

List of Undergraduate Courses for Mechanical and Engineering Programme
Applicable to students admitted in 2017-18 and thereafter

(Unless otherwise specified, all are 3-unit term courses)

Faculty Package (9 units)

ENGG1100 Introduction to Engineering Design (ESTR1000)
ENGG1110 Problem Solving By Programming (ESTR1002)
ENGG1410 Linear Algebra and Vector Calculus for Engineers (ESTR1004)

Foundation Science Courses (9 units)

CHEM1380 Basic Chemistry for Engineers
ENGG1310 Engineering Physics: Electromagnetics, Optics and Modern Physics (ESTR1003)
LSCI1001 Basic Concepts in Biological Sciences
LSCI1003 Life Sciences for Engineers
PHYS1003 General Physics for Engineers
PHYS1110 Engineering Physics: Mechanics and Thermodynamics

Foundation Mathematics Courses (9 units)

ENGG2420 Complex Analysis and Differential Equations for Engineers (ESTR2000)
ENGG2430 Probability and Statistics for Engineers (ESTR2002)
MATH1510 Calculus for Engineers

Major Required Courses (24 units)

ELEG2202 Fundamental of Electric Circuits
MAEG2020 Engineering Mechanics (ESTR2400)
MAEG2030 Thermodynamics (ESTR2402)
MAEG2601 Technology, Society and Engineering Practice (2 units)
MAEG2602 Engineering Practicum (1 unit)
MAEG3010 Mechanics of Materials
MAEG3020 Manufacturing Technology (ESTR3404)
MAEG3030 Fluid Mechanics
MAEG3050 Introduction to Control Systems (ESTR3406)

Research Component Courses (6 units)

MAEG4998 Final Year Project I (ESTR4998)
MAEG4999 Final Year Project II (ESTR4999)

Major Elective Courses (18 units)

Breadth Electives (9 units chosen from the following courses):

CSCI1020 Hands-on Introduction to C++ (1 unit)
CSCI1040 Hands-on Introduction to Python (1 unit)
CSCI1050 Hands-on Introduction to MATLAB (1 unit)
CSCI2100 Data Structures (ESTR2102)
CSCI2120 Introduction to Software Engineering (2 units)
CSCI2800 Numerical Computation
CSCI3170 Introduction to Database Systems
~DSME1030 Economics for Business Studies I
EEEN2020 Renewable Energy Technologies
EEEN3030 Engineering Materials
ELEG2401 Introduction to Embedded Systems

ELEG3101 Medical Instrumentation and Sensors
ENGG1820 Engineering Internship (1 unit)
ENGG2020 Digital Logic and Systems (ESTR2104)
MAEG1010 Introduction to Robot Design
MAEG2010 Computer-Aided Drafting (2 units)
MAEG3040 Mechanical Design
MAEG3060 Introduction to Robotics (ESTR3408)
MAEG3070 Fundamentals of Computer-Aided Design
MAEG3080 Fundamentals of Machine Intelligence
MAEG3920 Engineering Design and Applications
MAEG5050 MEMS and Nano-Robotics
[or ENGG5404 Micromachining and Microelectromechanical Systems]
MAEG5080 Smart Materials and Structures
MAEG5120 Nanomaterials and Nanotechnology: Fundamentals and Applications
MAEG5130 Computational Mechanics
MAEG5140 Materials Characterization Techniques
MGNT1010 Introduction to Business
MGNT4090 Technology and Innovation Management
~SEEM2440 Engineering Economics (ESTR2500)
SEEM3450 Engineering Innovation and Entrepreneurship (ESTR3502)
SEEM3490 Information Systems Management
SEEM3500 Quality Control and Management

Depth Electives (9 units chosen from the following courses):

EEEN4010 Kinetic Energy Harvesting Devices and Systems (ESTR4400)
EEEN4020 Solar Energy and Photovoltaic Technology (ESTR4402)
EEEN4030 Nuclear Energy and Risk Assessment (ESTR4404)
EEEN4050 Energy Storage Devices and Systems (ESTR4422)
EEEN4060 Energy Distribution (ESTR4424)
MAEG4010 Computer-Integrated Manufacturing (ESTR4408)
MAEG4020 Finite Element Modelling and Analysis (ESTR4410)
MAEG4030 Heat Transfer (ESTR4412)
MAEG4040 Mechatronic Systems (ESTR4414)
MAEG4050 Modern Control Systems Analysis and Design (ESTR4416)
MAEG4060 Virtual Reality Systems and Applications
MAEG4070 Engineering Optimization (ESTR4418)
MAEG4080 Introduction to Combustion (ESTR4420)
MAEG5010 Advanced Robotics
[or ENGG5402 Advanced Robotics]
MAEG5020 Topics in Linear Control Systems
[or ENGG5403 Linear System Theory and Design]
MAEG5030 Topics in Computer-Aided Geometric Design
MAEG5060 Computational Intelligence
MAEG5070 Nonlinear Control Systems
MAEG5090 Topics in Robotics
MAEG5100 Advanced Engineering Design and Optimization
[or ENGG5405 Theory of Engineering Design]
MAEG5110 Quantum Control and Quantum Information

