Course List for Energy and Environmental Engineering (EEEN) Programme

(Applicable to 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 (11 units)

ENGG1130/ESTR1006 Multivariable Calculus for Engineers
ENGG2740/ESTR2016 Differential Equations for Engineers (2 units)
MAEG1020 Computational Design and Fabrication
PHYS1110 Engineering Physics: Mechanics and Thermodynamics

Major Required Courses (36 units)

EEEN2020 Renewable Energy Technologies
EEEN2030 Energy and Environmental Economics and Management
EEEN2040/ESTR2404 Heating, Ventilation, and Air-Conditioning (HVAC) I
EEEN2602 Engineering Practicum (1 unit)
EEEN3030/ESTR3402 Engineering Materials
EEEN4070 Green Building and Sustainable Technologies
EESC2800 Introduction to Environmental Engineering
ELEG2202 Fundamentals of Electric Circuits
ELEG3207 Introduction to Power Electronics
MAEG2030/ESTR2402 Thermodynamics
MAEG2601 Technology, Society and Engineering Practice (2 units)
MAEG3030 Fluid Mechanics
MAEG4030/ESTR4412 Heat Transfer

Research Component Courses (6 units)

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

Major Electives (13 units)

Core Electives (at least 6 units):

EEEN3010/ESTR3410 Heating, Ventilation, and Air-Conditioning (HVAC) II
EEEN4020/ESTR4402 Solar Energy and Photovoltaic Technology
EEEN4050/ESTR4422 Energy Storage Devices and Systems
EEEN4060/ESTR4424 Energy Distribution
EESC4240 Air Pollution Science and Engineering
EESC4340 Environmental Impact Assessment
MAEG3050/ESTR3406 Introduction to Control Systems
MAEG4080/ESTR4420 Introduction to Combustion

Non-core Electives:

CHEM1380 Basic Chemistry for Engineers
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
EESC2020 Climate System Dynamics
EESC2515 Environmental Chemistry
EESC3200 Atmospheric Dynamics
EESC3220 Atmospheric Chemistry
EESC3230 Principles of Environmental Protection and Pollution Control
EESC3320 Hydrogeology
EESC3600 Ecosystems and Climate
EESC3800 Global Environmental Change
EESC4335 Chemical Treatment Processes
EESC4540 Remote Sensing - Principles and Applications
ELEG3601 Introduction to Electric Power Systems
ENGG1820 Engineering Internship (1 unit)
ENGG2720/ESTR2014 Complex Variables for Engineers (2 units)
ENGG2760/ESTR2018 Probability for Engineers (2 units)
ENGG2780/ESTR2020 Statistics for Engineers (2 units)
GRMD2404 Energy and Society
GRMD3202 Environmental Management
GRMD3203 Urban Environmental Problems
GRMD3401 Energy Resources for Carbon Neutrality
GRMD4202 Hydrology and Water Resources
GRMD4204 Environmental Planning and Assessment
GRMD4403 Methods for Resource Evaluation and Planning
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
CHEM4280 Chemistry in Biofuel (2 units)
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
ELEG3601 Introduction to Electric Power Systems
MAEG5120 Nanomaterials and Nanotechnology: Fundamentals and Applications
MAEG5150 Advanced Heat Transfer and Fluid Mechanics

Green Building Technology
EEEN3010/ESTR3410 Heating, Ventilation, and Air-Conditioning (HVAC) II
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
EESC2020 Climate System Dynamics
EESC3230 Principles of Environmental Protection and Pollution Control
EESC4240 Air Pollution Science and Engineering
EESC4340 Environmental Impact Assessment
GRMD3203 Urban Environmental Problems
GRMD4202 Hydrology and Water Resources
GRMD4204 Environmental Planning and Assessment
MAEG4080/ESTR4420 Introduction to Combustion
MAEG5140 Materials Characterization Techniques

Course List for Energy and Environmental Engineering (EEEN) Programme

(Applicable to 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)

