COMPUTER ENGINEERING – SPECIALISATION + ELECTIVES
Career in Smart Nation

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
CS1010 Programming Methodology	4
GEA1010 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
CG4002 Computer Engineering Capstone Project	8
Major Requirements	**60**
MA1511 Engineering Calculus	2
MA1512 Differential Equations for Engineering	2
MA1508E Linear Algebra for Engineering	4
EG2401A Engineering Professionalism	2
CP3880 Advanced Technology Attachment Programme or EG3611 Industrial Attachment	12 or 10
CG1111A Engineering Principles and Practice I	4
CG2111A Engineering Principles and Practice II	4
CS1231 Discrete Structures	4
CG2023 Signals & Systems	4
CG2027 Transistor-level Digital Circuits	2
CG2028 Computer Organization	2
CG2271 Real-time Operating Systems	4
CS2040C Data Structures and Algorithms	4
CS2113 Software Engineering & Object-Oriented Programming	4
EE2026 Digital Design	4
EE4204 Computer Networks	4
Specialisation in Internet of Things (IoT)	**20**
IoT Core Modules (12 MCs)	
CS3237 Introduction to Internet of Things	4
EE4211 Data Science for the Internet of Things	4
EE4409 Modern Microelectronic Devices & Sensors	4
IoT Elective Modules (select modules adding up to 8 MCs)	
CS4222 Wireless Networking, or EE5132 Wireless & Sensor Networks	4
EE4218 Embedded Hardware System Design	4
CS3244 Machine Learning	4
CS4276 IoT Security	4
CS5272 Embedded Software Design	4
EE4002D/EE4002R Design Capstone/Research Capstone, or CP4106 Computing Project – relevant to IoT (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
Electives in Computer Engineering (select 5 modules from the list of Technical Elective modules, see next page)	**20**
Other Unrestricted Electives	**0**
TOTAL	**160**

List of Technical Elective modules:	
Communications & Networking	**Interactive Digital Media**
- CS2107 Introduction to Information Security - CS3103 Computer Networks Practice - EE3131C Communication Systems - CS4222 Wireless Networking - CS4226 Internet Architecture - EE4210 Network Protocols and Applications - CS5223 Distributed Systems - CS5321 Network Security - EE5135 Digital Communications	- CS2108 Introduction to Media Computing - CS3240 Interaction Design - CS3241 Computer Graphics - CS3242 3D Modeling and Animation - CS3247 Game Development - CS3249 User Interface Development - EE3731C Signal Analytics - CS4240 Interaction Design for Virtual and Augmented Reality - CS4243 Computer Vision and Pattern Recognition - CS4247 Graphics Rendering Techniques - CS4249 Phenomena and Theories of Human-Computer Interaction - CS4347 Sound and Music Computing - CS4351 Real-Time Graphics - EE4212 Computer Vision - EE4604 Biological Perception in Digital Media - EE4704 Image Processing and Analysis
Embedded Computing	
- CG3207 Computer Architecture - CS2107 Introduction to Information Security - CS3211 Parallel and Concurrent Programming - EE3731C Signal Analytics - CS4222 Wireless Networking - CS4223 Multi-Core Architectures - EE4218 Embedded Hardware System Design - EE4415 Integrated Digital Design - CS5272 Embedded Software Design - EE5903 Real-time Systems	**Large-Scale Computing**
	- CS2102 Database Systems - CS3210 Parallel Computing - CS3211 Parallel and Concurrent Programming - CS3230 Design & Analysis of Algorithms - CS3235 Computer Security - CS3223 Database Systems Implementation - CS4211 Formal methods for Software Engineering - CS4221 Database Applications Design and Tuning - CS4223 Multi-Core Architectures - CS4224 Distributed Databases - CS4231 Parallel & Distributed Algorithms - EE4210 Network Protocols and Applications - EE4218 Embedded Hardware System Design
Intelligent Systems	
- CS3243 Introduction to Artificial Intelligence - CS3244 Machine Learning - EE3331C Feedback Control Systems - CS4244 Knowledge Representation and Reasoning - CS4246 AI Planning and Decision Making - CS4248 Natural Language Processing - EE4305 Fuzzy/Neural Systems for Intelligent Robotics - EE4308 Autonomous Robot Systems - CS5242 Neural Networks & Deep Learning - CS5339 Theory and Algorithms for Machine Learning - EE5904 Neural Networks - EE5907 Pattern Recognition	**System-On-A-Chip Design**
	- CG3207 Computer Architecture - EE3104C Introduction to RF and Microwave Systems & Circuits - EE3408C Integrated Analog Design - CS4223 Multi-Core Architectures - EE4104 Microwave Circuits & Devices - EE4112 Radio Frequency Design and Systems - EE4218 Embedded Hardware System Design - EE4415 Integrated Digital Design - EE4505 Power Semiconductors Devices & ICs - EE5518 VLSI Digital Circuit Design

*The listed modules are subject to change.