CO-PO-PSO ATTAINMENT HANDBOOK

Department of Civil Engineering

B.Tech. CE (2020-24) Batch

GITA AUTONOMOUS COLLEGE, BHUBANESWAR

July 2024

Vision of Institution

To foster prosperity through technological advancement by promoting education, innovation, and collaborative research, and to emerge as a globally renowned premier technical institution.

Mission of Institution

1. To impart high quality professional education to students worldwide, fostering innovation, technological advancement, discipline, effective communication skills, and strong moral values.

2. To provide a broad-based education that ensures the holistic development of students.

3. To leverage expertise in science, technology, and management to deliver comprehensive training in visualizing, synthesizing, and executing projects.

4. To nurture a spirit of entrepreneurship and innovation among students.

5. To undertake sponsored research and offer consultancy services in industrial, educational, and other relevant domains.

6. To promote healthy practices such as community service, outreach initiatives, and innovative projects for societal benefits.

Vision of Department

The Department of Civil Engineering endeavors to be recognized for its outstanding academics and research, producing competent and disciplined Civil Engineers, who would be innovative, entrepreneurial and able to take challenges in advanced fields of Infrastructural Engineering.

Mission of Department

1. Offering State of the Art Under Graduate and Post Graduate Programme.

2. Developing professionalism in our Civil Engineering graduates to take up challenges in competitive world.

3. Undertaking collaborative projects for interaction of academia and industries emphasizing on R&D activities.

4. Developing human intellectual capability to its fullest potential in our students to shoulder the social responsibility for upliftment of under privileged.

PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

- **PEO1:** Our graduates will apply their knowledge and skills to succeed in a Civil engineering career and/or obtain an advanced degree.
- **PEO2:** Our graduates will apply basic principles of engineering in various practical fields to meet customer business objectives and/or productively engage in research.
- **PEO3:** Our students will be able to apply creative thinking to design Civil engineering equipment's and processes including interdisciplinary technologies.
- **PEO4:** Our graduates will function ethically and responsibly and will remain informed and involved fully in their profession and in society.
- **PEO5:** Our students will be able to communicate well with others to share the ideas and to cooperate, thus establishing the leadership to manage the organization effectively.

PROGRAM OUTCOMES (POs)

- **PO1. Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems in Civil and Construction Engineering.
- **PO2. Problem analysis:** Identify, formulate, review research literature, and analyze complex Structural engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- **PO3. Design/development of solutions:** Design solutions for complex Civil and Structural Engineering problems and design of various structural components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
- **PO4. Conduct investigations of complex problems:** Use research-based knowledge and research methods related to Civil Engineering including laboratory experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
- **PO5. Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern Civil, Structural and construction Engineering and related IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.
- **PO6. The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice
- **PO7. Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
- **PO8. Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
- **PO9. Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
- **PO10. Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions

- **PO11. Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
- **PO12. Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAM SPECIFIC OUTCOMES (PSOs)

- **PSO1. Professional Design & Construction Engineering Skill:** Skill to apply the latest Design procedures for civil engineering structures by developing and applying the latest software. Construction being the heart of the infrastructural development, latest construction procedures is to be adopted using latest equipment and machineries.
- **PSO2. Innovative Skill:** An ability to explore new ideas in the field of Civil Engineering with the help of Development of high-quality technical knowledge through application of software and field observed data.
- **PSO3. Civil Engineering Entrepreneurships:** Scope of Civil and Construction Engineering Entrepreneurships are huge and attractive. Students of having right attitude of being entrepreneurs are encouraged and they can avail Institutional incubation cells and MSME inspiration.

GITA Autonomous College, Bhubaneswar
Department of Civil 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									2.31						
PO Attainment	2.31	2.31	2.16	2	2	-	-	-	1.23	1.54	1.69	2	1.54	1.39	-

GITA Autonomous College, Bhubaneswar
Department of Civil Engineering

Semester: 1st	**Subject Name:** Engineering Physics	**Subject Code:** 20BTTBS102

	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	Make a 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	2	3	2	2	-	-	-	-	2	1	2	-
CO2	3	2	1	3	2	2	1	-	-	-	-	2	1	1	-
CO3	2	2	2	2	3	1	1	-	-	-	-	1	2	2	-
CO4	3	2	1	2	1	1	1	-	-	-	-	2	2	1	-
CO5	2	1	2	2	2	1	1	-	-	-	-	3	-	-	-
Average	2.6	2	1.6	2.2	2.2	1.4	1.2	-	-	-	-	2	1.2	1.2	-

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

Overall CO Attainment	2.25

PO Attainment	1.95	1.5	1.2	1.65	1.65	1.05	0.9	-	-	-	-	1.5	0.9	0.9	-

GITA Autonomous College, Bhubaneswar
Department of Civil Engineering

Semester: 1st	**Subject Name:** Basic Electrical Engineering	**Subject Code:** 20BTTES101

	Course Outcomes
CO1	To impart basic knowledge of electrical quantities and provide working knowledge for the analysis of DC Circuits
CO2	To derive expressions for impedance, current, power in series and parallel RLC circuit with single phase AC supply along with phasor diagram
CO3	Relate the phase and line electrical quantities in polyphase networks
CO4	To learn about magnetism and the basic working principle of static electromagnetic conversion device such as transformers
CO5	To comprehend the working principles of electrical DC and AC 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	2.27

PO Attainment	1.82	1.06	1.51	1.66	2.12	-	-	-	-	-	-	1.06	2.12	1.82	-

GITA Autonomous College, Bhubaneswar
Department of Civil Engineering

Semester: 1st	**Subject Name:** Basic Mechanical Engineering	**Subject Code:** 20BTTES103

	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									2.18						
PO Attainment	1.6	1.89	2.03	1.45	2.03	-	-	-	-	-	-	2.18	2.03	1.89	1.6

GITA Autonomous College, Bhubaneswar
Department of Civil Engineering

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

	Course Outcomes
CO1	Use English Language effectively in written form.
CO2	Read texts from a variety of different genre, use information to demonstrate understanding and read to develop critical thinking skills.
CO3	Application of grammar to communicate effectively.
CO4	Acquire basic proficiency in listening and pronunciation, developing confidence and enhancing communication
CO5	Crafting and customizing a CV to attract the attention of potential employers and enhancing employability.

	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									2.53						
PO Attainment	-	-	-	-	-	1.69	1.52	2.36	2.53	2.53	1.69	2.19	-	-	1.69

GITA Autonomous College, Bhubaneswar
Department of Civil Engineering

Semester: 1st	**Subject Name:** Physics Lab	**Subject Code:** 20BTPBS101

	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.
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	-	-	-	-	-	-	-	2	-
CO2	1	1	1	2	1	1	-	-	-	-	-	-	-	2	-
CO3	2	2	2	2	1	-	-	-	-	-	-	-	1	2	-
CO4	1	1	1	2	1	1	-	-	-	-	-	-	-	2	-
CO5	3	3	2	2	-	-	-	-	-	-	-	-	1	1	-
Average	1.6	1.6	1.4	1.8	0.8	0.6	-	-	-	-	-	-	0.4	1.8	-
'3'High			'2' Moderate				'1' Low					'-' No Correlation			
Overall CO Attainment									2.22						
PO Attainment	1.18	1.18	1.04	1.33	0.59	0.44	-	-	-	-	-	-	0.29	1.33	-

GITA Autonomous College, Bhubaneswar
Department of Civil Engineering

Semester: 1st	**Subject Name:** Basic Electrical Engineering Lab	**Subject Code:** 20BTPES101

	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									2.18						
PO Attainment	1.45	1.02	1.02	1.02	1.16	1.02	1.02	-	1.89	1.16	-	1.02	2.18	1.60	1.02

GITA Autonomous College, Bhubaneswar
Department of Civil Engineering

Semester: 1st	**Subject Name:** Basic 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	2.19

PO Attainment	1.17	1.02	1.17	1.02	1.02	-	-	-	2.04	1.90	1.17	-	1.75	1.17	-

GITA Autonomous College, Bhubaneswar
Department of Civil 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	2.22

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 Civil Engineering

Semester: 1st	**Subject Name: English Language Laboratory**	**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	-	-	-	-	-	2	2	2	3	3	3	2	-	-	2
CO2	-	-	-	-	-	2	2	2	3	3	3	2	-	-	2
CO3	-	-	-	-	-	2	2	2	3	3	3	3	-	-	2
CO4	-	-	-	-	-	2	2	2	3	3	3	2	-	-	2
CO5	-	-	-	-	-	2	2	2	3	3	3	2	-	-	2
Average	-	-	-	-	-	2	2	2	3	3	3	2.2	-	-	2
‘3’High			‘2’ Moderate					‘1’ Low					‘-’ No Correlation		
Overall CO Attainment									2.78						
PO Attainment	-	-	-	-	-	1.48	1.48	1.48	2.22	2.22	2.22	1.63	-	-	1.48

GITA Autonomous College, Bhubaneswar
Department of Civil 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	2.31

PO Attainment	1.85	1.85	1.85	1.54	-	-	-	-	-	-	-	-	1.39	1.08	-

GITA Autonomous College, Bhubaneswar
Department of Civil Engineering

Semester: 2nd	**Subject Name:** Engineering Chemistry	**Subject Code:** 20BTTBS203

	Course Outcomes
CO1	Classify various fuels based on combustion parameters and understand the working principle of various batteries.
CO2	Apply the concept of molecular spectroscopy to analyze organic compounds using spectrophotometer .
CO3	Utilize the knowledge of electrochemistry and corrosion science in preventing engineering equipments from corrosion.
CO4	To understand the microstructure of a given alloy systems and eutectic systems under a given set of conditions.
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	2	3	3	3	2	2	-	-	1	1	3	1	2	-
CO2	3	2	3	3	3	2	2	-	-	1	1	3	1	1	-
CO3	3	2	3	3	3	2	2	-	-	1	1	3	2	2	-
CO4	3	2	3	3	3	2	2	-	-	1	1	3	2	1	-
CO5	3	2	3	3	3	2	2	-	-	1	1	3	-	-	-
Average	3	2	3	3	3	2	2	-	-	1	1	3	1.2	1.2	-

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

Overall CO Attainment	2.26

PO Attainment	2.26	1.51	2.26	2.26	2.26	1.51	1.51	-	-	0.75	0.75	2.26	0.90	0.90	-

GITA Autonomous College, Bhubaneswar
Department of Civil Engineering

Semester: 2nd	**Subject Name:** Basic Electronics Engineering	**Subject Code:** 20BTTES202

	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	2.24

PO Attainment	2.24	1.94	1.49	1.34	1.49	0.75	0.75	0.75	1.34	0.90	0.90	1.49	2.24	1.34	1.34

GITA Autonomous College, Bhubaneswar
Department of Civil Engineering

Semester: 2nd	**Subject Name:** Basic Civil Engineering	**Subject Code:**20BTTES204

	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 Civil Engineering

Semester: 2nd	**Subject Name:** Programming for Problem Solving using 'C'	**Subject Code:** 20BTTES206

	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									2.21						
PO Attainment	2.06	2.21	1.92	1.47	2.03	-	-	-	-	-	-	2.21	1.92	1.77	1.47

GITA Autonomous College, Bhubaneswar
Department of Civil Engineering

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 Civil Engineering

Semester: 2nd	**Subject Name:** Business Communication and life Skills	**Subject Code:** 20BTTHS202

	Course Outcomes
CO1	Understand and learn different formats of business correspondence at the workplace through which communication takes place.
CO2	Understand the importance of writing an effective Resume and Cover letter in the professional world and its uses.
CO3	Learn the concept and the use of oral presentation to improve professional presentation and the importance of Personal Interview.
CO4	Build qualities like Teamwork and leadership. Learning effective time management skills and assertiveness.
CO5	Learn the nuances of effective listening and conversation and use them in their professional life.

	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 Civil Engineering

Semester: 2nd	**Subject Name:** Chemistry Lab	**Subject Code:** 20BTPBS202

	Course Outcomes
CO1	Learn and apply basic techniques used in chemistry laboratory for small/large scale water analyses/purification.
CO2	Be able 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	Able to analyze and gain experimental skill.
CO5	Test the quality of an oil/fat by measuring its iodine or acid value by means of amount of unsaturation for various industrial use.

	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	3	3	1	-	-	2	1	-	1	-	2	-
CO2	2	3	2	3	2	1	-	-	1	1	-	1	-	2	-
CO3	3	2	1	3	3	1	-	-	1	1	-	1	1	2	-
CO4	3	3	3	2	3	2	1	1	2	2	1	1	-	2	-
CO5	1	1	1	1	1	1	1	1	3	3	1	2	1	1	-
Average	2.2	2.2	1.6	2.4	2.4	1.2	0.4	0.4	1.8	1.6	0.4	1.2	0.4	1.8	-

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

Overall CO Attainment	2.15

PO Attainment	1.58	1.58	1.15	1.72	1.72	0.86	0.29	0.29	1.29	1.15	0.29	0.86	0.29	1.29	-

GITA Autonomous College, Bhubaneswar
Department of Civil Engineering

Semester: 2nd	**Subject Name:** Basic Electronics Engineering Lab	**Subject Code:** 20BTPES202

	Course Outcomes
CO1	Acquire knowledge of various electronic components, measuring instruments.
CO2	Analyse circuit waveforms using an oscilloscope and function generator.
CO3	Implementation of Diode in various applications Rectifier, Clipper, Clamper.
CO4	Acquire knowledge of characteristics of transistors and various applications using Op-Amp.
CO5	Design digital circuits for various applications using 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	2	1	3	-	-	-	1	1	-	2	3	2	2
CO2	3	3	2	3	3	-	-	-	1	1	-	2	3	2	3
CO3	3	3	3	2	2	-	-	-	1	1	-	3	3	3	3
CO4	3	2	3	3	3	-	-	-	1	1	-	3	3	3	3
CO5	3	3	3	2	3	-	-	-	2	2	-	3	3	3	3
Average	3	2.6	2.6	2.2	2.8	-	-	-	1.2	1.2	-	2.6	3	2.6	2.8

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

Overall CO Attainment									2.23						
PO Attainment	2.23	1.93	1.93	1.64	2.08	-	-	-	0.89	0.89	-	1.93	2.23	1.93	2.08

GITA Autonomous College, Bhubaneswar
Department of Civil Engineering

Semester: 2nd	**Subject Name:** Basic Civil Engineering Lab	**Subject Code:** 20BTPES204

	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 Civil Engineering

Semester: 2nd	**Subject Name:** Workshop	**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									2.14						
PO Attainment	1.43	1.29	1.85	1.14	1.71	1.14	1.14	-	2.00	1.85	-	1.85	1.71	1.14	2.14

GITA Autonomous College, Bhubaneswar
Department of Civil Engineering

Semester: 2nd	**Subject Name:** Programming for Problem Solving using 'Python' Lab	**Subject Code:** 20BTPES207

	Course Outcomes
CO1	Understand the basic concept of programming.
CO2	Apply programming concept to solve problem.
CO3	Develop logic for problem solving.
CO4	Remember the python programming approach for problem solving.
CO5	Design various model to handle and process data.

	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	1	2	1	2	2	-
CO2	3	2	2	3	3	-	-	-	1	1	2	2	2	1	-
CO3	3	2	2	2	3	-	-	-	1	1	3	1	2	2	-
CO4	3	3	2	2	2	-	-	-	1	1	3	1	2	1	-
CO5	3	2	3	2	3	-	-	-	1	1	2	2	1	2	-
Average	3	2.2	2.4	2.2	2.6	-	-	-	1.2	1	2.4	1.4	1.8	1.6	-
'3'High			'2' Moderate				'1' Low					'-' No Correlation			
Overall CO Attainment									2.14						
PO Attainment	2.14	1.57	1.71	1.57	1.85	-	-	-	0.86	0.71	1.71	1	1.28	1.14	-

GITA Autonomous College, Bhubaneswar
Department of Civil Engineering

Semester: 3rd	Subject Name: Data Structure Using 'C'	Subject Code: 20BTTES303

	Course Outcomes
CO1	Analyze 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 application.
CO4	Represent data using trees & graphs to use them in various real life applications
CO5	Analyze 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	2	2	3	2	1	1	-	-	-	-	-	0		1	-
CO2	3	3	3	2	1	1	-	-	-	-	-	1		1	-
CO3	3	3	3	2	1	1	-	-	-	-	-	1		1	-
CO4	3	2	3	3	1	2	-	-	-	-	-	1		1	-
CO5	1	3	3	3	1	1	-	-	-	-	-	1		1	-
Average	2.4	2.6	3	2.4	1	1.2	-	-	-	-	-	0.8		1	-

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

Overall CO Attainment									2.41						
Attainment	1.93	2.09	2.41	1.93	0.80	0.96	-	-	-	-	-	0.64		0.80	-

GITA Autonomous College, Bhubaneswar
Department of Civil Engineering

Semester: 3rd	Subject Name: MECHANICS OF SOLID	Subject Code: 20BTCETPC303

	Course Outcomes
CO1	To evaluate the strength of various structural elements internal forces such as compression, tension, shear, bending and torsion.
CO2	To suggest suitable material from among the available in the field of construction and manufacturing.
CO3	To evaluate the behavior and strength of structural elements under the action of compound stress and thus understand failure concepts.
CO4	To understand the basic concept of analysis and design of members subjected to torsion.
CO5	To understand the basic concept of analysis and design of structural elements such as columns and struts.

