

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, SOLAN								
COURSE CURRICULUM OF CSE&IT DEPARTMENT- 2023 Batch (165 CREDITS)								
B. TECH (COMPUTER SCIENCE AND ENGINEERING) 1 st SEMESTER								
S. No.	Category Code	Subject Code	Name of the Subjects	Course Hours			Credits	Total Hours
				L	T	P		
1	HSS	21B11HS111	English	2	0	0	2	2
2	Basic Sciences	18B11MA111	Engineering Mathematics -I	3	1	0	4	4
3	Basic Sciences	18B11PH111	Engineering Physics-I	3	1	0	4	4
4	Engg Science	19B11CI111	Programming for Problem Solving-II	2	0	0	2	2
5	Engg Science	18B17GE171	Workshop Practices OR	0	0	3	1.5	3
6		18B17GE173	Engineering Graphics	0	0	3		3
7	Basic Sciences	18B17PH171	Engineering Physics Lab-I	0	0	2	1	2
8	Engg Science	19B17CI171	Programming for Problem Solving Lab-II	0	0	4	2	4
9	HSS	21B17HS171	English Lab	0	0	2	1	2
10		18B17GE172	Mandatory Induction Program	-	-	-	-	-
						Total	17.5	23
B. TECH (COMPUTER SCIENCE AND ENGINEERING) 2 nd SEMESTER								
S. No.	Category Code	Subject Code	Name of the Subjects	Course Hours			Credits	Total Hours
				L	T	P		
1	Basic Sciences	18B11MA211	Engineering Mathematics -II	3	1	0	4	4
2	Basic Sciences	18B11PH211	Engineering Physics-II	3	0	0	3	3
3	Basic Sciences	18B11PH271	Engineering Physics Lab - II	0	0	2	1	2
4	Engg Science	18B11EC211	Electrical Sciences	3	1	0	4	4
5	Engg Science	18B17EC271	Electrical Sciences Lab	0	0	2	1	2
6	Engg Science	18B17GE173	Engineering Graphics OR	0	0	3	1.5	3
7		18B17GE171	Workshop Practices	0	0	3		3
8	Engg Science	18B11CI211	Data Structures and Algorithms	3	1	0	4	4
9	Engg Science	18B17CI271	Data Structures and Algorithms Lab	0	0	4	2	4
10	HSS	23B11HS211	Universal Human Values II: Understanding Harmony	2	1	0	3	3
11	HSS	23B11HS212	Professional Communication Practice	0	0	2	Audit	2
						Total	23.5	34

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B. TECH (COMPUTER SCIENCE AND ENGINEERING) 3 rd SEMESTER								
S. No.	Category Code	Subject Code	Name of the Subjects	Course Hours			Credits	Total Hours
				L	T	P		
1	Professional Core	18B11CI314	Python Programming Essentials	3	0	0	3	3
2	Engg Science	18B11CI311	Object Oriented Systems and Programming	3	0	0	3	3
3	Professional Core	18B11CI313	Database Management systems	3	0	0	3	3
4	Basic Sciences	18B11MA313	Probability & Statistics	3	0	0	3	3
5	Professional Core	18B17CI374	Python programming Lab	0	0	4	2	4
6	Engg Science	18B17CI371	Object Oriented Systems and Programming Lab	0	0	4	2	4
7	Professional Core	18B17CI373	Database Management Systems Lab	0	0	4	2	4
8	Engg Science	18B17CI372	IT Workshop (SciLab/MATLAB) Lab	0	0	4	2	4
9	HSS	23B11HS311	Life Skills and Interpersonal Dynamics	2	1	0	3	3
						Total	23	31

ADDITIONAL COURSES FOR SPECIALIZATION IN AI- ML (3 rd Semester)								
S. No.	Category Code	Subject Code	Name of the Subjects	Course Hours			Credits	Total Hours
				L	T	P		
1	Professional Core	24B11CI311	Computational Fundamentals for Optimization	3	0	0	3	3
2	Professional Core	24B17CI371	Computational Fundamentals for Optimization Lab	0	0	2	1	2

