

**Ballari Institute of Technology & Management, Ballari**  
**Department of Mechanical Engineering**

**INSTITUTE VISION AND MISSION**

**VISION**

We will be a Top Notch Educational Institution that Provides best of breed Educational Services by leveraging technology and delivered by best in class People in line with the Globalized world.

**MISSION**

To empower the Students with Technical & Managerial Skills, professional ethics & values, and an appreciation of Human Creativity & Innovation for an inquisitive mind.

**DEPARTMENT VISION AND MISSION**

**VISION:**

To have the ability to anticipate and effectively respond to changes in the field of Mechanical Engineering, to be perceived as being one of the best department known for its dedicated services for students satisfaction and to provide world class training to students for better society.

**MISSION:**

To become a centre of excellence of International standards, to educate Mechanical Engineering graduate to stay competitive at the cutting edge of technology with strong ethics and instill learning for achievements to benefit mankind.

## **Programme Educational Objectives (PEOs)**

1. To make graduates self sustained by exploring to engineering problems with innovative ideas to tackle real-time issues.
2. To make graduates aware of the significance of competence in core engineering concepts, to adopt good ethical and leadership qualities.
3. To inculcate the graduates to pursue lifelong learning processes.

## **Programme Outcomes(POs)**

- a. The graduates will demonstrate the knowledge of Mathematics, Basic Sciences and Engineering.
- b. The graduates will develop an ability to identify, formulate and solve engineering problems.
- c. The graduates will be able to design, conduct experiments, analyze and interpret the data.
- d. The graduates will exhibit skills to use modern engineering tools, software, and equipment to address the technical problems.
- e. The graduates will show the understanding of the engineering solutions on the society and will be aware of contemporary issues.
- f. The graduates will exhibit the knowledge of professional and ethical responsibilities.
- g. The graduates will be able to communicate effectively both in verbal and written form.
- h. The graduates will gain confidence for self improvement and lifelong learning.
- i. The graduates will develop an instinct to investigate complex technical tasks.
- j. The graduate is exposed to pros and cons of advanced technology towards environment and sustainability.
- k. The graduate is capable of working both individually and as well in a team.
- l. The graduates will acquire managerial skill to address economy and projects.

## **VII Semester course outcomes contribute to the POs**

Control Engineering 10ME71	<p>At the End of the Course the Students will be able to:</p> <ul style="list-style-type: none"> <li>• Define the control system and differentiate the different types of control system</li> <li>• Apply the physical laws like NSL, Kirchhoff's laws etc to build a mathematical model</li> <li>• Develop the transfer function for all physical systems to relate input and output variable to its performance of the same</li> <li>• Express the control system in a block diagram</li> <li>• Apply the block diagram reduction rules to reduce the given block diagram representation of a control system to find the overall transfer function.</li> <li>• Apply the concept of SFG technique to find the overall T.F using Mason's gain formula</li> <li>• Evaluate the time response equation of first and second order systems by giving standard inputs.</li> <li>• Analyze the system stability using R-H criteria</li> <li>• Analyze graphically the frequency response of a control system by plotting Nyquist and Bode plots</li> <li>• Analyze graphically the system stability of a control system using Root Locus technique</li> <li>• Implement the concepts of system compensation for any control system</li> </ul>	a,b,d,i
CIM – 10ME72	<p>At the End of the Course the Students will be able to:</p> <ul style="list-style-type: none"> <li>• Define automation and solve problems on mathematical models of production concepts</li> <li>• Tell the meaning of automated flow lines</li> <li>• Describe different transfer mechanisms for work part</li> <li>• Analyze automated flow lines and solve problems on line balancing</li> <li>• Evaluate different methods of line balancing with delay and solve numerical problems on methods of line balancing with delay</li> <li>• Explain different automated assembly systems, part feeding devices and quantitatively analyze AGV's</li> <li>• Identify different components of CNC machine and write part programs for different parts in milling and turning</li> <li>• Describe a robot and its configurations</li> <li>• Summarize the programming concepts of a Robot</li> <li>• Extend his communication skills</li> <li>• Develop coordination with others to work in teams</li> </ul>	a,b,d,i,j
MP – III – 10ME73	<p>At the End of the Course the Students will be able to:</p> <ul style="list-style-type: none"> <li>• Select a suitable metal forming process to produce different shapes.</li> <li>• Design a system &amp; conduct experiments analyze and interpret stress strain concepts.</li> <li>• Evaluate the effect of different process parameters.</li> <li>• Design a system, component or process as per needs &amp; specification.</li> <li>• Analyze and apply the various metal forming techniques to produce different shapes.</li> <li>• Skills to use high energy rate forming processes for producing more complex shapes.</li> <li>• Apply the powder metallurgy techniques to produce different</li> </ul>	a,d,e,j

