climate-related projects.

Nonetheless, many still hesitate to consider ESG Investing approach and green finance under the banner of "greenwashing". There is still ample room to grow. Sustainable investing is only $32bn compare to $85tn. Despite the exponential growth, green bonds are less than 1% the bond market. So, what prevents institutions from embracing ESG and its instruments? The easy answer is the unconvincing empirical evidence that it creates value. The true answer is that the concept and application of ESG are not clear to them and many others. ESG applied in the vacuum leads to underperformance. In addressing the growing need for ESG investing knowledge, this course puts together a collection of industry articles, cases, projects and academic papers.

Bottom line is that it is an investment approach that integrates three additional factors - environment (E), social (S) and governance (G), into the security analysis and portfolio allocation. In doing so, it creates market opportunities, mitigates risks, it lowers financing costs while leading to innovation and better resource allocation.

Last but not least, unlike any other course, you will be the first ones to learn about climate risk and climate finance. Climate risk will be **the most important risk** to be pricing in in asset allocation and investment decision. So far the industry is desperately in need of knowledge and expertise on climate risk. This will give you a strong edge for job application and for your future career.

The course benefits are as follows:
•Learn the latest market practice and market trends on sustainability.
•Acquire cutting edge knowledge for an increasingly complex and demanding market.
•Boost your ability to make a more informed investment decision.
•Industry networking.

Section 2A: Learning Outcomes and Alignment *(for courses not proposed to be Common Core Courses)*

2.1 Key Course Intended Learning Outcomes *(Should not normally exceed six or eight outcomes)*

Upon completion of this course, students are expected to be able to do the following:

	Course ILOs	Nature of the learning outcomes (A - Knowledge/Content Related; B - Academic Skills/Competencies; C - Others)
1	Analyze and comment on complex real-world financial problems.	A,B
2	Adapt investment strategies to meet business needs.	A,B
3	Propose asset/risk-management solutions that maximize stakeholder value.	A,B
4	Apply the principles, skills, methods, techniques, and knowledge of modern finance to the process of investment management and securities valuation.	B

2.2 Contribution of Learning Outcomes to Programs of Study identified in Section 1.2
(Please also complete Section 4.1)

	Program of study 1: BBA in Finance Program ILOs	To be achieved through these course ILOs *(Write CILO-1, CILO-2, etc.)*
1	Graduates will be critical and creative thinkers who make effective decisions supported by analytical and quantitative techniques	CILO-1
2	Graduates will be effective communicators in oral and written English for general business applications.	
3	Graduates will have broad understanding of the core business functions and integrate these functions to solve business problems	CILO-1, 2, 3, 4
4	Graduates will have in-depth grasp of their area of business concentration or major.	CILO-1, 2, 3, 4
5	Graduates will be effective team members and leaders	
6	Graduates will be effective in multi-cultural and international settings	
7	Graduates will be effective users of information technology and sources of information in business applications.	
8	Graduates will understand their professional and ethical responsibility.	

	Program of study 2: Program ILOs	To be achieved through these course ILOs *(Write CILO-1, CILO-2, etc.)*
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

Section 2B: Additional Information[2] *(for courses not proposed to be Common Core Courses)*

2.3 Planned Teaching & Learning Arrangement

Teaching & Learning Arrangement		Weekly Scheduled Hours/ Estimated Weekly Learning Hours	Indicate which course ILOs this activity serves to achieve *(Write CILO-1, CILO-2, etc.)*	Additional Information *(optional)*
Face-to face activities	☑ Lecture*	3	CILO-1, 2, 3, 4	
	☐ Tutorial*			
	☐ Seminar/Small-class*			
	☐ Laboratory*			
	*Does the above scheduled component(s) involve structured active learning activities? [19] ⊘ No ◯ Yes *If yes, please specify for each scheduled component, the percentage and the type of active learning involved in the "Additional Information" column.*			
	☐ Others (e.g. fieldtrip, visit, etc.), *pls specify:* _____			
Online activities	☐ Online lecture videos			
	☐ Other online learning tasks, *pls specify:* _____			
The total learning hours of the course# is equivalent to ___120___ hours [8] *# including both scheduled instructional hours and hours for self-study activities & assessment*				

- For course adopting a pedagogic approach other than lecture, tutorial and laboratory, please indicate the pedagogy used:

◯ Blended learning [20]   ◯ Pure online delivery [21]

◯ Experiential learning [22]   ◯ Others, *pls specify:*_____

2.4 Planned Assessment Weightings

Assessment Task	Proportion of Final Grade (%)	Indicate which course ILOs this task is to assess *(Write CILO-1, CILO-2, etc.)*	Additional Information *(optional)*
☐ In-class test			
☐ Mid-term test			
☑ Final exam	45	CILO-1, 2, 3, 4	
☐ Written assignment			
☑ Project report	40	CILO-1, 2, 3, 4	
☐ Presentation			
☐ Learning portfolio			
☑ Course participation	10	CILO-1, 2, 3, 4	
☑ Peer evaluation	5	CILO-1, 2, 3, 4	
☐ Others (e.g. proctored online exam, etc.), *pls specify:* _____			

2.5 **Course Duration**

    ☑ 1 term   ◯ 2 terms   ◯ Others, *pls specify:* _____

2.6 **Planned Frequency of Offerings** *[Check all appropriate boxes]:*

    ☐ Every Fall   ☐ Every Winter

    ☐ Every Spring   ☐ Every Summer

    ☑ No fixed pattern

    ☐ Other *(pls specify):* _____

2.7 **Course outline attached**   ◯ No   ☑ Yes

- **Internationalization:**

Internationalization in a course refers to course content and/or pedagogic approaches which incorporate an intercultural and international perspective. Examples may include:
- Collaboration with overseas institutions to develop and adopt international course content, or to arrange international field trip
- Insertion of international theme as part of the course
- Integrating the course content with international material as examples or case studies
- Elements to provide global diversified perspectives and/or practices around the world

Please briefly list or summarize any component(s) in the course that contributes to internationalizing the curriculum:

2.8 **Resources**

    Request extra resources for teaching this course?   ◯ No   ☑ Yes

BBA FINA Program ILOs (22 June 2018)

(1) **Goal:** Graduates will be critical and creative thinkers who make effective decisions supported by appropriate analytical techniques.

   Objectives: Graduates will:

   - Analyze the core issues and weigh the significance of key assumptions used in business decision-making scenarios.
   - Solve business problems using appropriate analytical techniques.

(2) **Goal: Graduates will be effective communicators in oral and written English for general business applications.**

   Objectives: Graduates will:

   - Produce professional quality business documents in English.
   - Deliver professional quality presentations in English.

(3) **Goal:** Graduates will have broad understanding of the core business functions and integrate these functions to solve business problems.

   Objectives: Graduates will:

   - Identify the key functional areas that are involved in specific business problems and articulate contributions made by these functional areas to the overall well-being of an organization.
   - Connect different functional areas to formulate integrated solutions.

(4) **Goal:** Graduates will have in-depth grasp of financial knowledge and applications.

   Objectives: Graduates will:

   - Demonstrate substantial knowledge in finance.
   - Apply financial skills and techniques to solve financial problems.

(5) **Goal:** Graduates will be effective team leaders and members.

   Objectives: Graduates will:

   - Demonstrate an understanding of the various roles played within the team.
   - Collaborate and lead positively by actively seeking and engaging in discussion of the views of others while showing sensitivity to opposing views.

(6) **Goal:** Graduates will be effective in multi-cultural and international settings.

   Objectives: Graduates will:

   - Demonstrate a global outlook and an understanding of cultural diversity.
   - Apply business concepts and theories to make proper business decisions in international settings.

(7) Goal: Graduates will be effective users of information technology and sources of information in business applications.

   Objectives: Graduates will:

- Demonstrate proficiency in using IT applications in business and management.
- Locate, gather, organize and evaluate information using appropriate information technology and systems**.**

(8) Goal: Graduates will understand their professional and ethical responsibility

   Objectives: Graduates will:

- Demonstrate an understanding of the role played by managers in ensuring the integrity of the firm and maintaining appropriate levels of social responsibility.
- Identify the activities/issues in their chosen profession that may present ethical challenges, and articulate the consequences associated with unethical behavior.

Section 4: Development, Concurrence and Approval

4.1 Contribution to the Program Learning Outcomes

The course is confirmed by the following Major/Minor program department(s)/unit(s) as indicated in Section 1.2 that it would contribute appropriately to overall program learning outcomes.

Department/Program unit	Position	Name	Date
Dept of Finance	Head of Dept	Prof Chu ZHANG	23-Feb-21

4.2 Approvals

Recommendation from offering department(s) and School(s)/IPO

Offering Department/Program Unit	Position	Name	Date
Dept of Finance	Head of Dept	Prof Chu ZHANG	23-Feb-21

Recommending School/IPO	Position	Name	Date
School of Business and Management	Associate Dean	Prof Allen HUANG	23-Feb-21

Concurrence from other Schools or departments/units

School/Dept/Program Unit	Position	Name	Date

THE HONG KONG UNIVERSITY OF SCIENCE AND TECHNOLOGY
Approval of Undergraduate Course

Section 1: Academic Administration [(1)]

1.1 Catalog

a) Course to be effective from: Academic Year **2021–2022** Term **Fall**

b) Department Code[(3)]: **HUMA** Subject Area[(3)]: Course Number [(4)]: **4620**

Previous Course Code[(5)]:

c) Full Title[(6)] *(max. 100 characters)*: **Geopolitics**

d) Abbreviated Title[(7)] *(max. 30 characters)*: **Geopolitics**

e) Course Credits[(8)]: ◉ Fixed: **3** ○ Range: From To

f) Catalog Description[(9)] *(word limit = 150)*:

> This course surveys the history of modern geopolitical thinking and its relation to world politics over the past two centuries. What is the relationship between state power and the mastery of geographic space? How does geography both constrain and facilitate the ambition of states? Is geography destiny? Students will read some of the classics of modern Western geopolitical thought, alongside critical commentary and historical contextualization, and consider their relevance for understanding contemporary global affairs.

g) Grading Type[(10)]: ◉ Letter Grades ○ Distinction/Credit/Pass/Fail ○ Pass/ Fail

○ Distinction/Pass/Fail ☐ Others *(please specify)*:

h) ☐ Prerequisites[(11)]:

Course Code / Public Exam	Course Title / Exam Subject and Level / Grade attained

i) ☐ Corequisites[(12)]:

Course Code	Course Title

j) ☐ Exclusions[(13)]:

Course Code / Public Exam	Course Title / Exam Subject and Level / Grade attained

k) ☐ Co-listing[(14)]: ☐ Multi-coding[(14)]:

Course Code	Course Title

l) Other Enrollment Restrictions[(15)] ○ No ◉ Yes

☐ Instructor's approval required

☐ Restricted to specified student group(s)
(please specify, e.g. year and program of study):

☒ Others *(please specify)*: **To facilitate seminar discussion, I wish to restrict the size of the class to max. 20 students.**

m) Medium of Instruction/Materials(16): ◉ English ○ Others, (Pls specify and provide a justification in Section 1.3):

_____

n) Allow course repetition for credit(17): ◉ No ○ Yes

1.2 Contribution of course to Programs of Study [Check all appropriate boxes below]

■ Major

Program of Study	As		
Global China Studies	☐ Required Course	■ Free Elective	☐ Prerequisite

■ Minor

Program of Study	As		
Humanities	☐ Required Course	■ Free Elective	☐ Prerequisite

☐ Common Core

☐ Others (pls specify):

Program of Study	As		
	☐ Required Course	☐ Elective	☐ Prerequisite

1.3 Rationale for Introducing this course and other relevant information (18)

My aim in introducing this course is to provide undergraduate students with an accessible, seminar-format course on modern intellectual history. To maximize the appeal of the course to the undergraduate population, I have chosen a theme that does not require any real prerequisite knowledge of modern history or philosophy, and whose texts are non-technical in nature. I propose to survey the history of modern Western geopolitical thought from the late nineteenth century up until the present. Geopolitics is the interdisciplinary field of knowledge that investigates the impact of geography—and space, more broadly—on the development and interaction of polities. Since the end of the nineteenth century, the literature associated with this field has inspired and engaged politicians, scholars, and analysts around the world. Developed in part as a response to growing international and imperial rivalries in an era of globalization, geopolitics has served as an alibi and ideology of imperialism, but also as a framework for critiquing imperialist policies. The classic works of geopolitics have the advantage of engaging and responding to one another, and addressing concrete events of world history, which make them suitable texts for class discussion and paper-writing. They also speak to students with interests in history, political science, geography, political and social thought, and economics, which enables a course like this to appeal to a fairly wide student population. Though most of the authors to be discussed in this course came from Europe and the United States, I intend to also emphasize the relevance and reception of these texts outside the West, i.e. in Japan and China.

