

## **Course List for Mechanical and Automation Engineering (MAEG) Programme**

**(Applicable for students admitted in 2025-26)**

*(Unless otherwise specified, all are 3-unit term courses. Note that this is a course list showing the titles of major courses for easy reference only. Please refer to student handbook for detailed Major Programme requirement.)*

### **Faculty Package (9 units)**

ENGG1110/ESTR1002 Problem Solving By Programming

ENGG1111 AI Literacy Workshop (0 unit)

ENGG1120/ESTR1005 Linear Algebra for Engineers

ENGG1125/ESTR1007 Single Variable Calculus for Engineers

### **Foundation Courses (13 units)**

ENGG1130/ESTR1006 Multivariable Calculus for Engineers

ENGG2720/ESTR2014 Complex Variables for Engineers (2 units)

ENGG2740/ESTR2016 Differential Equations for Engineers (2 units)

MAEG1020 Computational Design and Fabrication

PHYS1110 Engineering Physics: Mechanics and Thermodynamics

### **Major Required Courses (33 units)**

EEEN3030/ESTR3402 Engineering Materials

ELEG2202 Fundamentals of Electric Circuits

MAEG2020/ESTR2400 Engineering Mechanics

MAEG2030/ESTR2402 Thermodynamics

MAEG2601 Technology, Society and Engineering Practice (2 units)

MAEG2602 Engineering Practicum (1 unit)

MAEG3010 Mechanics of Materials

MAEG3020/ESTR3404 Manufacturing Technology

MAEG3030 Fluid Mechanics

MAEG3040 Mechanical Design

MAEG3050/ESTR3406 Introduction to Control Systems

MAEG4030/ESTR4412 Heat Transfer

### **Research Component Courses (6 units)**

MAEG4998/ESTR4998 Final Year Project I

MAEG4999/ESTR4999 Final Year Project II

**Major Elective Courses (14 units)** (at least 6 units of MAEG courses at 4000 and above level or their reciprocal ESTR courses or ENGG courses at 5000 level)

**Breadth Electives** (at least 6 units chosen from the following courses):

BMEG3420 Medical Robotics

CSCI1020 Hands-on Introduction to C++ (1 unit)

CSCI2040 Introduction to Python (2 units)

CSCI2100/ESTR2102 Data Structures

CSCI3170 Introduction to Database Systems

~DOTE1030 Economics for Business Studies I

EEEN2020 Renewable Energy Technologies

ELEG3701 Embedded Systems Design

ENGG1820 Engineering Internship (1 unit)

ENGG2020/ESTR2104 Digital Logic and Systems

ENGG2760/ESTR2018 Probability for Engineers (2 units)

ENGG2780/ESTR2020 Statistics for Engineers (2 units)

ENGG5404 Micromachining and Microelectromechanical Systems

MAEG1010 Introduction to Robot Design

MAEG2050 Robot Development in Practice: From Design to Prototyping

MAEG3060/ESTR3408 Introduction to Robotics  
MAEG3070 Fundamentals of Computer-Aided Design  
MAEG3080 Fundamentals of Machine Intelligence  
MAEG3920 Engineering Design and Applications  
MAEG5080 Smart Materials and Structures  
MAEG5120 Nanomaterials and Nanotechnology: Fundamentals and Applications  
MAEG5130 Computational Mechanics  
MAEG5140 Materials Characterization Techniques  
MAEG5160 Design for Additive Manufacturing  
MGNT1010 Introduction to Business  
MGNT4090 Technology and Innovation Management  
~SEEM2440/ESTR2500 Engineering Economics  
SEEM3450/ESTR3502 Engineering Innovation and Entrepreneurship  
SEEM3490 Information Systems Management  
SEEM3500 Quality Control and Management

Depth Electives (at least 6 units chosen from the following courses):

