## B.Tech. [Robotics and Artificial Intelligence]

**Vision:**

To be the epitome of academic excellence in the mechanical and manufacturing stream, nurturing human values, pioneering contemporary research and innovations, driving industry advancements, and shaping a sustainable, technology-driven future.

**Mission:**

- To provide a dynamic, inclusive learning environment that stimulates creativity and research, along with leadership qualities.
- To foster the passion of life-long learning by preparing students for a productive career in a sustainable competitive, dynamic, and technologically based society.
- To equip students with contemporary skills to inculcate meaningful contributions to industry and society through impactful solutions.
- Instilling ethical principles and moral values in education, fostering a culture of respect, inclusivity and social responsibility.

### Program Educational Objectives (PEO's)

Program Educational Objectives (PEO's) for the B.Tech. Program in Robotics and Artificial Intelligence at JSPM University Pune are:

- **PEO 1:** Demonstrate technical proficiency in Robotics and Artificial Intelligence, showcasing a deep understanding of their core principles and practical applications.
- **PEO 2:** Design and implement hardware solutions tailored for robotics applications and develop software solutions optimized for the integration of Artificial Intelligence into Robotics systems.
- **PEO 3:** Pursue higher studies to carry out engaging in cutting-edge research and development endeavors within the realms of Robotics and Artificial Intelligence, contributing to technological advancements.
- **PEO 4:** Engage in lifelong learning, effectively communicate complex technical ideas, demonstrate strong leadership skills, and exhibit unwavering commitment to professional ethics and responsibilities

**Program: B.Tech. [ Robotics and Artificial Intelligence]**

**Program Outcomes (PO's)**

Engineering Graduates will be able to:

- **PO 1: Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
- **PO 2: Problem analysis:** Identify, formulate, review research literature, and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- **PO 3: 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.
- **PO 4: 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.
- **PO 5: Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.
- **PO 6: 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.
- **PO 7: 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.
- **PO 8: Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
- **PO 9: Individual and teamwork:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings
- **PO 10: 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.

- **PO 11: 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.
- **PO 12: 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.

## Program: B.Tech. [Robotics and Artificial Intelligence]

### Program Specific Outcomes (PSO's)

Program Specific Outcomes (PSOs) for the B.Tech. program in Robotics and Artificial Intelligence at JSPM University Pune are:

- **PSO 1:** Design and build robotic systems for different applications using analytical, logical, and problem-solving skills.
- **PSO 2:** Develop AI-powered software systems to control and operate robotic systems.
- **PSO 3:** Apply robotics and AI to solve real-world problems in a variety of domains, including industrial robotics, service robots, exoskeletons, surgical robots, delivery vehicles, autonomous vehicles, and crewless micro aerial vehicles.

**Programme Coordinator** **Director**