



**P.E.S COLLEGE OF ENGINEERING**  
Nagsenvana, Chh. Sambhajinagar  
**Department of Mechanical & Automation Engineering**

**B.Tech Second Year**

**Mapping of course outcomes with program outcomes**



| Fluid Mechanics |                  |      |      |      |      |      |      |      |      |       |       |       |
|-----------------|------------------|------|------|------|------|------|------|------|------|-------|-------|-------|
| Course Outcomes | Program Outcomes |      |      |      |      |      |      |      |      |       |       |       |
|                 | PO 1             | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO 10 | PO 11 | PO 12 |
| CO 1            | 2                |      |      |      |      |      |      |      |      |       |       |       |
| CO 2            | 2                |      |      |      |      |      |      |      |      |       |       |       |
| CO 3            | 2                |      |      |      |      |      |      |      |      |       |       |       |
| CO 4            | 2                |      |      |      |      |      |      |      |      |       |       |       |
| CO 5            | 3                | 2    |      |      |      |      |      |      |      |       |       |       |

| Thermodynamics  |                  |      |      |      |      |      |      |      |      |       |       |       |
|-----------------|------------------|------|------|------|------|------|------|------|------|-------|-------|-------|
| Course Outcomes | Program Outcomes |      |      |      |      |      |      |      |      |       |       |       |
|                 | PO 1             | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO 10 | PO 11 | PO 12 |
| CO 1            | 1                | 1    |      |      |      |      |      |      |      |       |       |       |
| CO 2            | 1                | 2    | 1    |      |      |      |      |      |      |       |       |       |
| CO 3            |                  | 1    | 1    |      |      |      |      |      |      |       |       |       |
| CO 4            | 2                |      |      |      |      |      |      |      |      |       |       |       |
| CO 5            | 1                | 1    |      |      |      |      |      |      |      |       |       |       |

| Manufacturing Engineering |                  |      |      |      |      |      |      |      |      |       |       |       |
|---------------------------|------------------|------|------|------|------|------|------|------|------|-------|-------|-------|
| Course Outcomes           | Program Outcomes |      |      |      |      |      |      |      |      |       |       |       |
|                           | PO 1             | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO 10 | PO 11 | PO 12 |
| CO 1                      | 2                | 2    | 1    |      |      |      |      |      |      |       |       |       |
| CO 2                      | 3                | 2    | 2    | 3    | 2    |      |      |      |      |       |       |       |
| CO 3                      | 2                | 1    | 2    | 1    | 1    |      |      |      |      |       |       |       |
| CO 4                      | 1                | 2    | 2    | 1    | 1    | 1    | 2    | 1    | 1    | 1     |       |       |
| CO 5                      | 1                | 1    | 1    | 3    | 2    |      | 1    |      | 1    |       |       |       |
| CO 6                      | 1                | 1    | 2    | 2    | 2    | 1    | 2    |      | 1    | 1     |       |       |



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| Machine Drawing and CAD Lab |                  |      |      |      |      |      |      |      |      |       |       |       |
|-----------------------------|------------------|------|------|------|------|------|------|------|------|-------|-------|-------|
| Course Outcomes             | Program Outcomes |      |      |      |      |      |      |      |      |       |       |       |
|                             | PO 1             | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO 10 | PO 11 | PO 12 |
| CO 1                        | 2                |      |      |      |      |      |      |      | 3    | 2     |       | 1     |
| CO 2                        | 2                | 1    |      |      |      |      |      |      | 2    | 1     |       | 1     |
| CO 3                        | 2                |      |      |      |      |      |      |      | 2    | 1     |       |       |
| CO 4                        | 2                | 2    |      |      | 1    |      |      |      | 2    | 1     |       | 1     |
| CO 5                        | 1                | 1    |      |      | 1    |      |      |      | 2    | 1     |       | 1     |
| CO 6                        | 1                | 1    |      |      | 1    |      |      |      | 2    | 2     |       | 1     |

