

Course List for Energy and Environmental Engineering (EEEN) Programme (Applicable for students admitted in 2019-20)

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

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)

EEEN2020 Renewable Energy Technologies
EEEN2030 Energy and Environmental Economics and Management
EEEN2040/ESTR2404 Building Service Engineering and Green Building
EEEN2602 Engineering Practicum (1 unit)
EEEN3030/ESTR3402 Engineering Materials
ELEG2202 Fundamentals of Electric Circuits
ELEG3207 Introduction to Power Electronics
ESSC2800 Introduction to Environmental Engineering
MAEG2030/ESTR2402 Thermodynamics
MAEG2601 Technology, Society and Engineering Practice (2 units)
MAEG3030 Fluid Mechanics
MAEG4030/ESTR4412 Heat Transfer

Research Component Courses (6 units)

EEEN4998/ESTR4498 Final Year Project I
EEEN4999/ESTR4999 Final Year Project II

Major Electives (14 units)

Core Electives (at least 6 units):

ARCH3424 Building Technology III: Environmental Technology
EEEN3010/ESTR3410 Building Automation and Control
EEEN4020/ESTR4402 Solar Energy and Photovoltaic Technology
EEEN4050/ESTR4422 Energy Storage Devices and Systems
EEEN4060/ESTR4424 Energy Distribution
ESSC4240 Air Pollution Science and Engineering
MAEG3050/ESTR3406 Introduction to Control Systems
MAEG4080/ESTR4420 Introduction to Combustion

Non-Core Electives:

ARCH5431 Topical Studies in Building Technology
CHEM4280 Chemistry in Biofuel (2 units)
CSCI1020 Hands-on Introduction to C++ (1 unit)
CSCI2040 Introduction to Python (2 units)
CSCI2100/ESTR2102 Data Structures
EEEN3020/ESTR3400 Energy Utilization and Human Behaviour
EEEN4010/ESTR4400 Kinetic Energy Harvesting Devices and Systems
EEEN4030/ESTR4404 Nuclear Energy and Risk Assessment
ELEG3601 Introduction to Electric Power Systems
ENGG1820 Engineering Internship (1 unit)

ENGG2760/ESTR2018 Probability for Engineers (2 units)
ENGG2780/ESTR2020 Statistics for Engineers (2 units)
ENSC3230 Principles of Environmental Protection and Pollution Control
ENSC4240 Environmental Impact Assessment
ESSC2020 Climate System Dynamics
ESSC3200 Atmospheric Dynamics
ESSC3220 Atmospheric Chemistry
ESSC3320 Hydrogeology
ESSC3600 Ecosystems and Climate
ESSC3800 Global Environmental Change
ESSC4540 Remote Sensing - Principles and Applications
GRMD2404 Energy and Society
GRMD3202 Environmental Management
GRMD3203 Urban Environmental Problems
GRMD3403 Methods for Resource Evaluation and Planning
GRMD4202 Hydrology and Water Resources
GRMD4204 Environmental Planning and Assessment
GRMD4401 Energy Resources
MAEG3920 Engineering Design and Applications
MAEG5120 Nanomaterials and Nanotechnology: Fundamentals and Applications
MAEG5140 Materials Characterization Techniques
MAEG5150 Advanced Heat Transfer and Fluid Mechanics
PHYS4420 Physics in Meteorology

Streams (a minimum of 12 units of courses in each stream)

Sustainable Energy Technology

Required Courses:

EEEN4020/ESTR4402 Solar Energy and Photovoltaic Technology

Elective Courses:

CHEM4280 Chemistry in Biofuel (2 units)

EEEN4010/ESTR4400 Kinetic Energy Harvesting Devices and Systems

EEEN4030/ESTR4404 Nuclear Energy and Risk Assessment

EEEN4050/ESTR4422 Energy Storage Devices and Systems

EEEN4060/ESTR4424 Energy Distribution

ELEG3601 Introduction to Electric Power Systems

MAEG5120 Nanomaterials and Nanotechnology: Fundamentals and Applications

MAEG5150 Advanced Heat Transfer and Fluid Mechanics

Green Building Technology

Required Courses:

