GITA Autonomous College, Bhubaneswar
Department of Electrical Engineering

Semester: 1ST	**Subject Name: Engineering Mathematics-I**	**Subject Code: 20BTTBS101**

	Course Outcomes
CO1	Identify, formulate and solve Engineering problems.
CO2	Acquire knowledge about Advance Calculus.
CO3	Acquire knowledge about Series solution of Differential equations.
CO4	Acquire knowledge about Gamma and Beta function.
CO5	Acquire knowledge about Laplace transform and apply it to solve IVP.

	CO-PO Mapping												CO-PSO Mapping		
Sl. No	**PO1**	**PO2**	**P03**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	3	3	2	2	×	×	×	×	×	×	×	×	2	3	×
CO2	2	2	2	2	×	×	×	×	×	×	×	×	2	3	×
CO3	3	3	3	2	×	×	×	×	×	×	×	×	3	2	×
CO4	2	2	2	2	×	×	×	×	×	×	×	×	1	3	×
CO5	2	3	3	3	×	×	×	×	×	×	×	×	2	2	×
Average	2.4	2.6	2.4	2.2									2	2.6	

‘3’High ‘2’ Moderate ‘1’ Low ‘-’ No Correlation

Overall CO Attainment									2.52						
PO Attainment	2.01	2.18	2.01	1.84									1.68	2.18	

GITA Autonomous College, Bhubaneswar
Department of Electrical Engineering

Semester: 1ST	**Subject Name:** ENGINEERING CHEMISTRY	**Subject Code: 20BTTBS103**

	Course Outcomes
CO1	Classify various fuels based on combustion parameters and understand the working principle of various batteries.
CO2	To understand the microstructure of a given alloy systems and eutectic systems under a given set of conditions.
CO3	Utilize the knowledge of electrochemistry and corrosion science in preventing engineering equipment from corrosion.
CO4	Apply the concept of molecular spectroscopy to analyse organic compounds using spectrophotometer.
CO5	Discuss the benefits and applications of Nano materials.

	CO-PO Mapping												CO-PSO Mapping		
Sl. No	**PO1**	**PO2**	**P03**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	3	3	3	3	3	2	2	-	-	-	2	2	3	3	-
CO2	3	3	3	3	3	2	1	-	-	-	2	2	3	3	-
CO3	2	2	2	2	1	-	-	-	-	-	1	1	2	3	-
CO4	3	3	3	2	2	1	1	-	-	-	1	1	2	2	-
CO5	3	2	2	1	-	-	-	-	-	-	-	-	1	1	-
Average	2.80	2.60	2.60	2.20	2.25	1.67	1.33	-	-	-	1.50	1.50	2.20	2.40	-

‘3’High ‘2’ Moderate ‘1’ Low ‘-’ No Correlation

Overall CO Attainment	2.46

PO Attainment	2.36	2.19	2.19	1.86	1.90	1.41	1.12	-	-	-	1.27	1.27	1.86	2.02	-

GITA Autonomous College, Bhubaneswar
Department of Electrical Engineering

Semester: 1ST	Subject Name: BASIC ELECTRONICS ENGINEERING	Subject Code: 20BTTES102

	Course Outcomes
CO1	Understand the working principles and applications of semiconductor diodes.
CO2	Analyse the operation, configurations, and biasing of BJTs.
CO3	Analyse the characteristics of FETs and feedback concepts in amplifiers and oscillators.
CO4	Understand the characteristics and applications of operational amplifiers.
CO5	Design and simplify digital circuits using Boolean algebra and logic gates.

	CO-PO Mapping												CO-PSO Mapping		
Sl. No	**PO1**	**PO2**	**P03**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	3	2	1	1	1	1	1	1	1	1	1	2	3	1	1
CO2	3	3	2	2	2	1	1	1	2	1	1	2	3	2	2
CO3	3	3	2	2	2	1	1	1	2	1	1	2	3	2	2
CO4	3	2	2	2	2	1	1	1	2	1	1	2	3	2	2
CO5	3	3	3	2	3	1	1	1	2	2	2	2	3	2	2
Average	3	2.6	2	1.8	2	1	1	1	1.8	1.2	1.2	2	3	1.8	1.8

‘3’High ‘2’ Moderate ‘1’ Low ‘-’ No Correlation

Overall CO Attainment									2.52						
PO Attainment	2.52	2.18	1.68	1.51	1.68	0.84	0.84	1.96	1.68	1.01	1.01	1.68	2.52	1.51	1.51

GITA Autonomous College, Bhubaneswar
Department of Electrical Engineering

Semester: 1ST	Subject Name: BASICS OF CIVIL ENGINEERING	Subject Code: 20BTTES104

	Course Outcomes
CO1	Able to understand the basics of civil engineering and fundamental aspects of building.
CO2	Able to get the brief overview of general aspect of building material.
CO3	Able to get brief idea about transportation modes and planning.
CO4	Able to get brief idea about drinking water standards and water treatment plant.
CO5	Able to get brief idea about irrigation network system.

	CO-PO Mapping												CO-PSO Mapping		
Sl. No	**PO1**	**PO2**	**P03**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	3	2	1	1	2	-	-	-	1	2	1	1	2	-	2
CO2	3	1	1	1	3	-	-	-	1	1	1	3	2	-	3
CO3	3	2	1	1	2	-	-	-	2	2	1	2	2	-	1
CO4	3	2	2	2	2	-	-	-	1	2	1	3	2	-	2
CO5	3	2	1	2	3	-	-	-	2	2	1	3	3	-	2

Average	3	1.8	1.2	1.4	2.4	-	-	-	1.4	1.8	1	2.4	2.2	-	2
'3'High			'2' Moderate					'1' Low				'-' No Correlation			
Overall CO Attainment									2.23						
PO Attainment	2.23	1.34	0.89	1.04	1.78	-	-	-	1.04	1.34	0.74	1.78	1.64	-	1.49

GITA Autonomous College, Bhubaneswar
Department of Electrical Engineering

Semester: 1ST	**Subject Name: Communicative English**	**Subject Code: 20BTTHS101**

	Course Outcomes
CO1	Enhance Verbal and Non-Verbal Communication Skills
CO2	Improve Technical and Business Writing Skills
CO3	Develop Listening and Comprehension Abilities
CO4	Strengthen Public Speaking and Presentation Skills
CO5	Enhance Workplace and Interpersonal Communication

	CO-PO Mapping												CO-PSO Mapping		
Sl. No	**PO1**	**PO2**	**P03**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	2	1	1	1	1	1	-	2	2	3	-	3	1	1	1

CO2	2	1	1	1	1	1	-	2	3	3	-	3	2	1	1
CO3	2	1	2	1	2	1	-	2	2	3	-	3	2	1	2
CO4	2	1	1	1	1	1	-	2	2	3	-	3	1	1	1
CO5	1	1	1	1	1	1	-	2	3	3	-	3	1	1	1
Average	**1.8**	**1**	**1.2**	**1**	**1.2**	**1**	**-**	**2**	**2.4**	**3**	**-**	**3**	**1.4**	**1**	**1.2**
'3'High			'2' Moderate					'1' Low				'-' No Correlation			
Overall CO Attainment									2.30						
PO Attainment	1.38	0.76	0.92	0.76	0.92	0.76	-	1.53	1.84	2.3	-	2.3	1.07	0.76	0.92

GITA Autonomous College, Bhubaneswar

Department of Electrical Engineering

Semester: 1ST	**Subject Name:** Engineering Chemistry Laboratory	**Subject Code:20BTPBS102**

	Course Outcomes
CO1	**Learn and apply basic techniques used in chemistry laboratory for small/large scale water analyses/purification**
CO2	**Be able to estimate the ions/metal ions present in domestic/industry waste water.**
CO3	**Utilize the fundamental laboratory techniques for analyses such as titrations, separation /purification and spectroscopy.**
CO4	**Test the quality of an oil/fat by measuring its iodine or acid value by means of amount of unsaturation**

	for various industrial use.														
CO5	**Verify quality of a lubricant by means of its viscosity or flash point which gives their nature & flammability for various industrial applications**														
	CO-PO Mapping												CO-PSO Mapping		
Sl. No	**PO1**	**PO2**	**P03**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	**2**	**1**	**1**	**-**	**-**	**2**	**2**	**-**	**2**	**2**	**2**	**1**	**2**	**3**	**-**
CO2	**2**	**2**	**2**	**-**	**-**	**1**	**3**	**-**	**2**	**1**	**2**	**1**	**1**	**3**	**-**
CO3	**1**	**1**	**1**	**-**	**-**	**1**	**2**	**-**	**2**	**1**	**1**	**1**	**2**	**1**	**-**
CO4	**2**	**2**	**2**	**-**	**-**	**2**	**2**	**-**	**2**	**2**	**2**	**2**	**2**	**1**	**-**
CO5	**1**	**1**	**1**	**-**	**-**	**1**	**3**	**-**	**2**	**2**	**1**	**2**	**2**	**1**	**-**
Average	**1.6**	**1.4**	**1.4**	**-**	**-**	**1.4**	**2.4**	**-**	**2**	**1.6**	**1.6**	**1.4**	**1.8**	**1.8**	**-**
‘3’High			‘2’ Moderate				‘1’ Low					‘-’ No Correlation			
Overall CO Attainment									2.42						
PO Attainment	1.29	1.13	1.13	-	-	1.13	1.94	-	1.61	1.29	1.29	1.13	1.45	1.45	-

GITA Autonomous College, Bhubaneswar

Department of Electrical Engineering

Semester: 1ST	**Subject Name:** BASIC ELECTRONICS ENGINEERING LAB	**Subject Code: 20BTPES102**
	Course Outcomes	

CO1	Familiarize with various electronic components, measuring instruments
CO2	Acquire knowledge of characteristics of diodes and design, testing
CO3	Acquire knowledge of characteristics of transistors and design, testing & implementation of transistors in various applications
CO4	Develop understanding of digital logic gates and design & test digital circuits for various applications using logic gates.
CO5	Gain understanding of operational amplifiers (Op-Amp) and design & testing of electronic circuits for various applications using Op-Amp.

	CO-PO Mapping												CO-PSO Mapping		
Sl. No	**PO1**	**PO2**	**P03**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	3	2	1	2	2	0	0	0	0	1	0	2	3	2	1
CO2	3	3	3	2	2	0	0	0	0	1	0	2	3	3	2
CO3	3	2	2	2	3	0	0	0	0	1	0	2	2	3	3
CO4	3	2	3	3	3	0	0	0	2	2	0	2	2	2	3
CO5	2	1	1	1	2	0	0	1	3	3	1	2	1	2	3
Average	2.8	**2**	**2**	2	2.4	0	0	0.2	1	1.6	0.2	2	2.2	2.4	2.4
‘3’High			‘2’ Moderate					‘1’ Low				‘-’ No Correlation			
Overall CO Attainment									2.54						
PO Attainment	2.37	1.69	1.69	1.69	2.03	-	-	0.16	0.84	1.35	0.16	1.69	1.86	2.03	2.03

GITA Autonomous College, Bhubaneswar
Department of Electrical Engineering

Semester: 1ST	**Subject Name: BASICS OF CIVIL ENGINEERING LAB**	**Subject Code: 20BTPES104**

	Course Outcomes
CO1	Perform Material Testing and Analysis.
CO2	Evaluate Cement and Concrete Properties.
CO3	Analyze Mechanical Properties of Reinforcement.
CO4	Apply Surveying Techniques for Linear and Angular Measurement.
CO5	Demonstrate Competence in Advanced Surveying Instruments.

	CO-PO Mapping												CO-PSO Mapping		
Sl. No	**PO1**	**PO2**	**P03**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	3	1	2	1	2	3	-	-	1	-	-	2	2	-	1
CO2	3	1	2	1	2	3	-	-	1	1	-	1	2	-	1
CO3	3	1	2	1	2	3	-	-	1	-	-	2	3	-	1
CO4	3	2	2	1	2	3	-	-	1	1	-	2	2	-	2
CO5	3	1	3	1	2	3	-	-	1	-	-	2	2	-	2
Average	3	1.2	2.2	1	2	3	-	-	1	0.4	-	1.8	2.2	-	1.4

‘3’High ‘2’ Moderate ‘1’ Low ‘-’ No Correlation

Overall CO Attainment									2.21						
PO Attainment	2.21	0.88	1.62	0.74	1.47	2.21	-	-	0.74	0.3	-	1.33	1.62	-	1.03

GITA Autonomous College, Bhubaneswar
Department of Electrical Engineering

Semester: 1ST	**Subject Name:** ENGINEERING GRAPHICS & DESIGN LAB	**Subject Code: 20BTPES105**

	Course Outcomes
CO1	Prepare and understand drawings.
CO2	Use the principles of orthographic projections.
CO3	By studying about projections of solids students will be able to visualize three dimensional objects and that will enable them to design new products.
CO4	Design and fabricate surfaces of different shapes.
CO5	Represent the objects in three dimensional appearances.

	CO-PO Mapping												CO-PSO Mapping		
Sl. No	**PO1**	**PO2**	**P03**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	3	1	2	1	2	3	-	-	1	-	-	2	2	-	1
CO2	3	1	2	1	2	3	-	-	1	1	-	1	2	-	1
CO3	3	1	2	1	1	3	-	-	1	-	-	2	3	-	1
CO4	3	2	2	1	1	3	-	-	1	1	-	2	2	-	2
CO5	3	1	3	1	1	3	-	-	1	-	-	2	2	-	2
Average	3	1.2	2.2	1	1.4	3	-	-	1	0.4	-	1.8	2.2	-	1.4

‘3’High ‘2’ Moderate ‘1’ Low ‘-’ No Correlation

Overall CO Attainment									2.2						
PO Attainment	2.22	0.89	1.63	0.74	1.04	2.22	-	-	0.74	0.3	-	1.33	1.63	-	1.04

GITA Autonomous College, Bhubaneswar
Department of Electrical Engineering

Semester: 1ST	Subject Name: English Language Lab	Subject Code: 20BTPHS101

	Course Outcomes
CO1	Understanding the sounds of English and using them in the right context. Write paragraphs, stories etc. using short and crisp sentences.
CO2	Listen, speak, read & write the sounds of English using correct stress, tone and rhythm
CO3	Introducing Self & Others- Learning the nuances of Introduction, Asking questions and Overcoming stage fright. Making Presentations- Power point Presentations
CO4	Learning and building soft skills for improving professionalism among students.
CO5	Imbibe the skills of critical appreciation of written content and draw conclusions on the given text.

	CO-PO Mapping												CO-PSO Mapping		
Sl. No	**PO1**	**PO2**	**P03**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	**0**	**0**	**0**	**0**	**0**	**2**	**2**	**2**	**3**	**3**	**3**	**2**	**0**	**0**	**2**
CO2	**0**	**0**	**0**	**0**	**0**	**2**	**2**	**2**	**3**	**3**	**3**	**2**	**0**	**0**	**2**
CO3	**0**	**0**	**0**	**0**	**0**	**2**	**2**	**2**	**3**	**3**	**3**	**3**	**0**	**0**	**2**
CO4	**0**	**0**	**0**	**0**	**0**	**2**	**2**	**2**	**3**	**3**	**3**	**2**	**0**	**0**	**2**
CO5	**0**	**0**	**0**	**0**	**0**	**2**	**2**	**2**	**3**	**3**	**3**	**2**	**0**	**0**	**2**
Average	**0**	**0**	**0**	**0**	**0**	**2**	**2**	**2**	**3**	**3**	**3**	**2.2**	**0**	**0**	**2**

‘3’High ‘2’ Moderate ‘1’ Low ‘-’ No Correlation

Overall CO Attainment	2.20

PO Attainment	0.00	0.00	0.00	0.00	0.00	1.47	1.47	1.47	2.20	2.20	2.20	1.61	0.00	0.00	1.47

GITA Autonomous College, Bhubaneswar
Department of Electrical Engineering

Semester: 2ND	Subject Name: ENGINEERING MATHEMATICS - II	Subject Code: 20BTTBS204

	Course Outcomes
CO1	Apply the knowledge of Mathematics in Physical sciences and Engineering.
CO2	Acquire knowledge of Double and Triple Integral and their applications in engineering subjects.
CO3	Acquire knowledge about Fourier series and Fourier transform.
CO4	Apply Knowledge vector calculus in engineering and physical sciences.
CO5	Acquire knowledge of Matrix Algebra, Determinants and their applications in engineering subjects.

