

## Areas of Specialization

The students enrolled in B. Tech. Computer Science and Engineering (4 year) would have an option to specialize in one the following emerging areas-

- **Artificial Intelligence and Machine Learning**
- **Data Science and Big Data Analytics**
- **Cyber Security and Privacy**

## Minimum Requirement for Specialization

The student wishing to do specialization must have overall CGPA  $\geq 7$  and CGPA in Specialization component  $\geq 8$ . The student must complete minimum of 12 credits in the area of specialization as follows-

- Electives courses from the chosen specialization bucket- 12 Credits
- OR
- Electives courses from the chosen specialization bucket- 6 Credits
  - Project-I in the area of specialization- 6 Credits

At the time of graduation (end of 8th semester before convocation), students who have completed the specialization requirement may apply for a specialization in CSE to UG advisor for further processing. A student can apply for a specialization only in one of the mentioned areas.

## List of Elective courses in specialization buckets

Given below are the list of courses in above specialization buckets.

### Artificial Intelligence and Machine Learning-

Course Code	Course Name	L-T-P	Credits
CSD350	Natural Language Processing	2-0-1	3
CSD357	Image Processing and Its Applications	2-0-1	3
CSD360	Introduction to Logic and Functional Programming	2-0-1	3
CSD361	Introduction to Machine learning	2-0-1	3
CSD454	Computer Vision	2-0-1	3
CSD456	Deep Learning	2-0-1	3
CSD481	Special Topics in Artificial Intelligence	3-0-0	3
CSD485	Special Module in Artificial Intelligence	1-0-0	1

### Data Science and Big Data Analytics-

Course Code	Course Name	L-T-P	Credits
CSD350	Natural Language Processing	2-0-1	3
CSD351	Advanced Data Management Systems	2-0-1	3
CSD355	Foundation of Data Science	2-0-1	3
CSD358	Information Retrieval	2-0-1	3
CSD361	Introduction to Machine learning	2-0-1	3
CSD363	Social and Information Networks	2-0-1	3

CSD450	Algorithms for Big Data	3-0-0	3
CSD452	Big Data Analytics	2-0-1	3
CSD455	Data Mining and Warehousing	2-0-1	3
CSD462	Virtualization and Cloud Computing	2-0-1	3
CSD482	Special Topics in Applications	3-0-0	3
CSD486	Special Module in Applications	1-0-0	1

### **Cyber Security and Privacy-**

<b>Course Code</b>	<b>Course Name</b>	<b>L-T-P</b>	<b>Credits</b>
CSD356	Foundation of Information Security	2-0-1	3
CSD451	Applied Cryptography	2-0-1	3
CSD457	Internet of Things	2-0-1	3
CSD459	Performance Modelling of Computer Communication Networks	3-0-0	3
CSD463	Wireless and Mobile Systems	3-0-1	3
CSD464	Wireless Sensor Networks	2-0-1	3
CSD483	Special Topics in Systems	3-0-0	3
CSD487	Special Module in Systems	1-0-0	1

# Above list is tentative and can be suitably updated based on needs of the Industry and availability of relevant course in the university.