ARCH3424 Building Technology III: Environmental Technology

EEEN3010/ESTR3410 Building Automation and Control

Elective Courses:

ARCH5431 Topical Studies in Building Technology

EEEN3020/ESTR3400 Energy Utilization and Human Behavior

MAEG3050/ESTR3406 Introduction to Control Systems

MAEG3920 Engineering Design and Applications

MAEG5150 Advanced Heat Transfer and Fluid Mechanics

Environmental Engineering

Required Courses:

ESSC4240 Air Pollution Science and Engineering

GRMD3203 Urban Environmental Problems

Elective Courses:

ARCH5431 Topical Studies in Building Technology

ENSC3230 Principles of Environmental Protection and Pollution Control

ENSC4240 Environmental Impact Assessment

ESSC2020 Climate System Dynamics

GRMD4204 Environmental Planning and Assessment

MAEG4080/ESR4420 Introduction to Combustion

MAEG5140 Materials Characterization Techniques

Course List for Energy and Environmental Engineering (EEEN) Programme (Applicable for students admitted in 2018-19)

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

Faculty Package (9 units)

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

Foundation Science Courses (9 units)

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

Foundation Mathematics Courses (9 units)

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

Major Required Courses (27 units)

EEEN2020 Renewable Energy Technologies
EEEN2030 Energy and Environmental Economics and Management
EEEN2040 Building Service Engineering and Green Building
EEEN2602 Engineering Practicum (1 unit)
ELEG2202 Fundamentals of Electric Circuits
ELEG3207 Introduction to Power Electronics
ESSC2800 Introduction to Environmental Engineering
MAEG2030/ESTR2402 Thermodynamics
MAEG2601 Technology, Society and Engineering Practice (2 units)
MAEG3030 Fluid Mechanics

Research Component Courses (6 units)

EEEN4998/ESTR4498 Final Year Project I
EEEN4999/ESTR4999 Final Year Project II

Major Electives (15 units)

Core Electives (at least 6 units):

ARCH3424 Building Technology III: Environmental Technology
EEEN3010/ESTR3410 Building Automation and Control
EEEN3030/ESTR3402 Engineering Materials
EEEN4020/ESTR4402 Solar Energy and Photovoltaic Technology
ESSC4240 Air Pollution Science and Engineering

Non-Core Electives:

ARCH5431 Topical Studies in Building Technology
CHEM4280 Chemistry in Biofuel (2 units)
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/ESTR2102 Data Structures
EEEN3020/ESTR3400 Energy Utilization and Human Behaviour
EEEN4010/ESTR4400 Kinetic Energy Harvesting Devices and Systems
EEEN4030/ESTR4404 Nuclear Energy and Risk Assessment
EEEN4050/ESTR4422 Energy Storage Devices and Systems

EEEN4060/ESTR4424 Energy Distribution
ELEG3601 Introduction to Electric Power Systems
ENGG1820 Engineering Internship (1 unit)
ENSC3230 Principles of Environmental Protection and Pollution Control
ENSC4240 Environmental Impact Assessment
ESSC2020 Climate System Dynamics
ESSC3200 Atmospheric Dynamics
ESSC3220 Atmospheric Chemistry
ESSC3320 Hydrogeology
ESSC3600 Ecosystems and Climate
ESSC3800 Global Environmental Change
ESSC4540 Remote Sensing - Principles and Applications
GRMD2404 Energy and Society
GRMD3202 Environmental Management
GRMD3203 Urban Environmental Problems
GRMD3403 Methods for Resource Evaluation and Planning
GRMD4202 Hydrology and Water Resources
GRMD4204 Environmental Planning and Assessment
GRMD4401 Energy Resources
MAEG3050/ESTR3406 Introduction to Control Systems
MAEG3920 Engineering Design and Applications
MAEG4030/ESTR4412 Heat Transfer
MAEG4080/ESTR4420 Introduction to Combustion
MAEG5120 Nanomaterials and Nanotechnology: Fundamentals and Applications
MAEG5140 Materials Characterization Techniques
MAEG5150 Advanced Heat Transfer and Fluid Mechanics
PHYS4420 Physics in Meteorology

