

B. TECH.: ARTIFICIAL INTELLIGENCE AND DATA SCIENCE

FIRST SEMESTER						
S. No.	Course Code	Course Name	Category Code	I	P	C
1.	DS101	Differential and Integral Calculus	BSC	3	0	3
2.	DS102	Engineering Physics	BSC	3	0	3
3.	ME101	Engineering Mechanics	BEC	3	0	3
4.	EC101	Basic Electrical and Electronics Engineering	BEC	3	0	3
5.	CS101	Problem Solving and Computer Programming	BEC	3	0	3
6.	DS103	Technical and Professional Communication	HMC	2	2	3
7.	DS104	Engineering Physics Practice	BSC	0	3	2
8.	CS102	Problem Solving and Computer Programming Practice	BEC	0	3	2
9.	ME102	Engineering Skills Practice	BEC	0	3	2
10.	ID101	NSS/NSO/NCC	HMC	0	0	0
Total No. of Credits						24

SECOND SEMESTER						
S. No.	Course Code	Course Name	Category Code	I	P	C
1.	DS151	Probability and Statistics	BSC	3	0	3
2.	DS152	Linear Algebra	BSC	3	0	3
3.	DS153	Modern Physics	BSC	3	0	3
4.	DSxxx	Design Elective	DES	2	0	2
5.	DSxxx	Humanities Elective	HMC	2	0	0
6.	ME151	Concepts in Engineering Design	DES	3	0	3
7.	ME152	Design Realization Practice	DES	0	3	2
8.	DS154	Modern Physics Practice	BSC	0	3	2
9.	AD151	Digital Logic Design	BEC	2	3	4
10.	AD152	Python Programming Practice	BEC	0	3	2
11.	ID101	NSS/NCC/NSO	HMC	0	0	0
Total No. of Credits						24

THIRD SEMESTER						
S. No.	Course Code	Course Name	Category Code	I	P	C
1.	DS201	Random Variables and Stochastic Processes	BSC	3	0	3
2.	AD201	Discrete Mathematics	PEC	3	0	3
3.	AD202	Data Structures	PEC	3	0	3
4.	AD203	Computer Organization and Architecture	PEC	3	0	3
5.	AD204	Design and Analysis of Algorithms	PEC	3	0	3
6.	AD205	Data Structures Practice	PEC	0	3	2
7.	AD206	Computer Organization and Architecture Practice	PEC	0	3	2
8.	AD207	Design and Analysis of Algorithms Practice	PEC	0	3	2
9.	IDxxx	Self-Improvement Course I	HMC	0	0	0
Total No. of Credits						21

FOURTH SEMESTER						
S. No.	Course Code	Course Name	Category Code	I	P	C
1.	AD251	Database Management Systems	PEC	3	0	3
2.	AD252	Operating Systems	PEC	3	0	3
3.	AD253	Automata Theory and Compiler Design	PEC	3	0	3
4.	AD254	Data Communication and Computer Networking	PEC	3	0	3
5.	AD255	Artificial Intelligence	PEC	2	2	3
6.	AD256	Database Management Systems Practice	PEC	0	3	2
7.	AD257	Operating Systems Practice	PEC	0	3	2
8.	AD258	Computer Networks Practice	PEC	0	3	2
9.	XXxxx	Skill Development Course I	PCD	2	0	2
10.	IDxxx	Self-Improvement Course II	HMC	0	0	0
Total No. of Credits						23

FIFTH SEMESTER						
S. No.	Course Code	Course Name	Category Code	I	P	C
1.	DS301	Managerial Economics and Financial Accountancy	HMC	3	0	3
2.	AD301	Machine Learning	PEC	3	0	3
3.	AD302	Data Analysis and Visualization	PEC	3	0	3
4.	AD303	Data Mining	PEC	3	0	3
5.	AD304	Artificial Intelligence in Software Engineering	PEC	3	0	3
6.	AD305	Machine Learning Practice	PEC	0	3	2
7.	AD306	Data Analysis and Visualization Practice	PEC	0	3	2
8.	AD307	Data Mining Practice	PEC	0	3	2
9.	IDxxx	Self-Improvement Course III	HMC	0	0	0
Total No. of Credits						21

SIXTH SEMESTER						
S. No.	Course Code	Course Name	Category Code	I	P	C
1.	DS351	Entrepreneurship and Management Functions	PEC	3	0	3
2.	AD351	Big Data Systems	PEC	3	0	3
3.	AD352	Natural Language Processing	PES	3	0	3
4.	ADxxx	Department Elective I	PEC	3	0	3
5.	XXxxx	Free Elective I	PEC	3	0	3
6.	AD353	Big Data Systems Practice	PEC	0	3	2
7.	AD354	Natural Language Processing Practice	PEC	0	3	2
8.	ID351	Product Design Practice	DES	0	3	2
9.	XXxxx	Skill Development Course II	PCD	2	0	2
10.	IDxxx	Self-Improvement Course IV	HMC	0	0	0
Total No. of Credits						23

