

4.2.3.2 Degree Requirements

The graduation requirements include obtaining a minimum Cumulative Average Point (CAP) of 3.00 (equivalent to an average of Grade B-) for the best 40 modular credits (MCs), inclusive of core modules, where required. Of the 40 MCs, at least 30 MCs must be from Electrical Engineering (EE) graduate modules or equivalent modules as identified by the Department. The remaining credits may be from other levels in the same or other disciplines as approved by the Department.

Students who opt to read MSc (Electrical Engineering) with a specialisation will be required to fulfil the following requirements:

Specialisation in Automation and Control Engineering

Compulsory Modules

EE5101 Linear Systems

EE5103 Computer Control Systems

Elective Modules for Specialisation (at least 3 modules)

EE4302 Advanced Control Systems

EE4308 Advances in Intelligent Systems and Robotics

EE5102 Multivariable Control Systems

EE5104 Adaptive Control Systems

EE5106 Advanced Robotics

EE5107 Optimal Control Systems

EE5108 Instrumentation and Sensors

EE5109 Applications of Mechatronics

EE5110 Special Topics in Automation and Control

EE5111 Selected Topics in Industrial Control & Instrumentation

EE5201 Control in Data Storage Systems

EE6102 Multivariable Control Systems (Advanced)

EE6104 Adaptive Control Systems (Advanced)

EE6105 Non-linear Dynamics and Control

EE6107 Optimal Control Systems (Advanced)

EE6110 Special Topics in Automation and Control (Advanced)

Specialisation in Communications Engineering

Compulsory Modules

EE5135 Digital Communications

EE5310 Communication Networking Fundamentals

Elective Modules for Specialisation (at least 3 modules)

EE5132 Wireless and Sensor Networks
EE5133 Statistical Signal Processing Techniques
EE5134 Optical Communications and Networks
EE5137 Stochastic Processes
EE5138 Optimization for Communication Systems
EE5139 Information Theory for Communication Systems
EE5401 Cellular Mobile Communications
EE5404 Satellite Communications
EE6130 Classical & Modern Channel Coding
EE6131 Wireless Communications (Advanced)

Specialisation in Computer Engineering

Compulsory Modules

EE5902 Multiprocessor Systems
EE5903 Real-Time Systems

Elective Modules for Specialisation (at least 3 modules)

EE4212 Computer Vision
EE4213 Image Processing
EE4218 Embedded Hardware System Design
EE5904 Neural Networks
EE5907 Pattern Recognition
EE5934 Deep Learning
EE6231 Reconfigurable Computing
EE6701 Evolutionary Computation
CS5222* Advanced Computer Architecture
CS5229* Advanced Computer Networks
CS5241* Speech Processing
CS5248* Systems Support for Continuous Media
CS5272* Embedded Software Design
CS5342* Multimedia Computing and Applications
CS5343* Advanced Computer Animation

* Conditions apply to MSc students registered from August 2011 onwards. A maximum two (2) of the above listed CS modules can be taken and be counted towards fulfilling the elective requirements of the specialisation in Computer Engineering. In the event that a student opts out from this specialisation, any CS modules that had been taken from this list would no longer be considered as equivalent EE graduate modules and if necessary, the student would then have to take additional modules to meet the

requirements of the MSc(EE) degree, or MSc(EE) with specialisation in areas other than Computer Engineering.

Specialisation in Nanoelectronics

Compulsory Modules

EE5508 Semiconductor Fundamentals

EE5434 Microelectronic Processes and Integration

Elective Modules for Specialisation (at least 3 modules)

EE4415 Integrated Digital Design

EE4437 Photonics - Principles and Applications

EE5439 Micro/Nano Electromechanical Systems

EE5440 Magnetic Data Storage for Big Data

EE5502 MOS Devices

EE5507 Analog Integrated Circuit Design

EE5517 Optical Engineering

EE5518 VLSI Digital Circuit Design

PC5203 Advanced Solid State Physics

Specialisation in Power and Energy Systems

Compulsory Modules

EE5703 Industrial Drives

EE5711 Power Electronic Systems

Elective Modules for Specialisation (at least 3 modules)

EE4511 Renewable Generation and Smart Grid

EE5701 High-Voltage Testing and Switchgear

EE5702 Advanced Power System Analysis

EE5704 High-Frequency Power Converters

EE6531 Selected Topics in Smart Grid Technologies