	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	1	1	-	-	1	1	3	2	2	2
CO2	3	2	3	2	2	2	3	1	1	1	3	3	3	3	2
CO3	3	3	3	3	2	2	2	-	1	1	2	3	2	3	2
CO4	3	3	3	2	2	1	1	-	-	1	1	3	3	2	2
CO5	3	3	3	2	2	1	1	-	-	1	1	3	2	2	2
Average	3	2.8	3	2.4	2	1.4	1.6	1	1	1	1.6	3	2.4	2.4	2

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

Overall CO Attainment	2.21

Attainment	2.21	2.06	2.21	1.77	1.47	1.03	1.18	0.74	0.74	0.74	1.18	2.21	1.77	1.77	1.47

GITA Autonomous College, Bhubaneswar
Department of Civil Engineering

Semester: 3rd	Subject Name: FLUID MECHANICS AND HYDRAULIC MACHINES	Subject Code: 20BTCETPC304

	Course Outcomes
CO1	Student are able to understand and analyze the fluid characteristics like density , specific gravity , viscosity , surface tension etc. and their utlity in fluid science.
CO2	Student are able to understand hydrostatic and dynamic pressures at various conditions along with different types of pressure measuring devices and identify application potential.
CO3	Students are able to understand the concept of fluid flow in multiple dimension ,principles of discharge ,energy and momentum as well as understand the working principle of various discharge measuring devices and their applications.
CO4	Students will be able to apply their knowledge of fluid mechanics in addressing problems of open channel flow by understanding cross sections, hydraulic depth, hydrostatic pressure distribution and Manning's law and identifying future course of development in open channel flow
CO5	Students will be able to understand and address problems pertain to design, construction as well as efficient working of various types of hydraulics structures and machines by using dimensional analysis and model studies. Students will also have knowledge in Impact of Jet on vanes which is a base for analysis and design of turbo machines as well as knowledge of hydraulic machines (pumps and turbines)

	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	-	-	1	1	3	2	2	1
CO2	3	3	3	3	2	1	2	-	1	1	3	3	2	3	1
CO3	3	3	3	2	2	1	2	-	1	1	2	3	2	3	1
CO4	3	3	3	3	2	2	2	2	-	1	1	3	2	2	1
CO5	3	3	3	3	2	2	1	1	-	1	1	3	2	3	1
Average	3	3	2.8	2.6	2	1.4	1.6	1.5	1	1	1.6	3	2	2.6	1

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

Overall CO Attainment									2.34						
Attainment	2.34	2.34	2.18	2.03	1.56	1.09	1.25	1.17	0.78	0.78	1.25	2.34	1.56	2.03	0.78

GITA Autonomous College, Bhubaneswar
Department of Civil Engineering

Semester: 3rd	Subject Name: GEOTECHNICAL ENGINEERING	Subject Code: 20BTCETPC307

	Course Outcomes
CO1	Graduates will demonstrate an ability to identify various types of soils and its properties, formulate and solve engineering Problems
CO2	Graduate will show the basic understanding of flow through soil medium and its impact of engineering solution
CO3	Graduate to understand about the basic concept of stress distribution in loaded soil medium and soil settlement due to consolidation
CO4	Graduate will show the understanding of shear strength of soils and its impact of engineering solutions to the loaded soil medium.
CO5	Graduates will demonstrate an ability to design both finite and infinite slopes, component and process as per needs and specifications.

	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	2	-	-	-	2	2	3	3	1
CO2	3	3	3	3	3	2	1	-	-	-	2	2	3	3	-
CO3	2	2	2	2	1	-	-	-	-	-	1	1	2	3	1
CO4	3	3	3	2	2	1	2	-	-	-	1	2	2	2	-
CO5	3	2	2	1	-	-	-	-	-	-	-	-	1	1	-
Average	2.80	2.60	2.40	2.20	2.25	1.67	1.67	-	-	-	1.50	1.75	2.20	2.40	1
‘3’High			‘2’ Moderate				‘1’ Low					‘-’ No Correlation			
Overall CO Attainment									2.27						
PO Attainment	2.12	1.97	1.82	1.66	1.70	1.26	1.26	-	-	-	1.14	1.32	1.66	1.82	0.76

GITA Autonomous College, Bhubaneswar
Department of Civil Engineering

Semester: 3rd	Subject Name: SURVEYING	Subject Code: 20BTCETPC309

	Course Outcomes
CO1	Student are able to understand the basic principles of surveying for vertical, horizontal, linear and angular measurements to arrive at solutions to basic surveying problems
CO2	Student are able to understand levelling (auto level, theodolite) and using it in field of construction. Further draw contours to represent 3D data on plane figures.
CO3	Students are able to understand capture geodetic data to process and perform analysis for survey problems with the use of electronic instruments.
CO4	Students will be able to apply their knowledge of Survey in design and implement different types of curves of alignment, and applying surveying techniques to align highway and railway curves
CO5	Students will be able to analyze type of survey operation required for problem solving in field to perform.

	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	1	2	2	-	1	-	1	3	2	2	2
CO2	3	3	2	3	3	2	2	-	1	-	3	3	3	3	2
CO3	3	3	3	3	3	2	2	-	1	-	2	3	2	3	2
CO4	3	3	3	3	2	3	2	1	1	-	1	3	3	2	2
CO5	3	3	3	2	2	2	2	1	1	-	1	3	2	2	2
Average	3	3	2.6	2.6	2.2	2.2	2	1	1	-	1.6	3	2.4	2.4	2
‘3’High			‘2’ Moderate				‘1’ Low					‘-’ No Correlation			
Overall CO Attainment									2.41						
Attainment	2.41	2.41	2.08	2.0	1.7	1.76	1.60	0.80	0.80		1.28	2.41	1.928	1.928	1.60

GITA Autonomous College, Bhubaneswar
Department of Civil Engineering

Semester: 3rd	**Subject Name:** Employability Skill-II	**Subject Code:** 20BTCEPPC312

	Course Outcomes
CO1	Student will be able to improve their communication skills.
CO2	Student will be able to improve their interpersonal and teamwork skills.
CO3	Student will be able to improve their problem solving skills..
CO4	Student will be able to learn about professionalism.
CO5	Student will be able to develop their carrier by self development.

	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 Civil Engineering

Semester: 3rd	Subject Name: Environmental Science &Engineering	Subject Code: 20BTTMC301

	Course Outcomes
CO1	Apply concepts of ecology, ecosystems, food chain and biogeochemical cycles for better understanding of functions of the environment
CO2	Understand environmental gradients, tolerance level sand environmental laws for prevention of environmental pollution.
CO3	Enhance knowledge of water and waste water treatment for prevention of water pollution.
CO4	Understand the chemistry of pollutants in the atmosphere, soil and ground water and understand principles of noise abatement.
CO5	Enhance knowledge of waste minimization technique tominimize 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	-	-	-	-	-	3	3	2	1	1	1	3	-	1	2
CO2	-	-	-	-	-	3	3	3	2	2	2	3	-	2	2
CO3	-	-	-	-	-	3	3	2	2	2	2	3	-	2	2
CO4	-	-	-	-	-	3	3	2	2	2	2	3	-	2	2
CO5	-	-	-	-	-	3	3	3	2	2	3	3	-	2	3
Average	-	-	-	-	-	3	3	2.4	1.8	1.8	2	3	-	1.8	2.2
‘3’High			‘2’ Moderate					‘1’ Low					‘-’ No Correlation		
Overall CO Attainment									2.55						
Attainment	-	-	-	-	-	2.55	2.55	2.04	1.53	1.53	1.70	2.55	-	1.53	1.87

GITA Autonomous College, Bhubaneswar
Department of Civil Engineering

Semester: 3rd	Subject Name: Universal Human Values	Subject Code: 20BTTHS304

	Course Outcomes
CO1	More 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 able 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	-	-	-	-	-	3	3	2	2	1	3	1	-	1	1
CO2	-	-	-	-	-	3	3	3	2	2	2	3	-	2	2
CO3	-	-	-	-	-	2	3	2	2	2	2	3	-	2	2
CO4	-	-	-	-	-	3	3	3	3	3	2	3	-	2	2
CO5	-	-	-	-	-	2	3	2	2	2	3	3	-	2	3
Average	-	-	-	-	-	2.6	3	2.4	2.2	2	2.4	2.6	-	1.8	2
‘3’High			‘2’ Moderate					‘1’ Low					‘-’ No Correlation		
Overall CO Attainment									2.29						
Attainment	-	-	-	-	-	1.98	2.29	1.83	1.68	1.53	1.83	1.98	-	1.37	1.53

GITA Autonomous College, Bhubaneswar
Department of Civil Engineering

Semester: 3rd	Subject Name: Fluid Mechanics & Hydraulic Machines Lab	Subject Code: 20BTCEPPC305

	Course Outcomes
CO1	Determine the impact of jets in flow devices .
CO2	Analyze the equilibrium conditions of floating bodies.
CO3	Apply Bernoulli equation for calibration of flow measuring devices.
CO4	Determine the performance characteristics of turbines.
CO5	Determine the performance characteristics of pumps.

	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	-	-	1	3	1	2	3	1
CO2	3	3	2	2	2	1	1	-	1	1	2	3	2	3	1
CO3	3	3	2	2	2	2	1	-	1	1	2	3	2	2	1
CO4	3	2	2	3	2	2	1	2	-	1	2	3	2	2	1
CO5	3	2	2	3	2	2	1	1	-	1	3	3	2	2	1
Average	3	2.6	2	2.4	2	1.6	1	1.5	1	1	2.4	2.6	2	2.4	1

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

Overall CO Attainment									1.32						
Attainment	1.32	1.14	0.88	1.06	0.88	0.70	0.44	0.66	0.44	0.44	1.06	1.14	0.88	1.06	0.44

GITA Autonomous College, Bhubaneswar
Department of Civil Engineering

Semester: 3rd	Subject Name: Data Structure Using 'C' Lab	Subject Code: 20BTPES308

	Course Outcomes
CO1	Implement various operations on array and sparse matrix.
CO2	Design functions to implement basic operations on stack & queue and apply them to solve real world problems
CO3	Implement single, double & circular linked list and apply them in various real life applications.
CO4	Construct binary search tree and perform traversal, insertion, deletion, and search operations on it.
CO5	Perform BFS and DFS traversal operations in a graph and implement various sorting and searching algorithms

	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	-	-	1	-	-	-	-	-	1	3	-	3
CO2	2	3	3	-	-	1	-	-	-	-	-	1	3	-	3
CO3	2	3	3	-	-	1	-	-	-	-	-	-	3	-	3
CO4	2	3	2	-	-	2	-	-	-	-	-	1	3	-	3
CO5	2	3	3	-	-	1	-	-	-	-	-	1	3	-	3
Average	2	3	2.8	-	-	1.2	-	-	-	-	-	0.8	3	-	3

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

Overall CO Attainment									1.61						
Attainment	1.07	1.61	1.50	-	-	0.64	-	-	-	-	-	0.43	1.61	-	1.61

GITA Autonomous College, Bhubaneswar
Department of Civil Engineering

Semester: 3rd	Subject Name: Geotechnical Engineering Lab	Subject Code: 20BTCEPPC302

	Course Outcomes
CO1	Students are able to conduct tests to determine the index properties of soils
CO2	Students are be to determine the in situ density and compaction characteristics.
CO3	Students are able to conduct tests to determine the compressibility of soil.
CO4	Students are able to conduct tests to determine the permeability of soils.
CO5	Students are able to conduct tests to determine the strength of soils.

	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	-	-	1	3	1	3	2	1
CO2	3	3	2	2	2	1	1	-	1	1	2	3	3	3	1
CO3	3	3	2	2	2	2	1	-	1	1	2	3	3	3	1
CO4	3	2	2	3	2	2	1	2	-	1	2	3	3	3	2
CO5	3	2	2	3	2	2	1	1	-	1	3	3	2	2	3
Average	3	2.6	2	2.4	2	1.6	1	1.5	1	1	2.4	2.6	2.8	2.6	1.6
‘3’High			‘2’ Moderate				‘1’ Low					‘-’ No Correlation			
Overall CO Attainment									1.67						
Attainment	1.67	1.45	1.11	1.34	1.11	0.89	0.56	0.84	0.56	0.56	1.34	1.45	1.56	1.45	0.89

GITA Autonomous College, Bhubaneswar
Department of Civil Engineering

Semester: 3rd	Subject Name: Survey Field Work	Subject Code: 20BTCEPPC308

	Course Outcomes
CO1	Apply the principle of surveying for Civil engineering Application.
CO2	Calculation of areas, drawing plans and contour maps using different measuring equipment at field level.
CO3	To prepare topographical map and contour map on an area
CO4	To relate theoretical knowledge of surveying to resolve real field problems.
CO5	To learn to work as team, ethics, and prepare technical reports of surveying.

	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	-	1	1	1	3	3	2	1
CO2	3	3	3	2	3	1	1	-	1	1	1	3	3	3	1
CO3	3	3	3	2	3	1	1	-	2	1	1	3	3	3	1
CO4	3	3	3	3	3	1	1	-	2	2	1	3	3	3	2
CO5	2	2	2	2	2	1	1	3	3	3	3	3	2	2	3
Average	2.8	2.8	2.6	2.2	2.6	1	1	3	1.8	1.6	1.4	3	2.8	2.6	1.6

'3'High	'2' Moderate	'1' Low	'-' No Correlation
Overall CO Attainment		1.7	

Attainment	1.59	1.59	1.47	1.25	1.47	0.57	0.57	1.70	1.02	0.91	0.79	1.70	1.59	1.47	0.91

GITA Autonomous College, Bhubaneswar
Department of Civil Engineering

Semester: 4th	Subject Name: Engineering Mathematics III	Subject Code: 20BTTBS405

	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	2.14

PO Attainment	1.71	1.71	1.56	1.56	-	-	-	-	-	-	-	-	1.28	1.42	-

GITA Autonomous College, Bhubaneswar
Department of Civil Engineering

Semester: 4th	**Subject Name:** Structural Analysis-I	**Subject Code:** 20BTTBS405

	Course Outcomes
CO1	To provide a holistic development of the students for the courses in sector of Structural Analysis
CO2	To present the foundations of many basic engineering concepts related to Analysis of structures
CO3	To give an experience for implementation of analysis concepts which are applied in the field of structural design.
CO4	To involve in the application of scientific and technological principles of Analysis
CO5	To enable the students realize the real-life behaviour of Civil Engineering structures and to make the students familiar with latest computational techniques and software used for structural 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	2	3	3	2	2	2	-	2	1	1	3	1	3	3
CO2	2	3	3	3	2	2	1	-	2	1	1	2	1	3	2
CO3	3	3	3	2	3	2	2	-	2	1	2	3	1	2	3
CO4	3	2	2	3	2	2	1	-	2	1	1	3	1	3	3
CO5	3	3	3	3	3	2	1	-	2	1	1	3	1	3	2
Average	2.8	2.6	2.8	2.8	2.4	2	1.4	-	2	1	1.2	2.8	1	2.8	2.6
‘3’High			‘2’ Moderate				‘1’ Low					‘-’ No Correlation			
Overall CO Attainment									2.62						
PO Attainment	2.44	2.27	2.44	2.44	2.09	1.74	1.22	-	1.74	0.87	1.04	2.44	0.87	2.44	2.27

GITA Autonomous College, Bhubaneswar
Department of Civil Engineering

Semester: 4th	**Subject Name:** Transportation Engineering-I	**Subject Code:** 20BTCETPC408

	Course Outcomes
CO1	Student will be able to understand and analyze transportation system, history of highway engineering and economics spreading over the time.
CO2	Student will be able to understand regarding computation and design the different component of the highway such as sight distances, horizontal curves, super elevation, extra widening, transition curves and gradient, vertical curves etc.
CO3	Student will be able to understand regarding the design criteria of pavements by IRC guideline.
CO4	Student will be able apply their knowledge of traffic engineering and components of traffic such as traffic signs, signals, and design of traffic signals design, rotary intersection, Volume studies, and speed studies.
CO5	Students will be able to understand regarding the testing of construction materials used in highway such as Soil, Stone Aggregate, Bitumen, and Marshal Stability Test etc.

