NANYANG TECHNOLOGICAL UNIVERSITY SINGAPORE

School of Computer Science and Engineering

Bachelor of Engineering (Computer Engineering) Curriculum
Major Prescribed Electives and Elective Focus Areas
(For AY2021 and later Cohort)

1. Students must choose to take the number of major prescribed elective (MPEs) 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 MPEs or BDE, he will be deemed to have attained elective focus in that particular area. Students can exercise S/U for the BDE and it will still be counted towards the elective focus area.* (*Note: students can only take MPE as BDE after fulfilling the MPE requirements*)

3. For CE students, Elective Focus (total of 9 AUs i.e 3 courses to qualify) attained will be reflected as "Elective Focus" in the result transcript, e.g. Elective Focus in Security. Currently, we do not offer Specialization for CE students.

4. Students can be awarded Elective Focus in <u>at most two (2) areas</u>.

5. Topics to be offered 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. <u>Note that this list is subjected to changes every semester</u>.

6. To get the most updated list of courses available in Sem 1 or Sem 2, students may check the course code via this link https://wis.ntu.edu.sg/webexe/owa/aus_schedule.main

Areas of Elective Focus	Semester Offered		AU	Pre-requisite*
ARTIFICAL INTELLIGENCE	**S1**	**S2**		
SC3000 Artificial Intelligence	√	√	3	SC1007 & SC1015 & SC2000
SC4000 Machine Learning	√	√	3	SC1004 & SC1007 & SC2000
SC4001 Neural Networks & Deep Learning	√	√	3	SC1004 & SC1007 & SC2000
SC4002 Natural Language Processing	√		3	SC2001
SC4003 Intelligent Agents		√	3	SC1007 & SC2000
SC4061 Computer Vision	√		3	Nil
SC4172 Internet of Things: Tiny Machine Learning		√	3	SC2107
SECURITY	**S1**	**S2**	**AU**	**Pre-requisite***
SC3010 Computer Security	√	√	3	SC2005
SC4010 Applied Cryptography	√		3	SC2000 & MH1812
SC4011 Security Management	√		3	SC2006
SC4012 Software Security		√	3	SC2002 & SC2005 & SC2006
SC4013 Application Security	Not Offered	Not Offered	3	SC2008 & SC2005

	S1	S2	AU	Pre-requisite*
SC4014 Concepts and Techniques for Malware Analysis		√	3	SC1006 & SC2005
SC4015 Cyber Physical System Security		√	3	SC1006
SC4016 Cyber Threat Intelligence	√		3	Nil
DATA SCIENCE	**S1**	**S2**	**AU**	**Pre-requisite***
SC4020 Data Analytics and Mining	√		3	SC2001
SC4021 Information Retrieval		√	3	SC2001 or MH1403
SC4022 Network Science		√	3	SC2001
NETWORK	**S1**	**S2**	**AU**	**Pre-requisite***
SC3030 Advanced Computer Networks	√		3	SC2008
SC4030 Wireless and Mobile Networks	√		3	SC2008
SC4031 Internet of Things: Communications & Networking		√	3	SC2008
IoT	**S1**	**S2**	**AU**	**Pre-requisite***
SC4015 Cyber Physical System Security		√	3	SC1006
SC4031 Internet of Things: Communications & Networking		√	3	SC2008
SC4172 Internet of Things: Tiny Machine Learning		√	3	SC2107
Other MPEs	**S1**	**S2**	**AU**	**Pre-requisite***
SC3020 Database System Principles	√	√	3	SC2207
SC3040 Advanced Software Engineering	√		3	SC2006
SC3050 Advanced Computer Architecture	√	√	3	SC1006
SC4040 Advanced Topics in Algorithms	√		3	SC2001
SC4050 Parallel Computing	√		3	SC2005 & SC2008
SC4051 Distributed Systems		√	3	SC2005 & SC2008
SC4052 Cloud Computing		√	3	SC1004
SC4053 Blockchain Technology	√		3	SC2001 & MH1812
SC4054 Simulation and Modelling		√	3	SC1007 & SC2000
SC4060 Virtual and Augmented Reality		√	3	Nil

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