draft 1



### 3.1. Establish the correlation between the courses and the Program Outcomes (POs) & Program Specific Outcomes (25)

Based on the Production and Industrial department's educational objectives, students will achieve the following Programme Outcomes as mentioned by NBA in Annexure I

**Table 3.1.1 : List of the Programme Outcomes (POs)**
**Production and Industrial Engineering Graduates will be able to:**

| Code | Program Outcomes (POs) |
|---|---|
| PO1 | **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems. |
| PO2 | **Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences. |
| PO3 | **Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations. |
| PO4 | **Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions. |
| PO5 | **Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations. |
| PO6 | **The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice. |
| PO7 | **Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development. |
| PO8 | **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice. |
| PO9 | **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings. |
| PO10 | **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions. |
| PO11 | **Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments. |

| | |
|---|---|
| **PO12** | **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change. |

Institute makes every effort to ensure Department POs are communicated effectively to all stakeholders namely students, faculty, parents, industry, alumni and management etc.
Presently POs are published and disseminated through the following methods:
**Print Media:** Departmental Brochure/Booklets, Course Registers
**Electronic Media:** College/Departmental Website, Display Monitors
**Display Boards:** Notice Boards
**Direct Communication:** Orientation Programmes for freshers/parents, Induction Programmes for staff members

The main constituents of the programme outcomes are based on the demand of stake holders, like students, alumni, faculty, professional bodies, industry, employers, and advisory board. The following processes are employed for defining the POs:

- Consultative discussions
- Brainstorming sessions
- Alumni meet
- Student exit survey
- Industry interactions
- Subject Evaluation

Following three Program Specific Outcomes (PSOs) as defined by the Program have established.

**Table 3.1.2 : List of the Program Specific Outcomes (PSOs)**

| Code | Program Specific Outcomes (PSOs) |
|---|---|
| **PSO1** | The graduates shall be able to apply principles of various manufacturing processes for improving the production and productivity of enterprises. |
| **PSO2** | The graduates shall be well-equipped with industrial management skills enabling them to tackle practical problems in industry. |
| **PSO3** | The graduates shall be able to model, analyze, design, and develop various mechanical systems using their knowledge of CAD/CAM and automation. |

Following Course Outcomes (COs) have been established after the completion of each course.

**Table 3.1.3 : List of the Course Outcomes (COs)**

| Semester | Course Details | COs Code | Course Outcomes (~~Cos~~ COs) |
|---|---|---|---|
| III (Theory) | PI 201A Mechanics Of Machine Tool Elements (PI) | PI 201A.1 | a) Students should be able to understand the compound stress and temperature stress,<br>b) ~~Able to understand~~ the concept of resilience & suddenly applied loads. |
| | | PI 201A.2 | Students should be able to understand the advanced concept of shearing force diagram & bending moment diagram. |
| | | PI 201A.3 | Students should be able to solve problems of beams under bending or torsion. |