

**Course Requirements and Registration Priorities**  
**School of Engineering, Fall 2018**

| #                           | Abbr     | Title  | Cr(US) | Cr(ECTS) | PreRequisite   | CoRequisite | AntiRequisite | 1st priority registration           | 2nd priority registration | 3rd priority registration | 4th priority registration |
|-----------------------------|----------|--|--------|----------|--|-------------|---------------|-------------------------------------|---------------------------|---------------------------|---------------------------|
| <b>SEng</b>                 |          |  |        |          |  |             |               |                                     |                           |                           |                           |
| <b>Chemical Engineering</b> |          |  |        |          |  |             |               |                                     |                           |                           |                           |
| 1                           | ECHE 126 | Introduction to Chemical Engineering                 | 3      | 6        |  |             |               |                                     |                           |                           |                           |
| 2                           | ECHE 222 | Chemistry I  | 3      | 6        |  |             |               |                                     |                           |                           |                           |
| 3                           | ECHE 319 | Chemical Engineering Thermodynamics                  | 3      | 6        |  |             |               |                                     |                           |                           |                           |
| 4                           | ECHE 333 | Separation Processes-I                               | 3      | 6        | ECHE 319 Chemical Engineering Thermodynamics (D and above)   |             |               |                                     |                           |                           |                           |
| 5                           | ECHE 369 | Transport Phenomena-II                               | 3      | 6        |  |             |               |                                     |                           |                           |                           |
| 6                           | ECHE 385 | Research Practice                                    | 3      | 6        |  |             |               |                                     |                           |                           |                           |
| 7                           | ECHE 418 | Capstone project 1                                   | 3      | 6        | ECHE 323 Computational methods in Chemical Engineering-I (D and above)   |             |               |                                     |                           |                           |                           |
| 8                           | ECHE 478 | Electrochemical Engineering and Corrosion Protection | 3      | 6        | ECHE 222 Chemistry I (D and above)   |             |               | 4 year UG SEng Chemical Engineering |                           |                           |                           |
| 9                           | ECHE 481 | Chemical Reaction Engineering                        | 3      | 6        | ECHE 126 Introduction to Chemical Engineering (D and above) AND BENG 124 Engineering Mathematics I (D and above) AND BENG 225 Engineering Mathematics II (D and above) |             |               |                                     |                           |                           |                           |
| 10                          | ECHE 484 | Multi-Phase Flows                                    | 3      | 6        | ECHE 319 Chemical Engineering Thermodynamics (D and above) AND ECHE 270 Transport Phenomena-I (D and above)  |             |               | 4 year UG SEng Chemical Engineering |                           |                           |                           |
| 11                          | ECHE 486 | Chemical Process Safety                              | 3      | 6        |  |             |               |                                     |                           |                           |                           |
| 12                          | ECHE 487 | Soft Matter, Foods and Colloids                      | 3      | 6        |  |             |               | 4 year UG SEng Chemical Engineering |                           |                           |                           |
| 13                          | ECHE 488 | Atmospheric Chemistry and Physics                    | 3      | 6        |  |             |               | 4 year UG SEng Chemical Engineering |                           |                           |                           |
| 14                          | MCHE 600 | MSc Thesis in Chemical Engineering                   | 15     | 30       |  |             |               |                                     |                           |                           |                           |

**Chemical and Materials Engineering**

|    |           |   |   |   |  |  |  |                                |                                     |                                     |
|----|-----------|---|---|---|--|--|--|--------------------------------|-------------------------------------|-------------------------------------|
| 15 | MCHME 603 | Advanced Materials Processing               | 3 | 6 |  |  |  | 1 year Gr SENG, 2 year Gr SENG | Science, Engineering and Technology | GSB, GSE, GSPP, SHSS, SMG, SST, SoM |
| 16 | MCHME 604 | Advanced Materials Characterization Methods | 3 | 6 |  |  |  | 1 year Gr SENG, 2 year Gr SENG | Science, Engineering and Technology | GSB, GSE, GSPP, SHSS, SMG, SST, SoM |
| 17 | MCHME 605 | Advanced Chemical Reaction Engineering      | 3 | 6 |  |  |  | 1 year Gr SENG, 2 year Gr SENG | Science, Engineering and Technology | GSB, GSE, GSPP, SHSS, SMG, SST, SoM |