~ Students can take either SEEM2440 or DSME1030 but not both

University Core Courses: Language and General Education Foundation Courses

Chinese Language (6 units)

CHLT1100 University Chinese I

CHLT1200 University Chinese II

English Language (9 units)

ELTU1001 Foundation English for University Studies

ELTU1002 English Communication for University Studies

ELTU2014 English for Engineering Students I

ELTU3014 English for Engineering Students II

General Education Foundation Courses (6 units)

UGFH1000 In Dialogue with Humanity

UGFN1000 In Dialogue with Nature

List of Undergraduate Courses for Mechanical and Engineering Programme
Applicable to students admitted in 2016-17

(Unless otherwise specified, all are 3-unit term courses)

Faculty Package (9 units)

ENGG1100 Introduction to Engineering Design (ESTR1000)
ENGG1110 Problem Solving By Programming (ESTR1002)
ENGG2601 Technology, Society and Engineering Practice (2 units)
ENGG2602 Engineering Practicum (1 unit)

Foundation Science Courses (9 units)

CHEM1380 Basic Chemistry for Engineers
ENGG1310 Engineering Physics: Electromagnetics, Optics and Modern Physics (ESTR1003)
LSCI1001 Basic Concepts in Biological Sciences
LSCI1003 Life Sciences for Engineers
PHYS1003 General Physics for Engineers
PHYS1110 Engineering Physics: Mechanics and Thermodynamics

Foundation Mathematics Courses (12 units)

ENGG1410 Linear Algebra and Vector Calculus for Engineers (ESTR1004)
ENGG2420 Complex Analysis and Differential Equations for Engineers (ESTR2000)
ENGG2430 Probability and Statistics for Engineers (ESTR2002)
MATH1510 Calculus for Engineers

Major Required Courses (21 units)

ELEG2202 Fundamental of Electric Circuits
MAEG2020 Engineering Mechanics (ESTR2400)
MAEG2030 Thermodynamics (ESTR2402)
MAEG3010 Mechanics of Materials
MAEG3020 Manufacturing Technology (ESTR3404)
MAEG3030 Fluid Mechanics
MAEG3050 Introduction to Control Systems (ESTR3406)

Research Component Courses (6 units)

MAEG4998 Final Year Project I (ESTR4998)
MAEG4999 Final Year Project II (ESTR4999)

Major Elective Courses (18 units)

Breadth Electives (9 units chosen from the following courses):

CSCI1020 Hands-on Introduction to C++ (1 unit)
CSCI1040 Hands-on Introduction to Python (1 unit)
CSCI1050 Hands-on Introduction to MATLAB (1 unit)
CSCI2100 Data Structures (ESTR2102)
CSCI2120 Introduction to Software Engineering (2 units)
CSCI2800 Numerical Computation
CSCI3170 Introduction to Database Systems
~DSME1030 Economics for Business Studies I
EEEN2020 Renewable Energy Technologies
EEEN3030 Engineering Materials
ELEG2401 Introduction to Embedded Systems

ELEG3101 Medical Instrumentation and Sensors
ENGG1820 Engineering Internship (1 unit)
ENGG2020 Digital Logic and Systems (ESTR2104)
MAEG1010 Introduction to Robot Design
MAEG2010 Computer-Aided Drafting (2 units)
MAEG3040 Mechanical Design
MAEG3060 Introduction to Robotics (ESTR3408)
MAEG3070 Fundamentals of Computer-Aided Design
MAEG3080 Fundamentals of Machine Intelligence
MAEG3920 Engineering Design and Applications
MAEG5050 MEMS and Nano-Robotics
[or ENGG5404 Micromachining and Microelectromechanical Systems]
MAEG5080 Smart Materials and Structures
MAEG5120 Nanomaterials and Nanotechnology: Fundamentals and Applications
MAEG5130 Computational Mechanics
MAEG5140 Materials Characterization Techniques
MGNT1010 Introduction to Business
MGNT4090 Technology and Innovation Management
~SEEM2440 Engineering Economics (ESTR2500)
SEEM3450 Engineering Innovation and Entrepreneurship (ESTR3502)
SEEM3490 Information Systems Management
SEEM3500 Quality Control and Management

