



DINKARRAO K. SHINDE SMARAK TRUST'S

DR.A.D.SHINDE COLLEGE OF ENGINEERING,GADHINGLAJ

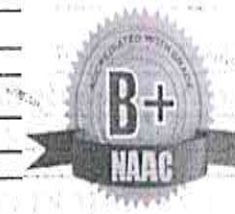
Guddai, A/P- Bhadgaon, Tal. Gadhinglaj, Dist. Kolhapur.

## National Assessment and Accreditation Council (NAAC) Course CO-PO Attainment Report

Key Indicator - 2.6.2 Under Criterion II of Student Performane &amp; Learnig Outcomes

Academic Year: 2023-24

Program: UG IN MECHANICAL ENGINEERING



| SEM:01    |                          |            |                                                                                                  | CO-PO Mapping |     |     |     |     |     |     |     |     |     |      |      | Ave<br>CO | COUR<br>SE | Final<br>Co | PO ATTAINMENT |       |      |      |      |      |      |      |      |      |      |      |      |      |      |
|-----------|--------------------------|------------|--------------------------------------------------------------------------------------------------|---------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|-----------|------------|-------------|---------------|-------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| SR.<br>NO | SUBJECT                  | co no      | Course Outcomes (COs)                                                                            |               | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12      | DIREC      | EXIT        | Attain        |       | PO1  | PO2  | PO3  | PO4  | PO5  | PO6  | PO7  | PO8  | PO9  | PO10 | PO11 | PO12 |      |
| 1         | ENGINEERING<br>CHEMISTRY | BSC-C-1011 | 1.Student will be able to undestand & comprehend to water quality parameters & there importance  | CO1           | 3   | 3   |     | 2   |     | 2   |     |     |     |      |      |           | 0.5        | 3           | 1.25          | CO1   | 1.25 | 1.25 | 0.00 | 0.83 | 0.00 | 0.83 | 0.00 | 0.00 | 0.00 | 0.42 | 0.00 | 0.00 |      |
|           |                          | BSC-C-1012 | 2.Student will be able to undestand & comprehend use spectrometer for chemical analysis          | CO2           | 3   | 3   |     | 2   |     |     |     |     |     |      |      |           |            | 0.5         | 3             | 1.25  | CO2  | 1.25 | 1.25 | 0.00 | 0.83 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |      |
|           |                          | BSC-C-1013 | 3.Student will be able to undestand & comprehend to the structure polymers & composite materials | CO3           | 3   |     |     | 2   |     |     |     |     |     |      |      |           |            | 0.25        | 3             | 1.075 | CO3  | 1.08 | 0.00 | 0.00 | 0.72 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
|           |                          | BSC-C-1014 | 4. Student will be able to undestand & comprehend the fuels & there anlysis                      | CO4           | 3   | 3   |     |     |     | 1   |     |     |     |      |      | 1         |            | 0.25        | 3             | 1.075 | CO4  | 1.08 | 1.08 | 0.00 | 0.00 | 0.00 | 0.36 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.36 |
|           |                          | BSC-C-1015 | 5.Student will be able to undestand & comprehend the process of corrosion & remedial measure     | CO5           | 3   |     |     | 2   |     | 2   |     |     |     |      |      |           |            | 0.25        | 3             | 1.075 | CO5  | 1.08 | 0.00 | 0.00 | 0.72 | 0.00 | 0.72 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Average   |                          |            |                                                                                                  |               |     |     |     |     |     |     |     |     |     |      |      |           |            |             | 1.15          | 0.72  | 0.00 | 0.62 | 0.00 | 0.38 | 0.00 | 0.00 | 0.00 | 0.08 | 0.00 | 0.07 |      |      |      |

| SEM:01    |                                  |              |                                                                                                                      | CO-PO Mapping |     |     |     |     |     |     |     |     |     |      |      | Ave<br>CO<br>DIREC | COUR<br>SE<br>EXIT | Final<br>Co<br>Attain | PO ATTAINMENT |      |      |      |      |      |      |      |      |      |      |      |      |
|-----------|----------------------------------|--------------|----------------------------------------------------------------------------------------------------------------------|---------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|--------------------|--------------------|-----------------------|---------------|------|------|------|------|------|------|------|------|------|------|------|------|
| SR.<br>NO | SUBJECT                          | co no        | Course Outcomes (COs)                                                                                                |               | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12               |                    |                       |               | PO1  | PO2  | PO3  | PO4  | PO5  | PO6  | PO7  | PO8  | PO9  | PO10 | PO11 | PO12 |
| 2         | ENGINEERING<br>MATHEMATIC<br>S-I | BSC-M-I-1021 | 1. Student will be able to understand & comprehend matrix method of solving system of linear                         | CO1           | 1   | 2   |     |     |     |     |     |     |     |      | 2    |                    | 0.5                | 3                     | 1.25          | CO1  | 0.42 | 0.83 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.83 | 0.00 |
|           |                                  | BSC-M-I-1022 | 2. Student will be able to apply De Moivre's Theorem.                                                                | CO2           | 1   | 2   |     |     |     |     |     |     |     |      | 1    |                    | 0.34               | 3                     | 1.138         | CO2  | 0.38 | 0.76 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.38 | 0.00 |
|           |                                  | BSC-M-I-1023 | 3. Student will be able to apply Numerical method to solve linear simultaneous equations.                            | CO3           | 2   | 2   |     | 2   |     |     |     |     |     |      | 1    |                    | 0.5                | 3                     | 1.25          | CO3  | 0.83 | 0.83 | 0.00 | 0.83 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.42 | 0.00 |
|           |                                  | BSC-M-I-1024 | 4. Student will be able to understand & comprehend the applications of expansions of theorems and L'Hospital's rule. | CO4           | 1   | 2   |     |     |     |     |     |     |     |      | 2    |                    | 0.5                | 3                     | 1.25          | CO4  | 0.42 | 0.83 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.83 | 0.00 |
|           |                                  | BSC-M-I-1025 | 5. Student will be able to understand & apply partial differentiation to determine maxima and minima                 | CO5           | 2   | 3   |     |     |     |     |     |     |     |      | 1    |                    | 0.25               | 3                     | 1.075         | CO5  | 0.72 | 1.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.36 | 0.00 |
| Average   |                                  |              |                                                                                                                      |               |     |     |     |     |     |     |     |     |     |      |      |                    |                    |                       | 0.55          | 0.87 | 0.00 | 0.17 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.56 | 0.00 |      |

| SEM:01  |                                                 |            |                                                                                        | CO-PO Mapping |     |     |     |     |     |     |     |     |     |      |      |      |       |      |        | Ave  | COUR | Final | PO ATTAINMENT |      |      |      |      |      |      |      |      |      |      |  |
|---------|-------------------------------------------------|------------|----------------------------------------------------------------------------------------|---------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|-------|------|--------|------|------|-------|---------------|------|------|------|------|------|------|------|------|------|------|--|
| SR. NO  | SUBJECT                                         | co no      | Course Outcomes (COs)                                                                  |               |     |     |     |     |     |     |     |     |     |      |      | CO   | SE    | Co   |        |      |      |       |               |      |      |      |      |      |      |      |      |      |      |  |
| 3       | FUNDAMENTAL OF ELECTRONICS AND COMPUTER SCIENCE | ESC-C-1031 | 1.Converse in basic computer terminology.                                              | CO1           | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | DIREC | EXIT | Attain | CO1  | PO1  | PO2   | PO3           | PO4  | PO5  | PO6  | PO7  | PO8  | PO9  | PO10 | PO11 | PO12 |      |  |
|         |                                                 | ESC-C-1032 | 2.Formulate opinions about the impact of computers on society.                         | CO2           | 3   | 3   |     | 2   |     | 2   |     |     |     |      |      |      |       | 0    | 3      | 0.9  | CO1  | 0.90  | 0.90          | 0.00 | 0.60 | 0.00 | 0.60 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |  |
|         |                                                 | ESC-C-1033 | 3.Possess the knowledge of basic hardware peripherals.                                 | CO3           | 3   | 3   |     | 2   |     |     |     |     |     |      |      |      |       | 1.5  | 3      | 1.95 | CO2  | 1.95  | 1.95          | 0.00 | 1.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |  |
|         |                                                 | ESC-C-1034 | 4.Know and use different number systems and the basics of programming.                 | CO4           | 3   |     |     | 2   |     |     |     |     |     |      |      |      |       | 1.5  | 3      | 1.95 | CO3  | 1.95  | 0.00          | 0.00 | 1.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |  |
|         |                                                 | ESC-C-1035 | 5.Ability to analyze PN junctions in semiconductor devices under various conditions.   | CO5           | 3   | 3   |     |     |     | 1   |     |     |     |      |      |      |       | 1.5  | 3      | 1.95 | CO4  | 1.95  | 1.95          | 0.00 | 0.00 | 0.00 | 0.65 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |  |
|         |                                                 | ESC-C-1036 | 6.Ability to design and analyze simple rectifiers and voltage regulators using diodes. | CO6           | 3   |     |     | 2   |     | 2   |     |     |     |      |      |      |       | 1.5  | 3      | 1.95 | CO5  | 1.95  | 0.00          | 0.00 | 1.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |  |
|         |                                                 | ESC-C-1037 | 7.Ability to describe the behavior of special purpose diodes.                          | CO7           | 3   |     |     | 3   |     |     |     |     |     |      |      |      |       | 1.5  | 3      | 1.95 | CO6  | 1.95  | 0.00          | 1.95 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |  |
| Average |                                                 |            |                                                                                        |               |     |     |     |     |     |     |     |     |     |      |      |      |       |      | 1.78   | 0.80 | 0.33 | 0.75  | 0.00          | 0.43 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |      |      |      |  |

| SEM:01    |                      |            |                                                                                          | CO-PO Mapping |     |     |     |     |     |     |     |     |     |      |      | Ave<br>CO | COUR<br>SE | Final<br>Co | PO ATTAINMENT |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|-----------|----------------------|------------|------------------------------------------------------------------------------------------|---------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|-----------|------------|-------------|---------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| SR.<br>NO | SUBJECT              | co no      | Course Outcomes (COs)                                                                    |               | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12      | DIREC      | EXIT        | Attain        |      | PO1  | PO2  | PO3  | PO4  | PO5  | PO6  | PO7  | PO8  | PO9  | PO10 | PO11 | PO12 |      |      |      |      |      |
| 4         | APPLIED<br>MECHANICS | ESC-C-1041 |                                                                                          | CO1           | 1   | 2   |     |     |     |     |     |     |     |      | 2    |           | 0.5        | 3           | 1.25          | CO1  | 0.42 | 0.83 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.83 | 0.00 |      |      |      |      |      |
|           |                      | ESC-C-1042 | 2.Understand the basics of Engineering Materials (its applications) and Stress-Strain    | CO2           | 1   | 2   |     |     |     |     |     |     |     |      |      | 1         |            | 0.5         | 3             | 1.25 | CO2  | 0.42 | 0.83 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.42 | 0.00 |      |      |      |      |
|           |                      | ESC-C-1043 | 3. Understand the basics of Engineering surveying and Smart Infrastructure Development.  | CO3           | 2   | 2   |     | 2   |     |     |     |     |     |      |      | 1         |            | 0.5         | 3             | 1.25 | CO3  | 0.83 | 0.83 | 0.00 | 0.83 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.42 | 0.00 |      |      |      |      |
|           |                      | ESC-C-1044 | 4. Understand the basics Applied Mechanics, Simple lifting Machines & Power Transmission | CO4           | 1   | 2   |     |     |     |     |     |     |     |      |      | 2         |            | 0.5         | 3             | 1.25 | CO4  | 0.42 | 0.83 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.83 | 0.00 |      |      |      |      |
|           |                      | ESC-C-1045 | 5.Understand basics of Manufacturing                                                     | CO5           | 2   | 3   |     |     |     |     |     |     |     |      |      | 1         |            | 0.5         | 3             | 1.25 | CO5  | 0.83 | 1.25 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.42 | 0.00 |      |      |      |      |
| Average   |                      |            |                                                                                          |               |     |     |     |     |     |     |     |     |     |      |      |           |            |             | 0.5           | 3    | 1.25 | CO6  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.49 | 0.00 |

| SEM:01    |                                    |            |                                                                                                           | CO-PO Mapping |     |     |     |     |     |     |     |     |      |      |      | Ave<br>CO | COUR<br>SE | Final<br>Co | PO ATTAINMENT |      |      |      |      |      |      |      |      |      |      |      |      |
|-----------|------------------------------------|------------|-----------------------------------------------------------------------------------------------------------|---------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|-----------|------------|-------------|---------------|------|------|------|------|------|------|------|------|------|------|------|------|
| SR.<br>NO | SUBJECT                            | co no      | Course Outcomes (COs)                                                                                     | PO1           | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | DIREC     | EXIT       | Attain      | PO1           | PO2  | PO3  | PO4  | PO5  | PO6  | PO7  | PO8  | PO9  | PO10 | PO11 | PO12 |      |
| 5         | BASIC<br>MECHANICAL<br>ENGINEERING | ESC-C-1051 | 1. Enhancement of fundamental knowledge of Thermodynamics. ...                                            | CO1           | 1   | 2   |     |     |     |     |     |     |      | 2    |      | 0.25      | 3          | 1.075       | CO1           | 0.36 | 0.72 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.72 | 0.00 |      |
|           |                                    | ESC-C-1052 | 2.Acquiring knowledge of materials and their properties for engineering applications                      | CO2           | 1   | 2   |     |     |     |     |     |     |      |      | 2    |           | 0.25       | 3           | 1.075         | CO2  | 0.36 | 0.72 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.72 | 0.00 |
|           |                                    | ESC-C-1053 | 3. Enhancement of analytical skills by Learning different mechanism of machines.                          | CO3           | 1   | 2   |     |     |     |     |     |     |      |      | 2    |           | 1          | 3           | 1.6           | CO3  | 0.53 | 1.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.07 | 0.00 |
|           |                                    | ESC-C-1054 | 4.Evaluate properties of stream.                                                                          | CO4           | 1   | 2   |     |     |     |     |     |     |      |      | 2    |           | 1          | 3           | 1.6           | CO4  | 0.53 | 1.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.07 | 0.00 |
|           |                                    | ESC-C-1055 | STUDY AND ANALYSIS OF POWER TRANSMISSION DEVICES SUCH AS BELT DRIVE, GEAR DRIVE, PUMPS, COMPRESSOR ETC.   | CO5           | 1   | 2   |     |     |     |     |     |     |      |      | 2    |           | 0.25       | 3           | 1.075         | CO5  | 0.36 | 0.72 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.72 | 0.00 |
|           |                                    | ESC-C-1056 | DESCRIBE THE SCOPE OF MANUNAFCTURING PROCESSES IN MECHANICAL ENGINEERING IN MULTIDISCIPLINARY INDUSTRIES. | CO6           | 1   | 2   |     |     |     |     |     |     |      |      | 2    |           | 0.25       | 3           | 1.075         | CO6  | 0.36 | 0.72 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.72 | 0.00 |
| Average   |                                    |            |                                                                                                           |               |     |     |     |     |     |     |     |     |      |      |      |           |            |             | 0.42          | 0.83 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.83 | 0.00 |      |

| SEM:01 |         |           |                                                                                           | CO-PO Mapping |     |     |     |     |     |     |     |     |     |      |      | AVE  | COUR     | Final   | PO ATTAINMENT |     |      |      |      |      |      |      |      |      |      |      |      |      |
|--------|---------|-----------|-------------------------------------------------------------------------------------------|---------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|----------|---------|---------------|-----|------|------|------|------|------|------|------|------|------|------|------|------|
| SR. NO | SUBJECT | co no     | Course Outcomes (COs)                                                                     |               | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | CO DIREC | SE EXIT | Co Attain     |     | PO1  | PO2  | PO3  | PO4  | PO5  | PO6  | PO7  | PO8  | PO9  | PO10 | PO11 | PO12 |
|        |         | HM-I-1061 | "1. STUDENTS WILL BE ABLE TO COMMUNICATE EFFECTIVELY BY UNDERSTANDING TERM COMMUNICATION" | CO1           | 2   | 3   |     |     |     |     |     |     |     |      |      | 3    | 0.25     | 3       | 1.075         | CO1 | 0.72 | 1.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.08 |



|   |                              |           |                                                                                                 |     |   |   |  |  |  |  |   |  |   |  |   |      |      |       |       |      |      |      |      |      |      |      |      |      |      |      |      |      |
|---|------------------------------|-----------|-------------------------------------------------------------------------------------------------|-----|---|---|--|--|--|--|---|--|---|--|---|------|------|-------|-------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 6 | PROFFESIONAL COMMUNICATION I | HM-I-1062 | 2. STUDENTS LEARN TO USE AND APPLY OF GRAMMAR RULES IN SPOKEN & WRITTEN ENGLISH.                | CO2 | 2 | 2 |  |  |  |  |   |  | 2 |  | 3 | 0.25 | 3    | 1.075 | CO2   | 0.72 | 0.72 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.72 | 0.00 | 1.08 |      |
|   |                              | HM-I-1063 | 3. STUDENTS WILL BE ABLE TO LEARN PHONETICS, FLUENCY AND PRONUNCIATION.                         | CO3 | 2 | 2 |  |  |  |  |   |  |   |  | 3 | 1.5  | 3    | 1.95  | CO3   | 1.30 | 1.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.95 |      |
|   |                              | HM-I-1064 | 4. STUDENTS WILL BE TO ACQUIRE SKILLS & TECHNIQUES OF PUBLIC SPEAKING, ELOCUTION, MEETINGS ETC. | CO4 | 2 | 2 |  |  |  |  | 2 |  |   |  |   | 3    | 1.5  | 3     | 1.95  | CO4  | 1.30 | 1.30 | 0.00 | 0.00 | 1.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.95 |
|   |                              | HM-I-1065 | 5. STUDENTS WILL ACQUIRE REQUIRED SKILLS FOR TECHNICAL WRITING.                                 | CO5 | 2 |   |  |  |  |  | 2 |  |   |  |   | 3    | 0.25 | 3     | 1.075 | CO5  | 0.72 | 0.00 | 0.00 | 0.00 | 0.72 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.08 |
|   |                              | Average   |                                                                                                 |     |   |   |  |  |  |  |   |  |   |  |   |      |      |       |       |      | 0.95 | 0.88 | 0.00 | 0.00 | 0.40 | 0.00 | 0.00 | 0.00 | 0.14 | 0.00 | 1.43 |      |

| SEM:01    |                        |              |                                                                                | CO-PO Mapping |     |     |     |     |     |     |     |     |     |      |      |      | AVE<br>CO<br>DIREC | COUR<br>SE<br>EXIT | Final<br>Co<br>Attain | PO ATTAINMENT |      |      |      |      |      |      |      |      |      |      |      |      |      |
|-----------|------------------------|--------------|--------------------------------------------------------------------------------|---------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|--------------------|--------------------|-----------------------|---------------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| SR.<br>NO | SUBJECT                | co no        | Course Outcomes (COs)                                                          |               | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |                    |                    |                       |               | PO1  | PO2  | PO3  | PO4  | PO5  | PO6  | PO7  | PO8  | PO9  | PO10 | PO11 | PO12 |      |
| 7         | WORKSHOP<br>PRACTICE I | ESC-W-I-1071 | 1. Explain the use of safety equipment's and precautions in workshop           | CO1           | 1   | 2   |     |     |     |     |     |     |     |      | 2    |      | 0.25               | 3                  | 1.075                 | CO1           | 0.36 | 0.72 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.72 | 0.00 |      |
|           |                        | ESC-W-I-1072 | 2. Use the measurement tools for processing of work piece                      | CO2           | 1   | 2   |     |     |     |     |     |     |     |      |      | 2    |                    | 0.35               | 3                     | 1.145         | CO2  | 0.38 | 0.76 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.76 | 0.00 |
|           |                        | ESC-W-I-1073 | 3. Explain smithy tools and operations                                         | CO3           | 1   | 2   |     |     |     |     |     |     |     |      |      | 2    |                    | 1.5                | 3                     | 1.95          | CO3  | 0.65 | 1.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.30 | 0.00 |
|           |                        | ESC-W-I-1074 | 4. Perform smithy operations in workshop Explain2 fitting tools and operations | CO4           | 1   | 2   |     |     |     |     |     |     |     |      |      | 2    |                    | 1                  | 3                     | 1.6           | CO4  | 0.53 | 1.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.07 | 0.00 |
| Average   |                        |              |                                                                                |               |     |     |     |     |     |     |     |     |     |      |      |      |                    |                    |                       |               | 0.48 | 0.96 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.96 | 0.00 |

| SEM:02    |                        |            |                                                                                                        | CO-PO Mapping |     |     |     |     |     |     |     |     |     |      |      |      | AVE<br>CO<br>DIREC | COUR<br>SE<br>EXIT | Final<br>Co<br>Attain | PO ATTAINMENT |      |      |      |      |      |      |      |      |      |      |      |      |
|-----------|------------------------|------------|--------------------------------------------------------------------------------------------------------|---------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|--------------------|--------------------|-----------------------|---------------|------|------|------|------|------|------|------|------|------|------|------|------|
| SR.<br>NO | SUBJECT                | co no      | Course Outcomes (COs)                                                                                  |               | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |                    | PO1                | PO2                   | PO3           | PO4  | PO5  | PO6  | PO7  | PO8  | PO9  | PO10 | PO11 | PO12 |      |      |      |
| 7         | ENGINEERING<br>PHYSICS | BSC-P-1011 | 1. Students can able to understand and comprehend the general scientific concepts of attraction and    | CO1           | 2   | 3   |     |     |     |     |     |     |     |      |      | 3    | 1                  | 3                  | 1.6                   | CO1           | 1.07 | 1.60 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.60 |      |      |
|           |                        | BSC-P-1012 | 2. Students can able to understand and comprehend the structure of optical fiber and its applications. | CO2           | 2   | 2   |     |     |     |     |     |     |     |      | 2    |      | 3                  | 1                  | 3                     | 1.6           | CO2  | 1.07 | 1.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.07 | 0.00 | 1.60 |
|           |                        | BSC-P-1013 | Students can able to understand and comprehend Acoustics parameters and its applications               | CO3           | 2   | 2   |     |     |     |     |     |     |     |      |      |      | 3                  | 1                  | 3                     | 1.6           | CO3  | 1.07 | 1.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.60 |
|           |                        | BSC-P-1014 | Students can able to understand and comprehend crystal structure and its analysis.                     | CO4           | 2   | 2   |     |     |     | 2   |     |     |     |      |      |      | 3                  | 1                  | 3                     | 1.6           | CO4  | 1.07 | 1.07 | 0.00 | 0.00 | 1.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.60 |
|           |                        | BSC-P-1015 | their properties                                                                                       | CO5           | 2   |     |     |     |     | 2   |     |     |     |      |      |      | 3                  | 0.25               | 3                     | 1.075         | CO5  | 0.72 | 0.00 | 0.00 | 0.00 | 0.72 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Average   |                        |            |                                                                                                        |               |     |     |     |     |     |     |     |     |     |      |      |      |                    | 1.00               | 0.96                  | 0.00          | 0.00 | 0.36 | 0.00 | 0.00 | 0.00 | 0.00 | 0.21 | 0.00 | 1.50 |      |      |      |