**Civil Engineering**

|    |         |   |   |   |   |  |  |                                  |  |  |
|----|---------|---|---|---|---|--|--|----------------------------------|--|--|
| 18 | ECE 215 | Surveying   | 3 | 6 |   |  |  |                                  |  |  |
| 19 | ECE 216 | Civil Engineering CAD                             | 3 | 6 |   |  |  |                                  |  |  |
| 20 | ECE 217 | Structural Analysis I                             | 3 | 6 | BENG 117 Engineering Mechanics (D and above)  |  |  |                                  |  |  |
| 21 | ECE 302 | Civil Engineering Materials                       | 3 | 6 | BENG 221 Engineering Materials (D and above)  |  |  |                                  |  |  |
| 22 | ECE 303 | Construction Management and Practice              | 3 | 6 | BENG 148 Engineering Practice (D and above)   |  |  |                                  |  |  |
| 23 | ECE 307 | Engineering Geology and Rock Mechanics            | 3 | 6 |   |  |  |                                  |  |  |
| 24 | ECE 318 | Structural Design - Concrete                      | 3 | 6 | ECE 479 Structural Analysis II (C- and above)   |  |  |                                  |  |  |
| 25 | ECE 401 | Capstone Project 1                                | 3 | 6 |   |  |  |                                  |  |  |
| 26 | ECE 404 | Construction Technologies and Processes           | 3 | 6 | BENG 148 Engineering Practice (D and above) AND ECE 302 Civil Engineering Materials (D and above)   |  |  |                                  |  |  |
| 27 | ECE 405 | Environmental Engineering                         | 3 | 6 | ECE 473 Environmental Systems (D and above) OR ECE 218 Environmental Chemistry (D and above)  |  |  |                                  |  |  |
| 28 | ECE 416 | Highway Engineering                               | 3 | 6 | ECE 302 Civil Engineering Materials (D and above)   |  |  |                                  |  |  |
| 29 | ECE 421 | Behaviour and Design of Structural System         | 3 | 6 | (ECE 318 Structural Design - Concrete (D and above) OR ECE 314 Structural Engineering Applications I (D and above)) AND (ECE 319 Structural Design - Steel (D and above) OR ECE 315 Structural Engineering Applications II (D and above)) |  |  | 4 year UG SEng Civil Engineering |  |  |
| 30 | ECE 481 | Individual Research Projects in Civil Engineering | 3 | 6 |   |  |  |                                  |  |  |
| 31 | ECE 482 | Solid and Hazardous Waste Management              | 3 | 6 | ECE 405 Environmental Engineering (C- and above)  |  |  | 4 year UG SEng Civil Engineering |  |  |

