FACULTY OF ENGINEERING AND SCIENCE

Units Offered – Semesters 1 & 2, 2027

(Undergraduate and ODL Programme)

Revision: 01

(Changes are highlighted in yellow and/or please refer to the bottom of the page for revision note)

UNIT CODE	UNIT TITLE	SEM 1, 2027	SEM 2, 2027	REMARKS
DEPARTMENT: ENGINEERING FIRST YEAR HEAD OF DEPARTMENT: IR. DR LEE YEONG HUEI				
COMP1005	Fundamentals of Programming	√	√	
ELEN1000	Electrical Systems	√	√	
INDE1001	Engineering Foundations: Principles, Design and Communication	√	√	
MATH1019	Linear Algebra and Statistics for Engineers	√	√	
MATH1020	Calculus for Engineers	√	√	
MCEN1000	Engineering Mechanics	√	√	
PRRE1003	Resources, Processes and Materials Engineering	√	√	
BLDG1004	Introduction to Management in Construction	√		Optional Unit – Mid-Year Intake
CHEM1000	Principles and Processes in Chemistry	√	√	Optional Unit – Normal Intake and Mid-Year Intake
CMPE1000	Hardware Fundamentals	√		Optional Unit – Mid-Year Intake
ELEN1002	Sustainability and Renewable Energy	√	√	Optional Unit – Normal Intake and Mid-Year Intake
GEOL1007	Planetary Science		√	Optional Unit – Normal Intake
GEOL1008	Dynamic Earth	√		Optional Unit – Mid-Year Intake
ISAD1000	Introduction to Software Engineering	√		Optional Unit – Mid-Year Intake
SPAT1007	Fundamentals of Geographic Information Systems	√		Optional Unit – Mid-Year Intake
GEOL1005	Fundamentals of Geology		√	Optional Unit – Normal Intake
ENGR2002	Introduction to Energy Engineering		√	Optional Unit – Normal Intake
DEPARTMENT: CHEMICAL AND ENERGY ENGINEERING HEAD OF DEPARTMENT: IR. TS. PROFESSOR STEPHANIE CHAN YEN SAN				
PROGRAMME: CHEMICAL ENGINEERING				
CHEM1000	Principles and Processes in Chemistry	√	√	
CHEM1002	Reactivity and Function in Chemistry	√	√	
CHEN2000	Mass and Energy Balances	√	√	
CHEN2001	Thermodynamics		√	
CHEN2002	Process Heat Transfer	√		
CHEN2003	Process Mass Transfer		√	
CHEN2004	Process Simulation and Data Analytics		√	
CHEN3001	Computational Transport Phenomena	√	√	
CHEN3003	Process Synthesis and Design	√		
CHEN3005	Process Instrumentation and Control		√	
CHEN3009	Fluid and Particle Processes	√		
CHEN3010	Reaction Engineering	√		
CHEN4001	Process Safety and Risk Management	√		
CHEN4012	Advanced Unit Operations	√		
CHEN4015	Chemical Engineering Design Project		√	
CHEN4016	Engineering Economics, Management and Sustainability		√	
ENGR2000	Fluid Mechanics	√		Common Engineering Unit
ENGR4000	Engineering Industry Research Project 1	√	√	
ENGR4001	Engineering Industry Research Project 2	√	√	
Specialisation Units *(please refer to Course Structure for list of specialisations offered) : **Chemical Engineering students are NOT permitted to register for other interdisciplinary specialisation courses.*				
SPUE-TRENT Transitional Energy Technologies Specialisation:				
CHEN4020	Carbon Management	√		Specialisation Unit Year 3
CHEN4017	Bioprocess Engineering		√	Specialisation Unit Year 3