	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	3	2	2	2	-	2	1	1	3	1	3	3
CO2	3	2	3	3	3	2	1	-	2	1	1	2	1	3	2
CO3	3	3	2	3	3	2	2	-	2	1	2	3	1	2	3
CO4	3	2	2	3	2	2	2	-	2	1	1	3	1	3	3
CO5	3	3	3	3	3	2	1	-	2	1	1	3	1	3	2
Average	3	2.4	2.6	3	2.6	2	1.6	-	2	1	1.2	2.8	1	2.8	2.6

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

Overall CO Attainment	2.42

PO Attainment	2.42	1.93	2.09	2.42	2.09	1.61	1.29	-	1.61	0.80	0.96	2.25	0.80	2.25	2.09

GITA Autonomous College, Bhubaneswar
Department of Civil Engineering

Semester: 4th	Subject Name: Water and Waste Water Engineering	Subject Code: 20BTCETPC410

	Course Outcomes
CO1	Student will be able to clarify and identify raw water.
CO2	Student will be able to apply appropriate treatment to raw water i.e. surface water/ground water useful for domestic as well as drinking purpose, industries liquid waste and reuse of water.
CO3	Student will be able to calculate and recommend the pipe- network distribution for water supply and Sewage disposal effectively.
CO4	Students will be able to summarize the quality parameters typically used to differentiate wastewater and judge the different classes of treated wastewater.
CO5	Students will be able to describe various types of process units.

	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	3	2	2	2	-	2	-	1	3	1	3	3
CO2	3	3	3	3	3	1	1	-	2	-	1	2	1	3	2
CO3	3	3	2	3	3	2	2	-	2	-	2	3	1	3	3
CO4	3	2	3	2	3	2	2	-	1	-	1	2	1	3	3
CO5	3	3	3	3	3	2	1	-	1	-	1	3	1	3	1
Average	3	2.6	2.8	2.8	2.8	1.8	1.6	-	1.6	-	1.2	2.6	1	3	2.4

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

Overall CO Attainment	2.51

PO Attainment	2.51	2.17	2.34	2.34	2.34	1.50	1.33	-	1.33	-	1.00	2.17	0.83	2.51	2.00

GITA Autonomous College, Bhubaneswar
Department of Civil Engineering

Semester: 4th	**Subject Name:** Employability Skill-II	**Subject Code:** 20BTCEPPC413

	Course Outcomes
CO1	Student will be able to improve their communication skills.
CO2	Student will be able to improve their interpersonal and teamwork skills.
CO3	Student will be able to improve their problem solving skills..
CO4	Student will be able to learn about professionalism.
CO5	Student will be able to develop their carrier by self development.

	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	2	3	3	2	1	2	1
CO2	2	2	1	-	1	-	-	3	2	3	2	2	1	2	2
CO3	3	1	1	-	1	-	-	2	3	3	2	2	1	2	1
CO4	2	2	1	-	1	-	-	3	2	3	3	2	1	2	2
CO5	2	1	1	-	1	-	-	3	2	3	2	2	1	2	1
Average	2.4	1.6	1	-	1	-	-	2.8	2.2	3	2.4	2	1	2	1.4

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

Overall CO Attainment	2.33

PO Attainment	1.86	1.24	0.77	-	0.77	-	-	2.17	1.70	2.33	1.86	1.55	0.77	1.55	1.08

GITA Autonomous College, Bhubaneswar
Department of Civil Engineering

Semester: 4th	Subject Name: Concrete Technology	Subject Code: 20BTCETPE402

	Course Outcomes
CO1	Get the detail knowledge of various building materials used in construction.
CO2	Clear the concept of fresh and hardened properties of concrete.
CO3	Get the knowledge to design the concrete mix and find the proportional quantity by using IS code.
CO4	Develop the knowledge about the technique behind construction work.
CO5	Well understanding of the mechanism of construction by using different equipments

	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	3	2	2	2	-	-	1	1	3	1	3	3
CO2	3	3	3	3	3	2	1	-	-	1	1	2	1	3	2
CO3	3	3	2	3	3	2	2	-	-	1	2	3	1	2	3
CO4	3	2	2	3	2	2	2	-	-	1	1	3	1	3	3
CO5	3	3	3	3	3	2	1	-	-	1	1	3	1	3	2
Average	3	2.6	2.6	3	2.6	2	1.6	-	-	1	1.2	2.8	1	2.8	2.6

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

Overall CO Attainment	2.42

PO Attainment	2.42	2.09	2.09	2.42	2.09	1.61	1.29	-	-	0.80	0.96	2.25	0.80	2.25	2.09

GITA Autonomous College, Bhubaneswar
Department of Civil Engineering

Semester: 4th	Subject Name: Engineering Economics and Costing	Subject Code: 20BTTHS405

	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									2.12						
PO Attainment	-	-	-	-	-	-	1.13	1.13	0.98	0.98	0.84	1.13	-	0.70	-

GITA Autonomous College, Bhubaneswar
Department of Civil Engineering

Semester: 4th	Subject Name: Constitution Of India	Subject Code: 20BTTMC402

	Course Outcomes
CO1	Analyze the basic structure of Indian Constitution.
CO2	Remember their Fundamental Rights, DPSP's and Fundamental Duties (FD's) of our constitution.
CO3	Know about our Union Government, political structure & codes, procedures.
CO4	Understand our State Executive & Elections system of India.
CO5	Remember the Amendments and Emergency Provisions, other important provisions given by the constitution.

	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	3	1	2	1	1	-	-	1
CO2	1	-	-	-	-	-	1	3	1	2	1	1	-	-	1
CO3	1	-	-	-	-	-	1	3	1	2	1	1	-	-	1
CO4	1	-	-	-	-	-	1	3	1	2	1	1	-	-	1
CO5	1	-	-	-	-	-	1	3	1	2	1	1	-	-	1
Average	1	-	-	-	-	-	1	3	1	2	1	1	-	-	1

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

Overall CO Attainment	2.11

PO Attainment	0.70	-	-	-	-	-	0.70	2.11	0.70	1.40	0.70	0.70	-	-	0.70

GITA Autonomous College, Bhubaneswar
Department of Civil Engineering

Semester: 4th	**Subject Name:** Transportation Engineering-Lab	**Subject Code:** 20BTCEPPC407

	Course Outcomes
CO1	Identify the functional role of different materials of highway engineering.
CO2	Test the existing highway material used for construction of pavement.
CO3	Examine the quality of that material used in existing highway.
CO4	Apply this knowledge to mix design philosophy to get different suitable B.M. &S.D.B.C. Mix.
CO5	Student shall learn to work in a team to achieve the objective.

	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	3	2	2	2	-	2	1	1	3	1	3	3
CO2	3	2	3	3	3	2	1	-	2	1	1	2	1	3	2
CO3	3	3	2	3	3	2	2	-	2	1	2	3	1	2	3
CO4	3	2	2	3	2	2	2	-	2	1	1	3	1	3	3
CO5	3	3	3	3	3	2	1	-	2	1	1	3	1	3	2
Average	3	2.4	2.6	3	2.6	2	1.6	-	2	1	1.2	2.8	1	2.8	2.6

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

Overall CO Attainment	2.42

PO Attainment	2.42	1.93	2.09	2.42	2.09	1.61	1.29	-	1.61	0.80	0.96	2.25	0.80	2.25	2.09

GITA Autonomous College, Bhubaneswar
Department of Civil Engineering

Semester: 4th	Subject Name: Environmental Engineering Lab	Subject Code: 20BTCEPPC410

	Course Outcomes
CO1	Determine pH, Electrical Conductivity and turbidity of water sample
CO2	Determine the physical characteristics of water
CO3	Determine the chemical characteristics of water
CO4	Determine the biological characteristics of water
CO5	Determine DO,BOD of water

	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	3	2	2	2	-	2	1	1	3	1	3	3
CO2	3	3	3	3	3	2	1	-	2	1	1	2	1	3	2
CO3	3	3	2	3	3	2	2	-	2	1	2	3	1	2	3
CO4	3	2	2	3	2	2	2	-	1	1	1	3	1	3	3
CO5	3	3	3	3	3	2	1	-	1	1	1	3	1	3	2
Average	3	2.6	2.6	3	2.6	2	1.6	-	1.6	1	1.2	2.8	1	2.8	2.6
‘3’High					‘3’High				‘2’ Moderate				‘1’ Low		
Overall CO Attainment									2.31						
PO Attainment	2.4	1.92	2.08	2.4	2.08	1.6	1.28	-	1.28	0.8	0.96	2.24	0.8	2.24	2.08

GITA Autonomous College, Bhubaneswar
Department of Civil Engineering

Semester: 4th	Subject Name: Civil Engineering Drawing	Subject Code: 20BTCEPPC409

	Course Outcomes
CO1	To know how to apply engineering drawing using computers.
CO2	To understand about the scope of Auto CAD software
CO3	To know what is plan and elevation and how it should drawn in auto CAD software
CO4	Draw steel roof truss and its various sections.
CO5	Complete drawing of plan and elevation for a residential/office/commercial/medical building showing all the structural work like footing/staircase/brickwork /flooring etc.

	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	-	2	-	3	2	2
CO2	2	1	1	1	-	-	-	-	1	-	2	-	3	2	1
CO3	2	2	1	1	-	-	-	-	2	-	2	-	3	2	2
CO4	2	1	1	1	-	-	-	-	1	-	2	-	3	2	1
CO5	2	1	1	1	-	-	-	-	1	-	2	-	3	2	2
Average	2	1.2	1	1	-	-	-	-	1.4	-	2	-	3	2	1.6
'3'High			'2' Moderate					'1' Low				'-' No Correlation			
Overall CO Attainment									2.34						
PO Attainment	1.56	0.93	0.78	0.78	-	-	-	-	1.09	-	1.56	-	2.34	1.56	1.24

GITA Autonomous College, Bhubaneswar
Department of Civil Engineering

Semester: 4th	**Subject Name:** Mini Project I	**Subject Code:** 20BTCEPPSI406

	Course Outcomes
CO1	Students are able to know the theoretical knowledge.
CO2	Students are able to do the practical implementation.
CO3	Students are able to gain the ability of problem solving and analysis.
CO4	Students are able to lead the project management.
CO5	Students are able to gain teamwork and collaboration.

	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	3	2	2	3	3	3	2	3	3	2
CO2	3	3	2	2	3	3	2	2	3	2	3	2	3	2	2
CO3	3	3	3	3	2	3	2	2	3	2	3	3	3	2	2
CO4	3	3	2	2	3	3	2	3	3	2	3	2	3	3	2
CO5	3	3	3	3	2	3	2	2	3	3	3	3	3	2	2
Average	3	3	2.6	2.6	2.4	3	2	2.2	3	2.4	3	2.4	3	2.4	2

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

Overall CO Attainment	2.42

PO Attainment	2.42	2.42	2.09	2.09	1.96	2.42	1.61	1.77	2.42	1.93	2.42	1.93	2.42	1.93	1.61

GITA Autonomous College, Bhubaneswar
Department of Civil Engineering

Semester: 5th	**Subject Name:** Structural Analysis-II	**Subject Code:** 20BTCETPC505

	Course Outcomes
CO1	Analysis of indeterminate structure using slope-deflection method, moment distribution method and kani's method.
CO2	Analysis of indeterminate arch to finding out of the different stress resultant factors like moment and reaction at support, shear force, normal thrust and radial shear at different sections.
CO3	Computer-automated analysis of complex structures by Matrix Method using stiffness method which is suitable statically inderminate structures.
CO4	Solving structural design problems by flexibility matrix method suitable to kinametically indeterminate structures.
CO5	How to find the shape factors and also formation of plastic hinge in a structure.

	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	2	2	3
CO2	2	3	3	1	1	3	-	1	-	-	1	2	1	1	2
CO3	2	3	3	2	2	2	-	2	-	-	2	1	2	3	3
CO4	2	3	3	1	1	3	-	2	-	-	3	1	3	1	2
CO5	2	2	1	2	1	2	-	3	-	-	2	1	2	1	1
Average	2.2	2.8	2.4	1.6	1.4	2.4	-	2	-	-	2	1.2	2	1.6	2.2

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

Overall CO Attainment	2.50

PO Attainment	1.83	2.33	2	1.33	1.16	2	-	1.66	-	-	1.66	1	1.66	1.33	1.83

GITA Autonomous College, Bhubaneswar
Department of Civil Engineering

Semester: 5th	**Subject Name:** Design of Concrete Structures	**Subject Code:** 20BTCETPC502

	Course Outcomes
CO1	Recall basic concepts of reinforced concrete design, material stress–strain curves, and safety factors to know the properties of concrete structure and the concept of Stress block parameters and use the design concept of working stress method, limit state method for designing different structural components like beams and columns
CO2	Solve singly reinforced, doubly reinforced, T, and L beam sections for obtaining the reinforcement details in load bearing members.
CO3	Develop the design concept of one way and two-way Slabs and continuous slabs for design the different spans and loading condition.
CO4	Understand the concepts of short and long columns to evaluate the design strength of vertical members and obtain reinforcement details.
CO5	Develop concept for the design of various type of retaining walls.

	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	1	2	-	2	3	-	-	1	3	3	3
CO2	2	2	3	2	3	2	-	3	2	-	-	2	1	1	2
CO3	3	3	3	2	1	2	-	2	1	-	-	1	2	3	3
CO4	2	2	3	3	3	3	-	2	2	-	-	1	3	1	2
CO5	2	2	2	2	1	2	-	3	2	-	-	1	2	2	2
Average	2.4	2.4	2.8	2.2	1.8	2.2	-	2.4	2	-	-	1.2	2.2	2	2.4

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

Overall CO Attainment	2.51

PO Attainment	2.00	2.00	2.34	1.84	1.50	1.84	-	2.00	1.67	-	-	1.00	1.84	1.67	2.0

GITA Autonomous College, Bhubaneswar
Department of Civil Engineering

Semester: 5th	**Subject Name:** Hydrology and Open Channel Hydraulics	**Subject Code:** 20BTCETPC512

	Course Outcomes
CO1	Define the key drivers on water resources, hydrological processes and their integrated behaviour in catchments
CO2	Apply the knowledge of hydrological models to surface water problems including basin characteristics, stream gauging and capacity estimation
CO3	Explain the concept of discharge time behaviour of catchments through hydrograph UH and other graphical methods.
CO4	Explain the concept of hydrological extremes such as Flood and Drought and management strategies
CO5	Apply the concepts of open channel flow for design and 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	3	2	1	2	-	-	1	-	-	1	2	1	3
CO2	2	3	2	1	2	3	-	-	2	-	-	2	1	1	2
CO3	3	3	3	2	1	2	-	-	1	-	-	1	2	2	3
CO4	2	3	3	1	3	3	-	-	1	-	-	3	3	2	1
CO5	3	3	3	2	1	2	-	-	2	-	-	1	2	1	3
Average	2.6	3	2.8	1.6	1.6	2.4	-	-	1.4	-	-	1.6	2	1.4	2.4
‘3’High			‘2’ Moderate				‘1’ Low					‘-’ No Correlation			
Overall CO Attainment									2.55						
PO Attainment	2.21	2.55	2.38	1.36	1.36	2.04	-	-	1.19	-	-	1.36	1.7	1.19	2.04

GITA Autonomous College, Bhubaneswar
Department of Civil Engineering

Semester: 5th	**Subject Name:** Foundation Engineering	**Subject Code:** 20BTCETPE504

	Course Outcomes
CO1	Graduate will demonstrate an ability to plan and execute a detailed site investigation to select geotechnical design parameters and type of foundation
CO2	Graduate will demonstrate an ability to design shallow foundations, its component or process as per the needs and specifications.
CO3	Graduate will demonstrate an ability to design combined footings and raft foundations, its component or process as per the needs and specifications
CO4	Graduate will demonstrate an ability to design deep foundations, its component or process as per the needs and specifications.
CO5	Graduate will demonstrate an ability to design retaining walls, its component or process as per the needs and specifications.

