

Indian Institute of Information Technology Kalyani

*Autonomous institution under MoE, Govt. Of India & Department of
Information Technology & Electronics, Govt. of West Bengal,
WEBEL IT Park Campus, West Bengal 741235, India*

Course Structure and Syllabus

for

4 Years B. Tech.

in

Computer Science and Engineering



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Course Structure

1 st Year (Semester: I)							
Sl No.	Code No.	Subject	Contact Periods/Week				Credits
			L	T	P	Total	
Theoretical Papers							
1	MAC101	Mathematics - I (Linear Algebra)	3	1	0	4	4
2	PHC101	Physics	3	1	0	4	4
3	ECC101	Basic Electrical and Electronics Engineering	3	0	0	3	3
4	CSC101	Programming -I (C Language)	3	0	0	3	3
5	HUC101	English for Communication	3	0	0	3	3
6	HUC102	Humanities - I (Values & Ethics in Profession)	3	0	0	3	3
Sessional Papers							
7	CSC111	Programming-I (C Language) Laboratory	0	0	3	3	2
8	ECC111	Basic Electronics Engineering Laboratory	0	0	3	3	2
Total			18	2	6	26	24

1 st Year (Semester: II)							
Sl No.	Code No.	Subject	Contact Periods/Week				Credits
			L	T	P	Total	
Theoretical Papers							
1	MAC201	Mathematics-II (Probability and Statistics)	3	1	0	4	4
2	PHC201	Engineering Mechanics	3	1	0	4	4
3	ECC201	Digital Logic Design and Circuit	3	0	0	3	3
4	CSC201	Data Structures and Algorithms	3	1	0	4	4
5	HUC201	Humanities - II (Economics)	3	0	0	3	3
Sessional Papers							
6	ECC211	Digital Logic Design and Circuit Laboratory	0	0	3	3	2
7	CSC211	Data Structures and Algorithms Laboratory	0	0	3	3	2
Total			15	3	6	24	22

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2nd Year (Semester: III)							
Sl No.	Code No.	Subject	Contact Periods/Week				Credit
			L	T	P	Total	
Theoretical Papers							
1	MAC301	Mathematics - III (Calculus and Differential Equations)	3	1	0	4	4
2	CSC301	Computer Organization and Architecture	3	0	0	3	3
3	CSC302	Algorithms - I	3	1	0	4	4
4	CSC303	Discrete Mathematics	3	1	0	4	4
5	HUC301	Humanities - III (Psychology)	3	0	0	3	3
Sessional Papers							
6	CSC311	Computer Organization and Architecture Laboratory	0	0	3	3	2
7	CSC312	Algorithms - I Laboratory	0	0	3	3	2
8	CSC313	Programming - II Laboratory (Python)	1	0	2	3	2
Total			16	3	8	27	
						Total Credits	24

2nd Year (Semester: IV)							
Sl No.	Code No.	Subject	Contact Periods/Week				Credit
			L	T	P	Total	
Theoretical Papers							
1	MAC401	Mathematics - IV (Numerical Analysis and Computing)	3	1	0	4	4
2	CSC401	Operating Systems	3	1	0	4	4
3	CSC402	Formal Languages and Automata Theory	3	1	0	4	4
4	CSC403	Object Oriented Programming (JAVA)	3	0	0	3	3
5	HUC404	IPR Law: Concepts and Applications	3	0	0	3	3
Sessional Papers							
6	CSC411	Operating Systems Laboratory	0	0	3	3	2
7	CSC412	Numerical Analysis and Computing Laboratory (R/Sci Lab)	0	0	3	3	2
8	CSC413	Programming- III Laboratory (JAVA)	0	0	3	3	2
Total			15	3	9	27	
						Total Credits	24

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3rd Year (Semester: V)							
Sl No.	Code No.	Subject	Contact Periods/Week				Credit
			L	T	P	Total	
Theoretical Papers							
1	CSC501	Compiler Design	3	1	0	4	4
2	CSC502	Artificial Intelligence	3	1	0	4	4
3	ECC502	Microprocessor and Microcontroller System	3	0	0	3	3
4	HUC501	Humanities - IV (Organizational Behaviour)	3	0	0	3	3
Sessional Papers							
5	CSC511	Compiler Design Laboratory	0	0	3	3	2
6	ECC512	Microprocessor and Microcontroller System Laboratory	0	0	3	3	2
7	HUC511	Soft Skill Development	0	0	3	3	2
8	CSC591	Project - I (A)	0	0	5	5	3
Total			12	2	14	28	
						Total Credits	23

3rd Year (Semester: VI)							
Sl No.	Code No.	Subject	Contact Periods/Week				Credits
			L	T	P	Total	
Theoretical Papers							
1	CSC601	Computer Networks	3	1	0	4	4
2	CSC602	Machine Learning	3	0	0	3	3
3	CSC603	Database Management System	3	1	0	4	4
4	CSC604	Cryptography and Network Security	3	0	0	3	3
Sessional Papers							
5	CSC611	Computer Networks Laboratory	0	0	3	3	2
6	CSC612	Machine Learning Laboratory	0	0	3	3	2
7	CSC613	Database Management System Laboratory	0	0	3	3	2
8	CSC691	Project - I (B)	0	0	5	5	3
Total			12	2	14	28	
						Total Credits	23