PRRE4007	Hydrogen Energy	√		Specialisation Unit Year 4
CHEN4019	Electrochemical Energy Conversion and Storage		√	Specialisation Unit Year 4
SPUE-ADMPR Advanced Materials and Processing Specialisation:				
CHEN3012	Materials Selection and Corrosion	√		Specialisation Unit Year 3
CHEN3013	Sustainable Palm Oil Processing and Production		√	Specialisation Unit Year 3
CHEN4003	Advanced Process Integration	√		Specialisation Unit Year 4
CHEN4010	Advanced Thermodynamics and Reactor Engineering		√	Specialisation Unit Year 4
SPUE-WAWMG Water, Air and Waste Management Specialisation:				
CHEN3014	Water and Wastewater Treatment Processes	√		Specialisation Unit Year 3
ENEN2001	Solid and Hazardous Waste Management		√	Specialisation Unit Year 3
CHEN4020	Carbon Management	√		Specialisation Unit Year 4
ENEN3000	Aerial Emissions and Abatement		√	Specialisation Unit Year 4
PROGRAMME: ENERGY ENGINEERING				
CHEN2000	Mass and Energy Balances	√		Shared unit with Chemical Engineering
CHEN2001	Thermodynamics		√	Shared unit with Chemical Engineering
CHEN2002	Process Heat Transfer	√		Shared unit with Chemical Engineering
CHEN4020	Carbon Management	√		
ECON3008	Energy Economics, Management & Markets		√	
ELEN2000	Electrical Circuits	√		Shared unit with Electrical and Electronic Engineering
ELEN3004	Renewable Energy Principles	√		Shared unit with Electrical and Electronic Engineering
ELEN4008	Renewable Energy Systems	√		
ENGR2000	Fluid Mechanics	√		Common Engineering Unit
ENGR2002	Introduction to Energy Engineering		√	
ENGR2003	Sustainable Energy Systems Engineering		√	
ENGR3002	Energy Storage		√	
ENGR3005	Energy Transport		√	
ENGR3006	Energy Conversion and Sustainable Management	√		
ENGR4000	Engineering Industry Research Project 1	√	√	
MCEN2007	Mechanics for Energy Engineering		√	
PRRE4007	Hydrogen Energy	√		
***Specialisation Units *(please refer to Course Structure for list of specialisations offered)* :**				
SPUE-ENCOT Energy Conversion Technologies Specialisation:				
CHEN3012	Materials Selection and Corrosion	√		Specialisation Unit Year 3
CHEN4018	Natural Gas Processing		√	Specialisation Unit Year 3
CHEN3010	Reaction Engineering	√		Specialisation Unit Year 4
SPUE-LCATR Low Carbon Transition Specialisation:				
CHEN3012	Materials Selection and Corrosion	√		Specialisation Unit Year 3
CHEN4018	Natural Gas Processing		√	Specialisation Unit Year 3
PRRE4009	Combustion Engineering and Gas Utilisation	√		Specialisation Unit Year 4
DEPARTMENT: CIVIL AND CONSTRUCTION ENGINEERING				
HEAD OF DEPARTMENT: IR. ASSOCIATE PROF. DR WONG KWONG SOON				
PROGRAMME: CIVIL AND CONSTRUCTION ENGINEERING				
CSEN2000	Civil Engineering Construction Materials	√		
CSEN3002	Structural Actions and Steel Design	√		
CSEN4003	Civil Engineering Practices, Quality and Legislation	√		
CVEN2000	Civil Engineering Drawing and Surveying	√		
CVEN4003	Civil and Construction Engineering Research Project 1	√	√	
CVEN4004	Civil and Construction Engineering Research Project 2	√	√	
ENGR2000	Fluid Mechanics	√		Common Engineering Unit
STEN2005	Structural Analysis of Determinate Structures	√		
STEN4003	Integrated Structural Design	√		
GEOT3002	Geotechnical Engineering Analysis	√		
TREN3001	Transportation Engineering and Earthworks	√		
CSEN3000	Civil Engineering Project and Cost Management		√	
CSEN3003	Reinforced Concrete Design		√	
CSEN4002	Integrated Design and Construction		√	
CVEN2001	Water and Environmental Resources		√	
CVEN3002	Hydraulics and Hydrology		√	

*The specialisations under MJRH-EENGR are for Energy Engineering students only.

