

**UNIVERSITY SCHOOL
OF
INFORMATION AND COMMUNICATION TECHNOLOGY**

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

PROGRAMME STRUCTURE

**B.TECH. ARTIFICIAL INTELLIGENCE
2019-2023**



**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	CY101	Engineering Chemistry	3	1	0	4	GE2
3	CS101	Fundamentals of Computer Programming	3	1	0	4	CC1 / FC
4	CS105	Introduction of Artificial Intelligence	2	0	0	2	CC2 / FC
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	CY103	Engineering Chemistry Lab	0	0	2	1	GE-L2
9	CS181	Computer Programming Lab	0	0	2	1	CC-L1 / SEC
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	MA102	Engineering Mathematics-II	3	1	0	4	GE4
2	PH102	Engineering Physics	3	1	0	4	GE4
3	EE102	Basic Electrical Engineering	3	1	0	4	GE6
4	ME101	Engineering Mechanics	3	1	0	4	GE7
5	ES101	Environmental Studies	3	1	0	4	OE2 / AECC
6	AI102	Introduction to Python	2	0	0	2	CC3
7	PH104	Engineering Physics Lab	0	0	2	1	GE L4
8	EE104	Basic Electrical Engineering Lab	0	0	2	1	GE L5
9	EN151	Language Lab	0	0	2	1	OE-L1 / SEC
10	ME102	Workshop Practice	1	0	2	2	GE-L6
11	AI182	Python Lab	0	0	2	1	CC-L2
12	GP	General Proficiency	Non Credit				
Total Hours and Credits			18	5	10	28	

SEMESTER III

S.No.	Course Code	Course Name	L	T	P	Credits	Types
1	AI201	Software Engineering	3	0	0	3	CC4
2	AI203	Intelligent Systems	3	0	0	3	CC5
3	AI205	Theory of Automata	3	0	0	3	CC6
4	AI207	Database Management Systems	3	0	0	3	CC7
5	AI209	Computer Vision	3	0	0	3	CC8
6	AI211	Introduction to R Programming	3	1	0	4	CC9 / SEC
7	AI281	Database Management Systems Lab	0	0	3	2	CC-L3
8	AI283	Computer Vision Lab	0	0	3	2	CC-L4
9	AI285	R 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	AI202	Machine Learning	3	1	0	4	CC10
2	AI204	Operating System	3	0	0	3	CC11
3	AI206	Biometric Security	3	0	0	3	CC12
4	AI208	Introduction to MATLAB	3	0	0	3	CC13 / SEC
5	AI210	Quantum Computing	3	0	0	3	CC14
6	AI212	Computer Networks	3	0	0	3	CC15
7	AI282	Machine Learning using Python Lab	0	0	3	2	CC-L6 / SEC
8	AI284	Operating System Lab	0	0	3	2	CC-L7
9	AI286	MATLAB	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	AI301	Big Data Analytics	3	0	0	3	CC16
2	AI303	Compiler Design	3	0	0	3	CC17
3	AI305	Deep Learning and Reinforcement Learning	3	0	0	3	CC18 / SEC
4	AI307	Operational Information Security Management and Biometrics	3	1	0	4	CC19
5		Elective 1	3	0	0	3	E1 / DSE
6		Elective 2	3	0	0	3	E2 / DSE
7	AI381	Deep Learning Lab using Python	0	0	3	2	CC-L9 / SEC
8	AI383	Compiler Design Lab	0	0	3	2	CC-L10
9	AI385	Big Data Analytics Lab	0	0	3	2	CC-L11
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	AI302	IoT and Its Applications	3	0	0	3	CC20
2	AI304	Expert Systems	3	0	0	3	CC21
3	AI306	Robot Kinematics	3	0	0	3	CC22
4	AI308	Convex Optimization	3	1	0	4	CC23
5		Elective 3	3	0	0	3	E3 / DSE
6		Elective 4	3	0	0	3	E4 / DSE
7	AI382	Internet of Things Lab	0	0	3	2	CC-L12
8	AI384	Expert Systems Lab	0	0	3	2	CC-L13 / SEC
9	AI386	Robot Kinematics 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	MA402	Modeling and Simulation	3	0	0	3	GE8
2	AI401	Computational Intelligence	3	0	0	3	CC24
3	AI403	Robotics and Drones	3	0	0	3	CC25
4	AI405	Natural Language Processing	3	0	0	3	CC26
5		Elective 5	3	0	0	3	E5 / DSE
6	AI481	Robotics and Drones Lab	0	0	3	2	CC-L15
7	AI491	Minor Project	0	0	6	3	IT1 / E
8	AI493	Industrial Training	0	0	10	5	MP1 / E
9	GP	General Proficiency	Non Credit				
Total Hours and Credits			15	0	19	25	

SEMESTER VIII

S.No.	Course Code	Course Name	L	T	P	Credits	Types
1	AI490	Seminar	0	0	3	2	S / E
2	AI492	Major Project	0	0	16	8	I / E
3	AI494	Internship	0	0	30	15	MP2 / E
4	GP	General Proficiency	Non Credit				
Total Hours and Credits			0	0	49	25	

GRAND TOTAL OF CREDITS = 203

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	AI309	Computer Graphics	3	0	0	3	E1
2	AI311	Introduction to Brain and Neuroscience	3	0	0	3	E1
3	AI313	Stochastic Processes	3	0	0	3	E1
4	AI315	Computer Based Numerical & Statistical Techniques	3	0	0	3	E1
5	AI317	Sequence Models	3	0	0	3	E1
6	AI319	Bayesian Data Theory	3	0	0	3	E2
7	AI321	Speech Analysis and Systems	3	0	0	3	E2
8	AI323	Graph Theory	3	0	0	3	E2
9	AI325	Distributed Database	3	0	0	3	E2
10	AI327	Embedded Systems	3	0	0	3	E2
11	AI310	Digital Image Processing	3	0	0	3	E3
12	AI312	Gaming	3	0	0	3	E3
13	AI314	Knowledge Engineering	3	0	0	3	E3
14	AI316	Predictive Analysis	3	0	0	3	E3
15	AI318	Digital Fabrication	3	0	0	3	E3
16	AI320	AI Enabled Cyber Security	3	0	0	3	E4
17	AI322	Evolutionary Computation	3	0	0	3	E4
18	AI324	Fuzzy logic	3	0	0	3	E4
19	AI326	Distributed Operating System	3	0	0	3	E4
20	AI328	Pattern Recognition	3	0	0	3	E4
21	AI407	Automation and Robotics	3	0	0	3	E5
22	AI409	Optimization Techniques	3	0	0	3	E5
23	AI411	3D Printing	3	0	0	3	E5
24	AI413	Parallel Distributed Systems	3	0	0	3	E5
25	AI415	Time Series Analysis and Applications	3	0	0	3	E5

AI Artificial Intelligence**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