| SEM:02    |                                   |                   |                                                                                                                                                                 | CO-PO Mapping |     |     |     |     |     |     |     |     |     |      |      |      | AVE<br>CO<br>DIREC | COUR<br>SE<br>EXIT | Final<br>Co<br>Attain | PO ATTAINMENT |      |      |      |      |      |      |      |      |      |      |      |      |
|-----------|-----------------------------------|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|--------------------|--------------------|-----------------------|---------------|------|------|------|------|------|------|------|------|------|------|------|------|
| SR.<br>NO | SUBJECT                           | co no             | Course Outcomes (COs)                                                                                                                                           |               | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |                    |                    |                       |               | PO1  | PO2  | PO3  | PO4  | PO5  | PO6  | PO7  | PO8  | PO9  | PO10 | PO11 | PO12 |
| 8         | ENGINEERING<br>MATHAMATIC<br>S-II | BSC-M-II-<br>2021 | 1.Student will be able to understand the formation and solving differential equations and its                                                                   | CO1           | 2   | 2   |     |     |     |     |     |     |     |      |      | 2    | 0.25               | 3                  | 1.075                 | CO1           | 0.72 | 0.72 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.72 |
|           |                                   | BSC-M-II-<br>2022 | 3.Students will be able to apply numerical methods to obtain approximate solutions to mathematical problems.                                                    | CO2           | 2   | 2   |     |     | 2   |     |     |     |     |      |      | 2    | 0                  | 3                  | 0.9                   | CO2           | 0.60 | 0.60 | 0.00 | 0.00 | 0.60 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.60 |
|           |                                   | BSC-M-II-<br>2023 | 3.Students will be able to apply numerical methods to, to solve algebraic and transcendental equations which cannot be solved by traditional algebraic methods. | CO3           | 3   | 2   |     |     | 2   |     |     |     |     |      |      | 2    | 0.34               | 3                  | 1.138                 | CO3           | 1.14 | 0.76 | 0.00 | 0.00 | 0.76 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.76 |
|           |                                   | BSC-M-II-<br>2024 | 4.Student will be able to understand the concept of special functions and it's properties.                                                                      | CO4           | 3   | 2   |     |     | 2   |     |     |     |     |      |      | 2    | 0.5                | 3                  | 1.25                  | CO4           | 1.25 | 0.83 | 0.00 | 0.00 | 0.83 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.83 |
|           |                                   | BSC-M-II-<br>2025 | Area of the region bounded by curves and to find volume, surface area, Mass, C.G                                                                                | CO5           | 3   | 2   |     |     | 2   |     |     |     |     |      |      | 2    | 0.25               | 3                  | 1.075                 | CO5           | 1.08 | 0.72 | 0.00 | 0.00 | 0.72 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.72 |
|           |                                   | BSC-M-II-<br>2026 |                                                                                                                                                                 | CO6           | 3   | 2   |     |     |     |     |     |     |     |      |      | 2    | 0.27               | 3                  | 1.089                 | CO6           | 1.09 | 0.73 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.73 |
| Average   |                                   |                   |                                                                                                                                                                 |               |     |     |     |     |     |     |     |     |     |      |      |      |                    |                    |                       | 0.98          | 0.73 | 0.00 | 0.00 | 0.48 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.73 |      |      |

|           |                                    | SEM:02     |                                                                                                              |     | CO-PO Mapping |     |     |     |     |     |     |     |     |      |      |      | AVE<br>CO<br>DIREC | COUR<br>SE<br>EXIT | Final<br>Co<br>Attain | PO ATTAINMENT |      |      |      |      |      |      |      |      |      |      |      |      |
|-----------|------------------------------------|------------|--------------------------------------------------------------------------------------------------------------|-----|---------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|--------------------|--------------------|-----------------------|---------------|------|------|------|------|------|------|------|------|------|------|------|------|
| SR.<br>NO | SUBJECT                            | co no      | Course Outcomes (COs)                                                                                        |     | PO1           | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |                    | PO1                | PO2                   | PO3           | PO4  | PO5  | PO6  | PO7  | PO8  | PO9  | PO10 | PO11 | PO12 |      |      |      |
| 9         | BASIC<br>ELECTRICAL<br>ENGINEERING | ESC-P-2031 | SOLVE NUMERICAL ON ELECTRIC CIRCUIT USING LAWS OF KCL AND KVL                                                | CO1 | 2             | 3   |     |     |     |     |     |     |     |      |      | 3    | 0                  | 3                  | 0.9                   | CO1           | 0.60 | 0.90 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.90 |      |      |
|           |                                    | ESC-P-2032 | SOLVE NUMERICAL ON MAGNETIC CIRCUIT USING LAWS OF COULOMB&acircTM'S LAW AND MAGNETIC CIRCUITS.               | CO2 | 2             | 2   |     |     |     |     |     |     |     |      | 2    |      | 3                  | 0                  | 3                     | 0.9           | CO2  | 0.60 | 0.60 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.60 | 0.00 | 0.90 |
|           |                                    | ESC-P-2033 | EXPLAIN DIFFERENT SINGLE PHASE AC CIRCUITS AND WILL SOLVE THE NUMERICAL RELATE TO IT.                        | CO3 | 2             | 2   |     |     |     |     |     |     |     |      |      |      | 3                  | 0                  | 3                     | 0.9           | CO3  | 0.60 | 0.60 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.90 |
|           |                                    | ESC-P-2034 | RECOGNIZE THE TYPES OF THREE PHASE SUPPLY SYSTEM AS A STAR OR DELTA BY OBSERVATION AND WILL COMPARE TO THEM. | CO4 | 2             | 2   |     |     | 2   |     |     |     |     |      |      |      | 3                  | 0                  | 3                     | 0.9           | CO4  | 0.60 | 0.60 | 0.00 | 0.00 | 0.60 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.90 |
|           |                                    | ESC-P-2035 | UNDERSTAND THE IMPORTANCE OF EARTHING AND WILL EXPLAIN THE DIFFERENT TYPES OF EARTHING SYSTEMS.              | CO5 | 2             |     |     |     | 2   |     |     |     |     |      |      |      | 3                  | 0                  | 3                     | 0.9           | CO5  | 0.60 | 0.00 | 0.00 | 0.00 | 0.60 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.90 |
|           |                                    | ESC-P-2036 | EXPLAIN THE WORKING PRINCIPLE OF TRANSFORMER AND WILL CALCULATE EFFICIENCY AND REGULATION OF TRANSFORMER.    | CO6 | 2             | 3   |     |     |     |     |     |     |     |      |      |      | 3                  | 0.5                | 3                     | 1.25          | CO6  | 0.83 | 1.25 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.25 |
| Average   |                                    |            |                                                                                                              |     |               |     |     |     |     |     |     |     |     |      |      |      |                    | 0.64               | 0.66                  | 0.00          | 0.00 | 0.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.10 | 0.00 | 0.96 |      |      |      |

| SEM:02 |                         |            |                                                                                                    | CO-PO Mapping |     |     |     |     |     |     |     |     |     |      |      |      | AVE CO | COUR SE | Final Co | PO ATTAINMENT |      |      |      |      |      |      |      |      |      |      |      |      |
|--------|-------------------------|------------|----------------------------------------------------------------------------------------------------|---------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|--------|---------|----------|---------------|------|------|------|------|------|------|------|------|------|------|------|------|
| SR. NO | SUBJECT                 | co no      | Course Outcomes (COs)                                                                              |               | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | DIREC  | EXIT    | Attain   |               | PO1  | PO2  | PO3  | PO4  | PO5  | PO6  | PO7  | PO8  | PO9  | PO10 | PO11 | PO12 |
| 10     | BASIC CIVIL ENGINEERING | ESC-P-2041 | DEMONSTRATE BASIC KNOWLEDGE OF CIVIL ENGINEERING AND APPLY PRINCIPLE OF PLANNING BUILDING BYE LAWS | CO1           | 2   | 2   | 1   |     |     |     |     |     |     |      |      | 2    | 2.5    | 3       | 2.65     | CO1           | 1.77 | 1.77 | 0.88 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.77 |
|        |                         | ESC-P-2042 | LIST FUNCTION OF DIFFERENT BUILDING COMPONENT                                                      | CO2           | 2   | 2   |     |     | 2   |     |     |     |     |      |      | 2    | 2.25   | 3       | 2.475    | CO2           | 1.65 | 1.65 | 0.00 | 0.00 | 1.65 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.65 |
|        |                         | ESC-P-2043 | EXPLAIN VARIOUS USES & PROPERTIES OF BUILDING MATERIALS & ALSO TYPE OF LOADS ACTING ON BUILDING.   | CO3           | 3   | 2   | 1   |     | 2   |     |     |     |     |      |      | 2    | 3      | 3       | 3        | CO3           | 3.00 | 2.00 | 1.00 | 0.00 | 2.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.00 |
|        |                         | ESC-P-2044 | ILLUSTRATE LINEAR & ANGULAR MEASUREMENT BY CONSIDERING PRINCIPLE & SIGNIFICANCE OF SURVEYING.      | CO4           | 3   | 2   | 1   |     | 2   |     |     |     |     |      |      | 2    | 3      | 3       | 3        | CO4           | 3.00 | 2.00 | 1.00 | 0.00 | 2.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.00 |
|        |                         | ESC-P-2045 | IDENTIFY NATURE OF GROUND BY USING METHOD OF LEVELLING.                                            | CO5           | 3   | 2   | 1   |     | 2   |     |     |     |     |      |      | 2    | 3      | 3       | 3        | CO5           | 3.00 | 2.00 | 1.00 | 0.00 | 2.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.00 |



|  |  |            |                                                                  |     |   |   |  |  |  |  |  |  |  |  |  |   |   |   |   |         |      |      |      |      |      |      |      |      |      |      |      |      |
|--|--|------------|------------------------------------------------------------------|-----|---|---|--|--|--|--|--|--|--|--|--|---|---|---|---|---------|------|------|------|------|------|------|------|------|------|------|------|------|
|  |  | ESC-P-2046 | LIST COMPONENT OF PAVEMENT, RAILWAY TRACK & WATER SUPPLY SCHEME. | CO6 | 3 | 2 |  |  |  |  |  |  |  |  |  | 2 | 3 | 3 | 3 | CO6     | 3.00 | 2.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.00 |
|  |  |            |                                                                  |     |   |   |  |  |  |  |  |  |  |  |  |   |   |   |   | Average | 2.57 | 1.90 | 0.65 | 0.00 | 1.28 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.90 |

| SEM:02    |                         |            |                                                                                                                                                        | CO-PO Mapping |     |     |     |     |     |     |     |     |     |      |      | AVE<br>CO<br>DIREC | COUR<br>SE<br>EXIT | Final<br>Co<br>Attain | PO ATTAINMENT |      |       |      |      |      |      |      |      |      |      |      |      |      |      |
|-----------|-------------------------|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|--------------------|--------------------|-----------------------|---------------|------|-------|------|------|------|------|------|------|------|------|------|------|------|------|
| SR.<br>NO | SUBJECT                 | co no      | Course Outcomes (COs)                                                                                                                                  |               | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12               |                    |                       |               |      | PO1   | PO2  | PO3  | PO4  | PO5  | PO6  | PO7  | PO8  | PO9  | PO10 | PO11 | PO12 |      |
| 11        | ENGINEERING<br>GRAPHICS | ESC-P-2051 | USE THE DRAWING INSTRUMENTS EFFECTIVELY AND ABLE TO DIMENSION THE GIVEN FIGURES AND APPRECIATE THE USAGE OF ENGINEERING CURVES IN TRACING THE PATHS OF | CO1           | 1   | 2   |     |     |     |     |     |     |     |      | 2    |                    | 0.67               | 3                     | 1.369         | CO1  | 0.46  | 0.91 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.91 | 0.00 |      |
|           |                         | ESC-P-2052 | UNDERSTAND THE CONCEPT OF PROJECTION AND ACQUIRE VISUALIZATION SKILLS, PROJECTION OF LINES AND PLANES                                                  | CO2           |     | 1   | 2   |     |     |     |     |     |     |      |      |                    | 2                  |                       | 0.67          | 3    | 1.369 | CO2  | 0.46 | 0.91 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.91 | 0.00 |
|           |                         | ESC-P-2053 | UNDERSTAND THE PROJECTION OF SOLIDS IN VARIOUS POSITIONS IN FIRST QUADRANT                                                                             | CO3           | 1   | 2   |     |     |     |     |     |     |     |      |      |                    | 2                  |                       | 0.67          | 3    | 1.369 | CO3  | 0.46 | 0.91 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.91 | 0.00 |
|           |                         | ESC-P-2054 | STUDENT IS TO UDERSTAND CONVERSION OF PICTORIAL VIEW INTO ORTHOGRAPHIC VIEW                                                                            | CO4           | 1   | 2   |     |     |     |     |     |     |     |      |      |                    | 2                  |                       | 0.83          | 3    | 1.481 | CO4  | 0.49 | 0.99 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.99 | 0.00 |
|           |                         | ESC-P-2055 | PREPARE ISOMETRIC AND PERSPECTIVE SECTIONS OF SIMPLE SOLIDS                                                                                            | CO5           | 1   | 2   |     |     |     |     |     |     |     |      |      |                    | 2                  |                       | 0.83          | 3    | 1.481 | CO5  | 0.49 | 0.99 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.99 | 0.00 |
|           |                         | ESC-P-2056 | DEVELOPMENT OF PLANE AND CURVED SURFACES                                                                                                               | CO6           | 1   | 2   |     |     |     |     |     |     |     |      |      |                    | 2                  |                       | 0.83          | 3    | 1.481 | CO6  | 0.49 | 0.99 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.99 | 0.00 |
|           |                         |            |                                                                                                                                                        |               |     |     |     |     |     |     |     |     |     |      |      |                    |                    |                       | Average       | 0.48 | 0.95  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.95 | 0.00 |      |      |

| SEM:02    |             |               |                                                                                      | CO-PO Mapping |     |     |     |     |     |     |     |     |     |      |      | AVE<br>CO<br>DIREC | COUR<br>SE<br>EXIT | Final<br>Co<br>Attain | PO ATTAINMENT |      |      |      |      |      |      |      |      |      |      |      |      |      |
|-----------|-------------|---------------|--------------------------------------------------------------------------------------|---------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|--------------------|--------------------|-----------------------|---------------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| SR.<br>NO | SUBJECT     | co no         | Course Outcomes (COs)                                                                |               | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12               |                    |                       |               |      | PO1  | PO2  | PO3  | PO4  | PO5  | PO6  | PO7  | PO8  | PO9  | PO10 | PO11 | PO12 |
| 12        | WORKSHOP II | ESC-W-II-2071 | 1. Ability to design and model different prototypes in the carpentry trade           | CO1           |     | 2   |     | 2   |     |     |     |     |     |      |      |                    |                    | 3                     | 0.9           | CO1  | 0.00 | 0.60 | 0.00 | 0.60 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
|           |             | ESC-W-II-2072 | 2.define practical skills in various machining operations, measuring instruments     | CO2           | 2   | 2   |     |     |     |     |     |     |     |      |      |                    | 1                  |                       | 3             | 0.9  | CO2  | 0.60 | 0.60 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.30 | 0.00 |
|           |             | ESC-W-II-2073 | 3. use different manufacturing processes and measuring instruments for making a job. | CO3           | 2   | 2   |     | 2   |     |     |     |     |     |      |      |                    |                    |                       | 3             | 0.9  | CO3  | 0.60 | 0.60 | 0.00 | 0.60 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
|           |             | ESC-W-II-2074 | 4. To make various basic prototypes in the trade of Fitting such as                  | CO4           | 2   |     |     | 1   |     |     |     |     |     |      |      |                    | 1                  |                       | 3             | 0.9  | CO4  | 0.60 | 0.00 | 0.00 | 0.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.30 | 0.00 |
|           |             |               |                                                                                      |               |     |     |     |     |     |     |     |     |     |      |      |                    |                    |                       | Average       | 0.45 | 0.45 | 0.00 | 0.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.15 | 0.00 |      |

| SEM:02    |                                       |             |                                                                    | CO-PO Mapping |     |     |     |     |     |     |     |     |     |      |      | AVE<br>CO<br>DIREC | COUR<br>SE<br>EXIT | Final<br>Co<br>Attain | PO ATTAINMENT |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|-----------|---------------------------------------|-------------|--------------------------------------------------------------------|---------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|--------------------|--------------------|-----------------------|---------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| SR.<br>NO | SUBJECT                               | co no       | Course Outcomes (COs)                                              |               | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12               |                    |                       |               |      | PO1  | PO2  | PO3  | PO4  | PO5  | PO6  | PO7  | PO8  | PO9  | PO10 | PO11 | PO12 |      |
| 13        | PROFESSIONAL<br>COMMUNICATION<br>N II | HM-II -2061 | TO ENABLE THE STUDENTS TO WRITE TECHNICAL WRITEUPS EFFECTIVELY     | CO1           | 1   | 2   | 2   |     |     |     |     |     |     |      | 2    |                    | 3                  | 3                     | 3             | CO1  | 1.00 | 2.00 | 2.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.00 | 0.00 |      |
|           |                                       | HM-II -2062 | TO ENABLE THE STUDENTS TO INCULCATE BEHAVIOURAL SKILLS             | CO2           | 1   | 2   |     |     |     |     |     |     |     |      |      | 2                  |                    | 3                     | 3             | 3    | CO2  | 1.00 | 2.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.00 | 0.00 |
|           |                                       | HM-II -2063 | TO ENABLE THE STUDENTS TO PRESENT EFFECTIVELY AND BUILD CONFIDENCE | CO3           | 1   | 2   |     | 2   |     |     |     |     |     |      |      | 2                  |                    | 3                     | 3             | 3    | CO3  | 1.00 | 2.00 | 0.00 | 2.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.00 | 0.00 |      |
|           |                                       | HM-II -2064 | TO ENABLE THE STUDENTS TO ACQUIRE CARRIER SKILLS                   | CO4           | 1   | 2   | 2   |     |     |     |     |     |     |      |      | 2                  |                    | 3                     | 3             | 3    | CO4  | 1.00 | 2.00 | 2.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.00 | 0.00 |      |
|           |                                       |             |                                                                    |               |     |     |     |     |     |     |     |     |     |      |      |                    |                    |                       | Average       | 1.00 | 2.00 | 1.00 | 0.50 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.00 | 0.00 |      |      |

| SEM:03    |         |          |                                                                                                 | CO-PO Mapping |     |     |     |     |     |     |     |     |     |      |      | AVE<br>CO<br>DIREC | COUR<br>SE<br>EXIT | Final<br>Co<br>Attain | PO ATTAINMENT |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|-----------|---------|----------|-------------------------------------------------------------------------------------------------|---------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|--------------------|--------------------|-----------------------|---------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| SR.<br>NO | SUBJECT | CO No.   | Course Outcomes (COs)                                                                           |               | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12               |                    |                       |               |      | PO1  | PO2  | PO3  | PO4  | PO5  | PO6  | PO7  | PO8  | PO9  | PO10 | PO11 | PO12 |      |
| 1         | M-III   | ME211.01 | 1) SolveLinear Differential Equations with constant coefficients.                               | CO1           | 3   | 3   | 2   | 1   | 1   |     |     |     |     |      | 3    | 3                  | 1.5                | 3                     | 1.95          | CO1  | 1.95 | 1.95 | 1.30 | 0.65 | 0.65 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.95 | 1.95 |      |
|           |         | ME211.02 | 2) Describe the statistical data numerically by using Lines of regression and Curve fittings.   | CO2           | 3   | 3   | 2   | 1   | 1   |     |     |     |     |      |      | 3                  | 3                  | 1.5                   | 3             | 1.95 | CO2  | 1.95 | 1.95 | 1.30 | 0.65 | 0.65 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.95 | 1.95 |
|           |         | ME211.03 | 3) Find Laplace transforms of given functions and use it to solve linear differential equations | CO3           | 3   | 3   | 2   | 1   | 1   |     |     |     |     |      |      | 3                  | 3                  | 1.5                   | 3             | 1.95 | CO3  | 1.95 | 1.95 | 1.30 | 0.65 | 0.65 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.95 | 1.95 |
|           |         | ME211.04 | fields.                                                                                         | CO4           | 3   |     | 2   | 1   | 1   |     |     |     |     |      |      | 3                  | 3                  | 1.5                   | 3             | 1.95 | CO4  | 1.95 | 0.00 | 1.30 | 0.65 | 0.65 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.95 | 1.95 |
|           |         | ME211.05 | 5)Develop Fourier series expansion of a function over the given interval.                       | CO5           | 3   | 3   | 2   | 1   | 1   |     |     |     |     |      |      | 3                  | 3                  | 1                     | 3             | 1.6  | CO5  | 1.60 | 1.60 | 1.07 | 0.53 | 0.53 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.60 | 1.60 |
|           |         | ME211.06 | 6)Make use ofPartial Differential Equation to solve the Mechanical Engineering problems         | CO6           | 3   | 3   | 2   | 1   | 1   |     |     |     |     |      |      | 3                  | 3                  | 1                     | 3             | 1.6  | CO6  | 1.60 | 1.60 | 1.07 | 0.53 | 0.53 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.60 | 1.60 |
|           |         |          |                                                                                                 |               |     |     |     |     |     |     |     |     |     |      |      |                    |                    |                       | Average       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |

| SEM:03    |                          |          |                                                                                                 | CO-PO Mapping |     |     |     |     |     |     |     |     |     |      |      | AVE<br>CO<br>DIREC | COUR<br>SE<br>EXIT | Final<br>Co<br>Attain | PO ATTAINMENT |         |      |      |      |     |     |     |      |      |      |      |      |      |
|-----------|--------------------------|----------|-------------------------------------------------------------------------------------------------|---------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|--------------------|--------------------|-----------------------|---------------|---------|------|------|------|-----|-----|-----|------|------|------|------|------|------|
| SR.<br>NO | SUBJECT                  | CO No.   | Course Outcomes (COs)                                                                           |               | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12               |                    |                       |               |         | PO1  | PO2  | PO3  | PO4 | PO5 | PO6 | PO7  | PO8  | PO9  | PO10 | PO11 | PO12 |
| 2         | ELECTRICAL<br>TECHNOLOGY | ME212.01 | student will be able to Deals the principles of Electrical Engineering                          | CO1           | 2   |     | 2   |     |     |     |     |     | 2   |      |      | 2                  | 1.5                | 3                     | 2.475         | CO1     | 1.65 | 0    | 1.65 | 0   | 0   | 0   | 0    | 1.65 | 0    | 0    | 1.65 |      |
|           |                          | ME212.02 | student will be able to Understands the theoretical and practical's concepts of Electric motors | CO2           | 2   | 2   |     |     |     |     |     | 2   |     |      |      |                    | 1                  | 1.5                   | 3             | 1.95    | CO2  | 1.3  | 1.3  | 0   | 0   | 0   | 1.3  | 0    | 0    | 0    | 0    | 0.65 |
|           |                          | ME212.03 | student will be able to Apply Electrical heating methods for Industrial furnaces.               | CO3           | 3   | 3   |     |     |     |     |     |     |     | 2    |      |                    | 3                  | 1.5                   | 3             | 1.95    | CO3  | 1.95 | 1.95 | 0   | 0   | 0   | 0    | 1.3  | 0    | 0    | 1.95 |      |
|           |                          | ME212.04 | student will be able to Identify and select suitable types of motors and drives                 | CO4           | 3   | 3   |     |     |     |     |     |     |     | 2    |      |                    | 2                  | 1.5                   | 3             | 1.95    | CO4  | 1.95 | 1.95 | 0   | 0   | 0   | 0    | 1.3  | 0    | 0    | 1.3  |      |
|           |                          | ME212.05 | student will be able to Design various speed control techniques for Electric motors.            | CO5           | 3   |     |     |     |     |     |     |     |     | 3    |      |                    | 2                  | 1.5                   | 3             | 1.95    | CO5  | 1.95 | 0    | 0   | 0   | 0   | 0    | 1.95 | 0    | 0    | 1.3  |      |
|           |                          |          |                                                                                                 | CO6           |     |     |     |     |     |     |     |     |     |      |      |                    |                    |                       |               | Average | 1.76 | 1.04 | 0.33 | 0   | 0   | 0   | 0.26 | 0    | 1.24 | 0    | 0    | 1.37 |
|           |                          |          |                                                                                                 |               |     |     |     |     |     |     |     |     |     |      |      |                    |                    |                       |               |         |      |      |      |     |     |     |      |      |      |      |      |      |