GEOT2000	Principles of Geomechanics		√	
GEOT4003	Design of Foundations		√	
STEN2004	Structural Mechanics		√	
STEN2006	Structural Analysis of Indeterminate Structures		√	
Specialisation Units *(please refer to Course Structure for list of specialisations offered)* :				
SPUE-CONEN Construction Engineering Specialisation:				
BLDG2013	Construction Plant and Equipment	√		Specialisation Unit Year 3
TREN4002	Traffic and Road Pavement Engineering		√	Specialisation Unit Year 3
GEOT4004	Geotechnical Engineering Practice	√		Specialisation Unit Year 4
BLDG2023	Specialised Construction	√		Specialisation Unit Year 4
STEN4005	Advanced Concrete Design and Construction		√	Specialisation Unit Year 4
SPUE-INFST Infrastructure Specialisation:				
STEN3003	Advanced Structural Analysis	√		Specialisation Unit Year 3
BLDG2013	Construction Plant and Equipment	√		Specialisation Unit Year 3
ENEN3009	Water and Environmental Engineering		√	Specialisation Unit Year 3
STEN4005	Advanced Concrete Design and Construction		√	Specialisation Unit Year 3
STEN4004	Advanced Structural Modelling	√		Specialisation Unit Year 4
STEN4006	Structural Dynamics		√	Specialisation Unit Year 3
GEOT4004	Geotechnical Engineering Practice	√		Specialisation Unit Year 4
TREN4002	Traffic and Road Pavement Engineering		√	Specialisation Unit Year 4
SPUE-STENG Structural Engineering Specialisation:				
STEN3003	Advanced Structural Analysis	√		Specialisation Unit Year 3
STEN4006	Structural Dynamics		√	Specialisation Unit Year 3
STEN4004	Advanced Structural Modelling	√		Specialisation Unit Year 4
STEN4005	Advanced Concrete Design and Construction		√	Specialisation Unit Year 4
SPUE-SUENV Sustainable Environment Specialisation:				
ENST3008	Biodiversity Conservation	√		Specialisation Unit Year 3
ENEN4014	Sustainable Urban Management and Planning		√	Specialisation Unit Year 3
CHEN4020	Carbon Management	√		Specialisation Unit Year 4
ENEN4013	Environmental, Social and Governance		√	Specialisation Unit Year 4
*** SPUC-ROBAU Robot Automation Specialisation:** **(Specialisation offered by Department Mechanical and Mechatronic Engineering)*				
MXEN2003	Microcontroller Project	√		Specialisation Unit Year 3
MXEN3000	Mechatronics Design Project		√	Specialisation Unit Year 3
MXEN3005	Robot Manipulation Project	√		Specialisation Unit Year 4
ICTE4001	Introduction to Autonomous Robots		√	Specialisation Unit Year 4
*** SPUC-MEDVB Mechanical Dynamics and Vibrant Specialisation:** **(Specialisation offered by Department Mechanical and Mechatronic Engineering)*				
MCEN2003	Machine Dynamics	√		Specialisation Unit Year 3
MCEN2002	Fundamentals of Mechanical Design		√	Specialisation Unit Year 3
MCEN3009	Linear Systems and Vibrations	√		Specialisation Unit Year 4
MCEN4019	Automatic Control Systems		√	Specialisation Unit Year 4
PROGRAMME: ENVIRONMENTAL ENGINEERING				
ENGR2000	Fluid Mechanics	√		Common Engineering Unit
ENEN2004	Water Resource Management and Treatment Principles	√		
ENEN2002	Energy Management and Climate Change	√		
ENST2005	Environmental Chemistry and Microbiology	√		
ENEN3001	Green Engineering Principles and Applications	√		
ENEN3007	Soil and Groundwater Remediation Technologies	√		
ENEN4006	Environmental Engineering Research Project 1	√	√	
ENEN4007	Environmental Engineering Research Project 2	√	√	
ENEN4011	Environmental Engineering Design and Principles	√		
ENEN4012	Life Cycle Assessment and Circular Economy	√		
ENST3000	Environmental Impact Assessment	√		
CVEN3002	Hydraulics and Hydrology		√	Shared unit with Civil and Construction Engineering
ENEN2003	Wastewater Treatment Principles and Design		√	
ENST2006	Environmental Monitoring and Analysis		√	
ENEN2001	Solid and Hazardous Waste Management		√	
ENEN3000	Aerial Emissions and Abatement		√	

