

(For students admitted in 2024-25 under the 4-year degree)

## BEng in Decision Analytics

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.

Students may use no more than 6 credits earned from courses offered in self-paced 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.

Under the new 30-credit Common Core Program which is applicable to students admitted to the University in 2022-23 and thereafter, courses that have been counted towards Major Requirements are not allowed to be reused for fulfilment of the University Common Core Requirements. Students should look up the details of the Common Core Program including the general and School-/program-specific distributional requirements posted on the Common Core website where the link to it is available on this website.

### Major Requirements

#### Engineering Fundamental Course(s)

|           |       |  | Credit(s)<br>attained |
|-----------|-------|--|-----------------------|
| COMP      |       | Note: COMP 1021 <u>OR</u> COMP 1022P <u>OR</u> COMP 2011 <u>OR</u> COMP 2012H  | 3-5                   |
| COMP      | 1021  | Introduction to Computer Science   | 3                     |
| COMP      | 1022P | Introduction to Computing with Java  | 3                     |
| COMP      | 2011  | Programming with C++   | 4                     |
| COMP      | 2012H | Honors Object-Oriented Programming and Data Structures   | 5                     |
| CHEM/PHYS |       | Note: CHEM 1012 <u>OR</u> PHYS 1112 <u>OR</u> PHYS 1312  | 3                     |
| CHEM      | 1012  | General Chemistry B: Atomic Structure, Molecules, and Bonding Theories   | 3                     |
| PHYS      | 1112  | General Physics I with Calculus  | 3                     |
| PHYS      | 1312  | Honors General Physics I   | 3                     |
| MATH      |       | Note: [(MATH 1012 <u>OR</u> MATH 1013 <u>OR</u> MATH 1023) <u>AND</u> (MATH 1014 <u>OR</u> MATH 1024)] <u>OR</u> [MATH 1020] | 4-7                   |
| MATH      | 1012  | Calculus IA  | 4                     |
| 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                     |
| MATH      | 2111  | Matrix Algebra and Applications  | 3                     |

|      |      |  |     |
|------|------|--|-----|
| SENG |      | Engineering Introduction course (If the students take an introduction course included in their major, this course can be counted towards their major requirement.) | 3-4 |
| IEDA | 2010 | Introduction of Industrial Engineering and Decision Analytics  | 3   |
| BIEN | 1010 | Introduction to Biomedical Engineering   | 3   |
| CENG | 1000 | Introduction to Chemical and Biological Engineering  | 3   |
| CENG | 1500 | A First Course on Materials Science and Applications   | 3   |
| CENG | 1700 | Introduction to Environmental Engineering  | 3   |
| CIVL | 1100 | Discovering Civil and Environmental Engineering  | 3   |
| CIVL | 1210 | Fundamental of Green Buildings   | 3   |
| COMP | 1021 | Introduction to Computer Science   | 3   |
| ELEC | 1100 | Introduction to Electro-Robot Design   | 4   |
| ELEC | 1200 | A System View of Communications: from Signals to Packets   | 4   |
| ENGG | 1100 | First Year Cornerstone Engineering Design Project Course   | 3   |
| MECH | 1902 | Energy Systems in a Sustainable World  | 3   |
| MECH | 1906 | Mechanical Engineering for Modern Life   | 3   |
| MECH | 1907 | Introduction to Aerospace Engineering  | 3   |

### Required Course(s)

|      |      |  | Credit(s)<br>attained |
|------|------|--|-----------------------|
| IEDA | 1010 | Academic and Professional Development I  | 0                     |
| IEDA | 1020 | Academic and Professional Development II | 0                     |
| IEDA | 1901 | Industrial Training and Experience       | 0                     |
| IEDA | 2520 | Probability for Engineers                | 3                     |
| IEDA | 2540 | Statistics for Engineers                 | 3                     |
| IEDA | 3010 | Prescriptive Analytics                   | 3                     |
| IEDA | 3230 | Engineering Economics and Accounting     | 3                     |
| IEDA | 3250 | Stochastic Models                        | 3                     |
| IEDA | 3300 | Industrial Data Systems                  | 3                     |
| IEDA | 3560 | Predictive Analytics                     | 3                     |
| IEDA |      | Note: IEDA 4901 <u>OR</u> IEDA 4920      | 6                     |
| IEDA | 4901 | Final Year Thesis                        | 6                     |
| IEDA | 4920 | Decision Analytics Final Year Project    | 6                     |
| ENGG | 2010 | Engineering Seminar Series               | 0                     |
| ECON |      | Note: ECON 2103 <u>OR</u> ECON 2113      | 3                     |
| ECON | 2103 | Principles of Microeconomics             | 3                     |
| ECON | 2113 | Microeconomics                           | 3                     |

## Elective(s)

|                              |      |  | <b>Minimum<br/>credit(s)<br/>required</b> |
|------------------------------|------|--|---|
| IEDA/ISOM                    |      | Area Electives (5 courses from the specified elective list, of which all 5 courses should be taken from the same area) | 15  |
| <b>Financial Engineering</b> |      |  |   |
| IEDA                         | 3180 | Data-Driven Portfolio Optimization   | 3   |
| IEDA                         | 3330 | Introduction to Financial Engineering  | 3   |
| IEDA                         | 4331 | Quantitative Methods in Financial Engineering  | 3   |
| IEDA                         | 4500 | Engineering Foundations of FinTech   | 3   |
| IEDA                         | 4510 | Systems Risk Management  | 3   |
| IEDA                         | 4520 | Numerical Methods for Financial Engineering  | 3   |
| ISOM                         | 4840 | Financial Service Operations Management  | 3   |
| <b>Consulting Services</b>   |      |  |   |
| IEDA                         | 3460 | Demand and Supply Analytics  | 3   |
| IEDA                         | 4100 | Integrated Production Systems  | 3   |
| IEDA                         | 4180 | Service Engineering and Management   | 3   |
| IEDA                         | 4410 | Data Driven Supply Chain Management  | 3   |
| IEDA                         | 4420 | Dynamic Pricing and Revenue Optimization   | 3   |
| IEDA                         | 4510 | Systems Risk Management  | 3   |