	CO-PO Mapping												CO-PSO Mapping		
Sl. No	PO1	PO2	P03	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	3	2	×	×	×	×	×	×	×	×	3	2	×
CO2	2	2	2	2	×	×	×	×	×	×	×	×	1	1	×
CO3	2	2	2	2	×	×	×	×	×	×	×	×	1	1	×
CO4	2	2	2	2	×	×	×	×	×	×	×	×	1	1	×
CO5	3	3	3	2	×	×	×	×	×	×	×	×	3	2	×

Average	2.4	2.4	2.4	2	-	-	-	-	-	-	-	-	1.8	1.4	-
‘3’High			‘2’ Moderate				‘1’ Low					‘-’ No Correlation			
Overall CO Attainment									2.50						
PO Attainment	2	2	2	1.66									1.5	1.16	

GITA Autonomous College, Bhubaneswar
Department of Electrical Engineering

Semester: 2ND	**Subject Name:** ENGINEERING PHYSICS	**Subject Code: 20BTTBS202**

	Course Outcomes
CO1	Learn vibrations and oscillatory systems. It helps in understanding multiple oscillatory systems and complex oscillations. It adds in developing ideas of wave propagation and superposition principle
CO2	Know the benefits the understanding of light and its wave nature in different experimental demonstration of interference. Diffraction in solids will help in dealing with XRD and structure of materials.
CO3	Makea clarity of making out crystal structures and crystallography to learn about different materials and characteristics of solids.
CO4	Different LASER’S like Ruby, He-Ne and S.C. Lasers will help to develop multiple ideas of its application. Principle of optical fibres will help to know new generation optical fibres in communication systems
CO5	Gain some fundamental knowledge about electromagnetism. It will familiarize with some basic used in vector calculus prior to development of Maxwell’s electromagnetic wave equations & quantum mechanics.

	CO-PO Mapping												CO-PSO Mapping		
Sl. No	**PO1**	**PO2**	**P03**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	3	3	2	3	3	1	2					3			

CO2	3	2	1	3	2	2	1					2			
CO3	2	2	2	2	3	1	1					1			
CO4	3	2	1	2	1	2	1					2			
CO5	2	1	2	2	2	1	1					3			
Average	2.6	2	1.6	2.4	2.2	1.4	1.2					2.2	-	-	-
'3'High			'2' Moderate				'1' Low					'-' No Correlation			
Overall CO Attainment									2.52						
PO Attainment	2.18	1.68	1.34	2.01	2.2	1.17	1.008					1.84			

GITA Autonomous College, Bhubaneswar
Department of Electrical Engineering

Semester: 2ND	**Subject Name: Basic Electrical Engineering**	**Subject Code: 20BTTES201**

	Course Outcomes
CO1	Implement principles of DC network, theorems and fundamental concepts of electric circuit.
CO2	Analyze the concept of single phase AC circuit, Phasor relationship and correlate AC power.
CO3	Analyze and implement the concept of three phase power generation, three phase inter connections, three phase power and its measurement.
CO4	Express significance of magnetic circuits, applications, importance of magnetic losses in electrical machines, principles and applications of power transformers and auto transformers.

CO5	Apply basic principles of DC machines and their applications, concept of Induction machines.														
	CO-PO Mapping												CO-PSO Mapping		
Sl. No	**PO1**	**PO2**	**P03**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	2	1	3	2	3			-	-	-		1	3	2	-
CO2	3	2	1	3	2			-	-	-		2	3	3	-
CO3	2	1	3	2	3			-	-	-		1	3	2	-
CO4	3	2	1	2	3			-	-	-		2	3	3	-
CO5	2	1	2	2	3			-	-	-		1	2	2	-
Average	**2.40**	**1.40**	**2.00**	**2.20**	**2.80**			**-**	**-**	**-**		**1.40**	**2.80**	**2.40**	
'3'High			'2' Moderate					'1' Low				'-' No Correlation			
Overall CO Attainment									2.52						
PO Attainment	2.01	1.17	1.68	1.84	2.35							1.17	2..35	2.01	

GITA Autonomous College, Bhubaneswar

Department of Electrical Engineering

Semester: 2ND	**Subject Name: BASICS OF MECHANICAL ENGINEERING**	**Subject Code: 20BTTES203**

	Course Outcomes
CO1	To be able to understand fundamentals statics, friction, truss, CG and MI

CO2	To be able to principle of dynamics, work, energy, impact, rotational and curvilinear motion.
CO3	To be able to understand application of Thermodynamics,: I.C. Engines, Refrigerators and Steam Generators- Steam Power Plant, Steam Turbine
CO4	To be able to understand the application of Screw Threads, Nuts, Bolts & Rivets, Clutch and Gear Box and Braking System
CO5	To be able to understand Foundry Practices- Pattern, Mould & Casting, Mechanical working of metals - Sheet metal works.

	CO-PO Mapping												CO-PSO Mapping		
Sl. No	**PO1**	**PO2**	**P03**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	3	3	3	2	3	-	-	-	-	-	-	3	3	3	3
CO2	2	3	3	2	3	-	-	-	-	-	-	3	3	3	2
CO3	2	3	3	2	3	-	-	-	-	-	-	3	3	3	2
CO4	2	2	3	2	3	-	-	-	-	-	-	3	3	2	2
CO5	2	2	2	2	2	-	-	-	-	-	-	3	2	2	2
Average	**2.2**	**2.6**	**2.8**	**2**	**2.8**	**-**	**-**	**-**	**-**	**-**	**-**	**3**	**2.8**	**2.6**	**2.2**
'3'High			'2' Moderate				'1' Low				'-' No Correlation				
Overall CO Attainment									2.29						
PO Attainment	1.68	1.984	2.137	1.526	2.137	-	-	-	-	-	-	2.29	2.137	1.984	1.68

Semester: 2ND	Subject Name: ENGINEERING MECHANICS	Subject Code: 20BTTES205

	Course Outcomes
CO1	To analyze the forces and moments developed in structural members using the principle of equilibrium
CO2	To introduce the techniques for analyzing internal member forces acting on trusses and frames
CO3	To solve basic problems on centroid, moments of inertia, and the principle of virtual work
CO4	To apply Newton's law, D'alembert's principle for rectilinear and curvilinear motion.
CO5	To apply the kinematics of rotation, Equation of motion of a rotating body

	CO-PO Mapping												CO-PSO Mapping		
Sl. No	**PO1**	**PO2**	**P03**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	3	3	3	3	3	2	2	-	-	-	2	2	3	3	-
CO2	3	3	3	3	3	2	1	-	-	-	2	2	3	3	-
CO3	2	2	2	2	1	-	-	-	-	-	1	1	2	3	-
CO4	3	3	3	2	2	1	1	-	-	-	1	1	2	2	-
CO5	3	2	2	1	-	-	-	-	-	-	-	-	1	1	-
Average	**2.80**	**2.60**	**2.60**	**2.20**	**2.25**	**1.67**	**1.33**	**-**	**-**	**-**	**1.50**	**1.50**	**2.20**	**2.40**	**-**

‘3’High ‘2’ Moderate ‘1’ Low ‘-’ No Correlation

Overall CO Attainment	2.53

PO Attainment	**2.36**	**2.19**	**2.19**	**1.86**	**1.90**	**1.41**	**1.12**	**-**	**-**	**-**	**1.27**	**1.27**	**1.86**	**2.02**	**-**

GITA Autonomous College, Bhubaneswar
Department of Electrical Engineering

Semester: 2ND	Subject Name: Programming for problem solving using C	Subject Code: 20BTTES105

	Course Outcomes
CO1	Understand, translate and formulate the algorithms to programs (in C language).
CO2	Develop and built logic to solve problems through applying the fundamentals.
CO3	Apply modular programming approach and recursion mechanism to solve the complex problem.
CO4	Understand the memory program using pointer for problem solving.
CO5	Implement user defined data types and file concepts to develop various programs.

	CO-PO Mapping												CO-PSO Mapping		
Sl. No	**PO1**	**PO2**	**P03**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	3	3	2	2	-	-	-	-	-	-	-	3	3	2	2
CO2	3	3	2	2	3	-	-	-	-	-	-	3	3	3	2
CO3	3	3	3	2	3	-	-	-	-	-	-	3	3	2	2
CO4	3	3	3	2	3	-	-	-	-	-	-	3	2	2	2
CO5	2	3	3	2	2	-	-	-	-	-	-	3	2	3	2
Average	**2.8**	**3**	**2.6**	**2**	**2.75**	**-**	**-**	**-**	**-**	**-**	**-**	**3**	**2.6**	**2.4**	**2**

‘3’High ‘2’ Moderate ‘1’ Low ‘-’ No Correlation

Overall CO Attainment									2.54						
PO Attainment	2.37	2.54	2.20	1.69	2.32							2.54	2.20	2.03	1.69

GITA Autonomous College, Bhubaneswar
Department of Electrical Engineering

Semester: 2ND	**Subject Name:** BUSINESS COMMUNICATION AND LIFE SKILLS	**Subject Code: 20BTTHS202**

	Course Outcomes
CO1	Use English Language effectively in spoken and written forms
CO2	Comprehend the given texts and respond appropriately.
CO3	Communicate confidently in various contexts and different cultures.
CO4	Acquire basic proficiency in English including reading and listening comprehension, writing and speaking skills.
CO5	Understand various principles of communication, its various stages and the role of audience and purpose, deal with the barriers that affect communication in a professional set- up.

	CO-PO Mapping												CO-PSO Mapping		
Sl. No	**PO1**	**PO2**	**P03**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	-	-	-	-	-	2	2	3	3	3	2	3	-	-	2
CO2	-	-	-	-	-	2	1	3	3	3	2	3	-	-	2
CO3	-	-	-	-	-	2	2	3	3	3	2	3	-	-	2
CO4	-	-	-	-	-	-	2	2	3	3	2	2	-	-	2
CO5	-	-	-	-	-	-	2	3	3	3	2	2	-	-	2
Average	-	-	-	-	-	2.00	1.80	2.80	3.00	3.00	2.00	2.60	-	-	2.00

‘3’High ‘2’ Moderate ‘1’ Low ‘-’ No Correlation

Overall CO Attainment	2.40

PO	-	-	-	-	-	1.60	1.44	2.24	2.40	2.40	1.60	2.08	-	-	1.60

Attainment															

GITA Autonomous College, Bhubaneswar
Department of Electrical Engineering

Semester: 2ND	Subject Name: ENGINEERING PHYSICS LAB	Subject Code: 20BTPBS201

	Course Outcomes
CO1	Know the accuracy and precision in measurement
CO2	know how to calculate Young's modulus, rigidity modulus of a wire and to understand the concept of vibration mechanism
CO3	Determine the surface tension of liquid and to understand fluid properties.
CO4	To experiment with wave nature of light in diffraction through a grating and Newton's rings.
CO5	To know the variation of I ~V of PN junction and BJT.

	CO-PO Mapping												CO-PSO Mapping		
Sl. No	PO1	PO2	P03	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	1	1	1	1	1	0	0	0	0	0	**0**			
CO2	1	1	1	2	1	1	0	0	0	0	0	0			
CO3	2	2	2	2	1	0	0	0	0	0	0	0			
CO4	1	1	1	2	1	1	0	0	0	0	0	0			

CO5	3	3	2	2	0	0	0	0	0	0	0	0			
Average	1.6	1.6	1.4	1.8	0.8	0.6	0	0	0	0	0	0	-	-	-
'3'High			'2' Moderate				'1' Low				'-' No Correlation				
Overall CO Attainment									2.4						
PO Attainment	**1.28**	**1.28**	**1.12**	**1.44**	**0.64**	**0.48**									

GITA Autonomous College, Bhubaneswar
Department of Electrical Engineering

Semester: 2ND	**Subject Name:** BASIC ELECTRICAL ENGINEERING LAB	**Subject Code: 20BTPES201**

	Course Outcomes
CO1	Verify fundamental electrical theorems (Norton's, Thevenin's, and Superposition theorems) and analyze electrical circuits to solve practical problems.
CO2	Analyze the V-I characteristics of incandescent lamps, time-fusing current characteristics of fuses, and power measurements in three-phase systems using the two-wattmeter method.
CO3	Assemble, test, and measure the performance of electrical devices such as fluorescent lamps, single-phase energy meters, and transformers under no-load conditions.
CO4	Analyze series R-L-C circuits excited by AC supply to determine current, voltage, power, and power factor, and evaluate the results experimentally.
CO5	Demonstrate knowledge of house wiring, electrical safety rules, and grounding techniques, including the measurement of earth resistance using a megger.

	CO-PO Mapping												CO-PSO Mapping		
Sl. No	**PO1**	**PO2**	**P03**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	3	2	2	2	2	2	2	-	3	2	-	2	3	3	2
CO2	3	2	2	2	2	2	2	-	3	2	-	2	3	2	2
CO3	2	1	1	1	2	1	1	-	3	2	-	1	3	2	1
CO4	1	1	1	1	1	1	1	-	2	1	-	1	3	2	1
CO5	1	1	1	1	1	1	1	-	2	1	-	1	3	2	1
Average	**2**	**1.4**	**1.4**	**1.4**	**1.6**	**1.4**	**1.4**	**-**	**2.6**	**1.6**	**-**	**1.4**	**3**	**2.2**	**1.4**
'3'High			'2' Moderate					'1' Low				'-' No Correlation			
Overall CO Attainment									**1.96**						
PO Attainment	1.30	0.91	0.91	0.91	1.04	0.91	0.91		1.69	1.04		0.91	1.96	1.43	0.91

GITA Autonomous College, Bhubaneswar
Department of Electrical Engineering

Semester: 2ND	**Subject Name: BASICS OF MECHANICAL ENGINEERING LAB**	**Subject Code: 20BTPES203**

	Course Outcomes
CO1	To be able to understand different components and its function of an automobile.
CO2	To be able to understand different types of boiler and its construction
CO3	To be able to understand the principle of vapour compression refrigeration system

CO4	To be able to understand the different types of hydraulic turbine and pump and its construction.														
CO5	To be able to understand principle and working of different types of gear, clutch														
	CO-PO Mapping												CO-PSO Mapping		
Sl. No	**PO1**	**PO2**	**P03**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	2	2	2	2	2	-	-	-	3	3	2	-	3	2	-
CO2	2	2	2	2	2	-	-	-	3	3	2	-	3	2	-
CO3	2	1	2	1	1	-	-	-	3	3	2	-	2	2	-
CO4	1	1	1	1	1	-	-	-	3	2	1	-	2	1	-
CO5	1	1	1	1	1	-	-	-	2	2	1	-	2	1	-
Average	**1.6**	**1.4**	**1.6**	**1.4**	**1.4**	**-**	**-**	**-**	**2.8**	**2.6**	**1.6**	**-**	**2.4**	**1.6**	**-**
‘3’High			‘2’ Moderate					‘1’ Low				‘-’ No Correlation			
Overall CO Attainment									2.32						
PO Attainment	1.237	1.082	1.237	1.082	1.082	-	-	-	2.165	2.010	1.237	-	1.856	1.237	-

GITA Autonomous College, Bhubaneswar

Department of Electrical Engineering

Semester: 2ND	**Subject Name: WORKSHOP PRACTICE**	**Subject Code: 20BTPES206**

	Course Outcomes
CO1	To be able to use various fitting tools and able to perform fitting operation.
CO2	To be able to understand principle of gas welding and able to perform gas welding operation.
CO3	To be able to understand principle of arc welding and able to perform arc welding operation.
CO4	To be able to understand different parts of a lathe and able to perform turning, facing, threading, tapering using lathe.
CO5	To be able to understand different parts of a shaping and milling machine and able to perform shaping and milling operation.

