**CO-PO-PSO MAPPING**

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**GITA Autonomous College, Bhubaneswar**

**Department of Civil Engineering**

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| **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 | | | |

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| **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 | | | |

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| **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 | | | |

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| **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 | | | |

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| **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 | | | |

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| **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 | | | |

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| **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 | | | |

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| **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 | | | |

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| **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 | | | |

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| **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 | | | |

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**Department of Civil Engineering**

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| **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 | | | |

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| **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 | | | |

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| **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 | | | |

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| **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 | | | |

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| **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 | | | |

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| **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 | | | |

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| **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 | | | |

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| **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 | | | |

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| **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 | | | |

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| **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 | | | |

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| **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 | | | |

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| **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 | | | |

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| **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 | - |

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| **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 |

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| **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 |

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| **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 |

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| **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 |

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| **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 | | | |

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| **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 |

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| **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 |

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| **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 |

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| **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 |

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| **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 |

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| **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 |

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| **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 | | | |

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| **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 | | | |

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| **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 | | | |

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| **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 | | | |

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| **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 | | | |

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| **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 | | | |

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| **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 | | | |

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**Department of Civil Engineering**

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| **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 | | | |

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| **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 | | | |

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| **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 | | | |

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| **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 | | | |

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| **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 | | | |

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| **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 | | | |

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| **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 | | | |

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| **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 | | | |

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| **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 | | | |

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| **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 | | | |

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**GITA Autonomous College, Bhubaneswar**

**Department of Civil Engineering**

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| **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 | | | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **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 | | | |

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| **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 | | | |

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| **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 | | | |

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| **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 | | | |

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| **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 | | | |

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| **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 | | | |

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| **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 | | | |

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| **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 | | | |

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| **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 | | | |

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| **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 | | | |

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| **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 | | | |

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| **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 | | | |

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| **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 | | | |

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| **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 | | | |

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| **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 | | | |

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| **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 | | | |

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| **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 | | | |

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| **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 | | | |

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| **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 | | | |

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**Department of Civil Engineering**

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| **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 | | | |

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| **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 | | | |

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| **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 | | | |

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| **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 | | | |

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| **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 | | | |

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| **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 | | | |

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| **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 | | | |

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| **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 | | | |

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| **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 | | | |

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**GITA Autonomous College, Bhubaneswar**

**Department of Civil Engineering**

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| **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 | | | |

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| **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 | | | |