The reading list may include such primary sources as:
- Alfred Thayer Mahan, *The Influence of Sea Power upon History, 1660–1783* (1890)
- Halford J. Mackinder, *Democratic Ideals and Reality* (1919)
- Karl Haushofer, selections in translation
- Carl Schmitt, *Land and Sea* (1942)
- Nicholas Spykman, *America's Strategy in World Politics* (1942)
- George Kennan, "The Sources of Soviet Conduct" (1947)
- Samuel P. Huntington, *The Clash of Civilizations* (1996)
- John J. Mearsheimer, *The Tragedy of Great Power Politics* (2003)
- Barry Posen, "Command of the Commons" (2003)

And secondary sources such as:
- Jeremy Black, *Geopolitics and the Quest for Dominance* (2016)
- Christopher I. Beckwith, *Empires of the Silk Road* (2009)
- Peter C. Purdue, *China Marches West* (2005)
- Neil Smith, *American Empire* (2003)
- Geroid O'Tuathail, *The Geopolitics Reader* (2003)
- Robert Kaplan, *The Revenge of Geography* (2013)
- Zbigniew Brzezinski, *The Grand Chessboard* (1997)
- John Darwin, *After Tamerlane* (2008)
- Peter Paret, ed., *Makers of Modern Strategy* (1986)
- Bruno Macaes, *Belt and Road* (2020)
- Adam Tooze, *The Deluge* (2014)
- Charles S. Maier, *Once Within Borders* (2016)

Section 2A: Learning Outcomes and Alignment *(for courses not proposed to be Common Core Courses)*

2.1 Key Course Intended Learning Outcomes *(Should not normally exceed six or eight outcomes)*

Upon completion of this course, students are expected to be able to do the following:

	Course ILOs	Nature of the learning outcomes (A - Knowledge/Content Related; B - Academic Skills/Competencies; C - Others)
1	Acquire familiarity with the central themes and arguments of modern geopolitical thought.	A
2	Develop familiarity with key geopolitical events and trends in the past two centuries.	A
3	Gain experience reading and discussing theoretical texts	B
4	Acquire proficiency in writing analytical essays	B
5		
6		
7		
8		

2.2 Contribution of Learning Outcomes to Programs of Study identified in Section 1.2
(Please also complete Section 4.1)

	Program of study 1: GCS Program ILOs	To be achieved through these course ILOs *(Write CILO-1, CILO-2, etc.)*
1	Applying knowledge in humanities / social science to study issues of social or cultural significance	CILO-1, 2
2	Applying knowledge in humanities / social science to study issues relating to China and the world	CILO-1, 2
3	Develop students' academic and self-learning skills	CILO-3, 4
4	Enhance students' academic writing competence	CILO-4
5		
6		
7		
8		

	Program of study 2: HUMA Minor Program ILOs	To be achieved through these course ILOs *(Write CILO-1, CILO-2, etc.)*
1	Students will gain exposure to the critical methodologies of the humanities	CILO-1, 2, 3, 4
2	Students will develop their skills as readers and writers	CILO-3, 4
3		
4		
5		
6		
7		
8		

2.3 *Planned Teaching & Learning Arrangement*

Teaching & Learning Arrangement			Weekly Scheduled Hours/ Estimated Weekly Learning Hours	Indicate which course ILOs this activity serves to achieve (Write CILO-1, CILO-2, etc.)	Additional Information *(optional)*
Face-to face activities	☐	Lecture*			
	☐	Tutorial*			
	☑	Seminar/Small-class*	2 x 1.5 hrs	CILO-1, 2, 3, 4	25% instructor presentation, 75% class discussion
	☐	Laboratory*			
	*Does the above scheduled component(s) involve structured active learning activities? [19] ◯ No ⬤ Yes *If yes, please specify for each scheduled component, the percentage and the type of active learning involved in the "Additional Information" column.*				
	☐	Others (e.g. fieldtrip, visit, etc.), *pls specify:* _____			
Online activities	☐	Online lecture videos			
	☐	Other online learning tasks, *pls specify:* _____			
The total learning hours of the course# is equivalent to __120_____ hours [8] *# including both scheduled instructional hours and hours for self-study activities & assessment*					

- *For course adopting a pedagogic approach other than lecture, tutorial and laboratory, please indicate the pedagogy used:*

◯ Blended learning [20]   ◯ Pure online delivery [21]

◯ Experiential learning [22]   ◯ Others, *pls specify:*_____

2.4 *Planned Assessment Weightings*

Assessment Task		Proportion of Final Grade (%)	Indicate which course ILOs this task is to assess (Write CILO-1, CILO-2, etc.)	Additional Information *(optional)*
☑	In-class test	20%	CILO-2	Two quizzes
☐	Mid-term test			
☐	Final exam			
☑	Midterm paper	25%	CILO-4	
☑	Final paper	35%	CILO-4	
☐	Project report			
☐	Presentation			
☐	Learning portfolio			
☑	Course participation	20%	CILO-1, 2, 3	
	Peer evaluation			

	Others (e.g. proctored online exam, etc.), *pls specify:* _____			

2.5 Course Duration

     ● 1 term   ○ 2 terms   ○ Others, *pls specify:* _____

2.6 Planned Frequency of Offerings *[Check all appropriate boxes]:*

     ☐ Every Fall   ☐ Every Winter

     ☐ Every Spring   ☐ Every Summer

     ☒ No fixed pattern

     ☐ Other *(pls specify):* _____

2.7 Course outline attached   No   ● Yes

- **Internationalization:**

Internationalization in a course refers to course content and/or pedagogic approaches which incorporate an intercultural and international perspective. Examples may include:
- Collaboration with overseas institutions to develop and adopt international course content, or to arrange international field trip
- Insertion of international theme as part of the course
- Integrating the course content with international material as examples or case studies
- Elements to provide global diversified perspectives and/or practices around the world

Please briefly list or summarize any component(s) in the course that contributes to internationalizing the curriculum:

> The course covers the recent history of globalization and its ramifcations for world politics, focusing on the United States, Europe, and East Asia.

2.8 Resources

     Request extra resources for teaching this course?   ● No   ○ Yes

Section 4: Development, Concurrence and Approval

4.1 *Contribution to the Program Learning Outcomes*

The course is confirmed by the following Major/Minor program department(s)/unit(s) as indicated in Section 1.2 that it would contribute appropriately to overall program learning outcomes.

Department/Program unit	Position	Name	Date
School of Humanities & Social Science	Associate Dean	Prof Carine YIU	16-Feb-21

4.2 *Approvals*

Recommendation from offering department(s) and School(s)/IPO

Offering Department/Program Unit	Position	Name	Date
Division of Humanities	Head of Division	Prof Christian A DANIELS	9-Feb-21

Recommending School/IPO	Position	Name	Date
School of Humanities & Social Science	Dean	Prof Kellee TSAI	16-Feb-21

Concurrence from other Schools or departments/units

School/Dept/Program Unit	Position	Name	Date

Week 1: Introduction

Week 2: Globalization and territoriality
- Paul Kennedy, *The Rise and Fall of the Great Powers: Economic Change and Military Conflict from 1500 to 2000* (New York: Vintage, 1987), pp. 194–274.
- Sven Beckert, "American Danger: United States Empire, Eurafrica, and the Territorialization of Industrial Capitalism, 1870–1950," *American Historical Review* 122, no. 4 (2017): 1137–70.

Week 3: Sea Power
- Alfred Thayer Mahan, *The Influence of Sea Power upon History, 1660–1783*, 5th ed. (Mineola: Dover, 1987 [1894]), selections.

Week 4: Land Power
- Christopher I. Beckwith, *Empires of the Silk Road: A History of Central Eurasia from the Bronze Age to the Present* (Princeton: Princeton University Press, 2009), pp. 183–262.
- H. J. Mackinder, "The Geographical Pivot of History" (1904), *Geographical Journal* 170, no. 4 (2004): 298–321.

Week 5: Empire without conquest
- Neil Smith, *American Empire: Roosevelt's Geographer and the Prelude to Globalization* (Berkeley: University of California Press, 2003), selections.
- Mark Mazower, *Governing the World: The History of an Idea* (New York: Penguin, 2012), chapter 5.

Week 6: Living Space
- Andreas Dorpalen, *The World of General Haushofer: Geopolitics in Action* (New York: Farrar & Rinehart, 1942), selections.
- Adolf Hitler, *Mein Kampf*, trans. Ralph Manheim (Boston: Mariner, 1999), pp. 131–44, 659–64.

Week 7: Dividing the World
- Mazower, *Governing the World*, chapter 6.
- Carl Schmitt, "The *Großraum* Order of International Law" (1939), in Carl Schmitt, *Writings on War*, ed. Timothy Nunan (Cambridge: Polity, 2011), pp. 75–124.
- Joshua Derman, "Prophet of a Partitioned World: Ferdinand Fried, 'Great Spaces,' and the Dialectics of Deglobalization, 1929–1950," *Modern Intellectual History*, forthcoming.

Week 8: Securing the American century
- Nicholas Spykman, *America's Strategy in World Politics* (New York: Harcourt, Brace & Co., 1942), selections.
- Stephen Wertheim, *Tomorrow, the World: The Birth of U.S. Global Supremacy* (Cambridge, MA: Harvard University Press, 2020), selections.

Week 9: The Cold War
- George F. Kennan, "The Sources of Soviet Conduct," *Foreign Affairs* (1947)
- John Lewis Gaddis, *Strategies of Containment: A Critical Appraisal of American National Security Policy During the Cold War*, rev. ed. (Oxford: Oxford University Press, 2005), selections.
- John H. Herz, "Rise and Demise of the Territorial State," *World Politics* 9, no. 4 (1957): 473–93.

Week 10: Globalization and its discontents
- Barry R. Posen, "Command of the Commons: The Military Foundation of U.S. Hegemony," *International Security* 28, no. 1 (2003): 5–46.
- Samuel P. Huntington, *The Clash of Civilizations and the Remaking of World Order* (New York: Simon & Schuster, 1996), selections.

Week 11: Realism redux
- John J. Mearsheimer, *The Tragedy of Great Power Politics*, rev. ed. (New York: Norton, 2014), pp. 55–137.
- Zbiginew Brzezinski, *The Grand Chessboard: American Primacy and its Geostrategic Imperatives*, 2nd ed. (New York: Basic Books, 2016), selections.

Week 12: Redividing the world
- Marlène Laruelle, *Russian Eurasianism: An Ideology of Empire* (Baltimore: Johns Hopkins University Press, 2012), selections.
- Bruno Macaes, *Belt and Road: A Chinese World Order* (London: Hurst, 2018), selections.

Week 13: Perspectives
- Robert D. Kaplan, *The Revenge of Geography: What the Map Tells Us About Coming Conflicts and the Battle Against Fate* (New York: Random House, 2013), selections.
- Anne-Marie Slaughter, *The Chessboard and the Web: Strategies of Connection in a Networked World* (New Haven: Yale University Press, 2017), selections.