B. TECH (COMPUTER SCIENCE AND ENGINEERING) 4 th SEMESTER								
S. No.	Category Code	Subject Code	Name of the Subjects	Course Hours			Credits	Total Hours
				L	T	P		
1	Professional Core	18B11CI414	Discrete Computational Mathematics	3	0	0	3	3
2	Professional Core	18B11CI413	Modeling and Simulation Techniques	2	0	0	2	2
3	Professional Core	18B11CI411	Operating Systems	3	0	0	3	3
4	Professional Core	18B11CI412	Design & Analysis of Algorithms	3	0	0	3	3
5	Mandatory Course	23B11GE411	Environmental Studies	2	0	0	2	2
6	HSS	18B11HS411	Finance & Accounts	3	0	0	3	3
7	Professional Core	18B17CI473	Data Simulation Lab	0	0	4	2	4
8	Professional Core	18B17CI471	Operating System Lab	0	0	4	2	4
9	Professional Core	18B17CI472	Design and Analysis of Algorithms Lab	0	0	4	2	4
10	Professional Core	18B17CI474	Web Tech Lab	0	0	4	2	4
						Total	24	32

ADDITIONAL COURSES FOR SPECIALIZATION IN AI- ML (4 th Semester)								
S. No.	Category Code	Subject Code	Name of the Subjects	Course Hours			Credits	Total Hours
				L	T	P		
1	Professional Core	24B11CI411	Artificial Intelligence: Recent Trends and Applications	3	0	0	3	3
2	Professional Core	24B17CI471	Artificial Intelligence: Recent Trends and Applications Lab	0	0	2	1	2

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B. TECH (COMPUTER SCIENCE AND ENGINEERING) 5 th SEMESTER								
S. No.	Category Code	Subject Code	Name of the Subjects	Course Hours			Credits	Total Hours
				L	T	P		
1	Professional Core	18B11CI515	Computer Graphics	3	0	0	3	3
2	Basic Sciences		Science Elective	3	0	0	3	3
3	Professional Core	18B11CI513	Formal Language & Automata Theory	3	0	0	3	3
4	Professional Core	18B11CI514	Computer Organization and Architecture	3	0	0	3	3
5	HSS	18B11HS511	Project Management and Entrepreneurship	3	0	0	3	3
6	Professional Core	18B17CI575	Computer Graphics Lab	0	0	4	2	4
7	Professional Core	18B17CI574	Computer Organization and Architecture Lab	0	0	2	1	2
8	Engg Science	18B1WC1575	Multimedia Lab	0	0	2	1	2
9	Professional Elective		Elective -I	2	0	0	2	2
10	Professional Elective		Elective -I Lab	0	0	2	1	2
11	Mandatory	24B11HS513	Logical and Quantitative Techniques-I	2	0	0	2	2
12	Mandatory	24B17CI571	Programming Practices-I	0	0	2	1	2
						Total	25	31

ADDITIONAL COURSES FOR SPECIALIZATION IN AI- ML (5 th Semester)								
S. No.	Category Code	Subject Code	Name of the Subjects	Course Hours			Credits	Total Hours
				L	T	P		
1	Professional Core	24B11CI	Deep Learning	3	0	0	3	3
2	Professional Core	24B17CI	Deep Learning Lab	0	0	2	1	2