ENEN4003	Environmental Integrated Design Project		√	
GEOT2000	Principles of Geomechanics		√	Shared unit with Civil and Construction Engineering
MCEN3007	Engineering Professionalism and Communication		√	Shared unit with Mechanical and Mechatronic Engineering
MGMT3000	Engineering Management and Professional Practice		√	Shared unit with Electrical and Electronic Engineering
Specialisation Units *(please refer to Course Structure for list of specialisations offered)* :				
SPUE-SUENV Sustainable Environment Specialisation:				
ENST3008	Biodiversity Conservation	√		Specialisation Unit Year 3
ENEN4014	Sustainable Urban Management and Planning		√	Specialisation Unit Year 3
CHEN4020	Carbon Management	√		Specialisation Unit Year 4
ENEN4013	Environmental, Social and Governance		√	Specialisation Unit Year 4
*** SPUC-ROBAU Robot Automation Specialisation:** **(Specialisation offered by Department Mechanical and Mechatronic Engineering)*				
MXEN2003	Microcontroller Project	√		Specialisation Unit Year 3
MXEN3000	Mechatronics Design Project		√	Specialisation Unit Year 3
MXEN3005	Robot Manipulation Project	√		Specialisation Unit Year 4
ICTE4001	Introduction to Autonomous Robots		√	Specialisation Unit Year 4
SPUC-CIVEN Civil Engineering Specialisation:				
CSEN2000	Civil Engineering Construction Materials	√		Specialisation Unit Year 3
STEN2005	Structural Analysis of Determinate Structures	√		Specialisation Unit Year 3
STEN2004	Structural Mechanics		√	Specialisation Unit Year 3
TREN3001	Transportation Engineering and Earthworks	√		Specialisation Unit Year 4
CSEN3000	Civil Engineering Project and Cost Management		√	Specialisation Unit Year 4
DEPARTMENT: ELECTRICAL AND COMPUTER ENGINEERING **HEAD OF DEPARTMENT: DR. CHEW ING MING**				
PROGRAMME: BACHELOR OF TECHNOLOGY (COMPUTER SYSTEMS AND NETWORKING)				
CMPE1000	Hardware Fundamentals	√		
CMPE2000	Data Communications and Network Management	√		
CMPE2002	Requirements Engineering		√	Elective
CMPE2003	Microcomputers		√	
CMPE3001	Embedded Systems Engineering		√	
CMPE3002	Computer Technology Project 1	√	√	
CMPE3003	Computer Technology Project 2	√	√	
CMPE3004	Network Engineering		√	
CNCO3000	Distributed Networks	√		
CNCO3003	Cloud Computing	√		Optional unit
COMP1000	Unix and C Programming		√	
COMP1002	Data Structures and Algorithms	√	√	
COMP1007	Programming Design and Implementation	√	√	
COMP2000	Computer Systems		√	
COMP2003	Object Oriented Software Engineering	√		Elective
COMP2006	Operating Systems	√		
COMP2008	Mobile Application Development		√	Optional unit
COMP3001	Design and Analysis of Algorithms	√		Optional unit
COMP3010	Machine Learning	√		Optional unit
COMT3002	Internet of Things Design and Communications	√		
ELEN2002	Transmission and Interface Design	√		
ETEN1000	Electronics		√	
ICTE3002	Human Computer Interface	√		Optional unit
INDE1001	Engineering Foundations: Principles, Design and Communication	√	√	Shared Unit with Engineering First Year
ISAD1000	Introduction to Software Engineering	√		Optional unit
ISEC1000	Cyber Security Concepts		√	Elective
ISEC2000	Fundamental Concepts of Cryptography	√		Optional unit
ISEC2001	Fundamental Concepts of Data Security	√		Optional unit; Elective
ISEC3004	Cyber Crime and Security Enhanced Programming		√	Optional unit
ISEC3005	Cyber Security – Intrusion Detection System and Incident Handling		√	Optional unit
ISYS2014	Database Systems		√	
ISEC3002	Penetration Testing and Defence		√	Optional unit
MATH1019	Linear Algebra and Statistics for Engineers	√	√	Shared Unit with Engineering First Year

