

B. TECH ARTIFICIAL INTELLIGENCE AND DATA SCIENCE
REGULATION 2020

SEMESTER I							
S.No	Course Code	Course	L/T/P	Contact hrs/week	Credit	Ext/Int	Category
THEORY							
1	20AD101	Python for Data Science	3/0/0	3	3	50/50	PC
THEORY CUM PRACTICAL							
2.	20MA101	Engineering Mathematics I	2/1/2	5	4	40/60	BSC
3.	20CH101	Engineering Chemistry	3/0/3	6	4.5	40/60	BSC
4.	20AD102	Computer Organization and Digital Logic	3/0/2	5	4	40/60	ESC
PRACTICAL							
5.	20AD103	Python Laboratory	0/0/3	3	1.5	40/60	PC
6	20ME103	Engineering Practices laboratory	0/0/3	3	1.5	40/60	ESC
MANDATORY COURSE							
7.	20MC101	Mandatory Course-I (Induction Programme)	3 weeks				MC
Total				25	18.5	600	

SEMESTER II							
S.No	Course Code	Course	L/T/P	Contact hrs/week	Credit	Ext/Int	Category
THEORY							
1	20GE201	Universal Human Values	3/0/0	3	3	50/50	HSMC
THEORY CUM PRACTICAL							
2.	20MA201	Engineering Mathematics II	2/1/2	5	4	40/60	BSC
3.	20EN101	Technical Communication Skills	2/0/2	4	3	40/60	HSMC
4.	20PH104	Physics	3/0/3	6	4.5	40/60	BSC
5.	20AD201	Data Structures using C	3/0/2	5	4	40/60	PC

PRACTICAL							
6.	20ME111	Engineering Graphics	1/0/3	4	2.5	40/60	ESC
MANDATORY COURSE							
7.	20MC102	Mandatory Course-II (Environmental Sciences)	2/0/0	2	0	0/100	MC
Total				29	21	700	

SEMESTER III							
S.No	Course Code	Course	L/T/P	Contact hrs/week	Credit	Ext/Int	Category
THEORY							
1	20AD301	Fundamentals of Operating Systems	3/0/0	3	3	50/50	PC
2.	20IT402	Design and Analysis of Algorithms	3/0/0	3	3	50/50	PC
3.	20CS401	Database Management Systems	3/0/0	3	3	50/50	PC
4.	20AD302	Artificial Intelligence Principles and Techniques	3/0/0	3	3	50/50	PC
THEORY CUM PRACTICAL							
5.	20MA302	Mathematical Structures	2/1/2	5	4	40/60	BSC
6.	20AD303	Object Oriented Programming with core Java	3/0/3	6	4.5	40/60	PC
PRACTICAL							
7.	20AD304	Fundamentals of Operating Systems Laboratory	0/0/3	3	1.5	40/60	PC
8.	20CS405	Database Management Systems Laboratory	0/0/3	3	1.5	40/60	PC
MANDATORY COURSE							
9.	20MCXXX	Mandatory Course-III	2/0/0	2	0	0/100	MC
Total				31	23.5	900	

SEMESTER IV							
S.No	Course Code	Course	L/T/P	Contact hrs/week	Credit	Ext/Int	Category
THEORY							
1	20AD401	Data Warehousing and Mining	3/0/0	3	3	50/50	PC

2.	20AD402	Biology for Engineers	3/0/0	3	3	50/50	ESC
3.	20AD403	Introduction to Computer Networks	3/0/0	3	3	50/50	ESC
4.	20AD404	Machine Learning	3/0/0	3	3	50/50	PC
5.	20AD405	Fundamentals of Software Engineering	3/0/0	3	3	50/50	HSMC
THEORY CUM PRACTICAL							
6.	20MA404	Random Variables and Statistics	2/1/2	5	4	40/60	BSC
PRACTICAL							
7.	20AD406	Networks Laboratory	0/0/3	3	1.5	40/60	ESC
8.	20AD407	Machine Learning Laboratory	0/0/3	3	1.5	40/60	PC
MANDATORY COURSE							
9.	20MCXXX	Mandatory Course-IV	2/0/0	2	0	0/100	MC
Total				28	22	900	