	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	1	2	3	-	1	-	-	1	2	1	3
CO2	3	3	2	3	1	3	2	-	2	-	-	3	3	1	1
CO3	3	3	3	2	1	2	3	-	1	-	-	1	2	2	3
CO4	2	3	3	1	1	3	3	-	1	-	-	2	3	1	2
CO5	2	1	1	2	1	2	1	-	2	-	-	1	2	1	1
Average	2.6	2.6	2.4	2	1	2.4	2.4	-	1.4	-	-	1.6	2.4	1.2	2

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

Overall CO Attainment	2.48

PO Attainment	2.14	2.14	1.98	1.65	0.82	1.98	1.98	-	1.15	-	-	1.32	1.98	0.99	1.65

GITA Autonomous College, Bhubaneswar
Department of Civil Engineering

Semester: 5th	**Subject Name:** Solid Waste Management	**Subject Code:** 20BTCETOE502

	Course Outcomes
CO1	Understanding of solid waste management principles: Students will be able to describe the fundamental principles of solid waste management, including waste generation, collection, transportation, and disposal.
CO2	Knowledge of waste characterization and quantification: Students will be able to characterize and quantify different types of solid waste, including municipal solid waste, industrial waste, and hazardous waste.
CO3	Familiarity with waste management technologies: Students will be familiar with various waste management technologies, including recycling, composting, incineration, and landfilling.
CO4	Understanding of waste management policies and regulations: Students will understand the key policies and regulations governing solid waste management at national and international levels.
CO5	Waste management planning and design: Students will be able to apply waste management planning and design principles to real-world 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	3	3	3	2	3	2	-	2	-	-	-	1	2	3	3
CO2	2	3	2	1	1	3	-	1	-	-	-	2	1	1	2
CO3	3	2	3	3	2	2	-	2	-	-	-	1	2	2	3
CO4	3	3	3	2	1	2	-	2	-	-	-	1	2	3	3
CO5	3	2	3	2	2	2	-	3	-	-	-	3	2	1	2
Average	2.8	2.6	2.8	2	1.8	2.2	-	2	-	-	-	1.6	1.8	2	2.6
'3'High			'2' Moderate				'1' Low				'-' No Correlation				
Overall CO Attainment									2.53						
PO Attainment	2.36	2.19	2.36	1.68	1.51	1.85	-	1.68	-	-	-	1.34	1.51	1.68	2.19

GITA Autonomous College, Bhubaneswar
Department of Civil Engineering

Semester: 5th	**Subject Name**: Employability Skill-III	**Subject Code:** 20BTCEPPC514

	Course Outcomes
CO1	Have skills and preparedness for aptitude tests.
CO2	Be equipped with essential communication skills (writing, verbal and non-verbal)
CO3	Master the presentation skill and be ready for facing interviews.
CO4	Build team and lead it for problem solving
CO5	After the completion of this unit the students will have learnt the strategies of vocabulary.

	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	1	2	-	2	1	-	-	1	2	1	3
CO2	3	2	3	2	1	2	-	3	2	-	-	1	2	1	3
CO3	3	3	3	2	1	2	-	2	1	-	-	1	2	2	3
CO4	2	3	2	1	1	3	-	1	2	-	-	2	1	1	2
CO5	3	2	3	2	1	2	-	3	2	-	-	1	2	1	3
Average	2.8	2.6	2.8	1.8	1	2.2	-	2.2	1.6	-	-	1.2	1.8	1.2	2.8

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

Overall CO Attainment	2.46

PO Attainment	2.29	2.13	2.29	1.47	0.82	1.80	-	1.80	1.31	-	-	0.98	1.47	0.98	2.29

GITA Autonomous College, Bhubaneswar
Department of Civil Engineering

Semester: 5th	**Subject Name:** Essence of Indian Knowledge and Tradition-I	**Subject Code:** 20BTTMC503

	Course Outcomes
CO1	Understand the concept of Traditional knowledge and its importance.
CO2	Know the need and importance of protecting traditional knowledge.
CO3	Know the various enactments related to the protection of traditional knowledge.
CO4	Understand the concepts of Intellectual property to protect the traditional knowledge.
CO5	Understand the traditional knowledge in different sectors.

	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	1	2	-	-	1	-	2	1	2	1	3
CO2	1	3	1	1	1	2	-	-	3	-	1	2	2	3	2
CO3	3	3	3	2	1	2	-	-	1	-	2	1	2	2	3
CO4	3	3	3	2	1	2	-	-	1	-	2	1	2	1	3
CO5	3	2	3	2	1	2	-	-	2	-	2	1	2	1	3
Average	2.6	2.8	2.6	1.8	1	2	-	-	1.6	-	1.8	1.2	2	1.6	2.8

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

Overall CO Attainment	2.47

PO Attainment	2.14	2.30	2.14	1.48	0.82	1.64	-	-	1.31	-	1.48	0.98	1.64	1.31	2.30

GITA Autonomous College, Bhubaneswar
Department of Civil Engineering

Semester: 5th	**Subject Name:** Structural Engineering Lab	**Subject Code:** 20BTCEPPC503

	Course Outcomes
CO1	Understand the software usages and produce structural drawing for structural members.
CO2	Design and analyze plane frame and truss subjected to different type of loading
CO3	Design, detailing and estimations of RC structural members like beam, column, slab, and Footing
CO4	Design and analysis of bridge deck slab for different loading conditions
CO5	Design and analysis of retaining wall for different loading conditions

	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	1	2	-	3	3	-	-	1	2	3	3
CO2	3	3	2	2	2	3	-	1	2	-	-	2	3	1	2
CO3	2	2	3	2	1	2	-	2	1	-	-	1	2	2	3
CO4	3	3	2	3	2	3	-	1	2	-	-	1	3	1	1
CO5	3	2	3	2	1	2	-	3	2	-	-	1	2	1	3
Average	2.6	2.6	2.6	2.2	1.4	2.4	-	2	2	-	-	1.2	2.4	1.6	2.4

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

Overall CO Attainment	2.44

PO Attainment	2.11	2.11	2.11	1.78	1.13	1.95	-	1.62	1.62	-	-	0.97	1.95	1.30	1.95

GITA Autonomous College, Bhubaneswar
Department of Civil Engineering

Semester: 5th	**Subject Name:** Design of Concrete Structures Practice	**Subject Code:** 20BTCEPPC501

	Course Outcomes
CO1	know how to find the properties of different ingredients of concrete.
CO2	Design concrete mix as per Indian standard for different types of concrete.
CO3	Understand to calculate the dead load and live load of different structural member.
CO4	Develop concept for the design of various RCC member.
CO5	Know the detailing of different structural member

	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	1	2	-	2	1	-	-	1	2	1	3
CO2	3	2	2	1	3	3	-	3	2	-	-	2	3	1	3
CO3	3	3	3	3	1	2	-	2	1	-	-	1	2	2	1
CO4	2	3	3	1	1	3	-	2	2	-	-	1	3	1	2
CO5	3	2	3	2	3	2	-	3	2	-	-	1	2	2	3
Average	2.8	2.6	2.8	1.8	1.8	2.4	-	2.4	1.6	-	-	1.2	2.4	1.4	2.4
‘3’High			‘2’ Moderate				‘1’ Low					‘-’ No Correlation			
Overall CO Attainment									2.48						
PO Attainment	2.31	2.14	2.31	1.48	1.48	1.98	-	1.98	1.32	-	-	0.99	1.98	1.15	1.98

GITA Autonomous College, Bhubaneswar
Department of Civil Engineering

Semester: 5th	**Subject Name:** Concrete Technology Lab	**Subject Code:** 20BTCEPPC502

	Course Outcomes
CO1	Outline the importance of testing of cement and its properties.
CO2	Assess the different properties of aggregate.
CO3	Summarise the concept of workability and testing of concrete.
CO4	Describe the preparation of green concrete.
CO5	Describe the properties of hardened concrete.

	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	1	2	-	2	1	-	-	1	2	1	3
CO2	2	3	2	1	1	3	-	1	2	-	-	2	1	1	2
CO3	3	3	3	2	1	2	-	2	1	-	-	1	2	2	3
CO4	2	3	3	1	1	3	-	2	1	-	-	1	3	1	2
CO5	3	2	3	2	1	2	-	3	2	-	-	1	2	1	3
Average	2.6	2.8	2.8	1.6	1	2.4	-	2	1.4	-	-	1.2	2	1.2	2.6

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

Overall CO Attainment	2.54

PO Attainment	2.20	2.37	2.37	1.35	0.84	2.03	-	1.69	1.18	-	-	1.01	1.69	1.01	2.20

GITA Autonomous College, Bhubaneswar
Department of Civil Engineering

Semester: 5th	**Subject Name:** Evaluation of Summer Internship	**Subject Code:** 20BTCEPPSI509

	Course Outcomes
CO1	Student is able to construct the company profile by compiling the brief history, management structure, products / services offered, key achievements and market performance for his / her organization of internship.
CO2	For his / her organization of internship, the student is able to assess its Strengths, Weaknesses, Opportunities and Threats (SWOT).
CO3	Student is able to determine the challenges and future potential for his / her internship organization in particular and the sector in general.
CO4	Student is able to test the theoretical learning in practical situations by accomplishing the tasks assigned during the internship period.
CO5	Student is able to apply various soft skills such as time management, positive attitude and communication skills during performance of the tasks assigned in internship organization.

	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	2	1	2	2	-	1	1	2	1	3
CO2	3	3	2	2	3	3	1	1	2	-	2	2	1	1	2
CO3	3	3	2	2	3	2	1	2	2	-	1	1	2	2	3
CO4	2	3	3	2	3	3	1	2	1	-	1	1	3	1	2
CO5	3	2	3	2	2	2	1	3	3	-	1	1	2	1	3
Average	2.8	2.8	2.6	2	2.6	2.4	1	2	2	-	1.2	1.2	2	1.2	2.6
‘3’High			‘2’ Moderate				‘1’ Low					‘-’ No Correlation			
Overall CO Attainment									2.55						
PO Attainment	2.38	2.38	2.21	1.7	2.21	2.04	0.85	1.7	1.7	-	1.02	1.02	1.7	1.02	2.21

GITA Autonomous College, Bhubaneswar
Department of Civil Engineering

Semester: 5th	**Subject Name:** Mini Project II	**Subject Code:** 20BTCEPPSI507

	Course Outcomes
CO1	Understand and apply the knowledge of the industry in which the internship is done.
CO2	Remember and apply the knowledge and skills learned in the classroom in a work setting.
CO3	Understand and analyze the activities and functions of business professionals.
CO4	Understand and evaluate the areas for future knowledge and skill development.
CO5	Analyze and develop a greater understanding about career options while more clearly defining personal career goals.

	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	1	2	-	2	1	-	-	1	2	3	3
CO2	3	3	2	1	2	2	-	1	2	-	-	2	1	1	2
CO3	2	2	1	2	1	2	-	2	1	-	-	1	2	2	1
CO4	2	3	3	1	2	3	-	2	1	-	-	1	3	1	2
CO5	2	2	2	2	1	3	-	3	2	-	-	1	3	1	2
Average	2.2	2.6	2.2	1.6	1.4	2.4	-	2	1.4	-	-	1.2	2.2	1.6	2

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

Overall CO Attainment	2.37

PO Attainment	1.73	2.05	1.73	1.26	1.10	1.89	-	1.58	1.10	-	-	0.94	1.73	1.26	1.58

GITA Autonomous College, Bhubaneswar
Department of Civil Engineering

Semester: 6th	**Subject Name:** Design of Steel Structures	**Subject Code:** 20BTCETPC606

	Course Outcomes
CO1	Design Bolt Connection of Angle Section to Gusset Plate and Design of Welded Connection of Angle Section to Gusset Plate
CO2	Analyse and Design Axially Loaded Tension Member made up of Angle Section
CO3	Analyse and Design Strut made up of Angle Section and different built-up member
CO4	Solve Numerical on the design of laterally supported and unsupported beam
CO5	Solve Numerical on the design of plate girder and gantry girder.

	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	2	-	2	1	-	-	1	2	2	3
CO2	3	3	2	1	2	2	-	1	2	-	-	2	3	3	2
CO3	3	2	3	3	1	2	-	3	1	-	-	1	2	2	3
CO4	2	3	3	3	3	3	-	2	1	-	-	2	3	1	2
CO5	3	2	2	2	2	2	-	3	2	-	-	1	2	3	3
Average	2.8	2.4	2.6	2.2	1.8	2.2	-	2.2	1.4	-	-	1.4	2.4	2.2	2.6

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

Overall CO Attainment	2.56

PO Attainment	2.38	2.04	2.21	1.87	1.53	1.87	-	1.87	1.19	-	-	1.19	2.04	1.87	2.21

GITA Autonomous College, Bhubaneswar
Department of Civil Engineering

Semester: 6th	Subject Name: IRRIGATION ENGINEERING & HYDRAULIC STRUCTURES	Subject Code: 20BTCETPC611

	Course Outcomes
CO1	Graduate will demonstrate an ability to describe the national water policy structure and soil plant water characteristics.
CO2	Graduate will demonstrate an ability to describe the basics of requirements and estimation of crop water.
CO3	Graduate will demonstrate an ability to apply the concepts of Irrigation water management, water user association for participatory irrigation management.
CO4	Graduate will demonstrate an ability to design the components of irrigation canal.
CO5	Graduate will demonstrate an ability to design the various types of hydraulic structure includes dams, spillways and dissipaters.

	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	1	-	-	-	2	3	3	3	-
CO2	3	1	1	2	1	2	1	-	-	-	2	3	2	2	1
CO3	3	3	1	2	2	2	2	-	-	-	2	3	2	1	-
CO4	2	3	3	2	2	1	1	-	-	-	2	3	2	2	1
CO5	3	3	2	2	1	1	1	-	-	-	1	3	2	3	2
Average	2.60	2.60	1.80	2.00	1.80	1.60	1.20	-	-	-	1.80	3.00	2.20	2.20	1.33
‘3’High			‘2’ Moderate				‘1’ Low					‘-’ No Correlation			
Overall CO Attainment									2.01						
PO Attainment	1.74	1.74	1.21	1.34	1.21	1.07	0.80	-	-	-	1.21	2.01	1.47	1.47	0.89

GITA Autonomous College, Bhubaneswar
Department of Civil Engineering

Semester: 6th	Subject Name: Estimation and Professional Practice	Subject Code: 20BTCETPC613

	Course Outcomes
CO1	Student is able to understand about the preparation of specification for materials of construction and its items of works.
CO2	Student is able to understanddetailed estimation of material consumption and abstracts for entire construction projects.
CO3	Students are able to understand the rates for different items of works including labour and material.
CO4	Students will be able to interpret fundamental concepts of valuation.
CO5	Students will be able to understand regarding identification of various legal issues related to construction and application for estimation of buildings.

	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	2	3	-	1	-	-	1	2	2	3
CO2	2	2	2	2	2	3	2	-	2	-	-	3	3	3	2
CO3	3	2	2	2	1	2	2	-	2	-	-	1	3	2	3
CO4	2	3	2	3	2	3	2	-	1	-	-	2	3	2	2
CO5	3	2	3	2	2	2	3	-	2	-	-	2	1	2	3
Average	2.6	2.2	2.4	2.2	1.6	2.4	2.4	-	1.6	-	-	1.8	2.4	2.2	2.6

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

Overall CO Attainment	2.50

PO Attainment	2.16	1.83	2	1.83	1.33	2	2	-	1.33	-	-	1.5	2	1.83	2.16

GITA Autonomous College, Bhubaneswar
Department of Civil Engineering

Semester: 6th	Subject Name: Earthquake Engineering	Subject Code: 20BTCETPE609

	Course Outcomes
CO1	Concept and elements of earthquake origin & propagation of seismic waves.
CO2	Get the details knowledge about Types, effects and controlling factors of earthquake.
CO3	Get the details knowledge about Types, effects and controlling factors of earthquake.
CO4	Concept of Stiffness and flexibility of elastic structures.
CO5	Design concept of earthquake resistant and Application of response spectrum theory to seismic design of structures.