EEEN4010/ESTR4400 Kinetic Energy Harvesting Devices and Systems  
EEEN4020/ESTR4402 Solar Energy and Photovoltaic Technology  
EEEN4030/ESTR4404 Nuclear Energy and Risk Assessment  
EEEN4050/ESTR4422 Energy Storage Devices and Systems  
EEEN4060/ESTR4424 Energy Distribution  
ENGG5402 Advanced Robotics  
ENGG5403 Linear System Theory and Design  
ENGG5405 Theory of Engineering Design  
MAEG4010/ESTR4408 Computer-Integrated Manufacturing  
MAEG4020/ESTR4410 Finite Element Modelling and Analysis  
MAEG4040/ESTR4414 Mechatronic Systems  
MAEG4050/ESTR4416 Modern Control Systems Analysis and Design  
MAEG4060 Virtual Reality Systems and Applications  
MAEG4070/ESTR4418 Engineering Optimization  
MAEG4080/ESTR4420 Introduction to Combustion  
MAEG5030 Geometric Computing for Design and Manufacturing  
MAEG5060 Computational Intelligence  
MAEG5070 Nonlinear Control Systems  
MAEG5090 Topics in Robotics  
MAEG5110 Quantum Control and Quantum Information  
MAEG5150 Advanced Heat Transfer and Fluid Mechanics

~ Students can take either SEEM2440 or DOTE1030 but not both

### **University Core Courses: Language and General Education Foundation Courses**

#### **Chinese Language (5 units)**

CHLT1001 University Chinese I (3 units)  
CHLT1002 University Chinese II (2 units)

#### **English Language (8 units)**

ELTU1001 Foundation English for University Studies (3 units)  
ELTU2014 English for Engineering Students I (3 units)  
ELTU3014 English for Engineering Students II (2 units)

**General Education Foundation Courses (6 units)**

UGFH1000 In Dialogue with Humanity (3 units)

UGFN1000 In Dialogue with Nature (3 units)

**Understanding China (1 unit)**

UGCP1001 Understanding China (1 unit)

**Hong Kong in the Wider Constitutional Order (1 unit)**

UGCP1002 Hong Kong in the Wider Constitutional Order (1 unit)

**Information Technology (3 units)**

ENG1004 Digital Literacy and Computational Thinking (Version R) (3 units)

## **Course List for Mechanical and Automation Engineering (MAEG) Programme**

**(Applicable for students admitted in 2024-25)**

*(Unless otherwise specified, all are 3-unit term courses. Note that this is a course list showing the titles of major courses for easy reference only. Please refer to student handbook for detailed Major Programme requirement.)*

### **Faculty Package (9 units)**

ENGG1110/ESTR1002 Problem Solving By Programming

ENGG1120/ESTR1005 Linear Algebra for Engineers

ENGG1130/ESTR1006 Multivariable Calculus for Engineers

### **Foundation Courses (13 units)**

ENGG2720/ESTR2014 Complex Variables for Engineers (2 units)

ENGG2740/ESTR2016 Differential Equations for Engineers (2 units)

MAEG1020 Computational Design and Fabrication

MATH1510 Calculus for Engineers

PHYS1110 Engineering Physics: Mechanics and Thermodynamics

### **Major Required Courses (33 units)**

EEEN3030/ESTR3402 Engineering Materials

ELEG2202 Fundamentals of Electric Circuits

MAEG2020/ESTR2400 Engineering Mechanics

MAEG2030/ESTR2402 Thermodynamics

MAEG2601 Technology, Society and Engineering Practice (2 units)

MAEG2602 Engineering Practicum (1 unit)

MAEG3010 Mechanics of Materials

MAEG3020/ESTR3404 Manufacturing Technology

MAEG3030 Fluid Mechanics

MAEG3040 Mechanical Design

MAEG3050/ESTR3406 Introduction to Control Systems

MAEG4030/ESTR4412 Heat Transfer

### **Research Component Courses (6 units)**

MAEG4998/ESTR4998 Final Year Project I

MAEG4999/ESTR4999 Final Year Project II

**Major Elective Courses (14 units)** (at least 6 units of MAEG courses at 4000 and above level or their reciprocal ESTR courses or ENGG courses at 5000 level)

**Breadth Electives** (at least 6 units chosen from the following courses):

BMEG3420 Medical Robotics

CSCI1020 Hands-on Introduction to C++ (1 unit)

CSCI2040 Introduction to Python (2 units)

CSCI2100/ESTR2102 Data Structures

CSCI3170 Introduction to Database Systems

~DOTE1030 Economics for Business Studies I

EEEN2020 Renewable Energy Technologies

ELEG3701 Embedded Systems Design

ENGG1820 Engineering Internship (1 unit)

ENGG2020/ESTR2104 Digital Logic and Systems

ENGG2760/ESTR2018 Probability for Engineers (2 units)

ENGG2780/ESTR2020 Statistics for Engineers (2 units)

