

Bachelor of Engineering (Computer Science) Curriculum Elective Focus Areas and Elective Focus Criteria

1. Students must choose to take the number of required prescribed/technical courses (based on their programme requirements) from the list below.
2. If a student has read at least 3 courses from one area regardless of whether the courses are read as Technical Elective or Unrestricted Elective, he will be deemed to have attained elective focus in that area. ***Students can exercise S/U for the Unrestricted Elective and it will still be counted towards the elective focus area.***
3. At any one semester, at least 2 elective courses will be offered. **Special Topics to be mounted can vary depending on factors such as availability of faculty; availability of visiting staff with certain expertise; new technological trends, etc. Special Topics may also replace the listed elective courses. Note that this list is subjected to changes every semester.**
4. The “Specialisation” attained will be reflected as “Elective Focus” in the result transcript, e.g. Elective Focus in Cyber Security.
5. Students can be awarded Elective Focus in at most two (2) areas.

Areas of Elective Focus	Semester Offered		AU	Pre-requisite**
HIGH PERFORMANCE COMPUTING	SEM 1	SEM 2		
CE/CZ4013 Distributed Systems		√	3	CE/CZ2005, CE3005 or CZ3006
CE/CZ4015 Simulation and Modelling		√	3	CE/CZ1007, CE/CZ1011
CE/CZ4016 Advanced Topics in Algorithms	√		3	CE/CZ2001
NETWORKING & MOBILITY	SEM 1	SEM 2	AU	Pre-requisite**
CE/CZ4013 Distributed Systems		√	3	CE/CZ2005, CE3005 or CZ3006
CE/CZ4021 Pervasive Networks	TBD		3	CE3005 or CZ3006
CE/CZ4022 Personal Mobile Networks	√		3	CE3005 or CZ3006
CE/CZ4023 Advanced Computer Networks	√		3	CE3005 or CZ3006
CE/CZ4024 Cryptography and Network Security		√	3	CE3005 or CZ3006
CYBER SECURITY	SEM 1	SEM 2	AU	Pre-requisite**
CE/CZ4024 Cryptography and Network Security		√	3	CE3005 or CZ3006
CE/CZ4055 Cyber Physical System Security*		√	3	CE/CZ1006
CE/CZ4062 Computer Security (System Security)	√		3	CE/CZ2005

CE/CZ4064 Security Management	√		3	CE/CZ2006
CE/CZ4065 Digital Forensics	TBD		3	CE3005 or CZ3006, CE/CZ4062
CE/CZ4067 Software Security*		√	3	CE/CZ2002, CE/CZ2005
CE/CZ4068 Application Security	TBD		3	CE/CZ2005, CE3005 or CZ3006
CE/CZ4069 Concepts and Techniques for Malware Analysis		√	3	CE/CZ1006, CE/CZ2005
ARTIFICIAL INTELLIGENCE	SEM 1	SEM 2	AU	Pre-requisite**
CE/CZ4001 Virtual and Augmented Reality		√	3	CZ2003
CE/CZ4003 Computer Vision	√		3	-
CE/CZ4041 Machine Learning		√	3	CE/CZ1007, CE/CZ1011
CE/CZ4042 Neural Networks & Deep Learning	√		3	CE/CZ1003, CE/CZ1007, CE/CZ1011, CE/CZ1012
CE/CZ4045 Natural Language Processing (Special Topic)	√		3	CE/CZ2001
CE/CZ4046 Intelligent Agents (Special Topic)		√	3	CE/CZ1007, CE/CZ1011
DATA SCIENCE & ANALYTICS	SEM 1	SEM 2	AU	Pre-requisite**
CE/CZ4031 Database System Principles	√		3	CE/CZ2001, CZ2007
CE/CZ4032 Data Analytics and Mining	√		3	CE/CZ2001
CE/CZ4034 Information Retrieval		√	3	CE/CZ2001
CE/CZ4041 Machine Learning		√	3	CE/CZ1007, CE/CZ1011
CE/CZ4062 Computer Security (System Security)	√		3	CE/CZ2005
CE/CZ4071 Network Science		√	3	CE/CZ2001
CE/CZ4073 Data Science for Business	TBD		3	CE/CZ1007, CE/CZ1011
ELECTIVE COURSES WITH NO FOCUS AREA	SEM 1	SEM 2	AU	Pre-requisite**
CE/CZ4153 Blockchain Technology*	√		3	MH1812, CE/CZ1007, CE/CZ2001
CE/CZ4171 Internet of Things: Communications & Networking		√	3	CE3005 or CZ3006

*Can only be registered as Unrestricted Elective (UE) course type after student had completed all the AU requirements for Major Prescribed Electives (MPE).

**In addition to the Pre-requisite shown here, student also needs to be of at least Study Year 3 standing.

Note:

Students who have completed CE/CZ4021 Pervasive Networks OR CE/CZ4073 Data Science for Business prior to AY20 Sem 2 can still count them towards fulfilling the respective Elective Focus.

CE/CZ4021 Pervasive Networks → Networking & Mobility

CE/CZ4073 Data Science for Business → Data Science & Analytics