	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	2	-	-	1	-	-	1	2	2	3
CO2	3	2	2	2	2	2	-	-	2	-	-	3	3	3	2
CO3	3	2	3	3	1	2	-	-	1	-	-	1	2	2	3
CO4	2	3	2	3	3	2	-	-	1	-	-	2	3	2	2
CO5	3	2	2	2	2	2	-	-	2	-	-	1	2	3	3
Average	2.8	2.2	2.4	2.4	1.8	2	-	-	1.4	-	-	1.6	2.4	2.4	2.6

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

Overall CO Attainment	2.53

PO Attainment	2.36	1.85	2.02	2.02	1.51	1.68	-	-	1.18	-	-	1.3	2.02	2.02	2.19

GITA Autonomous College, Bhubaneswar
Department of Civil Engineering

Semester: 6th	**Subject Name:** Water Resource Planning and Management	**Subject Code:** 20BTCETPE610

	Course Outcomes
CO1	Understanding of water resources systems: Students will be able to describe the components of water resources systems, including water supply, demand, and quality.
CO2	Knowledge of water planning and management frameworks: Students will be familiar with different frameworks and approaches for water planning and management, including integrated water resources management (IWRM).
CO3	Familiarity with water policy and legislation: Students will understand the key policies and legislation governing water resources management at national and international levels.
CO4	Understanding of hydrological and hydraulic principles: Students will be able to apply basic hydrological and hydraulic principles to water resources planning and management.
CO5	Understanding of water resources systems: Students will be able to describe the components of water resources systems, including water supply, demand, and quality.

	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	1	2	-	-	-	1	-	1	2	2	3
CO2	3	3	3	2	2	1	-	-	-	2	-	2	3	1	2
CO3	3	2	2	2	3	2	-	-	-	3	-	1	2	3	3
CO4	2	2	3	2	2	3	-	-	-	1	-	2	3	2	3
CO5	3	3	2	2	2	2	-	-	-	2	-	3	3	3	3
Average	2.8	2.4	2.4	2	2	2	-	-	-	1.8	-	1.8	2.6	2.2	2.8

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

Overall CO Attainment	2.48

PO Attainment	2.31	1.98	1.98	1.65	1.65	1.65	-	-	-	1.48	-	1.48	2.14	1.81	2.31

GITA Autonomous College, Bhubaneswar
Department of Civil Engineering

Semester: 6th	**Subject Name:** IOT	**Subject Code:** 20BTCETOE604

	Course Outcomes
CO1	Student is able to understand and analyze IoTand Characteristics of an IoT, Physical design with IoTcommunication models.
CO2	Student is able to understand regarding different domain specific IoTs applications.
CO3	Students are able to understand regarding IOT platform design methodology**.**
CO4	Students will be able to apply their knowledge IOT physical devices and endpoints.
CO5	Students will be able to understand regarding use of Big Data and visualization in IOT, Industry 4.0 concepts, Python.

	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	2	2	-	-	-	-	1	2	2	3
CO2	2	2	2	2	2	2	1	-	-	-	-	3	3	3	2
CO3	3	2	2	3	1	2	3	-	-	-	-	1	2	2	3
CO4	2	2	2	2	2	2	2	-	-	-	-	2	3	2	2
CO5	3	2	3	2	2	2	3	-	-	-	-	2	2	2	2
Average	2.6	2	2.4	2.2	1.6	2	2.2	-	-	-	-	1.8	2.4	2.2	2.4

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

Overall CO Attainment	2.45

PO Attainment	2.12	1.63	1.96	1.79	1.30	1.63	1.79	-	-	-	-	1.47	1.96	1.79	1.96

GITA Autonomous College, Bhubaneswar
Department of Civil Engineering

Semester: 6th	**Subject Name:** Employability Skill-IV	**Subject Code:** 20BTCEPPC615

	Course Outcomes
CO1	After the completion of this unit students will have learnt to make presentations both in formal and informal situations. And also, will have learnt the art of resume writing.
CO2	After the completion of this unit student will have learnt how to do a project report using referencing skills. And also, they will have learnt how to write abstract and will have been familiarized with research paper guidelines.
CO3	This unit will have helped student to communicate with various skills required for job interviews.
CO4	After the completion of this unit the students will have learnt the strategies of vocabulary.
CO5	After the completion of this unit student will have learnt to use idioms and phrases in everyday conversation.

	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 Civil Engineering

Semester: 6th	**Subject Name:** Hydraulic Structures Design Practice	**Subject Code:** 20BTCEPPC611

	Course Outcomes
CO1	Design the components of irrigation canal includes canal drops
CO2	Design of Diversion Head works
CO3	Design the components of CD works
CO4	Design and detailing of Gravity and Earth dams
CO5	Design and detailing of other hydraulic structures such as, spillways and falls

	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	1	2	-	2	1	-	-	1	2	1	2
CO2	2	3	2	1	1	3	-	1	2	-	-	2	1	1	2
CO3	3	3	3	2	2	2	-	2	1	-	-	1	2	2	3
CO4	2	2	3	1	1	3	-	2	3	-	-	3	3	1	3
CO5	3	2	3	2	3	2	-	3	2	-	-	1	2	2	3
Average	2.4	2.4	2.8	1.6	1.6	2.4	-	2	1.8	-	-	1.6	2	1.4	2.6

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

Overall CO Attainment	2.41

PO Attainment	1.92	1.92	2.24	1.28	1.28	1.92	-	1.60	1.44	-	-	1.28	1.60	1.12	2.08

GITA Autonomous College, Bhubaneswar
Department of Civil Engineering

Semester: 6th	**Subject Name:** Design of Steel Structures practice	**Subject Code:** 20BTCEPPC604

	Course Outcomes
CO1	Design Bolt Connection of Angle Section to Gusset Plate and Design of Welded Connection of Angle Section to Gusset Plate
CO2	Detailing of different structural steel connections.
CO3	Analyze and Design of columns using lacing and battening .
CO4	Solve Numerical on the design of laterally supported and unsupported beam
CO5	Solve Numerical on the design of plate girder and gantry girder.

	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	2	-	2	1	-	-	1	2	2	3
CO2	2	3	2	1	2	2	-	1	2	-	-	2	1	1	2
CO3	3	2	3	2	1	2	-	2	1	-	-	1	2	2	3
CO4	2	3	3	1	1	3	-	2	1	-	-	2	3	1	2
CO5	2	2	2	2	2	2	-	3	2	-	-	1	2	2	3
Average	2.4	2.4	2.6	1.6	1.4	2.2	-	2	1.4	-	-	1.4	2	1.6	2.6

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

Overall CO Attainment	2.44

PO Attainment	1.95	1.95	2.11	1.30	1.13	1.78	-	1.62	1.13	-	-	1.13	1.62	1.30	2.11

GITA Autonomous College, Bhubaneswar
Department of Civil Engineering

Semester: 6th	**Subject Name:** Seminar	**Subject Code:** 20BTCEPPSI605

	Course Outcomes
CO1	Understand and analyze research papers for exploring new fields, in the absence of a text book, to summarize and review them.
CO2	Evaluate and apply promising new directions of various cutting edge technologies.
CO3	Remember and create various skills by preparing detailed report describing the project and results.
CO4	Create detailed report describing the project and results.
CO5	Effectively communicate by making an oral presentation before an evaluation committee.

	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	1	2	-	2	1	-	-	1	2	3	3
CO2	1	3	2	1	3	3	-	1	2	-	-	2	1	1	2
CO3	3	3	3	2	1	2	-	2	1	-	-	1	2	2	3
CO4	2	3	3	3	3	3	-	2	1	-	-	1	3	1	2
CO5	3	2	3	2	1	2	-	3	2	-	-	1	2	3	3
Average	2.4	2.8	2.8	2	1.8	2.4	-	2	1.4	-	-	1.2	2	2	2.6

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

Overall CO Attainment	2.40

PO Attainment	1.92	2.24	2.24	1.6	1.44	1.92	-	1.6	1.12	-	-	0.96	1.6	1.6	2.08

GITA Autonomous College, Bhubaneswar
Department of Civil Engineering

Semester: 6th	**Subject Name:** Mini project-III	**Subject Code:** 20BTCEPPSI608

	Course Outcomes
CO1	Have a good understanding of the fundamental issues and challenges of machine learning: data, model selection, model complexity, etc.
CO2	Applying mathematical relationships within and across Machine Learning algorithms and the paradigms of supervised and un-supervised learning
CO3	Analyse learning algorithms which are more appropriate for various types of learning tasks in various domains.
CO4	Evaluate models generated from data and optimize the models learned
CO5	Design and implement various machine learning algorithms in a range of real-world 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	2	2	3	2	-	2	1	-	-	1	2	1	3
CO2	2	3	2	1	1	3	-	1	2	-	-	2	1	1	2
CO3	3	2	3	2	3	2	-	2	1	-	-	1	2	2	3
CO4	2	3	3	1	1	3	-	2	1	-	-	1	3	1	2
CO5	3	3	3	2	1	2	-	2	1	-	-	1	2	2	3
Average	2.6	2.8	2.6	1.6	1.8	2.4	-	1.8	1.2	-	-	1.2	2	1.4	2.6

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

Overall CO Attainment	2.38

PO Attainment	2.06	2.22	2.06	1.26	1.42	1.90	-	1.42	0.95	-	-	0.95	1.58	1.11	2.06

GITA Autonomous College, Bhubaneswar
Department of Civil Engineering

Semester: 7th	Subject Name: Organizational Behaviour	Subject Code: 20BTTHS703

	Course Outcomes
CO1	Analyse individual human behaviour in the workplace as influenced by diversity, ethics, culture, reward systems, organizational design and perceptions
CO2	Understand the different personalities and attitudes of individual, motivational theories that lead to positive organizational behaviour, emotional intelligence and self-efficacy.
CO3	Knows and identify the processes used in developing communication and decision making by resolving issues of stress and conflicts
CO4	Learns group dynamics and demonstrate skills required for working in formal and informal groups (team building)
CO5	Understands the various leadership theories and styles and the role of leaders for high performance work.

	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	3	3	3	1	3	-	1	1
CO2	-	-	-	-	-	1	1	3	3	3	1	3	-	1	1
CO3	-	-	-	-	-	1	1	3	3	2	2	2	-	1	2
CO4	-	-	-	-	-	1	1	3	2	3	2	3	-	2	1
CO5	-	-	-	-	-	1	1	3	3	3	1	3	-	2	1
Average	-	-	-	-	-	1	1	3	2.8	2.8	1.4	2.8	-	1.4	1.2

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

Overall CO Attainment	2.42

PO Attainment	-	-	-	-	-	0.81	0.81	2.42	2.26	2.26	1.13	2.26	-	1.13	0.97

GITA Autonomous College, Bhubaneswar
Department of Civil Engineering

Semester: 7th	Subject Name: Transportation Engineering–II	Subject Code: 20BTCETPE714

	Course Outcomes
CO1	Student is able to understand and analyse railway planning, design, construction and maintenance and planning and design principles of Airports and Harbors.
CO2	Student is able to understand regarding the basic procedure of railway construction and its maintenance.
CO3	Students are able to understand regarding the planning of airport and its components in layout.
CO4	Students will be able to apply their knowledge in airport design and understood the basic needs in the airport construction.
CO5	Students will be able to understand regarding the planning & design of harbour and other costal structures.

	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	3	2	2	-	-	-	2	2	1	-
CO2	3	3	3	3	2	2	2	2	-	-	-	2	2	2	-
CO3	3	2	2	2	2	3	2	2	-	-	-	2	3	2	-
CO4	2	3	3	3	3	2	2	1	-	-	-	2	2	1	-
CO5	3	2	3	2	3	3	2	2	-	-	-	1	2	2	-
Average	2.8	2.6	2.8	2.4	2.4	2.6	2	1.8	-	-	-	1.8	2.2	1.6	-
‘3’High			‘2’ Moderate				‘1’ Low					‘-’ No Correlation			
Overall CO Attainment									2.43						
PO Attainment	2.27	2.11	2.27	1.94	1.94	2.11	1.62	1.46	-	-	-	1.46	1.78	1.30	-

GITA Autonomous College, Bhubaneswar
Department of Civil Engineering

Semester: 7th	Subject Name: Pre-stressed Concrete	Subject Code: 20BTCETPE716

	Course Outcomes
CO1	Find out the losses in prestressed concrete and enhance its concepts, which include pre and post tensioning processes.
CO2	Analyse and design the statically determinate prestressed concrete members.
CO3	Design the end blocks of prestressed concrete members.
CO4	Analyse and design the statically indeterminate prestressed concrete members.
CO5	Design the composite structures using prestressed concrete 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	3	-	2	-	-	2	3	2	2	-
CO2	3	3	3	3	2	3	-	2	-	-	2	2	1	3	-
CO3	3	2	2	2	2	2	-	2	-	-	2	3	2	3	-
CO4	2	2	3	3	2	3	-	1	-	-	2	3	2	2	-
CO5	3	3	3	2	3	3	-	2	-	1	1	3	1	3	-
Average	2.8	2.6	2.8	2.4	2.2	2.8	-	1.8	-	0.2	1.8	2.8	1.6	2.6	-
'3'High			'2' Moderate				'1' Low					'-' No Correlation			
Overall CO Attainment									2.46						
PO Attainment	2.30	2.13	2.30	1.97	1.80	2.30	0.00	1.48	0.00	0.16	1.48	2.30	1.31	2.13	0.00

GITA Autonomous College, Bhubaneswar
Department of Civil Engineering

Semester: 7th	Subject Name: Disaster Management	Subject Code: 20BTCETOE707

	Course Outcomes
CO1	Understand the need and significance of studying disaster management
CO2	Understand the different types of disasters and causes for disasters.
CO3	Gain knowledge on the impacts Disasters on environment and society
CO4	Study and assess vulnerability of a geographical area
CO5	Understand the role of Information Technology in Disaster Management

	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	1	1	3	3	2	-	2	0	3	-
CO2	2	3	3	2	2	1	-	3	2	2	-	2	0	3	-
CO3	2	3	3	3	3	1	1	3	3	3	-	1	0	3	-
CO4	2	3	2	3	3	-	2	3	2	3	-	2	0	3	-
CO5	2	3	3	3	2	1	2	3	2	2	-	2	0	2	-
Average	2	2.8	2.6	2.8	2.6	0.8	1.2	3	2.4	2.4	-	1.8	0	2.8	-

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

Overall CO Attainment	2.51

PO Attainment	1.67	2.34	2.18	2.34	2.18	0.67	1.00	2.51	2.01	2.01	-	1.51	-	2.34	-

GITA Autonomous College, Bhubaneswar
Department of Civil Engineering

Semester: 7th	Subject Name: Entrepreneurship Development	Subject Code: 20BTTHS706

	Course Outcomes
CO1	Know the various concepts related to entrepreneurship and entrepreneurship 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	3	3	2	3	1	1	3	3	2	2	2	-	3	3
CO2	2	3	3	3	2	-	2	3	2	3	2	3	-	2	3
CO3	2	3	3	2	3	2	1	3	3	2	2	3	-	2	3
CO4	2	2	2	2	2	1	-	3	3	3	2	3	-	3	3
CO5	2	3	2	3	3	1	3	2	3	2	1	3	-	2	3
Average	1.8	2.8	2.6	2.4	2.6	1	1.4	2.8	2.8	2.4	1.8	2.8	-	2.4	3

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

Overall CO Attainment									2.51						
PO Attainment	1.51	2.34	2.18	2.01	2.18	0.84	1.17	2.34	2.34	2.01	1.51	2.34	-	2.01	2.51

GITA Autonomous College, Bhubaneswar
Department of Civil Engineering

Semester: 7th	Subject Name: Construction Equipment and Planning Management	Subject Code: 20BTCETOE712

	Course Outcomes
CO1	Explain the types, functions, and selection criteria of construction equipment used in various construction projects.
CO2	Evaluate the productivity and efficiency of different construction equipment, considering factors like operating conditions, fuel consumption, and maintenance.
CO3	Develop strategies for selecting appropriate construction equipment based on project requirements, cost-effectiveness, and environmental considerations.
CO4	Apply planning and scheduling techniques, such as CPM and PERT, to optimize equipment usage and project timelines.
CO5	Assess the economic aspects of equipment ownership, rental, and maintenance, ensuring cost-effective construction operations.

	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	3	2	3	2	2	2	-
CO2	3	3	3	3	2	2	-	1	2	2	3	2	1	3	-
CO3	3	2	2	2	2	0	1	-	2	2	3	2	2	2	-
CO4	2	3	3	3	3	1	1	1	2	2	3	2	2	2	-
CO5	3	2	3	2	3	2	1	1	2	2	2	1	1	3	-
Average	2.8	2.6	2.8	2.4	2.4	1.2	0.8	0.8	2.2	2	2.8	1.8	1.6	2.4	-
'3'High			'2' Moderate				'1' Low					'-' No Correlation			
Overall CO Attainment									2.48						
PO Attainment	2.31	2.15	2.31	1.98	1.98	0.99	0.66	0.66	1.82	1.65	2.31	1.49	1.32	1.98	-

GITA Autonomous College, Bhubaneswar
Department of Civil Engineering

Semester: 7th	Subject Name: Industrial Lecture and Visit	Subject Code:20BTCEPPSI711

	Course Outcomes
CO1	Understand and analyze comprehensive learning platform to students where they can enhance their employ ability skills and become job ready along with real corporate exposure.
CO2	Understand and apply skills to enhance students' knowledge in one particular technology
CO3	Understand and apply practical skills to Increase self-confidence of students and helps in finding their own proficiency
CO4	Understand and evaluate leadership ability and responsibility to perform or execute the given task.
CO5	Understand and evaluate the industrial exposure to provide learners hands on practice within a real job situation.