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| 32   | EMEM 507 | Project Management   | 3  | 6  |  |  |  | 1 year Gr SENG, 2 year Gr SENG | Science, Engineering and Technology | GSB, GSE, GSPP, SHSS, SMG, SST, SoM |  |
| 33   | EMEM 509 | Systems Engineering  | 3  | 6  |  |  |  |                                |                                     |                                     |  |
| 34   | EMEM 523 | Supply Chain Management  | 3  | 6  |  |  |  |                                |                                     |                                     |  |
| 35   | EMEM 533 | Engineering Management and Engineering Economy                   | 3  | 6  |  |  |  | 1 year Gr SENG, 2 year Gr SENG | Science, Engineering and Technology | GSB, GSE, GSPP, SHSS, SMG, SST, SoM |  |
| 36   | EMEM 537 | Engineering Decision Tools                                       | 3  | 6  |  |  |  |                                |                                     |                                     |  |
| 37   | EMEM 539 | Big Data and Information Management                              | 3  | 6  |  |  |  |                                |                                     |                                     |  |
| 38   | EMEM 542 | Production and Service Operations Management                     | 3  | 6  |  |  |  |                                |                                     |                                     |  |
| 39   | EMEM 543 | Quality and Lean Management                                      | 3  | 6  |  |  |  | 1 year Gr SENG, 2 year Gr SENG | Science, Engineering and Technology | GSB, GSE, GSPP, SHSS, SMG, SST, SoM |  |
| 40   | MCE 600  | MSc Thesis in Civil Engineering                                  | 15 | 30 |  |  |  |                                |                                     |                                     |  |
| 41   | MCEE 603 | Finite Element Methods   | 3  | 6  |  |  |  | 1 year Gr SENG, 2 year Gr SENG | Science, Engineering and Technology | GSB, GSE, GSPP, SHSS, SMG, SST, SoM |  |
| 42   | MCEE 604 | Advanced Soil Mechanics  | 3  | 6  |  |  |  | 1 year Gr SENG, 2 year Gr SENG | Science, Engineering and Technology | GSB, GSE, GSPP, SHSS, SMG, SST, SoM |  |
| 43   | MCEE 605 | Advanced Environmental Chemistry                                 | 3  | 6  |  |  |  | 1 year Gr SENG, 2 year Gr SENG | Science, Engineering and Technology | GSB, GSE, GSPP, SHSS, SMG, SST, SoM |  |
| 44   | MSC 601  | Technical Communication  | 3  | 6  |  |  |  |                                |                                     |                                     |  |
| 45   | MSC 602  | Advanced Applied Mathematics                                     | 3  | 6  |  |  |  | 1 year Gr SENG, 2 year Gr SENG | Science, Engineering and Technology | GSB, GSE, GSPP, SHSS, SMG, SST, SoM |  |
| 46   | MSC 615  | Advanced Statistics and Probability                              | 3  | 6  |  |  |  | 1 year Gr SENG, 2 year Gr SENG | Science, Engineering and Technology | GSB, GSE, GSPP, SHSS, SMG, SST, SoM |  |
| 47   | MSC 616  | Research Methods   | 3  | 6  |  |  |  | 1 year Gr SENG, 2 year Gr SENG | Science, Engineering and Technology | GSB, GSE, GSPP, SHSS, SMG, SST, SoM |  |
| <b>Electrical and Computer Engineering</b> |          |  |    |    |  |  |  |                                |                                     |                                     |  |
| 48   | MECE 603 | Advanced Data Structures and Algorithms                          | 3  | 6  |  |  |  | 1 year Gr SENG, 2 year Gr SENG | Science, Engineering and Technology | GSB, GSE, GSPP, SHSS, SMG, SST, SoM |  |
| 49   | MECE 605 | Statistics and Probability for Electrical and Computer Engineers | 3  | 6  |  |  |  | 1 year Gr SENG, 2 year Gr SENG | Science, Engineering and Technology | GSB, GSE, GSPP, SHSS, SMG, SST, SoM |  |

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| 50   | MECE 606 | Embedded Systems and Applications                    | 3  | 6  |  |  |  | 1 year Gr SENG, 2 year Gr SENG | Science, Engineering and Technology | GSB, GSE, GSPP, SHSS, SMG, SST, SoM |  |
| <b>Electrical and Electronic Engineering</b> |          |  |    |    |  |  |  |                                |                                     |                                     |  |
| 51   | EEE 212  | Signals and Systems                                  | 3  | 6  | BENG 225 Engineering Mathematics II (D and above)  |  |  |                                |                                     |                                     |  |
| 52   | EEE 238  | Digital Signal and Image Processing                  | 3  | 6  |  |  |  |                                |                                     |                                     |  |
| 53   | EEE 250  | Microelectronic Devices and Circuits                 | 3  | 6  | BENG 114 Introduction to Electrical Systems (D and above)  |  |  |                                |                                     |                                     |  |
| 54   | EEE 251  | Electronic Engineering Design Principles             | 3  | 6  | BENG 114 Introduction to Electrical Systems (D and above)  |  |  |                                |                                     |                                     |  |
| 55   | EEE 342  | Electromagnetics                                     | 3  | 6  |  |  |  |                                |                                     |                                     |  |
| 56   | EEE 345  | Power Electronics                                    | 3  | 6  |  |  |  |                                |                                     |                                     |  |
| 57   | EEE 382  | Antennas and Propagation                             | 3  | 6  |  |  |  |                                |                                     |                                     |  |
| 58   | EEE 384  | Digital Integrated Circuits Design                   | 3  | 6  | EEE 250 Microelectronic Devices and Circuits (C- and above)  |  |  |                                |                                     |                                     |  |
| 59   | EEE 437  | Capstone Project 1                                   | 3  | 6  |  |  |  |                                |                                     |                                     |  |
| 60   | EEE 448  | Power Transmission and Distribution plants           | 3  | 6  |  |  |  |                                |                                     |                                     |  |
| 61   | EEE 450  | RF and Microwave Circuit Design                      | 3  | 6  |  |  |  |                                |                                     |                                     |  |
| 62   | EEE 451  | High Voltage Engineering                             | 3  | 6  |  |  |  |                                |                                     |                                     |  |
| 63   | EEE 452  | Power Systems Protection                             | 3  | 6  |  |  |  |                                |                                     |                                     |  |
| 64   | EEE 482  | Mobile Communications                                | 3  | 6  | EEE 239 Communication systems (C- and above)   |  |  |                                |                                     |                                     |  |
| 65   | EEE 490  | Introduction to Big Data                             | 3  | 6  |  |  |  |                                |                                     |                                     |  |
| 66   | EEE 491  | Internet of Things                                   | 3  | 6  | BENG 146 Programming for Engineers (C- and above) AND EEE 343 Embedded Microcontrollers (C- and above) |  |  |                                |                                     |                                     |  |
| 67   | EEE 492  | Deep Learning Machines                               | 3  | 6  |  |  |  |                                |                                     |                                     |  |
| 68   | EEE 493  | Industry 4.0   | 3  | 6  |  |  |  |                                |                                     |                                     |  |
| 69   | MEE 600  | MSc Thesis in Electrical and Electronics Engineering | 15 | 30 |  |  |  |                                |                                     |                                     |  |
| <b>Mechanical Engineering</b>                |          |  |    |    |  |  |  |                                |                                     |                                     |  |
| 70   | EME 253  | Computer Aided Engineering                           | 3  | 6  |  |  |  |                                |                                     |                                     |  |
| 71   | EME 254  | Mechanics of Materials                               | 3  | 6  |  |  |  |                                |                                     |                                     |  |
| 72   | EME 262  | Machine Dynamics I                                   | 3  | 6  |  |  |  |                                |                                     |                                     |  |