	<p>shapes by controlling their metallurgy with different alloying elements.</p> <ul style="list-style-type: none"> <li>• Participate and succeed in competitive examinations.</li> </ul>	
Operations Research ME72	<p>At the End of the Course the Students will be able to:</p> <ul style="list-style-type: none"> <li>• Explain the methodology of operations research for problem solving.</li> <li>• Formulate operations research models for problems pertaining to manufacturing and service systems.</li> <li>• Apply operations research techniques and algorithms to solve engineering and management related problems.</li> <li>• Interpret the results from the solution of operation research models.</li> <li>• Apply the results from the solution of operation research models to real world business problems more professionally with ethical responsibilities.</li> <li>• Communicate the interpretations on the results of operations research models through a written report and an oral summary.</li> </ul>	a,b,c,d,e,h
Total Quality Management ME758	<p>At the End of the Course the Students will be able to:</p> <ul style="list-style-type: none"> <li>• Identity the importance of quality</li> <li>• Distinguish, between new and old system of manufacturing of product</li> <li>• Implement the application of TQM in real life</li> <li>• Apply TQM in small and big scale industry</li> <li>• Critique the varies standards of TQM</li> </ul>	a,b,d,l
ESA – 10ME761	<p>At the End of the Course the Students will be able to:</p> <ul style="list-style-type: none"> <li>• Write the methods of compensation separation techniques.</li> <li>• Explain the desirable properties of photo elastic material.</li> <li>• Write the procedure of producing plane polarized and circularly polarized light.</li> <li>• Explain the method of bonding strain gauges.</li> <li>• Write the effect of stressed model in plane polariscope and circular polariscope.</li> <li>• Select which gauging systems meet the requirements of a wide range of different engineering problems involving strain measurement.</li> <li>• Describe the effect of stressed model in plane polariscope and circular polariscope.</li> <li>• Analyze strain gauge rosettes.</li> <li>• Interpret the results of moiré fringe analysis by geometric method and displacement method</li> </ul>	a,b,d,e,i
CIM & Automation Lab- 10MEL77	<p>At the End of the Course the Students will be able to:</p> <ul style="list-style-type: none"> <li>• Explain the G-codes and M-codes used for writing part programs</li> <li>• List different parts of the part program</li> <li>• Analyze the given part program and tool path</li> <li>• Develop part programs independently for milling, turning and drilling exercises</li> <li>• Simulate part programs on a standard CAM package</li> <li>• Explain the fundamental concepts of FMS</li> <li>• Describe an AS/RS and its advantages</li> <li>• Describe a robot and its different configurations</li> <li>• Develop programs for robot for pick and place operations</li> <li>• Explain the fundamentals for generating simple hydraulic and pneumatic circuits</li> </ul>	a,b,c,d,i,j

	<ul style="list-style-type: none"> <li>• Communicate better and learn independently</li> </ul>	
Design lab 10MEL78	<p>At the End of the Course the Students will be able to:</p> <ul style="list-style-type: none"> <li>• Analyze the natural frequency, free vibration, forced vibration of linear system.</li> <li>• Analyze the natural frequency, free vibration, forced vibration of rotating system.</li> <li>• Determine the effect of radius and controlling force.</li> <li>• Evaluate the relationship between applied couple and angular velocity of the motor and angular velocity of precision.</li> <li>• Analyze the natural frequency of transverse vibration system.</li> <li>• Determine the pressure distribution curve of journal bearing.</li> <li>• Determine the static and dynamic balancing of rotating masses in different planes.</li> <li>• Analyze the effect of stressed model in polariscope.</li> </ul>	a,b,c,d,i