	CO-PO Mapping												CO-PSO Mapping		
Sl. No	**PO1**	**PO2**	**P03**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	2	2	3	2	3	2	2	-	3	3	-	3	3	2	3
CO2	2	2	3	2	2	2	2	-	3	3	-	3	3	2	3
CO3	2	2	2	1	2	2	1	-	3	3	-	3	2	2	3
CO4	2	2	3	2	2	1	2	-	3	2	-	2	2	1	3
CO5	2	1	2	1	3	1	1	-	2	2	-	2	2	1	3
Average	**2**	**1.8**	**2.6**	**1.6**	**2.4**	**1.6**	**1.6**	**-**	**2.8**	**2.6**	**-**	**2.6**	**2.4**	**1.6**	**3**
‘3’High			‘2’ Moderate					‘1’ Low				‘-’ No Correlation			
Overall CO Attainment									2.42						
PO Attainment	1.61	1.45	2.09	1.29	1.93	1.29	1.29	-	2.25	2.09	-	2.09	1.93	1.29	2.42

GITA Autonomous College, Bhubaneswar
Department of Electrical Engineering

Semester: 2ND	**Subject Name:** PROGRAMMING FOR PROBLEM SOLVING USING C LAB	**Subject Code: 20BTPES207**

	Course Outcomes
CO1	Develop the ability to write, compile, execute, and debug C programs using operators, condi tements, and loops.
CO2	Perform operations on arrays, strings, and matrices, including searching, sorting, and manipulation using functions
CO3	Apply the concepts of user-defined functions and recursion to solve complex programming problems
CO4	Implement advanced programming constructs such as structures, dynamic memory management, and linked lists
CO5	Demonstrate file handling, command-line arguments, and pre-processor directives for efficient program execution.

	CO-PO Mapping												CO-PSO Mapping		
Sl. No	**PO1**	**PO2**	**P03**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	2	2	-	2	3	-	-	-	3	3	-	2	3	3	3
CO2	2	2	-	2	3	-	-	-	3	3	-	2	3	3	3
CO3	2	1	-	2	3	-	-	-	3	3	-	2	3	2	3
CO4	1	1	-	1	3	-	-	-	2	3	-	2	3	2	3
CO5	1	1	-	1	2	-	-	-	2	2	-	2	3	2	2
Average	**1.6**	**1.4**	**-**	**1.6**	**2.8**	**-**	**-**	**-**	**2.6**	**2.8**	**-**	**2**	**3**	**2.4**	**2.8**

‘3’High ‘2’ Moderate ‘1’ Low ‘-’ No Correlation

Overall CO Attainment	2.50

PO Attainment	1.33	1.16	-	1.33	2.33				2.16	2.33		1.66	2.5	2	2.33

GITA Autonomous College, Bhubaneswar
Department of Electrical Engineering

Semester: 3RD	Subject Name: Engineering Mathematics III	Subject Code: 20BTTBS305

	Course Outcomes
CO1	Understand briefly how to get approximation solution of the problems related to engineering, where we don't have adequate information about analytic solution and classical solution.
CO2	Know about interpolation. Enhance this idea towards numerical integration.
CO3	Solve Initial value Problem and Boundary value problem using single step and multistep method.
CO4	Acquire knowledge about algebra of probability, random variable , probability distributions, Expectation, variance and standard deviation.
CO5	Acquire knowledge about point estimation, interval of estimation, testing hypothesis, regression analysis and statistical quality control.

	CO-PO Mapping												CO-PSO Mapping		
Sl. No	**PO1**	**PO2**	**P03**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	3	3	3	3	×	×	×	×	×	×	×	×	2	2	×
CO2	2	2	2	2	×	×	×	×	×	×	×	×	1	2	×
CO3	2	2	2	2	×	×	×	×	×	×	×	×	2	2	×
CO4	3	3	2	2	×	×	×	×	×	×	×	×	2	2	×
CO5	2	2	2	2	×	×	×	×	×	×	×	×	2	2	×
Average	2.4	2.4	2.2	2.2	-	-	-	-	-	-	-	-	1.8	2	

'3'High '2' Moderate '1' Low '-' No Correlation

Overall CO Attainment	2.50

PO Attainment	2	2	1.83	1.83									1.5	1.66	

GITA Autonomous College, Bhubaneswar
Department of Electrical Engineering

Semester: 3RD	Subject Name: Data structure Using C	Subject Code: 20BTTES307

	Course Outcomes
CO1	Analyse performance of algorithms and implement various operations on array and sparse matrix.
CO2	Apply the basic operations of stacks and queues to solve real world problems.
CO3	Implement different types of linked list operations and their applications.
CO4	Represent data using trees & graphs to use them in various real life applications.
CO5	Analyse various sorting algorithms and explore different hashing techniques.

	CO-PO Mapping												CO-PSO Mapping		
Sl. No	**PO1**	**PO2**	**P03**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	3	3	3	2	2	1	1	1	1	1	1	3	2	2	3
CO2	3	2	3	2	3	1	1	1	1	1	1	3	3	3	3
CO3	3	2	3	3	3	1	1	1	1	1	1	3	3	3	3
CO4	3	3	3	3	3	1	1	1	1	1	1	3	3	3	3
CO5	3	2	3	3	2	1	1	1	1	1	1	3	3	3	3
Average	3	2.4	3	2.6	2.6	1	1	1	1	1	1	3	2.8	2.8	3

‘3’High ‘2’ Moderate ‘1’ Low ‘-’ No Correlation

Overall CO Attainment	2.50

PO Attainment	2.5	2	2.5	2.16	2.16	0.833	0.833	0.833	0.833	0.833	0.833	2.5	2.33	2.33	2.5

GITA Autonomous College, Bhubaneswar
Department of Electrical Engineering

Semester: 3RD	**Subject Name: Organisational Behaviour**	**Subject Code: 20BTTHS3O3**

	Course Outcomes
CO1	Demonstrate the applicability of the concept of organizational behavior to understand the behavior of people in the organization.
CO2	Demonstrate the applicability of analyzing the complexities associated with management of individual behavior in the organization.
CO3	Analyze the complexities associated with management of the group behavior in the organization.
CO4	Demonstrate how the organizational behavior can integrate in understanding the motivation behind behavior of people in the organization.
CO5	Analyze the various stressors and identifying the various ways to manage it.

	CO-PO Mapping												CO-PSO Mapping		
Sl. No	**PO1**	**PO2**	**P03**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	-	-	-	-	-	-	2	1	2	2	2	1	-	-	1

CO2	-	-	-	-	-	-	2	2	2	1	1	1	-	-	1
CO3	-	-	-	-	-	-	1	2	1	2	1	2	-	-	1
CO4	-	-	-	-	-	-	1	2	1	1	1	2	-	-	1
CO5	-	-	-	-	-	-	2	1	1	1	1	2	-	-	1
Average	-	-	-	-	-	-	2	1	2	2	2	1	-	-	1
'3'High			'2' Moderate					'1' Low				'-' No Correlation			
Overall CO Attainment									2.34						
PO Attainment	-	-	-	-	-	-	1.56	0.78	1.56	1.56	1.56	0.78	-	-	0.78

GITA Autonomous College, Bhubaneswar

Department of Electrical Engineering

Semester: 3RD	**Subject Name: Network Theory**	**Subject Code:** 20BTEETPC301

	Course Outcomes
CO1	Apply concepts of network theorems and coupled circuits in solving complex networks problems and frequency response and analysis of different resonant circuits
CO2	Understand the switching phenomena of electrical circuits and evaluate transient and Steady State performance using Laplace Transformation
CO3	Determine two-port network parameters and their practical application to electrical and electronic circuits.

CO4	Analyse sinusoidal & non-sinusoidal signals using Fourier series and transform, identify &design various filters and examine their frequency response.														
CO5	Identify Network Functions and synthesize one port network using Foster and Cauer forms.														
	CO-PO Mapping												CO-PSO Mapping		
Sl. No	**PO1**	**PO2**	**P03**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	3	3	1	1	1	2			2	1		2	2		
CO2	3	3	2	1	1	2			2	1		2	2		
CO3	3	3	2	2	1	2			3	1		2	2		
CO4	3	3	2	1	1	1			2	2		1	3		
CO5	3	3	3	2	2	3			3	1		2	3		
Average	**3.00**	**3.00**	**2.00**	**1.40**	**1.20**	**2.00**			**2.4**	**1.2**		**1.80**	**2.40**	**-**	**-**
‘3’High			‘2’ Moderate					‘1’ Low				‘-’ No Correlation			
Overall CO Attainment									2.87						
PO Attainment	**2.87**	**2.87**	**1.91**	**1.34**	**1.15**	**1.91**			2.296	1.148		**1.72**	**2.30**		

GITA Autonomous College, Bhubaneswar

Department of Electrical Engineering

Semester: 3RD	**Subject Name: Analog Electronics Circuit**	**Subject Code: 20BTEETPC3O2**

	Course Outcomes
CO1	To analyses different biasing configurations and its applications
CO2	To study the different modelling of BJTs and FETs.
CO3	To study the high frequency and low frequency analysis.
CO4	To study the oscillators ,power amplifiers and their applications in electronics
CO5	Design and analysis of different types of power amplifiers and tuned amplifiers.

	CO-PO Mapping												CO-PSO Mapping		
Sl. No	**PO1**	**PO2**	**P03**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	3	3	3	3	3	2	2	-	-	-	2	2	3	3	-
CO2	3	3	3	3	3	2	1	-	-	-	2	2	3	3	-
CO3	2	2	2	2	1	-	-	-	-	-	1	1	2	3	-
CO4	3	3	3	2	2	1	1	-	-	-	1	1	2	2	-
CO5	3	2	2	1	-	-	-	-	-	-	-	-	1	1	-
Average	**2.80**	**2.60**	**2.60**	**2.20**	**2.25**	**1.67**	**1.33**	**-**	**-**	**-**	**1.50**	**1.50**	**2.20**	**2.40**	**-**
‘3’High			‘2’ Moderate				‘1’ Low					‘-’ No Correlation			
Overall CO Attainment									2.54						
PO Attainment	2.37	2.20	2.20	1.86	1.90	1.41	1.12				1.27	1.27	1.86	2.03	

GITA Autonomous College, Bhubaneswar
Department of Electrical Engineering

Semester: 3RD	Subject Name: Universal Human Values	Subject Code: 20BTTHS305

	Course Outcomes
CO1	Moe aware of themselves and their surroundings(family,society,nature).
CO2	They would become more responsible in life and in handling problems with sustainable solutions, while keeping human relationships and human nature in mind.
CO3	They would have better critical and analytical ability and sense of living in harmony.
CO4	They would also become sensitive to their commitment towards what they have understood(human values, human relationship and human society).
CO5	They would be ale to apply what they have learnt to their own self in different day to day settings in real life, at least a beginning would be made in this direction.

	CO-PO Mapping												CO-PSO Mapping		
Sl. No	**PO1**	**PO2**	**P03**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	2	1	1	-	1	-	-	-	-	-	-	-	-	1	-
CO2	2	2	1	1	-	-	-	-	-	-	-	-	-	2	-
CO3	2	2	2	1	-	-	-	-	-	-	-	-	-	1	-
CO4	3	-	1	-	-	-	-	-	-	-	-	-	-	1	-
CO5	2	1	2	-	-	-	-	-	-	-	-	-	-	1	-
Average	2.2	**1.2**	**1.4**	0.4	0.2	-	-	-	-	-	-	-	-	1.2	-
‘3’High			‘2’ Moderate				‘1’ Low					‘-’ No Correlation			
Overall CO Attainment									2.4						
PO Attainment	1.76	0.96	1.12	0.32	0.16	-	-	-	-	-	-	-	-	0.96	-

GITA Autonomous College, Bhubaneswar
Department of Electrical Engineering

Semester: 3RD	Subject Name: Environmental Science	Subject Code: 20BTTMC301

	Course Outcomes
CO1	Apply concepts of ecology, eco systems, food chain and biogeochemical cycles for better understanding of functions of the environment.
CO2	Understand environmental gradients, tolerance levels and environmental laws for preventionof environmental pollution.
CO3	Enhance knowledge of water and wastewater treatment for prevention of water pollution.
CO4	Understand the chemistry of pollutants in the atmosphere, soil and groundwater andunderstand principles of noise abatement.
CO5	Enhance knowledge of waste minimization technique to minimize and manage solid,hazardous wastes generated in different areas.

	CO-PO Mapping												CO-PSO Mapping		
Sl. No	**PO1**	**PO2**	**P03**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	1	-	-	-	-	2	3	1	2	-	1	-	-	2	-
CO2	1	-	-	-	-	3	3	3	2	-	1	-	-	2	-
CO3	1	-	-	-	-	2	2	2	2	-	1	-	-	2	-
CO4	1	-	-	-	-	1	2	1	1	-	1	-	-	2	-
CO5	1	--	--	--	--	2	3	1	2	--	1	--	--	2	--
Average	1	-	-	-	-	2.2	2.6	2.4	2.2	-	1	-	-	2	-

‘3’High ‘2’ Moderate ‘1’ Low ‘-’ No Correlation

Overall CO Attainment									2.40						
PO Attainment	0.8	-	-	-	-	1.76	2.08	1.92	1.76	-	0.8	-	-	1.6	-

GITA Autonomous College, Bhubaneswar
Department of Electrical Engineering

Semester: 3RD	**Subject Name: Network Theory Lab**	**Subject Code: 20BTEEPPC301**

	Course Outcomes
CO1	Analyze and verify fundamental network theorems such as Thevenin's theorem, Norton's theorem, Superposition theorem, and Maximum Power Transfer theorem to understand circuit behaviour.
CO2	Evaluate the frequency response of resonant circuits by verifying the characteristics of series and parallel resonance and determining their applications in signal processing.
CO3	Design and test passive filter circuits including low-pass, high-pass, band-pass, and band-reject filters by analyzing their gain vs. frequency characteristics for signal conditioning applications.
CO4	Investigate and determine network parameters such as Z, Y, ABCD, hybrid, and conductance parameters for two-port networks to understand their role in communication and control systems.
CO5	Measure the coefficient of coupling in a single-phase transformer to analyze its impact on transformer performance and efficiency in electrical power transmission and distribution systems.

