CDE-CHS Common Curriculum Mappings

Cohorts AY2021/2022 to AY2024/2025

Common Curriculum for CDE	Common Curriculum for CHS	Course to be taken by CDE-CHS DDP students
Cultures and Connections	Integrated Asian Studies	HSA1000 Asian Interconnections [1] Students may fulfil both pillars using an approved course from NUSC/USP [2].
Critique and Expression	Integrated Humanities	HSH1000 The Human Condition [1] Students may fulfil both pillars using an approved course from NUSC/USP [3].
Singapore Studies	Integrated Social Sciences	HSS1000 Understanding Social Complexity [1]. Students may fulfil both pillars using an approved course from NUSC/USP [4].
Design Thinking	Design Thinking	DTK1234 Design Thinking [5]
Data Literacy	Data Literacy	GEA1000 Quantitative Reasoning with Data Students can read ST1131, DSA1101, BT1101 or an NUSC course in lieu of GEA1000 [6]. Students in selected majors must read major-specific courses in lieu of GEA1000 [7].
Communities and Engagement	Communities and Engagement	Students may read any course from the curated list of approved Communities and Engagement courses. Students may fulfil this pillar using an approved course from UTCP, RVRC or NUSC/USP [8].
Creating Narratives	Writing	Students may read a course from either CDE or CHS [9]. Students may fulfil this pillar using an approved course from UTCP, RVRC or NUSC/USP [9].
Sustainable Futures	Scientific Inquiry I	Cohort AY2021/2022: Student may read a course from either CDE or CHS [10, 12]. Cohorts AY2022/2023 to AY2024/2025: HSI1000 How Science Works, Why Science Works [11, 12]. Students may fulfil this pillar using an approved course from NUSC/USP [12].
Systems Thinking	Scientific Inquiry II	Students may read a course from either CDE or CHS [13].
Digital Literacy	Digital Literacy	CS1010% Programming Methodology (any variant) [14] Students in selected majors must read major-specific courses in lieu of CS1010% [14].
Artificial Intelligence	Artificial Intelligence	EE2211 Introduction to Machine Learning or EE2213 Introduction to Artificial Intelligence [15] Students in selected majors may read major-specific courses in lieu of EE2211 or EE2213 [15].
Maker Space	Interdisciplinary Course I	EG1311% Design and Make (any variant) [16]
Project Management	Interdisciplinary Course II	PF1101 Fundamentals of Project Management or PF1101A Project Management and Finance [16]
Integrated Project (8 MCs)	-	Students must choose from the curated list of approved Integrated Project courses from CDE [17]
TOTAL: 60 Units	**TOTAL: 52 Units**	**TOTAL: 60 Units**

Notes:

[1] CDE students who have read an equivalent General Education (GE) course prior to enrolment in the DDP do not need to take these courses. The same arrangement applies even if they withdraw from the DDP and transfer to CHS. CDE students who withdraw from the DDP after completing these courses and remain in CDE do not need to take the equivalent GE courses.

CDE students should read HSS1000 in lieu of CDE2501/EG2501 Liveable Cities (which fulfils Singapore Studies for those who are not in the DDP). However, if they have completed CDE2501/EG2501 prior to admission into the DDP, they can use CDE2501/EG2501 to replace HSS1000. If they withdraw from the DDP after completing HSS1000, they do not need to read CDE2501/EG2501 to fulfil Singapore Studies.

Students who are enrolled in the Philosophy, Politics, and Economics XDP as their CHS major may double-count GEX1015 Life, the Universe, and Everything toward Critique and Expression pillar and do not need to read HSH1000. They will also read CDE2501/EG2501 (or an equivalent Singapore Studies course if they are in UTCP, RVRC or NUSC/USP) in lieu of HSS1000.

[2] NUSC students will read Global Social Thought in lieu of Cultures and Connections in the CDE Common Curriculum, but they must still read HSA1000 to fulfil Integrated Asian Studies in the CHS Common Curriculum. USP students from Cohort AY2021/2022 should refer to the list of approved USP courses for this pillar.