| SEM:03    |         |        |                       | CO-PO Mapping |     |  |  |  |  |  |  |  |  |  |  | AVE<br>CO<br>DIREC | COUR<br>SE<br>EXIT | Final<br>Co<br>Attain | PO ATTAINMENT |  |  |  |  |  |  |  |  |  |  |  |
|-----------|---------|--------|-----------------------|---------------|-----|--|--|--|--|--|--|--|--|--|--|--------------------|--------------------|-----------------------|---------------|--|--|--|--|--|--|--|--|--|--|--|
| SR.<br>NO | SUBJECT | CO No. | Course Outcomes (COs) |               | PO1 |  |  |  |  |  |  |  |  |  |  |                    |                    |                       |               |  |  |  |  |  |  |  |  |  |  |  |



|         |      |      |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|------|------|
| Average | 2.48 | 1.79 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.06 | 1.65 | 0.00 | 1.65 |
|---------|------|------|------|------|------|------|------|------|------|------|------|------|

| SEM:03    |            |          |                                                                                                      | CO-PO Mapping |     |     |     |     |     |     |     |     |     |      |      |      | Ave<br>CO<br>DIREC | COUR<br>SE<br>EXIT | Final<br>Co<br>Attain | PO ATTAINMENT |       |      |      |      |      |      |      |      |      |      |      |      |      |
|-----------|------------|----------|------------------------------------------------------------------------------------------------------|---------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|--------------------|--------------------|-----------------------|---------------|-------|------|------|------|------|------|------|------|------|------|------|------|------|
| SR.N<br>O | SUBJECT    | CO No.   | Course Outcomes (COs)                                                                                |               | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |                    |                    |                       | PO1           | PO2   | PO3  | PO4  | PO5  | PO6  | PO7  | PO8  | PO9  | PO10 | PO11 | PO12 |      |      |
| 4         | METALLURGY | ME214.01 | Understand basic concept of metal structure.                                                         | CO1           | 3   |     |     |     |     |     |     |     | 2   | 2    |      | 2    | 1.5                | 3                  | 1.95                  | CO1           | 1.95  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.30 | 1.30 | 0.00 | 1.30 |      |      |
|           |            | ME214.02 | Understand Fe- Fe3C equilibrium diagram and Selection of Metals and Alloys for different application | CO2           | 3   |     |     |     |     |     |     |     |     | 2    | 2    |      | 2                  | 1.5                | 3                     | 1.95          | CO2   | 1.95 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.30 | 1.30 | 0.00 | 1.30 |      |
|           |            | ME214.03 | Understand the destructive and non- destructive testing methods.                                     | CO3           | 3   |     |     | 2   |     |     |     | 2   |     | 2    | 2    |      | 2                  | 1.33               | 2.67                  | 1.732         | CO3   | 1.73 | 0.00 | 1.15 | 0.00 | 0.00 | 0.00 | 1.15 | 0.00 | 1.15 | 1.15 | 0.00 | 1.15 |
|           |            | ME214.04 | Understand need & principles of Heat treatment.                                                      | CO4           | 3   |     |     |     |     |     |     | 2   |     | 2    |      |      | 2                  | 1.5                | 3                     | 1.95          | CO4   | 1.95 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.30 | 0.00 | 1.30 | 0.00 | 1.30 |      |
|           |            | ME214.05 | Understand the various heat treatment processes.                                                     | CO5           | 3   |     |     |     |     |     |     |     |     | 2    | 2    |      | 2                  | 1.5                | 3                     | 1.95          | CO5   | 1.95 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.30 | 1.30 | 0.00 | 1.30 |      |
|           |            | ME214.06 | Understand Powder metallurgy technology & industrial practices.                                      | CO6           | 3   |     |     |     |     |     |     |     | 2   |      |      | 2    |                    | 2                  | 1.47                  | 3             | 1.929 | CO6  | 1.93 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.29 | 0.00 | 1.29 | 0.00 | 1.29 |
| Average   |            |          |                                                                                                      |               |     |     |     |     |     |     |     |     |     |      |      |      |                    |                    |                       | 1.91          | 0.00  | 0.19 | 0.00 | 0.00 | 0.00 | 0.62 | 0.00 | 1.06 | 1.06 | 0.00 | 1.27 |      |      |

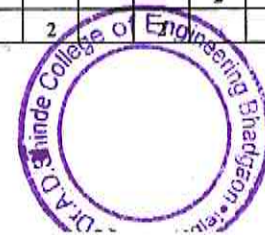
| SEM:03  |                |          |                                                                                         | CO-PO Mapping |     |     |     |     |     |     |     |     |     |      |      | Ave<br>CO<br>DIREC | COUR<br>SE<br>EXIT | Final<br>Co<br>Attain | PO ATTAINMENT |      |      |      |     |     |     |     |     |     |      |      |      |   |
|---------|----------------|----------|-----------------------------------------------------------------------------------------|---------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|--------------------|--------------------|-----------------------|---------------|------|------|------|-----|-----|-----|-----|-----|-----|------|------|------|---|
| SR.N    | SUBJECT        | CO No.   | Course Outcomes (COs)                                                                   |               | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12               |                    |                       |               | PO1  | PO2  | PO3  | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |   |
| 5       | FLUIDMECHANICS | ME215.01 | Understand properties of fluids and classification of fluid flows                       | CO1           | 1   |     |     |     |     |     |     |     |     |      |      |                    | 1.5                | 3                     | 1.95          | CO1  | 0.65 | 0    | 0   | 0   | 0   | 0   | 0   | 0   | 0    | 0    | 0    |   |
|         |                | ME215.02 | kinematics and fluid dynamics                                                           | CO2           | 2   |     |     |     |     |     |     |     |     |      |      |                    |                    | 1.5                   | 3             | 1.95 | CO2  | 1.3  | 0   | 0   | 0   | 0   | 0   | 0   | 0    | 0    | 0    | 0 |
|         |                | ME215.03 | Equation and momentum equation for different fluid flow applications                    | CO3           | 2   |     |     |     |     |     |     |     |     |      |      |                    |                    | 1.5                   | 3             | 1.95 | CO3  | 1.3  | 0   | 0   | 0   | 0   | 0   | 0   | 0    | 0    | 0    | 0 |
|         |                | ME215.04 | Make basic analysis of laminar flow to calculate resistance to it through circular pipe | CO4           | 2   |     |     |     |     |     |     |     |     |      |      |                    |                    | 1.5                   | 3             | 1.95 | CO4  | 1.3  | 0   | 0   | 0   | 0   | 0   | 0   | 0    | 0    | 0    | 0 |
|         |                | ME215.05 | Calculate different losses in fluid flow through different arrangements of pipes        | CO5           | 3   |     |     |     |     |     |     |     |     |      |      |                    |                    | 1.5                   | 3             | 1.95 | CO5  | 1.95 | 0   | 0   | 0   | 0   | 0   | 0   | 0    | 0    | 0    | 0 |
|         |                | ME215.06 | Apply theory of boundary layer, Drag and lift forces in proper cases                    | CO6           | 3   | 2   |     |     |     |     |     |     |     |      |      |                    |                    | 1.5                   | 3             | 1.95 | CO6  | 1.95 | 1.3 | 0   | 0   | 0   | 0   | 0   | 0    | 0    | 0    | 0 |
| Average |                |          |                                                                                         |               |     |     |     |     |     |     |     |     |     |      |      |                    |                    |                       |               | 1.41 | 0.22 | 0    | 0   | 0   | 0   | 0   | 0   | 0   | 0    | 0    |      |   |

| SEM:03  |                    |          |                                                          | CO-PO Mapping |     |     |     |     |     |     |     |     |     |      |      |      | Ave<br>CO<br>DIREC | COUR<br>SE<br>EXIT | Final<br>Co<br>Attain | PO ATTAINMENT |     |     |     |     |     |     |     |     |      |      |      |   |   |
|---------|--------------------|----------|----------------------------------------------------------|---------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|--------------------|--------------------|-----------------------|---------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|---|---|
| SR.NO   | SUBJECT            | CO No.   | Course Outcomes (COs)                                    |               | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |                    |                    |                       | PO1           | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |   |   |
| 6       | MACHINE<br>DRAWING | ME216.01 | Use BIS conventions in machine drawings.                 | CO1           | 2   |     |     |     | 2   |     |     |     |     |      |      | 2    | 3                  | 3                  | 3                     | CO1           | 2   | 0   | 0   | 0   | 2   | 0   | 0   | 0   | 0    | 0    | 0    | 2 |   |
|         |                    | ME216.02 | Find line/curve of intersection between two solids       | CO2           | 2   |     |     |     | 2   |     |     |     |     |      |      |      | 2                  | 3                  | 3                     | 3             | CO2 | 2   | 0   | 0   | 0   | 2   | 0   | 0   | 0    | 0    | 0    | 0 | 2 |
|         |                    | ME216.03 | Sketch the various machine components.                   | CO3           | 2   |     |     |     | 2   |     |     |     |     |      |      |      | 2                  | 3                  | 3                     | 3             | CO3 | 2   | 0   | 0   | 0   | 2   | 0   | 0   | 0    | 0    | 0    | 0 | 2 |
|         |                    | ME216.04 | Read and interpret the given production drawings.        | CO4           | 2   |     |     |     | 2   |     |     |     |     |      |      |      | 2                  | 3                  | 3                     | 3             | CO4 | 2   | 0   | 0   | 0   | 2   | 0   | 0   | 0    | 0    | 0    | 0 | 2 |
|         |                    | ME216.05 | Understand significance of assembly and detail drawings. | CO5           | 2   |     |     |     | 2   |     |     |     |     |      |      |      | 2                  | 3                  | 3                     | 3             | CO5 | 2   | 0   | 0   | 0   | 2   | 0   | 0   | 0    | 0    | 0    | 0 | 2 |
|         |                    | ME216.06 | Details and Assembly Drawing                             | CO6           | 2   |     |     |     | 2   |     |     |     |     |      |      |      | 2                  | 3                  | 3                     | 3             | CO6 | 2   | 0   | 0   | 0   | 2   | 0   | 0   | 0    | 0    | 0    | 0 | 0 |
| Average |                    |          |                                                          |               |     |     |     |     |     |     |     |     |     |      |      |      |                    |                    |                       | 2             | 0   | 0   | 0   | 2   | 0   | 0   | 0   | 0   | 0    | 0    | 2    |   |   |

| SEM:03  |                                |          | CO-PO Mapping                                                                                                                                      |     |     |     |     |     |     |     |     |     |     |      | Ave  | COUR | Final    | PO ATTAINMENT |           |     |     |     |     |     |     |     |     |     |     |      |      |      |   |
|---------|--------------------------------|----------|----------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|----------|---------------|-----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|---|
| SR.N    | SUBJECT                        | CO No.   | Course Outcomes (COs)                                                                                                                              |     | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | CO DIREC | SE EXIT       | Co Attain |     | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |   |
| 7       | Computer Programming Using C++ | ME217.01 | To understand how C++ improves C with object-oriented features.                                                                                    | CO1 | 3   | 2   | 2   |     |     |     |     |     |     |      | 2    | 2    | 3        | 3             | 3         | CO1 | 3   | 2   | 2   | 0   | 0   | 0   | 0   | 0   | 0   | 0    | 2    | 2    |   |
|         |                                | ME217.02 | control structures.                                                                                                                                | CO2 | 2   |     |     |     |     |     |     |     |     |      |      |      | 3        | 3             | 3         | 3   | CO2 | 2   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0    | 0    | 3    |   |
|         |                                | ME217.03 | Design programs involving decision control statements, loop control statements and case control structures.                                        | CO3 | 3   | 1   | 2   |     |     |     |     |     |     |      |      | 2    | 2        | 3             | 3         | 3   | CO3 | 3   | 1   | 2   | 0   | 0   | 0   | 0   | 0   | 0    | 2    | 2    |   |
|         |                                | ME217.04 | Develop algorithms for solving problems using object oriented language.                                                                            | CO4 | 1   |     | 2   |     |     |     |     |     |     |      |      |      | 1        | 3             | 3         | 3   | CO4 | 1   | 0   | 2   | 0   | 0   | 0   | 0   | 0   | 0    | 0    | 1    |   |
|         |                                | ME217.05 | To develop and enhance the programming skills amongst the students in general as well as application of it in the field of Mechanical Engineering. | CO5 | 3   | 2   |     |     |     |     |     |     |     |      |      | 2    | 2        | 3             | 3         | 3   | CO5 | 3   | 2   | 0   | 0   | 0   | 0   | 0   | 0   | 0    | 2    | 2    |   |
| Average |                                |          |                                                                                                                                                    |     |     |     |     |     |     |     |     |     |     |      |      |      |          |               |           |     | 2.4 | 1   | 1.2 | 0   | 0   | 0   | 0   | 0   | 0   | 0    | 0    | 1.2  | 2 |

| SEM:03    |                          |          |                                                                                        | CO-PO Mapping |     |     |     |     |     |     |     |     |     |      |      | Ave<br>CO<br>DIR/EC | COUR<br>SE<br>EXIT | Final<br>Co<br>Attain | PO ATTAINMENT |      |      |      |      |      |      |      |      |      |      |      |      |   |
|-----------|--------------------------|----------|----------------------------------------------------------------------------------------|---------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|---------------------|--------------------|-----------------------|---------------|------|------|------|------|------|------|------|------|------|------|------|------|---|
| SR.N<br>O | SUBJECT                  | CO No.   | Course Outcomes (COs)                                                                  |               | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12                |                    |                       |               | PO1  | PO2  | PO3  | PO4  | PO5  | PO6  | PO7  | PO8  | PO9  | PO10 | PO11 | PO12 |   |
| 8         | WORKSHOP<br>PRACTICE III | ME218.01 | Understand types of Patterns, Core boxes and Preparation of Pattern for solid casting. | CO1           | 2   |     | 2   |     | 2   |     |     |     |     | 2    |      |                     | 3                  | 3                     | 3             | CO1  | 2    | 0    | 2    | 0    | 2    | 0    | 0    | 0    | 0    | 2    | 0    | 0 |
|           |                          | ME218.02 | strength.                                                                              | CO2           | 3   |     | 2   |     | 2   |     |     |     |     |      |      | 2                   | 3                  | 3                     | 3             | CO2  | 3    | 0    | 2    | 0    | 2    | 0    | 0    | 0    | 0    | 0    | 0    | 2 |
|           |                          | ME218.03 | Understand gating system for metal casting with casting defects                        | CO3           | 3   |     | 2   |     |     |     |     |     |     |      |      |                     | 3                  | 3                     | 3             | CO3  | 3    | 0    | 2    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0 |
|           |                          |          |                                                                                        |               |     |     |     |     |     |     |     |     |     |      |      | Average             |                    |                       | 2.67          | 0.00 | 2.00 | 0.00 | 1.33 | 0.00 | 0.00 | 0.00 | 0.00 | 0.67 | 0.00 | 0.67 |      |   |

| SEM:03 |                          |          |                                                                                                     | CO-PO Mapping |     |     |     |     |     |     |     |     |      |      |      | AVE<br>CO<br>DIR/EC | COUR<br>SE<br>EXIT | Final<br>Co<br>Attain | PO ATTAINMENT |      |      |      |      |      |     |      |     |      |      |      |     |      |      |
|--------|--------------------------|----------|-----------------------------------------------------------------------------------------------------|---------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|---------------------|--------------------|-----------------------|---------------|------|------|------|------|------|-----|------|-----|------|------|------|-----|------|------|
| SR.NO  | SUBJECT                  | CO No.   | Course Outcomes (COs)                                                                               | PO1           | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |                     |                    |                       | PO1           | PO2  | PO3  | PO4  | PO5  | PO6  | PO7 | PO8  | PO9 | PO10 | PO11 | PO12 |     |      |      |
| 9      | ENVIRONMENTAL<br>STUDIES | ME219.01 | UNDERSTANDING OF ISSUES RELATED TO ENVIRONMENT AND THEIR IMPACT ON THE HUMAN LIFE.                  | CO1           | 3   | 3   | 2   |     |     | 3   |     |     | 2    |      |      | 3                   | 1.5                | 3                     | 1.95          | CO1  | 1.95 | 1.95 | 1.3  | 0    | 0   | 1.95 | 0   | 0    | 1.3  | 0    | 0   | 1.95 |      |
|        |                          | ME219.02 | UNDERSTANDING ON THE SOLUTIONS RELATED TO THE ENVIRONMENTAL PROBLEMS.                               | CO2           | 3   | 2   |     |     |     | 2   |     |     | 2    | 2    | 2    | 3                   | 1.5                | 3                     | 1.95          | CO2  | 1.95 | 1.3  | 0    | 0    | 0   | 1.3  | 0   | 1.3  | 0    | 1.3  | 1.3 | 1.95 |      |
|        |                          | ME219.03 | UNDERSTANDING OF DIFFERENT COMPONENT OF ENVIRONMENT AND THEIR FUNCTION AND SUSTAINABLE DEVELOPMENT. | CO3           | 2   | 3   | 1   |     |     |     |     |     |      | 2    |      |                     | 1                  | 1.5                   | 3             | 1.95 | CO3  | 1.3  | 1.95 | 0.65 | 0   | 0    | 0   | 0    | 0    | 1.3  | 0   | 0    | 0.65 |
|        |                          | ME219.04 | STUDENT WILL BE ABLE TO COMPREHEND THE IMPORTANCE OF ECOSYSTEM AND BIODIVERSITY                     | CO4           | 3   |     | 2   |     |     |     | 2   |     |      |      |      | 2                   | 1                  | 1.5                   | 3             | 1.95 | CO4  | 1.95 | 0    | 1.3  | 0   | 0    | 1.3 | 0    | 1.3  | 0    | 0   | 1.3  | 0.65 |



|         |          |                                                                                                                                                                                      |     |   |   |   |  |  |  |   |  |  |  |   |   |     |   |      |     |      |      |      |      |      |      |      |      |      |      |      |      |
|---------|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|---|---|---|--|--|--|---|--|--|--|---|---|-----|---|------|-----|------|------|------|------|------|------|------|------|------|------|------|------|
|         | ME219.05 | TO CORRELATE THE HUMAN POPULATION GROWTH AND ITS TREND TO THE ENVIRONMENTAL DEGRADATION AND DEVELOP THE AWARENESS ABOUT HIS/HER ROLE TOWARDS ENVIRONMENTAL PROTECTION AND PREVENTION | CO5 | 2 | 2 | 1 |  |  |  |   |  |  |  |   |   | 1.5 | 3 | 1.95 | CO5 | 1.3  | 1.3  | 0.65 | 0    | 0    | 0    | 0    | 0    | 1.3  | 0    | 0    | 1.95 |
|         | ME215.06 | IDENTIFY DIFFERENT TYPES OF ENVIRONMENTAL POLLUTION AND CONTROL MEASURES                                                                                                             | CO6 | 3 | 1 | 1 |  |  |  | 2 |  |  |  | 2 | 2 | 1.5 | 3 | 1.95 | CO6 | 1.95 | 0.65 | 0.65 | 0    | 0    | 1.3  | 0    | 0    | 0    | 1.3  | 1.3  | 1.3  |
| Average |          |                                                                                                                                                                                      |     |   |   |   |  |  |  |   |  |  |  |   |   |     |   |      |     | 1.73 | 1.19 | 0.76 | 0.00 | 0.00 | 0.98 | 0.00 | 0.43 | 0.65 | 0.43 | 0.65 | 1.41 |