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| 73  | EME 354  | Advanced Control Systems                          | 3  | 6  | BENG 219 Control Systems (D and above)   |  |  |                                |                                     |                                     |  |
| 74  | EME 358  | Heat Transfer                                     | 3  | 6  | BENG 226 Engineering Thermodynamics (D and above) AND EME 275 Fluid Mechanics I (D and above)          |  |  |                                |                                     |                                     |  |
| 75  | EME 361  | Machine Design                                    | 3  | 6  |  |  |  |                                |                                     |                                     |  |
| 76  | EME 410  | Aerodynamics                                      | 3  | 6  | EME 357 Fluid Mechanics 2 (D and above)  |  |  |                                |                                     |                                     |  |
| 77  | EME 412  | Heating, Ventilating, and Air Conditioning        | 3  | 6  |  |  |  |                                |                                     |                                     |  |
| 78  | EME 413  | Computer Aided Geometric Design                   | 3  | 6  | EME 253 Computer Aided Engineering (C- and above)  |  |  |                                |                                     |                                     |  |
| 79  | EME 451  | Capstone project 1                                | 3  | 6  |  |  |  |                                |                                     |                                     |  |
| 80  | EME 456  | Feasibility Analysis of Clean Energy Technologies | 3  | 6  |  |  |  |                                |                                     |                                     |  |
| 81  | EME 463  | Machine Dynamics II                               | 3  | 6  |  |  |  |                                |                                     |                                     |  |
| 82  | EME 467  | Vehicle Propulsion Systems                        | 3  | 6  |  |  | EME 456 Feasibility Analysis of Clean Energy Technologies (C- and above) |                                |                                     |                                     |  |
| 83  | EME 487  | Mechatronics Systems Design                       | 3  | 6  | BENG 219 Control Systems (C- and above)  |  |  |                                |                                     |                                     |  |
| 84  | MME 600  | MSc Thesis in Mechanical Engineering              | 15 | 30 |  |  |  |                                |                                     |                                     |  |
| <b>Mechanical and Aerospace Engineering</b> |          |   |    |    |  |  |  |                                |                                     |                                     |  |
| 85  | ENG 100  | Introduction to Engineering                       | 3  | 6  |  |  |  | 1 year UG SENG                 | 1 year UG SMG, 1 year UG SST        | 1 year UG SHSS                      |  |
| 86  | ENG 101  | Programming for Engineers                         | 3  | 6  |  |  |  | 1 year UG SENG                 | 1 year UG SMG, 1 year UG SST        | 1 year UG SHSS                      |  |
| 87  | MMAE 603 | Modern Control Engineering                        | 3  | 6  |  |  |  | 1 year Gr SENG, 2 year Gr SENG | Science, Engineering and Technology | GSB, GSE, GSPP, SHSS, SMG, SST, SoM |  |
| 88  | MMAE 605 | Advanced Manufacturing Processes & Strategies     | 3  | 6  |  |  |  | 1 year Gr SENG, 2 year Gr SENG | Science, Engineering and Technology | GSB, GSE, GSPP, SHSS, SMG, SST, SoM |  |
| <b>School of Engineering</b>                |          |   |    |    |  |  |  |                                |                                     |                                     |  |
| 89  | BENG 215 | Sensors and Actuators                             | 3  | 6  |  |  |  |                                |                                     |                                     |  |
| 90  | BENG 228 | Engineering Mathematics III                       | 3  | 6  | BENG 124 Engineering Mathematics I (D and above) AND BENG 225 Engineering Mathematics II (D and above) |  |  |                                |                                     |                                     |  |
| 91  | BENG 405 | Project Management                                | 3  | 6  |  |  |  |                                |                                     |                                     |  |