EEEN2020 Renewable Energy Technologies
EEEN2030 Energy and Environmental Economics and Management
EEEN2040/ESTR2404 Heating, Ventilation, and Air-Conditioning (HVAC) I
EEEN2602 Engineering Practicum (1 unit)
EEEN3030/ESTR3402 Engineering Materials
EESC2800 Introduction to Environmental Engineering
ELEG2202 Fundamentals of Electric Circuits
ELEG3207 Introduction to Power Electronics
MAEG2030/ESTR2402 Thermodynamics
MAEG2601 Technology, Society and Engineering Practice (2 units)
MAEG3030 Fluid Mechanics
MAEG4030/ESTR4412 Heat Transfer

Research Component Courses (6 units)

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

Major Electives (14 units)

Core Electives (at least 6 units):

EEEN3010/ESTR3410 Heating, Ventilation, and Air-Conditioning (HVAC) II
EEEN4020/ESTR4402 Solar Energy and Photovoltaic Technology
EEEN4050/ESTR4422 Energy Storage Devices and Systems
EEEN4060/ESTR4424 Energy Distribution
EEEN4070 Green Building and Sustainable Technologies
EESC4240 Air Pollution Science and Engineering
MAEG3050/ESTR3406 Introduction to Control Systems
MAEG4080/ESTR4420 Introduction to Combustion

Non-core Electives:

CHEM1380 Basic Chemistry for Engineers
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
EESC2020 Climate System Dynamics

EESC2515 Environmental Chemistry
EESC3200 Atmospheric Dynamics
EESC3220 Atmospheric Chemistry
EESC3230 Principles of Environmental Protection and Pollution Control
EESC3320 Hydrogeology
EESC3600 Ecosystems and Climate
EESC3800 Global Environmental Change
EESC4335 Chemical Treatment Processes
EESC4340 Environmental Impact Assessment
EESC4540 Remote Sensing - Principles and Applications
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)
GRMD2404 Energy and Society
GRMD3202 Environmental Management
GRMD3203 Urban Environmental Problems
*GRMD3403 (or GRMD4403) Methods for Resource Evaluation and Planning
GRMD4202 Hydrology and Water Resources
GRMD4204 Environmental Planning and Assessment
**GRMD4401 (or GRMD3401) Energy Resources for Carbon Neutrality
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

**GRMD3403 Methods for Resource Evaluation and Planning has been recoded to GRMD4403 effective from July 1, 2024.*
***GRMD4401 Energy Resources for Carbon Neutrality has been recoded to GRMD3401 effective from July 1, 2024.*
^MATH1510 Calculus for Engineers has been recoded to ENGG1125/ESTR1007 Single Variable Calculus for Engineers effective from July 1, 2025.

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

Sustainable Energy Technology
CHEM4280 Chemistry in Biofuel (2 units)
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
ELEG3601 Introduction to Electric Power Systems
MAEG5120 Nanomaterials and Nanotechnology: Fundamentals and Applications
MAEG5150 Advanced Heat Transfer and Fluid Mechanics

Green Building Technology
EEEN3010/ESTR3410 Heating, Ventilation, and Air-Conditioning (HVAC) II
EEEN3020/ESTR3400 Energy Utilization and Human Behavior
EEEN4070 Green Building and Sustainable Technologies
MAEG3050/ESTR3406 Introduction to Control Systems
MAEG3920 Engineering Design and Applications
MAEG5150 Advanced Heat Transfer and Fluid Mechanics

Environmental Engineering
EEEN4070 Green Building and Sustainable Technologies
EESC2020 Climate System Dynamics
EESC3230 Principles of Environmental Protection and Pollution Control
EESC4240 Air Pollution Science and Engineering
EESC4340 Environmental Impact Assessment
GRMD3203 Urban Environmental Problems
GRMD4202 Hydrology and Water Resources
GRMD4204 Environmental Planning and Assessment
MAEG4080/ESTR4420 Introduction to Combustion
MAEG5140 Materials Characterization Techniques