SEVENTH SEMESTER						
S. No.	Course Code	Course Name	Category Code	I	P	C
1.	AD498	Project Phase I	PCD	-	-	3
2.	ADxxx	Department Elective II	PEC	3	0	3
3.	ADxxx	Department Elective III	PEC	3	0	3
4.	ADxxx	Department Elective IV	PEC	3	0	3
5.	XXxxx	Free Elective II	PEC	3	0	3
6.	CS496	Seminar	PCD	-	2	1
Total No. of Credits						16

EIGHTH SEMESTER						
S. No.	Course Code	Course Name	Category Code	I	P	C
1.	AD499	Project Phase II	PCD	-	-	8
2.	AD497	Internship	PCD	-	-	3
Total No. of Credits						11

Elective Courses

List of Design Electives						
S. No.	Course Code	Course Name	Category Code	I	P	C
1.	DS131	Design History	DES	2	0	2
2.	DS132	Sociology of Design	DES	2	0	2
3.	DS133	Earth, Environment and Design	DES	2	0	2

List of Humanities Electives						
S. No.	Course Code	Course Name	Category Code	I	P	C
1.	DS136	Professional Ethics for Engineers	HMC	2	0	0
2.	DS137	Universal Human Values	HMC	2	0	0
3.	DS138	Constitution of India	HMC	2	0	0
4.	DS139	History of Science and Technology in India	HMC	2	0	0

List of Department Electives						
S. No.	Course Code	Course Name	Category Code	I	P	C
1	AD401	Game Theory	PEC	3	0	3
2	AD402	AI in Internet of Things	PEC	3	0	3
3	AD403	Data Privacy	PEC	3	0	3
4	AD404	Information Retrieval	PEC	3	0	3
5	AD405	Recommender Systems	PEC	3	0	3
6	AD406	Distributed Systems	PEC	3	0	3
7	AD407	Object Oriented Programming	PEC	3	0	3
8	AD408	Systems Engineering	PEC	3	0	3
9	AD409	Industry 4.0	PEC	3	0	3
10	AD410	Health Analytics	PEC	3	0	3
11	AD411	Social Network Analysis	PEC	3	0	3
12	AD412	Information Theory and Coding	PEC	3	0	3
13	AD413	Unmanned Aerial Vehicle	PEC	3	0	3
14	AD414	Robotics	PEC	3	0	3
15	AD415	Time Series Analysis	PEC	3	0	3
16	AD416	Information Security	PEC	3	0	3
17	AD417	Human Computer Interaction	PEC	3	0	3
18	AD418	Design Patterns	PEC	3	0	3
19	AD419	Modern Computational Algebra	PEC	3	0	3
20	AD420	Affective Computing	PEC	3	0	3
21	AD421	Genetic Algorithms	PEC	3	0	3
22	AD422	Simulation and Modelling	PEC	3	0	3

23	AD423	Decision Science	PEC	3	0	3
24	AD424	Quantum Computing	PEC	3	0	3
25	AD425	Software Testing	PEC	3	0	3
26	AD426	Soft Computing	PEC	3	0	3
27	AD427	Data Science	PEC	3	0	3
28	AD428	Advanced Data Structures and Algorithms	PEC	3	0	3
29	AD429	Graph Theory	PEC	3	0	3
30	AD430	Approximation and Randomized Algorithms	PEC	3	0	3
31	AD431	Digital Image Processing	PEC	3	0	3
32	AD432	Mobile Computing	PEC	3	0	3
33	AD433	Pattern Recognition	PEC	3	0	3
34	AD434	Cloud Computing	PEC	3	0	3
35	AD435	Parallel and Distributed Systems	PEC	3	0	3
36	AD436	Business Intelligence	PEC	3	0	3
37	AD437	Service Oriented Architecture	PEC	3	0	3
38	AD438	Real-time Systems	PEC	3	0	3
39	AD439	Computer Vision	PEC	3	0	3
40	AD440	Fault-Tolerant Systems	PEC	3	0	3
41	AD441	Computer Graphics and Multimedia	PEC	3	0	3
42	AD442	Scalable Data Science	PEC	3	0	3
43	AD443	Optimization Techniques	PEC	3	0	3
44	AD444	Embedded Systems	PEC	3	0	3
45	AD445	HPC and GPU Computing	PEC	3	0	3
46	AD446	Marketing Science and Predictive Analysis	PEC	3	0	3
47	AD447	Artificial Intelligence in Forensics	PEC	3	0	3
48	AD448	Statistical Learning	PEC	3	0	3
49	AD449	Financial Analytics	PEC	3	0	3
50	AD450	Artificial Intelligence in Healthcare	PEC	3	0	3
51	AD451	Tools and Data Management	PEC	3	0	3
52	AD452	Decision Support Systems	PEC	3	0	3
53	AD453	Immersive Technologies	PEC	3	0	3
54	AD454	Bio-Inspired Computing	PEC	3	0	3
55	AD455	Bioinformatics	PEC	3	0	3
56	AD456	Advanced Data Mining	PEC	3	0	3
57	AD457	Computational Learning Theory	PEC	3	0	3
58	AD458	Algorithmic Techniques for Big Data	PEC	3	0	3
59	AD459	Mining of Massive Datasets	PEC	3	0	3
60	AD460	Cluster Computing	PEC	3	0	3
61	AD461	Wireless Networked Systems	PEC	3	0	3
62	AD462	Web Technologies	PEC	3	0	3
63	AD463	Artificial Intelligence in Manufacturing	PEC	3	0	3
64	AD464	Remote Sensing and GIS	PEC	3	0	3
65	AD465	Deep Learning	PEC	3	0	3
66	AD466	Reinforcement Learning	PEC	3	0	3