SEMESTER V							
S.No	Course Code	Course	L/T/P	Contact hrs/week	Credit	Ext/Int	Category
THEORY							
1.	20AD501	Data Science Using R	3/0/0	3	3	50/50	PC
2.	20AD502	Fundamentals of Signals and Systems	3/0/0	3	3	50/50	ESC
3.	20AD9XX	Professional Elective –I	3/0/0	3	3	50/50	PEC
4.	20AD9XX	Professional Elective –II	3/0/0	3	3	50/50	PEC
5.	20XXXXX	Open Elective –I	2/0/2	4	3	50/50	OEC
THEORY CUM PRACTICAL							
6.	20AD503	Cloud Computing Fundamentals	3/0/3	6	4.5	40/60	PC
PRACTICAL							
7.	20AD504	Data Science Laboratory	0/0/3	3	1.5	40/60	PC
MANDATORY COURSE							

8.	20MCXXX	Mandatory Course-V	2/0/0	2	0	0/100	MC
PROJECT WORK							
9.	20AD505	Mini Project –I	0/0/2	2	1	40/60	PW
Total				29	22	900	

SEMESTER VI							
S.No	Course Code	Course	L/T/P	Contact hrs/week	Credit	Ext/Int	Category
THEORY							
1.	20AD601	AI in Natural Language Processing	3/0/0	3	3	50/50	PC
2.	20AD9XX	Professional Elective –III	3/0/0	3	3	50/50	PEC
3.	20AD9XX	Professional Elective –IV	3/0/0	3	3	50/50	PEC
4.	20ADXXX	Emerging Elective –I	3/0/0	3	3	50/50	EEC
THEORY CUM PRACTICAL							
5.	20AD602	Data visualization using Tableau	3/0/3	6	4.5	40/60	PC
6.	20AD603	IoT Design and Applications	3/0/2	5	4	40/60	ESC
PRACTICAL							
7.	20AD604	NLP Laboratory	0/0/3	3	1.5	40/60	PC
PROJECT WORK							
8.	20AD605	Mini Project –II	0/0/2	2	1	40/60	PW
Total				28	23	800	

SEMESTER VII							
S.No	Course Code	Course	L/T/P	Contact hrs/week	Credit	Ext/Int	Category
THEORY							
1	20AD701	Data Analytics	3/0/0	3	3	50/50	PC
2.	20AD702	Deep Learning and its Applications	3/0/0	3	3	50/50	PC
3.	20AD9XX	Professional Elective –V	3/0/0	3	3	50/50	PEC

4.	20AD9XX	Professional Elective –VI	3/0/0	3	3	50/50	PEC
5.	20XXXXX	Open Elective –II	2/0/2	4	3	50/50	OEC
6.	20ADXXX	Emerging Elective –II	3/0/0	3	3	50/50	EEC
PRACTICAL							
7.	20AD703	Data Analytics Laboratory	0/0/3	3	1.5	40/60	PC
8.	20AD704	Deep Learning Laboratory	0/0/3	3	1.5	40/60	PC
EMPLOYABILITY ENHANCEMENT SKILLS							
9.	20EES01	Employability Enhancement Skills (Summer Internship / Summer Training – 4 weeks)			2	0/100	EES
Total				25	23	900	

SEMESTER VIII							
S.No	Course Code	Course	L/T/P	Contact hrs/week	Credit	Ext/Int	Category
Project Work							
1	20AD801	Project	0/0/24	24	12	40/60	PW
Total				24	12	100	

HUMANITIES (9 CREDITS)

S.No	Course Code	Course	L/T/P	Contact hrs/week	Credit	Category
1	20EN101	Technical Communication Skills	2/0/2	4	3	HSMC
2	20GE201	Universal Human Values	3/0/0	3	3	HSMC
3.	20AD405	Fundamentals of Software Engineering	3/0/0	3	3	HSMC

BASIC SCIENCES (25 CREDITS)

S.No	Course Code	Course	L/T/P	Contact hrs/week	Credit	Category
1	20MA101	Engineering Mathematics I	2/1/2	5	4	BSC
2	20CH101	Engineering Chemistry	3/0/3	6	4.5	BSC

3	20MA201	Engineering Mathematics II	2/1/2	5	4	BSC
4	20PH104	Physics	3/0/3	6	4.5	BSC
5	20MA302	Mathematical Structures	2/1/2	5	4	BSC
6	20MA404	Random Variables and Statistics	2/1/2	5	4	BSC

ENGINEERING SCIENCE (22.5 CREDITS)