**Semester IV**

| Introduction to Automation |                  |      |      |      |      |      |      |      |      |       |       |       |
|----------------------------|------------------|------|------|------|------|------|------|------|------|-------|-------|-------|
| Course Outcomes            | Program Outcomes |      |      |      |      |      |      |      |      |       |       |       |
|                            | PO 1             | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO 10 | PO 11 | PO 12 |
| CO 1                       |                  |      |      |      |      |      |      |      |      |       |       |       |
| CO 2                       |                  |      |      |      |      |      |      |      |      |       |       |       |
| CO 3                       |                  |      |      |      |      |      |      |      |      |       |       |       |
| CO 4                       |                  |      |      |      |      |      |      |      |      |       |       |       |
| CO 5                       |                  |      |      |      |      |      |      |      |      |       |       |       |

| Basic Human Rights |                  |      |      |      |      |      |      |      |      |       |       |       |
|--------------------|------------------|------|------|------|------|------|------|------|------|-------|-------|-------|
| Course Outcomes    | Program Outcomes |      |      |      |      |      |      |      |      |       |       |       |
|                    | PO 1             | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO 10 | PO 11 | PO 12 |
| CO 1               |                  |      |      |      |      | 2    |      |      |      |       |       |       |
| CO 2               |                  |      |      |      |      |      |      |      |      |       |       |       |
| CO 3               |                  |      |      |      |      |      |      |      |      |       |       |       |
| CO 4               |                  |      |      |      |      |      |      |      | 3    |       |       |       |
| CO 5               |                  |      |      |      |      |      |      | 2    |      | 2     |       |       |
| CO 6               |                  |      |      |      |      |      |      |      |      |       |       | 1     |



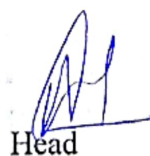
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| Strength of Materials |                  |      |      |      |      |      |      |      |      |       |       |       |
|-----------------------|------------------|------|------|------|------|------|------|------|------|-------|-------|-------|
| Course Outcomes       | Program Outcomes |      |      |      |      |      |      |      |      |       |       |       |
|                       | PO 1             | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO 10 | PO 11 | PO 12 |
| CO 1                  | 1                | 1    |      | 1    |      | 2    |      | 1    |      |       |       | 2     |
| CO 2                  | 1                | 3    | 2    | 2    |      |      |      |      |      |       |       | 2     |
| CO 3                  | 1                | 1    | 2    | 2    |      | 1    |      |      |      |       |       | 3     |
| CO 4                  | 1                | 1    | 2    | 1    |      |      |      |      |      |       |       | 2     |
| CO 5                  | 1                | 1    | 2    | 3    |      |      |      |      |      |       |       | 2     |

| Numerical Methods in Mechanical Engineering |                  |      |      |      |      |      |      |      |      |       |       |       |
|---------------------------------------------|------------------|------|------|------|------|------|------|------|------|-------|-------|-------|
| Course Outcomes                             | Program Outcomes |      |      |      |      |      |      |      |      |       |       |       |
|                                             | PO 1             | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO 10 | PO 11 | PO 12 |
| CO 1                                        | 3                | 3    |      | 1    | 3    |      |      |      |      |       |       |       |
| CO 2                                        | 3                | 3    |      | 1    | 3    |      |      |      |      |       |       |       |
| CO 3                                        | 3                | 3    |      | 1    | 3    |      |      |      |      |       |       |       |
| CO 4                                        | 3                | 3    |      | 1    | 3    |      |      |      |      |       |       |       |

