

**UNIVERSITY SCHOOL
OF
INFORMATION AND COMMUNICATION TECHNOLOGY**

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

PROGRAMME STRUCTURE

B.TECH. COMPUTER SCIENCE AND ENGINEERING

SPECILIZATION : CYBER SECURITY

2021-2025



**GAUTAM BUDDHA UNIVERSITY
GAUTAM BUDH NAGAR, GREATER NOIDA, UP, INDIA**

SEMESTER I

S.No.	Course Code	Course Name	L	T	P	Credits	Types
1	MA101	Engineering Mathematics-I	3	1	0	4	GE1
2	PH102	Engineering Physics	3	1	0	4	GE2
3	EE102	Basic Electrical Engineering	3	1	0	4	GE3
4	ME101	Engineering Mechanics	3	1	0	4	GE4
5	ES101	Environmental Studies	3	1	0	4	OE1 / AECC
6	PH104	Engineering Physics Lab	0	0	2	1	GE-L1
7	EE104	Basic Electrical Engineering Lab	0	0	2	1	GE-L2
8	EN151	Language Lab	0	0	2	1	OE-L1 / SEC
9	ME102	Workshop Practice	1	0	2	2	GE-L3 / SEC
10	GP	General Proficiency	Non Credit				
Total Hours and Credits			16	5	8	25	

SEMESTER II

S.No.	Course Code	Course Name	L	T	P	Credits	Types
1	CS101	Fundamentals of Computer Programming	3	1	0	4	CC1 / FC
2	CS102	Introduction to Cyber Security	2	0	0	2	CC2 / FC
3	MA102	Engineering Mathematics-II	3	1	0	4	GE5
4	EC101	Basic Electronics Engineering	3	1	0	4	GE6
5	ME101	Engineering Mechanics	3	1	0	4	GE7
6	EN101	English Proficiency	2	0	0	2	OE2 / AECC
7	CE103	Engineering Graphics Lab	1	0	2	2	GE-L4
8	CS181	Computer Programming Lab	0	0	2	1	CC-L1 / SEC
9	CS182	Cyber Security Lab	0	0	2	1	CC-L2 / SEC
10	EC181	Basic Electronics Engineering Lab	0	0	2	1	GE-L5
11	GP	General Proficiency	Non Credit				
Total Hours and Credits			14	3	8	25	

SEMESTER III

S.No.	Course Code	Course Name	L	T	P	Credits	Types
1	CC201	Internet Technology	3	0	0	3	CC3 / SEC
2	CC203	Operating Systems	3	0	0	3	CC4
3	CC205	Data Structure & Algorithms	3	0	0	3	CC5 / SEC
4	CC207	Introduction to Python	3	0	0	3	CC6
5	CC209	Information Retrival Systems	3	0	0	3	CC7
6	MA201	Engineering Mathematics-III	3	1	0	4	GE8
7	CC281	Internet Technology Lab	0	0	3	2	CC-L3
8	CC283	Data Structure & Algorithms Lab	0	0	3	2	CC-L4 / SEC
9	CC285	Python Programming Lab	0	0	3	2	CC-L5 / SEC
10	GP	General Proficiency	Non Credit				
Total Hours and Credits			18	1	9	25	

SEMESTER IV

S.No.	Course Code	Course Name	L	T	P	Credits	Types
1	CC202	Software Engineering	3	0	0	3	CC8
2	CC204	Database Management System	3	0	0	3	CC9 / SEC
3	CC206	Java Programming	3	0	0	3	CC10
4	CC208	Artificial Intelligence	3	0	0	3	CC11
5	CC210	Information Theory and Coding	3	0	0	3	CC12
6	CC212	Theory of Automata	3	1	0	4	CC13 / SEC
7	CC282	Database Management System Lab	0	0	3	2	CC-L6 / SEC
8	CC284	Java Programming Lab	0	0	3	2	CC-L7 / SEC
9	CC286	Information Theory and Coding Lab	0	0	3	2	CC-L8 / SEC
10	GP	General Proficiency	Non Credit				
Total Hours and Credits			18	1	9	25	

SEMESTER V

S.No.	Course Code	Course Name	L	T	P	Credits	Types
1	CC301	Compiler Design	3	1	0	4	CC14 / AECC
2	CC303	Soft Computing Techniques	3	0	0	3	CC15
3	CC305	Analysis and Design of Algorithms	3	0	0	3	CC16 / SEC
4	CC307	Cryptography and Data Privacy	3	0	0	3	CC17
5	CC309	Machine Learning	3	0	0	3	CC18 / SEC
6		Elective 1	3	0	0	3	E1 / DSE
7	CC381	Analysis and Design of Algorithms Lab	0	0	3	2	CC-L9 / SEC
8	CC383	Cryptography and Data Privacy Lab	0	0	3	2	CC-L10 / SEC
9	CC385	Machine Learning using Python Lab	0	0	3	2	CC-L11 / SEC
10	GP	General Proficiency	Non Credit				
Total Hours and Credits			18	1	9	25	

