

Course Structure for 6-Year Integrated MTech in AI & Data Science

Semester –I						Semester -II					
Course	Course Name	L	T	P	C	Course	Course Name	L	T	P	C
IDSC 111	Probability and Statistics for Data Science	3	1	0	4	IMA 211	Linear Algebra for Data Science	3	1	0	4
IDSC 112	IT Workshop I	3	1	2	5	ICS 121	Data Structures	3	1	2	5
IDSC 113	Computer Programming	3	0	2	4	ICS 122	Computer Organization	3	0	0	3
XXX	Communication Skills	1	0	0	1	ICS 123	IT Workshop II	3	0	2	4
XXX	Introduction to AI and Data Science	1	0	0	1	XXX	Principles of Management	1	0	0	1
Total		11	2	4	15	Total		13	2	4	17
Cumulative Credits at the End of First Year: 32											
Semester –III						Semester -IV					
Course	Course Name	L	T	P	C	Course	Course Name	L	T	P	C
IMA 121	Optimization Techniques for Data Science	3	1	0	4	ICS 221	Theory of Computation	3	1	0	4
ICS 211	Design and Analysis of Algorithms	3	1	0	4	IMA221	Differential Equations and Transforms	3	1	0	4
ICS 214	IT Workshop III	4	0	2	5	ICS 213	Database Management Systems	3	1	2	5
ICS 212	Operating Systems	3	0	2	4	CSE 312	Software Engineering and Project Management	3	0	2	4
IHS XXX	Financial Management & Accounting	1	0	0	1	IHS XXX	Fundamentals of Economics	1	0	0	1
Total		13	3	4	18	Total		13	3	4	18
Cumulative Credits at the End of Second Year: 68											
Semester –V						Semester -VI					
Course	Course Name	L	T	P	C	Course	Course Name	L	T	P	C
XXX	Artificial Intelligence	3	1	2	5	CSE 321	Introduction to IOT	3	0	2	4
ICS 223	Compiler Design	3	1	2	5	XXX	Blockchain Technology	3	0	2	4
ICS 224	Computer Networks	3	1	2	5	ICS 412	Cryptography and Network Security	3	1	0	4
XXX	Human Resource Management	1	0	0	1	ADS xxx	Parallel and Distributed Computing	3	0	2	4
Total		10	3	6	16	Total		12	1	6	16
Cumulative Credits at the End of Third Year: 100											
Exit with BCA in AI and Data Science											
Semester –VII						Semester -VIII					
Course	Course Name	L	T	P	C	Course	Course Name	L	T	P	C
XXX	Data Warehousing & Data Mining	3	0	2	4	XXX	Machine Learning	3	0	2	4
CSE 322	Cloud Computing	3	1	2	5	DSC 613	Big Data Analytics	3	0	2	4
IOE xxx	Introduction to DevOps and Microservices	2	0	0	2	IOE xxx	Data handling analysis and visualization	3	0	0	3
XXX	Mini Project Phase I	6	0	0	6	XXX	Mini Project Phase II	6	0	0	6
Total		8	1	4	17	Total		9	0	4	17
Cumulative Credits at the End of Fourth Year: 134											
Semester –IX						Semester -X					
Course	Course Name	L	T	P	C	Course	Course Name	L	T	P	C

ICS 422	Applied Predictive Analytics	3	0	0	3		CSE 411	Streaming Data Analytics	3	0	2	4
ADS xxx	Machine Learning Operations (MLOps)	3	0	2	4		CSE xxx	Speech and Natural Language Processing/ Computer Vision: Principles and Process	3	0	2	4
IOE 421	Deep Learning	3	1	2	5		DSC 622	Graph Algorithms and Mining	3	0	0	3
DSC 511	Business Analytics	2	0	0	2		ISC xxx	Network Science Analytics	3	1	0	4
XXX	Computer Graphics	3	0	0	3		IOE XXX	Research Methodology	2	0	0	2
Total		14	1	4	17		Total		14	1	4	17

Cumulative Credits at the End of Fifth Year: 168
Exit with Integrated MCA in AI and Data Science

Semester –XI						Semester -XII					
Course	Course Name	L	T	P	C	Course	Course Name	L	T	P	C
xxx	IMTP - I	18	0	0	18	ICS xxx	IMTP - II	18	0	0	18
xxx	Responsible Artificial Intelligence	2	0	0	2	xxxx	Methods of Explainable-AI	2	0	0	2
xxx	Ethics for AI	1	0	0	1	xxxx	Interpretable Machine Learning	1	0	0	1
Total		20	0	0	21	Total		20	0	0	21

Cumulative Credits at the End of Sixth Year: 210
Integrated M.Tech. in AI and Data Science