THE HONG KONG UNIVERSITY OF SCIENCE AND TECHNOLOGY
Approval of Undergraduate Course

Section 1: Academic Administration [1]

1.1 Catalog

a) Course to be effective from: Academic Year 2020/21   Term Summer

b) Department Code[3]: SHSS   Subject Area[3]: *SHSS*   Course Number [4]: SHSS 1050

    Previous Course Code[5]:

c) Full Title[6] *(max. 100 characters)*: Humanities and Social Science Co-op Program

d) Abbreviated Title[7] *(max. 30 characters)*: SHSS Co-op

e) Course Credits[8]:   (✓) Fixed: 3   ( ) Range: From   To

f) Catalog Description[9] *(word limit = 150)*:

> This course aims to engage students in working as an intern at an internship partner workplace in order to gain work experience while being guided by an alumni mentor and/or the staff of the DAO and SHSS program office. Course assessments will be based on students' written reports and supervisors' evaluation. Credits will only be granted for working at an internship partner recognized by DAO and SHSS. Course enrollment excludes SHSS students in their final year. Instructor's approval is required for enrolling in the course. Graded P or F.

g) Grading Type[10]:   ( ) Letter Grades   ( ) Distinction/Credit/Pass/Fail   (✓) Pass/ Fail

      ( ) Distinction/Pass/Fail   [ ] Others *(please specify)*:

h) [ ] Prerequisites[11]:

Course Code / Public Exam	Course Title / Exam Subject and Level / Grade attained

i) [ ] Corequisites[12]:

Course Code	Course Title

j) [ ] Exclusions[13]:

Course Code / Public Exam	Course Title / Exam Subject and Level / Grade attained

k) [ ] Co-listing[14]:   [ ] Multi-coding[14]:

Course Code	Course Title

l) Other Enrollment Restrictions[15] ◯ No ⊘ Yes

    ☑ Instructor's approval required

    ☑ Restricted to specified student group(s)
    (please specify, e.g. year and program of study):   SHSS students in Year 2 and 3

    ☐ Others *(please specify):*

m) Medium of Instruction/Materials[16]: ◯ English ⊘ Others, (Pls specify and provide a justification in Section 1.3):

                                                      Cantonese, Mandarin, English or other languages that are deemed appropriate

n) Allow course repetition for credit[17]: ⊘ No ◯ Yes

1.2 Contribution of course to Programs of Study *[Check all appropriate boxes below]*

☑ Major

Program of Study	As		
Global China Studies Quantitative Social Analysis	☐ Required Course	☑ Elective	☐ Prerequisite

☐ Minor

Program of Study	As		
	☐ Required Course	☐ Elective	☐ Prerequisite

☐ Common Core

☐ Others (pls specify):

Program of Study	As		
	☐ Required Course	☐ Elective	☐ Prerequisite

1.3 Rationale for Introducing this course and other relevant information [18]

<u>**Rationale**</u>

Today, university students face unprecedented challenges due to rapidly changing social, technological and economic conditions. A Co-operative Education (Co-op) program aims to address these challenges by enabling students to apply knowledge learned in the classroom to the workplace, to develop their career goals, and to acquire practical, industry-specific skills that will help them to adjust easily to the workplace upon graduation.

Many alumni entrepreneurs and alumni in senior management are keen to recruit HKUST talents, providing fellow alumni with a training opportunity which enables them to transition smoothly to the marketplace. This program will tap into the alumni network to provide work experience as well as mentorship for students enrolled in this program.

<u>**Other Relevant Information**</u>

In the workplace, English, Cantonese, and/or other languages may be used in some situations. Language requirements will be made clear to students before they decide to enroll in the course.

Section 2A: Learning Outcomes and Alignment *(for courses not proposed to be Common Core Courses)*

2.1 Key Course Intended Learning Outcomes *(Should not normally exceed six or eight outcomes)*

Upon completion of this course, students are expected to be able to do the following:

	Course ILOs	Nature of the learning outcomes (A - Knowledge/Content Related; B - Academic Skills/Competencies; C - Others)
1	Have developed practical, hands-on experience in an industry related to his/her studies and/or career interests;	B
2	Have improved his/her communication skills and techniques	B
3	Have applied what s/he had learnt to the workplace	A
4	Have built an evidence-based work portfolio.	B
5		
6		
7		
8		

2.2 Contribution of Learning Outcomes to Programs of Study identified in Section 1.2
(Please also complete Section 4.1)

	Program of study 1: _____Global China Studies_____ Program ILOs	To be achieved through these course ILOs *(Write CILO-1, CILO-2, etc.)*
1	Applying knowledge in humanities / social science to study issues of social or cultural significance	CILO-3
2	Applying knowledge in humanities / social science to study issues relating to China and the world	CILO-3
3	Develop students' academic and self-learning skills	CILO-1, CILO-2, CILO-3
4	Enhance students' academic writing competence	CILO-2, CILO-4
5		
6		
7		
8		

	Program of study 2: _____Quantitative Social Analysis_____ Program ILOs	To be achieved through these course ILOs *(Write CILO-1, CILO-2, etc.)*
1	Describe differences between the major social science disciplines, especially in reference to their dominant paradigms, topics and subjects of concern, and approaches to the use of quantitative methods.	CILO-1, CILO-3
2	Define a research question that involves the analysis of social data, situate it within the existing literature(s) of one or more of the major social science disciplines, and identify the quantitative methodologies most appropriate for addressing it.	CILO-1, CILO-3
3	Recognize and describe the special challenges to drawing conclusions from the analysis of social data posed by issues such as selection, endogeneity, and omitted variable bias.	CILO-1, CILO-3
4	Locate existing datasets that will help them answer their question, or if	CILO-1, CILO-3

	there are no relevant datasets, collect new data.	
5	Design analysis to minimize the risk that observed relationships are spurious or artefactual.	CILO-1, CILO-3
6	Manage complex datasets to prepare them for analysis by using scripting facilities or programming languages that are routinely included as part of statistical software packages such as STATA.	CILO-1, CILO-3
7	Carry out analysis using advanced methods.	CILO-1, CILO-3
8	Communicate results in writing and via presentations to lay audiences.	CILO-2, CILO-4

Section 2B: Additional Information[(2)] *(for courses not proposed to be Common Core Courses)*

2.3 *Planned Teaching & Learning Arrangement*

Teaching & Learning Arrangement		Weekly Scheduled Hours/ Estimated Weekly Learning Hours	Indicate which course ILOs this activity serves to achieve *(Write CILO-1, CILO-2, etc.)*	Additional Information *(optional)*
Face-to-face activities	☐ Lecture*			
	☐ Tutorial*			
	☐ Seminar/Small-class*			
	☐ Laboratory*			
	*Does the above scheduled component(s) involve structured active learning activities? [(19)] ◯ No ◯ Yes *If yes, please specify for each scheduled component, the percentage and the type of active learning involved in the "Additional Information" column.*			
	☑ Others (e.g. fieldtrip, visit, etc.), *pls specify:* Work placement	10	CILO-1 to CILO-4	
Online activities	☐ Online lecture videos			
	☐ Other online learning tasks, *pls specify:*			
The total learning hours of the course# is equivalent to <u>a minimum of 150</u> hours [(8)] *# including both scheduled instructional hours and hours for self-study activities & assessment*				

- *For course adopting a pedagogic approach other than lecture, tutorial and laboratory, please indicate the pedagogy used:*

  ◯ Blended learning [(20)]   ◯ Pure online delivery [(21)]

  ◯ Experiential learning [(22)]   ◯ Others, *pls specify:*_____

2.4 *Planned Assessment Weightings*

Assessment Task	Proportion of Final Grade (%)	Indicate which course ILOs this task is to assess *(Write CILO-1, CILO-2, etc.)*	Additional Information *(optional)*
☐ In-class test			
☐ Mid-term test			
☐ Final exam			
☐ Written assignment			
☐ Project report			
☐ Presentation			
☑ **Learning portfolio**	**90%**	**CILO-1 to CILO-4**	
☐ Course participation			
☐ Peer evaluation			
☑ Others (e.g. proctored online exam, etc.), *pls specify:* _Supervisor's evaluation_____	**10%**	**CILO-1**	

2.5   Course Duration

    (✓) 1 term   ( ) 2 terms   ( ) Others, *pls specify:* _____

2.6   Planned Frequency of Offerings *[Check all appropriate boxes]:*

    [ ] Every Fall   [ ] Every Winter

    [ ] Every Spring   [ ] Every Summer

    [✓] No fixed pattern

    [ ] Other *(pls specify):* _____

2.7   Course outline attached   (✓) No   ( ) Yes

    • **Internationalization:**

Internationalization in a course refers to course content and/or pedagogic approaches which incorporate an intercultural and international perspective. Examples may include:
- Collaboration with overseas institutions to develop and adopt international course content, or to arrange international field trip
- Insertion of international theme as part of the course
- Integrating the course content with international material as examples or case studies
- Elements to provide global diversified perspectives and/or practices around the world

Please briefly list or summarize any component(s) in the course that contributes to internationalizing the curriculum:

2.8   Resources

    Request extra resources for teaching this course?   (✓) No   ( ) Yes

Section 4: Development, Concurrence and Approval

4.1 *Contribution to the Program Learning Outcomes*

The course is confirmed by the following Major/Minor program department(s)/unit(s) as indicated in Section 1.2 that it would contribute appropriately to overall program learning outcomes.

Department/Program unit	Position	Name	Date
School of Humanities & Social Science	Associate Dean	Prof Carine YIU	9-Feb-21

4.2 *Approvals*

Recommendation from offering department(s) and School(s)/IPO

Offering Department/Program Unit	Position	Name	Date
Development & Alumni Office	Director	Miss Daisy CHAN	9-Feb-21

Recommending School/IPO	Position	Name	Date
School of Humanities & Social Science	Dean	Prof Kellee TSAI	9-Feb-21

Concurrence from other Schools or departments/units

School/Dept/Program Unit	Position	Name	Date

THE HONG KONG UNIVERSITY OF SCIENCE AND TECHNOLOGY
Approval of Undergraduate Course

Section 1: Academic Administration [(1)]

1.1 Catalog

a) Course to be effective from: Academic Year 2023-2024   Term Fall

b) Department Code[(3)]: IPO   Subject Area[(3)]: ENVR   Course Number [(4)]: 2080

    Previous Course Code[(5)]: N/A

c) Full Title[(6)] *(max. 100 characters)*: Circular Economy and Life Cycle Assessment

d) Abbreviated Title[(7)] *(max. 30 characters)*: Circular Econ and LCA

e) Course Credits[(8)]:   (X) Fixed: 3   ( ) Range: From   To

f) Catalog Description[(9)] *(word limit = 150)*:

> This course identifies the purpose of green finance as a means to promote and enable sustainable and resource-conserving economic systems.
>
> While viable benchmarks and concepts for sustainable development exist, economic decision-makers and financial institutions by and large still focus on economic profit, leaving environmental and societal sustainability outside of their cost-benefit assessments. In order to provide an alternative approach that guides financial investment towards green ventures, the course offers insights into sustainable development concepts and respective assessment mechanisms for sustainable corporate performance. These concepts and mechanisms are exemplified in the Circular Economy (CE) and Life Cycle Assessment (LCA), which constitute increasingly important elements in sustainable development.
>
> By adopting a multidisciplinary perspective, the classes cover the fundamentals of sustainable concepts, benchmarks on how to measure sustainable performance in the economic domain (i.e., at the corporate-, meso- and system-level) and empirical cases on how green finance has and can make a difference to promote sustainable growth.

g) Grading Type[(10)]:   (X) Letter Grades   ( ) Distinction/Credit/Pass/Fail   ( ) Pass/ Fail

