

JALPAIGURI GOVERNMENT ENGINEERING COLLEGE

JALPAIGURI- 735102

(An Autonomous Government College)

SYLLABUS

FOR

FIRST SEMESTER TO EIGHTH SEMESTER B.TECH. DEGREE

IN

INFORMATION TECHNOLOGY

(Implemented for the new entry batch from the Academic Year 2023-24)



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Jalpaiguri Government Engineering College
Structure and syllabus of B.Tech. in Information Technology
from the entry batch of 2021-22

CC: Course Code, SC: Subject Code. Cr.: Credit, L-T-P-T: Lecture-Tutorial-Practical-Total

1st Year

CC	SC	Subject Name	Contact Hrs./Week		CC	SC	Subject name	Contact Hrs./Week	
			L-T- P-TO	Cr.				L-T-P-TO	Cr.
BSC	BS-CH101	Chemistry	3-1-0-4	4	BSC	BS-PH201	Physics	3-1-0-4	4
BSC	BS-M101A	Mathematics-IA	3-1-0-4	4	BSC	BS-M201A	Mathematics-IIA	3-1-0-4	4
ESC	ES-ES101	Basic Electrical Engineering	3-1-0-4	4	HUM	HM-HU201	English	2-0-0-2	2
BSC	BS-CH191	Chemistry Laboratory	0-0-3-3	1.5	ESC	ES-CS201	Programming for Problem Solving	3-0-0-3	3
ESC	ES-EE191	Basic Electrical Engineering Laboratory	0-0-2-2	1	ESC	ES-ME292	Workshop/Manufacturing Practice	1-0-4-5	3
ESC	ES-ME191	Engineering Graphics & Design	1-0-4-5	3	ESC	ES-CS291	Programming for Problem Solving Laboratory	0-0-4-4	2
Mandatory Induction Program- 3 weeks duration. It is to be done before initiation of classes (theoretical , laboratory & sessional) as per syllabus following guidelines of AICTE and MAKAUT			10-3-9-22	17.5	BSC	BS-PH291	Physics Laboratory	0-0-3-3	1.5
					HUM	HM-HU291	Language Laboratory	0-0-2-2	1
Total								12-2-13-30	20.5

2nd Year

CC	SC	Subject Name	Contact Hrs./Week		CC	SC	Subject Name	Contact Hrs./Week	
			L-T-P-TO	Cr.				L-T-P-TO	Cr.
HUM	HM-HU(IT)301	Value & Ethics in Profession	2-0-0-2	2	PCC	PCC-IT401	Discrete Mathematics	3-1-0-4	3
ESC	ESC-IT301	Analog and Digital Electronics	3-0-0-3	3	BSC	BSC-CH(IT)401	Biology	2-0-0-2	2
PCC	PCC-IT301	Data Structure and Algorithms	3-0-0-3	3	PCC	PCC-IT402	Computer Architecture	3-1-0-4	3
PCC	PCC-IT302	Computer Organization	3-0-0-3	3	PCC	PCC-IT403	Formal Language & Automata Theory	3-0-0-3	3
BSC	BSC-M(IT)301	Mathematics-III (Differential Calculus)	3-0-0-3	3	PCC	PCC-IT404	Design and Analysis of Algorithm	3-1-0-4	3
ESC	ESC-IT391	Analog and Digital Electronics Laboratory	0-0-4-4	2	MC	MC-IT401	Environmental Science	3-0-0-3	0
PCC	PCC-IT391	Data Structure & Algorithms Laboratory	0-0-4-4	2	PCC	PCC-IT405	Numerical Analysis and Programming	3-0-0-3	2
PCC	PCC-IT392	Computer Organization Laboratory.	0-0-4-4	2	PCC	PCC-IT491	Computer Architecture Laboratory	0-0-4-4	2
PCC	PCC-IT393	IT Workshop (Sci Lab/MATLAB/Python/R)	0-0-4-4	2	PCC	PCC-IT492	Design and Analysis of Algorithms Laboratory	0-0-4-4	2
MC	MC-IT301	Essence of Traditional Knowledge	3-0-0-3	1	PCC	PCC-IT405	Numerical Analysis and Programming Laboratory	0-0-4-4	2
MC	MC-IT302	Constitution of India	3-0-0-3	0	PROJ	PROJ-IT481	PROJECT-2	0-0-4-4	1
PROJ	PROJ-IT381	PROJECT-1	0-0-4-4	1					
INTERN	INTERN-IT381	Winter Internship	0-0-0-0	0	INTERN	INTERN-IT481	Summer Internship	0-0-0-0	0

