

BE COMPUTER SCIENCE &ENGINEERING (AI&ML)
(2019 REGULATIONS)
(Minimum credits to be earned:165)

Course Code	Course Title	Periods / Week			Maximum Marks			Total	CAT	
		Lecture	Tutorial	Practical	Credits	CA	FE			
SEMESTER I										
19N101	Calculus and its Applications		3	1	0	4	50	50	100	BS
19N102	Electrical and Electronics Systems		3	0	0	3	50	50	100	ES
19N103	Chemistry of Electronic Materials		3	0	0	3	50	50	100	BS
19N104	Computational Thinking		3	0	0	3	50	50	100	ES
19G105	English Language Proficiency		2	1	0	3	50	50	100	HS
19N110	Basic Sciences Laboratory		0	0	4	2	50	50	100	BS
19N111	Engineering Practices		0	0	2	1	50	50	100	ES
19N112	Problem Solving & Python Programing Laboratory		0	0	4	2	50	50	100	ES
19IP15	Induction Programme **		-	-	-	Grade	-	-	-	MC
Total 26 periods			14	2	1021	400	400	800		
SEMESTER II										
19N201	Transforms and its Applications		3	1	0	4	50	50	100	BS
19N202	Materials Science		3	0	0	3	50	50	100	BS
19N203	Industrial Electrochemistry		2	0	0	2	50	50	100	BS
19N204	Discrete Mathematics		3	0	0	3	50	50	100	PC
19N205	Computer Organization and Architecture		3	0	0	3	50	50	100	ES
19G___	Language Electives		0	0	4	2	50	50	100	HS
19N210	C Programming Laboratory		0	0	4	2	50	50	100	ES
19N213	Engineering Graphics		0	0	4	2	50	50	100	ES
19N215	Activity Point Programme*		-	-	-	Grade	-	-	-	MC
SEMESTER II – Summer Term										
19A213	Internship €		0	0	0	2	100	0	100	EEC
Total 27 periods			14	1	12	21 + 2£500	400	900		

****** As per norms

***** As per AICTE Norms; Total 60 hrs; Grade: Completed / Not completed; Not counted for CGPA

CA Continuous Assessment

FE Final Examination

€ This course will be conducted prior to the commencement of the third semester for a period of 3 weeks

£ For internship, one credit is equivalent to minimum 40 hours of work as per norms

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		Lecture	Tutorial	Practical	Credits	CA	FE	Total	CAT	
SEMESTER III										
19N301	Linear Algebra		3	1	0	4	50	50	100	BS
19N302	Probability, Stochastic Processes and Statistics		3	1	0	4	50	50	100	BS
19N303	Data Structures		4	0	0	4	50	50	100	PC
19N304	Software Engineering		3	0	0	3	50	50	100	PC
19N305	Principles of Programming Languages		3	1	0	4	50	50	100	ES
19O306	Economics for Engineers		3	0	0	3	50	50	100	HS
19N310	Data Structures Laboratory		0	0	4	2	50	50	100	PC
19N311	Object Oriented Programming Laboratory using Java		0	0	4	2	50	50	100	ES
19K312	Environmental Science **		2	0	0	0	-	-	-	MC
19N315	Activity Point Programme *		-	-	-	Grade	-	-	-	MC
Total 32 periods			21	3	826	400	800			
SEMESTER IV										
19N401	Foundations of Optimization Techniques		3	0	0	3	50	50	100	PC
19N402	Design and Analysis of Algorithms		3	0	0	3	50	50	100	PC
19N403	Operating Systems		3	1	0	4	50	50	100	PC
19N404	Database Systems		3	0	0	3	50	50	100	PC
19N405	Machine Learning -1		3	0	0	3	50	50	100	PC
19N410	Database Systems Laboratory		0	0	4	2	50	50	100	PC
19N411	Machine Learning Laboratory		0	0	4	2	50	50	100	PC
19O412	Indian Constitution**		2	0	0	0	-	-	-	MC
19Q413	Soft Skills Development		0	0	2	1	100	0	100	EEC
19N415	Activity Point Programme *		-	-	-	Grade	-	-	-	MC
Total 28 periods			17	1	1021	350	800			