Streams (a minimum of 12 units of courses in each stream)

Sustainable Energy Technology

Required Courses:

EEEN3030/ESTR3402 Engineering Materials

EEEN4020/ESTR4402 Solar Energy and Photovoltaic Technology

Elective Courses:

CHEM4280 Chemistry in Biofuel (2 units)

EEEN4010/ESTR4400 Kinetic Energy Harvesting Devices and Systems

EEEN4030/ESTR4404 Nuclear Energy and Risk Assessment

EEEN4050/ESTR4422 Energy Storage Devices and Systems

EEEN4060/ESTR4424 Energy Distribution

ELEG3601 Introduction to Electric Power Systems

MAEG5120 Nanomaterials and Nanotechnology: Fundamentals and Applications

MAEG5150 Advanced Heat Transfer and Fluid Mechanics

Green Building Technology

Required Courses:

ARCH3424 Building Technology III: Environmental Technology

EEEN3010/ESTR3410 Building Automation and Control

Elective Courses:

ARCH5431 Topical Studies in Building Technology

EEEN3020/ESTR3400 Energy Utilization and Human Behavior

MAEG3050/ESTR3406 Introduction to Control Systems

MAEG3920 Engineering Design and Applications

MAEG4030/ESTR4412 Heat Transfer

MAEG5150 Advanced Heat Transfer and Fluid Mechanics

Environmental Engineering

Required Courses:

ESSC4240 Air Pollution Science and Engineering

GRMD3203 Urban Environmental Problems

Elective Courses:

ARCH5431 Topical Studies in Building Technology

ENSC3230 Principles of Environmental Protection and Pollution Control

ENSC4240 Environmental Impact Assessment

ESSC2020 Climate System Dynamics

GRMD4204 Environmental Planning and Assessment

MAEG4080/ESR4420 Introduction to Combustion

MAEG5140 Materials Characterization Techniques

Course List for Energy and Environmental Engineering (EEEN) Programme (Applicable for students admitted in 2017-18)

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

Faculty Package (9 units)

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

Foundation Science Courses (9 units)

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

Foundation Mathematics Courses (9 units)

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

Major Required Courses (27 units)

EEEN2020 Renewable Energy Technologies
EEEN2030 Energy and Environmental Economics and Management
EEEN2040 Building Service Engineering and Green Building
EEEN2602 Engineering Practicum (1 unit)
ELEG2202 Fundamental of Electric Circuits
ELEG3207 Introduction to Power Electronics
ESSC2800 Introduction to Environmental Engineering
MAEG2030/ESTR2402 Thermodynamics
MAEG2601 Technology, Society and Engineering Practice (2 units)
MAEG3030 Fluid Mechanics

Research Component Courses (6 units)

EEEN4998/ESTR4998 Final Year Project I
EEEN4999/ESTR4999 Final Year Project II

Major Electives (15 units)

Core Electives (at least 6 units):

ARCH3424 Building Technology III: Environmental Technology
EEEN3010/ESTR3410 Building Automation and Control
EEEN3030/ESTR3402 Engineering Materials
EEEN4020/ESTR4402 Solar Energy and Photovoltaic Technology
ESSC4240 Air Pollution Science and Engineering

Non-Core Electives:

ARCH5431 Topical Studies in Building Technology
CHEM4280 Chemistry in Biofuel (2 units)
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/ESTR2102 Data Structures
EEEN3020/ESTR3400 Energy Utilization and Human Behaviour
EEEN4010/ESTR4400 Kinetic Energy Harvesting Devices and Systems
EEEN4030/ESTR4404 Nuclear Energy and Risk Assessment
EEEN4050/ESTR4422 Energy Storage Devices and Systems