[3] NUSC students will read Global Narratives in lieu of Critique and Expression in the CDE Common Curriculum and Integrated Humanities in the CHS Common Curriculum. USP students from Cohort AY2021/2022 should refer to the list of approved USP courses for this pillar.

[4] NUSC students will read Understanding the Social World: Singapore and Beyond in lieu of Singapore Studies in the CDE Common Curriculum and Integrated Social Sciences in the CHS Common Curriculum. USP students from Cohort AY2021/2022 should refer to the list of approved USP Singapore Studies courses for this pillar.

[5] Architecture students Architecture students from Cohorts AY2021/2022 to AY2023/2024 will read DTK1234A Design Thinking instead of DTK1234, while those from Cohort AY2024/2025 onwards will read AR1101A Design 1: Seeing, Thinking, Making instead of DTK1234. Those who have read DTK1234 prior to admission into the DDP must still complete AR1101A.

Landscape Architecture students will read DTK1234A Design Thinking instead of DTK1234.

Students who have polytechnic diplomas that are accredited to their CDE major may be exempted from this course. If their home Faculty is CDE, they do not need to read this course if they withdraw from the DDP and transfer to CHS.

[6] Students who withdraw from the DDP after reading these courses do not need to take GEA1000. NUSC students will read GEA1000N Quantitative Reasoning with Data instead of GEA1000. USP students will read GEA1000, ST1131, DSA1101, BT1101, or an approved major-specific course to fulfil this pillar.

[7] Students in these selected majors must take the following major-specific courses in lieu of GEA1000:

- Data Science and Analytics: DSA1101 Introduction to Data Science
- Data Science and Economics: DSE1101 Introductory Data Science for Economics
- Industrial and Systems Engineering: IE1111R Industrial & Systems Engrg Principles & Practice I

- Statistics: ST1131 Introduction to Statistics and Statistical Computing

Students who are doing a DDP in Industrial and Systems Engineering with Data Science and Analytics, Data Science and Economics, or Statistics must read the Data Literacy courses for both majors.

NUSC students in the majors listed above must read the major-specific course in lieu of GEA1000N.

[8] NUSC students will read Impact Experience Project in lieu of Communities and Engagement. RVRC students will read an RVN-coded course to fulfil this pillar. USP students from Cohort AY2021/2022 should refer to the list of approved USP courses for this pillar.

[9] Default is CDE2000 Creating Narratives for students whose home Faculty is CDE, and one of the following for students whose home Faculty is CHS:

- FAS1101 Writing Academically: Arts and Social Sciences
- SP1541 Exploring Science Communication through Popular Science or SP1541/SP1541X Communication Practices in Popular Science
- SP2271 Introduction to the Scientific Literature

Students can choose to read the course from the second Faculty instead of home Faculty. Those who withdraw from the DDP after reading the course from the second Faculty do not need to read the course in the home Faculty.

NUSC students will read Thinking with Writing to fulfil this pillar. UTCP students will read an Ideas and Exposition course to fulfil this pillar. RVRC students will read an RVC/RVX/RVSS-coded course to fulfil this pillar following the mapping arrangements documented in RO.275/21. USP students from Cohort AY2021/2022 will read UWC2101% Writing and Critical Thinking (or their recoded versions in NUSC) to fulfil this pillar.

Architecture students from Cohort AY2024/2025 onwards must read AR1101A Design 1: Seeing, Thinking, Making to fulfil this pillar. Those who have completed any of the courses above prior to admission into the DDP must still complete AR1101A. Those who are in UTCP, RVRC or NUSC/USP must read AR1101A and the equivalent courses for this pillar in UTCP, RVRC or NUSC/USP.

Students from Cohorts AY2022/2023 to AY2024/2025 who are required to substitute the CDE Creating Narratives pillar with a Engineering major-specific course must still complete FAS1101, SP1541, SP2271 or their equivalent courses from UTCP, UVRC or NUSC/USP to fulfil the CHS Writing pillar.

[10] Default is CDE2501/EG2501 Liveable Cities for students whose home Faculty if CDE, and one of the following for students whose home Faculty is CHS:

- HSI1000 How Science Works, Why Science Works
- SP2274 Engineering a Lifelike Cell

Students can choose to read the course from the second Faculty instead of home Faculty. Those who withdraw from the DDP after reading the course from the second Faculty do not need to read the course in the home Faculty.