ENGG5404 Micromachining and Microelectromechanical Systems

MAEG1010 Introduction to Robot Design

MAEG2050 Robot Development in Practice: From Design to Prototyping

MAEG3060/ESTR3408 Introduction to Robotics

MAEG3070 Fundamentals of Computer-Aided Design  
MAEG3080 Fundamentals of Machine Intelligence  
MAEG3920 Engineering Design and Applications  
MAEG5080 Smart Materials and Structures  
MAEG5120 Nanomaterials and Nanotechnology: Fundamentals and Applications  
MAEG5130 Computational Mechanics  
MAEG5140 Materials Characterization Techniques  
MAEG5160 Design for Additive Manufacturing  
MGNT1010 Introduction to Business  
MGNT4090 Technology and Innovation Management  
~SEEM2440/ESTR2500 Engineering Economics  
SEEM3450/ESTR3502 Engineering Innovation and Entrepreneurship  
SEEM3490 Information Systems Management  
SEEM3500 Quality Control and Management

Depth Electives (at least 6 units chosen from the following courses):

EEEN4010/ESTR4400 Kinetic Energy Harvesting Devices and Systems  
EEEN4020/ESTR4402 Solar Energy and Photovoltaic Technology  
EEEN4030/ESTR4404 Nuclear Energy and Risk Assessment  
EEEN4050/ESTR4422 Energy Storage Devices and Systems  
EEEN4060/ESTR4424 Energy Distribution  
ENGG5402 Advanced Robotics  
ENGG5403 Linear System Theory and Design  
ENGG5405 Theory of Engineering Design  
MAEG4010/ESTR4408 Computer-Integrated Manufacturing  
MAEG4020/ESTR4410 Finite Element Modelling and Analysis  
MAEG4040/ESTR4414 Mechatronic Systems  
MAEG4050/ESTR4416 Modern Control Systems Analysis and Design  
MAEG4060 Virtual Reality Systems and Applications  
MAEG4070/ESTR4418 Engineering Optimization  
MAEG4080/ESTR4420 Introduction to Combustion  
MAEG5030 Geometric Computing for Design and Manufacturing  
MAEG5060 Computational Intelligence  
MAEG5070 Nonlinear Control Systems  
MAEG5090 Topics in Robotics  
MAEG5110 Quantum Control and Quantum Information  
MAEG5150 Advanced Heat Transfer and Fluid Mechanics

~ Students can take either SEEM2440 or DOTE1030 but not both

### **University Core Courses: Language and General Education Foundation Courses**

#### **Chinese Language (5 units)**

CHLT1001 University Chinese I (3 units)  
CHLT1002 University Chinese II (2 units)

#### **English Language (8 units)**

ELTU1001 Foundation English for University Studies (3 units)  
ELTU2014 English for Engineering Students I (3 units)  
ELTU3014 English for Engineering Students II (2 units)

#### **General Education Foundation Courses (6 units)**

UGFH1000 In Dialogue with Humanity (3 units)

UGFN1000 In Dialogue with Nature (3 units)

**Understanding China (1 unit)**

UGCP1001 Understanding China (1 unit)

**Hong Kong in the Wider Constitutional Order (1 unit)**

UGCP1002 Hong Kong in the Wider Constitutional Order (1 unit)

**Information Technology (3 units)**

ENGG1004 Digital Literacy and Computational Thinking (Version R) (3 units)

## **Course List for Mechanical and Automation**

### **Engineering (MAEG) Programme**

**(Applicable for students admitted in 2023-24)**

*(Unless otherwise specified, all are 3-unit term courses. Note that this is a course list showing the titles of major courses for easy reference only. Please refer to student handbook for detailed Major Programme requirement.)*

#### **Faculty Package (9 units)**

ENGG1110/ESTR1002 Problem Solving By Programming

ENGG1120/ESTR1005 Linear Algebra for Engineers

ENGG1130/ESTR1006 Multivariable Calculus for Engineers

#### **Foundation Courses (13 units)**

ENGG2720/ESTR2014 Complex Variables for Engineers (2 units)

ENGG2740/ESTR2016 Differential Equations for Engineers (2 units)

MAEG1020 Computational Design and Fabrication

MATH1510 Calculus for Engineers

PHYS1110 Engineering Physics: Mechanics and Thermodynamics

#### **Major Required Courses (33 units)**

EEEN3030/ESTR3402 Engineering Materials

ELEG2202 Fundamentals of Electric Circuits

MAEG2020/ESTR2400 Engineering Mechanics

MAEG2030/ESTR2402 Thermodynamics

MAEG2601 Technology, Society and Engineering Practice (2 units)