EEEN4060/ESTR4424 Energy Distribution
ELEG3601 Introduction to Electric Power Systems
ENGG1820 Engineering Internship (1 unit)
ENSC3230 Principles of Environmental Protection and Pollution Control
ENSC4240 Environmental Impact Assessment
ESSC2020 Climate System Dynamics
ESSC3200 Atmospheric Dynamics
ESSC3220 Atmospheric Chemistry
ESSC3320 Hydrogeology
ESSC3600 Understanding Our Biosphere
ESSC3800 Global Environmental Change
ESSC4540 Remote Sensing - Principles and Applications
GRMD2404 Energy and Society
GRMD3202 Environmental Management
GRMD3203 Urban Environmental Problems
GRMD3403 Methods for Resource Evaluation and Planning
GRMD4202 Hydrology and Water Resources
GRMD4204 Environmental Planning and Assessment
GRMD4401 Energy Resources
MAEG3050/ESTR3406 Introduction to Control Systems
MAEG3920 Engineering Design and Applications
MAEG4030/ESTR4412 Heat Transfer
MAEG4080/ESTR4420 Introduction to Combustion'
MAEG5120 Nanomaterials and Nanotechnology: Fundamentals and Applications
MAEG5140 Materials Characterization Techniques
MAEG5150 Advanced Heat Transfer and Fluid Mechanics
PHYS4420 Physics in Meteorology

Streams (a minimum of 12 units of courses in each stream)

Sustainable Energy Technology

Required Courses:

EEEN3030/ESTR3402 Engineering Materials

EEEN4020/ESTR4402 Solar Energy and Photovoltaic Technology

Elective Courses:

CHEM4280 Chemistry in Biofuel (2 units)

EEEN4010/ESTR4400 Kinetic Energy Harvesting Devices and Systems

EEEN4030/ESTR4404 Nuclear Energy and Risk Assessment

EEEN4050/ESTR4422 Energy Storage Devices and Systems

EEEN4060/ESTR4424 Energy Distribution

ELEG3601 Introduction to Electric Power Systems

MAEG5120 Nanomaterials and Nanotechnology: Fundamentals and Applications

MAEG5150 Advanced Heat Transfer and Fluid Mechanics

Green Building Technology

Required Courses:

ARCH3424 Building Technology III: Environmental Technology

EEEN3010/ESTR3410 Building Automation and Control (subject to FB's approval)

Elective Courses:

ARCH5431 Topical Studies in Building Technology (subject to FB's approval)

EEEN3020/ESTR3400 Energy Utilization and Human Behavior

MAEG3050/ESTR3406 Introduction to Control Systems

MAEG3920 Engineering Design and Applications

MAEG4030/ESTR4412 Heat Transfer

MAEG5150 Advanced Heat Transfer and Fluid Mechanics

Environmental Engineering

Required Courses:

ESSC4240 Air Pollution Science and Engineering

GRMD3203 Urban Environmental Problems

Elective Courses:

ARCH5431 Topical Studies in Building Technology

ENSC3230 Principles of Environmental Protection and Pollution Control

ENSC4240 Environmental Impact Assessment

ESSC2020 Climate System Dynamics

GRMD4204 Environmental Planning and Assessment

MAEG4080/ESTR4420 Introduction to Combustion

MAEG5140 Materials Characterization Techniques

Course List for Energy and Environmental Engineering (EEEN) Programme (Applicable for students admitted in 2016-17)

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

Faculty Package (9 units)

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

Foundation Science Courses (9 units)

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

Foundation Mathematics Courses (12 units)

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

Major Required Courses (24 units)

EEEN2020 Renewable Energy Technologies
EEEN2030 Energy and Environmental Economics and Management
EEEN2040 Building Service Engineering and Green Building
ELEG2202 Fundamental of Electric Circuits
ELEG3207 Introduction to Power Electronics
ESSC2800 Introduction to Environmental Engineering
MAEG2030/ESTR2402 Thermodynamics
MAEG3030 Fluid Mechanics

Research Component Courses (6 units)

EEEN4998/ESTR4998 Final Year Project I
EEEN4999/ESTR4999 Final Year Project II

Major Electives (15 units)

Core Electives (at least 6 units):