    ( ) Distinction/Pass/Fail   [ ] Others *(please specify)*:

h) [x] Prerequisites[(11)]:

Course Code / Public Exam	Course Title / Exam Subject and Level / Grade attained
SUST1000	Introduction to Sustainability

i) [ ] Corequisites[(12)]:

Course Code	Course Title

j) [ ] Exclusions[(13)]:

Course Code / Public Exam	Course Title / Exam Subject and Level / Grade attained

k) [ ] Co-listing[(14)]:   [ ] Multi-coding[(14)]:

Course Code	Course Title

l)   Other Enrollment Restrictions(15)   (X) No   ( ) Yes

☐ Instructor's approval required

☐ Restricted to specified student group(s)
   (please specify, e.g. year and program of study): _____

☐ Others *(please specify):* _____

m)   Medium of Instruction/Materials(16):   (X) English   ( ) Others, (Pls specify and provide a justification in Section 1.3): _____

n)   Allow course repetition for credit(17):   (X) No   ( ) Yes

1.2   Contribution of course to Programs of Study *[Check all appropriate boxes below]*

[x] Major

Program of Study	As		
BSc in Sustainable and Geeen Finance	[x] Required Course	☐ Elective	☐ Prerequisite

☐ Minor

Program of Study	As		
	☐ Required Course	☐ Elective	☐ Prerequisite

☐ Common Core

☐ Others (pls specify):

Program of Study	As		
Tbd.	☐ Required Course	☐ Elective	☐ Prerequisite

1.3   Rationale for Introducing this course and other relevant information (18)

In order to understand how financing can render systems located in the economy-environment-society nexus more green, it is important to analyse three core dimensions: (1) Which factors constitute current systems and how do they operate; (2) which are the benchmarks of sustainable systems and their operation; (3) at which instances can financial investments help to induce a shift from non-sustainable to sustainable development patterns. Given the paucity of sustainable operations in the economy, the novelty of the sustainability concept, and the urgency for a sustainable transformation due to anthropogenic forcing, this course intends to equip students with a basic understanding of current and desired mechanisms in this vast transformation.

By implication, the main idea is to first provide basic insights into the characteristics of the currently most prominent sustainability paradigm, the Circular Economy, and selected indicator benchmarks for guiding the decision-making process in green finance.

In the second instance, the course introduces the Life Cycle Assessment (LCA) tool to provide a holistic assessment of emerging technologies, new products, and engineering systems and helps to identify opportunities for improving product designs to conserve resources and reduce pollution. The integration of environmental LCA can provide a measure of scope 3 carbon emissions (carbon footprints) and other environmental impacts of investment portfolios. Social LCA complements environmental LCA by measuring the impacts on society, including the challenge of child labor and worker health. The life cycle cost (LCC) offers an insight into the financial cost for investing in sustainable projects from a cost-benefit perspective. The introduction of environmental, economic, and social LCA will help students equip themselves with the capacity to understand and quantify the "green" component of financial projects.

Based on this tool-set, students will be confronted with various cases, which have to be solved in groups. Essentially, the task lies in using financial means (public, corporate, societal) to render system operations, products, and corporate processes sustainable. By exposing students to such causal mechanisms, i.e., how financial inputs do or don't induce processes/ products/ operations to be sustainable, the course will train a specific mindset currently sought by financial regulators and institutions.

Section 2A: Learning Outcomes and Alignment *(for courses not proposed to be Common Core Courses)*

2.1 **Key Course Intended Learning Outcomes** *(Should not normally exceed six or eight outcomes)*

Upon completion of this course, students are expected to be able to do the following:

	Course ILOs	Nature of the learning outcomes (A - Knowledge/Content Related; B - Academic Skills/Competencies; C - Others)
1	Understanding the idea of the CE, its role in the future, and the function of Green Finance to promote CE related business ventures	A, B
2	Master key benchmarks/ indicators for assessing corporate CE performance & thereupon decide over green finance investment strategies/ approaches	A,B
3	Understand the principles of environmental, social, and economic life cycle assessment	A
4	Interpret and explain the conclusion from the life cycle assessment	B
5	Apply the life cycle assessment framework and circular economy perspectives for supporting investment decisions	B

2.2 **Contribution of Learning Outcomes to Programs of Study identified in Section 1.2**
(Please also complete Section 4.1)

	Program of study 1: _____BSc in Sustainable and Green Finance_____ Program ILOs	To be achieved through these course ILOs *(Write CILO-1, CILO-2, etc.)*
1	Have a broad understanding of sustainable and green business functions and integrate these functions to adopt an inter-disciplinary approach and formulate effective and innovative solutions to tackle complex real-world problems.	1, 5
2	Have an in-depth grasp of Sustainable and green finance knowledge and skills, and transfer acquired knowledge and skills to meet changes and challenges in different fields.	1-5
3	Engage in activities that lead to the impact of societal improvement	1
4	Make effective ESG finance decisions supported by analytical and quantitative techniques	2-5
5	Have the ability to create and innovate with divergent thinking	2,4,5
6	Communicate effectively with people of different levels and work areas.	5
7	Work independently, collaborate effectively in teams, and lead a team to success	4,5
8	Demonstrate a global outlook and function effectively in multi-cultural and international settings.	1
9	Effectively use information technology and sources of information in work applications	4,5
10	Understand professional and ethical responsibility, and recognize the importance of a sustainable and green living society	1-5

Section 2B: Additional Information[2] *(for courses not proposed to be Common Core Courses)*

2.3   *Planned Teaching & Learning Arrangement*

	Teaching & Learning Arrangement	Weekly Scheduled Hours/ Estimated Weekly Learning Hours	Indicate which course ILOs this activity serves to achieve *(Write CILO-1, CILO-2, etc.)*	Additional Information *(optional)*
Face-to face activities	☒ Lecture*	3	**CILO-1-5**	
	☐ Tutorial*			
	☐ Seminar/Small-class*			
	☐ Laboratory*			
	*Does the above scheduled component(s) involve structured active learning activities? [19] ◯ No ◯ Yes *If yes, please specify for each scheduled component, the percentage and the type of active learning involved in the "Additional Information" column.*			
	☐ Others (e.g. fieldtrip, visit, etc.), *pls specify:* _____			
Online activities	☐ Online lecture videos			
	☐ Other online learning tasks, *pls specify:* _____			
The total learning hours of the course# is equivalent to ____120_____ hours [8] *# including both scheduled instructional hours and hours for self-study activities & assessment*			

O   *For course adopting a pedagogic approach other than lecture, tutorial and laboratory, please indicate the pedagogy used:*

◯ Blended learning [20]   ◯ Pure online delivery [21]

◯ Experiential learning [22]   ◯ Others, *pls specify:*_____

2.4 Planned Assessment Weightings

Assessment Task	Proportion of Final Grade (%)	Indicate which course ILOs this task is to assess (Write CILO-1, CILO-2, etc.)	Additional Information (optional)
☐ In-class test			
☒ Mid-term test	30	CILO-1 to CILO-3	Assessment of students' understanding of the course basics via a written mid-term (standardized questions)
☐ Final exam			
☒ Written assignment	15	CILO-1 to CILO-5	Personal reflection paper; aims to discern students' incorporation of acquired knowledge into their professional life
☒ Project report	40	CILO-1 to CILO-5	Based on a given task assigned student groups have to produce a project report. Metrics centre on CILOs and individual innovativeness
☐ Presentation			
☐ Learning portfolio			
☒ Course participation	10	n.a.	Measurement: Presence in class and frequency of comments & questions made in class
☒ Peer evaluation	5	n.a.	Measurement: Participation and activity in groups for working on the project report
☐ Others (e.g. proctored online exam, etc.), *pls specify:* _____			

2.5   **Course Duration**

    (x) 1 term   ( ) 2 terms   ( ) Others, *pls specify:* _____

2.6   **Planned Frequency of Offerings** *[Check all appropriate boxes]***:**

☐ Every Fall	☐ Every Winter
☒ Every Spring	☐ Every Summer
☐ No fixed pattern	
☐ Other *(pls specify):* _____	

2.7   **Course outline attached**   ( ) No   (x) Yes

    O **Internationalization:**

Internationalization in a course refers to course content and/or pedagogic approaches which incorporate an intercultural and international perspective. Examples may include:
- Collaboration with overseas institutions to develop and adopt international course content, or to arrange international field trip
- Insertion of international theme as part of the course
- Integrating the course content with international material as examples or case studies
- Elements to provide global diversified perspectives and/or practices around the world

Please briefly list or summarize any component(s) in the course that contributes to internationalizing the curriculum:

> Given the various approaches towards green bonds, this course will use a set of case examples and best case practices from all over the world to expose students to the latest trends and approaches towards sustainability assessment and economic approaches.

2.8   **Resources**

    Request extra resources for teaching this course?   ( ) No   (x) Yes

Section 3: Learning Outcomes and Alignment *(for Common Core Course)* NOT APPLICABLE

Section 4: Development, Concurrence and Approval

4.1 Contribution to the Program Learning Outcomes

The course is confirmed by the following Major/Minor program department(s)/unit(s) as indicated in Section 1.2 that it would contribute appropriately to overall program learning outcomes.

Department/Program unit	Position	Name	Date
Division of Environment & Sustainability	Head of Division	Prof Alexis LAU	16-Feb-21

4.2 Approvals

Recommendation from offering department(s) and School(s)/IPO

Offering Department/Program Unit	Position	Name	Date
Division of Environment & Sustainability	Head of Division	Prof Alexis LAU	16-Feb-21

Recommending School/IPO	Position	Name	Date
Interdisciplinary Programs Office	Chair of IUSC	Prof Jimmy FUNG	19-Feb-21

Concurrence from other Schools or departments/units

School/Dept/Program Unit	Position	Name	Date

Attachment 1: Course Outline

Week	Topics	Briefly outline what this topic will cover *(Include reading assignments if available)*
1	Sustainable development and Green Finance	Concept, history, and principals
2	Circular Economy	Concept & history
3	The CE in practice	Applications at systemic, corporate & product levels
4	CE indicators and benchmarks	
5	Assessment tools for CE: Framework for LCA	Framework for environmental LCA
6		Social LCA
7		Life Cycle Costing
8	CE and LCA approaches for green finance and comparison / complementary tools	
9		
10	Synergies for CE& LCA & Sector-specific case examples	Construction, Energy & Transport, Agriculture etc.
11		
12		
13	Group Project Presentations	

THE HONG KONG UNIVERSITY OF SCIENCE AND TECHNOLOGY
Approval of Undergraduate Course

Section 1: Academic Administration [1]

1.1 Catalog

a) Course to be effective from: Academic Year 2023-2024   Term Fall

b) Department Code[3]:   IPO   Subject Area[3]:   ENVR   Course Number [4]:   3005

   Previous Course Code[5]:

c) Full Title[6] *(max. 100 characters)*:   Environmental Sustainability: Risks and Challenges

d) Abbreviated Title[7] *(max. 30 characters)*:   Environmental Sustainability

e) Course Credits[8]:   (X) Fixed: 3   ( ) Range: From _____ To _____

f) Catalog Description[9] *(word limit = 150)*:

> Human development is fundamentally supported by natural resources. Environmental sustainability ensures the responsible consumption of these resources while maintaining their regenerations without sacrificing the needs of future generations. The course covers the general understanding of key factors contributing to the rates of non-renewable resource depletion, renewable resources recovery, and pollution generation. Emergent challenges to environmental sustainability include energy, food, land use, water resource, and novel chemicals. Risks associated with these challenges like climate change, water scarcity, and soil degradation, ecosystem health, and biodiversity loss will be assessed. These risks will become catastrophic if no proper action is taken in view of the current rate of human development. Hence, the course outlines the fundamental concepts and practices of managing environmental risks: prevention, preparedness, response, and recovery (PPRR). Fundamental risk analysis techniques will also be introduced to identify and quantify the environmental risks.