[11] Default is HSI1000 How Science Works, Why Science Works. Students can read SP2274 Engineering a Lifelike Cell in lieu of HSI1000.

Students who have completed CDE2501/EG2501 Liveable Cities prior to the announcement of the changes to the CDE Common Curriculum for Cohorts AY2022/2023 to AY2024/2025 may be granted an exception to use CDE2501/EG2501 to fulfil the CHS Scientific Inquiry I pillar.

[12] NUSC students must read Science and Society from NUSC to fulfil this pillar.

Architecture students from Cohort AY2024/2025 onwards must read AR1329 Climate, Ecology & Architecture to fulfil this pillar. Those who have completed HSI1000 or SP2274 prior to admission into the DDP must still complete AR1329. AR1329 fulfils Science and Society for those in NUSC.

Students from Cohort AY2022/2023 to AY2024/2025 who are required to substitute the CDE Sustainable Futures pillar with an Engineering major-specific course must still complete HSI1000, SP2274, or Science and Society from NUSC to fulfil the CHS Scientific Inquiry I pillar.

[13] Default is IE2141 Systems Thinking and Dynamics for students whose home Faculty is CDE, and one course from basket of Scientific Inquiry II course for students whose home Faculty is CHS. Students can choose to read the course from the second Faculty instead of home Faculty.

Students who have read the Junior Seminar course (UTC1702%) in Residential College 4 are exempted from this course and must replace it with 4 units of unrestricted electives.

NUSC students must still read IE2141 Systems Thinking and Dynamics even though they will read one Making Connections course from the Science, Technology, Engineering and Math basket to fulfil the CHS Scientific Inquiry II pillar.

USP students from Cohort AY2021/2022 must still read IE2141 Systems Thinking and Dynamics even though they will read courses from USP (and their recoded versions in NUSC) to fulfil the CHS Scientific Inquiry II pillar.

Students from Cohorts AY2022/2023 to AY2024/2025 who are required to substitute the CDE Systems Thinking pillar with a Engineering major-specific course must still complete a Scientific Inquiry II course from CHS (except those from NUSC/USP as stated above).

[14] All students in the DDP must read CS1010% to fulfil this pillar, except for those whose CDE and CHS majors do not require CS1010% as a compulsory course.

Students in Architecture and Landscape Architecture may read AR2524 to fulfil this pillar, while those in Industrial Design may read ID2116. They may also read CS1010% in lieu of AR2524 or ID2116.

CHS students who have read different courses for this pillar prior to enrolment in the DDP will still need to complete CS1010%, AR2524, or ID2116 according to their major in CDE.

NUSC students in Engineering majors must read CS1010% in lieu of Computational Problem Solving. Those in Architecture, Landscape Architecture, and Industrial Design must read either CS1010% or Computational Problem Solving instead of AR2524 or ID2116.

[15] Students who are enrolled in Architecture, Landscape Architecture, and Industrial Design may take CDE2212 AI for Design in lieu of EE2211 or EE2213.

CHS students who have read other courses prior to enrolment in the DDP will still need to complete EE2211, EE2213, or CDE2212. Those who withdraw from the DDP after completing EE2211, EE2213, or CDE2212 and remain in CHS are considered to have fulfilled the requirements of the Artificial Intelligence pillar in the CHS Common Curriculum.

[16] Students with accredited diplomas may be exempted from one or both of these courses.

Students in this DDP whose CHS major is an XDP must still complete these courses even though those who are not in the DDP are exempted from Interdisciplinary Course I and Interdisciplinary Course II.

CHS students who withdraw from the DDP after reading either or both courses do not need to read Interdisciplinary Course I and/or Interdisciplinary Course II.