MAEG2602 Engineering Practicum (1 unit)

MAEG3010 Mechanics of Materials

MAEG3020/ESTR3404 Manufacturing Technology

MAEG3030 Fluid Mechanics

MAEG3040 Mechanical Design

MAEG3050/ESTR3406 Introduction to Control Systems

MAEG4030/ESTR4412 Heat Transfer

#### **Research Component Courses (6 units)**

MAEG4998/ESTR4998 Final Year Project I

MAEG4999/ESTR4999 Final Year Project II

**Major Elective Courses (14 units)** (at least 6 units of MAEG courses at 4000 and above level or their reciprocal ESTR courses or ENGG courses at 5000 level)

**Breadth Electives** (at least 6 units chosen from the following courses):

BMEG3420 Medical Robotics

CSCI1020 Hands-on Introduction to C++ (1 unit)

CSCI2040 Introduction to Python (2 units)

CSCI2100/ESTR2102 Data Structures

CSCI3170 Introduction to Database Systems

~DOTE[DSME]1030 Economics for Business Studies I

EEEN2020 Renewable Energy Technologies

ELEG2401 Introduction to Embedded Systems (or ELEG3701 Embedded Systems Design)

ENGG1820 Engineering Internship (1 unit)

ENGG2020/ESTR2104 Digital Logic and Systems

ENGG2760/ESTR2018 Probability for Engineers (2 units)

ENGG2780/ESTR2020 Statistics for Engineers (2 units)

ENGG5404 Micromachining and Microelectromechanical Systems

MAEG1010 Introduction to Robot Design

MAEG2050 Robot Development in Practice: From Design to Prototyping

MAEG3060/ESTR3408 Introduction to Robotics  
MAEG3070 Fundamentals of Computer-Aided Design  
MAEG3080 Fundamentals of Machine Intelligence  
MAEG3920 Engineering Design and Applications  
MAEG5080 Smart Materials and Structures  
MAEG5120 Nanomaterials and Nanotechnology: Fundamentals and Applications  
MAEG5130 Computational Mechanics  
MAEG5140 Materials Characterization Techniques  
MAEG5160 Design for Additive Manufacturing  
MGNT1010 Introduction to Business  
MGNT4090 Technology and Innovation Management  
~SEEM2440/ESTR2500 Engineering Economics  
SEEM3450/ESTR3502 Engineering Innovation and Entrepreneurship  
SEEM3490 Information Systems Management  
SEEM3500 Quality Control and Management

Depth Electives (at least 6 units chosen from the following courses):

EEEN4010/ESTR4400 Kinetic Energy Harvesting Devices and Systems  
EEEN4020/ESTR4402 Solar Energy and Photovoltaic Technology  
EEEN4030/ESTR4404 Nuclear Energy and Risk Assessment  
EEEN4050/ESTR4422 Energy Storage Devices and Systems  
EEEN4060/ESTR4424 Energy Distribution  
ENGG5402 Advanced Robotics  
ENGG5403 Linear System Theory and Design  
ENGG5405 Theory of Engineering Design  
MAEG4010/ESTR4408 Computer-Integrated Manufacturing  
MAEG4020/ESTR4410 Finite Element Modelling and Analysis  
MAEG4040/ESTR4414 Mechatronic Systems  
MAEG4050/ESTR4416 Modern Control Systems Analysis and Design  
MAEG4060 Virtual Reality Systems and Applications  
MAEG4070/ESTR4418 Engineering Optimization  
MAEG4080/ESTR4420 Introduction to Combustion  
MAEG5030 Geometric Computing for Design and Manufacturing  
MAEG5060 Computational Intelligence  
MAEG5070 Nonlinear Control Systems  
MAEG5090 Topics in Robotics  
MAEG5110 Quantum Control and Quantum Information  
MAEG5150 Advanced Heat Transfer and Fluid Mechanics

~ Students can take either SEEM2440 or DOTE[DSME]1030 but not both  
[] Subject area code “DSME” changed to “DOTE” with effect from 2024-25.