S.No	Course Code	Course	L/T/P	Contact hrs/week	Credit	Category
1.	20AD102	Computer Organization and Digital Logic	3/0/2	5	4	ESC
2.	20ME103	Engineering Practices laboratory	0/0/3	3	1.5	ESC
3.	20ME111	Engineering Graphics	1/0/3	4	2.5	ESC
4.	20AD402	Biology for Engineers	3/0/0	3	3	ESC
5.	20AD403	Introduction to Computer Networks	3/0/0	3	3	ESC
6.	20AD406	Networks Laboratory	0/0/3	3	1.5	ESC
7.	20AD502	Fundamentals of Signals and Systems	3/0/0	3	3	ESC
8.	20AD603	IoT Design and Applications	3/0/2	5	4	ESC

PROFESSIONAL CORE (62.5 CREDITS)

S.No	Course Code	Course	L/T/P	Contact hrs/week	Credit	Category
1.	20AD101	Python for Data Science	3/0/0	3	3	PC
2.	20AD103	Python Laboratory	0/0/3	3	1.5	PC
3.	20AD201	Data Structures Using C	3/0/2	5	4	PC

4.	20AD301	Fundamentals of Operating Systems	3/0/0	3	3	PC
5.	20IT402	Design and Analysis of Algorithms	3/0/0	3	3	PC
6.	20CS401	Database Management Systems	3/0/0	3	3	PC
7.	20AD302	Artificial Intelligence Principles and Techniques	3/0/0	3	3	PC
8.	20AD303	Object Oriented Programming with core Java	3/0/3	6	4.5	PC
9.	20AD304	Fundamentals of Operating Systems Laboratory	0/0/3	3	1.5	PC
10.	20CS405	Database Management Systems Laboratory	0/0/3	3	1.5	PC
11.	20AD401	Data Warehousing and Mining	3/0/0	3	3	PC
12.	20AD404	Machine Learning	3/0/0	3	3	PC
13.	20AD407	Machine Learning Laboratory	0/0/3	3	1.5	PC
14.	20AD501	Data Science Using R	3/0/0	3	3	PC
15.	20AD503	Cloud Computing Fundamentals	3/0/3	6	4.5	PC
16.	20AD504	Data Science Laboratory	0/0/3	3	1.5	PC
17.	20AD601	AI in Natural Language Processing	3/0/0	3	3	PC
18.	20AD602	Data visualization using Tableau	3/0/3	6	4.5	PC
19.	20AD604	NLP Laboratory	0/0/3	3	1.5	PC
20.	20AD701	Data Analytics	3/0/0	3	3	PC
21.	20AD702	Deep Learning and its Applications	3/0/0	3	3	PC
22.	20AD703	Data Analytics Laboratory	0/0/3	3	1.5	PC
23.	20AD704	Deep Learning Laboratory	0/0/3	3	1.5	PC

PROFESSIONAL ELECTIVES (18 CREDITS)

PROFESSIONAL ELECTIVE I

S.No	Course Code	Course	L/T/P	Contact hrs/week	Credits	Category
1.	20AD901	Artificial Neural Networks	3/0/0	3	3	PEC
2.	20AD902	Semantic Web	3/0/0	3	3	PEC
3.	20AD903	Introduction to Distributed systems	3/0/0	3	3	PEC
4.	20AD904	Virtual Reality and Augmented Reality	3/0/0	3	3	PEC
5.	20AD905	Bio Informatics	3/0/0	3	3	PEC

PROFESSIONAL ELECTIVE II

S.No	Course Code	Course	L/T/P	Contact hrs/week	Credits	Category
1.	20AD906	Ethics in Data Science	3/0/0	3	3	PEC
2.	20AD907	Sentiment Analysis	3/0/0	3	3	PEC
3.	20AD908	Information Extraction and Retrieval	3/0/0	3	3	PEC
4.	20AD909	Cognitive Systems	3/0/0	3	3	PEC
5.	20AD910	Intelligent Data Base System	3/0/0	3	3	PEC

PROFESSIONAL ELECTIVE III

S.No	Course Code	Course	L/T/P	Contact hrs/week	Credits	Category
1.	20AD911	Image Signal processing	3/0/0	3	3	PEC
2.	20AD912	Computational Statistics for Data Science	3/0/0	3	3	PEC

3.	20AD913	Bayesian Data Analysis	3/0/0	3	3	PEC
4.	20AD914	Cluster Computing	3/0/0	3	3	PEC
5.	20AD915	Business Intelligence	3/0/0	3	3	PEC

PROFESSIONAL ELECTIVE IV

S.No	Course Code	Course	L/T/P	Contact hrs/week	Credits	Category
1.	20AD916	Scalable System for Data Science	3/0/0	3	3	PEC
2.	20AD917	Web and Social media Mining	3/0/0	3	3	PEC
3.	20AD918	Game Theory for Data Science	3/0/0	3	3	PEC
4.	20AD919	Edge Computing	3/0/0	3	3	PEC
5.	20AD920	Reinforcement Learning	3/0/0	3	3	PEC