	CO-PO Mapping												CO-PSO Mapping		
Sl. No	**PO1**	**PO2**	**P03**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	3	3	2	3	2	-	-	-	-	-	-	2	3	2	-
CO2	3	3	3	3	2	-	-	-	-	-	-	2	3	3	-
CO3	3	3	3	3	3	-	-	-	-	-	-	2	3	3	-
CO4	3	3	2	3	3	-	-	-	-	-	-	3	3	3	-

CO5	3	3	2	3	2	-	-	-	-	-	-	3	3	3	-
Average	**3**	**3**	**2.4**	**3**	**2.4**	-	-	-	-	-	-	**2.4**	**3**	**2.8**	-
'3'High			'2' Moderate					'1' Low				'-' No Correlation			
Overall CO Attainment									2.16						
PO Attainment	**2.16**	**2.16**	**1.72**	**2.16**	**1.728**	-	-	-	-	-	-	**1.728**	**2.16**	**2.016**	

GITA Autonomous College, Bhubaneswar
Department of Electrical Engineering

Semester: 3RD	**Subject Name: Analog Electronic Circuits Lab**	**Subject Code: 20BTEEPPC302**

	Course Outcomes
CO1	Design, assemble and test BJT biasing circuits.
CO2	Analyze the Dc and Ac performance of BJT and FET.
CO3	Understand the frequency response of single & multi-stage BJT and compare the results.
CO4	Study operational amplifier and its various applications.
CO5	Analyze and design various wave shaping circuits

	CO-PO Mapping												CO-PSO Mapping		
Sl. No	**PO1**	**PO2**	**P03**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	2	3	2	2	3	-	2	2	3	2	3	2	3	2	3
CO2	3	2	2	2	2	-	2	2	2	2	2	3	3	2	3
CO3	3	3	3	2	2	-	2	2	2	2	2	3	2	1	3

CO4	3	3	3	3	3	-	2	-	2	3	3	3	3	2	2
CO5	3	3	3	3	3	-	2	-	2	3	3	2	3	2	2
Average	2.8	2.8	2.6	2.4	2.6	0	2	2	2.2	2.4	2.6	2.6	2.8	1.8	2.6
'3'High			'2' Moderate				'1' Low					'-' No Correlation			
Overall CO Attainment									2.52						
PO Attainment	2.35	2.35	2.18	2.01	2.18		1.68	1.68	1.84	2.01	2.18	2.18	2.35	1.51	2.18

GITA Autonomous College, Bhubaneswar
Department of Electrical Engineering

Semester: 3RD	**Subject Name: Data Structures Using C Lab**	**Subject Code: 20BTPES308**
	Course Outcomes	
CO1	Understand and implement basic data structures like arrays, linked lists, stacks, and queues.	
CO2	Develop and analyze algorithms for sorting and searching operations.	
CO3	Apply dynamic memory management techniques for optimized data handling	
CO4	Implement tree and graph data structures for real-world applications.	
CO5	Develop efficient algorithms for engineering applications using C programming.	
	CO-PO Mapping	CO-PSO Mapping

Sl. No	PO1	PO2	P03	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	2	2	3	1	1	1	2	2	1	3	3	2	1
CO2	3	3	3	2	3	1	1	1	2	2	1	3	3	3	2
CO3	3	3	3	3	3	1	1	1	2	2	1	3	3	3	2
CO4	3	3	3	3	3	1	1	1	2	2	1	3	3	3	3
CO5	3	3	3	3	3	1	1	1	2	2	2	3	3	3	3
Average	**3**	**3**	**2.8**	**2.6**	**3**	**1**	**1**	**1**	**2**	**2**	**1.2**	**3**	**3**	**2.8**	**2.2**
'3'High			'2' Moderate				'1' Low				'-' No Correlation				
Overall CO Attainment									2.45						
PO Attainment	2.45	2.45	2.28	2.12	2.45	0.81	0.81	0.81	1.63	1.63	0.98	2.45	2.45	2.28	1.79

GITA Autonomous College, Bhubaneswar

Department of Electrical Engineering

Semester: 3RD	**Subject Name:** Employability Skill I	**Subject Code:** 20BTEEPPC303

	Course Outcomes
CO1	Use grammar and vocabulary in appropriate context

CO2	Comprehend the given texts and respond appropriately.
CO3	Communicate confidently in various contexts and different cultures.
CO4	Acquire basic proficiency in English including reading and listening comprehension, writing and speaking skills.
CO5	Understand the nuances of the placement procedure and perform at placement tests effectively

	CO-PO Mapping												CO-PSO Mapping		
Sl. No	**PO1**	**PO2**	**P03**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	-	-	-	-	-	2	2	3	3	3	2	3	-	-	2
CO2	-	-	-	-	-	2	1	3	3	3	2	3	-	-	2
CO3	-	-	-	-	-	2	2	3	3	3	2	3	-	-	2
CO4	-	-	-	-	-	-	2	2	3	3	2	2	-	-	2
CO5	-	-	-	-	-	-	2	3	3	3	2	2	-	-	2
Average	-	-	-	-	-	2.00	1.80	2.80	3.00	3.00	2.00	2.60	-	-	2.00
'3'High			'2' Moderate					'1' Low				'-' No Correlation			
Overall CO Attainment									2.52						
PO Attainment	-	-	-	-	-	1.68	1.51	2.35	2.52	2.52	1.68	2.18	-	-	1.68

Semester: 4TH	Subject Name: Digital Electronics Circuits	Subject Code: 20BTEETPC404

	Course Outcomes
CO1	To understand working of logic families and logic gates
CO2	To design and implement combinational and sequential logic gates
CO3	To understand the process of analogue to digital conversion and digital to analogue conversion
CO4	To become able to use programmable logic devices to implement the given logic problem
CO5	To become able to reduce POS to SOP and vice versa using K-Map

	CO-PO Mapping												CO-PSO Mapping		
Sl. No	**PO1**	**PO2**	**P03**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	3	3	3	3	3	2	2	-	-	-	2	2	3	3	-
CO2	3	3	3	3	3	2	1	-	-	-	2	2	3	3	-
CO3	2	2	2	2	1	-	-	-	-	-	1	1	2	3	-
CO4	3	3	3	2	2	1	1	-	-	-	1	1	2	2	-
CO5	3	2	2	1	-	-	-	-	-	-	-	-	1	1	-
Average	1.5	2.6	2.6	2.2	2.25	1.66	1.33				1.5	1.5	2.2	2.4	-

'3'High '2' Moderate '1' Low '-' No Correlation

Overall CO Attainment	2.32

PO Attainment	1.16	2.01	2.01	1.70	1.74	1.28	1.03				**1.16**	**1.16**	**1.70**	**1.86**	**-**

GITA Autonomous College, Bhubaneswar
Department of Electrical Engineering

Semester: 4TH	Subject Name: ENGINEERING ECONOMICS AND COSTING	Subject Code: 20BTTH54O4

	Course Outcomes
CO1	Evaluate the economic theories, cost concepts and pricing policies
CO2	Understand the measures of national income, the functions of banks and concepts of globalization
CO3	Apply the concepts of financial management for project appraisal
CO4	Understand accounting systems and analyze financial statements using ratio analysis
CO5	Understand the impact of inflation, taxation, depreciation. Financial planning, economic basis for replacement, project scheduling, and legal and regulatory issues are introduced and applied to economic investment and project-management problems

	CO-PO Mapping												CO-PSO Mapping		
Sl. No	**PO1**	**PO2**	**P03**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1							2	1	2	2	2	1			1
CO2							2	2	2	1	1	1			1
CO3							1	2	1	2	1	2			1
CO4							1	2	1	1	1	2			1
CO5							2	1	1	1	1	2			1
Average							1.6	1.6	1.4	1.4	1.2	1.6	-	-	1

‘3’High ‘2’ Moderate ‘1’ Low ‘-’ No Correlation

Overall CO Attainment	2.42

PO Attainment	-	-	-	-	-	-	1.29	1.29	1.4	1.4	0.96	1.29	-	-	0.80

GITA Autonomous College, Bhubaneswar
Department of Electrical Engineering

Semester: 4TH	**Subject Name: Electrical Machines–I**	**Subject Code: 20BTEETPC405**

	Course Outcomes
CO1	Apply the knowledge on the basic concepts electromechanical energy conversion.
CO2	Understand the constructional features and winding and operating principle of dc motor.
CO3	Analyze the performance like speed control, starting braking characteristics and uses of dc machine
CO4	Analyze the performance construction of single phase of transformer. both single phase & three phase
CO5	Understand the different vector group of 3 phase transformer.

	CO-PO Mapping												CO-PSO Mapping		
Sl. No	**PO1**	**PO2**	**P03**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	3	3	2	3	2	1		-	-	-		1	2	2	3
CO2	3	3	3	3	2	2		-	-	-		1	3	3	3
CO3	3	3	2	3	2	1		-	-	-		2	3	1	3
CO4	2	2	2	2	2	2		-	-	-		1	2	2	2
CO5	2	2	2	2	2	1		-	-	-		2	2	2	2
Average	**2.60**	**2.60**	**2.20**	**2.60**	**2.00**	**1.40**		**-**	**-**	**-**		**1.40**	**2.40**	**2.00**	**2.6**
‘3’High			‘2’ Moderate					‘1’ Low					‘-’ No Correlation		
Overall CO Attainment									2.38						
PO Attainment	2.06	2.06	1.74	2.06	1.58	1.11	-	-	-	-	-	1.11	1.90	1.58	2.06

GITA Autonomous College, Bhubaneswar
Department of Electrical Engineering

Semester: 4TH	Subject Name: ELECTRICAL MEASUREMENT AND MEASURING INSTRUMENTS	Subject Code: 20BTEETPC406

	Course Outcomes
CO1	Identify the instrument suitable for accurate and precise measurement of current, voltage, power and energy with their construction, theory and operating principle.
CO2	Estimate accurately the values of R, L and C employing suitable bridges.
CO3	Understand the construction, theory and working of Potentiometers and Instrument Transformers and their applications.
CO4	Understand the working of electronics instruments.
CO5	Learn the working principle of Oscilloscope.

	CO-PO Mapping												CO-PSO Mapping		
Sl. No	**PO1**	**PO2**	**P03**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	3	2	1	1	3	–	–	–	1	2	1	2	3	2	2
CO2	3	3	2	2	2	–	–	–	2	2	1	2	3	2	2
CO3	3	2	2	2	2	–	–	–	1	2	1	2	3	2	2
CO4	3	2	1	1	3	–	–	–	1	2	1	2	3	2	2
CO5	2	1	1	1	3	–	–	–	1	2	1	2	2	1	1
Average	**2.80**	**2.00**	**1.40**	**1.40**	**2.60**	**-**	**-**	**-**	**1.2**	**2.00**	**1.00**	**2.00**	**2.80**	**1.80**	**1.80**

'3'High	'2' Moderate	'1' Low	'-' No Correlation

Overall CO Attainment									2.55						
PO Attainment	**2.38**	**1.7**	**1.19**	**1.19**	**2.21**				**1.02**	**1.7**	**0.85**	**1.7**	**2.38**	**1.53**	**1.53**

GITA Autonomous College, Bhubaneswar
Department of Electrical Engineering

Semester: 4TH	**Subject Name: ELECTRO MAGNETIC THEORY**	**Subject Code: 20BTEETPC4O7**

	Course Outcomes
CO1	Explain various co-ordinate systems and solve problems involving vector calculus.
CO2	Describe electrostatic fields, their characteristics and associated parameters
CO3	Visualize magneto-static fields, their characteristics and associated parameters.
CO4	Analyze and apply Maxwell's equations to various electromagnetic fields
CO5	Interpret the propagation of EM waves through different mediums

	CO-PO Mapping											CO-PSO Mapping		
Sl. No	**PO1**	**PO2**	**P03**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	**3**	**3**	**3**	**3**	**2**	**2**		-	-	-		**2**	**3**	**3**	**3**
CO2	**3**	**3**	**3**	**3**	**2**	**1**		-	-	-		**2**	**2**	**2**	**3**
CO3	**2**	**2**	**2**	**2**	**2**	**1**		-	-	-		**2**	**3**	**2**	**2**

CO4	**2**	**3**	**3**	**2**	**2**	**1**		-	-	-		**1**	**2**	**2**	**2**
CO5	**3**	**2**	**1**	**2**	**2**	**2**		-	-	-		**2**	**2**	**2**	**3**
Average	**2.60**	**2.60**	**2.40**	**2.40**	**2.00**	**1.40**		**-**	**-**	**-**		**1.80**	**2.40**	**2.20**	**2.6**
'3'High			'2' Moderate					'1' Low				'-' No Correlation			
Overall CO Attainment									2.35						
PO Attainment	2.03	2.03	1.88	1.88	1.56	1.09	-	-	-	-	-	1.41	1.88	1.72	2.03

GITA Autonomous College, Bhubaneswar
Department of Electrical Engineering

Semester: 4TH	**Subject Name: Constitution of India**	**Subject Code:** 20BTTMC402

	Course Outcomes	
CO1	Understand the significance of the Constitution and its role in shaping the governance of India.	
CO2	Gain knowledge of fundamental rights, duties, and directive principles of state policy.	
CO3	Analyze the structure of the Indian government and judiciary system.	
CO4	Apply constitutional principles to professional and ethical responsibilities.	
CO5	Recognize the legal and regulatory framework relevant to engineering and industrial laws.	
	CO-PO Mapping	CO-PSO Mapping

Sl. No	PO1	PO2	P03	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	-	-	-	-	-	3	2	3	2	2	-	2	-	-	-
CO2	-	-	-	-	-	3	2	1	2	2	-	1	-	-	-
CO3	-	-	-	-	-	3	2	3	1	1	-	1	-	-	-
CO4	-	-	-	-	-	3	1	2	1	1	-	2	-	-	-
CO5	-	-	-	-	-	3	1	2	1	2	-	1	-	-	-
Average	**-**	**-**	**-**	**-**	**-**	**3**	**1.6**	**2.2**	**1.4**	**1.6**	**-**	**1.4**	**-**	**-**	**-**
'3'High			'2' Moderate					'1' Low				'-' No Correlation			
Overall CO Attainment									2.12						
PO Attainment	-	-	-	-	-	2.12	1.13	1.55	0.98	1.13	-	0.98	-	-	-

GITA Autonomous College, Bhubaneswar
Department of Electrical Engineering

Semester: 4TH	**Subject Name: Digital Signal Processing**	**Subject Code: 20BTEETOE401**

	Course Outcomes
CO1	Explain different types of signals and analyze various types of LSI systems responses.
CO2	Investigate the systems stability and causality using Z-Transform

CO3	Analyze discrete signals and systems using DFT technique.
CO4	Realize different structures of FIR and IIR discrete time systems
CO5	Design IIR and FIR filters using various techniques.

	CO-PO Mapping												CO-PSO Mapping		
Sl. No	**PO1**	**PO2**	**P03**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	3	3	3	3	3	2	2	-	-	-	2	2	3	3	-
CO2	3	3	3	3	3	2	1	-	-	-	2	2	3	3	-
CO3	2	2	2	2	1	-	-	-	-	-	1	1	2	3	-
CO4	3	3	3	2	2	1	1	-	-	-	1	1	2	2	-
CO5	3	2	2	1	-	-	-	-	-	-	-	-	1	1	-
Average	**2.80**	**2.60**	**2.60**	**2.20**	**2.25**	**1.67**	**1.33**	**-**	**-**	**-**	**1.50**	**1.50**	**2.20**	**2.40**	**-**

‘3’High ‘2’ Moderate ‘1’ Low ‘-’ No Correlation

Overall CO Attainment									2.52						
PO Attainment	2.35	2.18	2.18	1.84	1.89	1.40	1.11				1.26	1.26	1.84	2.01	

GITA Autonomous College, Bhubaneswar

Department of Electrical Engineering

Semester: 4th	**Subject Name: Electrical Machines-1 Lab**	**Subject Code:**

		20BTEEPPC403

	Course Outcomes
CO1	Determine different characteristics of DC generator
CO2	Determine efficiency of DC shunt motor.
CO3	Determine efficiency and voltage regulation of single phase transformer and scott connection of two transformers.
CO4	Determine various speed control techniques of DC shunt motor.
CO5	Know the connection and parallel operation of transformers.

	CO-PO Mapping												CO-PSO Mapping		
Sl. No	**PO1**	**PO2**	**P03**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	**2**	**3**	**2**	**3**	**3**	**2**	**1**	-	**1**	-	-	**2**	**3**	**2**	**3**
CO2	**2**	**2**	**2**	**2**	**2**	**1**	**1**	-	**1**	-	-	**1**	**3**	**2**	**2**
CO3	**3**	**2**	**2**	**2**	**2**	**1**	**1**	-	**1**	-	-	**1**	**3**	**2**	**3**
CO4	**3**	**3**	**3**	**2**	**1**	**1**	**1**	-	**1**	-	-	**1**	**3**	**2**	**2**
CO5	**2**	**2**	**3**	**3**	**3**	**2**	**1**	-	**1**	-	-	**2**	**3**	**2**	**3**
Average	2.4	2.4	2.4	2.4	2.2	1.4	1	-	1	-	-	1.4	3	2	2.6
'3'High			'2' Moderate				'1' Low					'-' No Correlation			
Overall CO Attainment									1.55						
PO Attainment	**1.24**	**1.24**	**1.24**	**1.24**	**1.14**	**0.72**	**0.52**		**0.52**			**0.72**	**1.55**	**1.03**	**1.34**

GITA Autonomous College, Bhubaneswar
Department of Electrical Engineering

Semester: 4th	Subject Name: Electrical Measurement & Measuring instruments Laboratory	Subject Code: 20BTEEPPC404

	Course Outcomes
CO1	Estimate accurately the values of R, L, and C employing suitable bridges.
CO2	Measure power and energy with suitable measuring instruments.
CO3	Know about operation of CT, PT.
CO4	Select appropriate electronic instruments for various measurements.
CO5	Find out iron loss using B-H curve.