MGMT3000	Engineering Management and Professional Practice		√	
PROGRAMME: ELECTRICAL AND ELECTRONIC ENGINEERING				
CMPE2001	Foundations of Digital Design	√		
CMPE2003	Microcomputers		√	
COMT3000	Communications Engineering		√	
EEET4000	Engineering Research Project 1	√	√	
EEET4001	Engineering Research Project 2	√	√	
EEET4002	Integrated Design Project	√		
ELEN2000	Electrical Circuits	√		
ELEN2005	Electrical Machines		√	
ELEN3001	Power System Analysis		√	
ELEN3002	Engineering Electromagnetics		√	
ELEN3003	Power Grid Infrastructure and Protection Systems	√		
ELEN3004	Renewable Energy Principles		√	
ELEN4007	Electrical Machines Drives and Control		√	
ETEN2000	Signals and Systems		√	
ETEN2001	Electronic Fundamentals	√		
ELEN3005	Power Electronics	√		
ETEN4001	Industrial Automated Systems	√		
MATH2009	Calculus 2	√		
MGMT3000	Engineering Management and Professional Practice		√	
MXEN3004	Dynamic Modelling and Control	√		
ETEN3004	Integrated Circuit Design		√	MINU-ENGFL Engineering Flexible Minor *(elective unit).* *(Note: This unit is not listed in Electrical and Electronic Engineering Course Structure 2027)*
Specialisation Units *(please refer to Course Structure for list of specialisations offered)* :				
*** SPUE-SUENV Sustainable Environment Specialisation:** **(Specialisation offered by Department Civil and Construction Engineering)*				
ENST3008	Biodiversity Conservation	√		Specialisation Unit Year 3
ENEN4014	Sustainable Urban Management and Planning		√	Specialisation Unit Year 3
CHEN4020	Carbon Management	√		Specialisation Unit Year 4
ENEN4013	Environmental, Social and Governance		√	Specialisation Unit Year 4
*** SPUC-MESYS Mechanical Systems Specialisation:** **(Specialisation offered by Department Mechanical and Mechatronic Engineering)*				
ENGR2000	Fluid Mechanics	√		Specialisation Unit Year 3
MCEN2001	Fundamentals of Thermodynamics		√	Specialisation Unit Year 3
MCEN4018	Electromechanical Energy Systems	√		Specialisation Unit Year 4
MCEN3002	Applied Fluid Mechanics		√	Specialisation Unit Year 4
*** SPUC-ROBAU Robot Automation Specialisation:** **(Specialisation offered by Department Mechanical and Mechatronic Engineering)*				
MCEN2003	Machine Dynamics	√		Specialisation Unit Year 3
MXEN2003	Microcontroller Project	√		Specialisation Unit Year 3
MXEN3000	Mechatronics Design Project		√	Specialisation Unit Year 3
MXEN3005	Robot Manipulation Project	√		Specialisation Unit Year 4
ICTE4001	Introduction to Autonomous Robots		√	Specialisation Unit Year 4
SPUE-CYBSE Cybersecurity Specialisation:				
ISEC2001	Fundamental Concepts of Data Security	√		Specialisation Unit Year 3
ISEC1000	Cyber Security Concepts		√	Specialisation Unit Year 3
CMPE2000	Data Communications and Network Management	√		Specialisation Unit Year 4
ISEC3005	Cyber Security – Intrusion Detection System and Incident Handling		√	Specialisation Unit Year 4
SPUC-AIMLN Artificial Intelligence and Machine Learning Specialisation:				
COMP1002	Data Structures and Algorithms	√		Specialisation Unit Year 3
ISYS2014	Database Systems		√	Specialisation Unit Year 3
COMP3010	Machine Learning	√		Specialisation Unit Year 4
COMP3009	Data Mining		√	Specialisation Unit Year 4
PROGRAMME: BACHELOR OF COMPUTING – SOFTWARE ENGINEERING MAJOR				
CMPE2002	Requirements Engineering		√	
CMPE3008	Software Engineering Testing	√		
CNCO2000	Computer Communications	√		