B. TECH (COMPUTER SCIENCE AND ENGINEERING) 6 th SEMESTER								
S. No.	Category Code	Subject Code	Name of the Subjects	Course Hours			Credits	Total Hours
				L	T	P		
1	Professional Core	18B11CI612	Compiler Design	3	0	0	3	3
2	Professional Core	18B11CI611	Computer Networks	3	0	0	3	3
3	Professional Core	18B17CI672	Compiler Design Lab	0	0	4	2	4
4	Professional Core	18B17CI671	Computer Networks lab	0	0	4	2	4
5	Professional Elective		Elective II	2	0	0	2	2
6	Professional Elective		Elective - II Lab	0	0	2	1	2
7	Professional Elective		Elective III	2	0	0	2	2
8	Professional Elective		Elective - III Lab	0	0	2	1	2
9	Open Elective		Open Elective -I (Humanities)	3	0	0	3	3
10	Project	18B19CI691	Minor Project	0	0	6	3	6
11	Mandatory	24B11HS612	Logical and Quantitative Techniques-II	2	0	0	2	2
12	Mandatory	24B17CI671	Programming Practices-II	0	0	2	1	2
						Total	25	35

ADDITIONAL COURSES FOR SPECIALIZATION IN AI- ML (6th Semester)								
S. No.	Category Code	Subject Code	Name of the Subjects	Course Hours			Credits	Total Hours
				L	T	P		
1	Professional Core	24B11CI	Reinforcement Learning	3	0	0	3	3
2	Professional Core	24B17CI	Graph Neural Networks	3	0	0	3	3

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B. TECH (COMPUTER SCIENCE AND ENGINEERING) 7th SEMESTER								
S. No.	Category Code	Subject Code	Name of the Subjects	Course Hours			Credits	Total Hours
				L	T	P		
1	Professional Elective		Elective IV	2	0	0	2	2
2	Professional Elective		Elective IV Lab	0	0	2	1	2
3	Professional Elective		Elective V	3	0	0	3	3
4	Open Elective		Open Elective II / MOOC Course*	3	0	0	3	3
5	Open Elective		Open Elective III / MOOC Course*	3	1	0	3	3
6	Mandatory Course	18B11HS711	Indian Constitution	1	-	-	-	1
7	Project	18B19CI791	Major Project - I	0	0	12	6	12
						Total	18	26
B. TECH (COMPUTER SCIENCE AND ENGINEERING) 8th SEMESTER								
S. No.	Category Code	Subject Code	Name of the Subjects	Course Hours			Credits	Total Hours
				L	T	P		
1	Professional Elective		Elective VI	3	0	0	3	3
2	Open Elective		Open Elective IV / MOOC Course*	3	0	0	3	3
3	Open Elective		Open Elective V / MOOC Course*	3	0	0	3	3
4	Project	18B19CI891	Major Project - II	0	0	12	6	12
						Total	15	21
			TOTAL CREDITS				171	171 + 18
			TOTAL HOURS				216	
			HSS				15	
			Basic Science				23	
			Engg Science				28	
			Professional Core				51	
			Professional Elective				18	
			OE				15	
			PROJECT				15	
			Mandatory				06	

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B. TECH (COMPUTER SCIENCE AND ENGINEERING)								
ELECTIVE-I								
S. No.	Category Code	Subject Code	Name of the Subjects	Course Hours			Credits	Total Hours
				L	T	P		
1	Professional Elective		Big Data and Machine Learning	2	0	0	2	2
2	Professional Elective		Feature Engineering	2	0	0	2	2
3	Professional Elective		Foundations of Intelligent and Learning Agents	2	0	0	2	2
4	Professional Elective		Big Data and Machine Learning Lab	0	0	2	1	2
5	Professional Elective		Feature Engineering Lab	0	0	2	1	2
6	Professional Elective		Foundations of Intelligent and Learning Agents Lab	0	0	2	1	2
ELECTIVE-II								
S.No.		Subject Code	Name of the Subjects	Course Hours			Credits	Total Hours
				L	T	P		
1	Professional Elective	18B1WCI633	Probabilistic Graphical Model	2	0	0	2	2
2	Professional Elective	18B1WCI634	Machine Learning for Time Series Analysis	2	0	0	2	2
3	Professional Elective	18B1WCI637	Automatic speech Recognition	2	0	0	2	2
4	Professional Elective	18B1WCI631	Probabilistic Graphical Models Lab	0	0	2	1	2
5	Professional Elective	18B1WCI673	Machine Learning for Time Series Analysis Lab	0	0	2	1	2
6	Professional Elective	18B1WCI674	Automatic speech Recognition Lab	0	0	2	1	2