g) Grading Type[10]:   (x) Letter Grades   ( ) Distinction/Credit/Pass/Fail   ( ) Pass/ Fail
   ( ) Distinction/Pass/Fail   [ ] Others *(please specify)*: _____

h) [x] Prerequisites[11]:

Course Code / Public Exam	Course Title / Exam Subject and Level / Grade attained
SUST1000	Introduction to Sustainability

i) [ ] Corequisites[12]:

Course Code	Course Title

j) [ ] Exclusions[13]:

Course Code / Public Exam	Course Title / Exam Subject and Level / Grade attained

k) [ ] Co-listing[14]:   [ ] Multi-coding[14]:

Course Code	Course Title

l) Other Enrollment Restrictions[15]   (x) No   ( ) Yes

   [ ] Instructor's approval required

   [ ] Restricted to specified student group(s)
   (please specify, e.g. year and program of study): _____

   [ ] Others *(please specify)*: _____

m)   Medium of Instruction/Materials[16]:   (X) English   ( ) Others, (Pls specify and provide a justification in Section 1.3):
_____

n)   Allow course repetition for credit[17]:   (X) No   ( ) Yes

1.2   Contribution of course to Programs of Study *[Check all appropriate boxes below]*

[X] Major

Program of Study	As		
BSc in Sustainable and Green Finance	[X] Required Course	[ ] Elective	[ ] Prerequisite

[ ] Minor

Program of Study	As		
	[ ] Required Course	[ ] Elective	[ ] Prerequisite

[ ] Common Core

[ ] Others (pls specify):

Program of Study	As		
	[ ] Required Course	[ ] Elective	[ ] Prerequisite

1.3   Rationale for Introducing this course and other relevant information [18]

Human development deploys extensive environmental resources. For sustainable development that future generations will not be jeopardized to their needs, the resources deployment rate should not be greater than that of the natural regeneration capability; or else, depletion of the resources. Beyond the rate of resource depletion, anthropogenic development induces a severe impact on the land-use change for agriculture for food and shelter, fossil fuel mines for energy. Not only are natural habitats destroyed, leading to biodiversity loss, the balance between the carbon sink and source is also disrupted as a result of extensive deforestation and excessive GHG emission from fossil fuel consumption; and consequentially the climate change (warming, extreme weathers, loss of glaciers, flooding, etc.). These damages to the environment can be catastrophic and irreversible if no appropriate actions are taken. Can human development or even humankind be sustainable?

Environmental sustainability becomes a crucial topic at the present time, emphasizing preserving the capability of the environment to recover itself. The understanding of Environmental Sustainability is also vital for sustainable finance and/or investments. The course will walk students through the current scenarios of the major environmental challenges (energy, land-use change, biodiversity loss, and climate change), identify the potential risks associated with these challenges. Fundamental risk analytical techniques will help students quantify these risks for better management. The Prevention, Preparedness, Response, and Recovery (PPRR) will provide students fundamental environmental management skills in maintaining environmental sustainability in supporting human development and growth. These skills are also applicable in quantifying and assessing the risks of sustainable finance or investments.

Section 2A: Learning Outcomes and Alignment *(for courses not proposed to be Common Core Courses)*

2.1 *Key Course Intended Learning Outcomes (Should not normally exceed six or eight outcomes)*

Upon completion of this course, students are expected to be able to do the following:

	Course ILOs	Nature of the learning outcomes (A - Knowledge/Content Related; B - Academic Skills/Competencies; C - Others)
1	Describe the challenges on environmental sustainability	A
2	Identify the potential environmental risks that threaten the sustainable development	A, B
3	Quantify the degree of environmental risks and assess the impacts on financial investment	A, B
4	Apply the Prevention, Preparedness, Response and Recovery (PPRR)	B
5	Develop a holistic analysis on challenges, risks, and solutions in the context of sustainable and green finance	B
6	Nurture stewardship in sustainable finance professionals/practitioners for environmental sustainability	C (attitude)
7		
8		

2.2 *Contribution of Learning Outcomes to Programs of Study identified in Section 1.2*
(Please also complete Section 4.1)

	Program of study 1: __ BSc in Sustainable and Green Finance_____ Program ILOs: Graduates from the program are expected to:	To be achieved through these course ILOs *(Write CILO-1, CILO-2, etc.)*
1	have a broad understanding of Sustainable and green business functions and integrate these functions to adopt an inter-disciplinary approach and formulate effective and innovative solutions to tackle complex real-world problems.	CILO1, CILO2, CILO3, CILO4
2	have an in-depth grasp of Sustainable and green finance knowledge and skills, and transfer acquired knowledge and skills to meet changes and challenges in different fields.	CILO3, CILO4, CILO5
3	engage in activities that lead to the impact of societal improvement.	CILO5, CILO6
4	make effective ESG finance decisions supported by analytical and quantitative techniques.	CILO3, CILO5
5	have the ability to create and innovate with divergent thinking.	CILO5
6	communicate effectively with people of different levels and work areas.	CILO5, CILO6
7	work independently, collaborate effectively in teams and lead a team to success.	CILO5
8	demonstrate a global outlook and function effectively in multi-cultural and international settings.	CILO5, CILO6
9	effectively use information technology and sources of information in work applications.	CILO4, CILO5
10	understand professional and ethical responsibility, and recognize the importance of a sustainable and green living society.	CILO6

Section 2B: Additional Information[2] *(for courses not proposed to be Common Core Courses)*

2.3 Planned Teaching & Learning Arrangement

<table>
<tr><th colspan="2">Teaching & Learning Arrangement</th><th>Weekly Scheduled Hours/ Estimated Weekly Learning Hours</th><th>Indicate which course ILOs this activity serves to achieve
(Write CILO-1, CILO-2, etc.)</th><th>Additional Information
(optional)</th></tr>
<tr><td rowspan="6">*Face-to face activities*</td><td>[x] Lecture*</td><td>3/5</td><td>CILO1, CILO2, CILO3, CILO4</td><td></td></tr>
<tr><td>[ ] Tutorial*</td><td></td><td></td><td></td></tr>
<tr><td>[x] Seminar/Small-class*</td><td>0/1</td><td>CILO5, CILO6</td><td>Project guidance/Case discussion</td></tr>
<tr><td>[ ] Laboratory*</td><td></td><td></td><td></td></tr>
<tr><td colspan="4">*Does the above scheduled component(s) involve structured active learning activities? [19]
( ) No
( ) Yes   *If yes, please specify for each scheduled component, the percentage and the type of active learning involved in the "Additional Information" column.*</td></tr>
<tr><td>[x] Others (e.g. fieldtrip, visit, etc.), *pls specify:*
Hong Kong Observatory, Daya Bay Nuclear Plant etc
_____</td><td></td><td>CILO 6</td><td>**Will arrange as far as possible for student's better understanding on Climate Risk, Nuclear Risk, etc**</td></tr>
<tr><td rowspan="2">*Online activities*</td><td>[ ] Online lecture videos</td><td></td><td></td><td></td></tr>
<tr><td>[ ] Other online learning tasks, *pls specify:*
_____</td><td></td><td></td><td></td></tr>
<tr><td colspan="5">The total learning hours of the course# is equivalent to ___120___ hours [8]
 # including both scheduled instructional hours and hours for self-study activities & assessment</td></tr>
</table>

- For course adopting a pedagogic approach other than lecture, tutorial and laboratory, please indicate the pedagogy used:

( ) Blended learning [20]   ( ) Pure online delivery [21]

( ) Experiential learning [22]   ( ) Others, *pls specify:*_____

2.4 Planned Assessment Weightings

<table>
<tr><th>Assessment Task</th><th>Proportion of Final Grade (%)</th><th>Indicate which course ILOs this task is to assess
(Write CILO-1, CILO-2, etc.)</th><th>Additional Information *(optional)*</th></tr>
<tr><td>[ ] In-class test</td><td></td><td></td><td></td></tr>
<tr><td>[ ] Mid-term test</td><td></td><td></td><td></td></tr>
<tr><td>[x] Final exam</td><td>50%</td><td>CILO1, CILO2, CILO3, CILO4, CILO5</td><td></td></tr>
<tr><td>[ ] Written assignment</td><td></td><td></td><td></td></tr>
<tr><td>[x] Project report</td><td>20%</td><td>CILO 1, CILO2, CILO3, CILO4, CILO5, CILO6</td><td>**Group project on environmental risks and challenges**</td></tr>
<tr><td>[x] Presentation</td><td>10%</td><td>CILO 1, CILO2, CILO3, CILO4, CILO5, CILO6</td><td>**Project presentation**</td></tr>
<tr><td>[ ] Learning portfolio</td><td></td><td></td><td></td></tr>
<tr><td>[x] Course participation</td><td>10%
10%</td><td>CILO5, CILO6</td><td>**In-class and project discussion**
Visit Report and Reflection</td></tr>
<tr><td>[ ] Peer evaluation</td><td></td><td></td><td></td></tr>
<tr><td>[ ] Others (e.g. proctored online exam, etc.), *pls specify:*
_____</td><td></td><td></td><td></td></tr>
</table>

2.5 *Course Duration*

(x) 1 term   ( ) 2 terms   ( ) Others, *pls specify:* _____

2.6 *Planned Frequency of Offerings* [Check all appropriate boxes]**:**

[x] Every Fall   [ ] Every Winter

[ ] Every Spring   [ ] Every Summer

[ ] No fixed pattern

[ ] Other *(pls specify):* _____

2.7 *Course outline attached*   ( ) No   (x) Yes

- **Internationalization:**

Internationalization in a course refers to course content and/or pedagogic approaches which incorporate an intercultural and international perspective. Examples may include:
- Collaboration with overseas institutions to develop and adopt international course content, or to arrange international field trip
- Insertion of international theme as part of the course
- Integrating the course content with international material as examples or case studies
- Elements to provide global diversified perspectives and/or practices around the world

Please briefly list or summarize any component(s) in the course that contributes to internationalizing the curriculum:

- Environmental and Climate challenges and risks are global in nature, cases and examples (shrinkage of polar ice extent, renewable energy, food, etc) are with highly international perspective.

- Project works facilitate students in transferring the knowledge and analytical skills from class to the studied countries not covered in the classes.

2.8 *Resources*

Request extra resources for teaching this course?   (X) No   ( ) Yes

Section 4: Development, Concurrence and Approval

4.1 Contribution to the Program Learning Outcomes

The course is confirmed by the following Major/Minor program department(s)/unit(s) as indicated in Section 1.2 that it would contribute appropriately to overall program learning outcomes.