Course List for Energy and Environmental Engineering (EEEN) Programme

(Applicable to 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)

EEEN2020 Renewable Energy Technologies
EEEN2030 Energy and Environmental Economics and Management
EEEN2040/ESTR2404 Heating, Ventilation, and Air-Conditioning (HVAC) I
EEEN2602 Engineering Practicum (1 unit)
EEEN3030/ESTR3402 Engineering Materials
EESC2800 Introduction to Environmental Engineering
ELEG2202 Fundamentals of Electric Circuits
ELEG3207 Introduction to Power Electronics
MAEG2030/ESTR2402 Thermodynamics
MAEG2601 Technology, Society and Engineering Practice (2 units)
MAEG3030 Fluid Mechanics
MAEG4030/ESTR4412 Heat Transfer

Research Component Courses (6 units)

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

Major Electives (14 units)

Core Electives (at least 6 units):

EEEN3010/ESTR3410 Heating, Ventilation, and Air-Conditioning (HVAC) II
EEEN4020/ESTR4402 Solar Energy and Photovoltaic Technology
EEEN4050/ESTR4422 Energy Storage Devices and Systems
EEEN4060/ESTR4424 Energy Distribution
EEEN4070 Green Building and Sustainable Technologies
EESC4240 Air Pollution Science and Engineering
MAEG3050/ESTR3406 Introduction to Control Systems
MAEG4080/ESTR4420 Introduction to Combustion

Non-core Electives:

CHEM1380 Basic Chemistry for Engineers
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
EESC2020 Climate System Dynamics

EESC2515 Environmental Chemistry
EESC3200 Atmospheric Dynamics
EESC3220 Atmospheric Chemistry
EESC3230 Principles of Environmental Protection and Pollution Control
EESC3320 Hydrogeology
EESC3600 Ecosystems and Climate
EESC3800 Global Environmental Change
EESC4335 Chemical Treatment Processes
EESC4340 Environmental Impact Assessment
EESC4540 Remote Sensing - Principles and Applications
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)
GRMD2404 Energy and Society
GRMD3202 Environmental Management
GRMD3203 Urban Environmental Problems
*GRMD3403 (or GRMD4403) Methods for Resource Evaluation and Planning
GRMD4202 Hydrology and Water Resources
GRMD4204 Environmental Planning and Assessment
**GRMD4401 (or GRMD3401) Energy Resources for Carbon Neutrality
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

**GRMD3403 Methods for Resource Evaluation and Planning has been recoded to GRMD4403 effective from July 1, 2024.*
***GRMD4401 Energy Resources for Carbon Neutrality has been recoded to GRMD3401 effective from July 1, 2024.*
^MATH1510 Calculus for Engineers has been recoded to ENGG1125/ESTR1007 Single Variable Calculus for Engineers effective from July 1, 2025.

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

Sustainable Energy Technology
CHEM4280 Chemistry in Biofuel (2 units)
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
ELEG3601 Introduction to Electric Power Systems
MAEG5120 Nanomaterials and Nanotechnology: Fundamentals and Applications
MAEG5150 Advanced Heat Transfer and Fluid Mechanics

Green Building Technology
EEEN3010/ESTR3410 Heating, Ventilation, and Air-Conditioning (HVAC) II
EEEN3020/ESTR3400 Energy Utilization and Human Behavior
EEEN4070 Green Building and Sustainable Technologies
MAEG3050/ESTR3406 Introduction to Control Systems
MAEG3920 Engineering Design and Applications
MAEG5150 Advanced Heat Transfer and Fluid Mechanics

