UNIVERSITY SCHOOL
OF
INFORMATION AND COMMUNICATION TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

PROGRAMME STRUCTURE

B.TECH. COMPUTER SCIENCE AND ENGINEERING

SPECILIZATION IN INTERNET OF THINGS
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	CS103	Fundamentals of Computer Programming	3	1	0	4	CC1 / FC
2	CI103	Fundamentals of Internet of Things	2	0	0	2	CC2 / FC
3	MA101	Engineering Mathematics-I	3	1	0	4	GE1
4	PH102	Engineering Physics	3	1	0	4	GE2
5	EC101	Basic Electronics Engineering	3	1	0	4	GE3 / FC
6	EN101	English Proficiency	2	0	0	2	OE1 / AECC
7	CE103	Engineering Graphics Lab	1	0	2	2	GE-L1
8	CS181	Computer Programming Lab	0	0	2	1	CC-L1 / SEC
9	PH104	Engineering Physics Lab	0	0	2	1	GE-L2
10	EC181	Basic Electronics Engineering Lab	0	0	2	1	GE-L3
11	GP	General Proficiency	Non Credit				
		Total Hours and Credits	17	4	8	25	

SEMESTER II

S.No.	Course Code	Course Name	L	T	P	Credits	Types
1	CI102	Introduction to Python	2	0	0	2	CC3 / FC
2	CI104	Computer Organistaion and Architecure	2	0	0	2	CC4 / SEC
3	MA102	Engineering Mathematics-II	3	1	0	4	GE4
4	EE102	Basic Electrical Engineering	3	1	0	4	GE4
5	ME101	Engineering Mechanics	3	1	0	4	GE6
6	ES101	Environmental Studies	3	1	0	4	OE2 / AECC
7	CI182	Python Programming Lab	0	0	2	1	CC-L2 / SEC
8	CI184	Computer Organistaion and Architecure Lab	0	0	2	1	CC-L3 / SEC
9	EE104	Basic Electrical Engineering Lab	0	0	2	1	GE-L4
10	ME102	Workshop Practice	1	0	2	2	GE-L5
11	GP	General Proficiency	Non Credit				
		Total Hours and Credits	15	4	8	25	

SEMESTER III

S.No.	Course Code	Course Name	L	T	P	Credits	Types
1	CI201	Internet Technology	3	0	0	3	CC5 / SEC
2	CI203	Operating Systems	3	0	0	3	CC6
3	CI205	Data Structure & Algorithms	3	0	0	3	CC7 / SEC
4	CI207	Advanced Micro-Controller Based Systems	3	0	0	3	CC8
5	CI209	Sensors and Devices	3	0	0	3	CC9
6	MA201	Engineering Mathematics-III	3	1	0	4	GE7
7	CI281	Internet Technology Lab	0	0	3	2	CC-L4
8	CI283	Data Structure & Algorithms Lab	0	0	3	2	CC-L5 / SEC
9	CI285	Sensors and Devices Lab	0	0	3	2	CC-L6 / 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	CI202	Software Engineering	3	0	0	3	CC10
2	CI204	Database Management System	3	0	0	3	CC11 / SEC
3	CI206	Java Programming	3	0	0	3	CC12
4	CI208	Artificial Intelligence	3	0	0	3	CC13
5	CI210	Theory of Automata	3	1	0	4	CC14
6	CI212	Computer Networks	3	0	0	3	CC15 / SEC
7	CI282	Database Management System Lab	0	0	3	2	CC-L7 / SEC
8	CI284	Java Programming Lab	0	0	3	2	CC-L8 / SEC
9	CI286	Computer Networks Lab	0	0	3	2	CC-L9 / 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	CI301	Compiler Design	3	1	0	4	CC16 / AECC
2	CI303	Soft Computing Techniques	3	0	0	3	CC17
3	CI305	Analysis and Design of Algorithms	3	0	0	3	CC18
4	CI307	Cloud Computing	3	0	0	3	CC19
5	CI309	Machine Learning	3	0	0	3	CC20 / SEC
6		Elective 1	3	0	0	3	E1 / DSE
7	CI381	Analysis and Design of Algorithms Lab	0	0	3	2	CC-L10/ SEC
8	CI383	Cloud Computing Lab	0	0	3	2	CC-L11 / SEC
9	CI385	Machine Learning Lab using Python	0	0	3	2	CC-L12 / 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	CI302	Web Development using PHP	3	0	0	3	CC21
2	CI304	Network Technologies in IoT and its Applications	3	0	0	3	CC22
3	CI306	Ad hoc & Sensor Networks	3	1	0	4	CC23
4	CI308	IoT Architecture, Protocols and Programming	3	0	0	3	CC24
5	CI310	Big Data Analytics	3	0	0	3	CC25 / SEC
6		Elective 2	3	0	0	3	E2 / DSE
7	CI382	Web Development using PHP Lab	0	0	3	2	CC-L13
8	CI384	IoT Programming Lab	0	0	3	2	CC-L14
9	CI386	Big Data Analytics Lab	0	0	3	2	CC-L15
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	GE8
2	CI401	Cloud Based IoT	3	0	0	3	CC26
3	CI403	Open Source Programming for IoT	2	0	0	2	CC27 / SEC
4		Elective 3	3	0	0	3	E3 / DSE
5		Elective 4	3	0	0	3	E4 / DSE
6	CI481	Open Source Programming for IoT Lab	0	0	3	2	CC-L16
7	CI491	Minor Project	0	0	10	5	MP1 / E
8	CI493	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	CI490	Seminar	0	0	3	2	S / E
2	CI492	Major Project	0	0	16	8	MP2 / E
3	CI494	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	CI311	Network Defense for Cyber Security	3	0	0	3	E1
2	CI313	Energy Management in IoT Devices	3	0	0	3	E1
3	CI315	Multimedia and IoT Technology	3	0	0	3	E1
4	CI317	Advanced Sensor Technologies	3	0	0	3	E1
5	CI319	Embdded Systems	3	0	0	3	E1
6	CI312	Network Modeling	3	0	0	3	E2
7	CI314	Cloud Architecture and Security	3	0	0	3	E2
8	CI316	Network Management	3	0	0	3	E2
9	CI318	Distrubuted Computing Systems	3	0	0	3	E2
10	CI320	Software Defined Networks	3	0	0	3	E2
11	CI405	Information Security and Privacy in IoT	3	0	0	3	E3
12	CI407	SDN and NFV for IOT	3	0	0	3	E3
13	CI409	SAS Analytics	3	0	0	3	E3
14	CI411	Mobile and Wireless Network Security	3	0	0	3	E3
15	CI413	Cryptography and Network Security	3	0	0	3	E3
16	CI415	Network Simulators	3	0	0	3	E4
17	CI417	Android Security Design and Internals	3	0	0	3	E4
18	CI419	Business Process Management Cognitive IoT	3	0	0	3	E4
19	CI421	IoT in Health Care	3	0	0	3	E4
20	CI423	Industrial IoT	3	0	0	3	E4

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