** As per norms

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Course Code	Course Title	Periods / Week			Maximum Marks			Total	CAT	
		Lecture	Tutorial	Practical	Credits	CA	FE			
SEMESTER V										
19N501	Artificial Intelligence Concepts		3	1	0	4	50	50	100	PC
19N502	Deep Learning		3	0	0	3	50	50	100	PC
19N503	Machine Learning -2		3	1	0	4	50	50	100	PC
19N504	Computer Networks		3	1	0	4	50	50	100	PC
19____	Open Elective -1		3	0	0	3	50	50	100	OE
19N510	Deep Learning Laboratory		0	0	4	2	50	50	100	PC
19N511	Application Development Laboratory		0	0	4	2	50	50	100	EEC
19Q513	Business and Managerial Communication		0	0	2	1	100	0	100	EEC
19N515	Activity Point Programme *		-	-	-	Grade	-	-	-	MC
Total 28 periods			15	3	1023450	350	800			
SEMESTER VI										
19N601	Data Privacy and Security		3	0	0	3	50	50	100	PC
19N602	Parallel and Distributed Computing		3	1	0	4	50	50	100	PC
19N603	Big Data and Modern Database Systems		3	0	0	3	50	50	100	PC
19N604	Natural Language Processing		3	0	0	3	50	50	100	PC
19N____	Professional Elective - 1		3	0	0	3	50	50	100	PE
19N610	Big Data Laboratory		0	0	4	2	50	50	100	PC
19Q613	Quantitative and Reasoning Skills		0	0	2	1	100	0	100	EEC
19N620	Innovation Practices		0	0	4	2	50	50	100	EEC
19N615	Activity Point Programme *		-	-	-	Grade	-	-	-	MC
Total 26 periods			15	1	1021450	350	800			

At the end of 6th semester, the students are required to earn the minimum number of activity points from the AICTE mandated ACTIVITY POINT PROGRAMME to qualify for the award of BE/BTech degree (Refer Section 4 (vii) (c) of 2019 Regulations)

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CA Continuous Assessment

FE Final Examination

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Course Code	Course Title	Periods / Week			Maximum Marks			Total	CAT	
		Lecture	Tutorial	Practical	Credits	CA	FE			
SEMESTER VII										
19N701	Embedded Systems		3	0	0	3	50	50	100	PC
19____	Open Elective -2		3	0	0	3	50	50	100	OE
19N__	Professional Elective - 2		3	0	0	3	50	50	100	PE
19N__	Professional Elective - 3		3	0	0	3	50	50	100	PE
19N__	Professional Elective - 4		3	0	0	3	50	50	100	PE
19N710	Embedded Systems Laboratory		0	0	4	2	50	50	100	PC
19N720	Project Work I		0	0	4	2	50	50	100	EEC
Total 23 periods			15	0	8	19350	350	700		
SEMESTER VIII										
19N__	Professional Elective - 5		3	0	0	3	50	50	100	PE
19N__	Professional Elective - 6		3	0	0	3	50	50	100	PE
19N820	Project Work II		0	0	8	4	50	50	100	EEC
Total 14 periods			6	0	8	10	150	150	300	

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LANGUAGE ELECTIVES

19G001 Communication Skills for Engineers
19G002 German- Level A1.1
19G003 French Language Level 1
19G004 Basic Japanese

PROFESSIONAL ELECTIVES

19N001 Advanced Data Structures
19N002 Approximation Algorithms
19N003 Augmented Reality
19N004 Blockchain Technology
19N005 Compiler Design
19N006 Computer Vision and Image Processing
19N007 Cloud Computing
19N008 Evolutionary Computing Algorithms
19N009 Graph Theory
19N010 Human Computer Interaction
19N011 Information Retrieval
19N012 Network Data Analytics
19N013 Randomized Algorithms
19N014 Recommender Systems
19N015 Sematic web technology

OPEN ELECTIVES

19NO01 Design Thinking
19NO02 Ethics of Artificial Intelligence
19NO03 Intellectual Property Rights

Summary of Credit Distribution

BE COMPUTER SCIENCE AND ENGINEERING (AI & ML)										
S. No	Course Category	Credits Per Semester								Total Credits
		1	2	3	4	5	6	7	8	
1	HS	3	2	3	0	0	0	0	0	8
2	BS	9	9	8	0	0	0	0	0	26
3	ES	9	8	6	0	0	0	0	0	23
4	PC	0	3	9	20	17	15	5	0	69
5	PE	0	0	0	0	0	3	9	6	18
6	OE	0	0	0	0	3	0	3	0	6
7	EEC	0	0+2 [£]	0	1	3	3	2	4	15
8	MC	-	-	-	-	-	-	-	-	-
	TOTAL	21	22+2[£]	26	21	23	21	19	10	165

£ Summer Term Course

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