	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	2	1	3	-	-	1	3	1	2	-
CO2	3	3	3	3	2	2	2	3	-	-	2	2	2	2	-
CO3	3	2	2	2	2	2	1	2	-	-	1	3	1	3	-
CO4	2	2	3	3	3	2	-	3	-	-	1	2	1	3	-
CO5	3	3	3	2	3	3	1	3	-	-	2	2	2	3	-
Average	2.8	2.6	2.8	2.4	2.4	2.2	1	2.8	-	-	1.4	2.4	1.4	2.6	-
'3'High			'2' Moderate				'1' Low					'-' No Correlation			
Overall CO Attainment									2.45						
PO Attainment	2.29	2.12	2.29	1.96	1.96	1.80	0.82	2.29	-	-	1.14	1.96	1.14	2.12	-

GITA Autonomous College, Bhubaneswar
Department of Civil Engineering

Semester: 7th	Subject Name: Summer Internship	Subject Code: 20BTCEPPSI709

	Course Outcomes
CO1	Understand and analyze comprehensive learning platform to students where they can enhance their employ ability skills and become job ready along with real corporate exposure.
CO2	Understand and apply skills to enhance students' knowledge in one particular technology
CO3	Understand and apply practical skills to Increase self-confidence of students and helps in finding their own proficiency
CO4	Understand and evaluate leadership ability and responsibility to perform or execute the given task.
CO5	Understand and evaluate the industrial exposure to provide learners hands on practice within a real job situation.

	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	2	1	3	-	2	-	3	1	2	-
CO2	3	3	3	3	2	2	2	3	-	3	-	2	2	2	-
CO3	3	2	2	2	2	2	1	2	-	2	-	3	1	3	-
CO4	2	2	3	3	3	2	-	3	-	3	-	2	1	3	-
CO5	3	3	3	2	3	3	1	3	-	2	-	2	2	3	-
Average	2.8	2.6	2.8	2.4	2.4	2.2	1	2.8	-	2.4	-	2.4	1.4	2.6	-
'3'High			'2' Moderate				'1' Low					'-' No Correlation			
Overall CO Attainment									2.49						
PO Attainment	2.32	2.16	2.32	1.99	1.99	1.83	0.83	2.32	-	1.99	-	1.99	1.16	2.16	-

GITA Autonomous College, Bhubaneswar
Department of Civil Engineering

Semester: 7th	Subject Name: Comprehensive Viva Voce	Subject Code: 20BTCEPPSI710

	Course Outcomes
CO1	Exhibit a thorough understanding of core concepts, theories, and applications related to the subjects studied throughout the course.
CO2	Apply analytical and critical thinking skills to solve technical and real-world problems effectively.
CO3	Present ideas clearly and confidently while answering technical and conceptual questions during the viva voce.
CO4	Integrate knowledge from multiple subjects to provide well-rounded solutions to engineering and management challenges.
CO5	Demonstrate awareness of professional responsibilities, ethical considerations, and industry practices relevant to the field

	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	2	-	2	3	2	3	2	2	3	-
CO2	3	3	3	3	2	2	-	2	3	3	3	2	3	3	-
CO3	3	2	2	2	2	1	-	2	3	3	3	2	2	3	-
CO4	2	3	3	3	3	2	-	1	3	3	3	2	2	2	-
CO5	3	2	3	2	3	-	-	2	2	3	2	1	1	3	-
Average	2.8	2.6	2.8	2.4	2.4	1.4	-	1.8	2.8	2.8	2.8	1.8	2	2.8	-

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

Overall CO Attainment	2.37

PO Attainment	2.21	2.05	2.21	1.90	1.90	1.11	-	1.42	2.21	2.21	2.21	1.42	1.58	2.21	-

GITA Autonomous College, Bhubaneswar
Department of Civil Engineering

Semester: 7th	Subject Name: Minor Project	Subject Code: 20BTCEPPSI704

	Course Outcomes
CO1	Identify an open-ended problem in area of civil engineering which requires further investigation.
CO2	Identify the methods and materials required for the project work.
CO3	Manage the work with team members.
CO4	Formulate and implement innovative ideas for social and environmental benefits.
CO5	Analyse the results to come out with concrete solutions. Write technical report of the project apart from developing a presentation.

	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	-	3	3	3	2	2	2	3	-
CO2	3	3	3	3	2	1	-	3	2	3	2	1	2	3	-
CO3	3	2	2	2	2	-	-	2	3	3	3	-	1	3	-
CO4	2	3	3	3	3	1	-	2	3	3	2	1	3	2	-
CO5	3	2	3	2	3	1	-	3	3	3	2	1	1	3	-
Average	2.8	2.6	2.8	2.4	2.4	0.8	-	2.6	2.8	3	2.2	1	1.8	2.8	-

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

Overall CO Attainment	2.47

PO Attainment	2.31	2.14	2.31	1.98	1.98	0.66	-	2.14	2.31	2.47	1.81	0.82	1.48	2.31	-

GITA Autonomous College, Bhubaneswar
Department of Civil Engineering

Semester: 8th	Subject Name: Major Project	Subject Code: 20BTCETPSI801

	Course Outcomes
CO1	In a specialization domain of his / her choice, student manager will be able to choose an appropriate topic for study and will be able to clearly formulate& state a research problem.
CO2	For a selected research topic, student manager will be able to compile the relevant literature and frame hypotheses for research as applicable
CO3	For a selected research topic, student manager will be able to plan a research design including the sampling, observational, statistical and operational designs if any
CO4	For a selected research topic, student manager will be able to compile relevant data, interpret & analyse it and test the hypotheses wherever applicable
CO5	Based on the analysis and interpretation of the data collected, student manager will be able to arrive at logical conclusions and propose suitable recommendations on the research problem

	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	3	3	3	2	2	2	3	-
CO2	3	3	3	3	2	-	1	3	2	3	2	1	2	3	-
CO3	3	2	2	2	2	-	1	2	3	3	3	-	1	3	-
CO4	2	3	3	3	3	-	-	2	3	3	2	1	3	2	-
CO5	3	2	3	2	3	-	1	3	3	3	2	1	1	3	-
Average	2.8	2.6	2.8	2.4	2.4	-	0.8	2.6	2.8	3	2.2	1	1.8	2.8	-
‘3’High			‘2’ Moderate				‘1’ Low					‘-’ No Correlation			
Overall CO Attainment									2.42						
PO Attainment	2.26	2.10	2.26	1.94	1.94	-	0.65	2.10	2.26	2.42	1.77	0.81	1.45	2.26	-

GITA Autonomous College, Bhubaneswar
Department of Civil Engineering

Semester: 8th	Subject Name: Internship	Subject Code: 20BTCEPPSI802

	Course Outcomes
CO1	Student is able to construct the company profile by compiling the brief history, management structure, products / services offered, key achievements and market performance for his / her organization of internship.
CO2	For his / her organization of internship, the student is able to assess its Strengths, Weaknesses, Opportunities and Threats (SWOT).
CO3	Student is able to determine the challenges and future potential for his / her internship organization in particular and the sector in general.
CO4	Student is able to test the theoretical learning in practical situations by accomplishing the tasks assigned during the internship period.
CO5	Student is able to apply various soft skills such as time management, positive attitude and communication skills during performance of the tasks assigned in internship organization.

	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	2	1	3	-	2	-	3	1	2	-
CO2	3	3	3	3	2	2	2	3	-	3	-	2	2	2	-
CO3	3	2	2	2	2	2	1	2	-	2	-	3	1	3	-
CO4	2	2	3	3	3	2	-	3	-	3	-	2	1	3	-
CO5	3	3	3	2	3	3	1	3	-	2	-	2	2	3	-
Average	2.8	2.6	2.8	2.4	2.4	2.2	1	2.8	-	2.4	-	2.4	1.4	2.6	-
'3'High			'2' Moderate				'1' Low					'-' No Correlation			
Overall CO Attainment									2.41						
PO Attainment	2.25	2.09	2.25	1.93	1.93	1.77	0.80	2.25	-	1.93	-	1.93	1.12	2.09	-

GITA Autonomous College, Bhubaneswar
Department of Civil Engineering

Semester: 8th	**Subject Name:** Project Viva Voice	**Subject Code:** 20BTCEPPSI803

	Course Outcomes
CO1	Explain the objectives, methodology, implementation, and outcomes of the project with clarity and technical depth.
CO2	Utilize engineering concepts, research methodologies, and problem-solving techniques to develop and execute the project effectively.
CO3	Deliver a structured and confident presentation of the project work, responding effectively to questions from the evaluation panel.
CO4	Demonstrate the ability to work collaboratively in a team environment, effectively distributing tasks and integrating individual contributions into the final project.
CO5	Exhibit awareness of ethical, social, and environmental considerations related to the project, ensuring responsible and sustainable 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	3	3	3	2	2	2	-	2	3	2	3	2	2	3	-
CO2	3	3	3	3	2	2	-	2	3	3	3	2	3	3	-
CO3	3	2	2	2	2	1	-	2	3	3	3	2	2	3	-
CO4	2	3	3	3	3	2	-	1	3	3	3	2	2	2	-
CO5	3	2	3	2	3	-	-	2	2	3	2	1	1	3	-
Average	2.8	2.6	2.8	2.4	2.4	1.4	-	1.8	2.8	2.8	2.8	1.8	2	2.8	-

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

Overall CO Attainment	2.43

PO Attainment	2.27	2.11	2.27	1.94	1.94	1.13	-	1.46	2.27	2.27	2.27	1.46	1.62	2.27	-

Articulation matrix

Sl. no	Subject Name	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
1	Engineering Mathematics - I	2.4	2.6	2.4	2.2	-	-	-	-	-	-	-	-
2	Engineering Physics	2.6	2	1.6	2.2	2.2	1.4	1.2	-	-	-	-	2
3	Basic Electrical Engineering	2.40	1.40	2.00	2.20	2.80	-	-	-	-	-	-	1.40
4	Basic Mechanical Engineering	2.2	2.6	2.8	2	2.8	-	-	-	-	-	-	3
5	Communicative English	-	-	-	-	-	2.00	1.80	2.80	3.00	3.00	2.00	2.60
6	Physics Lab	1.6	1.6	1.4	1.8	0.8	0.6	-	-	-	-	-	-
7	Basic Electrical Engineering Lab	2	1.4	1.4	1.4	1.6	1.4	1.4	-	2.6	1.6	-	1.4
8	Basic Mechanical Engineering Lab	1.6	1.4	1.6	1.4	1.4	-	-	-	2.8	2.6	1.6	-
9	Engineering Graphics & Design Lab	3	1.2	2.2	1	1.4	3	-	-	1	0.4	-	1.8
10	English Language Laboratory	-	-	-	-	-	2	2	2	3	3	3	2.2
11	Engineering Mathematics II	2.4	2.4	2.4	2	-	-	-	-	-	-	-	-
12	Engineering Chemistry	3	2	3	3	3	2	2	-	-	1	1	3
13	Basic Electronics Engineering	3	2.6	2	1.8	2	1	1	1	1.8	1.2	1.2	2
14	Basic Civil Engineering	3	1.8	1.2	1.4	2.4	-	-	-	1.4	1.8	1	2.4
15	Programming for Problem Solving using ‘C’	2.8	3	2.6	2	2.75	-	-	-	-	-	-	3
16	Engineering Mechanics	2.80	2.60	2.60	2.20	2.25	1.67	1.33	-	-	-	1.50	1.50

17	Business Communication and life Skills	-	-	-	-	-	2.00	1.80	2.80	3.00	3.00	2.00	2.60
18	Chemistry Lab	2.2	2.2	1.6	2.4	2.4	1.2	0.4	0.4	1.8	1.6	0.4	1.2
19	Basic Electronics Engineering Lab	3	2.6	2.6	2.2	2.8	-	-	-	1.2	1.2	-	2.6
20	Basic Civil Engineering Lab	3	1.2	2.2	1	2	3	-	-	1	0.4	-	1.8
21	Workshop	2	1.8	2.6	1.6	2.4	1.6	1.6	-	2.8	2.6	-	2.6
22	Programming for Problem Solving using ‘Python’ Lab	3	2.2	2.4	2.2	2.6	-	-	-	1.2	1	2.4	1.4
23	Data Structure Using ‘C’	2.4	2.6	3	2.4	1	1.2	-	-	-	-	-	0.8
24	Mechanics Of Solid	3	2.8	3	2.4	2	1.4	1.6	1	1	1	1.6	3
25	Fluid Mechanics And Hydraulic Machines	3	3	2.8	2.6	2	1.4	1.6	1.5	1	1	1.6	3
26	Geotechnical Engineering	2.80	2.60	2.40	2.20	2.25	1.67	1.67	-	-	-	1.50	1.75
27	Surveying	3	3	2.6	2.6	2.2	2.2	2	1	1	-	1.6	3
28	Employability Skill-I	-	-	-	-	-	2.00	1.80	2.80	3.00	3.00	2.00	2.60
29	Environmental Science &Engineering	-	-	-	-	-	3	3	2.4	1.8	1.8	2	3
30	Universal Human Values	-	-	-	-	-	2.6	3	2.4	2.2	2	2.4	2.6
31	Fluid Mechanics & Hydraulic Machines Lab	3	2.6	2	2.4	2	1.6	1	1.5	1	1	2.4	2.6
32	Data Structure Using ‘C’ Lab	2	3	2.8	-	-	1.2	-	-	-	-	-	0.8
33	Geotechnical Engineering Lab	3	2.6	2	2.4	2	1.6	1	1.5	1	1	2.4	2.6
34	Survey Field Work	2.8	2.8	2.6	2.2	2.6	1	1	3	1.8	1.6	1.4	3
35	Engineering	2.4	2.4	2.2	2.2	-	-	-	-	-	-	-	-

	Mathematics III												
36	Structural Analysis-I	2.8	2.6	2.8	2.8	2.4	2	1.4	-	2	1	1.2	2.8
37	Transportation Engineering-I	3	2.4	2.6	3	2.6	2	1.6	-	2	1	1.2	2.8
38	Water and Waste Water Engineering	3	2.6	2.8	2.8	2.8	1.8	1.6	-	1.6	-	1.2	2.6
39	Employability Skill-II	-	-	-	-	-	2.6	3	2.8	2.2	3	2.4	2
40	Concrete Technology	3	2.6	2.6	3	2.6	2	1.6	-	-	1	1.2	2.8
41	Engineering Economics and Costing	-	-	-	-	-	-	1.6	1.6	1.4	1.4	1.2	1.6
42	Constitution Of India	-	-	-	-	-	2	1	3	1	2	1	1
43	Transportation Engineering-Lab	3	2.4	2.6	3	2.6	2	1.6	-	2	1	1.2	2.8
44	Environmental Engineering Lab	3	2.6	2.6	3	2.6	2	1.6	-	1.6	1	1.2	2.8
45	Civil Engineering Drawing	2	1.2	1	1	-	-	-	-	1.4	-	2	-
46	Mini Project I	3	3	2.6	2.6	2.4	3	2	2.2	3	2.4	3	2.4
47	Structural Analysis-II	2.2	2.8	2.4	1.6	1.4	2.4	-	2	-	-	2	1.2
48	Design of Concrete Structures	2.4	2.4	2.8	2.2	1.8	2.2	-	2.4	2	-	-	1.2
49	Hydrology and Open Channel Hydraulics	2.6	3	2.8	1.6	1.6	2.4	-	-	1.4	-	-	1.6
50	Foundation Engineering	2.6	2.6	2.4	2	1	2.4	2.4	-	1.4	-	-	1.6
51	Solid Waste Management	2.8	2.6	2.8	2	1.8	2.2	-	2	-	-	-	1.6
52	Employability Skill-III	-	-	-	-	-	2.2	3	2.2	1.6	3	3	1.2
53	Essence of Indian Knowledge and Tradition-I	-	-	-	-	-	2	2.6	2.8	1.6	2.6	1.8	1.2
54	Structural Engineering Lab	2.6	2.6	2.6	2.2	1.4	2.4	-	2	2	-	-	1.2