CNCO3003	Cloud Computing	√		Elective Unit Y3 S1 *(Normal Intake)* , Y3 S2 *(Mid-Year Intake)*
COMP1000	Unix and C Programming		√	
COMP1002	Data Structures and Algorithms	√	√	
COMP1006	Foundations of Computer Science		√	Compulsory Elective Y3 S2 *(Normal Intake)* , Y2 S1 *(Mid-Year)*
COMP1007	Programming Design and Implementation	√	√	
COMP2000	Computer Systems		√	Elective Unit Y3 S2 *(Normal Intake)* ; Y1 S1 *(Compulsory Elective: Mid-Year)*
COMP2002	Unix Systems Programming	√		Elective Unit Y3 S1 *(Normal Intake)* , Y3 S2 *(Mid-Year Intake)*
COMP2003	Object Oriented Software Engineering	√		
COMP2005	Computing Topics		√	Elective Unit Y3 S2 *(Normal Intake)*
COMP2006	Operating Systems	√		
COMP2008	Mobile Application Development		√	
COMP3001	Design and Analysis of Algorithms	√		
COMP3003	Software Architecture and Extensible Design		√	
COMP3008	Distributed Computing		√	
COMP3010	Machine Learning	√		Elective Unit Y3 S1 *(Normal Intake)* , Y3 S2 *(Mid-Year Intake)*
ICTE3002	Human Computer Interface	√		
ISAD1000	Introduction to Software Engineering	√		
ISEC1000	Cyber Security Concepts		√	Elective Unit Y3 S2 *(Normal Intake)*
ISEC2000	Fundamental Concepts of Cryptography	√		Elective Unit Y3 S1 *(Normal Intake)* , Y3 S2 *(Mid-Year Intake)*
ISEC2001	Fundamental Concepts of Data Security	√		
ISAD3000	Capstone Computing Project 1	√	√	
ISAD3001	Capstone Computing Project 2	√	√	
ISEC3004	Cyber Crime and Security Enhanced Programming		√	
ISEC3005	Cyber Security- Intrusion Detection System and Incident Handling		√	Elective Unit Y3 S2 *(Normal Intake)*
ISYS2014	Database Systems		√	
MATH1019	Linear Algebra and Statistics for Engineers	√	√	Shared Unit with Engineering First Year
NPSC1003	Integrating Indigenous Science and STEM	√		
EIT301	Engineering Industrial Training	Year 2 Summer Semester (December)		
PROGRAMME: BACHELOR OF COMPUTING – CYBER SECURITY MAJOR				
CMPE2002	Requirements Engineering		√	Elective Y2 S1 *(Mid-Year)* / Y2 S2, Y3 S2 *(Normal Intake)*
CMPE3008	Software Engineering Testing	√		Elective Y3 S1 *(Normal Intake)*
CNCO2000	Computer Communications	√		
CNCO3003	Cloud Computing	√		
COMP1000	Unix and C Programming		√	
COMP1002	Data Structures and Algorithms	√	√	
COMP1007	Programming Design and Implementation	√	√	
COMP2000	Computer Systems		√	Elective Y2 S1 *(Mid-Year)* ; Y2 S2, Y3 S2 *(Normal Intake)*
COMP2002	Unix Systems Programming	√		
COMP2003	Object Oriented Software Engineering	√		Elective Y3 S1 *(Normal Intake)*
COMP2005	Computing Topics		√	
COMP2006	Operating Systems	√		
COMP2008	Mobile Application Development		√	Elective Y2 S1 *(Mid-Year)* / Y2 S2, Y3 S2 *(Normal Intake)*
COMP3001	Design and Analysis of Algorithms	√		Elective Y3 S1 *(Normal Intake)*
COMP3003	Software Architecture and Extensible Design		√	Elective Y2 S2, Y3 S2 *(Normal Intake)*
COMP3010	Machine Learning	√		
ICTE3002	Human Computer Interface	√		Elective Y3 S1 *(Normal Intake)*
ISAD1000	Introduction to Software Engineering	√		
ISAD3000	Capstone Computing Project 1	√	√	
ISAD3001	Capstone Computing Project 2	√	√	
ISEC1000	Cyber Security Concepts		√	
ISEC2000	Fundamental Concepts of Cryptography	√		
ISEC2001	Fundamental Concepts of Data Security	√		

ISEC3002	Penetration Testing and Defence		√	
ISEC3004	Cyber Crime and Security Enhanced Programming		√	
ISEC3005	Cyber Security- Intrusion Detection System and Incident Handling		√	
ISYS2014	Database Systems		√	
MATH1019	Linear Algebra and Statistics for Engineers	√	√	Shared Unit with Engineering First Year
NPSC1003	Integrating Indigenous Science and STEM	√		
EIT301	Engineering Industrial Training	Year 2 Summer Semester		
DEPARTMENT: MECHANICAL AND MECHATRONIC ENGINEERING **HEAD OF DEPARTMENT: ASSOCIATE PROF. DR MOOLA MOHAN REDDY**				
PROGRAMME: MECHANICAL ENGINEERING				
ENGR2000	Fluid Mechanics	√		Common Engineering Unit
MCEN2000	Fundamentals of Strength of Materials	√		
MCEN2003	Machine Dynamics	√		
MCEN2006	Computer Aided Drawing and Engineering Modelling	√		
MCEN3004	Advanced Strength of Materials	√		
MCEN3008	Fundamentals of Heat Transfer	√		
MCEN3009	Linear Systems and Vibrations	√		
MCEN4005	Mechanical Engineering Research Project 1	√	√	
MCEN4006	Mechanical Engineering Research Project 2	√	√	
MCEN4015	Integrated Mechanical Design	√		
MCEN4018	Electromechanical Energy Systems	√		
ENGR2001	Ethics and Sustainability in Engineering		√	
MCEN2001	Fundamentals of Thermodynamics		√	
MCEN2002	Fundamentals of Mechanical Design		√	
MCEN2004	Manufacturing Processes		√	
MCEN3001	Machine Design		√	
MCEN3002	Applied Fluid Mechanics		√	
MCEN3007	Engineering Professionalism and Communication		√	
MCEN4016	Professional Engineering Management and Practice		√	
MCEN4019	Automatic Control Systems		√	
Specialisation Units ***(please refer to Course Structure for list of specialisations offered)*** **:**				
SPUC-ROBAU Robot Automation Specialisation:				
MCEN2003	Machine Dynamics	√		Specialisation Unit Year 3
MXEN2003	Microcontroller Project	√		Specialisation Unit Year 3
MXEN3000	Mechatronics Design Project		√	Specialisation Unit Year 3
MXEN3005	Robot Manipulation Project	√		Specialisation Unit Year 4
ICTE4001	Introduction to Autonomous Robots		√	Specialisation Unit Year 4
SPUE-COMEC Computational Mechanics Specialisation:				
MCEN4013	Advanced Refrigeration System Design	√		Specialisation Unit Year 3
MCEN4001	Industrial Fluid Mechanic		√	Specialisation Unit Year 3
MCEN4020	Computational Fluid Dynamics	√		Specialisation Unit Year 4
MCEN4008	Finite Element Analysis		√	Specialisation Unit Year 4
*** SPUC-SUENV Sustainable Environment Specialisation:** **(Specialisation offered by Department Civil and Construction Engineering)*				
ENST3008	Biodiversity Conservation	√		Specialisation Unit Year 3
ENEN4014	Sustainable Urban Management and Planning		√	Specialisation Unit Year 3
CHEN4020	Carbon Management	√		Specialisation Unit Year 4
ENEN4013	Environmental, Social and Governance		√	Specialisation Unit Year 4
*** SPUC-CIVEN Civil Engineering Specialisation:** **(Specialisation offered by Department Civil and Construction Engineering)*				
CSEN2000	Civil Engineering Construction Materials	√		Specialisation Unit Year 3
STEN2005	Structural Analysis of Determinate Structures	√		Specialisation Unit Year 3
GEOT2000	Principles of Geomechanics		√	Specialisation Unit Year 3
CVEN2001	Water and Environmental Resources		√	Specialisation Unit Year 3
TREN3001	Transportation Engineering and Earthworks	√		Specialisation Unit Year 4
CSEN3000	Civil Engineering Project and Cost Management		√	Specialisation Unit Year 4
*** SPUC-AIMLN Artificial Intelligence and Machine Learning Specialisation:** **(Specialisation offered by Department Electrical and Computer Engineering)*				
COMP1002	Data Structures and Algorithms	√		Specialisation Unit Year 3