	CO-PO Mapping												CO-PSO Mapping		
Sl. No	**PO1**	**PO2**	**P03**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	3	3	2	2	2	–	–	–	2	2	1	2	3	2	3
CO2	3	3	2	2	2	–	–	–	1	2	2	2	3	2	2
CO3	3	2	2	2	2	–	–	–	1	2	2	2	3	2	2
CO4	3	2	2	2	3	–	–	–	2	2	1	2	3	2	3
CO5	3	2	2	2	2	–	–	–	1	2	1	2	3	1	3
Average	**3**	**2.4**	**2**	**2**	**2.2**	**-**	**-**	**-**	**1.4**	**2**	**1.4**	**2**	**3**	**1.8**	**2.6**

'3'High '2' Moderate '1' Low '-' No Correlation

Overall CO Attainment	**2.78**

PO Attainment	**2.78**	**2.22**	**1.85**	**1.85**	**2.03**	**-**	**-**	**-**	**1.29**	**1.85**	**1.29**	**1.85**	**2.78**	**1.66**	**2.40**

GITA Autonomous College, Bhubaneswar
Department of Electrical Engineering

Semester: 4TH	**Subject Name: Digital Electronics Circuits Lab**	**Subject Code: 20BTEEPPC405**

	Course Outcomes
CO1	Verify Digital Logic Gates.
CO2	Verify 2 level and multilevel Boolean function and design, construct and test half adder and half subtractor and full adder and full subtractor.
CO3	Verify different type of MUX.
CO4	Verify SR flip flop, clocked SR flip flop and JK flip flop.
CO5	Verify VHDL Program for half adder using XOR and Gate, VHDL Program for full adder using half adder and OR Gate and VHDL Program for SR flip flop, JK flip flop and D flip flop.

	CO-PO Mapping												CO-PSO Mapping		
Sl. No	**PO1**	**PO2**	**P03**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	3	2	1	2	-	-	-	2	1	-	-	2	3	-	-
CO2	3	3	2	3	-	-	-	3	2	1	-	2	3	2	-
CO3	3	2	3	2	-	-	-	2	1	-	-	2	2	3	-
CO4	3	3	3	3	-	-	-	3	2	1	-	3	3	2	2
CO5	3	3	3	3	-	-	-	3	3	2	1	3	3	3	3
Average	**3**	**2.6**	**2.4**	**2.6**	**-**	**-**	**-**	**2.6**	**1.8**	**1.33**	**1**	**2.4**	**2.8**	**2.5**	**2.5**

‘3’High ‘2’ Moderate ‘1’ Low ‘-’ No Correlation

Overall CO Attainment									2						
PO Attainment	**2**	**1.733**	**1.6**	**1.733**	**-**	**-**	**-**	**1.733**	**1.2**	**0.88**	**0.66**	**1.6**	**1.86**	**1.66**	**1.66**

GITA Autonomous College, Bhubaneswar
Department of Electrical Engineering

Semester: 4TH	Subject Name: Mini Project-1	Subject Code: 20BTEEPPSI401

	Course Outcomes
CO1	Identify and define an electrical engineering problem and propose a solution.
CO2	Apply fundamental engineering knowledge to design and develop a working prototype.
CO3	Utilize modern engineering tools, software, and hardware for project implementation.
CO4	Work effectively as an individual and in a team to complete the project within a deadline.
CO5	Communicate project findings effectively through reports, presentations, and documentation.

	CO-PO Mapping												CO-PSO Mapping		
Sl. No	**PO1**	**PO2**	**P03**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	3	3	2	3	2	1	1	1	2	2	2	3	3	2	3
CO2	3	3	3	3	3	1	1	1	2	2	2	3	3	2	3
CO3	3	2	3	3	3	1	1	1	2	2	2	3	3	2	3
CO4	2	1	2	2	2	1	1	1	3	3	3	2	2	2	2
CO5	2	1	2	2	2	1	1	1	3	3	3	2	2	2	2
Average	2.6	**2**	**2.4**	2.6	2.4	1	1	1	2.4	2.4	2.4	2.6	2.6	2	2.6

'3'High '2' Moderate '1' Low '-' No Correlation

Overall CO Attainment	2.45

PO Attainment	2.123	1.633	1.96	2.12	1.96	0.816	0.816	0.816	1.96	1.96	1.96	2.12	2.12	1.633	2.12

GITA Autonomous College, Bhubaneswar
Department of Electrical Engineering

Semester: 4TH	**Subject Name: Employability Skill II**	**Subject Code: 20BTEEPPC412**

	Course Outcomes
CO1	Develop advanced communication and presentation skills for professional environments.
CO2	Enhance critical thinking, problem-solving, and decision-making abilities in electrical engineering.
CO3	Strengthen technical proficiency through real-world applications of electrical engineering concepts.
CO4	Improve teamwork, leadership, and adaptability in professional and corporate settings.
CO5	Prepare students for competitive exams, technical interviews, and entrepreneurship opportunities.

	CO-PO Mapping												CO-PSO Mapping		
Sl. No	**PO1**	**PO2**	**P03**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	1	1	1	1	1	1	0	2	2	3	1	2	2	3	1
CO2	2	3	2	2	2	1	0	1	1	2	2	3	3	3	2
CO3	3	3	2	2	3	1	0	1	1	2	2	3	3	3	3
CO4	2	2	2	2	2	2	0	2	3	3	2	3	2	3	2

CO5	1	2	1	1	2	1	0	2	3	3	2	3	2	3	2
Average	1.8	**2.2**	**1.6**	1.6	2	1.2	0	1.6	2	2.6	1.8	2.8	2.4	3	2
'3'High			'2' Moderate				'1' Low					'-' No Correlation			
Overall CO Attainment									2.40						
PO Attainment	1.44	1.76	1.28	1.28	1.6	0.96	-	1.28	1.6	2.08	1.44	2.24	1.92	2.4	1.6

GITA Autonomous College, Bhubaneswar
Department of Electrical Engineering

Semester: 5TH	**Subject Name: Electrical Machine-II**	**Subject Code: 20BTEETPC512**

	Course Outcomes	
CO1	Describe the construction, operation and performance of Three-phase induction machines.	
CO2	Apply the methods of starting & speed control of three-phase induction motors.	
CO3	Explain the constructional details and performance of different types of synchronous generators.	
CO4	Explain the constructional details and performance of different types of synchronous motors and plot their characteristic curves.	
CO5	Explore single-phase induction motors, special type of machines.	
	CO-PO Mapping	CO-PSO Mapping

Sl. No	PO1	PO2	P03	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	2	2	2	–	–	–	–	2	–	–	2	1	3
CO2	3	2	2	2	3	–	–	–	–	2	–	–	2	1	3
CO3	2	1	1	1	2	–	–	–	–	1	–	–	1	1	2
CO4	3	2	2	2	2	–	–	–	–	2	–	–	2	1	3
CO5	3	2	2	2	2	–	–	–	–	2	–	–	2	1	3
Average	**2.80**	**1.80**	**1.80**	**1.80**	**2.20**	**-**	**-**	**-**	**-**	**1.8**	**-**	**-**	**1.80**	**1.00**	**2.8**
‘3’High			‘2’ Moderate				‘1’ Low					‘-’ No Correlation			
Overall CO Attainment									2.55						
PO Attainment	**2.38**	**1.53**	**1.53**	**1.53**	**1.87**	**-**	**-**	**-**	**-**	**1.53**	**-**	**-**	**1.53**	**0.85**	**2.38**

GITA Autonomous College, Bhubaneswar

Department of Electrical Engineering

Semester: 5TH	**Subject Name: CONTROL SYSTEM ENGINEERING**	**Subject Code:** 20BTEETPC510

	Course Outcomes
CO1	Understand and apply basic concepts of control system to develop mathematical model of various physical systems in engineering and also study effect of feedback on system characteristics.
CO2	Use standard test signals to determine performance characteristics of first and second-order systems and determine the stability using time domain techniques.

CO3	Identify the methods of frequency domain analysis and apply it to determine different types of stability in frequency domain.
CO4	Differentiate between Transfer Function and State-Space approach of describing a system and understand the design of conventional controllers used in industry.
CO5	Understand different types of control components and its design for reliable and efficient application in industry.

	CO-PO Mapping												CO-PSO Mapping		
Sl. No	**PO1**	**PO2**	**P03**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	3	2	2	1	2	-	-	-	-	2	-	-	3	2	3
CO2	2	3	2	2	2	1	-	-	-	2	-	-	3	2	3
CO3	2	2	3	2	1	-	-	-	-	1	-	-	2	1	2
CO4	1	2	2	2	3	-	-	-	-	2	-	-	2	1	2
CO5	1	2	1	2	3	-	-	-	-	1	-	-	2	1	2
Average	**1.80**	**2.20**	**2.00**	**1.80**	**2.20**	**-**	**-**	**-**	**-**	**1.6**	**-**	**-**	**2.40**	**1.40**	**2.4**
'3'High			'2' Moderate				'1' Low				'-' No Correlation				
Overall CO Attainment									2.55						
PO Attainment	**1.53**	**1.87**	**1.70**	**1.53**	**1.87**	**-**	**-**	**-**	**-**	**1.36**	**-**	**-**	**2.04**	**1.19**	**2.04**

GITA Autonomous College, Bhubaneswar

Department of Electrical Engineering

Semester: 5TH	**Subject Name: POWER ELECTRONICS**	**Subject Code: 20BTEETPC511**

	Course Outcomes
CO1	Describe the characteristics of Power semiconductor devices and thyristor family.
CO2	Explain, analyze, and design AC – DC and AC - AC converters for real-world applications.
CO3	Explain, analyze, and design DC - DC converters for real-world applications.
CO4	Explain, analyze, and design DC – AC converters for real-world applications.
CO5	Know about practical application of power electronics devices.

	CO-PO Mapping												CO-PSO Mapping		
Sl. No	**PO1**	**PO2**	**P03**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	3	2	2	1	1	-	-	-	-	-	-	-	2	1	2
CO2	2	3	3	2	2	-	-	-	-	2	-	-	3	2	3
CO3	2	3	3	2	2	-	-	-	-	2	-	-	3	1	3
CO4	2	3	3	2	2	-	-	-	-	2	-	-	3	1	3
CO5	1	2	2	1	1	-	-	-	-	1	-	-	2	1	2
Average	**2.00**	**2.60**	**2.60**	**1.60**	**1.60**	**-**	**-**	**-**		**1.75**	**-**	**-**	**2.60**	**1.20**	**2.6**
'3'High			'2' Moderate				'1' Low				'-' No Correlation				
Overall CO Attainment									2.55						
PO Attainment	**1.70**	**2.21**	**2.21**	**1.36**	**1.36**	**-**	**-**	**-**	**-**	**1.49**	**-**	**_**	**2.21**	**1.02**	**2.21**

GITA Autonomous College, Bhubaneswar
Department of Electrical Engineering

Semester: 5TH	Subject Name: Electric Power Transmission and Distribution	Subject Code: 20BTEETPC509

	Course Outcomes
CO1	Evaluate the resistance, inductance and capacitance present in the power lines and the characteristics of these line parameters.
CO2	Analyze the performance of the transmission lines under different operating conditions.
CO3	Design the mechanical and insulation system of transmission lines.
CO4	Design AC & DC distribution system with capacitors and filters.
CO5	Get an insight of the underground cables, their construction and requirement of earthing.

	CO-PO Mapping												CO-PSO Mapping		
Sl. No	**PO1**	**PO2**	**P03**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	3	2	3	1	1	1	2	-	-	-	1	1	1	-	-
CO2	2	2	3	1	1	2	2	-	-	-	1	1	1	-	-
CO3	3	1	3	1	1	1	1	-	-	-	1	1	1	-	-
CO4	3	3	2	3	2	2	2	-	-	-	2	1	3	-	-
CO5	3	3	3	3	2	2	2	-	-	-	1	2	2	-	-
Average	2.8	2.2	2.8	1.8	1.4	1.6	1.8				1.2	1.2	1.6	-	-

‘3’High ‘2’ Moderate ‘1’ Low ‘-’ No Correlation

Overall CO Attainment	2.571

PO Attainment	**2.40**	**1.88**	**2.40**	**1.54**	**1.20**	**1.37**	**1.54**	**-**	**-**	**-**	**1.03**	**1.03**	**1.37**	**-**	**-**

GITA Autonomous College, Bhubaneswar
Department of Electrical Engineering

Semester: 5TH	Subject Name: INDUSTRIAL PROCESS CONTROL AND DYNAMICS	Subject Code: 20BTEETPE501

	Course Outcomes
CO1	Describe various data acquisition & signal processing elements used in the industry.
CO2	Present the measured data using various presentation elements in a user-friendly manner.
CO3	Describe the process, characteristics, types of controllers, and PID controller tuning.
CO4	Identify the type of final control elements and explain its working principles.
CO5	Examine & troubleshoot the various controller structures and their configurations.

	CO-PO Mapping												CO-PSO Mapping		
Sl. No	**PO1**	**PO2**	**P03**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	3	3	3	3	3	2	2	-	-	-	2	2	3	3	-
CO2	3	3	3	3	3	2	1	-	-	-	2	2	3	3	-
CO3	2	2	2	2	1	-	-	-	-	-	1	1	2	3	-
CO4	3	3	3	2	2	1	1	-	-	-	1	1	2	2	-
CO5	3	2	2	1	-	-	-	-	-	-	-	-	1	1	-
Average	**2.80**	**2.60**	**2.60**	**2.20**	**2.25**	**1.67**	**1.33**	**-**	**-**	**-**	**1.50**	**1.50**	**2.20**	**2.40**	**-**

'3'High '2' Moderate '1' Low '-' No Correlation

Overall CO Attainment	2.54

PO Attainment	2.37	2.20	2.20	1.86	1.90	1.41	1.12				1.27	1.27	1.86	2.03	

GITA Autonomous College, Bhubaneswar
Department of Electrical Engineering

Semester: 5TH	**Subject Name: Essence of Indian Knowledge and Tradition**	**Subject Code: 20BTTMC503**

	Course Outcomes
CO1	Understand the foundational concepts of Indian knowledge systems and their relevance to modern engineering.
CO2	Analyze the contributions of ancient Indian science, technology, and engineering in fields such as mathematics, astronomy, and metallurgy.
CO3	Apply ethical values and philosophical teachings from Indian traditions to engineering practices.
CO4	Develop a sustainable and eco-friendly approach to engineering, inspired by traditional Indian environmental ethics.
CO5	Enhance communication, teamwork, and leadership skills through discussions on Indian traditions and knowledge systems.

