

Intake:		2020 onwards		Specialization:		Computer Science & Engineering					
Details of the Curriculum				Stream:		Data Science & Engineering					
Module Code	Module Name	Category C/E/O	Time allocation [Hours/Week]		Credits offered		Norm		Evaluation %		
			Lecture	Lab / Tute	GPA	NGPA	GPA	NGPA	CA	WE	
Semester 1			Specialization requirement				15.0				
MA1014	Mathematics	C	5/2	1	3.0		15.0		20	80	
CS1033	Programming Fundamentals	C	2	2	3.0				20	80	
ME1033	Mechanics	C	2	2/4	2.0				20	80	
MT1023	Properties of Materials	C	2	2/4	2.0				20	80	
CE1023	Fluid Mechanics	C	2	2/4	2.0				20	80	
EE1040	Electrical Fundamentals	C	2	2/4	2.0				20	80	
EL1030	Language Skills Enhancement [S1 & S2]	C	0	2	1.0				100	0	
Total					15.0	0.0	15.0	0.0			
Semester 2			Specialization requirement				18.0				
MA1024	Methods of Mathematics	C	5/2	1	3.0		18.0		30	70	
EE2094	Theory of Electricity	C	2	2	3.0				30	70	
EL1030	Language Skills Enhancement [S1 & S2]	C	0	2	1.0				100	0	
CS2953	Communication Skills [S2 & S3]	C	1	2	2.0				80	20	
CS2023	Data Structures and Algorithms	C	2	2	3.0				40	60	
CS1040	Program Construction	C	2	2	3.0				60	40	
CS1050	Computer Organization and Digital Design	C	2	2	3.0				30	70	
Total					18.0	0.0	18.0	0.0			
Semester 3			Specialization requirement				23.0				
MA2014	Differential Equations	C	2	0	2.0		23		30	70	
MA3014	Applied Statistics	C	2	0	2.0				30	70	
ME1823	Fundamentals of Engineering Thermodynamics and Applications	C	5/2	2/2	3.0				30	70	
CS2953	Communication Skills [S2 & S3]	C	0	2	1.0				100		
CS2033	Data Communication and Networking	C	2	2	3.0				40	60	
CS2043	Operating Systems	C	2	2	3.0				40	60	
CS2053	Computer Architecture	C	2	2	3.0				40	60	
CS3043	Database Systems	C	2	2	3.0				50	50	
CS3613	Introduction to Artificial Intelligence	C	2	2	3.0			40	60		
Total					23.0	0	23	0			
Semester 4			Specialization requirement				23.0				
MA2034	Linear Algebra	C	2	0	2.0		21.0		30	70	
MA2054	Graph Theory	C	2	0	2.0				30	70	
CS3023	Software Engineering	C	2	2	3.0				50	50	
CS3063	Theory of Computing	C	2	0	2.0				30	70	
CS3111	Introduction to Machine Learning	C	2	3	3.0				40	60	
CS3121	Introduction to Data Science	C	2	3	3.0				40	60	
CS3243	IoT Devices and Applications	C	2	2	3.0				30	70	
CS3513	Programming Languages	C	2	2	3.0			40	60		
HM-1	Humanities Elective 1	E			2.0		2.0				
Total					23.0	0.0	23.0	0.0			

