GALGOTIAS UNIVERSITY
B.Tech Embedded System Engineering (ESE) Programme Structure

School/Dept.	DEECE						Program Name		B.Tech ESE
Semester	**I**								

S. No.	Course Code	Course Title	L	T	P	S	Credits	Hours
1	C1UC122B	Engineering Mathematics-I	3	0	1	0	4	5
2	R1UC101B	Programming for Problem Solving using C	2	0	1	1	4	5
3	G2UA120B	Basic Electrical & Electronics Engineering	3	0	1	0	4	5
4	C1UB129T	Chemical and Biological Materials	3	0	1	0	3	5
5	G3UB101B	Engineering Design and Prototyping	3	0	1	0	4	5
6	L1UB120T	YOGA	2	0	0	0	0	2
			Total				19	

	Semester	**II**						
S. No.	Course Code	Course Title	L	T	P	S	Credits	Hours
1	C1UD124B	Semiconductor and Optoelectronics Devices	3	0	1	0	4	5
2	C1UC222B	Engineering Mathematics-II	3	0	1	0	4	5
3	G2UC101B	Introduction of Digital Systems	2	0	1	0	3	5
4	E2UC201C	OOPS using Python	3	0	1	1	5	5
5	C1UC224T	Discrete Mathematics	3	0	0	0	3	3
6	O1UA104B	Communication Skills for Engineers	2	0	1	0	3	4
7	C1UB120T	Environmental Impact Analysis	2	0	0	0	0	2
			Total				22	

	Semester	**III**						
S. No.	Course Code	Course Title	L	T	P	S	Credits	Hours
1	Provided by ERP	Functions of Complex Variables and Transforms	3	0	0	0	3	3
2	Provided by ERP	Electronic Devices and Circuits	3	0	1	1	5	5
3	Provided by ERP	Digital Design	3	0	1	0	4	5
4	Provided by ERP	Signals and Systems	3	0	0	0	3	3
5	Provided by ERP	Electromagnetic and Antenna Theory	3	0	0	0	3	3
6	Provided by ERP	Communication Competency & Aptitude Building-1	1	0	1	0	2	3
			Total				20	

	Semester	**IV**						
S. No.	Course Code	Course Title	L	T	P	S	Credits	Hours
1	Provided by ERP	Probability and Stochastic Processes	3	0	0	0	3	3
2	Provided by ERP	Real Time Operating System	2	0	1	0	3	3
3	Provided by ERP	Microprocessor and Microcontroller	3	0	1	1	5	5
4	Provided by ERP	Analog and Digital Communication	3	0	0	0	3	4
5	Provided by ERP	Sensors and Actuators	3	0	1	0	4	5
6	Provided by ERP	Communication Competency & Aptitude Building-2	1	0	1	0	2	3

7	Provided by ERP	Capsule Course-1(Analog Circuit Design (Spice Tool))	0	0	1	0	1	2
			Total				21	

	Semester	V						
S. No.	Course Code	Course Title	L	T	P	S	Credits	Hours
1	Provided by ERP	Embedded System Design	3	0	1	0	4	5
2	Provided by ERP	Program Elective-I	3	0	0	0	3	3
3	Provided by ERP	Wireless and Mobile Communication	3	0	1	1	5	5
4	Provided by ERP	Control Systems	3	0	1	0	4	5
5	Provided by ERP	Internet of Things (IoT)	3	0	1	0	4	5
6	Provided by ERP	Capsule Course-2 (Introduction to Arduino)	0	0	1	0	1	2
		Total					21	

	Semester	VI						
S. No.	Course Code	Course Title	L	T	P	S	Credits	Hours
1	Provided by ERP	Campus 2 Corporate Training	1	0	1	0	2	3
2	Provided by ERP	VLSI Design (CMOS, HDL)	3	0	1	0	4	5
3	Provided by ERP	Cybersecurity for Embedded Systems	3	0	0	0	3	3
4	Provided by ERP	Program Elective-II	3	0	0	0	3	3
5	Provided by ERP	AI/ML for Embedded Systems	3	0	1	1	5	5
6	Provided by ERP	Program Elective-III	3	0	0	0	3	3
7	Provided by ERP	Capsule Course-3(Introduction to MATLAB and Simulink)	0	0	1	0	1	2
		Total					21	

	Semester	VII	Progra					
S. No.	Course Code	Course Title	L	T	P	S	Credits	Hours
1	Provided by ERP	Program Elective-IV	3	0	0	0	3	3
2	Provided by ERP	Program Elective-V	3	0	0	0	3	3
3	Provided by ERP	Data Analytics for Embedded Systems	3	0	0	0	3	3
4	Provided by ERP	Advanced Microcontrollers (ARM Cortex, F	3	0	0	0	3	3
5	Provided by ERP	Industrial Internship (Min. 4 weeks)	0	0	0	1	1	0
6	Provided by ERP	Capstone Design Phase-I	0	0	0	7	7	0
		Total					20	

	Semester	VII	Progra					
S. No.	Course Code	Course Title	L	T	P	S	Credits	Hours
1	Provided by ERP	Capstone Design phase - II	0	0	0	18	18	0
2	Provided by ERP	Industrial Internship-II (To be completed during 8 Semester only with min 3 to max. 6 months)	0	0	1	1	2	0
		Total					20	
	Total Credits of All Semesters		**164**					

PROGRAM ELECTIVES (Tentative)

Elective-1								
1	Provided by ERP	Embedded C Programming	3	0	0	0	3	3
2	Provided by ERP	Embedded Linux and Device Drivers	3	0	0	0	3	3
3	Provided by ERP	System on Chip (SoC) Design	3	0	0	0	3	3
Elective-II								
1	Provided by ERP	Bluetooth, Zigbee, and LoRa Protocols	3	0	0	0	3	3
2	Provided by ERP	CAN and LIN Bus Systems	3	0	0	0	3	3
3	Provided by ERP	Secure Boot and Trusted Execution Environ	3	0	0	0	3	3
Elective-III								
1	Provided by ERP	Aerospace Embedded Systems	3	0	0	0	3	3
2	Provided by ERP	Defense Electronics	3	0	0	0	3	3
3	Provided by ERP	Embedded Systems for Drones	3	0	0	0	3	3
4	Provided by ERP	Smart Agriculture and Sensor Networks	3	0	0	0	3	3
Elective-IV								
1	Provided by ERP	Android Things & Embedded Android	3	0	0	0	3	3
2	Provided by ERP	Embedded System Design Tools (Keil, MPLAB, IAR)	3	0	0	0	3	3
3	Provided by ERP	Disaster Management and IoT	3	0	0	0	3	3
4	Provided by ERP	Advanced Embedded Systems	3	0	0	0	3	3
Elective-V								
1	Provided by ERP	Mixed Signal Design	3	0	0	0	3	3
2	Provided by ERP	PCB Design and Fabrication	3	0	0	0	3	3
3	Provided by ERP	Hardware-in-the-Loop (HIL) Simulation	3	0	0	0	3	3
4	Provided by ERP	MEMS and Nanoelectronics	3	0	0	0	3	3
5	Provided by ERP	Reliability and Testing of Embedded Hardware	3	0	0	0	3	3