Department/Program unit	Position	Name	Date
Division of Environment & Sustainability	Head of Division	Prof Alexis LAU	16-Feb-21

4.2 Approvals

Recommendation from offering department(s) and School(s)/IPO

Offering Department/Program Unit	Position	Name	Date
Division of Environment & Sustainability	Head of Division	Prof Alexis LAU	16-Feb-21

Recommending School/IPO	Position	Name	Date
Interdisciplinary Programs Office	Chair of IUSC	Prof Jimmy FUNG	19-Feb-21

Concurrence from other Schools or departments/units

School/Dept/Program Unit	Position	Name	Date

Attachment 1:   Course Outline

Week No	Topic
1	Introduction to Environmental Challenges and Risk: Impact on Finance Investment
2	Human Thriving and Planet Boundary
3	Environmental Sustainability Challenge: Energy
4	Environmental Sustainability Challenge: Agriculture and Land Use Change
5	Environmental Sustainability Challenge: Water
6	Environmental Risk: Climate and Extreme Weather
7	Environmental Risk: Biodiversity Loss and Ecosystem Health Degradation
8	Environmental Risk: Emerging Diseases and Human Health
9	Environmental Risk Management: Prevention, Preparedness, Response and Recovery (PPRR)
10	Environmental Risk Management: Prevention, Preparedness, Response and Recovery (PPRR)
11	Fundamental Risk Analysis Techniques
12	Fundamental Risk Analysis Techniques
13	Project Presentation

THE HONG KONG UNIVERSITY OF SCIENCE AND TECHNOLOGY
Approval of Undergraduate Course

Section 1: Academic Administration [(1)]

1.1 *Catalog*

a) Course to be effective from: Academic Year   **2023-2024**   Term   **Fall**

b) Department Code[(3)]:   **IPO**   Subject Area[(3)]:   **ENVR**   Course Number [(4)]:   **4340**

     Previous Course Code[(5)]:   **N/A**

c) Full Title[(6)] *(max. 100 characters)*:   Social Sustainability: Risks and Challenges

d) Abbreviated Title[(7)] *(max. 30 characters)*:   Social Sustainability

e) Course Credits[(8)]:   (X) Fixed: 3   ( ) Range: From   To

f) Catalog Description[(9)] *(word limit = 150)*:

> Social sustainability is the least defined and least understood of the different ways of approaching sustainability. Nevertheless, reflecting on countries or regions where internal conflicts are fierce, it is clear that environmental or economic sustainability would be difficult without social stability or sustainability. In this course, referencing the Sustainable Development Goals (SDG) championed by the United Nations, we shall examine the challenges regarding social sustainabilities. This course shall first provide a review of the SDGs, highlighting the SDGs related to social sustainability and using them to discuss how their progress is measured and improved in various counties. The course shall also discuss existing and emerging challenges to social sustainability and the risks and impacts when countries fail to improve upon these goals. Case studies and quantitative analyses will be used as much as possible.

g) Grading Type[(10)]:   (X) Letter Grades   ( ) Distinction/Credit/Pass/Fail   ( ) Pass/ Fail

     ( ) Distinction/Pass/Fail   [ ] Others *(please specify)*:

h) [x] Prerequisites[(11)]:

Course Code / Public Exam	Course Title / Exam Subject and Level / Grade attained
SUST1000	Introduction to Sustainability

i) [ ] Corequisites[(12)]:

Course Code	Course Title

j) [ ] Exclusions[(13)]:

Course Code / Public Exam	Course Title / Exam Subject and Level / Grade attained

k) [ ] Co-listing[(14)]:   [ ] Multi-coding[(14)]:

Course Code	Course Title

l) Other Enrollment Restrictions[15]   (X) No   ( ) Yes

☐ Instructor's approval required

☐ Restricted to specified student group(s)
(please specify, e.g. year and program of study): _____

☐ Others *(please specify):* _____

m) Medium of Instruction/Materials[16]:   (X) English   ( ) Others, (Pls specify and provide a justification in Section 1.3):
_____

n) Allow course repetition for credit[17]:   (X) No   ( ) Yes

1.2 Contribution of course to Programs of Study *[Check all appropriate boxes below]*

[x] Major				
	Program of Study	**As**		
	BSc in Sustainable and Green Finance	[x] Required Course	☐ Elective	☐ Prerequisite

☐ Minor				
	Program of Study	**As**		
		☐ Required Course	☐ Elective	☐ Prerequisite

☐ Common Core

☐ Others (pls specify):				
	Program of Study	**As**		
		☐ Required Course	☐ Elective	☐ Prerequisite

1.3 Rationale for Introducing this course and other relevant information [18]

Social sustainability is the least defined and least understood of the different ways of approaching sustainability. Nevertheless, reflecting on countries or regions where internal conflicts are fierce, it is clear that environmental or economic sustainability would be difficult without social stability or sustainability. In this course, referencing the Sustainable Development Goals (SDG) championed by the United Nations, we shall examine the challenges we have regarding social sustainabilities.

This course shall first provide a review of the framework of the SDGs, their background, the targets of each SDG, and the indicator system used to measure and encourage progress across countries at a very different stage of development. The course will then focus on the goals more related to social sustainability, including 1 (no poverty), 2 (zero hunger), 3 (good health and well-being), 4 (quality education), 5 (gender equality), 10 (reduced inequalities), 11 (sustainable cities and communities), 16 (peace, justice, and strong institutions), and goal 17 (partnerships) through case studies. Examples will also be used to illustrate how the indicator system assesses and monitor the progress of these SDGs in improving social sustainability in different countries according to their developmental status. The course shall also discuss existing and emerging challenges to social sustainability and the risks and impacts when nations fail to improve upon these goals. Case studies and quantitative analyses will be used as much as possible.

Section 2A: Learning Outcomes and Alignment *(for courses not proposed to be Common Core Courses)*

2.1 *Key Course Intended Learning Outcomes (Should not normally exceed six or eight outcomes)*

Upon completion of this course, students are expected to be able to do the following:

	Course ILOs	Nature of the learning outcomes (A - Knowledge/Content Related; B - Academic Skills/Competencies; C - Others)
1	Describe the framework of the UN SDGs, their background, and the system for assessing their progress.	A
2	Review and comment on the latest development of the SDGs related to social sustainability (1,2,3,4,5,10,11,16 and 17) in key countries.	A, B
3	Deliberate the essential needs of social sustainability and associate the risks without social sustainability for a country's development.	A, B
4	Analyse how the interests of various stakeholders facilitate or hinder the attainment of these goals	B
5	Interpret case examples, understand how certain countries or regions managed to overcome difficulties, and make significant progress in recent years.	B
6	Critically evaluate the specific bottlenecks facing some countries or regions and make informed suggestions.	B

2.2 *Contribution of Learning Outcomes to Programs of Study identified in Section 1.2*
(Please also complete Section 4.1)

	Program of study 1: __BSc in Sustainable and Green Finance_____ Program ILOs: Graduates from the program are expected to:	To be achieved through these course ILOs *(Write CILO-1, CILO-2, etc.)*
1	have a broad understanding of Sustainable and green business functions and integrate these functions to adopt an inter-disciplinary approach and formulate effective and innovative solutions to tackle complex real-world problems.	CILO1, CILO2, CILO3, CILO4
2	have an in-depth grasp of Sustainable and green finance knowledge and skills, and transfer acquired knowledge and skills to meet changes and challenges in different fields.	CILO3, CILO4, CILO5
3	engage in activities that lead to the impact of societal improvement.	CILO5, CILO6
4	make effective ESG finance decisions supported by analytical and quantitative techniques.	CILO3, CILO5
5	have the ability to create and innovate with divergent thinking.	CILO5
6	communicate effectively with people of different levels and work areas.	CILO5, CILO6
7	work independently, collaborate effectively in teams and lead a team to success.	CILO5
8	demonstrate a global outlook and function effectively in multi-cultural and international settings.	CILO5, CILO6
9	effectively use information technology and sources of information in work applications.	CILO4, CILO5
10	understand professional and ethical responsibility, and recognize the importance of a sustainable and green living society.	CILO6

Section 2B: Additional Information[2] *(for courses not proposed to be Common Core Courses)*

2.3 Planned Teaching & Learning Arrangement

Teaching & Learning Arrangement		Weekly Scheduled Hours/ Estimated Weekly Learning Hours	Indicate which course ILOs this activity serves to achieve *(Write CILO-1, CILO-2, etc.)*	Additional Information *(optional)*
Face-to face activities	[x] Lecture*	3/5	CILO1, CILO2, CILO3, CILO4	
	[ ] Tutorial*			
	[x] Seminar/Small-class*	0/1	CILO5, CILO6	**Project guidance/Case discussion**
	[ ] Laboratory*			
	Does the above scheduled component(s) involve structured active learning activities? [19] ⃝ No ⊗ Yes *If yes, please specify for each scheduled component, the percentage and the type of active learning involved in the "Additional Information" column.*			
	[x] Others (e.g. fieldtrip, visit, etc.), *pls specify: Visiting social minority groups/communities in HK.*		CILO 6	**Will arrange as far as possible for student's better understanding of social inequity issues etc**
Online activities	[ ] Online lecture videos			
	[ ] Other online learning tasks, *pls specify:* _____			
	The total learning hours of the course# is equivalent to ___120___ hours [8] *# including both scheduled instructional hours and hours for self-study activities & assessment*			

- For course adopting a pedagogic approach other than lecture, tutorial and laboratory, please indicate the pedagogy used:

  ⃝ Blended learning [20]   ⃝ Pure online delivery [21]

  ⃝ Experiential learning [22]   ⃝ Others, *pls specify:*_____

2.4 Planned Assessment Weightings

Assessment Task	Proportion of Final Grade (%)	Indicate which course ILOs this task is to assess *(Write CILO-1, CILO-2, etc.)*	Additional Information *(optional)*
[ ] In-class test			
[ ] Mid-term test			
[x] Final exam	50%	CILO1, CILO2, CILO3, CILO4, CILO5	
[ ] Written assignment			
[x] Project report	20%	CILO 1, CILO2, CILO3, CILO4, CILO5, CILO6	**Group project work on social sustainability issues**
[x] Presentation	10%	CILO 1, CILO2, CILO3, CILO4, CILO5, CILO6	**Project presentation**
[ ] Learning portfolio			
[x] Course participation	10% 10%	CILO5, CILO6	**In-class and project discussion Visit Report and Reflection**
[ ] Peer evaluation			
[ ] Others (e.g. proctored online exam, etc.), *pls specify:* _____			

2.5   ***Course Duration***

      (x) 1 term   ( ) 2 terms   ( ) Others, *pls specify:* _____

2.6   ***Planned Frequency of Offerings*** *[Check all appropriate boxes]*:

[x] Every Fall		[ ] Every Winter
[ ] Every Spring		[ ] Every Summer
[ ] No fixed pattern		
[ ] Other *(pls specify):* _____		

2.7   ***Course outline attached***   ( ) No   (x) Yes

- **Internationalization:**

Internationalization in a course refers to course content and/or pedagogic approaches which incorporate an intercultural and international perspective. Examples may include:
- Collaboration with overseas institutions to develop and adopt international course content, or to arrange international field trip
- Insertion of international theme as part of the course
- Integrating the course content with international material as examples or case studies
- Elements to provide global diversified perspectives and/or practices around the world

Please briefly list or summarize any component(s) in the course that contributes to internationalizing the curriculum:

- Social sustainability is fundamentally social equity (gender, food, education, social mobility, etc.) agenda which is internationally relevant and applicable despite challenges and risks varies according to the developmental status of the country/region.
- Project works help students transfer the knowledge and analytical skills from class to the studied countries not covered in the classes.

2.8   ***Resources***

Request extra resources for teaching this course?   (X) No   ( ) Yes

Section 4: Development, Concurrence and Approval

4.1 Contribution to the Program Learning Outcomes

The course is confirmed by the following Major/Minor program department(s)/unit(s) as indicated in Section 1.2 that it would contribute appropriately to overall program learning outcomes.

