ELECTRICAL ENGINEERING – MINOR + ELECTIVES
AI/Data Engineer in Electronics sector

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
Minor in Data Engineering	**20**
Core Modules	**16**
EE3801 Data Engineering Principles	4
IT2002 Database Technology and Management or CS2102 Database Systems	4
EE4802/IE4213 Learning from Data	4
CS4225 Big Data Systems for Data Science	4
Elective Module (select 1 module from the list below)	**4**
BT4015 Geospatial Analytics	4
EE4704 Image Processing and Analysis	4
EE5907 Pattern Recognition	4
IE4210 Operations Research II	4
IE4211 Modelling and Analytics	4
IE4243 Decision Modeling and Risk Analysis	4
Electives in Advanced Electronics (select first 2 modules and 3 from other modules from the list below)	**20**
EE3408C Integrated Analog Design	4
EE3431C Microelectronics Materials and Devices	4
EE4218 Embedded Hardware System Design	4
EE4407 Analog Electronics	4
EE4415 Integrated Digital Design	4
EE4435 Modern Transistors and Memory Devices	4
EE4436 Fabrication Process Technology	4
EE4437 Photonics - Principles and Applications	4
EE4438 Solar Cells and Modules	4
Other Unrestricted Electives	**0**
TOTAL	**160**

List of Technical Elective modules:	
Foundation • 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 **Communications & Networks** • 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 **Integrated Circuits & Embedded Systems** • CG3207 Computer Architecture • EE4407 Analog Electronics • EE4218 Embedded Hardware System Design • EE4415 Integrated Digital Design **Control, Intelligent Systems & Robotics** • 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	**Microelectronic Technologies & Devices** • 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 **Power & Energy Systems** • 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 **Signal Analysis & Machine Intelligence** • EE4212 Computer Vision • EE4704 Image Processing and Analysis • EE4705 Human-Robot Interaction **Microwave & RF** • EE4101 RF Communications • EE4104 Microwave Circuits and Devices • EE4112 Radio Frequency Design and Systems **General** • EE3031 Innovation & Enterprise I • EE4031 Intellectual Property: Harnessing Innovation (2 MC) • EE4032 Blockchain Engineering (2 MC)

*The listed modules are subject to change.