	CO-PO Mapping												CO-PSO Mapping		
Sl. No	**PO1**	**PO2**	**P03**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	2	2	1	1	1	2	2	3	1	2	1	3	2	2	1
CO2	2	2	2	2	1	2	2	2	1	2	1	3	2	2	2
CO3	1	1	1	1	1	3	2	3	2	2	2	3	1	3	2
CO4	1	1	1	1	1	2	3	3	2	2	1	3	1	2	3
CO5	1	1	1	1	1	2	2	2	3	3	2	3	2	3	1
Average	1.4	**1.4**	**1.2**	1.2	1	2.2	2.2	2.6	1.8	2.2	1.4	3	1.6	2.4	1.8

‘3’High ‘2’ Moderate ‘1’ Low ‘-’ No Correlation

Overall CO Attainment	2.4

PO Attainment	1.12	1.12	0.96	0.96	0.80	1.77	1.77	2.09	1.45	1.77	1.12	2.42	1.29	1.93	1.45

GITA Autonomous College, Bhubaneswar
Department of Electrical Engineering

Semester: 5TH	**Subject Name: Electrical Machine-II Laboratory**	**Subject Code:** 20BTEEPPC511

	Course Outcomes
CO1	Demonstrate synchronization of two synchronous generators for sharing a common load and estimate the voltage regulation of a Synchronous generators by various methods and compare the results for accuracy.
CO2	Know about operation of 1- Φ induction motor & find out parameters of 1- Φ induction motor.
CO3	Draw V-curve and inverted V-curve of synchronous motor.
CO4	Find out Xd ,Xq and Xd", Xq" of salient pole synchronous machine.
CO5	Know about speed control of 3-Φ induction motor by VVVF control method

	CO-PO Mapping												CO-PSO Mapping		
Sl. No	**PO1**	**PO2**	**P03**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	2	3	3	2	3	2	1	1	1	-	-	2	3	2	2
CO2	3	3	2	2	2	1	1	1	1	-	-	1	3	2	3
CO3	3	2	2	3	2	1	1	1	2	-	-	1	3	2	2
CO4	3	2	3	2	3	1	1	1	1	-	-	1	3	2	3

CO5	2	2	3	2	2	1	1	1	1	-	-	2	2	3	2
Average	2.6	2.4	2.6	2.2	2.4	1.2	1	1	1.2	-	-	1.4	2.8	2.2	2.4
'3'High			'2' Moderate				'1' Low					'-' No Correlation			
Overall CO Attainment									2.55						
PO Attainment	2.21	2.04	2.21	1.87	2.04	1.02	0.85	0.85	1.02	-	-	1.19	2.38	1.87	2.04

GITA Autonomous College, Bhubaneswar
Department of Electrical Engineering

Semester: 5th	**Subject Name: CONTROL SYSTEM ENGG. LABORATORY**	**Subject Code: 21BTEETPC507**

	Course Outcomes
CO1	**Analyze the dynamic behavior of servo motors** by determining the transfer functions of DC and AC servomotors and understanding their role in control systems.
CO2	**Evaluate the performance of compensator networks** by studying the frequency response of lead and lag compensators for stability and phase correction in control systems.
CO3	**Implement and validate control strategies** such as ON/OFF and PID controllers in temperature control systems for real-world applications.
CO4	**Demonstrate the working principles of sensors and transducers** by analyzing the characteristics of thermocouples, thermistors, LVDTs, and strain gauges for measurement applications.

CO5	**Apply bridge circuits for precise measurement** of electrical parameters like resistance, inductance, and capacitance, ensuring accuracy in instrumentation.														
	CO-PO Mapping												CO-PSO Mapping		
Sl. No	**PO1**	**PO2**	**P03**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	3	3	2	3	3	-	-	-	2	1	1	2	3	2	3
CO2	3	3	2	3	3	-	2	-	1	1	-	2	3	3	3
CO3	3	3	3	3	3	2	2	-	2	2	1	3	3	3	3
CO4	3	3	2	3	3	1	2	-	2	2	1	3	3	2	3
CO5	3	3	2	3	3	-	2	-	1	1	-	2	3	2	3
Average	**3**	**3**	**2.2**	**3**	**3**	**1.5**	**2**	**-**	**1.6**	**1.4**	**1**	**2.4**	**3**	**2.4**	**3**
'3'High			'2' Moderate				'1' Low				'-' No Correlation				
Overall CO Attainment									**2.34**						
PO Attainment	**2.34**	**2.34**	**1.72**	**2.34**	**2.34**	**1.17**	**1.56**	**-**	**1.25**	**1.09**	**0.78**	**1.87**	**2.34**	**1.87**	**2.34**

GITA Autonomous College, Bhubaneswar
Department of Electrical Engineering

Semester: 5th	**Subject Name: POWER ELECTRONICS LABORATORY**	**Subject Code: 21BTEETPC511**
	Course Outcomes	

CO1	Interpret the characteristics of SCR, TRIAC, IGBT and MOSFET.
CO2	Study the triggering circuit of SCR & TRIAC.
CO3	Analyse various power electronics converters.
CO4	Evaluate the performance of DC-to-DC converters and its applications.
CO5	Analyse the performance of VSI with PWM control.

	CO-PO Mapping												CO-PSO Mapping		
Sl. No	**PO1**	**PO2**	**P03**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	3	2	1	2	3	–	–	–	1	2	1	2	3	2	3
CO2	3	2	2	2	3	–	–	–	1	2	1	2	3	2	2
CO3	3	3	2	2	3	–	–	–	2	2	2	2	3	2	3
CO4	3	2	2	2	3	–	–	–	1	2	2	2	3	2	3
CO5	3	3	2	2	3	–	–	–	1	2	2	2	3	2	3
Average	**3**	**2.4**	**1.8**	**2**	**3**	**-**	**-**	**-**	**1.2**	**2**	**1.6**	**2**	**3**	**2**	**2.8**

‘3’High ‘2’ Moderate ‘1’ Low ‘-’ No Correlation

Overall CO Attainment	**2.34**

PO Attainment	**2.34**	**1.87**	**1.40**	**1.56**	**2.34**	**-**	**-**	**-**	**0.94**	**1.56**	**1.25**	**1.56**	**2.34**	**1.56**	**2.18**

GITA Autonomous College, Bhubaneswar
Department of Electrical Engineering

Semester: 5th	Subject Name: Summer Internship	Subject Code: 20BTEEPPSI502

	Course Outcomes
CO1	Apply Theoretical Knowledge to Practical Scenarios
CO2	Develop Hands-on Technical and Industrial Skills
CO3	Enhance Problem-Solving and Analytical Abilities
CO4	Improve Professional Communication and Teamwork
CO5	Understand Industry Standards, Ethics, and Safety Practices

	CO-PO Mapping												CO-PSO Mapping		
Sl. No	**PO1**	**PO2**	**P03**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	2	2	2	2	2	3	2	3	2	2	1	2	2	2	2
CO2	3	3	3	3	2	2	1	2	2	2	2	3	3	3	3
CO3	2	2	2	2	3	2	1	1	2	2	2	2	2	2	2
CO4	1	1	1	1	1	1	1	1	3	3	2	2	2	2	1
CO5	1	1	1	1	1	1	1	1	3	3	2	2	2	2	1
Average	1.8	**1.8**	**1.8**	1.8	1.8	1.8	1.2	1.6	2.4	2.4	1.8	2.2	2.2	2.2	1.8

‘3’High ‘2’ Moderate ‘1’ Low ‘-’ No Correlation

Overall CO Attainment									2.52						
PO Attainment	1.51	1.51	1.51	1.51	1.51	1.51	1.008	1.344	2.016	2.016	1.51	1.848	1.848	1.848	1.51

GITA Autonomous College, Bhubaneswar
Department of Electrical Engineering

Semester: 5TH	Subject Name: **Mini Project-II**	Subject Code: 20BTEEPPSI503

	Course Outcomes
CO1	Apply Fundamental Electrical Engineering Concepts
CO2	Enhance Hands-on Technical Skills
CO3	Develop Problem-Solving and Critical Thinking Abilities
CO4	Improve Teamwork and Project Execution Skills
CO5	Strengthen Technical Documentation and Presentation Skills

	CO-PO Mapping												CO-PSO Mapping		
Sl. No	**PO1**	**PO2**	**P03**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	3	3	3	3	2	2	1	1	2	2	2	3	3	2	3
CO2	3	3	3	3	3	2	1	1	2	2	2	3	3	2	3
CO3	3	2	3	3	3	2	1	1	2	2	2	3	3	2	3
CO4	2	2	2	2	2	2	1	1	3	3	3	2	2	2	2
CO5	2	1	2	2	2	1	1	1	3	3	3	2	2	2	2
Average	2.6	**2.2**	**2.6**	2.6	2.4	1.8	1	1	2.4	2.4	2.4	2.6	2.6	2	2.6

‘3’High ‘2’ Moderate ‘1’ Low ‘-’ No Correlation

Overall CO Attainment	2.42

PO Attainment	2.09	1.77	2.09	2.09	1.93	1.45	0.80	0.80	1.93	1.93	1.93	2.09	2.09	1.61	2.09

GITA Autonomous College, Bhubaneswar
Department of Electrical Engineering

Semester: 5TH	**Subject Name: EMPLOYABILITY SKILL III**	**Subject Code: 20BTEEPPC513**

	Course Outcomes
CO1	Develop professional communication, negotiation, and corporate etiquette skills.
CO2	Apply critical thinking and advanced problem-solving techniques to engineering challenges.
CO3	Utilize modern tools and technologies for electrical engineering applications.
CO4	Strengthen leadership, team collaboration, and managerial abilities in professional settings.
CO5	Prepare for higher studies, competitive exams, entrepreneurship, and global career opportunities.

	CO-PO Mapping												CO-PSO Mapping		
Sl. No	**PO1**	**PO2**	**P03**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	1	1	1	1	1	1	0	2	2	3	1	2	2	3	1
CO2	2	3	2	2	2	1	0	1	1	2	2	3	3	3	2
CO3	3	3	2	2	3	1	0	1	1	2	2	3	3	3	3
CO4	2	2	2	2	2	2	0	2	3	3	2	3	2	3	2

CO5	1	2	1	1	2	1	0	2	3	3	2	3	2	3	2
Average	1.8	**2.2**	**1.6**	1.6	2	1.2	0	1.6	2	2.6	1.8	2.8	2.4	3	2
'3'High			'2' Moderate					'1' Low				'-' No Correlation			
Overall CO Attainment									2.40						
PO Attainment	1.44	1.76	1.28	1.28	1.6	0.96	-	1.28	1.6	2.08	1.44	2.24	1.92	2.4	1.6

GITA Autonomous College, Bhubaneswar
Department of Electrical Engineering

Semester: 6TH	**Subject Name: Microprocessors & Microcontrollers**	**Subject Code: 20BTEETPC614**

	Course Outcomes
CO1	Explain the architecture, pins & signals, programming model, instruction execution of 8085 microprocessor and its interfacing with memory and I/O devices.
CO2	Describe the architecture, modes of operation, memory organization, interrupts of 8086 microprocessor and its interfacing with 8255 PPI and 8257 DMA controller
CO3	Explain the concepts of embedded ICs, RISC and CISC processors and 8051 microcontrollers to solve simple problems using assembly language programming.
CO4	Design microcontroller-based interfacing for various applications.
CO5	Demonstrate peripheral interfacing with advanced programming of microprocessors and microcontrollers for real-time applications.

	CO-PO Mapping												CO-PSO Mapping		
Sl. No	**PO1**	**PO2**	**P03**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	3	3	3	3	3	2	2	-	-	-	2	2	3	3	-
CO2	3	3	3	3	3	2	1	-	-	-	2	2	3	3	-
CO3	2	2	2	2	1	-	-	-	-	-	1	1	2	3	-
CO4	3	3	3	2	2	1	1	-	-	-	1	1	2	2	-
CO5	3	2	2	1	-	-	-	-	-	-	-	-	1	1	-
Average	**2.80**	**2.60**	**2.60**	**2.20**	**2.25**	**1.67**	**1.33**	**-**	**-**	**-**	**1.50**	**1.50**	**2.20**	**2.40**	**-**
'3'High			'2' Moderate				'1' Low					'-' No Correlation			
Overall CO Attainment									2.54						
PO Attainment	2.37	2.201	2.201	1.862	1.905	1.413	1.126				1.27	1.27	1.862	2.032	

GITA Autonomous College, Bhubaneswar

Department of Electrical Engineering

Semester: 6TH	**Subject Name: Power System Operation & Control**	**Subject Code: 20BTEETPC614**

	Course Outcomes
CO1	To formulate the admittance matrix and evaluate load, their behaviour, and transmission line characteristics.
CO2	To solve power flow problem, determine the losses in the transmission system, and decide

	economic generation schedule at a snapshot.
CO3	To determine the economic operating schedule of generators.
CO4	To control & change of power system dynamics with change in frequency in single and multi-area interconnected system.
CO5	To estimate the critical clearing time for stable power system operation and rotor angle stability analysis.

	CO-PO Mapping												CO-PSO Mapping		
Sl. No	**PO1**	**PO2**	**P03**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	3	3	2	2	2	-	-	-	1	1	-	-	3	2	3
CO2	3	3	2	2	2	-	-	-	1	1	-	-	3	2	2
CO3	2	3	3	2	2	-	-	-	1	1	-	-	2	2	2
CO4	3	2	3	3	3	-	-	-	1	1	-	-	3	2	3
CO5	3	2	3	2	2	-	-	-	1	1	-	-	3	2	2
Average	2.8	2.6	2.6	2.2	2.2	-	-	-	1	1	-	-	2.8	2	2.4
‘3’High			‘2’ Moderate					‘1’ Low				‘-’ No Correlation			
Overall CO Attainment									2.26						
PO Attainment	**2.11**	**1.96**	**1.96**	**1.66**	**1.66**	**-**	**-**	**-**	**0.75333**	**0.75333**	**-**	**-**	**2.11**	**1.51**	**1.81**

Department of Electrical Engineering

Semester: 6TH	Subject Name: Power System Protection	Subject Code: 20BTEETPE605

	Course Outcomes
CO1	Analyze balanced and unbalanced faults and decide circuit breaker ratings.
CO2	Analyze various type of relay and their use cases in power system protection.
CO3	Demonstrate various protection strategies applied for power system protection.
CO4	Select required protection measures against overcurrent, overvoltage in transmission lines and other power system equipment.
CO5	Explore the modern trends in relaying like digital ralaying for power system protection.

	CO-PO Mapping												CO-PSO Mapping		
Sl. No	**PO1**	**PO2**	**P03**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	**3**	**3**	**3**	**3**	**2**	**2**		-	-	-		**2**	**3**	**3**	**3**
CO2	**3**	**3**	**3**	**3**	**2**	**1**		-	-	-		**2**	**2**	**2**	**3**
CO3	**3**	**2**	**2**	**2**	**2**	**1**		-	-	-		**1**	**3**	**2**	**2**
CO4	**2**	**3**	**3**	**2**	**2**	**1**		-	-	-		**1**	**2**	**2**	**1**
CO5	**3**	**2**	**1**	**2**	**2**	**2**		-	-	-		**2**	**2**	**2**	**3**
Average	**2.80**	**2.60**	**2.40**	**2.40**	**2.00**	**1.40**		**-**	**-**	**-**		**1.60**	**2.40**	**2.20**	**2.4**

‘3’High ‘2’ Moderate ‘1’ Low ‘-’ No Correlation

Overall CO Attainment	2.47

PO Attainment	**2.30**	**2.140**	**1.976**	**1.976**	**1.646**	**1.152**						**1.317**	**1.976**	**1.811**	**1.976**

GITA Autonomous College, Bhubaneswar
Department of Electrical Engineering

Semester: 6TH	Subject Name: HIGH VOLTAGE ENGINEERING	Subject Code: 20BTEETPE606

	Course Outcomes
CO1	Knowledge of generation and measurement of D. C., A.C., & Impulse voltages.
CO2	Understand the basic physics related to various breakdown processes in solid, liquid and gaseous insulating materials.
CO3	Knowledge of how over-voltages arise in a power system.
CO4	Knowledge of protection against these over- voltages.
CO5	Knowledge of tests on H. V. equipment and on insulating materials, as per the standards.