PROFESSIONAL ELECTIVE V

S.No	Course Code	Course	L/T/P	Contact hrs/week	Credits	Category
1.	20AD921	Project Management and Finance	3/0/0	3	3	PEC
2.	20AD922	Introduction to Brain and Neuroscience	3/0/0	3	3	PEC
3.	20AD923	Intelligent Multi Agent and Expert systems	3/0/0	3	3	PEC
4.	20AD924	Data Science Applications of NLP	3/0/0	3	3	PEC
5.	20AD925	Full Stack Web Development	3/0/0	3	3	PEC

PROFESSIONAL ELECTIVE VI

S.No	Course Code	Course	L/T/P	Contact hrs/week	Credits	Category
1.	20AD926	AI for Cyber Security	3/0/0	3	3	PEC

2.	20AD927	Quantum Artificial Intelligence	3/0/0	3	3	PEC
3.	20AD928	Advanced Database Technology and Design	3/0/0	3	3	PEC
4.	20AD929	Knowledge Representation and Reasoning	3/0/0	3	3	PEC
5.	20AD930	Database Security and Auditing	3/0/0	3	3	PEC

EMERGING ELECTIVE COURSES (6 CREDITS)

S.No	Course Code	Course	L/T/P	Contact hrs/week	Credit	Category
1.	20AD007	Autonomous Systems and Drones	3/0/0	3	3	EEC
2.	20AD008	Crypto currencies	3/0/0	3	3	EEC
3.	20AD009	AI in Healthcare Applications	3/0/0	3	3	EEC
4.	20AD010	Predictive Analytics	3/0/0	3	3	EEC
5.	20AD011	Computer Vision	3/0/0	3	3	EEC
6.	20AD012	Data Engineering on Google Cloud Platform	3/0/0	3	3	EEC

OPEN ELECTIVES COURSES (6 CREDITS)

S.No	Course Code	Course	L/T/P	Contact hrs/week	Credit	Category
1.	20AD001	Fundamentals of Database Systems	2/0/2	4	3	OEC
2.	20AD002	Information Retrieval Techniques	2/0/2	4	3	OEC
3.	20AD003	Machine Learning Algorithms in Python	2/0/2	4	3	OEC
4.	20AD004	Data Visualization using R	2/0/2	4	3	OEC
5.	20AD005	Introduction to Data Analytics	2/0/2	4	3	OEC

6.	20AD006	Introduction to Deep Learning	2/0/2	4	3	OEC
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EMPLOYABILITY ENHANCEMENT SKILLS (2 CREDITS)

S.No	Course Code	Course	Duration	Credit	Category
1.	20EES01	Employability Enhancement Skills (Summer Internship / Summer Training)	4 WEEKS	2	EES

MANDATORY COURSES (NON-CREDIT)

S.No	Course Code	Course	Category
1.	20MC101	Induction Programme	MC
2.	20MC102	Environmental Sciences	MC
3.	20MC103	Soft Skills	MC
4.	20MC104	Management Organizational Behaviour	MC
5.	20MC105	General Aptitude	MC
6.	20MC106	Life Skills and Ethics	MC
7.	20MC107	Stress Management	MC
8.	20MC108	Constitution of India	MC
9.	20MC109	Essence of Indian Traditional Knowledge	MC
10.	20MC110	Biology	MC

Scheme of Distribution

S.NO	Stream	Credits/Semester								Credits	AICTE Norms
		I	II	III	IV	V	VI	VII	VIII		
1.	Humanities (HSMC)		6		3					9	12
2.	Basic Sciences(BSC)	8.5	8.5	4	4					25	24
3.	Engineering Sciences(ESC)	5.5	2.5		7.5	3	4			22.5	29
4.	Professional Core (PC)	4.5	4	19.5	7.5	9	9	9		62.5	49
5.	Professional Electives(PEC)					6	6	6		18	18
6.	Open Elective(OEC)					3		3		6	12
7.	Emerging Electives(EEC)						3	3		6	
8.	Project work (PW)					1	1		12	14	15
9.	Employability Skills							2		2	
10.	Mandatory Course (MC)									-	
Total		18.5	21	23.5	22	22	23	23	12	165	
AICTE(CSE)		17.5	20.5	23	22	21	22	20	15		159