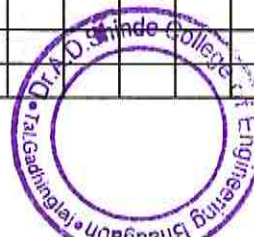
| SR.N<br>O | SUBJECT                         | CO No.   | SEM:04                                                                                           |     | CO-PO Mapping |   |   |   |  |  |  |  |  |  |     |     | AVE<br>CO<br>DIREC | COUR<br>SE<br>EXIT | Final<br>Co<br>Attain |       | PO ATTAINMENT |      |      |      |      |      |      |      |      |      |      |      |
|-----------|---------------------------------|----------|--------------------------------------------------------------------------------------------------|-----|---------------|---|---|---|--|--|--|--|--|--|-----|-----|--------------------|--------------------|-----------------------|-------|---------------|------|------|------|------|------|------|------|------|------|------|------|
|           |                                 |          | Course Outcomes (COs)                                                                            |     |               |   |   |   |  |  |  |  |  |  | PO1 | PO2 |                    |                    |                       |       | PO3           | PO4  | PO5  | PO6  | PO7  | PO8  | PO9  | PO10 | PO11 | PO12 |      |      |
| 10        | APPLIED<br>NUMERICAL<br>METHODS | ME210.01 | Understand and apply various methods to find roots of equations.                                 | CO1 | 3             | 2 | 1 | 1 |  |  |  |  |  |  | 1   | 2   | 1.5                | 3                  | 1.95                  | CO1   | 1.95          | 1.30 | 0.65 | 0.65 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.65 | 1.30 |      |
|           |                                 | ME210.02 | Learn and Implement different methods to solve simultaneous equations.                           | CO2 | 3             | 1 |   |   |  |  |  |  |  |  |     | 1   | 2                  | 1.5                | 3                     | 1.95  | CO2           | 1.95 | 0.65 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.65 | 1.30 |
|           |                                 | ME210.03 | Understand and apply the methods of Regression and Interpolation.                                | CO3 | 3             | 2 |   |   |  |  |  |  |  |  |     | 1   | 1                  | 0.75               | 1.5                   | 0.975 | CO3           | 0.98 | 0.65 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.33 | 0.33 |
|           |                                 | ME210.04 | Implement various numerical methods for differentiation and Integration                          | CO4 | 3             | 1 |   |   |  |  |  |  |  |  |     | 1   | 1                  | 1.5                | 3                     | 1.95  | CO4           | 1.95 | 0.65 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.65 | 0.65 |
|           |                                 | ME210.05 | Apply various methods to solve engineering problems with Ordinary differential equations.        | CO5 | 3             | 2 |   |   |  |  |  |  |  |  |     | 1   | 1                  | 1.5                | 3                     | 1.95  | CO5           | 1.95 | 1.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.65 | 0.65 |
|           |                                 | ME210.06 | Understand the methods to solve Partial differential equations involved in Engineering Problems. | CO6 | 3             | 1 |   |   |  |  |  |  |  |  |     |     | 1                  | 1                  | 1                     | 2     | 1.3           | CO6  | 1.30 | 0.43 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.43 |
| Average   |                                 |          |                                                                                                  |     |               |   |   |   |  |  |  |  |  |  |     |     |                    |                    |                       | 1.68  | 0.83          | 0.11 | 0.11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.56 | 0.78 |      |

| SR.N<br>O | SUBJECT                               | CO No.   | SEM:04                                                                                                                                                   |     | CO-PO Mapping |   |   |  |  |  |  |  |  |  |     |     | AVE<br>CO<br>DIREC | COUR<br>SE<br>EXIT | Final<br>Co<br>Attain |      | PO ATTAINMENT |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|-----------|---------------------------------------|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------|-----|---------------|---|---|--|--|--|--|--|--|--|-----|-----|--------------------|--------------------|-----------------------|------|---------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
|           |                                       |          | Course Outcomes (COs)                                                                                                                                    |     |               |   |   |  |  |  |  |  |  |  | PO1 | PO2 |                    |                    |                       |      | PO3           | PO4  | PO5  | PO6  | PO7  | PO8  | PO9  | PO10 | PO11 | PO12 | PO1  | PO2  | PO3  | PO4  | PO5  |
| 11        | ANALYSIS OF<br>MECHANICAL<br>ELEMENTS | ME211.01 | Apply concepts of analysis of mechanical elements to obtain solution to various types of loading and stresses induced in real time engineering problems. | CO1 | 3             | 2 |   |  |  |  |  |  |  |  |     | 1.5 | 1.5                | 1.466              | CO1                   | 1.47 | 0.98          | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
|           |                                       | ME211.02 | Draw shear force and bending moment diagrams for simple beams subjected to various loads and support conditions.                                         | CO2 | 2             | 2 |   |  |  |  |  |  |  |  |     |     | 1.5                | 1.5                | 1.5                   | CO2  | 1.00          | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
|           |                                       | ME211.03 | Compute and analyze bending and shear stresses in mechanical components.                                                                                 | CO3 | 3             | 2 | 2 |  |  |  |  |  |  |  |     |     | 1.5                | 1.5                | 1.5                   | CO3  | 1.50          | 1.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
|           |                                       | ME211.04 | Determine plane stress, principal stress .maximum shear stress and their orientations using analytical method and Mohr's circle.                         | CO4 | 3             | 2 |   |  |  |  |  |  |  |  |     |     | 1.5                | 1.5                | 1.5                   | CO4  | 1.50          | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
|           |                                       | ME211.05 | Analyze the effect of deflection in beams.                                                                                                               | CO5 | 2             | 2 | 2 |  |  |  |  |  |  |  |     |     | 3                  | 1.5                | 2.55                  | CO5  | 1.70          | 1.70 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
|           |                                       | ME211.06 | Evaluate buckling and strain energy in beams subject to various types of loading.                                                                        | CO6 | 2             | 2 |   |  |  |  |  |  |  |  |     |     | 1.5                | 1.5                | 1.5                   | CO6  | 1.00          | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Average   |                                       |          |                                                                                                                                                          |     |               |   |   |  |  |  |  |  |  |  |     |     |                    |                    | 1.36                  | 1.11 | 0.45          | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |      |      |      |      |

| SEM:04  |                              |          |                                                                                                                                                    |     | CO-PO Mapping |     |     |     |     |     |     |     |     |      |      |      | AVE<br>CO<br>DIREC | COUR<br>SE<br>EXIT | Final<br>Co<br>Attain |       | PO ATTAINMENT |      |      |      |      |      |      |      |      |      |      |      |
|---------|------------------------------|----------|----------------------------------------------------------------------------------------------------------------------------------------------------|-----|---------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|--------------------|--------------------|-----------------------|-------|---------------|------|------|------|------|------|------|------|------|------|------|------|
| SR.NO   | SUBJECT                      | CO No.   | Course Outcomes (COs)                                                                                                                              |     | PO1           | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |                    |                    |                       |       | PO1           | PO2  | PO3  | PO4  | PO5  | PO6  | PO7  | PO8  | PO9  | PO10 | PO11 | PO12 |
|         |                              |          |                                                                                                                                                    |     |               |     |     |     |     |     |     |     |     |      |      |      |                    |                    |                       |       |               |      |      |      |      |      |      |      |      |      |      |      |
| 12      | FLUID AND TURBO<br>MACHINERY | ME212.01 | To learn the working principles of Impulse water turbines and also to study its velocity triangles .To study design parameters related to Turbines | CO1 | 1             | 2   |     |     |     |     |     |     |     |      |      |      | 1.13               | 2.25               | 1.466                 | CO1   | 0.49          | 0.98 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |      |      |
|         |                              | ME212.02 | To learn the working principles of Reaction water turbines and also to study its velocity trianglesstudy design parameters related to Turbines     | CO2 | 1             | 2   | 3   |     |     |     |     |     |     |      |      |      |                    | 1.13               | 2.25                  | 1.466 | CO2           | 0.49 | 0.98 | 1.47 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |      |
|         |                              | ME212.03 | To understand the concept of Centrifugal pumps and its construction. To understand NPSH terms related to centrifugal pumps                         | CO3 | 1             | 2   | 3   |     |     |     |     |     |     |      |      |      |                    | 0.75               | 1.5                   | 0.975 | CO3           | 0.33 | 0.65 | 0.98 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |      |
|         |                              | ME212.04 | To illustrate the concept of Reciprocating Air Compressors. To understand various parameters related to Air Compressors.                           | CO4 | 2             | 2   | 3   |     |     |     |     |     |     |      |      |      |                    | 1.13               | 2.25                  | 1.466 | CO4           | 0.98 | 0.98 | 1.47 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |      |
|         |                              | ME212.05 | To illustrate the concept of centrifugal compressor, Axial compressors. To understand variousparameters related to rotodynamic air compressors     | CO5 | 1             | 2   |     |     |     |     |     |     |     |      |      |      |                    | 1                  | 2                     | 1.3   | CO5           | 0.43 | 0.87 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |      |
|         |                              | ME212.06 | To discuss the working of Gas Turbines, and Jet engine and know its various configurations.To determine the efficiencies of gas turbines           | CO6 | 2             | 1   |     |     |     |     |     |     |     |      |      |      |                    | 0.67               | 1.33                  | 0.868 | CO6           | 0.58 | 0.29 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Average |                              |          |                                                                                                                                                    |     |               |     |     |     |     |     |     |     |     |      |      |      |                    | 0.55               | 0.79                  | 0.65  | 0.00          | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

| SR.NO   | SUBJECT                 | CO No.   | SEM:04<br>Course Outcomes (COs)                                       |     | CO-PO Mapping |     |     |     |     |     |     |     |     |      |      |      | Ave<br>CO<br>DIREC | COUR<br>SE<br>EXIT | Final<br>Co<br>Attain |      | PO ATTAINMENT |      |      |      |      |      |      |      |      |      |      |      |
|---------|-------------------------|----------|-----------------------------------------------------------------------|-----|---------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|--------------------|--------------------|-----------------------|------|---------------|------|------|------|------|------|------|------|------|------|------|------|
|         |                         |          |                                                                       |     | PO1           | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |                    |                    |                       |      | PO1           | PO2  | PO3  | PO4  | PO5  | PO6  | PO7  | PO8  | PO9  | PO10 | PO11 | PO12 |
| 13      | THEORY OF<br>MACHINES-I | ME213.01 | Understand different types of mechanisms and their applications       | CO1 | 3             | 1   | 3   | 3   |     |     |     |     |     |      |      | 2.5  | 3                  | 2.65               | CO1                   | 2.65 | 0.88          | 2.65 | 2.65 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |      |
|         |                         | ME213.02 | Analyze kinematic theories of mechanism,                              | CO2 | 3             | 3   | 3   | 3   |     |     |     |     |     |      |      | 2.5  | 3                  | 2.65               | CO2                   | 2.65 | 2.65          | 2.65 | 2.65 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |      |
|         |                         | ME213.03 | Design cam with follower for different applications                   | CO3 | 3             | 2   | 2   | 2   |     |     |     |     |     |      |      | 2.5  | 3                  | 2.65               | CO3                   | 2.65 | 1.77          | 1.77 | 1.77 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |      |
|         |                         | ME213.04 | Select different power transmitting elements according to application | CO4 | 3             | 3   | 3   | 3   |     |     |     |     |     |      |      | 2.5  | 3                  | 2.65               | CO4                   | 2.65 | 2.65          | 2.65 | 2.65 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |      |
|         |                         | ME213.05 | Select different power transmitting elements according to application | CO5 | 3             | 3   | 3   | 2   | 2   |     |     |     |     |      |      | 2.5  | 3                  | 2.65               | CO5                   | 2.65 | 2.65          | 2.65 | 1.77 | 1.77 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |      |
|         |                         | ME213.06 | Select different governing mechanisms according to application.       | CO6 | 3             | 2   | 3   | 3   | 2   |     |     |     |     |      |      | 2.5  | 3                  | 2.65               | CO6                   | 2.65 | 1.77          | 2.65 | 2.65 | 1.77 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |      |
| Average |                         |          |                                                                       |     |               |     |     |     |     |     |     |     |     |      |      |      |                    | 2.65               | 2.06                  | 2.50 | 2.36          | 0.59 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |      |      |      |

| SEM:04 |                             |          |                                                                                                         | CO-PO Mapping |     |     |     |     |     |     |     |     |      |      |      | Ave Co Direc | Cour Se Exit | Final Co Attain | PO ATTAINMENT |     |     |     |     |     |     |     |     |      |      |      |
|--------|-----------------------------|----------|---------------------------------------------------------------------------------------------------------|---------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|--------------|--------------|-----------------|---------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| SR.N   | SUBJECT                     | CO No.   | Course Outcomes (COs)                                                                                   | PO1           | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |              |              |                 | PO1           | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| 14     | MACHINE TOOLS AND PROCESSES | ME214.01 | Identify various kinds of machine tools of previous and present era tools.                              | CO1           | 1   | 2   | 2   | 2   |     |     |     |     |      |      | 1    | 1.5          | 3            | 1.5             | CO1           | 0.5 | 1   | 1   | 1   | 0   | 0   | 0   | 0   | 0    | 0    | 0.5  |
|        |                             | ME214.02 | Describe construction and working of basic machine tools.                                               | CO2           | 2   |     |     |     |     |     |     |     |      |      | 1    | 1.5          | 3            | 1.5             | CO2           | 1   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0    | 0    | 0.5  |
|        |                             | ME214.03 | Demonstrate their understanding of plastic processing, Injection moulding, extrusion and thermoforming. | CO3           |     | 2   | 2   | 2   |     |     |     |     |      |      | 1    | 1.5          | 3            | 1.5             | CO3           | 0   | 1   | 1   | 1   | 0   | 0   | 0   | 0   | 0    | 0    | 0.5  |
|        |                             | ME214.04 | Analyze the concept, mechanism of material removal with respect different processes.                    | CO4           | 2   |     | 3   |     | 1   |     |     |     |      |      | 1    | 1.5          | 3            | 1.5             | CO4           | 1   | 0   | 1.5 | 0   | 0.5 | 0   | 0   | 0   | 0    | 0    | 0.5  |



|        |                         | ME214.05      | In position to appreciate the merits of non-traditional machining and its applications in industries.               | CO5           | 2   | 1   | 2   | 2   |     |     |     |     |     |      |      | 1                  | 1.5                | 3                     | 1.5           | CO5     | 1    | 0.5  | 1    | 1    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0.5  |   |   |
|--------|-------------------------|---------------|---------------------------------------------------------------------------------------------------------------------|---------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|--------------------|--------------------|-----------------------|---------------|---------|------|------|------|------|------|------|------|------|------|------|------|------|---|---|
|        |                         |               |                                                                                                                     | CO6           |     |     |     |     |     |     |     |     |     |      |      | 1                  | 1.5                | 3                     | 1.5           | CO6     | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0.5  |      |   |   |
|        |                         |               |                                                                                                                     |               |     |     |     |     |     |     |     |     |     |      |      |                    |                    |                       |               | Average | 0.58 | 0.42 | 0.75 | 0.50 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.50 |   |   |
| SEM:04 |                         |               |                                                                                                                     | CO-PO Mapping |     |     |     |     |     |     |     |     |     |      |      | Ave<br>CO<br>DIREC | COUR<br>SE<br>EXIT | Final<br>Co<br>Attain | PO ATTAINMENT |         |      |      |      |      |      |      |      |      |      |      |      |      |   |   |
| Sr.No  | SUBJECT                 | CO No.        | Course Outcomes (COs)                                                                                               |               | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12               |                    |                       |               |         | PO1  | PO2  | PO3  | PO4  | PO5  | PO6  | PO7  | PO8  | PO9  | PO10 | PO11 | PO12 |   |   |
| 14     | Testing and Measurement | ME215.01      | Understand basic constriction of working of various instruments                                                     | CO1           | 2   | 2   |     |     | 3   |     |     |     |     |      |      |                    | 3                  | 3                     | 3             | CO1     | 2    | 2    | 0    | 0    | 3    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |   |   |
|        |                         | ME215.02      | mechanics i.e. Continuity equation, Bernoulli's Equation and momentum equation for different fluid flow             | CO2           | 1   |     | 2   |     |     |     | 2   |     |     | 2    |      | 3                  | 3                  | 3                     | CO2           | 1       | 0    | 2    | 0    | 0    | 0    | 2    | 0    | 0    | 2    | 0    | 3    |      |   |   |
|        |                         |               |                                                                                                                     |               |     |     |     |     |     |     |     |     |     |      |      |                    |                    |                       |               | Average | 1.5  | 1    | 1    | 0    | 1.5  | 0    | 1    | 0    | 0    | 1    | 0    | 1.5  |   |   |
| SEM:04 |                         |               |                                                                                                                     | CO-PO Mapping |     |     |     |     |     |     |     |     |     |      |      | Ave<br>CO<br>DIREC | COUR<br>SE<br>EXIT | Final<br>Co<br>Attain | PO ATTAINMENT |         |      |      |      |      |      |      |      |      |      |      |      |      |   |   |
| Sr.No  | SUBJECT                 | CO No.        | Course Outcomes (COs)                                                                                               |               | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12               |                    |                       |               |         | PO1  | PO2  | PO3  | PO4  | PO5  | PO6  | PO7  | PO8  | PO9  | PO10 | PO11 | PO12 |   |   |
| 14     | COMPUTER AIDED DRAFTING | ME216.01      | Draw 2D drawings and 3D models of simple components                                                                 | CO1           | 2   |     |     |     | 3   |     |     |     |     |      |      | 1                  | 3                  | 3                     | 3             | CO1     | 2    | 0    | 0    | 0    | 3    | 0    | 0    | 0    | 0    | 0    | 0    | 1    |   |   |
|        |                         | ME216.02      | Select the various of types of instruments for the measurement system                                               | CO2           | 2   | 2   |     |     | 3   | 2   |     |     |     |      |      | 1                  | 3                  | 3                     | 3             | CO2     | 2    | 2    | 0    | 0    | 3    | 2    | 0    | 0    | 0    | 0    | 0    | 1    |   |   |
|        |                         | ME216.03      | Use modern engineering techniques, tools and skills for engineering practice                                        | CO3           | 2   |     |     | 2   | 3   |     |     |     |     |      |      | 1                  | 3                  | 3                     | 3             | CO3     | 2    | 0    | 0    | 2    | 3    | 0    | 0    | 0    | 0    | 0    | 0    | 1    |   |   |
|        |                         | ME216.04      | Develop the skills for drafting using CAD software and get the knowledge to enhance the CAD utilities.              | CO4           | 2   |     | 2   |     | 3   |     |     |     |     |      |      | 1                  | 3                  | 3                     | 3             | CO4     | 2    | 0    | 2    | 0    | 3    | 0    | 0    | 0    | 0    | 0    | 0    | 1    |   |   |
|        |                         |               |                                                                                                                     |               |     |     |     |     |     |     |     |     |     |      |      |                    |                    |                       |               | Average | 2    | 0.5  | 0.5  | 0.5  | 3    | 0.5  | 0    | 0    | 0    | 0    | 0    | 0    | 1 |   |
| SEM:04 |                         |               |                                                                                                                     | CO-PO Mapping |     |     |     |     |     |     |     |     |     |      |      | Ave<br>CO<br>DIREC | COUR<br>SE<br>EXIT | Final<br>Co<br>Attain | PO ATTAINMENT |         |      |      |      |      |      |      |      |      |      |      |      |      |   |   |
| Sr.No  | SUBJECT                 | CO No.        | Course Outcomes (COs)                                                                                               |               | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12               |                    |                       |               |         | PO1  | PO2  | PO3  | PO4  | PO5  | PO6  | PO7  | PO8  | PO9  | PO10 | PO11 | PO12 |   |   |
| 14     | Computer Graphics       | ME217.01      | To acquire the knowledge of basics of computer graphics.                                                            | CO1           | 2   | 2   |     |     |     |     |     |     |     |      |      | 1                  | 3                  | 3                     | 3             | CO1     | 2    | 2    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 1    |   |   |
|        |                         | ME217.02      | To Apply basic programming in C for line, rectangle, circle etc for different shapes.                               | CO2           | 2   | 2   | 2   |     |     |     |     |     |     |      |      | 1                  | 3                  | 3                     | 3             | CO2     | 2    | 2    | 2    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 1    |   |   |
|        |                         | ME217.03      | scaling and rotating.                                                                                               | CO3           | 2   | 2   | 2   |     |     |     |     |     |     |      |      | 1                  | 3                  | 3                     | 3             | CO3     | 2    | 2    | 2    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 1    |   |   |
|        |                         | ME217.04      | To Analyzing the hidden unwanted parts in graphics and do the program on animation                                  | CO4           | 2   | 2   |     |     |     |     |     |     |     |      |      | 1                  | 3                  | 3                     | 3             | CO4     | 2    | 2    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 1    |   |   |
|        |                         | ME217.05      | To choose the different of curves and surfaces                                                                      | CO5           | 2   | 2   | 1   |     |     |     |     |     |     |      |      | 1                  | 3                  | 3                     | 3             | CO5     | 2    | 2    | 1    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 1    |   |   |
|        |                         |               |                                                                                                                     |               |     |     |     |     |     |     |     |     |     |      |      |                    |                    |                       |               | Average | 2    | 2    | 1    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0 | 1 |
| SEM:04 |                         |               |                                                                                                                     | CO-PO Mapping |     |     |     |     |     |     |     |     |     |      |      | Ave<br>CO<br>DIREC | COUR<br>SE<br>EXIT | Final<br>Co<br>Attain | PO ATTAINMENT |         |      |      |      |      |      |      |      |      |      |      |      |      |   |   |
| Sr.No  | SUBJECT                 | CO No.        | Course Outcomes (COs)                                                                                               |               | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12               |                    |                       |               |         | PO1  | PO2  | PO3  | PO4  | PO5  | PO6  | PO7  | PO8  | PO9  | PO10 | PO11 | PO12 |   |   |
| 15     | WORKSHOP PRACTICE IV    | ME218.01      | Understand Machine layout, method of Machine Tool installation, selection of Tools for various machining operation. | CO1           | 3   | 2   |     |     | 2   |     |     |     |     |      |      | 2                  | 3                  | 3                     | 3             | CO1     | 3    | 2    | 0    | 0    | 2    | 0    | 0    | 0    | 0    | 0    | 0    | 2    |   |   |
|        |                         | ME218.02      | Understand Construction, Mechanism and Application of Lathe Machine, Drilling Machine, and Milling Machine          | CO2           | 3   | 2   |     |     |     |     |     |     |     |      |      |                    | 3                  | 3                     | 3             | CO2     | 3    | 2    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |   |   |
|        |                         | ME218.03      | knurling operation along with its process sheet                                                                     | CO3           | 2   |     |     |     | 2   |     |     |     |     |      |      | 2                  | 3                  | 3                     | 3             | CO3     | 2    | 0    | 0    | 0    | 2    | 0    | 0    | 0    | 0    | 0    | 0    | 2    |   |   |
|        |                         | ME218.04      | Understand basics of CNC and VMC Machine                                                                            | CO4           | 2   |     |     |     | 3   |     |     |     |     |      |      | 2                  | 3                  | 3                     | 3             | CO4     | 2    | 0    | 0    | 0    | 3    | 0    | 0    | 0    | 0    | 0    | 0    | 2    |   |   |
|        |                         |               |                                                                                                                     |               |     |     |     |     |     |     |     |     |     |      |      |                    |                    |                       |               | Average | 2.5  | 1    | 0    | 0    | 1.75 | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0 |   |
| SEM:05 |                         |               |                                                                                                                     | CO-PO Mapping |     |     |     |     |     |     |     |     |     |      |      | Ave<br>CO<br>DIREC | COUR<br>SE<br>EXIT | Final<br>Co<br>Attain | PO ATTAINMENT |         |      |      |      |      |      |      |      |      |      |      |      |      |   |   |
| Sr.No  | SUBJECT                 | co no         | Course Outcomes (COs)                                                                                               |               | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12               |                    |                       |               |         | PO1  | PO2  | PO3  | PO4  | PO5  | PO6  | PO7  | PO8  | PO9  | PO10 | PO11 | PO12 |   |   |
| 1      | Control Engineering     | PCC-ME 301.0  | To understand control system, its type and applications                                                             | CO1           | 1   |     |     |     |     |     |     |     |     |      |      |                    | 1.5                | 3                     | 1.95          | CO1     | 0.65 | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |   |   |
|        |                         | PCC-ME 301.02 | To model physical System                                                                                            | CO2           | 2   |     |     |     | 2   |     |     |     |     |      |      |                    | 1.5                | 3                     | 1.95          | CO2     | 1.3  | 0    | 0    | 0    | 1.3  | 0    | 0    | 0    | 0    | 0    | 0    | 0    |   |   |
|        |                         | ME301.03      | To determine system stability and system response.                                                                  | CO3           | 2   |     | 2   |     | 2   |     |     |     |     |      |      |                    | 1.5                | 3                     | 1.95          | CO3     | 1.3  | 0    | 1.3  | 0    | 1.3  | 0    | 0    | 0    | 0    | 0    | 0    | 0    |   |   |
|        |                         | PCC-ME 301.04 | To understand various control actions                                                                               | CO4           | 1   |     | 2   |     | 2   |     |     |     |     |      |      |                    | 1.5                | 3                     | 1.95          | CO4     | 0.65 | 0    | 1.3  | 0    | 1.3  | 0    | 0    | 0    | 0    | 0    | 0    | 0    |   |   |
|        |                         | PCC-ME 301.05 | To use MATLAB software to analyze control system                                                                    | CO5           | 2   |     | 2   |     |     |     |     |     |     |      |      |                    | 1.5                | 3                     | 1.95          | CO5     | 1.3  | 0    | 1.3  | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |   |   |
|        |                         | ME301.06      | To understand various control actions                                                                               | CO6           | 2   | 2   |     |     |     |     |     |     |     |      |      |                    | 1.5                | 3                     | 1.95          | CO6     | 1.3  | 1.3  | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |   |   |
|        |                         |               |                                                                                                                     |               |     |     |     |     |     |     |     |     |     |      |      |                    |                    |                       |               | Average | 1.08 | 0.22 | 0.65 | 0.00 | 0.65 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |   |   |
| SEM:05 |                         |               |                                                                                                                     | CO-PO Mapping |     |     |     |     |     |     |     |     |     |      |      | Ave<br>CO<br>DIREC | COUR<br>SE<br>EXIT | Final<br>Co<br>Attain | PO ATTAINMENT |         |      |      |      |      |      |      |      |      |      |      |      |      |   |   |
| Sr.No  | SUBJECT                 | co no         | Course Outcomes (COs)                                                                                               |               | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12               |                    |                       |               |         | PO1  | PO2  | PO3  | PO4  | PO5  | PO6  | PO7  | PO8  | PO9  | PO10 | PO11 | PO12 |   |   |
| 2      | Theory of Machines - II | PCC-ME 302.01 | Identify the various types of gears                                                                                 | CO1           | 2   | 2   |     |     |     |     |     |     |     |      |      |                    | 2.5                | 3                     | 2.65          | CO1     | 1.77 | 1.77 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |   |   |
|        |                         | ME302.02      | Select a gear drive for practical purpose                                                                           | CO2           | 2   | 2   |     |     |     |     |     |     |     |      |      |                    | 2.5                | 3                     | 2.65          | CO2     | 1.77 | 1.77 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |   |   |
|        |                         | PCC-ME 302.03 | Analyze the gyroscopic effects for practical life                                                                   | CO3           |     | 2   |     |     |     |     |     |     |     |      |      |                    | 2.5                | 3                     | 2.65          | CO3     | 0.00 | 1.77 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |   |   |
|        |                         | PCC-ME 302.04 | Solve a balancing problem                                                                                           | CO4           | 2   |     | 2   |     |     |     |     |     |     |      |      |                    | 2.5                | 3                     | 2.65          | CO4     | 1.77 | 0.00 | 1.77 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |   |   |
|        |                         | PCC-ME 302.05 | Do the balancing of practical devices to reduce vibration                                                           | CO5           |     |     |     | 1   |     |     |     |     |     |      |      |                    | 2.5                | 3                     | 2.65          | CO5     | 0.00 | 0.00 | 0.00 | 0.88 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |   |   |
|        |                         | ME302.06      | Do force analysis of mechanisms.                                                                                    | CO6           | 2   |     | 2   |     |     |     |     |     |     |      |      |                    | 2.5                | 3                     | 2.65          | CO6     | 1.77 | 0.00 | 1.77 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |   |   |
|        |                         |               |                                                                                                                     |               |     |     |     |     |     |     |     |     |     |      |      |                    |                    |                       |               | Average | 1.18 | 0.88 | 0.59 | 0.15 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |   |   |
| SEM:05 |                         |               |                                                                                                                     | CO-PO Mapping |     |     |     |     |     |     |     |     |     |      |      | Ave<br>CO<br>DIREC | COUR<br>SE<br>EXIT | Final<br>Co<br>Attain | PO ATTAINMENT |         |      |      |      |      |      |      |      |      |      |      |      |      |   |   |
| Sr.No  | SUBJECT                 | co no         | Course Outcomes (COs)                                                                                               |               | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12               |                    |                       |               |         | PO1  | PO2  | PO3  | PO4  | PO5  | PO6  | PO7  | PO8  | PO9  | PO10 | PO11 | PO12 |   |   |
| 3      | Heat & Mass             | PCC-ME 303.01 | Formulate basic equations for heat transfer problems.                                                               | CO1           | 1   | 1   |     |     |     |     |     |     |     |      |      |                    | 1.5                | 3                     | 1.95          | CO1     | 0.65 | 0.65 | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |   |   |
|        |                         | PCC-ME 303.02 | Apply heat transfer principles to design and evaluate performance of thermal systems                                | CO2           | 1   |     |     | 3   |     |     |     |     |     |      |      |                    | 1.5                | 3                     | 1.95          | CO2     | 0.65 | 0    | 0    | 1.95 | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |   |   |
|        |                         | PCC-ME 303.03 | Calculate the effectiveness and rating of heat exchangers.                                                          | CO3           | 1   | 2   |     |     |     |     |     |     |     | 3    |      |                    | 1.5                | 3                     | 1.95          |         |      |      |      |      |      |      |      |      |      |      |      |      |   |   |