	CO-PO Mapping												CO-PSO Mapping		
Sl. No	**PO1**	**PO2**	**P03**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	3	3	1	2	-	-	-	-	-	-	-	-	2	1	1
CO2	2	3	2	2	2	-	-	-	-	-	-	-	3	2	2
CO3	2	1	2	1	-	-	-	-	-	-	-	-	1	-	1
CO4	2	2	2	3	2	-	-	-	-	-	-	-	3	1	2
CO5	1	2	2	2	3	-	-	-	-	-	-	-	2	1	2
Average	**2.00**	**2.20**	**1.80**	**2.00**	**2.33**			**-**	**-**	**-**			**2.20**	**2.20**	**1.6**

‘3’High ‘2’ Moderate ‘1’ Low ‘-’ No Correlation

Overall CO Attainment	2.51

PO Attainment	**1.67**	**1.84**	**1.51**	**1.67**	**1.95**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1.84**	**1.84**	**1.34**

GITA Autonomous College, Bhubaneswar
Department of Electrical Engineering

Semester: 6TH	Subject Name: COMMUNICATION ENGINEERING	Subject Code: 20BTEETOE605

	Course Outcomes
CO1	Know the basic of communication systems and different channels.
CO2	Describe the fundamentals of amplitude modulation and demodulation techniques.
CO3	Articulate performance of angle modulation techniques, pulse modulation schemes and digital transmission of analog signals.
CO4	Analyze the performance of AM & FM systems in presence of noise signals
CO5	Know different digital modulation techniques and its applications.

	CO-PO Mapping												CO-PSO Mapping		
Sl. No	**PO1**	**PO2**	**P03**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	**3**	**3**	**3**	**3**	**2**	**2**		-	-	-		**2**	**3**	**3**	**3**
CO2	**3**	**3**	**3**	**3**	**2**	**1**		-	-	-		**2**	**2**	**2**	**3**
CO3	**3**	**2**	**2**	**2**	**2**	**1**		-	-	-		**1**	**3**	**2**	**2**
CO4	**2**	**3**	**3**	**2**	**2**	**1**		-	-	-		**1**	**2**	**2**	**1**
CO5	**3**	**2**	**1**	**2**	**2**	**2**		-	-	-		**2**	**2**	**2**	**3**
Average	**2.80**	**2.60**	**2.40**	**2.40**	**2.00**	**1.40**		**-**	**-**	**-**		**1.60**	**2.40**	**2.20**	**2.4**

'3'High '2' Moderate '1' Low '-' No Correlation

Overall CO Attainment	2.47

PO Attainment	**2.31**	**2.14**	**1.98**	**1.98**	**1.65**	**1.15**	**0.00**	**-**	**-**	**-**	**-**	**1.32**	**1.98**	**1.81**	**1.98**

GITA Autonomous College, Bhubaneswar
Department of Electrical Engineering

Semester: 6TH	**Subject Name: MICROPROCESSOR & MICROCONTROLLER LABORATORY**	**Subject Code:** 20BTEEPPC609

	Course Outcomes
CO1	Understand the architecture and instruction set of microprocessors and microcontrollers.
CO2	Develop assembly language and embedded C programs for microprocessors/microcontrollers.
CO3	Interface microcontrollers with peripheral devices such as LEDs, motors, sensors, and displays.
CO4	Implement real-time applications using microcontrollers in electrical systems.
CO5	Analyze and debug microcontroller-based systems for automation and control.

	CO-PO Mapping												CO-PSO Mapping		
Sl. No	**PO1**	**PO2**	**P03**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	3	2	1	1	2	1	1	1	1	1	1	2	3	2	1
CO2	3	2	2	2	3	1	1	1	1	1	1	3	3	3	2
CO3	3	2	3	2	3	2	2	1	2	2	1	3	3	3	3
CO4	3	3	3	3	3	2	2	1	2	2	1	3	3	3	3
CO5	3	3	3	3	3	2	3	1	2	2	2	3	3	3	3
Average	3	**2.4**	**2.4**	2.2	2.8	1.6	1.8	1	1.6	1.6	1.2	2.8	3	2.8	2.4

‘3’High ‘2’ Moderate ‘1’ Low ‘-’ No Correlation

Overall CO Attainment									2.52						
PO Attainment	2.52	2.01	2.01	1.84	2.35	1.34	1.51	0.84	1.34	1.34	1.008	2.35	2.52	2.35	2.01

GITA Autonomous College, Bhubaneswar
Department of Electrical Engineering

Semester: 6th	**Subject Name: Power System Lab**	**Subject Code: 20BTEEPPC610**

	Course Outcomes
CO1	Determine transmission parameters of lumped area network and verify relay characteristic of electromagnetic over current relay.
CO2	Verify earth fault relay operation for unbalanced load and determine direct axis and quadrature axis sub transient reactance of synchronous machine.
CO3	Measure breakdown potential and dielectric strength of transformer oil and know about pole and plinth mounted substation.
CO4	Write Matlab Program for optimal operation electric power system neglecting line loss and generator limits and for computation of symmetrical and unsymmetrical faults.
CO5	Write Matlab Program i. For simulation of static response of ALFC loop for TH=TT=0, Find dynamic response of 1area load frequency control problem without and with PI controller using Matlab Simulink. ii. Simulink model for evaluating the transient stability by plotting swing curve by simultaneously opening the breakers at both ends of the line at 2.5 cycles and 6.25 cycles after occurrence of the fault and also plot the swing curve up to a period of 0.5sec for sustained fault.

	iii. To find dynamic response of 1area load frequency control problem without and with PI controller using Matlab Simulink.														
	CO-PO Mapping												CO-PSO Mapping		
Sl. No	**PO1**	**PO2**	**P03**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	**3**	**2**	**1**	**3**	**3**	**1**	**-**	**-**	**2**	**1**	**-**	**1**	**2**	**3**	**-**
CO2	**3**	**3**	**2**	**3**	**2**	**1**	**-**	**-**	**1**	**1**	**-**	**1**	**1**	**3**	**-**
CO3	**3**	**2**	**1**	**3**	**3**	**1**	**-**	**-**	**1**	**1**	**-**	**1**	**2**	**1**	**-**
CO4	**3**	**3**	**3**	**2**	**3**	**2**	**1**	**1**	**2**	**2**	**1**	**2**	**2**	**1**	**-**
CO5	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**3**	**3**	**1**	**2**	**2**	**1**	**-**
Average	**2.6**	**2.2**	**1.6**	**2.4**	**2.4**	**1.2**	**1**	**1**	**1.8**	**1.6**	**1**	**1.4**	**1.8**	**1.8**	**-**
'3'High			'2' Moderate				'1' Low					'-' No Correlation			
Overall CO Attainment									2.19						
PO Attainment	**1.906**	**1.613**	**1.17**	**1.76**	**1.76**	**0.88**	**0.733**	**0.733**	**1.32**	**1.17**	**0.733**	**1.026**	**1.32**	**1.32**	**-**

GITA Autonomous College, Bhubaneswar
Department of Electrical Engineering

Semester: 6TH	**Subject Name: Mini Project-III**	**Subject Code: 20BTEEPPSI604**

	Course Outcomes
CO1	Apply Advanced Electrical Engineering Concepts
CO2	Develop Practical Implementation and Troubleshooting Skills
CO3	Enhance Problem-Solving and Innovation Abilities
CO4	Strengthen Teamwork and Project Management Skills

CO5	Improve Technical Communication and Documentation														
	CO-PO Mapping												CO-PSO Mapping		
Sl. No	**PO1**	**PO2**	**P03**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	3	3	3	3	2	2	1	1	2	2	2	3	3	2	3
CO2	3	3	3	3	3	2	1	1	2	2	2	3	3	2	3
CO3	3	2	3	3	3	2	1	1	2	2	2	3	3	2	3
CO4	2	2	2	2	2	2	1	1	3	3	3	2	2	2	2
CO5	2	1	2	2	2	1	1	1	3	3	3	2	2	2	2
Average	2.6	**2.2**	**2.6**	2.6	2.4	1.8	1	1	2.4	2.4	2.4	2.6	2.6	2	2.6
'3'High			'2' Moderate				'1' Low					'-' No Correlation			
Overall CO Attainment									2.42						
PO Attainment	2.09	1.77	2.09	2.09	1.93	1.45	0.80	0.80	1.93	1.93	1.93	2.09	2.09	1.61	2.09

GITA Autonomous College, Bhubaneswar

Department of Electrical Engineering

Semester: 6TH	**Subject Name: SEMINAR-I**	**Subject Code: 20BTEEPPSI605**
	Course Outcomes	

CO1	Develop Research and Analytical Skills
CO2	Enhance Technical Communication Skills
CO3	Improve Presentation and Public Speaking Abilities
CO4	Strengthen Critical Thinking and Discussion Skills
CO5	Enhance Report Writing and Documentation Skills

	CO-PO Mapping												CO-PSO Mapping		
Sl. No	**PO1**	**PO2**	**P03**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	3	3	2	2	2	2	-	1	2	2	1	3	3	3	2
CO2	3	3	2	3	2	2	-	1	2	2	1	3	3	3	2
CO3	2	2	2	2	2	2	-	1	2	3	2	2	2	2	2
CO4	1	1	1	1	2	1	-	1	3	3	2	2	2	2	1
CO5	1	1	1	1	1	1	-	1	3	3	2	2	2	2	1
Average	2	**2**	**1.6**	1.8	1.8	1.6	-	1	2.4	2.6	1.6	2.4	2.4	2.4	1.6
'3'High			'2' Moderate					'1' Low				'-' No Correlation			
Overall CO Attainment									2.45						
PO Attainment	1.63	1.63	1.30	1.47	1.47	1.30	-	0.816	1.96	2.12	1.30	1.96	1.96	1.96	1.30

Department of Electrical Engineering

Semester: 6TH	Subject Name: Employability Skill-IV	Subject Code: 20BTEEPPC614

	Course Outcomes
CO1	Use grammar and vocabulary in appropriate context
CO2	Comprehend the given texts and respond appropriately.
CO3	Communicate confidently in various contexts and different cultures.
CO4	Acquire basic proficiency in English including reading and listening comprehension, writing and speaking skills.
CO5	Understand the nuances of the placement procedure and perform at placement tests effectively

	CO-PO Mapping												CO-PSO Mapping		
Sl. No	**PO1**	**PO2**	**P03**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	-	-	-	-	-	2	2	3	3	3	2	3	-	-	2
CO2	-	-	-	-	-	2	1	3	3	3	2	3	-	-	2
CO3	-	-	-	-	-	2	2	3	3	3	2	3	-	-	2
CO4	-	-	-	-	-	-	2	2	3	3	2	2	-	-	2
CO5	-	-	-	-	-	-	2	3	3	3	2	2	-	-	2
Average	-	-	-	-	-	2.00	1.80	2.80	3.00	3.00	2.00	2.60	-	-	2.00
‘3’High			‘2’ Moderate					‘1’ Low				‘-’ No Correlation			
Overall CO Attainment									2.54						
PO Attainment	-	-	-	-	-	1.69	1.52	2.37	2.54	2.54	1.69	2.20	-	-	1.69

GITA Autonomous College, Bhubaneswar
Department of Electrical Engineering

Semester: 7TH	Subject Name: Advanced Control System	Subject Code: 20BTEETPC714

	Course Outcomes
CO1	To know about fundamental discrete time control systems and obtain pulse-transfer function of discrete control system through z-transform method.
CO2	To obtain stability of linear, discrete system and state space representation.
CO3	To Know about fundamental concepts of state-space model and simulation techniques and to find application of different method in obtaining state transition matrix of discrete control system.
CO4	To find stability of non-linear control system involving Liapunov's and Popov's stability criterion.
CO5	To emerge as a member and leader in a team and to manage projects in multidisciplinary environments involving stability analysis of almost all nonlinear devices involving describing function approach.

	CO-PO Mapping												CO-PSO Mapping		
Sl. No	**PO1**	**PO2**	**P03**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	3	2	3	2	1	1	-	1	1	1	-	-	3	-	-
CO2	2	3	3	2	2	1	2	2	2	1	-	-	3	-	-
CO3	1	3	3	3	1	2	1	-	2	2	-	-	3	-	-
CO4	1	2	2	2	1	1	3	3	3	2	-	-	3	-	-
CO5	2	1	1	2	1	1	1	-	1	1	-	-	2	-	-
Average	**1.80**	**2.20**	**2.40**	**2.20**	**1.20**	**1.20**	**1.75**	**2.00**	**1.80**	**1.40**	-	-	**2.80**	-	-
'3'High			'2' Moderate				'1' Low				'-' No Correlation				
Overall CO Attainment									2.75						
PO Attainment	1.65	2.016	2.2	2.016	1.1	1.1	1.604	1.833	1.65	1.283	-	-	2.5666	-	-

GITA Autonomous College, Bhubaneswar
Department of Electrical Engineering

Semester: 7TH	Subject Name: HVDC & FACTS	Subject Code: 20BTEETPC717

	Course Outcomes
CO1	Explain HVDC Transmission Systems and converter circuits.
CO2	Examine and analyse different converter circuits.
CO3	Design and analyse various control techniques for HVDC converters.
CO4	Evaluate harmonics in HVDC transmission system and their effect
CO5	Develop harmonic suspension and protection systems for HVDC transmission.

	CO-PO Mapping												CO-PSO Mapping		
Sl. No	**PO1**	**PO2**	**P03**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	3	3	3	3	3	2		-	-	-		2	3	3	3
CO2	3	3	3	3	2	1		-	-	-		1	2	2	2
CO3	3	3	2	2	2	1		-	-	-		1	3	1	2
CO4	2	3	3	2	1	1		-	-	-		1	2	2	1
CO5	2	2	3	3	3	2		-	-	-		2	2	2	3
Average	**2.60**	**2.80**	**2.80**	**2.60**	**2.20**	**1.40**		**-**	**-**	**-**		**1.40**	**2.40**	**2.00**	**2.2**
'3'High			'2' Moderate					'1' Low				'-' No Correlation			
Overall CO Attainment									2.51						
PO	**2.175**	**2.342**	**2.34**	**2.175**	**1.84**	**1.17**						**1.17**	**2.008**	**1.673**	**1.84**

Attainment			**2**											

GITA Autonomous College, Bhubaneswar
Department of Electrical Engineering

Semester: 7TH	**Subject Name: ELECTRIC DRIVES**	**Subject Code: 20BTEETPC713**

	Course Outcomes
CO1	To understand the operation of AC-DC Converter Controlled DC Motor Drives
CO2	To understand the operation of Chopper Controlled DC Motor Drives
CO3	To understand the operation of Voltage Source Inverter Fed Induction Motor Drives & the operation of Current Source Inverter Fed Induction Motor Drives
CO4	To understand the Rotor Side Control of Induction Motor Drives
CO5	To Identify suitable form of electrical drives system in Industry

	CO-PO Mapping												CO-PSO Mapping		
Sl. No	**PO1**	**PO2**	**P03**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	3	3	2	2	3	2	-	-	-	-	2	3	3	2	3
CO2	3	3	2	2	3	2	-	-	-	-	2	3	3	2	3
CO3	3	3	3	2	3	2	-	-	-	-	2	3	3	2	3
CO4	3	3	2	2	3	2	-	-	-	-	2	3	3	2	3

CO5	3	2	3	2	3	2	-	-	-	-	3	3	3	3	3
Average	**3.00**	**2.80**	**2.40**	**2.00**	**3.00**	**2.00**	**-**	**-**	**-**	**-**	**2.20**	**2.20**	**3.00**	**2.20**	**3**
'3'High			'2' Moderate				'1' Low					'-' No Correlation			
Overall CO Attainment									2.51						
PO Attainment	**2.51**	**2.34**	**2.01**	**1.67**	**2.51**	**1.67**	**-**	**-**	**-**	**-**	**1.84**	**1.84**	**2.51**	**1.84**	**2.51**

GITA Autonomous College, Bhubaneswar
Department of Electrical Engineering

Semester: 7TH	**Subject Name: Power Station Engineering**	**Subject Code: 20BTEETPE712**

	Course Outcomes	
CO1	understanding power plant operation, analysing power plant systems	
CO2	Describe and analyse the working principles of different types of power plants, such as steam, nuclear, and hydroelectric power station	
CO3	Discuss the economic and safety impacts of power plants Understand the mathematical expressions and terms related to Prediction of Load Connected Load, Maximum Demand etc.	
CO4	Analyse the layout of power plants Cost of Electrical Energy	
CO5	Understand the working of the systems that make up a power plant & understand the abnormal conditions that can occur in a power system	
	CO-PO Mapping	CO-PSO Mapping

Sl. No	PO1	PO2	P03	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	3	3	3	2	2	-	-	-	2	2	3	3	3
CO2	3	3	3	3	3	2	1	-	-	-	2	2	3	3	3
CO3	2	2	2	2	1	2	2	-	-	-	1	1	2	3	2
CO4	3	3	3	2	2	1	1	-	-	-	1	1	2	2	2
CO5	3	2	2	1	3	2	2	-	-	-	-	2	2	2	2
Average	**2.80**	**2.60**	**2.60**	**2.20**	**2.40**	**1.80**	**1.60**	**-**	**-**	**-**	**1.50**	**2.60**	**2.40**	**2.60**	**2.4**
'3'High			'2' Moderate				'1' Low				'-' No Correlation				
Overall CO Attainment									2.51						
PO Attainment	**2.34**	**2.18**	**2.18**	**1.84**	**2.01**	**1.51**	**1.34**	**-**	**-**	**-**	**1.26**	**2.18**	**2.01**	**2.18**	**2.01**

GITA Autonomous College, Bhubaneswar
Department of Electrical Engineering

Semester: 7TH	**Subject Name: INTERNET OF THINGS**	**Subject Code: 20BTEETOE708**

	Course Outcomes
CO1	Understanding IoT Fundamentals: Students will gain knowledge of IoT functional blocks, communication models, and APIs.
CO2	Exploring IoT Enabling Technologies: The course covers technologies such as Wireless Sensor Networks, Cloud Computing, Big Data Analytics, Communication Protocols, and Embedded Systems.
CO3	Developing Domain-Specific IoT Applications: Students will learn to design IoT solutions for specific domains like home automation, including smart lighting, appliances, intrusion detection, and smoke/gas

	detectors.
CO4	Hands-on Experience with IoT Devices: The curriculum includes practical sessions using devices like Raspberry Pi, teaching students to interface hardware components and program them using languages like Python.
CO5	Engaging in IoT Projects: Students are required to undertake three contribution projects that involve research and possibly fieldwork, culminating in lab sessions where they build and present their projects.