### **University Core Courses: Language and General Education Foundation Courses**

#### **Chinese Language (5 units)**

CHLT1001 University Chinese I (3 units)  
CHLT1002 University Chinese II (2 units)

#### **English Language (8 units)**

ELTU1001 Foundation English for University Studies (3 units)  
ELTU2014 English for Engineering Students I (3 units)  
ELTU3014 English for Engineering Students II (2 units)



**General Education Foundation Courses (6 units)**

UGFH1000 In Dialogue with Humanity (3 units)

UGFN1000 In Dialogue with Nature (3 units)

**Understanding China (1 unit)**

UGCP1001 Understanding China (1 unit)

**Hong Kong in the Wider Constitutional Order (1 unit)**

UGCP1002 Hong Kong in the Wider Constitutional Order (1 unit)

**Information Technology (3 units)**

ENG1004 Digital Literacy and Computational Thinking (Version R) (3 units)

## **Course List for Mechanical and Automation Engineering (MAEG) Programme**

**(Applicable for students admitted in 2022-23)**

*(Unless otherwise specified, all are 3-unit term courses. Note that this is a course list showing the titles of major courses for easy reference only. Please refer to student handbook for detailed Major Programme requirement.)*

### **Faculty Package (9 units)**

ENGG1110/ESTR1002 Problem Solving By Programming

ENGG1120/ESTR1005 Linear Algebra for Engineers

ENGG1130/ESTR1006 Multivariable Calculus for Engineers

### **Foundation Courses (13 units)**

ENGG2720/ESTR2014 Complex Variables for Engineers (2 units)

ENGG2740/ESTR2016 Differential Equations for Engineers (2 units)

MAEG1020 Computational Design and Fabrication

MATH1510 Calculus for Engineers

PHYS1110 Engineering Physics: Mechanics and Thermodynamics

### **Major Required Courses (33 units)**

EEEN3030/ESTR3402 Engineering Materials

ELEG2202 Fundamentals of Electric Circuits

MAEG2020/ESTR2400 Engineering Mechanics

MAEG2030/ESTR2402 Thermodynamics

MAEG2601 Technology, Society and Engineering Practice (2 units)

MAEG2602 Engineering Practicum (1 unit)

MAEG3010 Mechanics of Materials

MAEG3020/ESTR3404 Manufacturing Technology

MAEG3030 Fluid Mechanics

MAEG3040 Mechanical Design

MAEG3050/ESTR3406 Introduction to Control Systems

MAEG4030/ESTR4412 Heat Transfer

### **Research Component Courses (6 units)**

MAEG4998/ESTR4998 Final Year Project I

MAEG4999/ESTR4999 Final Year Project II

**Major Elective Courses (14 units)** (at least 6 units of MAEG courses at 4000 and above level or their reciprocal ESTR courses or ENGG courses at 5000 level)

**Breadth Electives** (at least 6 units chosen from the following courses):

BMEG3420 Medical Robotics

CSCI1020 Hands-on Introduction to C++ (1 unit)

CSCI2040 Introduction to Python (2 units)

CSCI2100/ESTR2102 Data Structures

CSCI3170 Introduction to Database Systems

~DOTE[DSME]1030 Economics for Business Studies I

EEEN2020 Renewable Energy Technologies

ELEG2401 Introduction to Embedded Systems (or ELEG3701 Embedded Systems Design)

ENGG1820 Engineering Internship (1 unit)

ENGG2020/ESTR2104 Digital Logic and Systems

ENGG2760/ESTR2018 Probability for Engineers (2 units)

ENGG2780/ESTR2020 Statistics for Engineers (2 units)

ENGG5404 Micromachining and Microelectromechanical Systems

MAEG1010 Introduction to Robot Design

MAEG2050 Robot Development in Practice: From Design to Prototyping

MAEG3060/ESTR3408 Introduction to Robotics

MAEG3070 Fundamentals of Computer-Aided Design  
MAEG3080 Fundamentals of Machine Intelligence  
MAEG3920 Engineering Design and Applications  
MAEG5080 Smart Materials and Structures  
MAEG5120 Nanomaterials and Nanotechnology: Fundamentals and Applications  
MAEG5130 Computational Mechanics  
MAEG5140 Materials Characterization Techniques  
MAEG5160 Design for Additive Manufacturing  
MGNT1010 Introduction to Business  
MGNT4090 Technology and Innovation Management  
~SEEM2440/ESTR2500 Engineering Economics  
SEEM3450/ESTR3502 Engineering Innovation and Entrepreneurship  
SEEM3490 Information Systems Management  
SEEM3500 Quality Control and Management