Department/Program unit	Position	Name	Date
Division of Environment & Sustainability	Head of Division	Prof Alexis LAU	16-Feb-21

4.2 Approvals

Recommendation from offering department(s) and School(s)/IPO

Offering Department/Program Unit	Position	Name	Date
Division of Environment & Sustainability	Head of Division	Prof Alexis LAU	16-Feb-21

Recommending School/IPO	Position	Name	Date
Interdisciplinary Programs Office	Chair of IUSC	Prof Jimmy FUNG	19-Feb-21

Concurrence from other Schools or departments/units

School/Dept/Program Unit	Position	Name	Date

Attachment 1:   Course Outline

Week No	Topic
1	Introduction to Social Sustainability, the United Nations 17 Sustainability Development Goals (SDGs)
2	Targets and indicator system in assessing and monitoring the progress of the SDGs
3	Perspective and Challenges on SDG1 – No Poverty
4	Perspective and Challenges on SDG2 – Zero Hunger
5	Perspective and Challenges on SDG3 – Good Health & Well-being
6	Perspective and Challenges on SDG4 – Quality Education
7	Perspective and Challenges on SDG5 – Gender Equity
8	Perspective and Challenges on SDG 10 – Reduced Inequality
9	Perspective and Challenges on SDG11 – Sustainable Cities & Communities
10	Perspective and Challenges on SDG 16 – Peace, Justice & Strong Institutions
11	Perspective and Challenges on SDG 17 - Partnerships
12	Risks and Impacts with Social Sustainabilities
13	Project Presentation

THE HONG KONG UNIVERSITY OF SCIENCE AND TECHNOLOGY
Approval of Undergraduate Course

1.1 Catalog

a) Course to be effective from: Academic Year 2023-24   Term Spring

b) Department Code[(3)]: IPO   Subject Area[(3)]: ENVR   Course Number [(4)]: 4350

    Previous Course Code[(5)]: N/A

c) Full Title[(6)] *(max. 100 characters)*: Governing Green Finance: National and International Perspectives and Approaches

d) Abbreviated Title[(7)] *(max. 30 characters)*: Governing Green Finance

e) Course Credits[(8)]:   (X) Fixed: 3   ( ) Range: From _____ To _____

f) Catalog Description[(9)] *(word limit = 150)*:

> This course covers the study of the instruments of green finance and the organizations and/or institutions that design, implement, and monitors them, in short, the actors of and the dynamics in the governance of green finance. The course offers students an opportunity to review, evaluate, assess, appraise, and critique the various approaches and perspectives around the instruments, institutions, and challenges of green finance, nationally, regionally, and internationally. The course uses examples from cities, national governments, countries/states, regional institutions, and the United Nations to illustrate the processes of governing green finance. Using an interdisciplinary lens, the course uses concepts from public administration, public policy, international relations, development studies, science and technology studies, and human geography to shed light and bring out a critical analysis of the multiple actors and institutions of green finance governance, and their interests. This interactive course heavily relies on the learners' active engagement in class activities through pair or small-group discussions, role plays, and debates.

g) Grading Type[(10)]:   (X) Letter Grades   ( ) Distinction/Credit/Pass/Fail   ( ) Pass/ Fail
        ( ) Distinction/Pass/Fail   [ ] Others *(please specify):* _____

h) [X] Prerequisites[(11)]:

Course Code / Public Exam	Course Title / Exam Subject and Level / Grade attained
SUST1000	Introduction to Sustainability
ENVR3005	Environmental Sustainability: Risks and Challenges
ENVR4340	Social Sustainability: Risks and Challenges

i) [ ] Corequisites[(12)]:

Course Code	Course Title

j) [ ] Exclusions[(13)]:

Course Code / Public Exam	Course Title / Exam Subject and Level / Grade attained

k) [ ] Co-listing[(14)]:   [ ] Multi-coding[(14)]:

Course Code	Course Title

l) Other Enrollment Restrictions[(15)]   (X) No   ( ) Yes

    [ ] Instructor's approval required

    [ ] Restricted to specified student group(s)
       (please specify, e.g. year and program of study): _____

    [ ] Others *(please specify):* _____

m)	Medium of Instruction/Materials[16]:	(X) English	( ) Others, (Pls specify and provide a justification in Section 1.3):

n)	Allow course repetition for credit[17]:	(X) No	( ) Yes

1.2 Contribution of course to Programs of Study *[Check all appropriate boxes below]*

[X] Major	Program of Study	As		
	BSc in Sustainable and Green Finance	[X] Required Course	[ ] Elective	[ ] Prerequisite

[ ] Minor	Program of Study	As		
		[ ] Required Course	[ ] Elective	[ ] Prerequisite

[ ] Common Core

[ ] Others (pls specify):	Program of Study	As		
		[ ] Required Course	[ ] Elective	[ ] Prerequisite

1.3 Rationale for Introducing this course and other relevant information [18]

Green finance does not exist in isolation; rather, it is evolving as a co-produced concept, meaning that the instruments and mechanisms of green finance are simultaneously developed, deployed, and monitored alongside its actors and institutions' dynamics and evolutions. Studying how green finance instruments interact with these societal actors, and vice versa, thus, is important. In these processes of ordering social systems, governance is manifest. Governance of green finance is undertaken by market forces, by governments, or by networks through norms, rules, power, laws, and systems of an organized society. In its simplest form, governance, thus, is about decision-making, authority, and accountability. This course underlines the study of governance as it relates to green finance, particularly its instruments and mechanisms, to bring about a critical understanding of how, where, and why they occur, are sustained, and have failed or succeeded. The course looks at the multilevel governance systems of green finance, meaning that it explores how green finance and its instruments are/were governed at the municipal/city, national/state, regional, and international scales. The course does this by summoning case studies and examples from across these scales, such as from national governments and agencies of the United Nations, to map these actors and their locations in what can be argued as a green finance system. The course is extensively hinged at the international normative directions set by the Paris Agreement to reduce further warming to +2 C, if not +1.5 C, by 2100, and the Agenda 2030 on Sustainable Development, as well as on emergent national pathways towards net zero economies, accelerated energy transitions, and the Green New Deal. The course, thus, is timely, given the rapidly evolving dynamics in this area – and for strengthening Hong Kong's position as a center of and for green finance, regionally and globally.

Section 2A: Learning Outcomes and Alignment *(for courses not proposed to be Common Core Courses)*

2.1 Key Course Intended Learning Outcomes *(Should not normally exceed six or eight outcomes)*

Upon completion of this course, students are expected to be able to do the following:

	Course ILOs	Nature of the learning outcomes (A - Knowledge/Content Related; B - Academic Skills/Competencies; C - Others)
1	Review, evaluate, assess, appraise, and critique the various instruments and institutions of Green Finance, nationally and internationally, their descriptions, case examples, successes, failures, and contestations	A, B
2	Review, evaluate, assess, appraise, and critique the various governance issues surrounding the various extant instruments and institutions of Green Finance for their benefits and tradeoffs from multiple perspectives, including social, economic, and political and in the context of the climate emergency	A, B
3	Communicate balanced, evidence-based, and critical views of the various issues related to the instruments and institutions of Green Finance, nationally and internationally	A, B
4	Review, evaluate, assess, appraise, and critique governance frameworks that can contribute to the expansion of Green Finance approaches that work/does not work nationally and internationally	A, B
5	Produce Green Finance governance strategies that take a considered view of the climate emergency and sustainable development	A, B

2.2 Contribution of Learning Outcomes to Programs of Study identified in Section 1.2
(Please also complete Section 4.1)

	Program of study 1: __BSc in Sustainable and Green Finance_____ Program ILOs	To be achieved through these course ILOs *(Write CILO-1, CILO-2, etc.)*
1	Adopt an inter-disciplinary approach to tackle complex real-world problems.	CILO-1-5
2	Communicate effectively with people of different levels and work areas.	CILO-3
3	Transfer acquired knowledge to meet changes and challenges in different fields.	CILO-5
4	Engage in activities that lead to the impact of social improvement.	CILO-1-5
5	Have the ability to create and innovate with divergent thinking.	CILO-1-5
6	Demonstrate proficiency in their knowledge of advanced environmental technologies, environmental management practices, and the interface between these technologies and society, business, and policy.	CILO-1-5
7	Formulate effective and innovative solutions to environmental problems by integrating and applying concepts from environmental technology, management, and sustainable development.	CILO-5
8	Understand professional responsibilities and ethical, environmental standards and how to exercise them in the roles of environmental leaders, policymakers, and technical managers.	CILO-1-5

Section 2B: Additional Information[(2)] *(for courses not proposed to be Common Core Courses)*

2.3 *Planned Teaching & Learning Arrangement*

	Teaching & Learning Arrangement	Weekly Scheduled Hours/ Estimated Weekly Learning Hours	Indicate which course ILOs this activity serves to achieve *(Write CILO-1, CILO-2, etc.)*	Additional Information *(optional)*
Face-to face activities	[X] Lecture*	**3**	**CILO-1-5**	
	[ ] Tutorial*			
	[ ] Seminar/Small-class*			
	[ ] Laboratory*			
	*Does the above scheduled component(s) involve structured active learning activities?[(19)] (X) No ( ) Yes *If yes, please specify for each scheduled component, the percentage and the type of active learning involved in the "Additional Information" column.*			
	[ ] Others (e.g. fieldtrip, visit, etc.), *pls specify:* _____			
Online activities	[ ] Online lecture videos			
	[ ] Other online learning tasks, *pls specify:* _____			
	The total learning hours of the course[#] is equivalent to _120___ hours [(8)] *# including both scheduled instructional hours and hours for self-study activities & assessment*			

- For course adopting a pedagogic approach other than lecture, tutorial and laboratory, please indicate the pedagogy used:

  ( ) Blended learning [(20)]   ( ) Pure online delivery [(21)]

  ( ) Experiential learning [(22)]   ( ) Others, *pls specify:*_____

2.4 *Planned Assessment Weightings*

Assessment Task	Proportion of Final Grade (%)	Indicate which course ILOs this task is to assess *(Write CILO-1, CILO-2, etc.)*	Additional Information *(optional)*
[X] In-class test	24	CILO-1-5	Short quizzes from Weeks 2-13 to rapidly assess student learning
[X] Written assignment	40	CILO-1-5	A writing portfolio comprising a 2500-word critical paper, an infographic, and an op-ed on a topic on Green Finance governance to be negotiated with the instructor
[ ] Project report			
[ ] Presentation			
[ ] Learning portfolio			
[X] Course participation	36	CILO-1-5	Class participation, all weeks
[ ] Peer evaluation			
[ ] Others (e.g. proctored online exam, etc.), *pls specify:* _____			

2.5 **Course Duration**

(X) 1 term   ( ) 2 terms   ( ) Others, *pls specify:* _____

2.6 **Planned Frequency of Offerings** *[Check all appropriate boxes]*:

[ ] Every Fall	[ ] Every Winter
[x] Every Spring	[ ] Every Summer
[ ] No fixed pattern	
[ ] Other *(pls specify):* _____	

2.7 **Course outline attached**   ( ) No   (X) Yes

• **Internationalization:**

Internationalization in a course refers to course content and/or pedagogic approaches which incorporate an intercultural and international perspective. Examples may include:
- Collaboration with overseas institutions to develop and adopt international course content, or to arrange international field trip
- Insertion of international theme as part of the course
- Integrating the course content with international material as examples or case studies
- Elements to provide global diversified perspectives and/or practices around the world

Please briefly list or summarize any component(s) in the course that contributes to internationalizing the curriculum:

The course contains national, regional, and international examples, practices, and case studies, including on the Belt and Road Initiative, the European Union Emissions Trading Scheme, The Green Climate Fund, and Multilateral Development Banks, among others, to illustrate and analyze the various instruments and institutions of green finance. Cross-national case studies and examples are embedded in the course materials, both in lectures and class activities.

2.8 **Resources**

Request extra resources for teaching this course?   (X) No   ( ) Yes

Section 4: Development, Concurrence and Approval

4.1 Contribution to the Program Learning Outcomes

The course is confirmed by the following Major/Minor program department(s)/unit(s) as indicated in Section 1.2 that it would contribute appropriately to overall program learning outcomes.