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4th Year (Semester: VII)							
Sl No.	Code No.	Subject	Contact Periods/week				Credit
			L	T	P	Total	
Theoretical Papers							
1	CSC701	Algorithms - II	3	0	0	3	3
2	CSC702	Software Engineering	3	0	0	3	3
3	CSE7XX	Elective - I	3	0	0	3	3
4	CSE7XX	Elective - II	3	0	0	3	3
Sessional Papers							
5	CSC711	Algorithms - II Laboratory	0	0	3	3	2
6	CSC791	Project - II (A)	0	0	15	15	10
Total			12	0	18	30	
						Total Credits	24

4th Year (Semester: VIII)							
Theoretical Papers							Credits
Sl No.	Code No.	Subject	Contact Periods/Week				
			L	T	P	Total	
1	CSE8XX	Elective - III	3	0	0	3	3
2	CSE8XX	Elective - IV	3	0	0	3	3
3	CSE8XX	Elective - V	3	0	0	3	3
Sessional Papers							
4	CSC891	Project - II (B)	0	0	15	15	10
5	CSC892	Comprehensive Viva	0	0	0	0	3
Total			9	0	15	24	
						Total Credits	22

Total Program Credit	24+22+24+24+23+23+24+22	186
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List of Elective Subjects

Sl. No.	Semester	Course Name	Course code	L-T-P	Credit
		CSE			
1	Autumn	Logic & Reasoning	CSE721	3-0-0	3
2		Data Analytics & Optimization Techniques	CSE722	3-0-0	3
3		Ad-Hoc and Sensor Networks	CSE723	3-0-0	3
4		Mobile Computing	CSE724	3-0-0	3
5		Cyber Law and Security	CSE725	3-0-0	3
6		Computational Number Theory	CSE726	3-0-0	3
7		Computational Complexity	CSE727	3-0-0	3
8		Computer Graphics and Multimedia	CSE728	3-0-0	3
9		Computational Geometry	CSE729	3-0-0	3
10		Computer Vision and Image Understanding	CSE730	3-0-0	3
11		Fuzzy Logic and Applications	CSE731	3-0-0	3
12		Mathematical Methods	CSE732	3-0-0	3
13		Neural Networks and Deep Learning	CSE733	3-0-0	3
14		Data Communications	CSE734	3-0-0	3
15		Digital Signal Processing	CSE735	3-0-0	3
		ECE			
1		Optical Communication	ECE721	3-0-0	3
2		Remote Sensing and GIS	ECE722	3-0-0	3
3		Modern Radar Systems	ECE723	3-0-0	3
4		Satellite Communication Systems	ECE724	3-0-0	3
5		Mixed-Signal and RF Design	ECE725	3-0-0	3
6		Principle of Nano-electronics and devices	ECE726	3-0-0	3
7		VLSI Technology	ECE727	3-0-0	3
8		Embedded System Design	ECE728	3-0-0	3
9		Fundamentals of RISC-V Processor Architecture and Design	ECE729	3-0-0	3
10		Antenna Engineering	ECE730	3-0-0	3
11		Wireless Communications	ECE731		
		CSE			
1	Spring	Data Mining	CSE821	3-0-0	3
2		Speech and Natural Language Processing	CSE822	3-0-0	3
3		Soft Computing	CSE823	3-0-0	3
4		Big Data Analytics	CSE824	3-0-0	3
5		Coding Theory	CSE825	3-0-0	3
6		Distributed Operating Systems	CSE826	3-0-0	3
7		Distributed Database Management System	CSE827	3-0-0	3
8		Advanced Computer Architecture	CSE828	3-0-0	3
9		Fault Tolerant Computing	CSE829	3-0-0	3
10		Real Time Systems	CSE830	3-0-0	3
11		Robotics: Machines and Control	CSE831	3-0-0	3
12		Internet of Things	CSE832	3-0-0	3
13		Blockchain Technology	CSE833	3-0-0	3
14		Information Theory and Coding	CSE834	3-0-0	3
15		Advanced Cryptography	CSE835	3-0-0	3
16		Digital and Cyber Forensics	CSE836	3-0-0	3

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17		Cyber Physical Systems	CSE837	3-0-0	3
18		Cloud Computing	CSE838	3-0-0	3
19		Parallel and Distributed Computing	CSE839	3-0-0	3
20		Quantum Computing	CSE840	3-0-0	3
21		Quantum AI	CSE841	3-0-0	3
22		Graph Theory and Applications	CSE842	3-0-0	3
23		Operation Research	CSE843	3-0-0	3
		ECE			
1		Multiple Input Multiple Output System	ECE821	3-0-0	3
2		Sensors and Instrumentation	ECE822	3-0-0	3
3		Adaptive Systems and Signal Processing	ECE823	3-0-0	3
4		Satellite Communication Systems	ECE824	3-0-0	3
5		Low power circuits and systems	ECE825	3-0-0	3
6		RF and Microwave Networks	ECE826	3-0-0	3
7		MEMs and Applications	ECE827	3-0-0	3
8		Biomedical System Engineering and Automation	ECE828	3-0-0	3
9		5G and Wireless Technology	ECE829	3-0-0	3
10		Integrated Nano photonics	ECE830	3-0-0	3
11		Mobile Communication and Fading	ECE831	3-0-0	3
12		Fiber Optics, Components and Devices	ECE832	3-0-0	3
13		Signal Theory	ECE833	3-0-0	3
14		RF CMOS Circuits	ECE834	3-0-0	3
15		CAD for VLSI	ECE835	3-0-0	3