Depth Electives (at least 6 units chosen from the following courses):

EEEN4010/ESTR4400 Kinetic Energy Harvesting Devices and Systems  
EEEN4020/ESTR4402 Solar Energy and Photovoltaic Technology  
EEEN4030/ESTR4404 Nuclear Energy and Risk Assessment  
EEEN4050/ESTR4422 Energy Storage Devices and Systems  
EEEN4060/ESTR4424 Energy Distribution  
ENGG5402 Advanced Robotics  
ENGG5403 Linear System Theory and Design  
ENGG5405 Theory of Engineering Design  
MAEG4010/ESTR4408 Computer-Integrated Manufacturing  
MAEG4020/ESTR4410 Finite Element Modelling and Analysis  
MAEG4040/ESTR4414 Mechatronic Systems  
MAEG4050/ESTR4416 Modern Control Systems Analysis and Design  
MAEG4060 Virtual Reality Systems and Applications  
MAEG4070/ESTR4418 Engineering Optimization  
MAEG4080/ESTR4420 Introduction to Combustion  
MAEG5030 Geometric Computing for Design and Manufacturing  
MAEG5060 Computational Intelligence  
MAEG5070 Nonlinear Control Systems  
MAEG5090 Topics in Robotics  
MAEG5110 Quantum Control and Quantum Information  
MAEG5150 Advanced Heat Transfer and Fluid Mechanics

~ Students can take either SEEM2440 or DSME1030 but not both

[] Subject area code “DSME” changed to “DOTE” with effect from 2024-25.

### **University Core Courses: Language and General Education Foundation Courses**

#### **Chinese Language (5 units)**

CHLT1001 University Chinese I (3 units)  
CHLT1002 University Chinese II (2 units)

#### **English Language (8 units)**

ELTU1001 Foundation English for University Studies (3 units)  
ELTU2014 English for Engineering Students I (3 units)  
ELTU3014 English for Engineering Students II (2 units)

#### **General Education Foundation Courses (6 units)**

UGFH1000 In Dialogue with Humanity (3 units)

UGFN1000 In Dialogue with Nature (3 units)

**Understanding China (1 unit)**

UGCP1001 Understanding China (1 unit)

**Hong Kong in the Wider Constitutional Order (1 unit)**

UGCP1002 Hong Kong in the Wider Constitutional Order (1 unit)

**Information Technology (3 units)**

ENGG1004 Digital Literacy and Computational Thinking (Version R) (3 units)

## **Course List for Mechanical and Automation Engineering (MAEG) Programme**

**(Applicable for students admitted in 2021-22)**

*(Unless otherwise specified, all are 3-unit term courses. Note that this is a course list showing the titles of major courses for easy reference only. Please refer to student handbook for detailed Major Programme requirement.)*

### **Faculty Package (9 units)**

ENGG1110/ESTR1002 Problem Solving By Programming

ENGG1120/ESTR1005 Linear Algebra for Engineers

ENGG1130/ESTR1006 Multivariable Calculus for Engineers

### **Foundation Courses (13 units)**

ENGG2720/ESTR2014 Complex Variables for Engineers (2 units)

ENGG2740/ESTR2016 Differential Equations for Engineers (2 units)

MAEG1020 Computational Design and Fabrication

MATH1510 Calculus for Engineers

PHYS1110 Engineering Physics: Mechanics and Thermodynamics

### **Major Required Courses (33 units)**

EEEN3030/ESTR3402 Engineering Materials

ELEG2202 Fundamentals of Electric Circuits

MAEG2020/ESTR2400 Engineering Mechanics

MAEG2030/ESTR2402 Thermodynamics

MAEG2601 Technology, Society and Engineering Practice (2 units)

MAEG2602 Engineering Practicum (1 unit)

MAEG3010 Mechanics of Materials

MAEG3020/ESTR3404 Manufacturing Technology

MAEG3030 Fluid Mechanics

MAEG3040 Mechanical Design

MAEG3050/ESTR3406 Introduction to Control Systems

MAEG4030/ESTR4412 Heat Transfer

### **Research Component Courses (6 units)**

MAEG4998/ESTR4998 Final Year Project I

MAEG4999/ESTR4999 Final Year Project II

**Major Elective Courses (14 units)** (at least 6 units of MAEG courses at 4000 and above level or their reciprocal ESTR courses or ENGG courses at 5000 level)