	CO-PO Mapping												CO-PSO Mapping		
Sl. No	**PO1**	**PO2**	**P03**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	**3**	**2**	**2**	**1**	**2**	**–**	**–**	**–**	**–**	**1**	**–**	**2**	**3**	**2**	**1**
CO2	**3**	**2**	**3**	**2**	**3**	**–**	**1**	**–**	**–**	**1**	**–**	**2**	**3**	**3**	**2**
CO3	**2**	**2**	**3**	**2**	**3**	**1**	**1**	**–**	**2**	**2**	**2**	**3**	**2**	**3**	**3**
CO4	**3**	**2**	**3**	**2**	**3**	**–**	**–**	**–**	**2**	**2**	**2**	**2**	**3**	**2**	**3**
CO5	**2**	**3**	**3**	**3**	**3**	**1**	**1**	**1**	**3**	**3**	**3**	**3**	**3**	**3**	**3**
Average	**2.60**	**2.20**	**2.80**	**2.00**	**2.80**	**1.00**	**1.00**	**1**	**2.33**	**1.8**	**2.33**	**2.40**	**2.80**	**2.80**	**2.4**

‘3’High ‘2’ Moderate ‘1’ Low ‘-’ No Correlation

Overall CO Attainment									**2.51**						
PO Attainment	**2.18**	**1.84**	**2.34**	**1.67**	**2.34**	**0.84**	**0.84**	**0.84**	**1.95**	**1.51**	**1.95**	**2.01**	**2.34**	**2.34**	**2.01**

GITA Autonomous College, Bhubaneswar

Department of Electrical Engineering

Semester: 7TH	**Subject Name: ENTREPRENEURSHIP DEVELOPMENT**	**Subject Code:** 20BTEETHS706
	Course Outcomes	

CO1	Know the various concepts related to entrepreneurship and intrapreneurship and know their classifications.
CO2	Able to identify opportunities in the market according to the entrepreneurial environments.
CO3	Get knowledge about the capital flow and its management to start up and run a business
CO4	Identify the shortfalls and causes of business failures.
CO5	Get knowledge about different policies made by Government and other regulatory authorities.

	CO-PO Mapping												CO-PSO Mapping		
Sl. No	**PO1**	**PO2**	**P03**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	-	**1**	-	1	-	-	-	-	-	1	1	3	3	**1**	**1**
CO2	1	**2**	2	3	3	-	-	-	-	1	2	3	3	**2**	**3**
CO3	-	**2**	-	1	3	-	-	-	-	1	3	3	1	**2**	**2**
CO4	1	**2**	2	3	3	-	-	-	-	1	3	3	3	**2**	**3**
CO5	-	**2**	-	-	-	-	-	-	-	1	3	3	3	**2**	**2**
Average	**1**	1.8	**2**	**2**	**3**	**-**	**-**	**-**	**-**	**1**	**2.4**	**3**	**2.6**	1.8	2.4
'3'High			'2' Moderate					'1' Low				'-' No Correlation			
Overall CO Attainment									2.42						
PO Attainment	0.80	1.45	1.61	1.61	2.42	-	-	-	-	0.80	1.93	2.42	2.09	1.45	1.93

GITA Autonomous College, Bhubaneswar
Department of Electrical Engineering

Semester: 7TH	Subject Name: ELECTRIC DRIVES-Lab	Subject Code: 20BTEEPPC711

	Course Outcomes
CO1	Students will demonstrate the speed control methods of AC and DC motors.
CO2	Students will illustrate the operation and analysis of different converters concerning control strategies.
CO3	Students will be able to differentiate and test firing circuits in single and three-phase controlled bridge converters.
CO4	Students will examine the operation of three-phase fully and half-controlled converters for different types of loads experimentally.
CO5	Students will be capable of setting up control strategies to synthesize voltages in both DC and AC motor drives.

	CO-PO Mapping												CO-PSO Mapping		
Sl. No	**PO1**	**PO2**	**P03**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	3	2	2	2	2	_	_	_	2	1	_	2	3	2	3
CO2	3	3	3	3	2	–	–	–	2	1	_	2	3	2	3
CO3	3	3	2	3	2	–	–	–	2	1	_	2	3	2	3
CO4	3	3	3	3	2	–	–	–	2	1	_	2	3	2	3
CO5	3	3	3	2	3	–	–	–	2	1	_	2	3	2	3
Average	**3**	**2.8**	**2.6**	**2.6**	**2.2**	**-**	**-**	**-**	**2**	**1**	**-**	**2**	**3**	**2**	**3**

'3'High '2' Moderate '1' Low '-' No Correlation

Overall CO Attainment									2.18						
PO Attainment	2.18	2.03	1.89	1.89	1.60	-	-	-	1.45	0.73	-	1.45	2.18	1.45	2.18

GITA Autonomous College, Bhubaneswar
Department of Electrical Engineering

Semester: 7TH	Subject Name: Minor PROJECT	Subject Code: 20BTEEPPSI706

	Course Outcomes
CO1	Apply Electrical Engineering Fundamentals to Practical Problems
CO2	Develop Hands-on Technical and Analytical Skills
CO3	Enhance Problem-Solving and Innovation Abilities
CO4	Improve Teamwork and Project Management Skills
CO5	Strengthen Technical Documentation and Presentation Skills

	CO-PO Mapping												CO-PSO Mapping		
Sl. No	**PO1**	**PO2**	**P03**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	3	3	3	3	2	2	1	1	2	2	2	3	3	2	3
CO2	3	3	3	3	3	2	1	1	2	2	2	3	3	2	3
CO3	3	2	3	3	3	2	1	1	2	2	2	3	3	2	3
CO4	2	2	2	2	3	2	1	1	3	3	3	2	2	2	2
CO5	1	1	2	2	2	1	1	1	3	3	3	2	2	2	2
Average	2.4	**2.2**	**2.6**	2.6	2.6	1.8	1	1	2.4	2.4	2.4	2.6	2.6	2	2.6

‘3’High ‘2’ Moderate ‘1’ Low ‘-’ No Correlation

Overall CO Attainment	2.21

PO Attainment	1.768	1.62	1.915	1.915	1.915	1.326	0.736	0.736	1.768	1.768	1.768	1.915	1.915	1.473	1.915

GITA Autonomous College, Bhubaneswar
Department of Electrical Engineering

Semester: 7TH	**Subject Name: Seminar -II**	**Subject Code: 20BTEEPPSI707**

	Course Outcomes
CO1	Enhance Technical Knowledge in Electrical Engineering
CO2	Develop Effective Presentation and Communication Skills
CO3	Improve Research and Analytical Abilities
CO4	Strengthen Critical Thinking and Discussion Skills
CO5	Enhance Report Writing and Documentation Skills

	CO-PO Mapping												CO-PSO Mapping		
Sl. No	**PO1**	**PO2**	**P03**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	3	3	2	2	2	2	-	1	2	2	1	3	3	3	2
CO2	3	3	2	3	2	2	-	1	2	2	1	3	3	3	2
CO3	2	2	2	2	2	2	-	1	2	3	2	2	2	2	2
CO4	1	1	1	1	2	1	-	1	3	3	2	2	2	2	1
CO5	1	1	1	1	1	1	-	1	3	3	2	2	2	2	1
Average	2	**2**	**1.6**	1.8	1.8	1.6	-	1	2.4	2.6	1.6	2.4	2.4	2.4	1.6

'3'High '2' Moderate '1' Low '-' No Correlation

Overall CO Attainment	2.45

PO Attainment	1.63	1.63	1.30	1.47	1.47	1.30	-	0.816	1.96	2.12	1.30	1.96	1.96	1.96	1.30

GITA Autonomous College, Bhubaneswar
Department of Electrical Engineering

Semester: 7TH	**Subject Name: comprehensive Viva**	**Subject Code: 20BTEEPPSI708**

	Course Outcomes
CO1	Demonstrate a thorough understanding of fundamental and advanced electrical engineering concepts.
CO2	Apply theoretical knowledge to analyze and solve practical engineering problems
CO3	Communicate technical knowledge effectively in oral and written formats.
CO4	Exhibit confidence in explaining engineering concepts and their applications.
CO5	Develop problem-solving and critical-thinking abilities through structured discussions.

	CO-PO Mapping												CO-PSO Mapping		
Sl. No	**PO1**	**PO2**	**P03**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	3	3	2	2	2	-	-	2	2	2	1	1	3	3	-
CO2	3	3	3	3	2	-	-	2	2	2	1	1	3	3	-
CO3	2	2	2	2	2	-	-	2	2	3	1	1	2	3	-

CO4	2	2	2	2	2	-	-	2	3	3	1	1	2	3	-
CO5	3	3	3	3	2	-	-	2	2	2	1	1	3	3	-
Average	**2.6**	**2.6**	**2.4**	**2.4**	**2**	**-**		**2**	**2.2**	**2.4**	**1**	**1**	**2.6**	**3**	**-**
'3'High			'2' Moderate					'1' Low				'-' No Correlation			
Overall CO Attainment									2.50						
PO Attainment	2.16	2.16	2	2	1.66	-	-	1.66	1.83	2	0.833	0.833	2.16	2.5	-

GITA Autonomous College, Bhubaneswar
Department of Electrical Engineering

Semester: 8TH	**Subject Name: Grand Viva**	**Subject Code:** 20BTEEPSI809

	Course Outcomes
CO1	Demonstrate fundamental and advanced knowledge in Electrical Engineering.
CO2	Analyze and solve complex electrical engineering problems
CO3	Apply modern tools, software, and methodologies in electrical engineering analysis.
CO4	Exhibit professional ethics, teamwork, and responsibility in technical discussions.
CO5	Communicate effectively, presenting concepts and technical solutions clearly.

	CO-PO Mapping												CO-PSO Mapping		
Sl. No	**PO1**	**PO2**	**P03**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**

CO1	3	2	2	2	2	1	1	1	1	2	1	2	3	2	2
CO2	3	3	2	3	2	1	1	1	1	1	1	2	3	3	2
CO3	3	2	2	3	3	1	1	1	1	1	1	2	3	2	3
CO4	2	1	1	1	1	2	1	3	3	2	1	2	2	3	2
CO5	2	1	1	1	1	1	1	2	3	3	2	2	2	3	2
Average	2.6	**1.8**	**1.6**	2	1.8	1.2	1	1.6	1.8	1.8	1.2	2	2.6	2.6	2.2
'3'High			'2' Moderate				'1' Low					'-' No Correlation			
Overall CO Attainment									2.51						
PO Attainment	2.18	1.51	1.34	1.68	1.51	1.008	0.84	1.34	1.51	1.51	1.008	1.68	2.18	2.18	1.84

GITA Autonomous College, Bhubaneswar
Department of Electrical Engineering

Semester: 8TH	**Subject Name: Major PROJECT**	**Subject Code:** 20BTEEPSI810

	Course Outcomes
CO1	Demonstrate an in-depth understanding of the relevance, scope, and objectives of the selected project topic within the domain of Electrical Engineering.
CO2	Conduct a comprehensive literature review and identify applications or knowledge gaps to establish the foundation and significance of the project.

CO3	Apply appropriate research methodology, tools, and engineering techniques to design, develop, and implement the proposed solution.
CO4	Analyze and interpret the quality of results using appropriate validation methods, tools, and performance indicators.
CO5	Present findings in the form of a structured technical report and defend the work confidently through oral presentation and response to queries.

	CO-PO Mapping												CO-PSO Mapping		
Sl. No	**PO1**	**PO2**	**P03**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	3	2	2	-	1	1	1	1	2	2	-	1	3	2	2
CO2	3	2	2	2	-	2	1	2	-	1	-	2	3	3	2
CO3	3	3	3	3	3	1	2	-	2	2	2	3	3	2	3
CO4	3	3	3	3	2	-	-	-	1	1	1	3	3	3	3
CO5	2	1	2	-	-	-	-	1	3	3	2	1	2	2	2
Average	2.80	2.20	2.40	2.67	2.00	1.33	1.33	1.33	2.00	1.80	1.67	2.00	2.80	2.40	2.40
‘3’High			‘2’ Moderate				‘1’ Low					‘-’ No Correlation			
Overall CO Attainment									2.44						
PO Attainment	**2.27**	**1.79**	**1.73**	**2.17**	**1.62**	**1.08**	**1.08**	**1.08**	**1.62**	**1.46**	**1.35**	**1.62**	**2.27**	**1.95**	**1.95**

GITA Autonomous College, Bhubaneswar

Department of Electrical Engineering

Semester: 8TH	**Subject Name: Internship**	**Subject Code: 20BTEEPSI811**
	Course Outcomes	

CO1	Apply Theoretical Knowledge to Practical Applications
CO2	Develop Hands-on Technical Skills
CO3	Enhance Problem-Solving and Analytical Abilities
CO4	Improve Professional Communication and Teamwork
CO5	Understand Industry Standards, Ethics, and Safety Practices

	CO-PO Mapping												CO-PSO Mapping		
Sl. No	**PO1**	**PO2**	**P03**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	2	1	1	1	2	1	2	3	2	2	1	2	1	2	2
CO2	3	2	2	2	3	1	1	2	2	1	2	2	1	3	2
CO3	3	2	2	3	3	1	1	2	2	1	2	2	1	2	3
CO4	2	1	1	1	1	1	1	2	3	3	2	2	1	3	2
CO5	2	2	2	2	2	1	1	2	2	2	3	3	1	3	2
Average	2.4	**1.6**	**1.6**	1.8	2.2	1	1.2	2.2	2.2	1.8	2	2.2	1	2.6	2.2
'3'High			'2' Moderate				'1' Low				'-' No Correlation				
Overall CO Attainment									2.45						
PO Attainment	1.96	1.30	1.30	1.47	1.79	0.81	0.98	1.79	1.79	1.47	1.633	1.79	0.81	2.12	1.79