[17] This is the latest list of CDE Integrated Project courses:

- BN4101 B.Eng. Dissertation
- CE4103R Design Project
- CE4104 B.Eng. Dissertation
- CG4001 B.Eng. Dissertation (12 units)
- CG4002 Computer Engineering Capstone Project
- CN4118 B.Eng. Dissertation
- CN4119 Final Year Design Project
- CP4106 Computing Project
- EE4002D Design Capstone
- EE4002R Research Capstone
- ESE4501R Design Project
- ESE4502R B.Eng. Dissertation
- ESP4901 Research Project
- IE3100R Systems Design Project
- IPM4101 Dissertation
- ME4101A Bachelor of Engineering Dissertation
- ME4101B Mechanical Systems Design
- MLE4101B B.Eng. Dissertation
- MLE4102A Design Project
- RB4101A B.Eng. Dissertation
- AR3102 Design 6

- LAD3002 Design 6
- ID3109 Design Platforms G (4 units) + ID3110 Design Platforms H (4 units)
- CDE4301/EG4301 Innovation & Design Capstone (12 units)
- CDE4301A/EG4301A Ideas to Start-up (12 units)

Cohorts AY2025/26 Onwards

Common Curriculum for CDE	Common Curriculum for CHS	Course to be taken by CDE-CHS DDP students
Cultures and Connections	Integrated Asian Studies	HSA1000 Asian Interconnections [1] Students may fulfil both pillars using an approved course from NUSC [2].
Critique and Expression	Integrated Humanities	HSH1000 The Human Condition [1] Students may fulfil both pillars using an approved course from NUSC [3].
Singapore Studies	Integrated Social Sciences	HSS1000 Understanding Social Complexity [1]. Students may fulfil both pillars using an approved course from NUSC [4].
Design Thinking	Design Thinking	DTK1234 Design Thinking [5]
Data Literacy	Data Literacy	GEA1000 Quantitative Reasoning with Data Students can read ST1131, DSA1101, BT1101 or an NUSC course in lieu of GEA1000 [6]. Students in selected majors must read major-specific courses in lieu of GEA1000 [7].
Communities and Engagement	Communities and Engagement	Students may read any course from the curated list of approved Communities and Engagement courses. Students may fulfil this pillar using an approved course from UTCP, RVRC or NUSC [8].
	Writing	Students must complete a Writing course from CHS [9]. Students may fulfil this pillar using an approved course from UTCP, RVRC or NUSC [9].
	Scientific Inquiry I	HSI1000 How Science Works, Why Science Works [10] Students may fulfil this pillar using an approved course from NUSC [10].
	Scientific Inquiry II	Students must complete a Scientific Inquiry II course from CHS. Students may fulfil this pillar using an approved course from NUSC [11].
Digital Literacy	Digital Literacy	CS1010% Programming Methodology (any variant) [12] Students in selected majors must read major-specific courses in lieu of CS1010% [12].
Artificial Intelligence	Artificial Intelligence	EE2211 Introduction to Machine Learning or EE2213 Introduction to Artificial Intelligence [13] Students in selected majors may read major-specific courses in lieu of EE2211 or EE2213 [13].
Maker Space	Interdisciplinary Course I	EG1311% Design and Make (any variant) [14]
Project Management	Interdisciplinary Course II	PF1101A Project Management and Finance [14]
TOTAL: 40 Units	**TOTAL: 52 Units**	**TOTAL: 52 Units**

Notes:

[1] CDE students who have read an equivalent General Education (GE) course prior to enrolment in the DDP do not need to take these courses. The same arrangement applies even if they withdraw from the DDP and transfer to CHS. CDE students who withdraw from the DDP after completing these courses and remain in CDE do not need to take the equivalent GE courses.

CDE students should read HSS1000 in lieu of CDE2501 Liveable Cities (which fulfils Singapore Studies for those who are not in the DDP). However, if they have completed CDE2501 prior to admission into the DDP, they can use CDE2501 to replace HSS1000. If they withdraw from the DDP after completing HSS1000, they do not need to read CDE2501.

Students who are enrolled in the Philosophy, Politics, and Economics XDP as their CHS major may double-count GEX1015 Life, the Universe, and Everything toward Critique and Expression pillar and do not need to read HSH1000. They will read CDE2501 to fulfil Singapore Studies in lieu of HSS1000.

[2] NUSC students will read Global Social Thought in lieu of Cultures and Connections in the CDE Common Curriculum, but they must still read HSA1000 to fulfil Integrated Asian Studies in the CHS Common Curriculum.