Environmental Engineering
EEEN4070 Green Building and Sustainable Technologies
EESC2020 Climate System Dynamics
EESC3230 Principles of Environmental Protection and Pollution Control
EESC4240 Air Pollution Science and Engineering
EESC4340 Environmental Impact Assessment
GRMD3203 Urban Environmental Problems
GRMD4202 Hydrology and Water Resources
GRMD4204 Environmental Planning and Assessment
MAEG4080/ESTR4420 Introduction to Combustion
MAEG5140 Materials Characterization Techniques

Course List for Energy and Environmental Engineering (EEEN) Programme

(Applicable to 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)

EEEN2020 Renewable Energy Technologies
EEEN2030 Energy and Environmental Economics and Management
EEEN2040/ESTR2404 Heating, Ventilation, and Air-Conditioning (HVAC) I
EEEN2602 Engineering Practicum (1 unit)
EEEN3030/ESTR3402 Engineering Materials
ELEG2202 Fundamentals of Electric Circuits
ELEG3207 Introduction to Power Electronics
ESSC/EESC2800 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/ESTR4998 Final Year Project I
EEEN4999/ESTR4999 Final Year Project II

Major Electives (14 units)

Core Electives (at least 6 units):

EEEN3010/ESTR3410 Heating, Ventilation, and Air-Conditioning (HVAC) II
EEEN4020/ESTR4402 Solar Energy and Photovoltaic Technology
EEEN4050/ESTR4422 Energy Storage Devices and Systems
EEEN4060/ESTR4424 Energy Distribution
EEEN4070 Green Building and Sustainable Technologies
ESSC/EESC4240 Air Pollution Science and Engineering
MAEG3050/ESTR3406 Introduction to Control Systems
MAEG4080/ESTR4420 Introduction to Combustion

Non-Core Electives:

CHEM1380 Basic Chemistry for Engineers
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)
ENSC/EESC2515 Environmental Chemistry
ENSC/EESC3230 Principles of Environmental Protection and Pollution Control
ENSC4240/EESC4340 Environmental Impact Assessment
ENSC4535/EESC4335 Chemical Treatment Processes
ESSC/EESC2020 Climate System Dynamics
ESSC/EESC3200 Atmospheric Dynamics
ESSC/EESC3220 Atmospheric Chemistry
ESSC/EESC3320 Hydrogeology
ESSC/EESC3600 Ecosystems and Climate
ESSC/EESC3800 Global Environmental Change
ESSC/EESC4540 Remote Sensing - Principles and Applications
GRMD2404 Energy and Society
GRMD3202 Environmental Management
GRMD3203 Urban Environmental Problems
*GRMD3403 (or GRMD4403) Methods for Resource Evaluation and Planning
GRMD4202 Hydrology and Water Resources
GRMD4204 Environmental Planning and Assessment
**GRMD4401 (or GRMD3401) Energy Resources for Carbon Neutrality
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

**GRMD3403 Methods for Resource Evaluation and Planning has been recoded to GRMD4403 effective from July 1, 2024.*
***GRMD4401 Energy Resources for Carbon Neutrality has been recoded to GRMD3401 effective from July 1, 2024.*
^MATH1510 Calculus for Engineers has been recoded to ENGG1125/ESTR1007 Single Variable Calculus for Engineers effective from July 1, 2025.

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:
EEEN3010/ESTR3410 Heating, Ventilation, and Air-Conditioning (HVAC) II
EEEN4070 Green Building and Sustainable Technologies
Elective Courses:
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:
ESSC/EESC4240 Air Pollution Science and Engineering
GRMD3203 Urban Environmental Problems
Elective Courses:
EEEN4070 Green Building and Sustainable Technologies
ENSC3230/EESC3230 Principles of Environmental Protection and Pollution Control
ENSC4240/EESC4340 Environmental Impact Assessment
ESSC/EESC2020 Climate System Dynamics
GRMD4202 Hydrology and Water Resources
GRMD4204 Environmental Planning and Assessment
MAEG4080/ESTR4420 Introduction to Combustion
MAEG5140 Materials Characterization Techniques