|     |          |  |    |    |  |  |  |                                     |  |                                     |  |
|-----|----------|--|----|----|--|--|--|-------------------------------------|--|-------------------------------------|--|
| 92  | DENG 782 | Personal and Professional Skills Development | 3  | 6  |  |  |  | Science, Engineering and Technology |  |                                     |  |
| 93  | DENG 783 | Statistics                                   | 3  | 6  |  |  |  | Science, Engineering and Technology |  |                                     |  |
| 94  | DENG 784 | Doctoral Proposal I                          | 0  | 6  |  |  |  | Science, Engineering and Technology |  |                                     |  |
| 95  | DENG 785 | PhD proposal oral defence                    | 0  | 0  |  |  |  | Science, Engineering and Technology |  |                                     |  |
| 96  | DENG 787 | Doctoral Proposal II                         | 3  | 6  | DENG 784 Doctoral Proposal I (C- and above)  | DENG 785 PhD proposal oral defence (D and above) |  | Science, Engineering and Technology |  |                                     |  |
| 97  | DENG 789 | Doctoral Seminar I                           | 3  | 6  | DENG 785 PhD proposal oral defence (C- and above)  |  |  | Science, Engineering and Technology |  | 4 year Gr SENG (pending graduation) |  |
| 98  | DENG 790 | Doctoral Seminar II                          | 3  | 6  | DENG 789 Doctoral Seminar I (C- and above)   |  |  | Science, Engineering and Technology |  |                                     |  |
| 99  | DENG 791 | Doctoral Seminar III                         | 3  | 6  | DENG 790 Doctoral Seminar II (C- and above)  |  |  | Science, Engineering and Technology |  |                                     |  |
| 100 | DENG 792 | Doctoral Seminar IV                          | 3  | 6  | DENG 791 Doctoral Seminar III (C- and above)   |  |  | Science, Engineering and Technology |  |                                     |  |
| 101 | DENG 793 | Doctoral Seminar V                           | 3  | 6  |  | DENG 792 Doctoral Seminar IV (C- and above)      |  | Science, Engineering and Technology |  |                                     |  |
| 102 | DENG 794 | Dissertation Research                        | 12 | 24 | DENG 785 PhD proposal oral defence (C- and above)  |  |  | Science, Engineering and Technology |  | 4 year Gr SENG (pending graduation) |  |
| 103 | DENG 795 | Research at Host University                  | 6  | 12 | DENG 785 PhD proposal oral defence (C- and above)  |  |  | Science, Engineering and Technology |  |                                     |  |
| 104 | DENG 796 | Thesis Completion                            | 0  | 0  |  |  |  | Science, Engineering and Technology |  |                                     |  |
| 105 | DENG 797 | Oral Defence of PhD Dissertation             | 0  | 0  | DENG 785 PhD proposal oral defence (C- and above)<br>AND DENG 789 Doctoral Seminar I (C- and above)<br>AND DENG 790 Doctoral Seminar II (C- and above) |  |  | Science, Engineering and Technology |  |                                     |  |

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|-----|----------|----------------------|---|---|---|--|--|-------------------------------------|--|--|--|
| 106 | DENG 798 | Doctoral Seminar VI  | 3 | 6 | DENG 793 Doctoral Seminar V (C- and above)  |  |  | Science, Engineering and Technology |  |  |  |
| 107 | DENG 799 | Doctoral Seminar VII | 3 | 6 | DENG 798 Doctoral Seminar VI (C- and above) |  |  | Science, Engineering and Technology |  |  |  |