[3] NUSC students will read Global Narratives in lieu of Critique and Expression in the CDE Common Curriculum and Integrated Humanities in the CHS Common Curriculum.

[4] NUSC students will read Understanding the Social World: Singapore and Beyond in lieu of Singapore Studies in the CDE Common Curriculum and Integrated Social Sciences in the CHS Common Curriculum.

[5] Architecture and Landscape Architecture students will read DTK2234 Advanced Design Thinking instead of DTK1234.

Students who have polytechnic diplomas that are accredited to their CDE major may be exempted from this course. If their home Faculty is CDE, they do not need to read this course if they withdraw from the DDP and transfer to CHS.

[6] Students who withdraw from the DDP after reading these courses do not need to take GEA1000. NUSC students will read GEA1000N Quantitative Reasoning with Data instead of GEA1000.

[7] Students in these selected majors must take the following major-specific courses in lieu of GEA1000:

- Data Science and Analytics: DSA1101 Introduction to Data Science
- Data Science and Economics: DSE1101 Introductory Data Science for Economics
- Industrial and Systems Engineering: IE1111R Industrial & Systems Engrg Principles & Practice I
- Statistics: ST1131 Introduction to Statistics and Statistical Computing

Students who are doing a DDP in Industrial and Systems Engineering with Data Science and Analytics, Data Science and Economics, or Statistics must read the Data Literacy courses for both majors.

NUSC students in the majors listed above must read the major-specific course in lieu of GEA1000N.

[8] NUSC students will read Impact Experience Project in lieu of Communities and Engagement. RVRC students will read an RVN-coded course to fulfil this pillar.

[9] Students must complete one of the following from CHS:

- FAS1101 Writing Academically: Arts and Social Sciences
- SP1541/SP1541X Communication Practices in Popular Science
- SP2271 Introduction to the Scientific Literature

NUSC students will read Thinking with Writing to fulfil this pillar. UTCP students will read an Ideas and Exposition course to fulfil this pillar. RVRC students will read an RVC/RVX/RVSS-coded course to fulfil this pillar.

[10] Students can read SP2274 Engineering a Lifelike Cell in lieu of HSI1000.

NUSC students must read Science and Society from NUSC to fulfil this pillar.

[11] NUSC students will read one Making Connections course from the Science, Technology, Engineering and Math basket to fulfil this pillar.

[12] All students in the DDP must read CS1010% to fulfil this pillar, except for those whose CDE and CHS majors do not require CS1010% as a compulsory course.

Students in Architecture and Landscape Architecture may read AR2524 to fulfil this pillar, while those in Industrial Design may read ID2116. They may also read CS1010% in lieu of AR2524 or ID2116.

CHS students who have read different courses for this pillar prior to enrolment in the DDP will still need to complete CS1010%, AR2524, or ID2116 according to their major in CDE.

NUSC students in Engineering majors must read CS1010% in lieu of Computational Problem Solving. Those in Architecture, Landscape Architecture, and Industrial Design must read either CS1010% or Computational Problem Solving instead of AR2524 or ID2116.

[13] Students who are enrolled in Architecture, Landscape Architecture, and Industrial Design may take CDE2212 AI for Design in lieu of EE2211 or EE2213.

CHS students who have read other courses prior to enrolment in the DDP will still need to complete EE2211, EE2213, or CDE2212. Those who withdraw from the DDP after completing EE2211, EE2213, or CDE2212 and remain in CHS are considered to have fulfilled the requirements of the Artificial Intelligence pillar in the CHS Common Curriculum.

[14] Students with accredited diplomas may be exempted from one or both of these courses.

Students in this DDP whose CHS major is an XDP must still complete these courses even though those who are not in the DDP are exempted from Interdisciplinary Course I and Interdisciplinary Course II.

CHS students who withdraw from the DDP after reading either or both courses do not need to read Interdisciplinary Course I and/or Interdisciplinary Course II.