Depth Electives (9 units chosen from the following courses):

EEEN4010 Kinetic Energy Harvesting Devices and Systems (ESTR4400)
EEEN4020 Solar Energy and Photovoltaic Technology (ESTR4402)
EEEN4030 Nuclear Energy and Risk Assessment (ESTR4404)
EEEN4050 Energy Storage Devices and Systems (ESTR4422)
EEEN4060 Energy Distribution (ESTR4424)
MAEG4010 Computer-Integrated Manufacturing (ESTR4408)
MAEG4020 Finite Element Modelling and Analysis (ESTR4410)
MAEG4030 Heat Transfer (ESTR4412)
MAEG4040 Mechatronic Systems (ESTR4414)
MAEG4050 Modern Control Systems Analysis and Design (ESTR4416)
MAEG4060 Virtual Reality Systems and Applications
MAEG4070 Engineering Optimization (ESTR4418)
MAEG4080 Introduction to Combustion (ESTR4420)
MAEG5010 Advanced Robotics
[or ENGG5402 Advanced Robotics]
MAEG5020 Topics in Linear Control Systems
[or ENGG5403 Linear System Theory and Design]
MAEG5030 Topics in Computer-Aided Geometric Design
MAEG5060 Computational Intelligence
MAEG5070 Nonlinear Control Systems
MAEG5090 Topics in Robotics
MAEG5100 Advanced Engineering Design and Optimization
[or ENGG5405 Theory of Engineering Design]
MAEG5110 Quantum Control and Quantum Information

~ Students can take either SEEM2440 or DSME1030 but not both

University Core Courses: Language and General Education Foundation Courses

Chinese Language (6 units)

CHLT1100 University Chinese I

CHLT1200 University Chinese II

English Language (9 units)

ELTU1001 Foundation English for University Studies

ELTU1002 English Communication for University Studies

ELTU2014 English for Engineering Students I

ELTU3014 English for Engineering Students II

General Education Foundation Courses (6 units)

UGFH1000 In Dialogue with Humanity

UGFN1000 In Dialogue with Nature

List of Undergraduate Courses for Mechanical and Engineering Programme
Applicable to students admitted in 2015-16

(Unless otherwise specified, all are 3-unit term courses)

Faculty Package (9 units)

ENGG1100 Introduction to Engineering Design (ESTR1000)
ENGG1110 Problem Solving By Programming (ESTR1002)
ENGG2601 Technology, Society and Engineering Practice (2 units)
ENGG2602 Engineering Practicum (1 unit)

Foundation Science Courses (9 units)

CHEM1070 Principles of Modern Chemistry
CHEM1280 Introduction to Organic Chemistry and Biomolecules
CHEM1380 Basic Chemistry for Engineers
ENGG1310 Engineering Physics: Electromagnetics, Optics and Modern Physics (ESTR1003)
LSCI1001 Basic Concepts in Biological Sciences
LSCI1003 Life Sciences for Engineers
PHYS1003 General Physics for Engineers
PHYS1110 Engineering Physics: Mechanics and Thermodynamics

Foundation Mathematics Courses (12 units)

ENGG1410 Linear Algebra and Vector Calculus for Engineers (ESTR1004)
ENGG2420 Complex Analysis and Differential Equations for Engineers (ESTR2000)
ENGG2430 Probability and Statistics for Engineers (ESTR2002)
MATH1510 Calculus for Engineers

Major Required Courses (18 units)

ELEG2202 Fundamental of Electric Circuits
MAEG2020 Engineering Mechanics (ESTR2400)
MAEG2030 Thermodynamics (ESTR2402)
MAEG3010 Mechanics of Materials
MAEG3020 Manufacturing Technology (ESTR3404)
MAEG3050 Introduction to Control Systems (ESTR3406)

Research Component Courses (6 units)

MAEG4998 Final Year Project I (ESTR4998)
MAEG4999 Final Year Project II (ESTR4999)

Major Elective Courses (21 units)

Breadth Electives (12 units chosen from the following courses):

CSCI1020 Hands-on Introduction to C++ (1 unit)
CSCI1040 Hands-on Introduction to Python (1 unit)
CSCI1050 Hands-on Introduction to MATLAB (1 unit)
CSCI2100 Data Structures (ESTR2102)
CSCI2120 Introduction to Software Engineering (2 units)
CSCI2800 Numerical Computation
CSCI3170 Introduction to Database Systems
~DSME1030 Economics for Business Studies I
ELEG2401 Introduction to Embedded Systems
ELEG3101 Medical Instrumentation and Sensors