Course List for Energy and Environmental Engineering (EEEN) Programme

(Applicable to 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)

EEEN2020 Renewable Energy Technologies
EEEN2030 Energy and Environmental Economics and Management
EEEN2040/ESTR2404 Heating, Ventilation, and Air-Conditioning (HVAC) I
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/ESTR4998 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
(or EEEN4070 Green Building and Sustainable Technologies)
EEEN3010/ESTR3410 Heating, Ventilation, and Air-Conditioning (HVAC) II
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
CHEM1380 Basic Chemistry for Engineers
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)
ENSC/EESC2515 Environmental Chemistry
ENSC3230 Principles of Environmental Protection and Pollution Control
ENSC4240 Environmental Impact Assessment
ENSC4535/EESC4335 Chemical Treatment Processes
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 for Carbon Neutrality
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

**GRMD3403 Methods for Resource Evaluation and Planning has been recoded to GRMD4403 effective from July 1, 2024.*
***GRMD4401 Energy Resources for Carbon Neutrality has been recoded to GRMD3401 effective from July 1, 2024.*
^MATH1510 Calculus for Engineers has been recoded to ENGG1125/ESTR1007 Single Variable Calculus for Engineers effective from July 1, 2025.

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
(or EEEN4070 Green Building and Sustainable Technologies)
EEEN3010/ESTR3410 Heating, Ventilation, and Air-Conditioning (HVAC) II
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:
ARCH3424 Building Technology III: Environmental Technology
(or EEEN4070 Green Building and Sustainable Technologies)
ARCH5431 Topical Studies in Building Technology
ENSC3230 Principles of Environmental Protection and Pollution Control
ENSC4240 Environmental Impact Assessment
ESSC2020 Climate System Dynamics
GRMD4202 Hydrology and Water Resources
GRMD4204 Environmental Planning and Assessment
MAEG4080/ESTR4420 Introduction to Combustion
MAEG5140 Materials Characterization Techniques

Course List for Energy and Environmental Engineering (EEEN) Programme

(Applicable to 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)

EEEN2020 Renewable Energy Technologies
EEEN2030 Energy and Environmental Economics and Management
EEEN2040/ESTR2404 Heating, Ventilation, and Air-Conditioning (HVAC) I
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/ESTR4998 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
(or EEEN4070 Green Building and Sustainable Technologies)
EEEN3010/ESTR3410 Heating, Ventilation, and Air-Conditioning (HVAC) II
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
CHEM1380 Basic Chemistry for Engineers
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)
ENSC/EESC2515 Environmental Chemistry
ENSC3230 Principles of Environmental Protection and Pollution Control
ENSC4240 Environmental Impact Assessment
ENSC4535/EESC4335 Chemical Treatment Processes
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 for Carbon Neutrality
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

**GRMD3403 Methods for Resource Evaluation and Planning has been recoded to GRMD4403 effective from July 1, 2024.*
***GRMD4401 Energy Resources for Carbon Neutrality has been recoded to GRMD3401 effective from July 1, 2024.*
^MATH1510 Calculus for Engineers has been recoded to ENGG1125/ESTR1007 Single Variable Calculus for Engineers effective from July 1, 2025.

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
(or EEEN4070 Green Building and Sustainable Technologies)
EEEN3010/ESTR3410 Heating, Ventilation, and Air-Conditioning (HVAC) II
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:
ARCH3424 Building Technology III: Environmental Technology
(or EEEN4070 Green Building and Sustainable Technologies)
ARCH5431 Topical Studies in Building Technology
ENSC3230 Principles of Environmental Protection and Pollution Control
ENSC4240 Environmental Impact Assessment
ESSC2020 Climate System Dynamics
GRMD4202 Hydrology and Water Resources
GRMD4204 Environmental Planning and Assessment
MAEG4080/ESTR4420 Introduction to Combustion
MAEG5140 Materials Characterization Techniques