Internship Requirement for Engineering Majors

Students who are enrolled in an Engineering major either as their primary or second degree programme will need to fulfil an internship requirement of 10 units. Unlike earlier cohorts, students in the DDP from Cohort AY2021/2022 onwards are not exempted from the internship requirement. However, polytechnic-intake and other students who have received advanced placements credits for the internship requirement will be considered as having fulfilled the requirement

Additionally, students who are enrolled in a combination of Engineering and FOS majors may use 4 units from the FOS Undergraduate Professional Internship Programme (UPIP) to partially fulfil the Engineering internship requirement in lieu of other 4-unit courses such as CDE2605/EG2605 Undergraduate Research Opportunities Programme or CFG2101 Vacation Internship Programme.

Double Counting of Courses between CDE and CHS majors

Double counting of courses between the two majors from CDE and CHS will be considered on a **major-to-major basis**. This is subject to a limit of **24 units** (i.e., 40% of the CHS major) and a minimum graduation requirement of 160 units for the DDP. The double counting may include final year project (FYP) or honours thesis (HT) courses for selected combinations of CDE and CHS majors, subject to the following conditions:

- The FYP/HT courses that are double counted must have the same workload, i.e. 8 units.
- The scope of work for the FYP/HT is approved by both majors.
- The FYP/HT must be supervised by academic staff from both majors or academic staff with joint appointment in both majors.
- The FYP/HT is not used to fulfil a specialisation within either major.

The latest **pre-approved double counting arrangements** between selected CDE and CHS majors are detailed below. The double-counting arrangements will be updated over time as new DDP combinations are formed and when new courses relevant to both majors are proposed. Where there is no pre-approved double counting arrangement, students will be required to seek approval from both CDE and CHS.

Pre-approved double counting arrangement between Engineering majors and Mathematics / Quantitative Finance

1. Students should read the equivalent MA-coded courses in the Mathematics / Quantitative Finance major instead of those in their Engineering major as summarised below. They can double-count up to 12 units between their Engineering major and Mathematics / Quantitative Finance. Courses in Mathematics major that should be read by students in lieu of those in their Engineering major:

Course in Engineering major	**Course in Mathematics / Quantitative Finance major**	**Course to be read by DDP students**
CE2407A Uncertainty Analysis for Engineers (2 units)	MA2116 Probability (4 units)	MA2116 (Note: Students who have read CE2407A must still complete MA2116.)
CS1231 Discrete Structures (4 units) ^	MA1100 Basic Discrete Mathematics (4 units) (only for Mathematics major)	MA1100

MA1505 Mathematics I (4 units) ^	MA2002 Calculus (4 units)	MA2002
MA1508E Linear Algebra for Engineering (4 units) ^	MA2001 Linear Algebra (4 units)	MA2001
MA1511 Engineering Calculus (2 units) and MA1512 Differential Equations for Engineering (2 units) ^	MA2002 Calculus (4 units)	MA2002
MA1513 Linear Algebra with Differential Equations (2 units)	MA2001 Linear Algebra (4 units)	MA2001 (Note: Students who have read MA1513 must still complete MA2001.)
ST2334 Probability and Statistics (4 units) ^	MA2116 Probability (4 units)	MA2116

(^ Note: Because of the two-way preclusions between these courses in the Engineering majors their equivalent courses in Mathematics / Quantitative Finance, students whose home Faculty is CDE are strongly encouraged to read the latter instead of the former if they are planning to enrol in this DDP. However, mid-stream DDP students whose home Faculty is CDE and have read the former can request to double-count them toward the latter.)

Courses that can be double counted between each Engineering major and Mathematics / Quantitative Finance:

Engineering major	**Courses that can be double-counted between Engineering and Mathematics / Quantitative Finance**
Biomedical Engineering Civil Engineering Infrastructure and Project Management	MA2001 Linear Algebra MA2116 Probability
Chemical Engineering Environmental Engineering Environmental and Sustainability Engineering Industrial and Systems Engineering Materials Science and Engineering Robotics and Machine Intelligence	MA2001 Linear Algebra MA2002 Calculus MA2116 Probability
Computer Engineering	MA1100 Basic Discrete Mathematics (only for Mathematics major) MA2001 Linear Algebra MA2002 Calculus
Electrical Engineering Engineering Science Mechanical Engineering	MA2001 Linear Algebra MA2002 Calculus

2. There is no double counting of FYP/HT courses between the Engineering majors and Mathematics / Quantitative Finance because of the difference in workload (i.e. units) between the FYP/HT courses in both majors.