ENER2010 Energy Technologies and the Environment
ENER2020 Renewable Energy Technologies
ENER3030 Engineering Materials (ESTR3402)
ENGG1820 Engineering Internship (1 unit)
ENGG2020 Digital Logic and Systems (ESTR2104)
MAEG1010 Introduction to Robot Design
MAEG2010 Computer-Aided Drafting (2 units)
MAEG3030 Fluid Mechanics
MAEG3040 Mechanical Design
MAEG3060 Introduction to Robotics (ESTR3408)
MAEG3070 Fundamentals of Computer-Aided Design
MAEG3080 Fundamentals of Machine Intelligence
MAEG3920 Engineering Design and Applications
MAEG5040 Computer Vision
MAEG5050 MEMS and Nano-Robotics
[or ENGG5404 Micromachining and Microelectromechanical Systems]
MAEG5080 Smart Materials and Structures
MAEG5120 Nanomaterials and Nanotechnology: Fundamentals and Applications
MAEG5130 Computational Mechanics
MAEG5140 Materials Characterization Techniques
MGNT1010 Introduction to Business
MGNT4090 Technology and Innovation Management
~SEEM2440 Engineering Economics (ESTR2500)
SEEM3450 Engineering Innovation and Entrepreneurship (ESTR3502)
SEEM3490 Information Systems Management
SEEM3500 Quality Control and Management

Depth Electives (9 units chosen from the following courses):

ENER4010 Kinetic Energy Harvesting Devices and Systems (ESTR4400)
ENER4020 Solar Energy and Photovoltaic Technology (ESTR4402)
ENER4030 Nuclear Energy and Risk Assessment (ESTR4404)
ENER4050 Energy Storage Devices and Systems (ESTR4422)
ENER4060 Energy Distribution (ESTR4424)
MAEG4010 Computer-Integrated Manufacturing (ESTR4408)
MAEG4020 Finite Element Modelling and Analysis (ESTR4410)
MAEG4030 Heat Transfer (ESTR4412)
MAEG4040 Mechatronic Systems (ESTR4414)
MAEG4050 Modern Control Systems Analysis and Design (ESTR4416)
MAEG4060 Virtual Reality Systems and Applications
MAEG4070 Engineering Optimization (ESTR4418)
MAEG4080 Introduction to Combustion (ESTR4420)
MAEG5010 Advanced Robotics
[or ENGG5402 Advanced Robotics]
MAEG5020 Topics in Linear Control Systems
[or ENGG5403 Linear System Theory and Design]
MAEG5030 Topics in Computer-Aided Geometric Design
MAEG5060 Computational Intelligence
MAEG5070 Nonlinear Control Systems
MAEG5090 Topics in Robotics
MAEG5100 Advanced Engineering Design and Optimization
[or ENGG5405 Theory of Engineering Design]
MAEG5110 Quantum Control and Quantum Information

~ Students can take either SEEM2440 or DSME1030 but not both

University Core Courses: Language and General Education Foundation Courses

Chinese Language (6 units)

CHLT1100 University Chinese I

CHLT1200 University Chinese II

English Language (9 units)

ELTU1001 Foundation English for University Studies

ELTU1002 English Communication for University Studies

ELTU2014 English for Engineering Students I

ELTU3014 English for Engineering Students II

General Education Foundation Courses (6 units)

UGFH1000 In Dialogue with Humanity

UGFN1000 In Dialogue with Nature

List of Undergraduate Courses for Mechanical and Engineering Programme
Applicable to students admitted in 2014-15

(Unless otherwise specified, all are 3-unit term courses)

Faculty Package (9 units)

ENGG1100 Introduction to Engineering Design (ESTR1000)
ENGG1110 Problem Solving By Programming (ESTR1002)
ENGG2601 Technology, Society and Engineering Practice (2 units)
ENGG2602 Engineering Practicum (1 unit)

Foundation Science Courses (9 units)

CHEM1070 Principles of Modern Chemistry
CHEM1280 Introduction to Organic Chemistry and Biomolecules
CHEM1380 Basic Chemistry for Engineers
ENGG2520 Engineering Physics II (ESTR2006)
[or ENGG1310 Engineering Physics: Electromagnetics, Optics and Modern Physics (ESTR1003)]
LSCI1001 Basic Concepts in Biological Sciences
LSCI1003 Life Sciences for Engineers
PHYS1003 General Physics for Engineers
PHYS1110 Engineering Physics: Mechanics and Thermodynamics

Foundation Mathematics Courses (12 units)