67	AD467	Artificial Intelligence in Agriculture	PEC	3	0	3
68	AD468	Artificial Intelligence in Agile Development	PEC	3	0	3
69	AD469	Artificial Intelligence in Additive Manufacturing	PEC	3	0	3
70	AD470	Gen AI	PEC	3	0	3

List of Free Electives						
S. No.	Course Code	Course Name	Category Code	I	P	C
1.	CS470	Principles of Programming	PEC	3	0	3
2.	CS471	Artificial Intelligence and Machine Learning	PEC	3	0	3
3.	CS472	Introduction to Data Science	PEC	3	0	3
4.	CS473	Systems Engineering	PEC	3	0	3
5.	DS470	Differential Equations	PEC	3	0	3
6.	DS471	Materials and Devices for Quantum Technologies	PEC	3	0	3
7.	DS472	Numerical Methods	PEC	3	0	3
8.	DS473	Quantum Computing	PEC	3	0	3
9.	DS474	Sustainable Design	PEC	3	0	3

Self-Improvement Courses

List of Self Improvement Courses						
S. No.	Course Code	Course Name	Category Code	I	P	C
1.	ID401	Physical (Sports, Dance, Body Building, etc.)	HMC	0	0	0
2.	ID402	Health and Nutrition (Medical) Awareness (Basics awareness on Medicine, Diseases, Remedies, Nutrition, etc.)	HMC	0	0	0
3.	ID403	Personality Enhancement/Character Building (emotional development, Reading biography of great personalities, Responsibility and ownership towards nation)	HMC	0	0	0
4.	ID404	Language and music (Learning new languages, poetry, public speaking, vocabulary enhancement, singing, Musical instrument, etc.)	HMC	0	0	0
5.	ID405	Passion (Any passion of the student not registered earlier)	HMC	0	0	0
6.	ID406	Financial Awareness (Awareness on Insurances, Investments, financial planning, Money Management, etc.)	HMC	0	0	0

Skill Development Courses

List of Skill Development Courses						
S. No.	Course Code	Course Name	Category Code	I	P	C
1.	CS381	Linux Administration	PCD	2	0	2

2.	CS382	Full Stack Development	PCD	2	0	2
3.	CS383	DevOps Toolchain	PCD	2	0	2
4.	CS384	Digital Marketing	PCD	2	0	2
5.	CS385	Graphic Design and Editing	PCD	2	0	2
6.	CS386	Product Automation	PCD	2	0	2
7.	CS387	Systems Programming	PCD	2	0	2
8.	CS388	Software Toolbox	PCD	2	0	2
9.	CS389	Mobile app Development	PCD	2	0	2
10.	CS390	Ethical Hacking	PCD	2	0	2
11.	CS391	Low Code Development	PCD	2	0	2
12.	ME381	Data Science for Engineers	PCD	2	0	2
13.	ME382	Basics of Finite Element Analysis	PCD	2	0	2
14.	ME383	Fuzzy Logic and Neural Network	PCD	2	0	2
15.	ME384	Design, Technology and Innovation	PCD	2	0	2
16.	ME385	Manufacturing Guidelines for Product Design	PCD	2	0	2
17.	ME386	Artificial Intelligence for Mechanical Engineers	PCD	2	0	2
18.	ME387	Database Management System	PCD	2	0	2
19.	ME388	Failure Analysis and prevention	PCD	2	0	2
20.	EC381	Industry 4.0	PCD	2	0	2