|          |              |                                                                              |     |   |   |  |  |  |  |  |  |   |  |   |  |  |     |   |      |      |       |     |       |   |   |   |   |       |      |       |       |   |   |
|----------|--------------|------------------------------------------------------------------------------|-----|---|---|--|--|--|--|--|--|---|--|---|--|--|-----|---|------|------|-------|-----|-------|---|---|---|---|-------|------|-------|-------|---|---|
| Transfer | PCC-ME303.04 | Calculate heat transfer by radiation between objects with simple geometries. | CO4 | 1 | 2 |  |  |  |  |  |  | 3 |  | 2 |  |  | 1.5 | 3 | 1.95 | CO4  | 0.65  | 1.3 | 0     | 0 | 0 | 0 | 0 | 0     | 1.95 | 0     | 1.3   | 0 | 0 |
|          | PCC-ME303.05 | problems.                                                                    | CO5 | 1 | 2 |  |  |  |  |  |  |   |  |   |  |  | 1.5 | 3 | 1.95 | CO5  | 0.65  | 1.3 | 0     | 0 | 0 | 0 | 0 | 0     | 0    | 0     | 0     | 0 |   |
|          | PCC-         | Evaluate the relative contributions of different modes of heat transfer      | CO6 | 1 | 2 |  |  |  |  |  |  |   |  | 3 |  |  | 1.5 | 3 | 1.95 | CO6  | 0.65  | 1.3 | 0     | 0 | 0 | 0 | 0 | 0     | 0    | 0     | 1.95  | 0 |   |
| Average  |              |                                                                              |     |   |   |  |  |  |  |  |  |   |  |   |  |  |     |   |      | 0.65 | 0.975 | 0   | 0.325 | 0 | 0 | 0 | 0 | 0.325 | 0    | 0.542 | 0.325 | 0 |   |

| SEM:05    |                      |                  |                                                           | CO-PO Mapping |     |     |     |     |     |     |     |     |     |      |      |      | Ave<br>CO<br>DIREC | COUR<br>SE<br>EXIT | Final<br>Co<br>Attain | PO ATTAINMENT |      |      |      |      |      |      |      |      |      |      |      |   |
|-----------|----------------------|------------------|-----------------------------------------------------------|---------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|--------------------|--------------------|-----------------------|---------------|------|------|------|------|------|------|------|------|------|------|------|---|
| SR.<br>NO | SUBJECT              | co no            | Course Outcomes (COs)                                     |               | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |                    |                    |                       | PO1           | PO2  | PO3  | PO4  | PO5  | PO6  | PO7  | PO8  | PO9  | PO10 | PO11 | PO12 |   |
| 4         | Machine Design-<br>1 | PCC-<br>ME304.01 | Apply basic principles of machine design                  | CO1           | 3   |     |     |     |     |     |     |     |     |      |      |      | 3                  | 3                  | 3                     | CO1           | 3    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |   |
|           |                      | PCC-<br>ME304.02 | Design machine elements on the basis of strength concept. | CO2           | 2   | 3   |     |     |     |     |     |     |     |      |      |      |                    | 3                  | 3                     | 3             | CO2  | 2    | 3    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0 |
|           |                      | PCC-<br>ME304.03 | Use design data books and standard practices.             | CO3           | 3   | 2   |     |     |     |     |     |     |     |      |      | 2    |                    | 3                  | 3                     | 3             | CO3  | 3    | 2    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 2 |
|           |                      | PCC-<br>ME304.04 | Select machine elements from Manufacturer's catalogue.    | CO4           |     | 2   | 2   |     |     |     |     |     |     |      |      |      |                    | 3                  | 3                     | 3             | CO4  | 0    | 2    | 2    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0 |
|           |                      | PCC-<br>ME304.05 | Compression Springs Used For Static Loads.                | CO5           | 3   | 2   | 2   |     |     | 1   |     |     |     |      |      | 1    |                    | 3                  | 3                     | 3             | CO5  | 3    | 2    | 2    | 0    | 0    | 1    | 0    | 0    | 0    | 0    | 1 |
|           |                      | PCC-<br>ME304.06 | Understand And Design The Pulley And Belts.               | CO6           | 3   | 2   | 2   |     |     | 1   |     |     |     |      |      | 1    |                    | 3                  | 3                     | 3             | CO6  | 3    | 2    | 2    | 0    | 0    | 1    | 0    | 0    | 0    | 0    | 1 |
| Average   |                      |                  |                                                           |               |     |     |     |     |     |     |     |     |     |      |      |      |                    |                    |                       | 2.33          | 1.83 | 1.00 | 0.00 | 0.00 | 0.33 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.67 |   |

| SEM:05    |                              |                  |                                                                                       |     | CO-PO Mapping |     |     |     |     |     |     |     |     |      |      |      | AVE<br>CO<br>DIREC | COUR<br>SE<br>EXIT | Final<br>Co<br>Attain | Average | PO ATTAINMENT |      |      |      |      |      |      |      |      |      |      |      |  |  |  |  |
|-----------|------------------------------|------------------|---------------------------------------------------------------------------------------|-----|---------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|--------------------|--------------------|-----------------------|---------|---------------|------|------|------|------|------|------|------|------|------|------|------|--|--|--|--|
| SR.<br>NO | SUBJECT                      | co no            | Course Outcomes (COs)                                                                 |     | PO1           | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |                    |                    |                       |         | PO1           | PO2  | PO3  | PO4  | PO5  | PO6  | PO7  | PO8  | PO9  | PO10 | PO11 | PO12 |  |  |  |  |
|           |                              |                  |                                                                                       |     |               |     |     |     |     |     |     |     |     |      |      |      |                    |                    |                       |         |               |      |      |      |      |      |      |      |      |      |      |      |  |  |  |  |
| 5         | Manufacturing<br>Engineering | PCC-<br>ME305.01 | Understand various metal cutting technology including the process and measurement etc | CO1 | 2             |     |     |     |     |     |     |     | 2   | 2    |      |      | 1.5                | 3                  | 1.95                  | CO1     | 1.3           | 0    | 0    | 0    | 0    | 0    | 0    | 1.3  | 1.3  | 0    | 0    |      |  |  |  |  |
|           |                              | PCC-<br>ME305.02 | Identify and select proper cutting tool with respect to work piece materials          | CO2 | 2             |     |     |     |     |     |     |     |     | 2    | 2    |      |                    | 1.5                | 3                     | 1.95    | CO2           | 1.3  | 0    | 0    | 0    | 0    | 0    | 0    | 1.3  | 1.3  | 0    | 0    |  |  |  |  |
|           |                              | PCC-<br>ME305.03 | Identify parameters of single and multipoint cutting tools                            | CO3 | 1             | 2   |     |     |     |     |     |     |     | 2    | 2    |      |                    | 1.5                | 3                     | 1.95    | CO3           | 0.65 | 1.3  | 0    | 0    | 0    | 0    | 0    | 1.3  | 1.3  | 0    | 0    |  |  |  |  |
|           |                              | PCC-<br>ME305.04 | Design and Draw Jig and Fixture.                                                      | CO4 | 2             |     | 3   |     | 2   |     |     |     |     | 2    | 2    |      |                    | 1.5                | 3                     | 1.95    | CO4           | 1.3  | 0    | 1.95 | 0    | 1.3  | 0    | 0    | 1.3  | 1.3  | 0    | 0    |  |  |  |  |
|           |                              | PCC-<br>ME305.05 | Select and design dies for press working operations.                                  | CO5 | 2             |     | 3   |     | 2   |     |     |     |     | 2    | 2    |      |                    | 1.5                | 3                     | 1.95    | CO5           | 1.3  | 0    | 1.95 | 0    | 1.3  | 0    | 0    | 1.3  | 1.3  | 0    | 0    |  |  |  |  |
|           |                              | PCC-<br>ME305.06 | Understand and apply CNC Technology                                                   | CO6 | 1             | 3   |     |     |     |     |     |     |     | 2    | 2    | 2    |                    | 1.5                | 3                     | 1.95    | CO6           | 0.65 | 1.95 | 0    | 0    | 0    | 0    | 0    | 1.3  | 1.3  | 1.3  | 0    |  |  |  |  |
| Average   |                              |                  |                                                                                       |     |               |     |     |     |     |     |     |     |     |      |      |      |                    | 1.08               | 0.54                  | 0.65    | 0.00          | 0.43 | 0.00 | 0.00 | 0.00 | 1.30 | 1.30 | 0.22 | 0.00 |      |      |      |  |  |  |  |

| SEM:05     |                                    |                  |                                                                                                                                                           |     | CO-PO Mapping |     |     |     |     |     |     |     |     |      |      |      | AVE<br>CO<br>DIREC<br>T | COUR<br>SE<br>EXIT<br>SURVE<br>Y | Final<br>Co<br>Attain | PO ATTAINMENT |       |       |      |     |      |     |     |     |      |      |      |       |
|------------|------------------------------------|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|-----|---------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|-------------------------|----------------------------------|-----------------------|---------------|-------|-------|------|-----|------|-----|-----|-----|------|------|------|-------|
| SR.<br>NO. | SUBJECT                            | co no            | Course Outcomes (COs)                                                                                                                                     |     | PO1           | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |                         |                                  |                       | PO1           | PO2   | PO3   | PO4  | PO5 | PO6  | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |       |
|            |                                    |                  |                                                                                                                                                           |     |               |     |     |     |     |     |     |     |     |      |      |      |                         |                                  |                       |               |       |       |      |     |      |     |     |     |      |      |      |       |
| 6          | Enterprise<br>Resource<br>Planning | PCC-<br>ME306.01 | Understand the structure of an ERP system and know how process chains in Materialsmanagement, production, controlling and sales are implemented in an ERP | CO1 | 2             |     |     |     |     |     |     |     |     |      |      |      | 1.5                     | 3                                | 1.95                  | CO1           | 1.3   | 0     | 0    | 1.3 | 0    | 0   | 0   | 0   | 0    | 0    | 0    | 0     |
|            |                                    | PCC-<br>ME306.02 | Implementation and customize an ERP system using the appropriate modelingmethods,that are Entity Relationship                                             | CO2 | 2             |     |     | 2   |     |     |     |     |     |      |      |      |                         | 1.5                              | 3                     | 1.95          | CO2   | 1.3   | 0    | 1.3 | 0    | 0   | 0   | 0   | 0    | 0    | 0    | 0     |
|            |                                    | PCC-<br>ME306.03 | materials management, production, controlling and sales in SAP ECC                                                                                        | CO3 | 2             |     | 2   |     |     |     |     |     |     |      |      |      |                         | 1.5                              | 3                     | 1.95          | CO3   | 1.3   | 0.65 | 0   | 0    | 1.3 | 0   | 0   | 0    | 0    | 0    | 0     |
|            |                                    | PCC-<br>ME306.04 | theimportance of project management in an ERP implementation project                                                                                      | CO4 | 2             | 1   |     |     | 2   |     |     |     |     |      |      |      |                         | 1.5                              | 3                     | 1.95          | CO4   | 1.3   | 0    | 0   | 0.65 | 0   | 0   | 0   | 0    | 0    | 0    | 0     |
|            |                                    | PCC-<br>ME306.05 | Understand what to expect, and not to expect, from a consultant implementing anERPsystem                                                                  | CO5 | 2             |     |     | 1   |     |     |     |     |     |      |      |      |                         | 1.5                              | 3                     | 1.95          | CO5   | 1.3   | 0    | 0   | 0    | 0   | 0   | 0   | 0    | 0    | 0    | 0.65  |
|            |                                    | PCC-<br>ME306.06 | Understand the importance of IT governance in long-term relationships with a softwarevendor, such as                                                      | CO6 | 2             |     |     |     |     |     |     |     |     |      |      | 1    |                         | 1.5                              | 3                     | 1.95          | CO6   | 0     | 0    | 0   | 0    | 0   | 0   | 0   | 0    | 0    | 0    | 0     |
| Average    |                                    |                  |                                                                                                                                                           |     |               |     |     |     |     |     |     |     |     |      |      |      |                         | 1.083                            | 0.108                 | 0.217         | 0.325 | 0.217 | 0    | 0   | 0    | 0   | 0   | 0   | 0    | 0    | 0    | 0.108 |

| SEM:05    |                       |                  |                                                             |     | CO-PO Mapping |     |     |     |     |     |     |     |     |      |      |      | AVE<br>CO | COUR<br>SE | Final<br>Co | PO ATTAINMENT |      |      |      |      |      |      |      |      |      |      |      |      |      |
|-----------|-----------------------|------------------|-------------------------------------------------------------|-----|---------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|-----------|------------|-------------|---------------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| SR.<br>NO | SUBJECT               | co no            | Course Outcomes (COs)                                       |     | PO1           | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |           |            |             | PO1           | PO2  | PO3  | PO4  | PO5  | PO6  | PO7  | PO8  | PO9  | PO10 | PO11 | PO12 |      |      |
|           |                       |                  |                                                             |     |               |     |     |     |     |     |     |     |     |      |      |      |           |            |             |               |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 7         | CAD CAM<br>Laboratory | PCC-<br>ME307.01 | Understand and read engineering Drawings.                   | CO1 | 3             | 1   | 1   |     | 2   |     |     |     |     |      |      | 1    | 1.5       | 3          | 1.95        | CO1           | 1.95 | 0.65 | 0.65 | 0    | 1.3  | 0    | 0    | 0    | 0    | 0    | 0    | 0.65 |      |
|           |                       | PCC-<br>ME307.02 | Prepare solid and surface models from 2D drawings           | CO2 | 3             | 1   | 1   |     | 2   |     |     |     |     |      |      |      | 1         | 1.5        | 3           | 1.95          | CO2  | 1.95 | 0.65 | 0.65 | 0    | 1.3  | 0    | 0    | 0    | 0    | 0    | 0    | 0.65 |
|           |                       | PCC-<br>ME307.03 | Prepare assemblies and BOM                                  | CO3 | 3             | 1   | 1   |     | 2   |     |     |     |     |      |      |      | 1         | 1.5        | 3           | 1.95          | CO3  | 1.95 | 0.65 | 0.65 | 0    | 1.3  | 0    | 0    | 0    | 0    | 0    | 0    | 0.65 |
|           |                       | PCC-<br>ME307.04 | Conversion of 3D Models into orthographic views.            | CO4 | 3             | 1   | 1   |     | 2   |     |     |     |     |      |      |      | 1         | 1.5        | 3           | 1.95          | CO4  | 1.95 | 0.65 | 0.65 | 0    | 1.3  | 0    | 0    | 0    | 0    | 0    | 0    | 0.65 |
|           |                       | PCC-<br>ME307.05 | Know the process of CAD data exchange between the software. | CO5 | 3             | 1   | 1   |     | 2   |     |     |     |     |      |      |      | 1         | 1.5        | 3           | 1.95          | CO5  | 1.95 | 0.65 | 0.65 | 0    | 1.3  | 0    | 0    | 0    | 0    | 0    | 0    | 0.65 |
|           |                       | PCC-<br>ME307.06 | Understand the basics of Computer Aided Manufacturing.      | CO6 | 3             | 1   | 1   |     | 2   |     |     |     |     |      |      |      | 1         | 1.5        | 3           | 1.95          | CO6  | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Average   |                       |                  |                                                             |     |               |     |     |     |     |     |     |     |     |      |      |      |           |            | 1.63        | 0.54          | 0.54 | 0.00 | 1.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.54 |      |      |

| SEM:05    |                          |                  |                                                                                                                                                |     | CO-PO Mapping |     |     |     |     |     |     |     |     |      |      |      | AVE<br>CO<br>DIREC | COUR<br>SE<br>EXIT | Final<br>Co<br>Attain |      | PO ATTAINMENT |      |       |     |     |      |     |     |     |      |      |      |
|-----------|--------------------------|------------------|------------------------------------------------------------------------------------------------------------------------------------------------|-----|---------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|--------------------|--------------------|-----------------------|------|---------------|------|-------|-----|-----|------|-----|-----|-----|------|------|------|
| SR.<br>NO | SUBJECT                  | co no            | Course Outcomes (COs)                                                                                                                          |     | PO1           | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |                    |                    |                       |      | PO1           | PO2  | PO3   | PO4 | PO5 | PO6  | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| Z         | WORKSHOP<br>PRACTICE – V | PCC-<br>ME308.01 | Select the suitable machining operations and prepare process sheet to manufacture a Component and implement the same.                          | CO1 | 2             |     |     |     | 2   |     |     |     |     |      |      |      | 1.5                | 3                  | 1.95                  | CO1  | 1.3           | 0    | 0     | 0   | 1.3 | 0    | 0   | 0   | 0   | 0    | 0    |      |
|           |                          | PCC-<br>ME308.02 | Control key dimensions on a component using principles of metrology and assembly To make any one assembly / sub – assembly comprising of minim | CO2 | 3             |     |     |     | 5   |     |     |     |     |      |      |      |                    | 1.5                | 3                     | 1.95 | CO2           | 1.95 | 0     | 0   | 0   | 3.25 | 0   | 0   | 0   | 0    | 0    | 0    |
|           |                          | Average          |                                                                                                                                                |     |               |     |     |     |     |     |     |     |     |      |      |      |                    |                    | 1.625                 | 0    | 0             | 0    | 2.275 | 0   | 0   | 0    | 0   | 0   | 0   | 0    |      |      |



| SEM:06     |                                                        |                  |                                                                                                                                                                                                   |     | CO-PO Mapping |     |     |     |     |     |     |     |     |      |      |      | AVE<br>CO<br>DIREC | COUR<br>SE<br>EXIT | Final<br>Co<br>Attain |      | PO ATTAINMENT |      |     |     |     |     |     |      |      |      |      |      |
|------------|--------------------------------------------------------|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|---------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|--------------------|--------------------|-----------------------|------|---------------|------|-----|-----|-----|-----|-----|------|------|------|------|------|
| SR.<br>NO. | SUBJECT                                                | co no            | Course Outcomes (COs)                                                                                                                                                                             |     | PO1           | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |                    |                    |                       |      | PO1           | PO2  | PO3 | PO4 | PO5 | PO6 | PO7 | PO8  | PO9  | PO10 | PO11 | PO12 |
| 9          | Industrial<br>Management and<br>Operations<br>Research | PCC-<br>ME311.01 | Apply the concepts of Industrial management and operations research approaches.<br>Know various functional areas of management Component and implement the same.                                  | CO1 | 3             | 2   |     | 2   |     |     |     |     | 1   |      |      | 2    | 1.5                | 3                  | 1.95                  | CO1  | 1.95          | 1.3  | 0   | 1.3 | 0   | 0   | 0   | 0    | 0.65 | 0    | 0    | 1.3  |
|            |                                                        | PCC-<br>ME311.02 | Control key dimensions on a component using principles of metrology and assembly They will analyses<br>issues in Managing operations and projects and various approaches to resolve those issues. | CO2 | 3             | 2   |     | 2   |     |     |     |     | 1   |      |      | 2    | 1.5                | 3                  | 1.95                  | CO2  | 1.95          | 1.3  | 0   | 1.3 | 0   | 0   | 0   | 0    | 0.65 | 0    | 0    | 1.3  |
|            |                                                        | PCC-<br>ME311.03 | Formulate and solve a wide variety of applications and problems that can be addressed using<br>Operations Research techniques as Linear programming problems.                                     | CO3 | 3             | 1   |     | 2   |     |     |     |     | 1   |      |      | 2    | 1.5                | 3                  | 1.95                  | CO3  | 1.95          | 0.65 | 0   | 1.3 | 0   | 0   | 0   | 0    | 0.65 | 0    | 0    | 1.3  |
|            |                                                        | PCC-<br>ME311.04 | Formulate and solve a wide variety of applications and problems that can be addressed using<br>Operations Research techniques as Transportation and Assignment problems                           | CO4 | 3             | 2   |     | 2   |     |     |     |     | 1   |      |      | 2    | 1.5                | 3                  | 1.95                  | CO4  | 1.95          | 1.3  | 0   | 1.3 | 0   | 0   | 0   | 0    | 0.65 | 0    | 0    | 1.3  |
|            |                                                        | PCC-<br>ME311.05 | Apply the various techniques of Project Management such as Network Model and Sequencing Model.                                                                                                    | CO5 | 3             | 2   |     | 2   |     |     |     |     | 1   |      |      | 2    | 1.5                | 3                  | 1.95                  | CO5  | 1.95          | 1.3  | 0   | 1.3 | 0   | 0   | 0   | 0    | 0.65 | 0    | 0    | 1.3  |
|            |                                                        | PCC-<br>ME311.06 | Formulate and solve a wide variety of applications and problems that can be addressed using<br>Operations Research techniques as Transportation and Assignment problems                           | CO6 | 3             | 2   |     | 2   |     |     |     |     | 1   |      |      | 2    | 1.5                | 3                  | 1.95                  | CO6  | 1.95          | 1.3  | 0   | 1.3 | 0   | 0   | 0   | 0    | 0.65 | 0    | 0    | 1.3  |
| Average    |                                                        |                  |                                                                                                                                                                                                   |     |               |     |     |     |     |     |     |     |     |      |      |      |                    |                    |                       | 1.95 | 1.192         | 0    | 1.3 | 0   | 0   | 0   | 0   | 0.65 | 0    | 0    | 1.3  |      |