| Fluid Machinery |                  |      |      |      |      |      |      |      |      |       |       |       |
|-----------------|------------------|------|------|------|------|------|------|------|------|-------|-------|-------|
| Course Outcomes | Program Outcomes |      |      |      |      |      |      |      |      |       |       |       |
|                 | PO 1             | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO 10 | PO 11 | PO 12 |
| CO 1            | 3                | 2    | 1    |      |      |      |      |      |      |       |       | 1     |
| CO 2            | 3                |      | 3    |      |      |      | 2    |      |      |       |       | 1     |
| CO 3            | 3                | 2    |      |      |      |      |      |      |      |       |       | 1     |
| CO 4            | 3                | 3    | 2    |      |      |      |      |      |      |       |       | 1     |
| CO 5            |                  |      | 3    |      |      |      |      |      |      |       |       | 1     |
| CO 6            | 3                | 3    | 3    | 1    |      |      |      |      |      |       |       | 1     |
| CO 7            | 3                | 3    |      | 3    |      |      |      |      |      |       |       | 1     |

  
Head

Department of Mechanical & Automation Engineering

**HEAD OF DEPARTMENT**  
Mechanical Engineering  
PES College of Engineering





# Mapping

|             |               | Course Code | Course                                                   | 1 | 2 | 3 | 4 | 5 | 6 | PSO1 | PSO2 | PSO3 |
|-------------|---------------|-------------|----------------------------------------------------------|---|---|---|---|---|---|------|------|------|
| Second Year | Semester - I  | BTBSC301    | Engineering Mathematics-III                              |   | √ | √ |   |   | √ | √    | √    | √    |
|             |               | BTBSC302    | Network Analysis And Synthesis                           | √ | √ |   | √ | √ |   | √    | √    | √    |
|             |               | BTBSC303    | Fluid Mechanics And Thermal Engineering                  |   | √ | √ |   | √ |   | √    | √    | √    |
|             |               | BTBSC304    | Measurement And Instrumentation                          | √ | √ |   | √ |   |   | √    | √    | √    |
|             |               | BTEEE305A   | Electrical Engineering Materials                         | √ |   | √ | √ |   |   | √    | √    | √    |
|             |               | BTHM3401    | Basic Human Rights                                       | √ | √ | √ | √ |   |   | √    | √    | √    |
|             | Semester - II | BTEEC401    | Electrical Machine-I                                     | √ | √ |   | √ |   |   | √    | √    | √    |
|             |               | BTEEC402    | Power System-I                                           |   | √ |   |   | √ | √ | √    | √    | √    |
|             |               | BTEEC403    | Electrical Installation And Estimation                   | √ |   | √ | √ |   |   | √    | √    | √    |
|             |               | BTEEC404    | Numerical Methods And Programming                        |   | √ | √ |   |   | √ | √    | √    | √    |
|             |               | BTEEC405    | Product Design Engineering                               | √ |   | √ |   | √ |   | √    | √    | √    |
|             |               | BTEEE-406A  | Solid State Devices                                      | √ | √ |   | √ |   |   | √    | √    | √    |
|             |               | BTEEOE407-B | Introduction To Non-Conventional Energy Sources          |   | √ | √ |   | √ | √ | √    | √    | √    |
| Third Year  | Semester - I  | BTEEC501    | Electrical Machine-II                                    |   | √ |   | √ |   | √ | √    | √    | √    |
|             |               | BTEEC502    | Power System-II                                          | √ |   |   |   | √ | √ | √    | √    | √    |
|             |               | BTEEC503    | Microprocessor And Micro Controller                      | √ | √ |   | √ |   |   | √    | √    | √    |
|             |               | BTEEC504    | Value Education, Human Rights And Legislative Procedures |   | √ |   |   | √ | √ | √    | √    | √    |
|             |               | BTEEE505    | Testing And Maintenance Of Electrical Equipment.         | √ |   | √ | √ |   |   | √    | √    | √    |
|             |               | BTEEOE506   | Power Plant Engineering.                                 |   | √ | √ |   |   | √ | √    | √    | √    |
|             |               | BTEEC601    | Control System                                           | √ |   | √ |   | √ |   | √    |      | √    |
|             |               | BTEEC602    | Principles Of Electrical Machine Design                  | √ | √ |   | √ |   |   | √    | √    | √    |