55	Design of Concrete Structures Practice	2.8	2.6	2.8	1.8	1.8	2.4	-	2.4	1.6	-	-	1.2
56	Concrete Technology Lab	2.6	2.8	2.8	1.6	1	2.4	-	2	1.4	-	-	1.2
57	Evaluation of Summer Internship	2.8	2.8	2.6	2	2.6	2.4	1	2	2	-	1.2	1.2
58	Mini Project II	2.2	2.6	2.2	1.6	1.4	2.4	-	2	1.4	-	-	1.2
59	Design of Steel Structures	2.8	2.4	2.6	2.2	1.8	2.2	-	2.2	1.4	-	-	1.4
60	Irrigation Engineering & Hydraulic Structures	2.60	2.60	1.80	2.00	1.80	1.60	1.20	-	-	-	1.80	3.00
61	Estimation and Professional Practice	2.6	2.2	2.4	2.2	1.6	2.4	2.4	-	1.6	-	-	1.8
62	Earthquake Engineering	2.8	2.2	2.4	2.4	1.8	2	-	-	1.4	-	-	1.6
63	Water Resource Planning and Management	2.8	2.4	2.4	2	2	2	-	-	-	1.8	-	1.8
64	Internet of things	2.6	2	2.4	2.2	1.6	2	2.2	-	-	-	-	1.8
65	Employability Skill-IV	-	-	-	-	-	2.00	1.80	2.80	3.00	3.00	2.00	2.60
66	Hydraulic Structures Design Practice	2.4	2.4	2.8	1.6	1.6	2.4	-	2	1.8	-	-	1.6
67	Design of Steel Structures practice	2.4	2.4	2.6	1.6	1.4	2.2	-	2	1.4	-	-	1.4
68	Seminar	2.4	2.8	2.8	2	1.8	2.4	-	2	1.4	-	-	1.2
69	Mini project-III	2.6	2.8	2.6	1.6	1.8	2.4	-	1.8	1.2	-	-	1.2
70	Organizational Behaviour	-	-	-	-	-	1	1	3	2.8	2.8	1.4	2.8
71	Transportation Engineering–II	2.8	2.6	2.8	2.4	2.4	2.6	2	1.8	-	-	-	1.8
72	Pre-stressed Concrete	2.8	2.6	2.8	2.4	2.2	2.8	-	1.8	-	0.2	1.8	2.8
73	Disaster Management	2	2.8	2.6	2.8	2.6	0.8	1.2	3	2.4	2.4	-	1.8

74	Entrepreneurship Development	1.8	2.8	2.6	2.4	2.6	1	1.4	2.8	2.8	2.4	1.8	2.8
75	Construction Equipment and Planning Management	2.8	2.6	2.8	2.4	2.4	1.2	0.8	0.8	2.2	2	2.8	1.8
76	Industrial Lecture and Visit	2.8	2.6	2.8	2.4	2.4	2.2	1	2.8	-	-	1.4	2.4
77	Summer Internship	2.8	2.6	2.8	2.4	2.4	2.2	1	2.8	-	2.4	-	2.4
78	Comprehensive Viva Voce	2.8	2.6	2.8	2.4	2.4	1.4	-	1.8	2.8	2.8	2.8	1.8
79	Minor Project	2.8	2.6	2.8	2.4	2.4	0.8	-	2.6	2.8	3	2.2	1
80	Major Project	2.8	2.6	2.8	2.4	2.4	-	0.8	2.6	2.8	3	2.2	1
81	Internship	2.8	2.6	2.8	2.4	2.4	2.2	1	2.8	-	2.4	-	2.4
82	Project Viva Voice	2.8	2.6	2.8	2.4	2.4	1.4	-	1.8	2.8	2.8	2.8	1.8
Average		2.63	2.43	2.46	2.15	2.09	1.94	1.62	2.14	1.89	1.90	1.80	2.01
Target		2.10	1.94	1.97	1.72	1.67	1.55	1.30	1.71	1.51	1.52	1.44	1.61

Sl.no	Subject name	PSO1	PSO2	PSO3
1	Engineering Mathematics - I	2	2.6	-
2	Engineering Physics	1.2	1.2	-
3	Basic Electrical Engineering	2.80	2.40	-
4	Basic Mechanical Engineering	2.8	2.6	2.2
5	Communicative English	-	-	2.00
6	Physics Lab	0.4	1.8	-

7	Basic Electrical Engineering Lab	3	2.2	1.4
8	Basic Mechanical Engineering Lab	2.4	1.6	-
9	Engineering Graphics & Design Lab	2.2	-	1.4
10	English Language Laboratory	-	-	2
11	Engineering Mathematics Ii	1.8	1.4	-
12	Engineering Chemistry	1.2	1.2	-
13	Basic Electronics Engineering	3	1.8	1.8
14	Basic Civil Engineering	2.2	-	2
15	Programming For Problem Solving Using ‘C’	2.6	2.4	2
16	Engineering Mechanics	2.20	2.40	-
17	Business Communication And Life Skills	-	-	2.00
18	Chemistry Lab	0.4	1.8	-
19	Basic Electronics Engineering Lab	3	2.6	2.8
20	Basic Civil Engineering Lab	2.2	-	1.4
21	Workshop	2.4	1.6	3
22	Programming For Problem Solving Using ‘Python’ Lab	1.8	1.6	-
23	Data Structure Using ‘C’		1	-

24	Mechanics Of Solid	2.4	2.4	2
25	Fluid Mechanics And Hydraulic Machines	2	2.6	1
26	Geotechnical Engineering	2.20	2.40	1
27	Surveying	2.4	2.4	2
28	Employability Skill-I	-	-	2.00
29	Environmental Science & Engineering	-	1.8	2.2
30	Universal Human Values	-	1.8	2
31	Fluid Mechanics & Hydraulic Machines Lab	2	2.4	1
32	Data Structure Using 'C' Lab	3	-	3
33	Geotechnical Engineering Lab	2.8	2.6	1.6
34	Survey Field Work	2.8	2.6	1.6
35	Engineering Mathematics III	1.8	2	-
36	Structural Analysis-I	1	2.8	2.6
37	Transportation Engineering-I	1	2.8	2.6
38	Water And Waste Water Engineering	1	3	2.4
39	Employability Skill-II	1	2	1.4
40	Concrete Technology	1	2.8	2.6
41	Engineering Economics And Costing	-	1	-

42	Constitution Of India	-	-	1
43	Transportation Engineering-Lab	1	2.8	2.6
44	Environmental Engineering Lab	1	2.8	2.6
45	Civil Engineering Drawing	3	2	1.6
46	Mini Project I	3	2.4	2
47	Structural Analysis-II	2	1.6	2.2
48	Design Of Concrete Structures	2.2	2	2.4
49	Hydrology And Open Channel Hydraulics	2	1.4	2.4
50	Foundation Engineering	2.4	1.2	2
51	Solid Waste Management	1.8	2	2.6
52	Employability Skill-III	1.8	1.2	2.8
53	Essence Of Indian Knowledge And Tradition-I	-	1.6	2.8
54	Structural Engineering Lab	2.4	1.6	2.4
55	Design Of Concrete Structures Practice	2.4	1.4	2.4
56	Concrete Technology Lab	2	1.2	2.6
57	Evaluation Of Summer Internship	2	1.2	2.6
58	Mini Project II	2.2	1.6	2

59	Design Of Steel Structures	2.4	2.2	2.6
60	Irrigation Engineering & Hydraulic Structures	2.20	2.20	1.33
61	Estimation And Professional Practice	2.4	2.2	2.6
62	Earthquake Engineering	2.4	2.4	2.6
63	Water Resource Planning And Management	2.6	2.2	2.8
64	Internet Of Things	2.4	2.2	2.4
65	Employability Skill-IV	-	-	2.00
66	Hydraulic Structures Design Practice	2	1.4	2.6
67	Design Of Steel Structures Practice	2	1.6	2.6
68	Seminar	2	2	2.6
69	Mini Project-III	2	1.4	2.6
70	Organizational Behaviour	-	1.4	1.2
71	Transportation Engineering–II	2.2	1.6	-
72	Pre-Stressed Concrete	1.6	2.6	-
73	Disaster Management	0	2.8	-
74	Entrepreneurship Development	-	2.4	3
75	Construction Equipment And Planning Management	1.6	2.4	-

76	Industrial Lecture And Visit	1.4	2.6	-
77	Summer Internship	1.4	2.6	-
78	Comprehensive Viva Voce	2	2.8	-
79	Minor Project	1.8	2.8	-
80	Major Project	1.8	2.8	-
81	Internship	1.4	2.6	-
82	Project Vivavoice	2	2.8	-
Average		1.98	2.08	2.15
Target		1.58	1.66	1.72

Attainment matrix

Sl.no	Subject name	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
1	Engineering Mathematics - I	2.31	2.31	2.16	2	2	-	-	-	1.23	1.54	1.69	2
2	Engineering Physics	1.95	1.5	1.2	1.65	1.65	1.05	0.9	-	-	-	-	1.5
3	Basic Electrical Engineering	1.82	1.06	1.51	1.66	2.12	-	-	-	-	-	-	1.06
4	Basic Mechanical Engineering	1.6	1.89	2.03	1.45	2.03	-	-	-	-	-	-	2.18
5	Communicative English	-	-	-	-	-	1.69	1.52	2.36	2.53	2.53	1.69	2.19
6	Physics Lab	1.18	1.18	1.04	1.33	0.59	0.44	-	-	-	-	-	-
7	Basic Electrical Engineering Lab	1.45	1.02	1.02	1.02	1.16	1.02	1.02	-	1.89	1.16	-	1.02

8	Basic Mechanical Engineering Lab	1.17	1.02	1.17	1.02	1.02	-	-	-	2.04	1.90	1.17	-
9	Engineering Graphics & Design Lab	2.22	0.89	1.63	0.74	1.04	2.22	-	-	0.74	0.3	-	1.33
10	English Language Laboratory	-	-	-	-	-	1.48	1.48	1.48	2.22	2.22	2.22	1.63
11	Engineering Mathematics II	1.85	1.85	1.85	1.54	-	-	-	-	-	-	-	-
12	Engineering Chemistry	2.26	1.51	2.26	2.26	2.26	1.51	1.51	-	-	0.75	0.75	2.26
13	Basic Electronics Engineering	2.24	1.94	1.49	1.34	1.49	0.75	0.75	0.75	1.34	0.90	0.90	1.49
14	Basic Civil Engineering	2.23	1.34	0.89	1.04	1.78	-	-	-	1.04	1.34	0.74	1.78
15	Programming For Problem Solving Using ‘C’	2.06	2.21	1.92	1.47	2.03	-	-	-	-	-	-	2.21
16	Engineering Mechanics	2.36	2.19	2.19	1.86	1.90	1.41	1.12	-	-	-	1.27	1.27
17	Business Communication And Life Skills	-	-	-	-	-	1.69	1.52	2.37	2.54	2.54	1.69	2.20
18	Chemistry Lab	1.58	1.58	1.15	1.72	1.72	0.86	0.29	0.29	1.29	1.15	0.29	0.86
19	Basic Electronics Engineering Lab	2.23	1.93	1.93	1.64	2.08	-	-	-	0.89	0.89	-	1.93
20	Basic Civil Engineering Lab	2.21	0.88	1.62	0.74	1.47	2.21	-	-	0.74	0.3	-	1.33

21	Workshop	1.43	1.29	1.85	1.14	1.71	1.14	1.14	-	2.00	1.85	-	1.85
22	Programming For Problem Solving Using 'Python' Lab	2.14	1.57	1.71	1.57	1.85	-	-	-	0.86	0.71	1.71	1
23	Data Structure Using 'C'	1.93	2.09	2.41	1.93	0.80	0.96	-	-	-	-	-	0.64
24	Mechanics Of Solid	2.21	2.06	2.21	1.77	1.47	1.03	1.18	0.74	0.74	0.74	1.18	2.21
25	Fluid Mechanics And Hydraulic Machines	2.34	2.34	2.18	2.03	1.56	1.09	1.25	1.17	0.78	0.78	1.25	2.34
26	Geotechnical Engineering	2.12	1.97	1.82	1.66	1.70	1.26	1.26	-	-	-	1.14	1.32
27	Surveying	2.41	2.41	2.08	2.0	1.7	1.76	1.60	0.80	0.80		1.28	2.41
28	Employability Skill-II	-	-	-	-	-	1.69	1.52	2.37	2.54	2.54	1.69	2.20
29	Environmental Science & Engineering	-	-	-	-	-	2.55	2.55	2.04	1.53	1.53	1.70	2.55
30	Universal Human Values	-	-	-	-	-	1.98	2.29	1.83	1.68	1.53	1.83	1.98
31	Fluid Mechanics & Hydraulic Machines Lab	1.32	1.14	0.88	1.06	0.88	0.70	0.44	0.66	0.44	0.44	1.06	1.14
32	Data Structure Using 'C' Lab	1.07	1.61	1.50	-	-	0.64	-	-	-	-	-	0.43
33	Geotechnical Engineering Lab	1.67	1.45	1.11	1.34	1.11	0.89	0.56	0.84	0.56	0.56	1.34	1.45
34	Survey Field Work	1.59	1.59	1.47	1.25	1.47	0.57	0.57	1.70	1.02	0.91	0.79	1.70

35	Engineering Mathematics III	1.71	1.71	1.56	1.56	-	-	-	-	-	-	-	-
36	Structural Analysis-I	2.44	2.27	2.44	2.44	2.09	1.74	1.22	-	1.74	0.87	1.04	2.44
37	Transportation Engineering -I	2.42	1.93	2.09	2.42	2.09	1.61	1.29	-	1.61	0.80	0.96	2.25
38	Water And Waste Water Engineering	2.51	2.17	2.34	2.34	2.34	1.50	1.33	-	1.33	-	1.00	2.17
39	Employability Skill-II	-	-	-	-	-	2.01	3	2.17	1.70	2.33	1.86	1.55
40	Concrete Technology	2.42	2.09	2.09	2.42	2.09	1.61	1.29	-	-	0.80	0.96	2.25
41	Engineering Economics And Costing	-	-	-	-	-	-	1.13	1.13	0.98	0.98	0.84	1.13
42	Constitution Of India	-	-	-	-	-	1.40	0.70	2.11	0.70	1.40	0.70	0.70
43	Transportation Engineering-Lab	2.42	1.93	2.09	2.42	2.09	1.61	1.29	-	1.61	0.80	0.96	2.25
44	Environmental Engineering Lab	2.4	1.92	2.08	2.4	2.08	1.6	1.28	-	1.28	0.8	0.96	2.24
45	Civil Engineering Drawing	1.56	0.93	0.78	0.78	-	-	-	-	1.09	-	1.56	-
46	Mini Project I	2.42	2.42	2.09	2.09	1.96	2.42	1.61	1.77	2.42	1.93	2.42	1.93
47	Structural Analysis-II	1.83	2.33	2	1.33	1.16	2	-	1.66	-	-	1.66	1
48	Design Of Concrete Structures	2.00	2.00	2.34	1.84	1.50	1.84	-	2.00	1.67	-	-	1.00

49	Hydrology And Open Channel Hydraulics	2.21	2.55	2.38	1.36	1.36	2.04	-	-	1.19	-	-	1.36
50	Foundation Engineering	2.14	2.14	1.98	1.65	0.82	1.98	1.98	-	1.15	-	-	1.32
51	Solid Waste Management	2.36	2.19	2.36	1.68	1.51	1.85	-	1.68	-	-	-	1.34
52	Employability Skill-III	-	-	-	-	-	1.80	3	1.80	1.31	3	3	0.98
53	Essence Of Indian Knowledge And Tradition-I	-	-	-	-	-	1.64	2.14	2.30	1.31	2.14	1.48	0.98
54	Structural Engineering Lab	2.11	2.11	2.11	1.78	1.13	1.95	-	1.62	1.62	-	-	0.97
55	Design Of Concrete Structures Practice	2.31	2.14	2.31	1.48	1.48	1.98	-	1.98	1.32	-	-	0.99
56	Concrete Technology Lab	2.20	2.37	2.37	1.35	0.84	2.03	-	1.69	1.18	-	-	1.01
57	Evaluation Of Summer Internship	2.38	2.38	2.21	1.7	2.21	2.04	0.85	1.7	1.7	-	1.02	1.02
58	Mini Project II	1.73	2.05	1.73	1.26	1.10	1.89	-	1.58	1.10	-	-	0.94
59	Design Of Steel Structures	2.38	2.04	2.21	1.87	1.53	1.87	-	1.87	1.19	-	-	1.19
60	Irrigation Engineering & Hydraulic Structures	1.74	1.74	1.21	1.34	1.21	1.07	0.80	-	-	-	1.21	2.01
61	Estimation And	2.16	1.83	2	1.83	1.33	2	2	-	1.33	-	-	1.5