**Breadth Electives** (at least 6 units chosen from the following courses):

BMEG3420 Medical Robotics

CSCI1020 Hands-on Introduction to C++ (1 unit)

CSCI2040 Introduction to Python (2 units)

CSCI2100/ESTR2102 Data Structures

CSCI2120 Introduction to Software Engineering (2 units)

CSCI3170 Introduction to Database Systems

~DOTE[DSME]1030 Economics for Business Studies I

EEEN2020 Renewable Energy Technologies

ELEG2401 Introduction to Embedded Systems

ELEG3101 Medical Instrumentation and Sensors

ENGG1820 Engineering Internship (1 unit)

ENGG2020/ESTR2104 Digital Logic and Systems

ENGG2760/ESTR2018 Probability for Engineers (2 units)

ENGG2780/ESTR2020 Statistics for Engineers (2 units)

ENGG5404 Micromachining and Microelectromechanical Systems

MAEG1010 Introduction to Robot Design

MAEG2050 Robot Development in Practice: From Design to Prototyping  
MAEG3060/ESTR3408 Introduction to Robotics  
MAEG3070 Fundamentals of Computer-Aided Design  
MAEG3080 Fundamentals of Machine Intelligence  
MAEG3920 Engineering Design and Applications  
MAEG5080 Smart Materials and Structures  
MAEG5120 Nanomaterials and Nanotechnology: Fundamentals and Applications  
MAEG5130 Computational Mechanics  
MAEG5140 Materials Characterization Techniques  
MAEG5160 Design for Additive Manufacturing  
MGNT1010 Introduction to Business  
MGNT4090 Technology and Innovation Management  
~SEEM2440/ESTR2500 Engineering Economics  
SEEM3450/ESTR3502 Engineering Innovation and Entrepreneurship  
SEEM3490 Information Systems Management  
SEEM3500 Quality Control and Management

Depth Electives (at least 6 units chosen from the following courses):

EEEN4010/ESTR4400 Kinetic Energy Harvesting Devices and Systems  
EEEN4020/ESTR4402 Solar Energy and Photovoltaic Technology  
EEEN4030/ESTR4404 Nuclear Energy and Risk Assessment  
EEEN4050/ESTR4422 Energy Storage Devices and Systems  
EEEN4060/ESTR4424 Energy Distribution  
ENGG5402 Advanced Robotics  
ENGG5403 Linear System Theory and Design  
ENGG5405 Theory of Engineering Design  
MAEG4010/ESTR4408 Computer-Integrated Manufacturing  
MAEG4020/ESTR4410 Finite Element Modelling and Analysis  
MAEG4040/ESTR4414 Mechatronic Systems  
MAEG4050/ESTR4416 Modern Control Systems Analysis and Design  
MAEG4060 Virtual Reality Systems and Applications  
MAEG4070/ESTR4418 Engineering Optimization  
MAEG4080/ESTR4420 Introduction to Combustion  
MAEG5030 Geometric Computing for Design and Manufacturing  
MAEG5060 Computational Intelligence  
MAEG5070 Nonlinear Control Systems  
MAEG5090 Topics in Robotics  
MAEG5110 Quantum Control and Quantum Information  
MAEG5150 Advanced Heat Transfer and Fluid Mechanics

~ Students can take either SEEM2440 or DSME1030 but not both

[] Subject area code “DSME” changed to “DOTE” with effect from 2024-25.

### **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

## **Course List for Mechanical and Automation Engineering (MAEG) Programme**

**(Applicable for students admitted in 2020-21)**

*(Unless otherwise specified, all are 3-unit term courses. Note that this is a course list showing the titles of major courses for easy reference only. Please refer to student handbook for detailed Major Programme requirement.)*

### **Faculty Package (9 units)**

ENGG1110/ESTR1002 Problem Solving By Programming

ENGG1120/ESTR1005 Linear Algebra for Engineers

ENGG1130/ESTR1006 Multivariable Calculus for Engineers

### **Foundation Courses (13 units)**

ENGG2720/ESTR2014 Complex Variables for Engineers (2 units)

ENGG2740/ESTR2016 Differential Equations for Engineers (2 units)

