ENVIRONMENTAL ENGINEERING – SPECIALISATION + ELECTIVES

FOR COHORT AY2021/2022 ONWARDS	MC
Common Curriculum	**60**
Singapore Studies	4
Cultures and Connections	4
Communities and Engagement	4
Critical Thinking and Writing	4
Programming Methodology	4
Quantitative Reasoning with Data	4
Design Thinking	4
Design and Make	4
Systems Thinking and Dynamics	4
Introduction to Machine Learning	4
Liveable Cities	4
Creating Narratives	4
Fundamentals of Project Management	4
Design Capstone OR Research Capstone [Please choose 1]	8
Major Requirements	**60**
Engineering Calculus	2
Differential Equations for Engineering	2
Linear Algebra with Differential Equations	2
Uncertainty analysis for Engineers	2
Engineering Professionalism	2
Industrial Attachment	10
Env. Sci. and Engr. Principles & Practice	4
Principles & Practice in Environmental Monitoring	4
Environmental Challenges in the Anthropocene	4
Chemistry for An Environmentally Sustainable Future	4
Resource Management and Circular Economy	4
Air Quality in Changing Environment	4
Microbiology in Natural and Built Environment	4
Sustainable Urban WaterTechnology	4
Technical Electives (Double-counted, 8 MCs)	8
Specialisation in Digitalization of Urban Infrastructure	**20**
Civil Engineering Analytics and Data Visualization	2
Data Acquisition for Civil Engineering Applications	2
Optimization Methods and Algorithms for Civil Engineers	2
Data Management for Civil Engineers	2
Hydroinformatics (Double-counted)	4*
Integrated Digital Delivery	4
Water Resources for Smart and Liveable Cities (Double-counted)	4*
Electives	**20**
Fluid Mechanics	4
Hydrology and Free Surface Flows	4
Climate Science for Engineers	4
Energy, Environment and Economy	4
Water-Food-Energy Nexus	4
TOTAL	**160**

*In the event of double counting, students are required to make up the remaining MCs for graduation with unrestricted electives.

ENVIRONMENTAL ENGINEERING – SECOND MAJOR

FOR COHORT AY2021/2022 ONWARDS	MC
Common Curriculum	**60**
Singapore Studies	4
Cultures and Connections	4
Communities and Engagement	4
Critical Thinking and Writing	4
Programming Methodology	4
Quantitative Reasoning with Data	4
Design Thinking	4
Design and Make	4
Systems Thinking and Dynamics	4
Introduction to Machine Learning	4
Liveable Cities (double counted)	4
Creating Narratives	4
Fundamentals of Project Management	4
Design Capstone OR Research Capstone [Please choose 1]	8
Major Requirements	**60**
Engineering Calculus	2
Differential Equations for Engineering	2
Linear Algebra with Differential Equations	2
Uncertainty analysis for Engineers	2
Engineering Professionalism	2
Industrial Attachment	10
Env. Sci. and Engr. Principles & Practice	4
Principles & Practice in Environmental Monitoring	4
Environmental Challenges in the Anthropocene	4
Chemistry for An Environmentally Sustainable Future	4
Resource Management and Circular Economy	4
Air Quality in Changing Environment	4
Microbiology in Natural and Built Environment	4
Sustainable Urban WaterTechnology	4
Technical Electives (Double-counted, 8 MCs)	8
Second Major in Life Sciences	**40**
Biological Challenges and Opportunities for Humankind	4
Molecular Genetics	4
Fundamental Biochemistry	4
Evolutionary Biology	4
Ecology and Environment	4
Biodiversity	4
Plankton Ecology	4
Ecology of Terrestrial Environments	4
Freshwater Biology (Double-counted)	4*
Ecology of Aquatic Environments (Double-counted)	4*
TOTAL	**160**

*In the event of double counting, students are required to make up the remaining MCs for graduation with unrestricted electives.