Total	20-0-16-36	24			Total	20-3-16-36	28

3rd Year

CC	SC	Subject Name	Contact Hrs./Week		CC	SC	Subject Name	Contact Hrs./Week	
			L-T-P-TO	Cr.				L-T-P-TO	Cr.
ESC	ESC-IT501	Signals & Systems	3-0-0-3	3	HUM	HM-HU(IT)601	Principles of Industrial Management	2-0-0-2	1
PCC	PCC-IT501	Compiler Design	3-0-0-3	3	PCC	PCC-IT601	Database Management System	3-0-0-3	3
PCC	PCC-IT502	Operating Systems	3-0-0-3	3	PCC	PCC-IT602	Computer Networks	3-0-0-3	3
					PCC	PCC-IT603	Software Engineering	3-0-0-3	3
PCC	PCC-IT503	Object Oriented Programming	3-0-0-3	3	PEC	PEC-IT601	<u>Professional Elective-II</u> A.Data Science B.Distributed Systems C.Image Processing & Pattern Recognition	3-0-0-3	3
PCC	PCC-IT 504	Artificial Intelligence	3-0-0-3	3	PCC	PCC-IT604	Machine Learning	3-0-0-3	3
PEC	PEC-IT501	<u>Professional Elective-I</u> A.Advanced Computer Architecture B.Computer Graphics C. Microwave Engineering and	2-0-0-2	3	PEC	PEC-CS602	<u>Professional Elective-III</u> A. Parallel and Distributed Algorithms B. Cyber Security C. Bioinformatics	3-0-0-3	2

		Antenna Theory D. Microprocessors and Microcontrollers		
HUM	HUHSMC - IT501	Financial Management and Accounts	3-0-0-3	3
PCC	PCC-IT591	Compiler Design Laboratory	0-0-4-4	2
PCC	PCC-IT592	Operating Systems Laboratory	0-0-4-4	2
PCC	PCC-IT593	Object Oriented Programming Laboratory	0-0-4-4	2
PCC	PCC-IT 594	Artificial Intelligence Laboratory	0-0-4-4	2
PROJ	PROJ-IT581	PROJECT-3	0-0-4-4	2
INTERN	INTERN-IT581	Winter Internship	0-0-0-0	0

OEC	OE-IT601	<u>Open Elective-I</u> A. Theory Of Block Chain B. UX-UI Design C. Multimedia Technology	2-0-0-2	2
PCC	PCC-IT691	Database Management System Laboratory	0-0-4-4	2
PCC	PCC-IT692	Computer Networks Laboratory	0-0-4-4	2
PCC	PCC-IT693	Machine Learning Laboratory	0-0-4-4	2
PROJ	PROJ-IT681	PROJECT-4	0-0-4-4	2
INTERN	INTERN-IT681	Summer Internship	0-0-0-0	0

TOTAL	17-0-20-37	28
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4th Year

CC	SC	Subject Name	Contact Hrs./Week		CC	SC	Subject Name	Contact Hrs./Week	
			L-T-P-TO	Cr.				L-T-P-TO	Cr.
HUM	HU-HSMC-IT701	Project Management and Entrepreneurship	2-1-0-3	2					
PCC	PCC-IT701	Operation Research and Optimization Techniques	3-0-0-3	3					
PEC	PEC-IT701	<u>Professional Elective-IV</u> A. Internet Technology B. Quantum Computing C. Cloud Computing D. Advanced Operating System	3-0-0-3	3	PEC	PEC-IT801	<u>Professional Elective-VI</u> A. Signals and Networks B. Cryptography & Network Security C. Speech and Natural Language Processing	4-0-0-4	4
PEC	PEC-IT702	<u>Professional Elective-V</u> A. Neural Networks and Deep Learning B. Soft Computing C. Ad-Hoc and Sensor Networks D. Information Theory and Coding	3-0-0-3	3	OEC	OE-IT801	<u>Open Elective-IV</u> A. Big Data Analysis B. Cyber Law and Ethics C. E-Commerce and ERP D. Micro-Electronics	4-0-0-4	4
OEC	OEC-IT701	<u>Open Elective-II</u> A. Human Computer Interaction B. Introduction to Philosophical Thoughts C. Soft Skill & Interpersonal Communication	3-0-0-3	2	PROJ	PROJ-IT881	Project-6	0-0-12-12	8
OEC	OEC-IT702	<u>Open Elective-III</u> A. Mobile Computing B. Robotics C. Internet of Things	3-0-0-3	3	GRAND-VIVA	GD-IT882	Grand- Viva	0-0-0-0	3
PCC	PCC-IT791	Operation Research and Optimization Techniques Laboratory	0-0-4-4	2	Seminar	SR-IT883	Seminar	0-0-1-4	3
PROJ	PROJ-IT781	Project-5	0-0-12-12	6	Proj	PR-IT883	Internship Evaluation	0-0-0-0	2
Total Credit			17-1-16-34	24				8-0-13-20	24