ISYS2014	Database Systems		√	Specialisation Unit Year 3
COMP3010	Machine Learning	√		Specialisation Unit Year 4
COMP3009	Data Mining		√	Specialisation Unit Year 4
*** SPUC-CYBSE Cybersecurity Specialisation:** **(Specialisation offered by Department Electrical and Computer Engineering)*				
ISEC2001	Fundamental Concepts of Data Security	√		Specialisation Unit Year 3
ISEC1000	Cyber Security Concepts		√	Specialisation Unit Year 3
CMPE2000	Data Communications and Network Management	√		Specialisation Unit Year 4
ISEC3005	Cyber Security - Intrusion Detection System and Incident Handling		√	Specialisation Unit Year 4
PROGRAMME: MECHATRONIC ENGINEERING				
MXEN2003	Microcontroller Project	√		
MCEN2003	Machine Dynamics	√		
CMPE2001	Foundations of Digital Design	√		Shared unit with Electrical and Electronic Engineering
COMP2009	Intelligent Agents	√		
COMP3010	Machine Learning	√		Shared unit with B-COMP
ELEN2000	Electrical Circuits	√		Shared unit with Electrical and Electronic Engineering
MCEN2006	Computer Aided Drawing and Engineering Modelling	√		Shared unit with Mechanical Engineering
MXEN3004	Dynamic Modelling and Control	√		Shared unit with Electrical and Electronic Engineering
MXEN3005	Robot Manipulation Project	√		
MXEN4000	Mechatronic Engineering Research Project 1	√	√	
CMPE3001	Embedded Systems Engineering		√	Shared unit with BTECH
COMP1002	Data Structures and Algorithms		√	Shared unit with BTECH; B-COMP
ENGR2001	Ethics and Sustainability in Engineering		√	Shared unit with Mechanical Engineering
ETEN2000	Signals and Systems		√	Shared unit with Electrical and Electronic Engineering
ICTE4001	Introduction to Autonomous Robots		√	
MCEN3007	Engineering Professionalism and Communication		√	Shared unit with Mechanical Engineering
MXEN3000	Mechatronics Design Project		√	
MXEN3002	Mechatronics Automation Project		√	
Specialisation Units *(please refer to Course Structure for list of specialisations offered)* :				
SPUC-MESYS Mechanical Systems Specialisation:				
ENGR2000	Fluid Mechanics	√		Specialisation Unit Year 3
MCEN2001	Fundamentals of Thermodynamics		√	Specialisation Unit Year 3
MCEN4018	Electromechanical Energy Systems	√		Specialisation Unit Year 4
MCEN3002	Applied Fluid Mechanics		√	Specialisation Unit Year 4
*** SPUC-SUENV Sustainable Environment Specialisation:** **(Specialisation offered by Department Civil and Construction Engineering)*				
ENST3008	Biodiversity Conservation	√		Specialisation Unit Year 3
ENEN4014	Sustainable Urban Management and Planning		√	Specialisation Unit Year 3
CHEN4020	Carbon Management	√		Specialisation Unit Year 4
*** SPUC-CIVEN Civil Engineering Specialisation:** **(Specialisation offered by Department Civil and Construction Engineering)*				
CSEN2000	Civil Engineering Construction Materials	√		Specialisation Unit Year 3
STEN2005	Structural Analysis of Determinate Structures	√		Specialisation Unit Year 3
GEOT2000	Principles of Geomechanics		√	Specialisation Unit Year 3
CVEN2001	Water and Environmental Resources		√	Specialisation Unit Year 3
TREN3001	Transportation Engineering and Earthworks	√		Specialisation Unit Year 4
*** SPUC-CYBSE Cybersecurity Specialisation:** **(Specialisation offered by Department Electrical and Computer Engineering)*				
ISEC2001	Fundamental Concepts of Data Security	√		Specialisation Unit Year 3
ISEC1000	Cyber Security Concepts		√	Specialisation Unit Year 3
CMPE2000	Data Communications and Network Management	√		Specialisation Unit Year 4
DEPARTMENT: APPLIED SCIENCES **HEAD OF DEPARTMENT: PROFESSOR M.V. PRASANNA**				
PROGRAMME: APPLIED GEOLOGY				
CHEM1003	Introduction to Chemistry		√	
COMP1005	Fundamentals of Programming	√	√	Shared unit with Engineering First Year
ERTH2000	Earth Resources and Sustainability		√	
ERTH3001	Climate and the Biosphere	√		
GEOL1005	Fundamentals of Geology		√	