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Semester 5				Specialization requirement				19.0					
MA2024	Calculus	C	2	0	2.0	19.0		30	70				
MA3024	Numerical Methods	C	2	0	2.0			30	70				
MA3030	Operational Research	C	2	0	2.0			30	70				
CS3880	Engineer and Society [S5 & S6]	C	0	2	1.0			100					
MN3043	Business Economics and Financial Accounting	C	3	0	3.0			30	70				
CS3631	Deep Neural Networks	C	2	2	3.0			40	60				
CS3621	Data Mining	C	2	2	3.0			40	60				
CS3501	Data Science and Engineering Project	C	1	4	3.0			100					
				Total				19.0	0.0	19.0	0.0		
Industrial Training				Specialization requirement				6.0					
CS3993	Industrial Training	C				6.0		6.0	100				
				Total				0.0	6.0	0	6		
Semester 6				Specialization requirement				12.0					
CS3751	Data Visualization	C	2	2	3.0	10.0		50	50				
CS3880	Engineer and Society [S5 & S6]	C	1	2	2.0			100					
CS3940	Professional Portfolio	C	1	2	2.0			100					
CS4243	Human Computer Interaction	C	2	2	3.0			50	50				
HM-2	Humanities Elective II	E			2.0	2.0							
				Total				12.0	0.0	12.0	0.0		
Semester 7				Specialization requirement				16.0					
MN4063	Organizational Behavior and Management	C	2		2.0	13.0		30	70				
CS4203	Research and Development Project [S7 & S8]	C			5.0			100					
CS3131	Computer Networks and Security	C	2	2	3.0			40	60				
CS4681	Advanced Machine Learning	C	2	2	3.0	3.0		50	50				
CS4223	Software Process and Management	E	2	2	3.0			50	50				
CS4253	Advanced Operating Systems	E	2	2	3.0			50	50				
CS4273	Quality Engineering	E	2	2	3.0			50	50				
CS4343	Advanced Computer Architecture	E	2	2	3.0			40	60				
CS4363	Hardware Description Languages	E	2	2	3.0			40	60				
CS4433	Network and System Administration	E	2	2	3.0			40	60				
CS4473	Mobile Computing	E	2	2	3.0			50	50				
CS4523	Advanced Algorithms	E	2	2	3.0			40	60				
CS4533	Parallel and Concurrent Programming	E	2	2	3.0			40	60				
CS4543	Compiler Design	E	2	2	3.0			40	60				
CS4553	Scientific Computing	E	2	2	3.0			40	60				
CS4580	Advanced Data Structures	E	2	2	3.0			40	60				
CS4633	Database Internals	E	2	2	3.0		50	50					
CS4661	Natural Language Processing	E	2	2	3.0		40	60					
CS4743	Bioinformatics	E	2	2	3.0		40	60					
				Total				58.0	0.0	16.0	0.0		

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Semester 8		Specialization requirement				16.0				
MN4123	Human Resource Management & Industrial Relations	C	2.0		2.0		13.0	30	70	
CS4203	Research and Development Project [S7 & S8]	C			5.0			100		
CS4263	Distributed Systems	C	2.0	2	3.0			40	60	
CS4651	Big Data Analytics	C	2.0	2	3.0			40	60	
CS4223	Software Process and Management	E	2.0	2	3.0			50	50	
CS4253	Advanced Operating Systems	E	2.0	2	3.0			50	50	
CS4273	Quality Engineering	E	2.0	2	3.0			50	50	
CS4343	Advanced Computer Architecture	E	2.0	2	3.0			40	60	
CS4363	Hardware Description Languages	E	2.0	2	3.0			40	60	
CS4433	Network and System Administration	E	2.0	2	3.0			40	60	
CS4473	Mobile Computing	E	2.0	2	3.0			50	50	
CS4523	Advanced Algorithms	E	2.0	2	3.0			40	60	
CS4543	Compiler Design	E	2.0	2	3.0			40	60	
CS4553	Scientific Computing	E	2.0	2	3.0		40	60		
CS4580	Advanced Data Structures	E	2.0	2	3.0		40	60		
CS4633	Database Internals	E	2.0	2	3.0		50	50		
CS4691	Advanced Artificial Intelligence	E	2.0	2	3.0		50	50		
CS4743	Bioinformatics	E	2.0	2	3.0		40	60		
		Total				55	0	16.0	0.0	
		Grand Total				223.0	6.0	142.0	6.0	

Total credit requirement for the Specialization		148.0
Faculty/Specialization Electives beyond the specialization requirements [refer faculty electives table]*		2
TOTAL CREDIT REQUIREMENT FOR GRADUATION		148.0

Service modules									
Code	Module Name	Semester	Time allocation [Hours/Week]		Credits		Offered to	Evaluation %	
			Lecture	Lab / Tute	GPA	NGPA		CA	WE
CS1811	Fundamentals of Programming	4	2	2	3		TLM	100	
CS2813	Visual Programming	3	1	2	2		ER,TT,MT	60	40
CS2843	Computer systems	2	2	2	3		EE	40	60
CS2833	Modular Software Development	4	2	2	3		EN,EE	50	50
CS2023	Data Structures and Algorithms	4	2	2	3		EN	40	60
CS3033	Computer Networks	5	2	2	3		EN,EE	40	60
CS2883	Object Oriented Programming for Mechanical Engineers	3	2	2	3		ME	100	