

## Electives for MS (DS)

### DS Elective/Specialization-Elective Courses:

#	Category	Course Title	Credit Hours	Prerequisites
<b>Computer Vision</b>				
1	DS-Elec.	Advanced Computer Vision	(3+0)	
2	DS-Elec.	Geometry Based Methods in Computer Vision	(3+0)	
<b>Artificial Intelligence and Big Data Analysis</b>				
3	DS-Elec.	Algorithmic trading	(3+0)	
4	DS-Elec.	Bayesian Data Analysis	(3+0)	
5	DS-Elec.	User Adaptive Intelligent Systems	(3+0)	
6	DS-Elec.	Big Data Analytics	(3+0)	
7	DS-Elec.	Data Visualization	(3+0)	
8	DS-Elec.	Cloud computing for Big Data Analysis	(3+0)	
<b>Natural Language Processing and Text Mining</b>				
9	DS-Elec.	Advanced Natural Language Processing	(3+0)	
10	DS-Elec.	Data Mining and Text Analytics	(3+0)	
<b>Medical image analysis</b>				
11	DS-Elec.	Medical Image Processing and Analysis ✓	(3+0)	
12	DS-Elec.	Bioinformatics	(3+0)	
13	DS-Elec.	Computational Genomics	(3+0)	
<b>Machine Learning</b>				
14	DS-Elec.	Deep Learning	(3+0)	
15	DS-Elec.	Deep Reinforcement Learning	(3+0)	
16	DS-Elec.	Distributed Data Processing and Machine Learning	(3+0)	
17	DS-Elec.	Distributed Machine Learning in Apache Spark	(3+0)	
18	DS-Elec.	High performance computing	(3+0)	
19	DS-Elec.	Inference & Representation	(3+0)	
20	DS-Elec.	Optimization Methods for Data Science and Machine Learning	(3+0)	
21	DS-Elec.	Probabilistic Graphical Models	(3+0)	
<b>Business Intelligence</b>				
22	DS-Elec.	Scientific Computing in Finance	(3+0)	
23	DS-Elec.	Social network analysis ✓	(3+0)	
24	DS-Elec.	Time series Analysis and Prediction	(3+0)	

The detailed course outline for the majority of the above courses is provided in the following document of the Higher Education Commission (HEC).