MAEG1020 Computational Design and Fabrication

MATH1510 Calculus for Engineers

PHYS1110 Engineering Physics: Mechanics and Thermodynamics

### **Major Required Courses (33 units)**

EEEN3030/ESTR3402 Engineering Materials

ELEG2202 Fundamentals of Electric Circuits

MAEG2020/ESTR2400 Engineering Mechanics

MAEG2030/ESTR2402 Thermodynamics

MAEG2601 Technology, Society and Engineering Practice (2 units)

MAEG2602 Engineering Practicum (1 unit)

MAEG3010 Mechanics of Materials

MAEG3020/ESTR3404 Manufacturing Technology

MAEG3030 Fluid Mechanics

MAEG3040 Mechanical Design

MAEG3050/ESTR3406 Introduction to Control Systems

MAEG4030/ESTR4412 Heat Transfer

### **Research Component Courses (6 units)**

MAEG4998/ESTR4998 Final Year Project I

MAEG4999/ESTR4999 Final Year Project II

**Major Elective Courses (14 units)** (at least 6 units of MAEG courses at 4000 and above level or their reciprocal ESTR courses or ENGG courses at 5000 level)

**Breadth Electives** (at least 6 units chosen from the following courses):

BMEG3420 Medical Robotics

CSCI1020 Hands-on Introduction to C++ (1 unit)

CSCI2040 Introduction to Python (2 units)

CSCI2100/ESTR2102 Data Structures

CSCI2120 Introduction to Software Engineering (2 units)

CSCI3170 Introduction to Database Systems

~DOTE[DSME]1030 Economics for Business Studies I

EEEN2020 Renewable Energy Technologies

ELEG2401 Introduction to Embedded Systems

ELEG3101 Medical Instrumentation and Sensors

ENGG1820 Engineering Internship (1 unit)

ENGG2020/ESTR2104 Digital Logic and Systems

ENGG2760/ESTR2018 Probability for Engineers (2 units)

ENGG2780/ESTR2020 Statistics for Engineers (2 units)

ENGG5404 Micromachining and Microelectromechanical Systems

MAEG1010 Introduction to Robot Design



MAEG2050 Robot Development in Practice: From Design to Prototyping  
MAEG3060/ESTR3408 Introduction to Robotics  
MAEG3070 Fundamentals of Computer-Aided Design  
MAEG3080 Fundamentals of Machine Intelligence  
MAEG3920 Engineering Design and Applications  
MAEG5080 Smart Materials and Structures  
MAEG5120 Nanomaterials and Nanotechnology: Fundamentals and Applications  
MAEG5130 Computational Mechanics  
MAEG5140 Materials Characterization Techniques  
MAEG5160 Design for Additive Manufacturing  
MGNT1010 Introduction to Business  
MGNT4090 Technology and Innovation Management  
~SEEM2440/ESTR2500 Engineering Economics  
SEEM3450/ESTR3502 Engineering Innovation and Entrepreneurship  
SEEM3490 Information Systems Management  
SEEM3500 Quality Control and Management

Depth Electives (at least 6 units chosen from the following courses):

EEEN4010/ESTR4400 Kinetic Energy Harvesting Devices and Systems  
EEEN4020/ESTR4402 Solar Energy and Photovoltaic Technology  
EEEN4030/ESTR4404 Nuclear Energy and Risk Assessment  
EEEN4050/ESTR4422 Energy Storage Devices and Systems  
EEEN4060/ESTR4424 Energy Distribution  
ENGG5402 Advanced Robotics  
ENGG5403 Linear System Theory and Design  
ENGG5405 Theory of Engineering Design  
MAEG4010/ESTR4408 Computer-Integrated Manufacturing  
MAEG4020/ESTR4410 Finite Element Modelling and Analysis  
MAEG4040/ESTR4414 Mechatronic Systems  
MAEG4050/ESTR4416 Modern Control Systems Analysis and Design  
MAEG4060 Virtual Reality Systems and Applications  
MAEG4070/ESTR4418 Engineering Optimization  
MAEG4080/ESTR4420 Introduction to Combustion  
MAEG5030 Geometric Computing for Design and Manufacturing  
MAEG5060 Computational Intelligence  
MAEG5070 Nonlinear Control Systems  
MAEG5090 Topics in Robotics  
MAEG5110 Quantum Control and Quantum Information  
MAEG5150 Advanced Heat Transfer and Fluid Mechanics

~ Students can take either SEEM2440 or DSME1030 but not both

[ ] Subject area code “DSME” changed to “DOTE” with effect from 2024-25.

### **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