SEMESTER VI

S.No.	Course Code	Course Name	L	T	P	Credits	Types
1	CS302	Web Development using PHP	3	0	0	3	CC19
2	CC304	Network Defense for Cyber Security	3	0	0	3	CC20
3	CC306	Risk Management and Audit	3	1	0	4	CC21
4	CC308	Digital Forensic, Audit and Investigations	3	0	0	3	CC22
5	CC310	Data Privacy and Database Security	3	0	0	3	CC23 / SEC
6		Elective 2	3	0	0	3	E2 / DSE
7	CC382	Web Development using PHP Lab	0	0	3	2	CC-L12 / SEC
8	CC384	Network Defense for Cyber Security Lab	0	0	3	2	CC-L13
9	CC386	Data Privacy and Database Security Lab	0	0	3	2	CC-L14
10	GP	General Proficiency	Non Credit				
Total Hours and Credits			18	1	9	25	

Industrial Training will be done by candidate individually after third year during the summer break and it will be of minimum 4 weeks. It will be evaluated as per University Examination in VII semester.

SEMESTER VII

S.No.	Course Code	Course Name	L	T	P	Credits	Types
1	MA401	Modeling & Simulation	3	1	0	4	GE9
2	CC401	Blockchain Technology	3	0	0	3	CC24
3	CC403	AI Enabled Cyber Security	2	0	0	2	CC25 / SEC
4		Elective 3	3	0	0	3	E3 / DSE
5		Elective 4	3	0	0	3	E4 / DSE
6	CC481	AI Enabled Cyber Security Lab	0	0	3	2	CC-L15
7	CC491	Minor Project	0	0	10	5	MP1 / E
8	CC493	Industrial Traning	0	0	6	3	IT1 / E
9	GP	General Proficiency	Non Credit				
Total Hours and Credits			14	1	19	25	

SEMESTER VIII

S.No.	Course Code	Course Name	L	T	P	Credits	Types
1	CC490	Seminar	0	0	3	2	S / E
2	CC492	Major Project	0	0	16	8	MP2 / E
3	CC494	Intenship	0	0	30	15	I / E
4	GP	General Proficiency	Non Credit				
Total Hours and Credits			0	0	49	25	

GRAND TOTAL OF CREDITS = 200

In the **Seminar**, student need to study and present individually, on latest research paper of their specialized area and It will be evaluated as per University Examination Rules.

The **Internship** in Industry will be done by candidate individually during the 8th semester and it will be for a minimum of 4 (-6) months. It will be evaluated as per University Examination Rules.

Minor and Major Project will be in a group and It will be evaluated as per University Examination Rules.

USICT will provide a mentor/supervisor for industrial training, seminar, internship, minor and major projects.

ELECTIVES FROM DCSE

S.No.	Course Code	Course Name	L	T	P	Credits	Types
1	CC311	Security Information & Event Management	3	0	0	3	E1
2	CC313	Intrusion Detection and Prevention System	3	0	0	3	E1
3	CC315	Cryptography	3	0	0	3	E1
4	CC317	Biometric System and Security	3	0	0	3	E1
5	CC319	Ethical Hacking	3	0	0	3	E1
6	CC312	Mobile Security	3	0	0	3	E2
7	CC314	Cloud Architecture and Security	3	0	0	3	E2
8	CC316	Principle of Secure Coding	3	0	0	3	E2
9	CC318	Information Warfare	3	0	0	3	E2
10	CC320	Social Network Security	3	0	0	3	E2
11	CC405	Physical Security of IT Infrastructure	3	0	0	3	E3
12	CC407	NISTA 800-53 (Security Control)	3	0	0	3	E3
13	CC409	Operating Systems Security	3	0	0	3	E3
14	CC411	Mobile and Wireless Network Security	3	0	0	3	E3
15	CC413	Enterprise Security and Management	3	0	0	3	E3
16	CC415	Malware Analysis	3	0	0	3	E4
17	CC417	Android Security Design and Internals	3	0	0	3	E4
18	CC419	Data and Database Management Security	3	0	0	3	E4
19	CC421	Web Application and Penetration Testing	3	0	0	3	E4
20	CC423	Access Control and Identity Management Systems	3	0	0	3	E4

CC Computer Science & Engineering / Cyber Security for Course Code**CC** Core Course from USICT for Type of Course**GE** General Elective from related discipline of other Deptt./School**GE L** General Elective Lab from related discipline of other Deptt./School**OE** Open Elective from other discipline of other Deptt./School**AECC** Ability Enhancement Compulsary Course**DSE** Discipline Specific Course**SEC** Skill Enhancement Course**E** Elective from USICT**CC-L** Core Course Lab from USICT**IT1** Industrial Training**MP** Minor / Major Project**S** Seminar**I** Internship