UNIVERSITY
SCHOOL OF
INFORMATION AND COMMUNICATION TECHNOLOGY

Department Of Electronics and Communication Engineering

COURSE STRUCTURE

B. Tech.: Electronics and Communication Engineering

Specialization: Artificial Intelligence & Machine Learning

Batch: 2024-2028

GAUTAM BUDDHA UNIVERSITY GAUTAM BUDH NAGAR, GREATER NOIDA UP (INDIA)

SEMESTER I

Sr.No	Course Code	Courses	L-T-P	Credits
1	EA101	Analog Electronics	3-1-0	4
2	EA103	Data Structures	3-0-0	3
3	CS101	Fundamental of Computer Programming	3-0-0	3
4	EA105	Introduction to AI	3-0-0	3
5	ECMA 101	Applied Mathematics	3-1-0	4
6	EN101	English Proficiency	2-0-0	2
7	EA171	Analog Electronics Lab	0-0-2	1
8	EA173	Data Structures Lab	0-0-2	1
9	CS181	Computer Programming Lab I	0-0-2	1
Total Credits			**22**	
Total Contact Hours			**17-2-6=25**	

SEMESTER II

Sr.No	Course Code	Courses	L-T-P	Credits
1	EA102	Digital Electronics	3-1-0	4
2	EA104	Signals & Systems	3-1-0	4
3	EA106	Programming with Python	3-0-0	3
4	ES102	Environmental Studies	3-1-0	4
5	EA108	Applied Computational Statistics	3-0-0	3
	EA 110	History of Science & Technology	1-0-0	1
6	EA172	Python Programming Lab	0-0-2	1
7	EA174	Digital Electronics Lab	0-0-2	1
8	EA176	Computer Programming Lab II	0-0-2	1
Total Credits			**22**	
Total Contact Hours			**16-3-6=25**	

SEMESTER III

Sr.No	Course Code	Courses	L-T-P	Credits
1	EA 201	Communication Systems	3-1-0	4
2	EA 203	Circuit Theory	3-1-0	4
3	EA 205	Introduction to DBMS	3-1-0	4
4	EA 207	Introduction to Data Science	3-1-0	4
5	EA 209	Linear Integrated Circuits	3-0-0	3
6	EA 271	Communication Systems Lab	0-0-2	1
7	EA 275	Data Science Lab	0-0-2	1
8	EA 277	DBMS Lab	0-0-2	1
Total Credits			**22**	
Total Contact Hours			**15-4-6=25**	

SEMESTER IV

Sr.No	Course Code	Courses	L-T-P	Credits
1	EA 202	Electromagnetic Field Theory	3-1-0	4
2	EA 204	Digital logic design using Verilog	3-1-0	4
3	EA 206	Internet of Things	3-1-0	4
4	EA 208	Machine Learning	3-1-0	4
5		**Elective 1**	3-0-0	3
6	EA 272	Internet of Things Lab	0-0-2	1
7	EA 274	Digital Logic Design Lab	0-0-2	1
8	EA 276	Machine Learning Lab	0-0-2	1
Total Credits			**22**	
Total Contact Hours			**15-4-6=25**	

SEMESTER V

Sr.No	Course Code	Courses	L-T-P	Credits
1	EA 301	Control Systems	3-0-0	3
2	EA 303	Digital Signal Processing	3-1-0	4
3	EA 305	Advance AI tools and Techniques	3-1-0	4
4	EA 307	Microprocessor and Microcontroller	3-0-0	3
5		**Elective 2**	3-0-0	3
6	EA 373	Digital Signal Processing Lab	0-0-2	1
7	EA 375	Machine Learning Models Lab	0-0-2	1
8	EA 377	Microprocessor and Microcontroller Lab	0-0-2	1
9		Technical Report Writing	0-0-4	2
Total Credits			**22**	
Total Contact Hours			**15-2-10=27**	

SEMESTER–VI

Sr.No	Course Code	Courses	L-T-P	Credits
1	EA 302	VLSI Design	3-1-0	4
2	EA 304	Big Data Analytics	3-0-0	3
3	EA 306	Digital Image Processing	3-1-0	4
4	EA 308	Speech and Audio Processing	3-0-0	3
5		**Elective 3**	3-0-0	3
6	EA 372	VLSI Design Lab	0-0-2	1
7	EA 374	Big Data Analytics Lab	0-0-2	1
8	EA 376	Digital Image Processing Lab	0-0-2	1
9	EA 392	Internship Project	0-0-4	2
Total Credits			**22**	
Total Contact Hours			**15-2-10=27**	

SEMESTERVII

Sr.No	Course Code	Courses	L-T-P	Credits
1	EA 401	Wireless Technologies	3-1-0	4
2	EA 403	Multimodal data Processing	3-0-0	3
3	EA 405	AI Models & Pattern Recognition	2-0-0	2
4	EA 407	Hybrid Soft Computing Model	3-0-0	3
5		**Elective-4**	3-0-0	3
6	EA 471	Wireless Technologies Lab	0-0-2	1
7	EA 473	Multimodal Data Processing Lab	0-0-2	1
8	EA 475	AI Model & Pattern Recognition Lab	0-0-2	1
9	EA 472	Hybrid Soft Computing Models Lab	0-0-2	1
10	EA 491	Minor Projects	0-0-3	3
Total Credits			**22**	
Total Contact Hours			**14-2-11=27**	

SEMESTER–VIII

Sr.No	Course Code	Courses	L-T-P	Credits
1	EA 492	Major Project	0-0-8	8
2	EA 494	Industrial Training/Internship	0-0-14	14
Total Credits			**22**	
Total Contact Hours			**0-0-22**	

GRAND TOTAL OF CREDITS = 176

- The **Industrial Training/ Internship** in Industry will be done by candidate individually during the 8th semester and it will be for 4 to 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/internship, minor and major projects.

ELECTIVES

S.No.	Course Code	Course Name	L	T	P	Credits	Types
		Elective-1					
1	EA222	Fuzzy Logic and Decision-Making Models	3	0	0	3	E1
2	EA224	Principle of Management	3	0	0	3	E1
3	EA226	Material Science & Engineering	3	0	0	3	E1
4	EA228	Discrete Structure	3	0	0	3	E1
	EA 230	Sensors and Actuators	3	0	0	3	E1
		Elective-2					
1	EA321	Optimization Techniques	3	0	0	3	E2
2	EA323	Introduction to Robotics	3	0	0	3	E2
3	EA325	Secure Communication	3	0	0	3	E2
4	EA327	Antenna and Wave Propagation	3	0	0	3	E2
5	EA329	Introduction to Object Oriented Programming	3	0	0	3	E2
6.	EA 331	Machine Learning Platforms	3	0	0	3	E2
		Elective-3					
1	EA322	Satellite Communication	3	0	0	3	E3
2	EA324	Broadband Network	3	0	0	3	E3
3	EA326	Introduction to Evolutionary Computation	3	0	0	3	E3
4	EA328	Microwave and Radar Engineering	3	0	0	3	E3
6	EA431	Cloud Computing	3	0	0	3	E4
		Elective-4					
1	EA421	Reliability Engineering	3	0	0	3	E4
2	EA423	Foundations of Cyber-Physical Systems	3	0	0	3	E4
3	EA425	Entrepreneurship	3	0	0	3	E4
4	EA427	Digital Business Strategy	3	0	0	3	E4
5	EA429	Technologies for 5G Wireless Communication	3	0	0	3	E4
6	EA431	Fundamentals of Block Chain technology	3	0	0	3	E4