| SEM:06    |                           |                  |                                                                                |     | CO-PO Mapping |     |     |     |     |     |     |     |     |      |      |      | AVE<br>CO<br>DIREC | COUR<br>SE<br>EXIT | Final<br>Co<br>Attain |       | PO ATTAINMENT |       |     |       |       |     |     |     |     |      |      |      |
|-----------|---------------------------|------------------|--------------------------------------------------------------------------------|-----|---------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|--------------------|--------------------|-----------------------|-------|---------------|-------|-----|-------|-------|-----|-----|-----|-----|------|------|------|
| SR.<br>NO | SUBJECT                   | co no            | Course Outcomes (COs)                                                          |     | PO1           | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |                    |                    |                       |       | PO1           | PO2   | PO3 | PO4   | PO5   | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
|           |                           |                  |                                                                                |     |               |     |     |     |     |     |     |     |     |      |      |      |                    |                    |                       |       |               |       |     |       |       |     |     |     |     |      |      |      |
| 10        | Industrial Fluid<br>Power | PCC-<br>ME312.01 | Do analysis of performance of Hydraulic and pneumatic system                   | CO1 | 2             |     |     |     |     |     |     |     |     |      |      |      | 2.67               | 2.33               | 2.568                 | CO1   | 1.712         | 0     | 0   | 0     | 0     | 0   | 0   | 0   | 0   | 0    |      |      |
|           |                           | PCC-<br>ME312.02 | Demonstrate Hydraulic and pneumatic system                                     | CO2 | 2             | 2   |     |     |     |     |     |     |     |      |      |      | 2.67               | 2.33               | 2.568                 | CO2   | 1.712         | 1.712 | 0   | 0     | 0     | 0   | 0   | 0   | 0   | 0    |      |      |
|           |                           | PCC-<br>ME312.03 | Apply Hydraulic and pneumatic system fundamentals to industrial applications   | CO3 | 2             | 2   |     |     | 2   |     |     |     |     |      |      |      | 2.67               | 2.33               | 2.568                 | CO3   | 1.712         | 1.712 | 0   | 0     | 1.712 | 0   | 0   | 0   | 0   | 0    |      |      |
|           |                           | PCC-<br>ME312.04 | Demonstrate knowledge about the fundamentals of Hydraulic and pneumatic system | CO4 | 2             |     |     |     |     |     |     |     |     |      |      |      | 2.67               | 2.33               | 2.568                 | CO4   | 1.712         | 0     | 0   | 0     | 0     | 0   | 0   | 0   | 0   | 0    |      |      |
|           |                           | PCC-<br>ME312.05 | Understating Of Hydraulic Circuits And Applications In Various Industries      | CO5 | 2             | 2   |     |     | 2   |     |     |     |     |      |      |      | 2.67               | 2.33               | 2.568                 | CO5   | 1.712         | 1.712 | 0   | 0     | 1.712 | 0   | 0   | 0   | 0   | 0    | 0    |      |
|           |                           | PCC-<br>ME312.06 | Understating Of Pneumatic Circuits And Applications In Various Industries      | CO6 | 2             |     |     |     |     |     |     |     |     |      |      |      | 2.67               | 2.33               | 2.568                 | CO6   | 1.712         | 0     | 0   | 0     | 0     | 0   | 0   | 0   | 0   | 0    | 0    |      |
| Average   |                           |                  |                                                                                |     |               |     |     |     |     |     |     |     |     |      |      |      |                    |                    |                       | 1.712 | 0.856         | 0     | 0   | 0.571 | 0     | 0   | 0   | 0   | 0   | 0    | 0    |      |

| SEM:06    |                                  |                  |                                                                                                                                                                |     | CO-PO Mapping |     |     |     |     |     |     |     |     |      |      |      | AVE<br>CO<br>DIREC | COUR<br>SE<br>EXIT | Final<br>Co<br>Attain |     | PO ATTAINMENT |       |     |     |     |     |     |     |       |      |      |      |   |
|-----------|----------------------------------|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|---------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|--------------------|--------------------|-----------------------|-----|---------------|-------|-----|-----|-----|-----|-----|-----|-------|------|------|------|---|
| SR.<br>NO | SUBJECT                          | co no            | Course Outcomes (COs)                                                                                                                                          |     | PO1           | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |                    |                    |                       |     | PO1           | PO2   | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9   | PO10 | PO11 | PO12 |   |
|           |                                  |                  |                                                                                                                                                                |     |               |     |     |     |     |     |     |     |     |      |      |      |                    |                    |                       |     |               |       |     |     |     |     |     |     |       |      |      |      |   |
| 11        | Metrology and<br>Quality Control | PCC-<br>ME313.01 | Identify and use various measuring instruments and select appropriate instrument for particular feature measurement.                                           | CO1 | 3             | 2   |     |     |     |     |     |     |     |      |      |      | 3                  | 3                  | 3                     | CO1 | 3             | 2     | 0   | 0   | 0   | 0   | 0   | 0   | 0     | 0    | 0    |      |   |
|           |                                  | PCC-<br>ME313.02 | Distinguish and understand quality assurance and quality control. They can use control charts and sampling plans to manufacturing and service sector problems. | CO2 | 3             |     |     |     |     |     |     |     |     |      |      |      |                    | 3                  | 3                     | 3   | CO2           | 3     | 0   | 0   | 0   | 0   | 0   | 0   | 0     | 0    | 0    |      |   |
|           |                                  | PCC-<br>ME313.03 | Learn advanced techniques of metrology in various industrial applications.                                                                                     | CO3 | 2             |     |     |     |     |     |     |     |     |      |      | 1    |                    | 3                  | 3                     | 3   | CO3           | 2     | 0   | 0   | 0   | 0   | 0   | 0   | 0     | 0    | 1    |      |   |
|           |                                  | PCC-<br>ME313.04 | Prepare and understand drawings with general dimensions, tolerances and surface finish.                                                                        | CO4 | 3             | 2   |     |     |     |     |     |     |     |      |      |      |                    | 3                  | 3                     | 3   | CO4           | 3     | 2   | 0   | 0   | 0   | 0   | 0   | 0     | 0    | 0    |      |   |
|           |                                  | PCC-<br>ME313.05 | And Sampling Plans To Manufacturing And Service Sector Problems.                                                                                               | CO5 |               |     | 3   |     | 2   |     |     |     | 3   | 3    |      |      |                    | 3                  | 3                     | 3   | CO5           | 0     | 0   | 3   | 0   | 2   | 0   | 0   | 0     | 3    | 3    | 0    | 0 |
|           |                                  | PCC-<br>ME313.06 | Prepare And Understand Drawings With General Dimensions, Tolerances And Surface Finish.                                                                        | CO6 | 2             | 2   |     |     | 2   |     |     |     |     |      |      |      |                    | 3                  | 3                     | 3   | CO6           | 2     | 2   | 0   | 0   | 2   | 0   | 0   | 0     | 0    | 0    | 0    |   |
| Average   |                                  |                  |                                                                                                                                                                |     |               |     |     |     |     |     |     |     |     |      |      |      |                    | 2.167              | 1                     | 0.5 | 0             | 0.667 | 0   | 0   | 0   | 0.5 | 0.5 | 0   | 0.167 |      |      |      |   |

| SEM:06     |                   |              |                                                                                                 |     | CO-PO Mapping |     |     |     |     |     |     |     |     |      |      |      | AVE<br>CO<br>DIREC | COUR<br>SE<br>EXIT | Final<br>Co<br>Attain |       | PO ATTAINMENT |       |     |     |     |     |     |     |     |       |      |      |
|------------|-------------------|--------------|-------------------------------------------------------------------------------------------------|-----|---------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|--------------------|--------------------|-----------------------|-------|---------------|-------|-----|-----|-----|-----|-----|-----|-----|-------|------|------|
| SIC.<br>NO | SUBJECT           | co no        | Course Outcomes (COs)                                                                           |     | PO1           | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |                    |                    |                       |       | PO1           | PO2   | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10  | PO11 | PO12 |
| 12         | Machine Design-II | PCC-ME314.01 | Design machine elements subjected to fluctuating loading particular feature measurement.        | CO1 | 3             | 2   | 2   |     |     |     |     |     |     |      | 1    | 3    | 3                  | 3                  | CO1                   | 3     | 2             | 2     | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 1     |      |      |
|            |                   | PCC-ME314.02 | Understand effect of tribological considerations on design                                      | CO2 | 3             | 2   | 2   |     |     |     |     |     |     |      | 1    | 2.5  | 2                  | 2.35               | CO2                   | 2.35  | 1.567         | 1.567 | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0.783 |      |      |
|            |                   | PCC-ME314.03 | Select rolling contact bearings from manufacturer's catalogue.                                  | CO3 | 3             | 3   | 1   |     |     |     |     |     |     |      | 1    | 2.5  | 2                  | 2.35               | CO3                   | 2.35  | 2.35          | 0.783 | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0.783 |      |      |
|            |                   | PCC-ME314.04 | Design sliding contact bearings used in various mechanical systems                              | CO4 | 3             | 2   | 1   |     |     |     |     |     |     |      | 1    | 3    | 3                  | 3                  | CO4                   | 3     | 2             | 1     | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 1     |      |      |
|            |                   | PCC-ME314.05 | Design various types of gears such as spur, helical, bevel and worm gear                        | CO5 | 3             | 2   | 2   |     |     |     |     |     |     |      | 1    | 3    | 3                  | 3                  | CO5                   | 3     | 2             | 2     | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 1     |      |      |
|            |                   | PCC-ME314.06 | To Understand And Apply Principles Of Gear Design To Spur Gears And Industrial Spur Gear Boxes. | CO6 | 3             | 2   | 2   |     |     |     |     |     |     |      | 1    | 3    | 3                  | 3                  | CO6                   | 3     | 2             | 2     | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 1     |      |      |
| Average    |                   |              |                                                                                                 |     |               |     |     |     |     |     |     |     |     |      |      |      |                    | 2.783              | 1.986                 | 1.558 | 0             | 0     | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0.928 |      |      |

| SEM:06     |                                   |                  |                                                                                                     | CO-PO Mapping |     |     |     |     |     |     |     |     |     |      |      | Ave<br>CO<br>DIREC | COUR<br>SE<br>EXIT | Final<br>Co<br>Attain | PO ATTAINMENT |       |     |     |       |     |     |     |     |       |      |       |       |   |
|------------|-----------------------------------|------------------|-----------------------------------------------------------------------------------------------------|---------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|--------------------|--------------------|-----------------------|---------------|-------|-----|-----|-------|-----|-----|-----|-----|-------|------|-------|-------|---|
| SR.<br>NO. | SUBJECT                           | co no            | Course Outcomes (COs)                                                                               |               | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12               |                    |                       |               | PO1   | PO2 | PO3 | PO4   | PO5 | PO6 | PO7 | PO8 | PO9   | PO10 | PO11  | PO12  |   |
| 13         | Internal<br>Combustion<br>Engines | PCC-<br>ME315.01 | Demonstrate engine construction, function of various parts of the engine and classify I.C. Engines. | CO1           | 3   | 2   |     | 1   |     |     |     |     | 2   |      | 1    | 1                  | 3                  | 3                     | 3             | CO1   | 3   | 2   | 0     | 1   | 0   | 0   | 0   | 2     | 0    | 1     | 1     |   |
|            |                                   | PCC-<br>ME315.02 | Demonstrate combustion mechanism.                                                                   | CO2           | 2   | 2   |     | 1   |     |     |     |     |     |      |      | 1                  | 1                  | 3                     | 3             | 3     | CO2 | 2   | 2     | 0   | 1   | 0   | 0   | 0     | 0    | 0     | 1     | 1 |
|            |                                   | PCC-<br>ME315.03 | Demonstrate importance and functions of various systems on the engine.                              | CO3           | 3   | 1   |     |     |     |     |     |     |     | 2    |      | 1                  | 2                  | 3                     | 3             | 3     | CO3 | 3   | 1     | 0   | 0   | 0   | 0   | 0     | 2    | 0     | 1     | 2 |
|            |                                   | PCC-<br>ME315.04 | Demonstrate need and methods of engine testing.                                                     | CO4           | 2   | 2   |     |     |     |     |     |     |     |      |      | 2                  | 2                  | 3                     | 3             | 3     | CO4 | 2   | 2     | 0   | 0   | 0   | 0   | 0     | 0    | 0     | 2     | 2 |
|            |                                   | PCC-<br>ME315.05 | Understand the impact of vehicular pollution and ways to reduce or control the pollution            | CO5           | 3   | 1   |     |     |     |     |     |     |     | 2    |      | 1                  | 2                  | 3                     | 3             | 3     | CO5 | 3   | 1     | 0   | 0   | 0   | 0   | 0     | 2    | 0     | 1     | 2 |
|            |                                   | PCC-<br>ME315.06 | Students Will Demonstrate Knowledge Of The Operating Characteristics Of Common Ic Engines           | CO6           | 3   | 1   |     |     |     |     |     |     |     |      | 2    |                    | 2                  | 2                     | 3             | 3     | 3   | CO6 | 3     | 1   | 0   | 0   | 0   | 0     | 0    | 2     | 0     | 2 |
| Average    |                                   |                  |                                                                                                     |               |     |     |     |     |     |     |     |     |     |      |      |                    |                    |                       |               | 2.667 | 1.5 | 0   | 0.333 | 0   | 0   | 0   | 0   | 1.333 | 0    | 1.333 | 1.667 |   |

| SEM:06 |  |  |  | CO-PO Mapping |  |  |  |  |  |  |  |  |  |  |  | Ave<br>CO<br>DIREC | COUR<br>SE<br>EXIT | Final<br>Co<br>Attain | PO ATTAINMENT |  |  |  |  |  |  |  |  |  |  |  |
|--------|--|--|--|---------------|--|--|--|--|--|--|--|--|--|--|--|--------------------|--------------------|-----------------------|---------------|--|--|--|--|--|--|--|--|--|--|--|
|--------|--|--|--|---------------|--|--|--|--|--|--|--|--|--|--|--|--------------------|--------------------|-----------------------|---------------|--|--|--|--|--|--|--|--|--|--|--|



| SR. NO. | SUBJECT                                 | co no        | Course Outcomes (COs)                                      |     | PO1 | PO2 | PO3 | PO4 | PO5 |  |  | PO8 | PO9 | PO10 | PO11 | PO12 | CO DIREC | CO EXIT | CO Attain |       | PO1   | PO2 | PO3 | PO4   | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |   |
|---------|-----------------------------------------|--------------|------------------------------------------------------------|-----|-----|-----|-----|-----|-----|--|--|-----|-----|------|------|------|----------|---------|-----------|-------|-------|-----|-----|-------|-----|-----|-----|-----|-----|------|------|------|---|
| 14      | Computer Aided Design and Manufacturing | PCC-ME316.01 | To Compare and Represent 2-D and 3-D entities              | CO1 | 2   | 2   |     |     |     |  |  |     |     |      |      |      | 3        | 3       | 3         | CO1   | 2     | 2   | 0   | 0     | 0   | 0   | 0   | 0   | 0   | 0    | 0    | 0    |   |
|         |                                         | PCC-ME316.02 | To Apply transform techniques on 2-D and 3-D entities      | CO2 | 1   |     | 2   |     |     |  |  |     |     |      |      |      |          | 3       | 3         | 3     | CO2   | 1   | 0   | 2     | 0   | 0   | 0   | 0   | 0   | 0    | 0    | 0    | 0 |
|         |                                         | PCC-ME316.03 | To Examine CNC program for production of components        | CO3 | 2   |     | 2   |     |     |  |  |     |     |      |      |      |          | 3       | 3         | 3     | CO3   | 2   | 0   | 2     | 0   | 0   | 0   | 0   | 0   | 0    | 0    | 0    | 0 |
|         |                                         | PCC-ME316.04 | To Express the principles and methods of Rapid Prototyping | CO4 | 2   |     |     |     | 2   |  |  |     |     |      |      |      |          | 3       | 3         | 3     | CO4   | 2   | 0   | 0     | 0   | 2   | 0   | 0   | 0   | 0    | 0    | 0    | 0 |
|         |                                         | PCC-ME316.05 | To Examine Cnc Program For Production Of Components        | CO5 | 2   |     | 2   |     |     |  |  |     |     |      |      |      |          | 3       | 3         | 3     | CO5   | 2   | 0   | 2     | 0   | 0   | 0   | 0   | 0   | 0    | 0    | 0    | 0 |
|         |                                         | PCC-ME316.06 | To Express The Principles And Methods Of Rapid Prototyping | CO6 | 2   |     |     |     | 2   |  |  |     |     |      |      |      |          | 3       | 3         | 3     | CO6   | 2   | 0   | 0     | 0   | 2   | 0   | 0   | 0   | 0    | 0    | 0    | 0 |
| Average |                                         |              |                                                            |     |     |     |     |     |     |  |  |     |     |      |      |      |          |         |           | 1.833 | 0.333 | 1   | 0   | 0.667 | 0   | 0   | 0   | 0   | 0   | 0    | 0    | 0    |   |

| SEM:06    |                         |                  |                                                                                                                       |     | CO-PO Mapping |     |     |     |     |     |     |     |     |      |      |      | AVE<br>CO<br>DIREC | COUR<br>SE<br>EXIT | Final<br>Co<br>Attain |     | PO ATTAINMENT |     |       |     |     |     |     |     |     |      |      |      |     |
|-----------|-------------------------|------------------|-----------------------------------------------------------------------------------------------------------------------|-----|---------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|--------------------|--------------------|-----------------------|-----|---------------|-----|-------|-----|-----|-----|-----|-----|-----|------|------|------|-----|
| SR.<br>NO | SUBJECT                 | co no            | Course Outcomes (COs)                                                                                                 |     | PO1           | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |                    |                    |                       |     | PO1           | PO2 | PO3   | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |     |
|           |                         |                  |                                                                                                                       |     |               |     |     |     |     |     |     |     |     |      |      |      |                    |                    |                       |     |               |     |       |     |     |     |     |     |     |      |      |      |     |
| 15        | Workshop<br>Practice-VI | PCC-<br>ME318.01 | Select the suitable machining operations and prepare process sheet to manufacture a Components and implement the same | CO1 | 3             | 2   |     |     | 2   |     |     |     |     |      |      | 2    | 3                  | 3                  | 3                     | CO1 | 3             | 2   | 0     | 0   | 2   | 0   | 0   | 0   | 0   | 0    | 2    |      |     |
|           |                         | PCC-<br>ME318.02 | Control key dimensions on a component using principles of metrology and assembly                                      | CO2 | 3             | 3   |     |     | 2   |     |     |     |     |      |      |      | 3                  | 3                  | 2                     | 2.7 | CO2           | 2.7 | 2.7   | 0   | 0   | 1.8 | 0   | 0   | 0   | 0    | 0    | 2.7  |     |
|           |                         | PCC-<br>ME318.03 | Design the sequence of various processes required to manufacture the components                                       | CO3 | 3             | 3   |     |     | 2   |     |     |     |     |      |      |      | 3                  | 3                  | 2                     | 2.7 | CO3           | 2.7 | 2.7   | 0   | 0   | 1.8 | 0   | 0   | 0   | 0    | 0    | 2.7  |     |
|           |                         | PCC-<br>ME318.04 | Implement principles of metrology.                                                                                    | CO4 | 3             | 2   |     |     | 2   |     |     |     |     |      |      |      | 2                  | 3                  | 3                     | 3   | CO4           | 3   | 2     | 0   | 0   | 2   | 0   | 0   | 0   | 0    | 0    | 2    |     |
|           |                         | PCC-<br>ME318.05 | Understand and perform the various machining operations.                                                              | CO5 | 3             | 3   |     |     | 2   |     |     |     |     |      |      |      | 3                  | 3                  | 3                     | 3   | CO5           | 3   | 3     | 0   | 0   | 2   | 0   | 0   | 0   | 0    | 0    | 3    |     |
|           |                         | PCC-<br>ME318.06 | Understand and perform the various machining operations.                                                              | CO6 | 3             | 2   |     |     | 2   |     |     |     |     |      |      |      | 2                  | 3                  | 3                     | 3   | CO6           | 3   | 2     | 0   | 0   | 2   | 0   | 0   | 0   | 0    | 0    | 2    |     |
| Average   |                         |                  |                                                                                                                       |     |               |     |     |     |     |     |     |     |     |      |      |      |                    |                    | 2.9                   | 2.4 | 0             | 0   | 1.933 | 0   | 0   | 0   | 0   | 0   | 0   | 0    | 0    | 0    | 2.4 |

| SEM:06    |                                   |                  |                                                                                                        |     | CO-PO Mapping |     |     |     |     |     |     |     |     |      |      |      | AVE<br>CO<br>DIREC | COUR<br>SE<br>EXIT | Final<br>Co<br>Attain |     | PO ATTAINMENT |     |       |     |       |     |     |     |     |      |      |      |   |   |
|-----------|-----------------------------------|------------------|--------------------------------------------------------------------------------------------------------|-----|---------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|--------------------|--------------------|-----------------------|-----|---------------|-----|-------|-----|-------|-----|-----|-----|-----|------|------|------|---|---|
| SR.<br>NO | SUBJECT                           | co no            | Course Outcomes (COs)                                                                                  |     | PO1           | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |                    |                    |                       |     | PO1           | PO2 | PO3   | PO4 | PO5   | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |   |   |
|           |                                   |                  |                                                                                                        |     |               |     |     |     |     |     |     |     |     |      |      |      |                    |                    |                       |     |               |     |       |     |       |     |     |     |     |      |      |      |   |   |
| 16        | Professional Skill<br>Development | PCC-<br>ME319.01 | Effectively use techniques for self-awareness and self-development to increase confidence in abilities | CO1 | 1             |     | 2   |     | 2   |     |     |     |     |      |      |      | 3                  | 3                  | 3                     | CO1 | 1             | 0   | 2     | 0   | 2     | 0   | 0   | 0   | 0   | 0    | 0    |      |   |   |
|           |                                   | PCC-<br>ME319.02 | Strengthen soft skills to achieve success in professional career                                       | CO2 | 3             |     | 2   |     | 2   |     | 2   |     |     |      |      |      |                    | 3                  | 3                     | 3   | CO2           | 3   | 0     | 2   | 0     | 2   | 0   | 2   | 0   | 0    | 0    | 0    |   |   |
|           |                                   | PCC-<br>ME319.03 | Smoothly transit from student life to professional life                                                | CO3 | 2             |     |     |     | 2   |     |     |     |     |      |      |      |                    | 3                  | 3                     | 3   | CO3           | 2   | 0     | 0   | 0     | 2   | 0   | 0   | 0   | 0    | 0    | 0    |   |   |
|           |                                   | PCC-<br>ME319.04 | Create professional documents using MS office tools                                                    | CO4 | 2             |     | 3   |     |     |     |     |     |     |      |      |      |                    | 3                  | 3                     | 3   | CO4           | 2   | 0     | 3   | 0     | 0   | 0   | 0   | 0   | 0    | 0    | 0    |   |   |
|           |                                   | PCC-<br>ME319.05 | Strengthen soft skills to achieve success in professional career                                       | CO5 | 1             |     | 2   |     | 2   |     |     |     |     |      |      |      |                    | 3                  | 3                     | 3   | CO5           | 1   | 0     | 2   | 0     | 2   | 0   | 0   | 0   | 0    | 0    | 0    |   |   |
|           |                                   | PCC-<br>ME319.06 | Smoothly transit from student life to professional life                                                | CO6 | 3             |     | 2   |     | 2   |     | 2   |     |     |      |      |      |                    | 3                  | 3                     | 3   | CO6           | 3   | 0     | 2   | 0     | 2   | 0   | 2   | 0   | 0    | 0    | 0    | 0 |   |
| Average   |                                   |                  |                                                                                                        |     |               |     |     |     |     |     |     |     |     |      |      |      |                    |                    | 2                     | 0   | 1.833         | 0   | 1.667 | 0   | 0.667 | 0   | 0   | 0   | 0   | 0    | 0    | 0    | 0 | 0 |