ENVIRONMENTAL ENGINEERING – MINOR + ELECTIVES

FOR COHORT AY2021/2022 ONWARDS	MC
Common Curriculum	**60**
Singapore Studies	4
Cultures and Connections	4
Communities and Engagement	4
Critical Thinking and Writing	4
Programming Methodology	4
Quantitative Reasoning with Data	4
Design Thinking	4
Design and Make	4
Systems Thinking and Dynamics	4
Introduction to Machine Learning	4
Liveable Cities	4
Creating Narratives	4
Fundamentals of Project Management	4
Design Capstone OR Research Capstone [Please choose 1]	8
Major Requirements	**60**
Engineering Calculus	2
Differential Equations for Engineering	2
Linear Algebra with Differential Equations	2
Uncertainty analysis for Engineers	2
Engineering Professionalism	2
Industrial Attachment	10
Env. Sci. and Engr. Principles & Practice	4
Principles & Practice in Environmental Monitoring	4
Environmental Challenges in the Anthropocene	4
Chemistry for An Environmentally Sustainable Future	4
Resource Management and Circular Economy	4
Air Quality in Changing Environment	4
Microbiology in Natural and Built Environment	4
Sustainable Urban WaterTechnology	4
Technical Electives (Double-counted, 8 MCs)	8
Minor in Public Health^	**20**
Fundamental Public Health Methods	4
Public Health and Epidemiology	4
Bioengineering Data Analysis	4
Infectious Disease Modelling for Public Health (Double-counted)	4*
Public Health Practice (Double-counted)	4*
Electives	**20**
Fluid Mechanics	4
Hydrology and Free Surface Flows	4
Climate Science for Engineers	4
Energy, Environment and Economy	4
Water-Food-Energy Nexus	4
TOTAL	**160**

^You may choose from a selection/basket of modules. Please find more details here.
*In the event of double counting, students are required to make up the remaining MCs for graduation with unrestricted electives.

ENVIRONMENTAL ENGINEERING – MINOR + ELECTIVES

FOR COHORT AY2021/2022 ONWARDS	MC
Common Curriculum	**60**
Singapore Studies	4
Cultures and Connections	4
Communities and Engagement	4
Critical Thinking and Writing	4
Programming Methodology	4
Quantitative Reasoning with Data	4
Design Thinking	4
Design and Make	4
Systems Thinking and Dynamics	4
Introduction to Machine Learning	4
Liveable Cities	4
Creating Narratives	4
Fundamentals of Project Management	4
Design Capstone OR Research Capstone [Please choose 1]	8
Major Requirements	**60**
Engineering Calculus	2
Differential Equations for Engineering	2
Linear Algebra with Differential Equations	2
Uncertainty analysis for Engineers	2
Engineering Professionalism	2
Industrial Attachment	10
Env. Sci. and Engr. Principles & Practice	4
Principles & Practice in Environmental Monitoring	4
Environmental Challenges in the Anthropocene	4
Chemistry for An Environmentally Sustainable Future	4
Resource Management and Circular Economy	4
Air Quality in Changing Environment	4
Microbiology in Natural and Built Environment	4
Sustainable Urban WaterTechnology	4
Technical Electives	8
Minor in Economics^	**20**
Introduction to Economic Analysis	4
Microeconomic Analysis I	4
Macroeconomic Analysis I	4
Urban Economics (Double-counted)	4*
Environmental Economics (Double-counted)	4*
Electives	**20**
Fluid Mechanics	4
Hydrology and Free Surface Flows	4
Climate Science for Engineers	4
Energy, Environment and Economy	4
Water-Food-Energy Nexus	4
TOTAL	**160**

^You may choose from a selection/basket of modules. Please find more details here.

*In the event of double counting, students are required to make up the remaining MCs for graduation with unrestricted electives.

List of Technical Elective modules:	
• ESE3011 Integrated Project for Environmental Sustainability • ESE4401 Water and Wastewater Engineering 2 • ESE4403 Membrane Tech in Env. Applns. • ESE4404 Bioenergy • ESE4405 Urban Water Engineering and Management	• ESE4406 Energy Systems and Climate Change Mitigation • ESE4408 Env. Impact Assessment • ESE5880A Topics in Environmental Engineering: Chem. Lab Safety • ESE5880B Climate Change and Urban Ecosystems • ESE5880C Environmental System Planning & Analysis