ARCH3424 Building Technology III: Environmental Technology
EEEN3010/ESTR3410 Building Automation and Control
EEEN3030/ESTR3402 Engineering Materials
EEEN4020/ESTR4402 Solar Energy and Photovoltaic Technology
ESSC4240 Air Pollution Science and Engineering

Non-Core Electives:

ARCH5431 Topical Studies in Building Technology
CHEM4280 Chemistry in Biofuel (2 units)
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/ESTR2102 Data Structures
EEEN3020/ESTR3400 Energy Utilization and Human Behaviour
EEEN4010/ESTR4400 Kinetic Energy Harvesting Devices and Systems
EEEN4030/ESTR4404 Nuclear Energy and Risk Assessment
EEEN4050/ESTR4422 Energy Storage Devices and Systems

EEEN4060/ESTR4424 Energy Distribution
ELEG3601 Introduction to Electric Power Systems
ENGG1820 Engineering Internship (1 unit)
ENSC3230 Principles of Environmental Protection and Pollution Control
ENSC4240 Environmental Impact Assessment
ESSC2020 Climate System Dynamics
ESSC3200 Atmospheric Dynamics
ESSC3220 Atmospheric Chemistry
ESSC3320 Hydrogeology
ESSC3600 Understanding Our Biosphere
ESSC3800 Global Environmental Change
ESSC4540 Remote Sensing - Principles and Applications
GRMD2404 Energy and Society
GRMD3202 Environmental Management
GRMD3203 Urban Environmental Problems
GRMD3403 Methods for Resource Evaluation and Planning
GRMD4202 Hydrology and Water Resources
GRMD4204 Environmental Planning and Assessment
GRMD4401 Energy Resources
MAEG3050/ESTR3406 Introduction to Control Systems
MAEG3920 Engineering Design and Applications
MAEG4030/ESTR4412 Heat Transfer
MAEG4080/ESTR4420 Introduction to Combustion'
MAEG5120 Nanomaterials and Nanotechnology: Fundamentals and Applications
MAEG5140 Materials Characterization Techniques
MAEG5150 Advanced Heat Transfer and Fluid Mechanics
PHYS4420 Physics in Meteorology

Streams (a minimum of 12 units of courses in each stream)

Sustainable Energy Technology

Required Courses:

EEEN3030/ESTR3402 Engineering Materials

EEEN4020/ESTR4402 Solar Energy and Photovoltaic Technology

Elective Courses:

CHEM4280 Chemistry in Biofuel (2 units)

EEEN4010/ESTR4400 Kinetic Energy Harvesting Devices and Systems

EEEN4030/ESTR4404 Nuclear Energy and Risk Assessment

EEEN4050/ESTR4422 Energy Storage Devices and Systems

EEEN4060/ESTR4424 Energy Distribution

ELEG3601 Introduction to Electric Power Systems

MAEG5120 Nanomaterials and Nanotechnology: Fundamentals and Applications

MAEG5150 Advanced Heat Transfer and Fluid Mechanics

Green Building Technology

Required Courses:

ARCH3424 Building Technology III: Environmental Technology

EEEN3010/ESTR3410 Building Automation and Control

Elective Courses:

ARCH5431 Topical Studies in Building Technology

EEEN3020/ESTR3400 Energy Utilization and Human Behavior

MAEG3050/ESTR3406 Introduction to Control Systems

MAEG3920 Engineering Design and Applications

MAEG4030/ESTR4412 Heat Transfer

MAEG5150 Advanced Heat Transfer and Fluid Mechanics

Environmental Engineering

Required Courses:

ESSC4240 Air Pollution Science and Engineering

GRMD3203 Urban Environmental Problems

Elective Courses:

ARCH5431 Topical Studies in Building Technology

ENSC3230 Principles of Environmental Protection and Pollution Control

ENSC4240 Environmental Impact Assessment

ESSC2020 Climate System Dynamics

GRMD4204 Environmental Planning and Assessment

MAEG4080/ESTR4420 Introduction to Combustion

MAEG5140 Materials Characterization Techniques