	Professional Practice												
62	Earthquake Engineering	2.36	1.85	2.02	2.02	1.51	1.68	-	-	1.18	-	-	1.3
63	Water Resource Planning And Management	2.31	1.98	1.98	1.65	1.65	1.65	-	-	-	1.48	-	1.48
64	Internet Of Things	2.12	1.63	1.96	1.79	1.30	1.63	1.79	-	-	-	-	1.47
65	Employability Skill-IV	-	-	-	-	-	1.69	1.52	2.37	2.54	2.54	1.69	2.20
66	Hydraulic Structures Design Practice	1.92	1.92	2.24	1.28	1.28	1.92	-	1.60	1.44	-	-	1.28
67	Design Of Steel Structures Practice	1.95	1.95	2.11	1.30	1.13	1.78	-	1.62	1.13	-	-	1.13
68	Seminar	1.92	2.24	2.24	1.6	1.44	1.92	-	1.6	1.12	-	-	0.96
69	Mini Project-III	2.06	2.22	2.06	1.26	1.42	1.90	-	1.42	0.95	-	-	0.95
70	Organizational Behavior	-	-	-	-	-	0.81	0.81	2.42	2.26	2.26	1.13	2.26
71	Transportation Engineering–II	2.27	2.11	2.27	1.94	1.94	2.11	1.62	1.46	-	-	-	1.46
72	Pre-Stressed Concrete	2.30	2.13	2.30	1.97	1.80	2.30	0.00	1.48	0.00	0.16	1.48	2.30
73	Disaster Management	1.67	2.34	2.18	2.34	2.18	0.67	1.00	2.51	2.01	2.01	-	1.51
74	Entrepreneurship Development	1.51	2.34	2.18	2.01	2.18	0.84	1.17	2.34	2.34	2.01	1.51	2.34
75	Construction Equipment	2.31	2.15	2.31	1.98	1.98	0.99	0.66	0.66	1.82	1.65	2.31	1.49

	And Planning Management												
76	Industrial Lecture And Visit	2.29	2.12	2.29	1.96	1.96	1.80	0.82	2.29	-	-	1.14	1.96
77	Summer Internship	2.32	2.16	2.32	1.99	1.99	1.83	0.83	2.32	-	1.99	-	1.99
78	Comprehensive Viva Voce	2.21	2.05	2.21	1.90	1.90	1.11	-	1.42	2.21	2.21	2.21	1.42
79	Minor Project	2.31	2.14	2.31	1.98	1.98	0.66	-	2.14	2.31	2.47	1.81	0.82
80	Major Project	2.26	2.10	2.26	1.94	1.94	-	0.65	2.10	2.26	2.42	1.77	0.81
81	Internship	2.25	2.09	2.25	1.93	1.93	1.77	0.80	2.25	-	1.93	-	1.93
82	Project Viva Voice	2.27	2.11	2.27	1.94	1.94	1.13	-	1.46	2.27	2.27	2.27	1.46
Average		2.05	1.89	1.92	1.68	1.63	1.54	1.27	1.70	1.46	1.50	1.41	1.56

PO Attainment Indirect:

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
Exit Student	2.32	2.21	2.13	2.15	2.09	2.39	2.44	2.29	2.50	2.27	2.35	2.29
Alumni Feedback	2.17	1.97	2.11	2.17	2.11	2.23	2.17	2.14	2.40	2.20	2.26	2.14
Parent Feedback	2.1	1.98	1.67	2.12	2.04	2.04	1.98	1.68	1.13	2.1	1.41	1.68
Employer Feedback	1.49	2.6	2.04	1.95	1.23	1.8	1.9	1.73	1.81	1.9	2.2	2.1
Average	2.02	2.19	1.99	2.1	1.87	2.12	2.12	1.96	1.96	2.12	2.06	2.05

PO Attainment Level:

Course	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
Indirect Attainment	2.02	2.19	1.99	2.1	1.87	2.12	2.12	1.96	1.96	2.12	2.06	2.05

Direct Attainment	2.05	1.89	1.92	1.68	1.63	1.54	1.27	1.70	1.46	1.50	1.41	1.56
PO Attainment Level	**2.04**	**1.95**	**1.93**	**1.76**	**1.68**	**1.66**	**1.44**	**1.75**	**1.56**	**1.62**	**1.54**	**1.66**
Target	2.10	1.94	1.97	1.72	1.67	1.55	1.30	1.71	1.51	1.52	1.44	1.61

PSO Attainment Matrix

Sl.no	Subject name	PSO1	PSO2	PSO3
1	Engineering Mathematics – I	1.54	1.39	-
2	Engineering Physics	0.9	0.9	-
3	Basic Electrical Engineering	2.12	1.82	-
4	Basic Mechanical Engineering	2.03	1.89	1.6
5	Communicative English	-	-	1.69
6	Physics Lab	0.29	1.33	-
7	Basic Electrical Engineering Lab	2.18	1.60	1.02
8	Basic Mechanical Engineering Lab	1.75	1.17	-
9	Engineering Graphics & Design Lab	1.63	-	1.04
10	English Language Laboratory	-	-	1.48
11	Engineering Mathematics II	1.39	1.08	-
12	Engineering Chemistry	0.90	0.90	-
13	Basic Electronics Engineering	2.24	1.34	1.34
14	Basic Civil Engineering	1.64	-	1.49

15	Programming For Problem Solving Using ‘C’	1.92	1.77	1.47
16	Engineering Mechanics	1.86	2.02	-
17	Business Communication And Life Skills	-	-	1.69
18	Chemistry Lab	0.29	1.29	-
19	Basic Electronics Engineering Lab	2.23	1.93	2.08
20	Basic Civil Engineering Lab	1.62	-	1.03
21	Workshop	1.71	1.14	2.14
22	Programming For Problem Solving Using ‘Python’ Lab	-	1.14	-
23	Data Structure Using ‘C’	-	0.80	-
24	Mechanics Of Solid	1.77	1.77	1.47
25	Fluid Mechanics And Hydraulic Machines	1.56	2.03	0.78
26	Geotechnical Engineering	1.66	1.82	0.76
27	Surveying	1.928	1.928	1.60
28	Employability Skill-I	-	-	1.69
29	Environmental Science & Engineering	-	1.53	1.87
30	Universal Human Values	-	1.37	1.53
31	Fluid Mechanics & Hydraulic Machines Lab	0.88	1.06	0.44
32	Data Structure Using ‘C’ Lab	1.61	-	1.61

33	Geotechnical Engineering Lab	1.56	1.45	0.89
34	Survey Field Work	1.59	1.47	0.91
35	Engineering Mathematics III	1.28	1.42	-
36	Structural Analysis-I	0.87	2.44	2.27
37	Transportation Engineering-I	0.80	2.25	2.09
38	Water And Waste Water Engineering	0.83	2.51	2.00
39	Employability Skill-II	0.77	1.55	1.08
40	Concrete Technology	0.80	2.25	2.09
41	Engineering Economics And Costing	-	0.70	-
42	Constitution Of India	-	-	0.70
43	Transportation Engineering-Lab	0.80	2.25	2.09
44	Environmental Engineering Lab	0.8	2.24	2.08
45	Civil Engineering Drawing	2.34	1.56	1.24
46	Mini Project I	2.42	1.93	1.61
47	Structural Analysis-II	1.66	1.33	1.83
48	Design Of Concrete Structures	1.84	1.67	2.0
49	Hydrology And Open Channel Hydraulics	1.7	1.19	2.04
50	Foundation Engineering	1.98	0.99	1.65
51	Solid Waste Management	1.51	1.68	2.19

52	Employability Skill-III	1.47	0.98	2.29
53	Essence Of Indian Knowledge And Tradition-I	-	1.31	2.30
54	Structural Engineering Lab	1.95	1.30	1.95
55	Design Of Concrete Structures Practice	1.98	1.15	1.98
56	Concrete Technology Lab	1.69	1.01	2.20
57	Evaluation Of Summer Internship	1.7	1.02	2.21
58	Mini Project II	1.73	1.26	1.58
59	Design Of Steel Structures	2.04	1.87	2.21
60	Irrigation Engineering & Hydraulic Structures	1.47	1.47	0.89
61	Estimation And Professional Practice	2	1.83	2.16
62	Earthquake Engineering	2.02	2.02	2.19
63	Water Resource Planning And Management	2.14	1.81	2.31
64	Internet Of Things	1.96	1.79	1.96
65	Employability Skill-IV	-	-	1.69
66	Hydraulic Structures Design Practice	1.60	1.12	2.08
67	Design Of Steel Structures Practice	1.62	1.30	2.11
68	Seminar	1.6	1.6	2.08
69	Mini Project-III	1.58	1.11	2.06

70	Organizational Behavior	-	1.13	0.97
71	Transportation Engineering–II	1.78	1.30	-
72	Pre-Stressed Concrete	1.31	2.13	0.00
73	Disaster Management	-	2.34	-
74	Entrepreneurship Development	-	2.01	2.51
75	Construction Equipment And Planning Management	1.32	1.98	-
76	Industrial Lecture And Visit	1.14	2.12	-
77	Summer Internship	1.16	2.16	-
78	Comprehensive Viva Voce	1.58	2.21	-
79	Minor Project	1.48	2.31	-
80	Major Project	1.45	2.26	-
81	Internship	1.12	2.09	-
82	Project Viva Voice	1.62	2.27	-
Average		1.55	1.61	1.67

PSO Attainment Indirect:

Survey	PSO1	PSO2	PSO3
Employer Feedback	2.3	2.2	1.8
Exit Student	2.5	2.4	2.2
Alumni Feedback	2.4	2.2	2.4
Parent Feedback	1.98	2.34	2.86
Average	2.30	2.28	2.32

PSO Attainment Level:

Course	PSO1	PSO2	PSO3
Direct Attainment	1.55	1.61	1.67
Indirect Attainment	2.30	2.28	2.32
PSO Attainment	**1.70**	**1.74**	**1.80**

Level			
Target	1.58	1.66	1.72

CONTINUOUS IMPROVEMENT

POs Attainment Levels and Actions for Improvement- (2023-24)

POs	Target Level	Attainment Level	Observations
PO 1 : Engineering Knowledge			
PO 1	2.10	2.04	We have achieved the target.
Action1: More practical application of course outcome has to be included to improve the attainment level of PO1. Action 2: Unit wise question bank should be improved and at-least one class should be allocated for preparing the students for more numerical questions in respective subject. Action 3: More problems are given for practice.			
PO 2 : Problem Analysis			
PO 2	1.94	1.95	We have achieved the target.
Action 1: Objective Question Bank should be improved and at-least one class should be allocated for Preparing the students for objective questions as quiz. Action 2: Number of tutorial classes were conducted during semester. Action 3: Beyond syllabus for different subjects discussed by our faculties to meet the requirements. Action 4: University questions should be solved in tutorial classes to improve the performance in the external examination. Action 5: More problems were given for practice.			
PO 3 : Design/development of Solutions			
PO 3	1.97	1.93	We have achieved the target.
Action1: Well, defined Objective Question Bank of different subjects be developed by faculty members. Action 2: Hands on session need to be improved, to improve students' performance in the internal examination. Action 3: More design classes to be taught in tutorial classes. Action 4: More problems will be given for assignment practice.			
PO 4 : Conduct Investigations of Complex Problems			
PO 4	1.72	1.76	We have achieved the target
Action1: Add on Course on Research papers included for final year students. Action 2: More project classes conducted to improve attainment level. Action 3: Conduct number of seminars for corresponding subject to attain the level. Action 4: For developing project skills student's maximum number of industrial visits and internships were conducted by the department. Action 5: Number of seminars by aluminous and industrial expert conducted by the department to attain the level.			
PO 5 : Modern Tool Usage			

PO 5	1.67	1.68	It is observed that the attainment level of some of the subjects such as Structural Engineering, Earthquake Engineering, FMHM, Irrigation Engineering and IWMD etc. are the targeted level which is responsible for lowering the average attainment level.
Action1: The laboratory experiments done by the students are repeated for better understanding. Action2: Students are given special training for analysis and interpretation of data through extra tutorial classes taken by senior professors. Action3: Experts from industries were invited for additional knowledge.			
PO 6 : The Engineer and Society			
PO 6	1.55	1.66	We have achieved the target.
Action1: We guide our students to select the projects based on safety concerns and social aspects, such that they are applicable to society. Action 2: More objective questions designed for students and practiced in class. Action 3: Organize seminars, webinars on concern subject to meet attainment level.			
PO 7 : Environment and Sustainability			
PO 7	1.30	1.44	We have achieved the target.
Action1: Special classes were taken to demonstrate these aspects Action 2: Students were given exposure to the social activities through interaction with the public. Action 3: NGOs dealing with the subjects were invited for involving our students in their activities to get better understanding.			
PO 8 : Ethics			
PO 8	1.71	1.75	We have achieved the target.
Action1: We guide our students to select more projects related to ethics and creating awareness. Action 2: More number of workshops was being conducted on ethical issues of professional studies. Action 3: Conducted seminars and guest lectures on industry-oriented topics in modern trend to improve attainment level.			
PO 9 : Individual and Team Work			
PO 9	1.51	1.56	We have achieved the target.
Action1: More number of paper presentations should be encouraged in Tech Fest. Action 2: Workshops conducted on entrepreneurship to motivate students to be a entrepreneur. Action 3: More number of seminars on project development were conducted to meet the requirements. Action 4: Students should be sent to other colleges/universities to contact higher resource persons. Action 5: Students should be sent to nearby testing centers to conduct any tests/experiments.			
PO 10 : Communication			

PO 10	1.52	1.62	We have achieved the target.
Action1: More seminar sessions should be conducted to attain PO. Action 2: Group discussions, debate session was conducted to improve students' performance in the external examination and prepared themselves for interviews. Action 3: Seminar on presentation skill and English communication in technical field has already introduced to improve the attainment level.			
PO 11 : Project Management and Finance			
PO 11	1.44	1.54	We have achieved the target.
Action1: More seminar sessions should be conducted to attain PO. Action 2: Group discussions, debate session was conducted to improve students' performance in the external examination and prepared themselves for interviews. Action 3: Seminar on presentation skill and English communication in technical field has already introduced to improve the attainment level.			
PO 12 : Life-long Learning			
PO 12	1.61	1.66	We have achieved the target.
Action1: Organize more study tour and industrial visit for student. Action 2: Organize Industrial training on advanced software program: - AutoCAD, Staad Pro, Revit, 3D Max. Action 3: Conducted more training classes on advanced technologies (MS- Project) for final year students to improve the attainment level.			

PSOs Attainment Levels and Actions for Improvement- (2023-24)

PSOs	Target Level	Attainment Level	Observations
PSO 1: Professional Design & Construction Engineering Skill: Skill to apply the latest Design procedures for civil engineering structures by developing and applying the latest software. Construction being the heart of the infrastructural development, latest construction procedures is to be adopted using latest equipment and machineries.			
PSO 1	1.58	1.70	We have not achieved the target.
Action 1: Seminar was conducted for IV-year Students. Action 2: Gather knowledge related to the Civil Software Tools such as AutoCAD, Staad Pro, GIS , GPS , Total Station, MS – Project, 3D - Printing. Action 3: Remedial classes were also organized.			
PSO 2 : Innovative Skill: An ability to explore new ideas in the field of Civil Engineering with the help of Development of high-quality technical knowledge through application of software and field observed data.			
PSO 2	1.66	1.74	We have achieved the target.

Action1: Special lectures were conducted for counseling the students regarding the scope of Civil and Construction Engineering entrepreneurship those are huge and attractive.
Action 2: Students having right attitude of being entrepreneur were encouraged.
Action 3: The interested were given scope to avail the facilities of institutional incubation cell and Departmental laboratories to research and development.
Action 4: Awareness camps were organized for Civil Engineering entrepreneurship with involvement of state MSME.

PSO 3: Civil Engineering Entrepreneurships: Scope of Civil and Construction Engineering Entrepreneurships are huge and attractive. Students of having right attitude of being entrepreneurs are encouraged and they can avail Institutional incubation cells and MSME inspiration.

PSO 3	1.72	1.80	We have achieved the target.

Action 1: Workshop should be conducted on planning and layout to improve the student knowledge levels.
Action 2: Students are assigned with more minor projects.
Action 3: Guest lecturer sessions were arranged in regular interval to give basic knowledge.