ENGG1410 Linear Algebra and Vector Calculus for Engineers (ESTR1004)
ENGG2420 Complex Analysis and Differential Equations for Engineers (ESTR2000)
ENGG2430 Probability and Statistics for Engineers (ESTR2002)
MATH1510 Calculus for Engineers

Major Required Courses (18 units)

ELEG2202 Fundamental of Electric Circuits
MAEG2020 Engineering Mechanics (ESTR2400)
MAEG2030 Thermodynamics (ESTR2402)
MAEG3010 Mechanics of Materials
MAEG3020 Manufacturing Technology (ESTR3404)
MAEG3050 Introduction to Control Systems (ESTR3406)

Research Component Courses (6 units)

MAEG4998 Final Year Project I (ESTR4998)
MAEG4999 Final Year Project II (ESTR4999)

Major Elective Courses (21 units)

Breadth Electives (12 units chosen from the following courses):

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CSCI1040 Hands-on Introduction to Python (1 unit)
CSCI1050 Hands-on Introduction to MATLAB (1 unit)
CSCI2100 Data Structures (ESTR2102)
CSCI2120 Introduction to Software Engineering (2 units)
CSCI2800 Numerical Computation
CSCI3170 Introduction to Database Systems
~DSME1030 Economics for Business Studies I
ELEG2401 Introduction to Embedded Systems

ELEG3101 Medical Instrumentation and Sensors
ENER2010 Energy Technologies and the Environment
ENER2020 Renewable Energy Technologies
ENER3030 Engineering Materials (ESTR3402)
ENGG1820 Engineering Internship (1 unit)
ENGG2020 Digital Logic and Systems (ESTR2104)
MAEG1010 Introduction to Robot Design
MAEG2010 Computer-Aided Drafting (2 units)
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MAEG3040 Mechanical Design
MAEG3060 Introduction to Robotics (ESTR3408)
MAEG3070 Fundamentals of Computer-Aided Design
MAEG3080 Fundamentals of Machine Intelligence
MAEG3920 Engineering Design and Applications
MAEG5040 Computer Vision
MAEG5050 MEMS and Nano-Robotics
[or ENGG5404 Micromachining and Microelectromechanical Systems]
MAEG5080 Smart Materials and Structures
MAEG5120 Nanomaterials and Nanotechnology: Fundamentals and Applications
MAEG5130 Computational Mechanics
MAEG5140 Materials Characterization Techniques
MGNT1010 Introduction to Business
MGNT4090 Technology and Innovation Management
~SEEM2440 Engineering Economics (ESTR2500)
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SEEM3500 Quality Control and Management

Depth Electives (9 units chosen from the following courses):

ENER4010 Kinetic Energy Harvesting Devices and Systems (ESTR4400)
ENER4020 Solar Energy and Photovoltaic Technology (ESTR4402)
ENER4030 Nuclear Energy and Risk Assessment (ESTR4404)
ENER4050 Energy Storage Devices and Systems (ESTR4422)
ENER4060 Energy Distribution (ESTR4424)
MAEG4010 Computer-Integrated Manufacturing (ESTR4408)
MAEG4020 Finite Element Modelling and Analysis (ESTR4410)
MAEG4030 Heat Transfer (ESTR4412)
MAEG4040 Mechatronic Systems (ESTR4414)
MAEG4050 Modern Control Systems Analysis and Design (ESTR4416)
MAEG4060 Virtual Reality Systems and Applications
MAEG4070 Engineering Optimization (ESTR4418)
MAEG4080 Introduction to Combustion (ESTR4420)
MAEG5010 Advanced Robotics
[or ENGG5402 Advanced Robotics]
MAEG5020 Topics in Linear Control Systems
[or ENGG5403 Linear System Theory and Design]
MAEG5030 Topics in Computer-Aided Geometric Design
MAEG5060 Computational Intelligence
MAEG5070 Nonlinear Control Systems
MAEG5090 Topics in Robotics
MAEG5100 Advanced Engineering Design and Optimization
[or ENGG5405 Theory of Engineering Design]
MAEG5110 Quantum Control and Quantum Information

~ Students can take either SEEM2440 or DSME1030 but not both

University Core Courses: Language and General Education Foundation Courses

Chinese Language (6 units)

CHLT1100 University Chinese I

CHLT1200 University Chinese II

English Language (9 units)

ELTU1001 Foundation English for University Studies

ELTU1002 English Communication for University Studies

ELTU2014 English for Engineering Students I

ELTU3014 English for Engineering Students II

General Education Foundation Courses (6 units)

UGFH1000 In Dialogue with Humanity

UGFN1000 In Dialogue with Nature