ELECTIVE-III								
S. No.	Category Code	Subject Code	Name of the Subjects	Course Hours			Credits	Total Hours
				L	T	P		
1	Professional Elective		Quantum Machine Learning	2	0	0	2	2
2	Professional Elective		Applied Machine Learning	2	0	0	2	2
3	Professional Elective		Liquid Neural Network	2	0	0	2	2
4	Professional Elective		Quantum Machine Learning Lab	0	0	2	1	2
5	Professional Elective		Applied Machine Learning Lab	0	0	2	1	2
6	Professional Elective		Liquid Neural Networks Lab	0	0	2	1	2
ELECTIVE-IV								
S. No.	Category Code	Subject Code	Name of the Subjects	Course Hours			Credits	Total Hours
				L	T	P		
1	Professional Elective		Optimization in Machine Learning	2	0	0	2	2
2	Professional Elective		Deep Learning for Natural language processing	2	0	0	2	2
3	Professional Elective		Optimization in Machine Learning Lab	0	0	2	1	2
4	Professional Elective		Deep Learning for Natural language processing Lab	0	0	2	1	2

ELECTIVE-V								
S. No.	Category Code	Subject Code	Name of the Subjects	Course Hours			Credits	Total Hours
				L	T	P		
1	Professional Elective		Introduction to Transfer Learning	3	0	0	3	3
2	Professional Elective		Machine Learning Engineering for Production Systems	3	0	0	3	3
ELECTIVE-VI								
S. No.	Category Code	Subject Code	Name of the Subjects	Course Hours			Credits	Total Hours
				L	T	P		
1	Professional Elective		Computer Vision	3	0	0	3	3
2	Professional Elective		Ethics and Fairness in Machine Learning	3	0	0	3	3
3	Professional Elective		Large Language Model	3	0	0	3	3

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LIST OF OPEN ELECTIVES								
S. No.	Category Code	Semester	Name of the Subjects	Course Hours			Credits	Total Hours
				L	T	P		
OPEN ELECTIVE II (7th Semester)								
1	19B1WCI733	7	Introduction to C++ Programming	2	0	0	2	2
2	19B1WCI734	7	Object-Oriented Technologies using Java	2	0	0	2	2
3	19B1WCI735	7	Software Testing Methodologies	2	0	0	2	2
4	19B1WCI773	7	Introduction to C++ Programming Lab	0	0	2	1	2
5	19B1WCI774	7	Object-Oriented Technologies using Java Lab	0	0	2	1	2
6	19B1WCI775	7	Software Testing Methodologies Lab	0	0	2	1	2
OPEN ELECTIVE III (7th Semester)								
1	18B1WCI735	7	ARM based Embedded System Design	3	0	0	3	3
2	19B1WCI739	7	Software Defined Network	3	0	0	3	3
3	19B1WCI740	7	Introduction to Statistical learning	3	0	0	3	3
OPEN ELECTIVE IV (8th Semester)								
1	19B1WCI838	8	Principles of Distributed Database Systems	3	0	0	3	3
2	19B1WCI839	8	Foundations of Blockchain	3	0	0	3	3
3	19B1WCI840	8	Computational Biology	3	0	0	3	3
4	21B1WCI831	8	Digital Twin – Fundamental Concepts of Application in Advanced Manufacturing	3	0	0	3	3
OPEN ELECTIVE V (8th Semester)								
1	19B1WCI841	8	Wireless Sensor Networks: Protocols and Applications	3	0	0	3	3
2	19B1WCI842	8	Service Oriented Architecture	3	0	0	3	3
3	19B1WCI843	8	Multimedia Systems and Applications	3	0	0	3	3
4	21B1WCI832	8	Affective Computing	3	0	0	3	3