Pre-approved double counting arrangement between Biomedical Engineering and Life Sciences

1. Students can double count one 4-unit LSM32xx/LSM42xx elective (except LSM3288 and LSM4288%) from the Biomedical Sciences (BMS) or Molecular and Cell Biology (MCB) basket as a BME Technical Elective.

2. Students can double count CDE2605/EG2605 Undergraduate Research Opportunities Programme (UROP) in lieu of LSM3288/LSM4288% and/or use the course to satisfy the compulsory research milestone in the Life Sciences major requirements in lieu of LSM3288/LSM4288%, subject to the following conditions:

- The scope of work for CDE2605/EG2605 is approved by both Biomedical Engineering and Life Sciences.
- The CDE2605/EG2605 project must be jointly supervised by academic staff from both majors or academic staff with joint appointment in both majors.

3. There is no double counting of FYP/HT courses between Biomedical Engineering and Life Sciences because the FYP/HT courses in Life Sciences are tagged to specific specialisations.

Pre-approved double counting arrangement between Environmental Engineering / Environmental and Sustainability Engineering and Life Sciences

1. Students can double count one of the following 4-unit LSM electives as an ESE Technical Elective:

- LSM3254 Ecology of Aquatic Environments
- LSM3255 Ecology of Terrestrial Environments
- LSM3272 Global Change Biology
- LSM4260 Plankton Ecology
- LSM4261 Marine Biology
- LSM4262 Tropical Conservation Biology
- LSM4263 Field Studies in Biodiversity
- LSM4264 Freshwater Biology

2. Students can double count CDE2605/EG2605 Undergraduate Research Opportunities Programme (UROP) in lieu of LSM3288/LSM4288% and/or use the course to satisfy the compulsory research milestone in the Life Sciences major requirements in lieu of LSM3288/LSM4288%, subject to the following conditions:

- The scope of work for CDE2605/EG2605 is approved by both Environmental Engineering / Environmental and Sustainability Engineering and Life Sciences.
- The CDE2605/EG2605 project must be jointly supervised by academic staff from both majors or academic staff with joint appointment in both majors.

3. There is no double counting of FYP/HT courses between Environmental Engineering / Environmental and Sustainability Engineering and Life Sciences because the FYP/HT courses in Life Sciences are tagged to specific specialisations.

Pre-approved double counting arrangement between Engineering Science and Physics

1. Students can double count up to 24 units of the following core and elective courses between Engineering Science and Physics:

Engineering Science course	**Physics course**	**Course to be taken by DDP students**
ESP1111 Engineering Principles In-Action	PC1101 Frontiers of Physics	Choose either ESP1111 or PC1101
PC2130B Applied Quantum Physics	PC2130 Quantum Mechanics I	Choose either PC2130B or PC2130
PC2020 Electromagnetics for Electrical Engineers	PC2031 Electricity and Magnetism I	Choose either PC2020 or PC2031
PC3235B Applied Solid State Physics	PC3235 Solid State Physics I	Choose either PC3235B or PC3235
MA1511 Engineering Calculus and MA1512 Differential Equations for Engineering	PC2174A Mathematical Methods in Physics I	Choose either (MA1511+MA1512) ^ or PC2174A
MA1508E Linear Algebra for Engineering	PC3274A Mathematical Methods in Physics II or PC4274A Mathematical Methods in Physics III	PC3274A or PC4274A can be used to replace MA1508E, but not vice versa

(^ Note: Mid-stream DDP students whose home Faculty is CDE can only double-count MA1511 and MA1512 toward PC2174A if they have also read MA1508E Linear Algebra for Engineering. Otherwise, they will need to complete MA1513 Linear Algebra with Differential Equations in addition to MA1511 and MA1512.)

2. Subject to the following conditions, students may use ESP4901 Research Project to fulfil the compulsory graduation requirement in Physics in lieu of PC3288/PC4288 (and their variants):

- The scope of work is approved by both majors.
- The project must be supervised by academic staff from both majors or academic staff with joint appointment in both majors.