



ELECTRICAL ENGINEERING – SPECIALISATION + SPECIALISATION

Smart Device Developer

FOR COHORT AY2021/2022 ONWARDS	MC
Common Curriculum	60
GESS Singapore Studies	4
GEC Cultures and Connections	4
GEN Communities and Engagement	4
ES2531 Critical Thinking and Writing	4
CS1010E Programming Methodology	4
GEA1000 Quantitative Reasoning with Data	4
DTK1234 Design Thinking	4
EG1311 Design and Make	4
IE2141 Systems Thinking and Dynamics	4
EE2211 Introduction to Machine Learning	4
EG2501 Liveable Cities	4
Creating Narratives	4
PF1101 Fundamentals of Project Management	4
EE4002D Design Capstone OR EE4002R Research Capstone (select 1)	8
Major Requirements	60
MA1511 Engineering Calculus	2
MA1512 Differential Equations for Engineering	2
MA1508E Linear Algebra for Engineering	4
EG2401A Engineering Professionalism	2
EE1111A Electrical Engineering Principles and Practice I	4
EE2111A Electrical Engineering Principles and Practice II	4
EE2012 Analytical Methods in Electrical and Computer Engineering	4
EE2023 Signals and Systems	4
EE2026 Digital Design OR EE2028 Microcontroller Programming and Interfacing (select 1)	4
EE2027 Electronic Circuits	4
EE2022 Electrical Energy Systems	4
PC2020 Electromagnetics for Electrical Engineers	4
EG3611A Industrial Attachment	10
Technical Electives (select 2 modules from the list of Technical Elective modules, see next page)	8
Specialisation in Internet of Things	20
Core Modules	12
CS3237 Introduction to Internet of Things	4
EE4211 Data Science for the Internet of Things	4
EE4409 Modern Microelectronic Devices & Sensors	4
Elective Modules (select modules adding up to 8 MC from the list below)	8
CS4222 Wireless Networking	4
EE5132 Wireless & Sensor Networks	4
EE4204 Computer Networks	4
EE4218 Embedded Hardware System Design	4
CS3244 Machine Learning	4
CS5272 Embedded Software Design	4
EE4002D Design Capstone / EE4002R Research Capstone (If you select this module, it will fulfil the IoT specialisation requirement, however, you will still need to select another 2 modules elsewhere to complete your 160 MCs)	8
Specialisation in Robotics (select modules adding up to 20 MC from the list below)	20
EE3305/ME3243 Robotic System Design	4
EE4305 Fuzzy/Neural Systems for Intelligent Robotics	4
EE4308 Autonomous Robot Systems	4
EE4309 Robot Perception	4
EE4705 Human-Robot Interaction	4
EE4002D Design Capstone / EE4002R Research Capstone (Same as above)	8
BN4203 Robotics in Rehabilitation	4
BN4601 Intelligent Medical Robotics	4
ME4242 Soft Robotics	4
ME4245 Robot Mechanics and Control	4
ME5406 Deep Learning for Robotics	4
Other Unrestricted Electives	0
TOTAL	160

List of Technical Elective modules:	
<p><u>Foundation</u></p> <ul style="list-style-type: none"> • EE3131C Communication Systems • EE3408C Integrated Analog Design • EE3331C Feedback Control Systems • EE3431C Microelectronics Materials & Devices • EE3731C Signal Analytics • EE3104C Introduction to RF and Microwave Systems & Circuits <p><u>Communications & Networks</u></p> <ul style="list-style-type: none"> • EE4204 Computer Networks • EE4205 Quantum Communication and Cryptography • EE4210 Network Protocols and Applications • EE4211 Data Science for the Internet of Things • EE4802/IE4213 Learning from Data <p><u>Integrated Circuits & Embedded Systems</u></p> <ul style="list-style-type: none"> • CG3207 Computer Architecture • EE4407 Analog Electronics • EE4218 Embedded Hardware System Design • EE4415 Integrated Digital Design <p><u>Control, Intelligent Systems & Robotics</u></p> <ul style="list-style-type: none"> • EE3305/ME3243 Robotic System Design • EE4302 Advanced Control Systems • EE4303 Industrial Control Systems • EE4305 Fuzzy/Neural Systems for Intelligent Robotics • EE4307 Control Systems Design and Simulation • EE4308 Autonomous Robot Systems • EE4309 Robot Perception 	<p><u>Microelectronic Technologies & Devices</u></p> <ul style="list-style-type: none"> • EE4409 Modern Microelectronic Devices & Sensors • EE4435 Modern Transistors and Memory Devices • EE4436 Fabrication Process Technology • EE4437 Photonics – Principles and Applications • EE4438 Solar Cells and Modules <p><u>Power & Energy Systems</u></p> <ul style="list-style-type: none"> • EE4501 Power System Management & Protection • EE4502 Electric Drives and Control • EE4503 Power Electronics for Sustainable Energy Technologies • EE4509 Silicon Micro systems • EE4511 Renewable Generation and Smart Grid • EE4513 Electric Vehicles and their Grid Integration <p><u>Signal Analysis & Machine Intelligence</u></p> <ul style="list-style-type: none"> • EE4212 Computer Vision • EE4704 Image Processing and Analysis • EE4705 Human-Robot Interaction <p><u>Microwave & RF</u></p> <ul style="list-style-type: none"> • EE4101 RF Communications • EE4104 Microwave Circuits and Devices • EE4112 Radio Frequency Design and Systems <p><u>General</u></p> <ul style="list-style-type: none"> • EE3031 Innovation & Enterprise I • EE4031 Intellectual Property: Harnessing Innovation (2 MC) • EE4032 Blockchain Engineering (2 MC)

*The listed modules are subject to change.



ELECTRICAL ENGINEERING – SPECIALISATION
Smart Device Developer
(for student from Polytechnic granted 38 MC APC)

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GEC Cultures and Connections	4
GEN Communities and Engagement	4
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CS1010E Programming Methodology	4
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EE2211 Introduction to Machine Learning	4
EG2501 Liveable Cities	4
Creating Narratives	4
PF1101 Fundamentals of Project Management	4
EE4002D Design Capstone OR EE4002R Research Capstone (select 1)	8
Major Requirements	50
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EE2111A Electrical Engineering Principles and Practice II	4
EE2012 Analytical Methods in Electrical and Computer Engineering	4
EE2023 Signals and Systems	4
EE2026 Digital Design OR	4
EE2028 Microcontroller Programming and Interfacing (select 1)	4
EE2027 Electronic Circuits	4
EE2022 Electrical Energy Systems	4
PC2020 Electromagnetics for Electrical Engineers	4
Technical Electives (select 2 modules from the list of Technical Elective modules, see next page)	8
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Core Modules	12
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CS3244 Machine Learning	4
CS5272 Embedded Software Design	4
EE4002D Design Capstone / EE4002R Research Capstone (If you select this module, it will fulfil the IoT specialisation requirement, however, you will still need to select another 2 modules elsewhere to complete your 160 MCs)	8
Other Unrestricted Electives	0
TOTAL	122

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