GEOL1007	Planetary Science		√	
GEOL1008	Dynamic Earth	√		
GEOL2003	Mineralogy and Geochemistry	√		
GEOL2004	Sedimentology and Stratigraphy		√	
GEOL2007	Structural Geology	√		
GEOL2008	Field Geology Techniques	√		
GEOL2009	Geological Field Mapping		√	
GEOL2011	Petrology		√	
GEOL3001	Tectonics and the Dynamic Earth		√	
GEOL3003	Hydrogeology and Engineering Geology	√		
GEOL3006	Geoscience Project	√	√	
GEOL3008	Environmental Geoscience		√	
GEOL3009	Field Studies of Sedimentary Basins	√		
GEOL3012	Basin Dynamics	√		
GEOP2006	Introduction to Geophysical Exploration Methods	√		
MATH1013	Introductory Mathematics	√		
NPSC1003	Integrating Indigenous Science and STEM	√		Shared unit with Bachelor of Computing
PEEN3000	Formation Evaluation		√	
SPAT1007	Fundamentals of Geographic Information Systems	√		
PROGRAMME: GRADUATE CERTIFICATE IN GEOSPATIAL INTELLIGENCE				
SPAT5009	Applied Remote Sensing	√		
SPAT5015	Drone Mapping & Applications	√		
SPAT5006	Fundamentals of Geographic Information Systems	√		
ERTH5002	Habitat and Landform Mapping	√		
SPAT5008	Applied Geographic Information Systems (GIS)		√	
SPAT5005	Digital Image Interpretation		√	
SPAT5013	Spatial Database Systems		√	
COMP5017	Programming Principles and Practices		√	
PROGRAMME: GRADUATE DIPLOMA IN GEOSPATIAL INTELLIGENCE				
SPAT5009	Applied Remote Sensing	√	√	
SPAT5015	Drone Mapping & Applications	√	√	
SPAT5006	Fundamentals of Geographic Information Systems	√	√	
ERTH5002	Habitat and Landform Mapping	√	√	
SPAT5008	Applied Geographic Information Systems (GIS)	√	√	
SPAT5005	Digital Image Interpretation	√	√	
SPAT5013	Spatial Database Systems	√	√	
COMP5017	Programming Principles and Practices	√	√	

Note for Revision:

1.

Remarks	Unit Code and Title	Programme
Change of Unit Code	ETEN3003 Power Electronics changed to ELEN3005 Power Electronics	Electrical and Electronic Engineering