Department/Program unit	Position	Name	Date
Division of Environment & Sustainability	Head of Division	Prof Alexis LAU	16-Feb-21

4.2 Approvals

Recommendation from offering department(s) and School(s)/IPO

Offering Department/Program Unit	Position	Name	Date
Division of Environment & Sustainability	Head of Division	Prof Alexis LAU	16-Feb-21

Recommending School/IPO	Position	Name	Date
Interdisciplinary Programs Office	Chair of IUSC	Prof Jimmy FUNG	19-Feb-21

Concurrence from other Schools or departments/units

School/Dept/Program Unit	Position	Name	Date

Attachment 1: Course Outline

Week	Topics
	Part A: Introduction
1	Financing a sustainable world; what is green finance governance; why governance matters
2	A new financial landscape: The climate emergency, net-zero economies, and energy transitions
	Part B: Governing the instruments of green finance
3	Guaranteed markets: The governance of price- and quota-based instruments
4	Public debt and equity from capital markets: The governance of green bonds
5	The governance of carbon taxation
6	Pricing carbon: The governance of carbon trading
7	Subsidies: The Case of Fossil Fuel Subsidies
	Part C: Green finance in the developing world
8	Greening development finance and aid
9	Green Finance in Multilateral Development Banks
10	Climate finance: From CDM to the Green Climate Fund
	Part C: Emergent green finance approaches
11	Islamic Green Finance, and Financing the Green New Deal
12	Greening the Belt and Road Initiative
13	**Part D: Conclusion**

COMMITTEE ON UNDERGRADUATE STUDIES

Paper for: Discussion/Decision

Title: **New Common Core Courses**

Purpose: To consider the course proposals of introducing new Common Core courses with effect from Summer 2020-21 and beyond

Submitted by: Committee on Undergraduate Core Education (CUCE)

Prepared by: CUS Secretariat

BACKGROUND

1.   Subsequent to the 167th CUS meeting held on 13 January 2021, the CUS Secretariat has received 3 proposals for introduction of new Common Core course effective from Summer 2020-21:

School	Course code	Title	
New Common Courses			
Courses serving as common core course only *(Appendix*)*			
SENG	COMP 1944 [2]	Artificial Intelligence Ethics	*(3 credits)*
SHSS	HART 1047 [1]	Introduction to Chinese Landscape Painting	*(1 credit)*
	HART 1048 [1]	Fashion Art and Styling	*(1 credit)*

[1]   *to take effect in Summer 2020-21*
[2]   *to take effect in Fall 2021-22*

* Starred items have been vetted by the CUS and CUCE Secretariats and will be approved directly without further deliberation, unless members request to un-star the proposed course for discussion

2.   The above new Common Core courses are presented in the Appendix (available at http://ugadmin.ust.hk/cus-documents/cus168/)**.** Concurrences and comments for the proposals, as necessary, have been sought from relevant Schools and confirmed by the Secretariat of the Committee on Undergraduate Core Education (CUCE). The proposals have also been reviewed and endorsed by the CUCE.

ACTION SOUGHT

3.   CUS is invited to consider and approve as appropriate the three new Common Core courses for introduction in Summer 2020-21 and beyond as presented in the Appendix.

**Proposed Common Core Courses for Introduction in Summer 2020-21 and Beyond
(Courses serving as Common Core Courses only)**

COMP 1944   Artificial Intelligence Ethics   3 credits

Course Description

Artificial intelligence (AI) is disrupting every sphere of our work and lives, bringing unprecedented risks to society. This introductory course surveys the explosive area of AI ethics, illuminating relevant AI concepts with no prior background needed. Fake news bots.   AI driven social media displacing traditional journalism. Drone warfare. Elimination of traditional jobs. Privacy-violating advertising.   Monopolistic network effects. Biased AI decision/recognition algorithms. Deepfakes. Autonomous vehicles. Automated hedge fund trading. No area remains untouched. Policy think tanks, governments, and tech companies around the world have started paying serious attention to AI ethics. How will human civilization survive the rise of AI? What are the new rules? What are the ethical frameworks needed to avoid extinction? What are engineers' and entrepreneurs' ethical responsibilities?

Contribution of course to Programs of Study
Common Core

Teaching Activity (weekly scheduled hours)
Lecture - 3 hours

Assessment Tasks (Proportion of Final Grade)
In-class test - 20%   Written assignment - 20%
Mid-term test - 10%   Presentation - 25%
                                        Course participation - 25%

Effective Semester
Fall 2021-22

Rationale for introducing this course and the consultation process undertaken
This AI Ethics course was requested by the President, Provost, Dean, and DH for HKUST, and may also become a course for the HKUST Guangzhou campus. The pilot run earlier this year (Spring 2020) was listed as a 4000-level special topics course with no prerequisites (COMP 4901M) and a second run in Spring 2021 will be offered, with the objective of becoming a Common Core course.

Tech ethics in the AI era of unprecedented exponential disruptions of society is fast becoming the most important issue of our times. The scale of the disruptions will be even larger than the Industrial Revolution and society must race to catch up with the impending consequences. Many top universities are introducing courses because it is essential that the young engineers, scientists, entrepreneurs, and humanities and social scientists that universities train are fluent and conversant with these issues
that were not even on the radar half a generation ago.

Having achieved international recognition as a prominent speaker in the AI ethics and society field for a number of years now, as well as being one of the eight inaugural members named by Google last year to its AI ethics council, it seems very timely to bring this new Common Core course to life at HKUST. The provocation for many of the modules will be TED/TEDx talks (a number of which were given by me) to act as a point of departure for highly interactive discussion.

HART 1047   Introduction to Chinese Landscape Painting   1 credit

Course Description

Of the three main categories of traditional Chinese painting, namely, landscape, flower-and-bird, and figure painting, landscape painting has developed a unique significance through history. Painters in every dynasty and epoch, whether official imperial court painters or literati painters in their cultural circles, have made brilliant achievements in this field. They may have different focuses, techniques and presentation methods of nature; nevertheless, what they always show is the inner scenery of the painter, the ideal world constructed by the painter.

Students will learn basic brush techniques, through which they will understand the creative process of Chinese painting with the focus on landscape painting. They will be encouraged to create their own works through the application of the techniques and attempts to reform this traditional art form.

中國繪畫以山水、花鳥、人物為三大主要分科。山水畫發展歷史悠久，經歷不同朝代及社會民生的變化，包含著複雜卻又千絲萬縷的關係。無論宮廷畫院，文人派系，甚至新中國時期以祖國建設為題的山水作品，都是以傳統基礎為依，堅守外師造化，卻不失時代環境的獨特個性。

透過學習山水畫，通過臨摹、作品觀摩、範本挑選、課堂示範和練習等，同學不但能學習相關技法，也能對中國藝術的審美能力有所提升。

Contribution of Course to Programs of Study
Common Core

Teaching Activity (Weekly Scheduled Hours)
Others: Studio session - 2 hours

Assessment Tasks (Proportion of Final Grade)
Project report - 75%   Others: Attendance - 10%
Course participation - 15%

Effective Semester
Summer 2020-21

Rationale for introducing this course and the consultation process undertaken
Offering students first-hand experience in artistic creation with traditional means will not only strengthen their understanding of the life and aesthetic views of our ancestors, and the value of our cultural root, it will also serve the purpose of discovering potential talents among our students.

The practice of brush works in Chinese painting is a cultivated activity that helps to release stress from daily life, thus maintaining harmony between the microcosm of the person and the living environment, and enhancing mental health and spiritual wholeness.

Justification of medium of Instruction/materials
The use of Chinese as the medium of instruction/materials is necessary because most of the jargons and concepts have no equivalent in foreign languages, e.g. English; and almost all learning materials are written in Chinese. When lectures have to be conducted in a foreign language, the effectiveness of explaining them will be impaired to the disadvantage of the students. Therefore, using Cantonese as the medium of instruction and Chinese as the language of teaching materials is more appropriate.

HART 1048   **Fashion Art and Styling**   **1 credit**

Course Description
In this course, students will explore the craft and visual expression of fashion design. Students will learn to work with fabrics and unconventional materials to produce mixed media fashion art and design. Sewing techniques and other material manipulation learned in the class will be applied to creating a finished garment, and at the end of the course, students will undertake a fashion photo-shooting exercise to promote their own work.

Contribution of course to Programs of Study
Common Core

Teaching Activity (Weekly Scheduled Hours)
Others: Studio session - 2 hours

Assessment Tasks (Proportion of Final Grade)
In-class exercises - 20%
Final project: Research and development - 30%
Final project: Finished garment and presentation - 40%
Others: Attendance - 10%

Effective Semester
Summer 2020-21

Rationale for introducing this course and the consultation process undertaken
Fashion is part of our daily life where there are no boundaries anymore between the conventional use of fabrics and the unconventional use of materials such as plastic, metals, gesso and acrylic. Fashion can guide us to produce new concepts in terms of re-using and recycling. In this course, students will learn to produce new designs, exploring new solutions in terms of shapes, volumes, details, embroidery and manipulation. Each element involved in making fashion product is changed, translated, fragmented and then reassembled. The main goal is to create new textiling process and to apply them on real garments.

* *Starred items NOT to be discussed at the meeting, unless they are un-starred per members' request.*

<u>COMMITTEE ON UNDERGRADUATE STUDIES</u>

Paper for:	Information
Title:	**Revised Membership and Terms of Reference of Senate Committee on Undergraduate Studies**
Purpose:	To note for information Senate's approval for revisions to the membership and Terms of Reference of Senate Committee on Undergraduate Studies
Prepared by:	CUS Secretariat

<u>BACKGROUND</u>

1.   The Senate at its 145th meeting held on 10 April 2019, approved the establishment of the Working Group to Review the Terms of Reference and Membership Composition of Senate Committees (WG). The WG submitted its proposal to Senate at its 150th meeting, held on 10 June 2020. According to the WG's proposal, some suggestions on the nomination and appointment mechanism of Committee Chairs and Members were proposed. Taking into consideration the development of the University and the operational needs of individual Committees, and for the purpose of reflecting diversity of the University community, the WG subsequently proposed further changes to ensure good governance and representativeness of respective groups of stakeholders.

2.   The proposed changes related to the Senate Committee on Undergraduate Studies (CUS) were circulated to Members on 20 January 2021; and no comments were received.

3.   The Senate, at this 153rd meeting on 3 February 2021, approved the changes recommended by the WG.

<u>TERMS OF REFERENCE AND MEMBERSHIP COMPOSITION OF CUS</u>

4.   Changes to the Terms of Reference and membership composition of the CUS, approved by the Senate to take immediate effect, are presented in the <u>Appendix</u>.

<u>ACTION SOUGHT</u>

5.   Members are invited to note for information the approved revisions to the Terms of Reference and the membership composition of the Committee on Undergraduate Studies, which will take immediate effect, as presented in the <u>Appendix</u>.

Version with tracked changes

Committee on Undergraduate Studies

Membership

Chair~~man~~:
Nominated by the Provost and appointed by the Chair~~man~~ of the Senate

Member and Secretary:
Associate Provost (T&L), *ex-officio*

Members:
(a) Two representatives ~~each~~ from ~~the~~ each Schools ~~of Science, Engineering, Business and Management, and Humanities & Social Science~~: one to be nominated by the Dean and one to be ~~selected~~ nominated by the School Board; and one representative from the Interdisciplinary Programs Office to be nominated by the Director

(b) Dean of Students, *ex-officio*

(c) Academic Registrar, *ex-officio*

(d) One undergraduate student representative ~~each~~ from ~~the~~each School and the Interdisciplinary Programs Offices ~~of Science, Engineering, Business and Management, and Humanities & Social Science:~~, to be nominated by the ~~HKUST Students' Union~~relevant student bodies

(e) Co-opted Members

Term:
For student members, one year, renewable
For others, two years, renewable

Clean version

<div align="center">

<u>Committee on Undergraduate Studies</u>

</div>

Membership

Chair:
Nominated by the Provost and appointed by the Chair of the Senate

Member and Secretary:
Associate Provost (T&L), *ex-officio*

Members:

(a)   Two representatives from each School: one to be nominated by the Dean and one to be nominated by the School Board; and one representative from the Interdisciplinary Programs Office to be nominated by the Director

(b)   Dean of Students, *ex-officio*

(c)   Academic Registrar, *ex-officio*

(d)   One undergraduate student representative from each School and the Interdisciplinary Programs Office, to be nominated by the relevant student bodies

(e)   Co-opted Members

Term:
For student members, one year, renewable
For others, two years, renewable