Gautam Buddha University
School of Engineering
Department of Electrical Engineering
Course structure of 2 Year M. Tech. Programme in Instrumentation and Control (2020-22)

SEMESTER-I					Course Type
S. No.	**Subject Code**	**Courses**	**L-T-P**	**Credit**	
		THEORY			
1.	MA406/MA507/ MA402	Operation Research/Optimization Techniques/Modelling & Simulation	3-1-0	4	EGE-I1
2.	EE-531	Advance Instrumentation	3-0-0	3	C-I1
3.	EE-533	Advance Process Control	3-0-0	3	C-I2
4.	EE-535	Optimal Control Theory	3-0-0	3	C-I3
5.		Elective-I	3-0-0	3	EDSE-I1
6.		Open Elective	3-0-0	3	OE-I1
		PRACTICALS/PROJECT			
7.	EE-553	Adv. Instrumentation & Control Lab	0-0-3	2	C-I4
8.	EE-597	Seminar	0-0-3	2	SEC1
9.	GP	General Proficiency	-	NC	
		Total		**23**	
		Total Contact Hours	**25**		

Open Elective: Course offered from other school

SEMESTER-II					Course Type
S. No.	**Subject Code**	**Courses**	**L-T-P**	**Credit**	
		THEORY			
1.	MA406/MA507/ MA402	Operation Research/Optimization Techniques/Modelling & Simulation	3-1-0	4	EGE-I2
2.	EE532	Robust and Adaptive Control	2-1*-0	3	C-I5
3.	EE534	Biomedical Instrumentation	3-0-0	3	C-I6
4.	EE536	Advance Transducer & Sensors	3-0-0	3	C-I7
5.		Specialized Elective- I	3-0-0	3	EDSE-I2
		PRACTICALS/PROJECT			
6.	EE598	Project	0-0-10	5	EDP-I1
7.	EE548	Biomedical & Virtual Instrumentation Lab	0-0-3	2	C-I8
8.	GP	General Proficiency	-	NC	
		Total		**23**	
		Total Contact Hours	**29**		

**Tutorial will be conducted in MATLAB programming lab and final exam will also be held in MATLAB programming lab*

SEMESTER-III					Course Type
S. No.	**Subject Code**	**Courses**	**L-T-P**	**Credit**	
		THEORY			
1.	EE631	Digital Instrumentation	3-1-0	4	C-I9
2.	EE633	Digital & Non-Linear Control	3-0-0	3	C-I10
3.		Specialized Elective-II	3-0-0	3	EDSE-I3
4.		Specialized Elective-III	3-0-0	3	EDSE-I4
		PRACTICALS/PROJECT			
5.	EE667	Digital & Non-Linear Control Lab	0-0-2	1	C-I11
6.	EE699	Dissertation-I	6*-0-3	8	EDP-I2
7.	GP	General Proficiency	-	NC	
		Total	-	**22**	
		Total Contact Hours	**24**		

**This will not be a usual lecture session, but this is one to one interaction of each student with the concerned faculty member*

SEMESTER-IV					Course Type
S. No.	**Subject Code**	**Courses**	**L-T-P**	**Credit**	
		PRACTICALS/PROJECT			
1.	EE698	Dissertation-II	-	22	EDP-I3
2.	GP	General Proficiency	-	NC	
		Total	-	**22**	
		Total Contact Hours	**22**		

Grand Total Credits = 90

Open Elective: Course offered from other school

List of Electives for M. Tech. (Instrumentation and Control)

Elective-I:

1. EE537: Calibration and Testing in Instrumentation
2. EE539: Nanomaterials & Applications
3. EE541: Hydraulic and Pneumatic Control
4. EE543: Embedded System
5. EE545: Advance Digital Signal Processing
6. EE547: Industrial Instrumentation & Control
7. EE549: Advance Microprocessors and Interfacing
8. EE551: Introduction to MEMS
9. EE589: Wavelet Methods in Engineering
10. M.Tech. (PED, I&C and RES)-I Sem and Int. B.Tech.+M.Tech./MBA-VII Sem Electives

Specialized Elective-I

1. EE538: Mechatronics
2. EE540: Computer Aided Design of Instrumentation System

3. EE542: Intelligent Instrumentation
4. EE544: Virtual Instrumentation
5. EE546: Environmental Instrumentation & Control
6. Specialized Electives I M. Tech. (PS, PED and RES)

Specialized Elective-II

1. EE635: Stochastic Control
2. EE637: Ultrasonic Instrumentation & Sensors
3. EE639: Digitized Automation and Control
4. EE641: Advance Sensors and Biomaterials
5. EE643: Transducer Technology
6. EE645: Data Acquisition & Signal Conditioning
7. EE647: Artificial Intelligence & Neural Networks
8. EE649: Advance Instrumentation and Process Control
9. EE651: Medical Image Processing
10. EE681: Soft Computing Techniques
11. Specialized Electives-II of M. Tech. (PS, PED & RES)

Specialized Elective-III

1. EE653: Digital Image Processing
2. EE655: Parallel Process & Real Time System
3. EE657: Opto-Electronics based Instrumentation
4. EE659: Robotics
5. EE661: SCADA Based Measurements
6. EE663: Electrical Engineering Management
7. EE665: Research Techniques and Methodology
8. Specialized Electives-III of M. Tech. (PS, PED & RES)

Nomenclature:

1. AEC: Ability Enhancement Courses
    - AEC-C: Ability Enhancement Courses Compulsory
    - SEC: Skill Enhancement Courses
2. CC: Core Courses
3. Elective Courses
    - E-DSE: Discipline Specific Elective
    - E-GE: Generic Elective
    - E-DP: Dissertation and Project