| SEM:07    |                                       |                  |                                                                                                                                                                                                |     | CO-PO Mapping |     |     |     |     |     |     |     |     |      |      |      | AVE<br>CO<br>DIREC | COUR<br>SE<br>EXIT | Final<br>Co<br>Attain |       | PO ATTAINMENT |       |     |       |     |       |     |     |     |      |      |      |   |   |
|-----------|---------------------------------------|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|---------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|--------------------|--------------------|-----------------------|-------|---------------|-------|-----|-------|-----|-------|-----|-----|-----|------|------|------|---|---|
| SR.<br>NO | SUBJECT                               | co no            | Course Outcomes (COs)                                                                                                                                                                          |     | PO1           | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |                    |                    |                       |       | PO1           | PO2   | PO3 | PO4   | PO5 | PO6   | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |   |   |
|           |                                       |                  |                                                                                                                                                                                                |     |               |     |     |     |     |     |     |     |     |      |      |      |                    |                    |                       |       |               |       |     |       |     |       |     |     |     |      |      |      |   |   |
| 1         | Refrigeration and<br>Air Conditioning | PCC-<br>ME401.01 | Demonstrate an understanding of the need and importance of HVAC technology, the typical and some advanced and innovative schematic designs, and the goals of HVAC engineering and HVAC systems | CO1 | 2             |     |     |     |     |     |     |     |     |      |      |      | 2.25               | 3                  | 2.475                 | CO1   | 1.65          | 0     | 0   | 0     | 0   | 0     | 0   | 0   | 0   | 0    | 0    |      |   |   |
|           |                                       | PCC-<br>ME401.02 | Demonstrate an understanding thermal comfort conditions with respect to temperature and humidity and human clothing and activities and its impact on human comfort, productivity and health.   | CO2 | 2             |     |     |     | 1   |     |     |     |     |      |      |      |                    | 2.25               | 3                     | 2.475 | CO2           | 1.65  | 0   | 0     | 0   | 0.825 | 0   | 0   | 0   | 0    | 0    | 0    |   |   |
|           |                                       | PCC-<br>ME401.03 | and design and will practice or observe psychometric measurements.                                                                                                                             | CO3 | 2             |     |     |     |     |     |     |     |     |      |      |      |                    | 2.25               | 3                     | 2.475 | CO3           | 1.65  | 0   | 0     | 0   | 0     | 0   | 0   | 0   | 0    | 0    | 0    |   |   |
|           |                                       | PCC-<br>ME401.04 | application to heating and cooling load estimation especially including thermal lag effects by                                                                                                 | CO4 | 3             |     |     |     | 1   |     |     |     |     |      |      |      |                    | 2.25               | 3                     | 2.475 | CO4           | 2.475 | 0   | 0     | 0   | 0.825 | 0   | 0   | 0   | 0    | 0    | 0    |   |   |
|           |                                       |                  |                                                                                                                                                                                                | CO5 |               |     |     |     |     |     |     |     |     |      |      |      |                    | 2.25               | 3                     | 2.475 | CO5           | 0     | 0   | 0     | 0   | 0     | 0   | 0   | 0   | 0    | 0    | 0    |   |   |
|           |                                       |                  |                                                                                                                                                                                                | CO6 |               |     |     |     |     |     |     |     |     |      |      |      |                    | 2.25               | 3                     | 2.475 | CO6           | 0     | 0   | 0     | 0   | 0     | 0   | 0   | 0   | 0    | 0    | 0    |   |   |
| Average   |                                       |                  |                                                                                                                                                                                                |     |               |     |     |     |     |     |     |     |     |      |      |      |                    |                    | 1.238                 | 0     | 0             | 0     | 0   | 0.275 | 0   | 0     | 0   | 0   | 0   | 0    | 0    | 0    | 0 | 0 |

| SEM:07    |                             |                  |                                                                                                                                                               |     | CO-PO Mapping |     |     |     |     |     |     |     |     |      |      |      | AVE<br>CO<br>DIREC | COUR<br>SE<br>EXIT | Final<br>Co<br>Attain | Average | PO ATTAINMENT |       |       |     |      |     |     |     |     |      |      |      |   |   |
|-----------|-----------------------------|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|---------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|--------------------|--------------------|-----------------------|---------|---------------|-------|-------|-----|------|-----|-----|-----|-----|------|------|------|---|---|
| SR.<br>NO | SUBJECT                     | co no            | Course Outcomes (COs)                                                                                                                                         |     | PO1           | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |                    |                    |                       |         | PO1           | PO2   | PO3   | PO4 | PO5  | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |   |   |
|           |                             |                  |                                                                                                                                                               |     |               |     |     |     |     |     |     |     |     |      |      |      |                    |                    |                       |         |               |       |       |     |      |     |     |     |     |      |      |      |   |   |
| 2         | Mechanical<br>System Design | PCC-<br>ME402.01 | Understand the role of aesthetics, ergonomics and creativity in design.                                                                                       | CO1 | 3             |     | 2   |     | 2   |     |     |     |     |      |      |      | 2.25               | 3                  | 2.475                 | CO1     | 2.475         | 0     | 1.65  | 0   | 1.65 | 0   | 0   | 0   | 0   | 0    | 0    |      |   |   |
|           |                             | PCC-<br>ME402.02 | Understand theories and principles used in design of pressure vessels, IC Engine and material handling equipments.                                            | CO2 | 2             | 3   |     |     |     |     |     |     |     |      |      |      |                    | 2.25               | 3                     | 2.475   | CO2           | 1.65  | 2.475 | 0   | 0    | 0   | 0   | 0   | 0   | 0    | 0    | 0    |   |   |
|           |                             | PCC-<br>ME402.03 | vessels, IC engine components, machine tool gear box and material handling systems as per industrial and societal requirement.                                | CO3 | 3             | 2   |     |     |     |     |     |     |     |      |      |      |                    | 2.25               | 3                     | 2.475   | CO3           | 2.475 | 1.65  | 0   | 0    | 0   | 0   | 0   | 0   | 0    | 0    | 0    |   |   |
|           |                             | PCC-<br>ME402.04 | Evaluate the load carrying capacity, stress bearing capacity in various mechanical systems like unfired pressure vessels, IC engine components.               | CO4 | 3             | 3   |     |     |     |     |     |     |     |      |      |      |                    | 2.25               | 3                     | 2.475   | CO4           | 2.475 | 2.475 | 0   | 0    | 0   | 0   | 0   | 0   | 0    | 0    | 0    |   |   |
|           |                             | PCC-<br>ME402.05 | Design various mechanical systems like pressure vessels, machine tool gear boxes, material handling systems, etc. as per industrial and societal requirement. | CO5 | 2             | 3   |     |     |     |     |     |     |     |      |      |      |                    | 2.25               | 3                     | 2.475   | CO5           | 1.65  | 2.475 | 0   | 0    | 0   | 0   | 0   | 0   | 0    | 0    | 0    |   |   |
|           |                             | PCC-<br>ME402.06 | Create the competency in mechanical system design by applying industrial design aspect                                                                        | CO6 | 2             |     |     |     |     |     |     |     |     |      |      |      |                    | 2.25               | 3                     | 2.475   | CO6           | 1.65  | 0     | 0   | 0    | 0   | 0   | 0   | 0   | 0    | 0    | 0    | 0 |   |
| Average   |                             |                  |                                                                                                                                                               |     |               |     |     |     |     |     |     |     |     |      |      |      |                    |                    | 2.063                 | 1.513   | 0.275         | 0     | 0.275 | 0   | 0    | 0   | 0   | 0   | 0   | 0    | 0    | 0    | 0 | 0 |

| SEM:07  |         |               |                                                                                            | CO-PO Mapping |     |     |     |     |     |     |     |     |      |      |      | AVE CO DIREC | COUR SE EXIT | Final Co Attain | PO ATTAINMENT |      |     |     |     |     |     |     |     |      |      |      |
|---------|---------|---------------|--------------------------------------------------------------------------------------------|---------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|--------------|--------------|-----------------|---------------|------|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| SR. NO. | SUBJECT | CO NO         | Course Outcomes (COs)                                                                      | PO1           | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |              |              |                 | PO1           | PO2  | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
|         | FINITE  | PCC ME 403.01 | Elaborate the fundamental concepts of Finite Element method                                | CO1           | 3   |     |     | 2   |     |     |     | 2   | 2    | 2    |      | 1.5          | 3            | 1.95            | CO1           | 1.95 | 0   | 0   | 0   | 1.3 | 0   | 0   | 0   | 1.3  | 1.3  | 1.3  |
|         |         | PCC ME 403.02 | Understand the key concepts like Shape function, element stiffness and boundary conditions | CO2           | 3   | 2   | 2   |     | 2   |     |     | 2   | 2    | 2    | 2    | 1.5          | 3            | 1.95            | CO2           | 1.95 | 1.3 | 1.3 | 0   | 1.3 | 0   | 0   | 0   | 1.3  | 1.3  | 1.3  |



|   |                  |               |                                                                                                    |     |   |   |   |   |   |  |  |   |   |   |   |     |   |      |     |      |       |       |       |     |   |   |   |     |     |     |       |
|---|------------------|---------------|----------------------------------------------------------------------------------------------------|-----|---|---|---|---|---|--|--|---|---|---|---|-----|---|------|-----|------|-------|-------|-------|-----|---|---|---|-----|-----|-----|-------|
| 3 | ELEMENT ANALYSIS | PCC ME 403.03 | Apply the finite element formulations for two dimensional problems using constant strain triangle. | CO3 | 3 | 2 | 2 | 2 | 2 |  |  | 2 | 2 | 2 | 2 | 1.5 | 3 | 1.95 | CO3 | 1.95 | 1.3   | 1.3   | 0     | 1.3 | 0 | 0 | 0 | 1.3 | 1.3 | 1.3 | 1.3   |
|   |                  | PCC ME 403.04 | Demonstrate the modeling aspects of axisymmetric solids subjected to axisymmetric loading.         | CO4 | 3 | 2 | 2 | 2 | 2 |  |  | 2 | 2 | 2 | 2 | 1.5 | 3 | 1.95 | CO4 | 1.95 | 1.3   | 1.3   | 0     | 1.3 | 0 | 0 | 0 | 1.3 | 1.3 | 1.3 | 1.3   |
|   |                  | PCC ME 403.05 | Apply the finite element formulations for Planer Trusses using 1D element.                         | CO5 | 3 | 2 | 2 | 2 | 2 |  |  | 2 | 2 | 2 | 2 | 1.5 | 3 | 1.95 | CO5 | 1.95 | 1.3   | 1.3   | 0     | 1.3 | 0 | 0 | 0 | 1.3 | 1.3 | 1.3 | 1.3   |
|   |                  | PCC ME 403.06 | Solve Scalar field problems by Finite element formulation.                                         | CO6 | 3 |   |   | 1 | 2 |  |  | 2 | 2 | 2 | 2 | 1.5 | 3 | 1.95 | CO6 | 1.95 | 0     | 0     | 0.65  | 1.3 | 0 | 0 | 0 | 1.3 | 1.3 | 1.3 | 1.3   |
|   |                  | Average       |                                                                                                    |     |   |   |   |   |   |  |  |   |   |   |   |     |   |      |     | 1.95 | 0.867 | 0.867 | 0.108 | 1.3 | 0 | 0 | 0 | 1.3 | 1.3 | 1.3 | 1.083 |

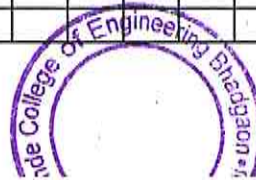
| SEM:07    |                                           |               |                                                                                                                                                                                    |     | CO-PO Mapping |     |     |     |     |     |     |     |     |      |      |      | AVE<br>CO<br>DIREC | COUR<br>SE<br>EXIT | Final<br>Co<br>Attain |     | PO ATTAINMENT |     |     |     |     |     |       |       |     |      |      |      |   |
|-----------|-------------------------------------------|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|---------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|--------------------|--------------------|-----------------------|-----|---------------|-----|-----|-----|-----|-----|-------|-------|-----|------|------|------|---|
| Sr.<br>No | SUBJECT                                   | co no         | Course Outcomes (COs)                                                                                                                                                              |     | PO1           | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |                    |                    |                       |     | PO1           | PO2 | PO3 | PO4 | PO5 | PO6 | PO7   | PO8   | PO9 | PO10 | PO11 | PO12 |   |
| 4         | AUTOMOBILE<br>ENGINEERING<br>(Elective-I) | PCE ME 404.01 | Explain components of automobile.                                                                                                                                                  | CO1 | 3             |     |     |     |     | 2   | 2   |     | 2   | 2    |      |      | 3                  | 3                  | 3                     | CO1 | 3             | 0   | 0   | 0   | 0   | 2   | 2     | 0     | 2   | 2    | 0    | 0    |   |
|           |                                           | PCE ME 404.02 | Distinguish various types of automobile lay outs as per drive given towheels.                                                                                                      | CO2 | 3             |     |     |     |     | 2   | 2   |     |     |      |      |      |                    | 3                  | 3                     | 3   | CO2           | 3   | 0   | 0   | 0   | 0   | 2     | 2     | 0   | 0    | 0    | 0    |   |
|           |                                           | PCE ME 404.03 | Identify types of automobile bodies and materials used for the same                                                                                                                | CO3 | 3             |     |     |     |     | 2   |     |     | 2   |      |      |      |                    | 3                  | 3                     | 3   | CO3           | 3   | 0   | 0   | 0   | 0   | 2     | 0     | 0   | 2    | 0    | 0    | 0 |
|           |                                           | PCE ME 404.04 | Demonstrate various automobile systems like clutch, gearbox final drive, brake,steering suspension wheels and Tyres, and its construction and working.                             | CO4 | 3             |     |     |     |     |     |     |     | 2   | 2    |      |      |                    | 3                  | 3                     | 3   | CO4           | 3   | 0   | 0   | 0   | 0   | 0     | 0     | 2   | 2    | 0    | 0    |   |
|           |                                           | PCE ME 404.05 | Demonstrate various electrical and electronic systems like lighting, starting charging electronic controlled management system and its construction and working principle, sensors | CO5 | 3             |     |     |     |     | 2   | 2   |     |     | 2    |      |      |                    | 3                  | 3                     | 3   | CO5           | 3   | 0   | 0   | 0   | 0   | 2     | 2     | 0   | 0    | 2    | 0    | 0 |
|           |                                           | PCE ME 404.06 | Solve the problems related with various resistances for the automobile, engine power calculation, Explain modern trends, techniques used in industries                             | CO6 | 3             |     |     |     |     | 2   | 2   |     |     |      |      |      |                    | 3                  | 3                     | 3   | CO6           | 3   | 0   | 0   | 0   | 0   | 2     | 2     | 0   | 0    | 0    | 0    | 0 |
|           |                                           |               |                                                                                                                                                                                    |     |               |     |     |     |     |     |     |     |     |      |      |      |                    |                    |                       |     | Average       | 3   | 0   | 0   | 0   | 0   | 1.667 | 1.333 | 0   | 1    | 1    | 0    | 0 |

| SEM:07    |                                                 |               |                                                                                                                                                                   |     | CO-PO Mapping |     |     |     |     |     |     |     |     |      |      |      | AVE<br>CO<br>DIREC | COUR<br>SE<br>EXIT | Final<br>Co<br>Attain |      | PO ATTAINMENT |     |       |       |      |     |     |     |     |      |      |      |
|-----------|-------------------------------------------------|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|---------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|--------------------|--------------------|-----------------------|------|---------------|-----|-------|-------|------|-----|-----|-----|-----|------|------|------|
| Sr.<br>No | SUBJECT                                         | co no         | Course Outcomes (COs)                                                                                                                                             |     | PO1           | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |                    |                    |                       |      | PO1           | PO2 | PO3   | PO4   | PO5  | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| 5         | TOTAL<br>QUALITY<br>MANAGEMENT<br>(Elective-II) | PCE ME 405.01 | Understand the concepts of total quality and quality assurance approaches.<br>They will identify and solve issues in quality related problems in manufacturing or | CO1 | 2             |     |     |     |     |     |     |     |     |      |      |      | 1.5                | 3                  | 1.95                  | CO1  | 1.3           | 0   | 0     | 0     | 0    | 0   | 0   | 0   | 0   | 0    |      |      |
|           |                                                 | PCE ME 405.02 | service sector at various stages by using various TQM tools and techniques,                                                                                       | CO2 |               |     |     |     | 2   |     |     |     |     |      |      |      |                    | 1.5                | 3                     | 1.95 | CO2           | 0   | 0     | 0     | 0    | 1.3 | 0   | 0   | 0   | 0    | 0    | 0    |
|           |                                                 | PCE ME 405.03 | Understand vendor rating and select suitable vendor                                                                                                               | CO3 | 2             |     |     |     |     |     |     |     |     |      |      |      |                    | 1.5                | 3                     | 1.95 | CO3           | 1.3 | 0     | 0     | 0    | 0   | 0   | 0   | 0   | 0    | 0    | 0    |
|           |                                                 | PCE ME 405.04 | Interpret various quality attributes and discuss the various quality approaches                                                                                   | CO4 | 2             |     |     |     |     |     |     |     |     |      |      |      |                    | 1.5                | 3                     | 1.95 | CO4           | 1.3 | 0     | 0     | 0    | 0   | 0   | 0   | 0   | 0    | 0    | 0    |
|           |                                                 | PCE ME 405.05 | Calculate reliability of system                                                                                                                                   | CO5 |               | 2   |     |     | 1   |     |     |     |     |      |      |      |                    | 1.5                | 3                     | 1.95 | CO5           | 0   | 1.3   | 0     | 0.65 | 0   | 0   | 0   | 0   | 0    | 0    | 0    |
|           |                                                 | PCE ME 405.06 | They will identify and solve issues in industries using the various techniques of TQM suchas 5S, JIT, TPM, Reli                                                   | CO6 |               | 2   |     |     | 1   |     |     |     |     |      |      |      |                    | 1.5                | 3                     | 1.95 | CO6           | 0   | 1.3   | 0     | 0.65 | 0   | 0   | 0   | 0   | 0    | 0    | 0    |
| Average   |                                                 |               |                                                                                                                                                                   |     |               |     |     |     |     |     |     |     |     |      |      |      |                    |                    |                       | 0.65 | 0.433         | 0   | 0.217 | 0.217 | 0    | 0   | 0   | 0   | 0   | 0    | 0    | 0    |

| SEM:07     |         |              |                                                                                         | CO-PO Mapping |     |     |     |     |     |     |     |     |     |      |      | AVE<br>CO<br>DIRFC | COUR<br>SE<br>EXIT | Final<br>Co<br>Attain | PO ATTAINMENT |       |       |       |     |     |       |     |       |       |       |       |      |   |   |
|------------|---------|--------------|-----------------------------------------------------------------------------------------|---------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|--------------------|--------------------|-----------------------|---------------|-------|-------|-------|-----|-----|-------|-----|-------|-------|-------|-------|------|---|---|
| Sr.<br>No. | SUBJECT | co no        | Course Outcomes (COs)                                                                   |               | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12               |                    |                       |               | PO1   | PO2   | PO3   | PO4 | PO5 | PO6   | PO7 | PO8   | PO9   | PO10  | PO11  | PO12 |   |   |
| 6          | SEMINAR | PCC ME 406.0 | Have and develop presentation skills.                                                   | CO1           | 2   | 2   |     |     | 2   |     | 1   |     | 1   |      | 2    |                    | 3                  | 3                     | 3             | CO1   | 2     | 2     | 0   | 0   | 2     | 0   | 1     | 0     | 1     | 0     | 2    | 0 |   |
|            |         | PCC ME 406.0 | Impart knowledge in different aspects of knowledge domains                              | CO2           | 1   |     | 2   |     |     | 2   |     |     |     |      |      | 2                  |                    | 3                     | 3             | 3     | CO2   | 1     | 0   | 2   | 0     | 0   | 2     | 0     | 0     | 0     | 0    | 2 |   |
|            |         | PCC ME 406.0 | Make them aware of knowledge in industry perspective and new industry trends            | CO3           | 2   |     |     |     | 1   |     |     | 2   | 1   |      |      |                    |                    | 3                     | 3             | 3     | CO3   | 2     | 0   | 0   | 0     | 1   | 0     | 0     | 2     | 1     | 0    | 0 | 0 |
|            |         | PCC ME 406.0 | Build confidence and improve communication skills                                       | CO4           | 1   |     |     |     |     |     |     |     |     |      | 2    | 2                  |                    | 3                     | 3             | 3     | CO4   | 1     | 0   | 0   | 0     | 0   | 0     | 0     | 0     | 2     | 2    | 0 |   |
|            |         | PCC ME 406.0 | Collect ideas through literature survey about new innovations, analyze and present them | CO5           | 2   | 2   |     |     |     |     |     |     |     |      |      |                    | 1                  | 3                     | 3             | 3     | CO5   | 2     | 2   | 0   | 0     | 0   | 0     | 0     | 0     | 0     | 0    | 1 |   |
|            |         | PCC ME 406.0 | Sharpen their personality and intelligence.                                             | CO6           | 2   |     |     |     |     |     |     | 2   |     |      |      |                    |                    | 3                     | 3             | 3     | CO6   | 2     | 0   | 0   | 0     | 0   | 0     | 2     | 0     | 0     | 0    | 0 | 0 |
| Average    |         |              |                                                                                         |               |     |     |     |     |     |     |     |     |     |      |      |                    |                    |                       |               | 1.667 | 0.667 | 0.333 | 0   | 0.5 | 0.333 | 0.5 | 0.333 | 0.333 | 0.333 | 0.667 | 0.5  |   |   |

| SEM:07  |                      |              |                                                                              |     | CO-PO Mapping |     |     |     |     |     |     |     |     |      |      |      | AVE<br>CO<br>DIREC | COUR<br>SE<br>EXIT | Final<br>Co<br>Attain |     | PO ATTAINMENT |     |     |     |     |     |     |     |     |      |      |      |   |
|---------|----------------------|--------------|------------------------------------------------------------------------------|-----|---------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|--------------------|--------------------|-----------------------|-----|---------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|---|
| Sr. No. | SUBJECT              | co no        | Course Outcomes (COs)                                                        |     | PO1           | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |                    |                    |                       |     | PO1           | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |   |
| 7       | SUMMER<br>INTERNSHIP | SI ME 407.01 | Understand Industrial Practices And Working Culture In Industry.             | CO1 | 3             |     |     |     |     |     |     |     | 3   | 3    |      | 3    | 3                  | 3                  | 3                     | CO1 | 3             | 0   | 0   | 0   | 0   | 0   | 0   | 3   | 3   | 0    | 3    |      |   |
|         |                      | SI ME 407.02 | Demonstrate Their Knowledge And Skills While Working With Real Life Problems | CO2 | 3             |     |     |     |     |     |     |     |     | 3    | 3    |      | 3                  | 3                  | 3                     | 3   | CO2           | 3   | 0   | 0   | 0   | 0   | 0   | 0   | 3   | 3    | 0    | 3    |   |
|         |                      | SI ME 407.03 | Analyse Available Technologies For Designing Solutions To The Problems.      | CO3 | 3             | 2   |     |     | 2   |     |     |     |     | 3    | 3    |      | 3                  | 3                  | 3                     | 3   | CO3           | 3   | 2   | 0   | 0   | 2   | 0   | 0   | 0   | 3    | 3    | 0    | 3 |
|         |                      | SI ME 407.04 | Demonstrate Their Communication Skills In Oral And Written Form.             | CO4 | 3             |     |     |     |     |     |     |     |     | 3    | 3    |      | 3                  | 3                  | 3                     | 3   | CO4           | 3   | 0   | 0   | 0   | 0   | 0   | 0   | 3   | 3    | 0    | 3    |   |
|         |                      | SI ME 407.05 | Organize Their Career Options Through Exposure To Future Technologies.       | CO5 | 3             |     |     |     | 2   |     |     |     |     | 3    | 3    |      | 3                  | 3                  | 3                     | 3   | CO5           | 3   | 0   | 0   | 0   | 2   | 0   | 0   | 0   | 3    | 3    | 0    | 3 |
|         |                      | SI ME 407.06 | Analyse Available Technologies For Designing Solutions To The Problems.      | CO6 | 3             |     |     |     | 2   |     |     |     |     | 3    | 3    |      | 3                  | 3                  | 3                     | 3   | CO6           | 3   | 0   | 0   | 0   | 2   | 0   | 0   | 0   | 3    | 3    | 0    | 3 |
| Average |                      |              |                                                                              |     |               |     |     |     |     |     |     |     |     |      |      |      |                    |                    |                       | 3   | 0.333         | 0   | 0   | 1   | 0   | 0   | 0   | 3   | 3   | 0    | 3    |      |   |

| SEM:07  |                    |             |                                                                                                                                                                    |     | CO-PO Mapping |     |     |     |     |     |     |     |     |      |      |      | AVE<br>CO<br>DIREC | COUR<br>SE<br>EXIT | Final<br>Co<br>Attain | Average | PO ATTAINMENT |     |     |     |     |     |     |     |     |      |      |      |   |
|---------|--------------------|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|---------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|--------------------|--------------------|-----------------------|---------|---------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|---|
| Sr. No. | SUBJECT            | co no       | Course Outcomes (COs)                                                                                                                                              |     | PO1           | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |                    |                    |                       |         | PO1           | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |   |
| 8       | PROJECT<br>PHASE-I | PW ME408.01 | Understand The Context Of The Problem/Issues And Describe The Problem With Constraints Involved                                                                    | CO1 | 2             | 1   |     |     |     | 2   |     |     |     |      |      |      | 3                  | 3                  | 3                     | CO1     | 2             | 1   | 0   | 0   | 0   | 2   | 0   | 0   | 0   | 0    | 0    |      |   |
|         |                    | PW ME408.02 | Apply Design Thinking To Generate Alternative Solutions To The Problem With Respect To Available Resources.                                                        | CO2 | 2             |     | 2   |     | 1   |     |     |     |     |      | 2    |      |                    | 3                  | 3                     | 3       | CO2           | 2   | 0   | 2   | 0   | 1   | 0   | 0   | 0   | 0    | 2    | 0    |   |
|         |                    | PW ME408.03 | Evaluate The Alternative Solutions With Respect To Sustainability, Economic Feasibility, Scalability And Ecofriendly Process By Using Modern Tools And Techniques. | CO3 | 2             |     |     |     |     |     |     | 2   | 1   |      |      |      | 2                  | 3                  | 3                     | 3       | CO3           | 2   | 0   | 0   | 0   | 0   | 0   | 2   | 1   | 0    | 0    | 0    | 2 |
|         |                    | PW ME408.04 | create a model of the designed solution and test it for validation.                                                                                                | CO4 | 2             |     |     | 2   | 2   |     |     |     |     | 1    |      |      |                    | 3                  | 3                     | 3       | CO4           | 2   | 0   | 0   | 2   | 2   | 0   | 0   | 0   | 1    | 0    | 0    | 0 |
|         |                    | PW ME408.05 | Write A Technical Report Of The Project Work Done And Present The Same.                                                                                            | CO5 | 2             |     |     |     |     |     |     |     |     | 1    | 2    |      |                    | 3                  | 3                     | 3       | CO5           | 2   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 1    | 2    | 0    | 0 |
|         |                    | PW ME408.06 | create a model of the designed solution and test it for validation.                                                                                                | CO6 | 2             |     |     |     |     |     |     |     |     | 1    | 2    |      |                    | 3                  | 3                     | 3       | CO6           | 2   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 1    | 2    | 0    | 0 |



|         |   |       |       |       |     |       |       |       |     |       |       |       |
|---------|---|-------|-------|-------|-----|-------|-------|-------|-----|-------|-------|-------|
| Average | 2 | 0.167 | 0.333 | 0.333 | 0.5 | 0.333 | 0.333 | 0.167 | 0.5 | 0.667 | 0.333 | 0.333 |
|---------|---|-------|-------|-------|-----|-------|-------|-------|-----|-------|-------|-------|

| SEM:08    |              |              |                                                                                                 | CO-PO Mapping |      |      |      |      |      |      |      |      |      |      |      | AVE<br>CO<br>DIREC | COUR<br>SE<br>EXIT | Final<br>Co<br>Attain | PO ATTAINMENT |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|-----------|--------------|--------------|-------------------------------------------------------------------------------------------------|---------------|------|------|------|------|------|------|------|------|------|------|------|--------------------|--------------------|-----------------------|---------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Sr.<br>No | SUBJECT      | co no        | Course Outcomes (COs)                                                                           |               | PO1  | PO2  | PO3  | PO4  | PO5  | PO6  | PO7  | PO8  | PO9  | PO10 | PO11 | PO12               |                    |                       |               |      | PO1  | PO2  | PO3  | PO4  | PO5  | PO6  | PO7  | PO8  | PO9  | PO10 | PO11 | PO12 |      |
| 9         | Mechatronics | PCC ME 409.0 | Develop a simulation model for simple physical systems and explain Mechatronics design process. | CO1           | 3    |      |      |      |      |      |      |      |      |      |      |                    | 2.5                | 3                     | 2.65          | CO1  | 2.65 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |      |
|           |              | PCC ME 409.0 | Outline appropriate sensors and actuators for an engineering application                        | CO2           | 2    |      | 1    |      |      |      |      |      |      |      |      |                    |                    | 2.5                   | 3             | 2.65 | CO2  | 1.77 | 0.00 | 0.88 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
|           |              | PCC ME 409.0 | Write simple PLC programs                                                                       | CO3           | 2    |      |      |      |      |      |      |      |      |      |      |                    |                    | 2.5                   | 3             | 2.65 | CO3  | 1.77 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
|           |              | PCC ME 409.0 | Explain various applications of design of Mechatronic systems                                   | CO4           | 2    |      | 1    |      |      |      |      |      |      |      |      |                    |                    | 2.5                   | 3             | 2.65 | CO4  | 1.77 | 0.00 | 0.88 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
|           |              | PCC ME 409.0 | Write A Simple Plc Programme                                                                    | CO5           |      |      |      |      |      |      |      |      |      |      |      |                    |                    | 2.5                   | 3             | 2.65 | CO5  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
|           |              | PCC ME 409.0 | Understanding Of Industrial Control System(ics)                                                 | CO6           | 1    |      | 2    |      |      |      |      |      |      |      |      |                    |                    | 2.5                   | 3             | 2.65 | CO6  | 0.88 | 0.00 | 1.77 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Average   |              |              |                                                                                                 |               | 1.47 | 0.00 | 0.59 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00               |                    |                       |               |      | 1.47 | 0.00 | 0.59 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |      |

| SEM:08    |                                    |               |                                                                 | CO-PO Mapping |      |      |      |      |      |      |      |      |      |      |      | Ave<br>CO<br>DIREC | COUR<br>SE<br>EXIT | Final<br>Co<br>Attain | PO ATTAINMENT |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|-----------|------------------------------------|---------------|-----------------------------------------------------------------|---------------|------|------|------|------|------|------|------|------|------|------|------|--------------------|--------------------|-----------------------|---------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| SR.<br>NO | SUBJECT                            | co no         | Course Outcomes (COs)                                           |               | PO1  | PO2  | PO3  | PO4  | PO5  | PO6  | PO7  | PO8  | PO9  | PO10 | PO11 | PO12               |                    |                       |               |      | PO1  | PO2  | PO3  | PO4  | PO5  | PO6  | PO7  | PO8  | PO9  | PO10 | PO11 | PO12 |      |
| 10        | ENERGY AND<br>POWER<br>ENGINEERING | PCC ME 410.01 | REMEMBER NEED OF DIFFERENT ENERGY SOURCES AND THEIR IMPORTANCE. | CO1           | 3    |      |      |      |      |      |      |      |      |      |      |                    | 1.5                | 3                     | 1.95          | CO1  | 1.95 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |      |
|           |                                    | PCC ME 410.02 | APPLY THE PRINCIPLE OF CONVERSION OF AVAILABLE ENERGY RESOURCES | CO2           | 3    | 2    |      |      |      |      | 2    |      |      |      | 1    |                    | 1                  | 1.5                   | 3             | 1.95 | CO2  | 1.95 | 1.30 | 0.00 | 0.00 | 0.00 | 0.00 | 1.30 | 0.00 | 0.00 | 0.65 | 0.00 | 0.65 |
|           |                                    | PCC ME 410.03 | ANALYZE THE UTILIZATION OF SOLAR, WIND ENERGY ETC               | CO3           | 3    | 3    |      |      | 1    |      |      |      |      |      |      |                    |                    | 1.5                   | 3             | 1.95 | CO3  | 1.95 | 1.95 | 0.00 | 0.00 | 0.65 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
|           |                                    | PCC ME 410.04 | UNDERSTAND VARIOUS ENERGY RESOURCES IN DETAILS.                 | CO4           | 2    |      |      |      |      | 2    | 2    |      |      |      |      |                    |                    | 1.5                   | 3             | 1.95 | CO4  | 1.30 | 0.00 | 0.00 | 0.00 | 0.00 | 1.30 | 1.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
|           |                                    | PCC ME 410.05 | ILLUSTRATE POWER PLANT ECONOMICS                                | CO5           | 3    | 2    |      | 1    |      |      |      |      |      |      |      |                    |                    | 1.5                   | 3             | 1.95 | CO5  | 1.95 | 1.30 | 0.00 | 0.65 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
|           |                                    | PCC ME 410.06 | COMPREHEND VARIOUS EQUIPMENTS/SYSTEMS UTILIZED IN POWER PLANTS. | CO6           | 2    | 2    |      |      |      |      |      |      |      |      |      |                    |                    | 1.5                   | 3             | 1.95 | CO6  | 1.30 | 1.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Average   |                                    |               |                                                                 |               | 1.73 | 0.98 | 0.00 | 0.11 | 0.11 | 0.22 | 0.43 | 0.00 | 0.00 | 0.11 | 0.00 | 0.11               |                    |                       |               |      | 1.73 | 0.98 | 0.00 | 0.11 | 0.11 | 0.22 | 0.43 | 0.00 | 0.00 | 0.11 | 0.00 | 0.11 |      |

| SEM:08    |                        |               |                                                          |     | CO-PO Mapping |      |      |      |      |      |      |      |      |      |      |      | AVE<br>CO<br>DIREC | COUR<br>SE<br>EXIT | Final<br>Co<br>Attain |       | PO ATTAINMENT |      |      |      |      |      |      |      |      |      |      |      |      |
|-----------|------------------------|---------------|----------------------------------------------------------|-----|---------------|------|------|------|------|------|------|------|------|------|------|------|--------------------|--------------------|-----------------------|-------|---------------|------|------|------|------|------|------|------|------|------|------|------|------|
| SR.<br>NO | SUBJECT                | co no         | Course Outcomes (COs)                                    |     | PO1           | PO2  | PO3  | PO4  | PO5  | PO6  | PO7  | PO8  | PO9  | PO10 | PO11 | PO12 |                    |                    |                       |       | PO1           | PO2  | PO3  | PO4  | PO5  | PO6  | PO7  | PO8  | PO9  | PO10 | PO11 | PO12 |      |
| 11        | Noise and<br>Vibration | PCC ME 411.01 | Understand relevance of noise in mechanical systems.     | CO1 | 1             |      |      |      |      |      |      |      | 2    | 2    |      |      | 2.62               | 3                  | 2.734                 | CO1   | 0.91          | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.82 | 1.82 | 0.00 | 0.00 |      |
|           |                        | PCC ME 411.02 | Carryout measurement of various vibration parameters.    | CO2 | 1             |      |      |      |      |      |      |      |      | 2    | 2    |      |                    | 2.62               | 3                     | 2.734 | CO2           | 0.91 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.82 | 1.82 | 0.00 | 0.00 |
|           |                        | PCC ME 411.03 | Analyze vibratory response of mechanical element/system. | CO3 | 2             | 2    |      | 2    |      |      |      |      |      | 2    | 2    |      |                    | 2.62               | 3                     | 2.734 | CO3           | 1.82 | 1.82 | 0.00 | 1.82 | 0.00 | 0.00 | 0.00 | 0.00 | 1.82 | 1.82 | 0.00 | 0.00 |
|           |                        | PCC ME 411.04 | Estimate natural frequency of mechanical element/system. | CO4 | 1             |      |      |      |      |      |      |      |      | 2    | 2    |      |                    | 2.62               | 3                     | 2.734 | CO4           | 0.91 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.82 | 1.82 | 0.00 | 0.00 |
|           |                        | PCC ME 411.05 | Develop mathematical model to represent dynamic system   | CO5 | 2             | 2    |      | 2    |      |      |      |      |      | 2    | 2    |      |                    | 2.62               | 3                     | 2.734 | CO5           | 1.82 | 1.82 | 0.00 | 1.82 | 0.00 | 0.00 | 0.00 | 0.00 | 1.82 | 1.82 | 0.00 | 0.00 |
|           |                        | PCC ME 411.06 | Understand Relevance Of Noise In Mechanical Systems.     | CO6 | 1             |      |      |      |      |      |      |      |      | 2    | 2    |      |                    | 2.62               | 3                     | 2.734 | CO6           | 0.91 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.82 | 1.82 | 0.00 | 0.00 |
| Average   |                        |               |                                                          |     | 1.22          | 0.61 | 0.00 | 0.61 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.82 | 1.82               | 0.00               | 0.00                  | 1.22  | 0.61          | 0.00 | 0.61 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.82 | 1.82 | 0.00 | 0.00 |      |

| SEM:08    |                                             |                  |                                                                                                                                |     | CO-PO Mapping |     |     |     |     |     |     |     |     |      |      |      | AVE<br>CO<br>DIREC | COUR<br>SE<br>EXIT | Final<br>Co<br>Attain |      | PO ATTAINMENT |      |      |      |      |      |      |      |      |      |      |      |
|-----------|---------------------------------------------|------------------|--------------------------------------------------------------------------------------------------------------------------------|-----|---------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|--------------------|--------------------|-----------------------|------|---------------|------|------|------|------|------|------|------|------|------|------|------|
| SR.<br>NO | SUBJECT                                     | co no            | Course Outcomes (COs)                                                                                                          |     | PO1           | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |                    |                    |                       |      | PO1           | PO2  | PO3  | PO4  | PO5  | PO6  | PO7  | PO8  | PO9  | PO10 | PO11 | PO12 |
| 12        | INDUSTRIAL<br>ENGINEERING<br>(ELECTIVE-III) | PCE ME<br>412.01 | Manage and implement different concepts involved in methods stud yand understandin of<br>work content in different situations. | CO1 | 2             |     |     | 3   |     |     |     |     |     |      |      |      | 3                  | 3                  | 3                     | CO1  | 2.00          | 0.00 | 0.00 | 3.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |      |
|           |                                             | PCE ME           | Measure and estimate standard time for job.                                                                                    | CO2 | 2             | 2   |     |     |     |     |     |     |     |      |      |      |                    | 3                  | 3                     | 3    | CO2           | 2.00 | 2.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
|           |                                             | PCE ME           | Understand different types of plant layouts.                                                                                   | CO3 | 2             | 2   |     |     |     |     |     |     |     |      |      |      |                    | 3                  | 3                     | 3    | CO3           | 2.00 | 2.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
|           |                                             | PCE ME           | Interpret job evaluation and merit rating.                                                                                     | CO4 | 2             |     |     |     |     |     |     | 2   |     |      |      |      |                    | 3                  | 3                     | 3    | CO4           | 2.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.00 | 0.00 | 0.00 | 0.00 | 0.00 |
|           |                                             | PCE ME           | Understand Different Types Of Plant Layouts.                                                                                   | CO5 | 2             |     | 2   |     |     |     |     |     |     |      |      |      |                    | 3                  | 3                     | 3    | CO5           | 2.00 | 0.00 | 2.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
|           |                                             | PCE ME           | Interpret Job Evaluation And Merit Rating                                                                                      | CO6 | 2             |     |     |     |     |     |     |     |     |      |      |      |                    | 3                  | 3                     | 3    | CO6           | 2.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Average   |                                             |                  |                                                                                                                                |     |               |     |     |     |     |     |     |     |     |      |      |      |                    | 2.00               | 0.67                  | 0.33 | 0.50          | 0.00 | 0.00 | 0.00 | 0.33 | 0.00 | 0.00 | 0.00 | 0.00 |      |      |      |

| SEM:08     |                                                          |              |                                                                                                   |     | CO-PO Mapping |      |      |      |      |      |     |     |     |      |      |      | AVE<br>CO<br>DIRFC | COUR<br>SE<br>EXIT | Final<br>Co<br>Attain |       | PO ATTAINMENT |      |      |      |      |      |      |     |     |      |      |      |   |
|------------|----------------------------------------------------------|--------------|---------------------------------------------------------------------------------------------------|-----|---------------|------|------|------|------|------|-----|-----|-----|------|------|------|--------------------|--------------------|-----------------------|-------|---------------|------|------|------|------|------|------|-----|-----|------|------|------|---|
| SR.<br>NO. | SUBJECT                                                  | co no        | Course Outcomes (COs)                                                                             |     | PO1           | PO2  | PO3  | PO4  | PO5  | PO6  | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |                    |                    |                       |       | PO1           | PO2  | PO3  | PO4  | PO5  | PO6  | PO7  | PO8 | PO9 | PO10 | PO11 | PO12 |   |
| 13         | INDUSTRIAL<br>AUTOMATION<br>& ROBOTICS<br>(Elective –IV) | PCE ME413.01 | Design techniques for the analysis and control of discrete event system                           | CO1 | 3             | 2    |      |      |      |      |     |     |     |      |      |      | 2.95               | 3                  | 2.965                 | CO1   | 2.97          | 1.98 | 0.00 | 0.00 | 0.00 | 0.00 | 0    | 0   | 0   | 0    | 0    | 0    |   |
|            |                                                          | PCE ME413.02 | Apply knowledge of automation tools and the equipment's for manufacturing and assembly components | CO2 | 3             | 2    |      |      |      |      |     |     |     |      |      |      |                    | 2.83               | 3                     | 2.881 | CO2           | 2.88 | 1.92 | 0.00 | 0.00 | 0.00 | 0.00 | 0   | 0   | 0    | 0    | 0    | 0 |
|            |                                                          | PCE ME413.03 | Operate in research and development centre for automation                                         | CO3 | 3             | 2    | 2    |      |      |      |     |     |     |      |      |      |                    | 2.95               | 3                     | 2.965 | CO3           | 2.97 | 1.98 | 1.98 | 0.00 | 0.00 | 0.00 | 0   | 0   | 0    | 0    | 0    | 0 |
|            |                                                          | PCE ME413.04 | Identify efficiencies and limitation and provide in depth evaluation of robotic system for        | CO4 | 3             | 2    |      |      | 1    |      |     |     |     |      |      |      |                    | 2.95               | 3                     | 2.965 | CO4           | 2.97 | 1.98 | 0.00 | 0.00 | 0.99 | 0.00 | 0   | 0   | 0    | 0    | 0    | 0 |
|            |                                                          | PCE ME413.05 | Getting The Knowledge Of Sensor And Robot End Effector                                            | CO5 | 3             | 2    |      |      |      |      |     |     |     |      |      |      |                    | 2.95               | 3                     | 2.965 | CO5           | 2.97 | 1.98 | 0.00 | 0.00 | 0.00 | 0.00 | 0   | 0   | 0    | 0    | 0    | 0 |
|            |                                                          | PCE ME413.06 | Familiar With Various Language's Of Robot And Application.                                        | CO6 | 3             | 2    |      |      |      | 1    |     |     |     |      |      |      |                    | 2.97               | 3                     | 2.979 | CO6           | 2.98 | 1.99 | 0.00 | 0.00 | 0.00 | 0.99 | 0   | 0   | 0    | 0    | 0    | 0 |
| Average    |                                                          |              |                                                                                                   |     | 2.95          | 1.97 | 0.33 | 0.00 | 0.16 | 0.17 | 0   | 0   | 0   | 0    | 0    | 0    |                    |                    |                       | 2.95  | 1.97          | 0.33 | 0.00 | 0.16 | 0.17 | 0    | 0    | 0   | 0   | 0    | 0    |      |   |

| SEM:08     |         |             |                                                                                                                                                 |     | CO-PO Mapping |     |     |     |     |     |     |     |     |      |      |      | AVE<br>Co<br>DIREC | COUR<br>SE<br>EXIT | Final<br>Co<br>Attain |   | PO ATTAINMENT |     |     |     |     |     |     |     |     |      |      |      |
|------------|---------|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------|-----|---------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|--------------------|--------------------|-----------------------|---|---------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| SR.<br>NO. | SUBJECT | co no       | Course Outcomes (COs)                                                                                                                           |     | PO1           | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |                    |                    |                       |   | PO1           | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
|            |         | PCE ME41401 | On successful completion of the course                                                                                                          |     | CO1           | 3   |     |     |     |     |     |     |     | 3    | 3    |      |                    |                    |                       |   | 3             | 3   | 3   | 3   | 3   | 3   | 3   | 3   | 3   | 3    | 3    | 3    |
|            |         | PCE ME41402 | Knowledge Enhancement: Youâ€™ll Gain In-Depth Knowledge Of The Topic, Which Could Include Theoretical Understanding And Practical Applications. | CO2 | 3             |     |     |     |     |     |     |     | 3   | 3    |      | 3    | 3                  | 3                  | 3                     | 3 | 3             | 3   | 3   | 3   | 3   | 3   | 3   |     |     |      |      |      |

