विज्ञानं ब्रह्म

श्री माता वैष्णो देवी विश्वविद्यालय

SHRI MATA VAISHNO DEVI UNIVERSITY

BROCHURE

Bachelor of Technology

Robotics & Artificial Intelligence

www.smvdu.ac.in

hod.dme@smvdu.ac.in

B-BLOCK, SMVDU
Kakryal, Katra - 182320

THE World University Rankings 2024	
Young University	201-250
Asia University	251-300
World University	801-1000

nirf INDIA RANKINGS 2024	
Architecture	31
State Public Universities	51-100
Engineering	151-200

OVERVIEW

ABOUT THE SCHOOL

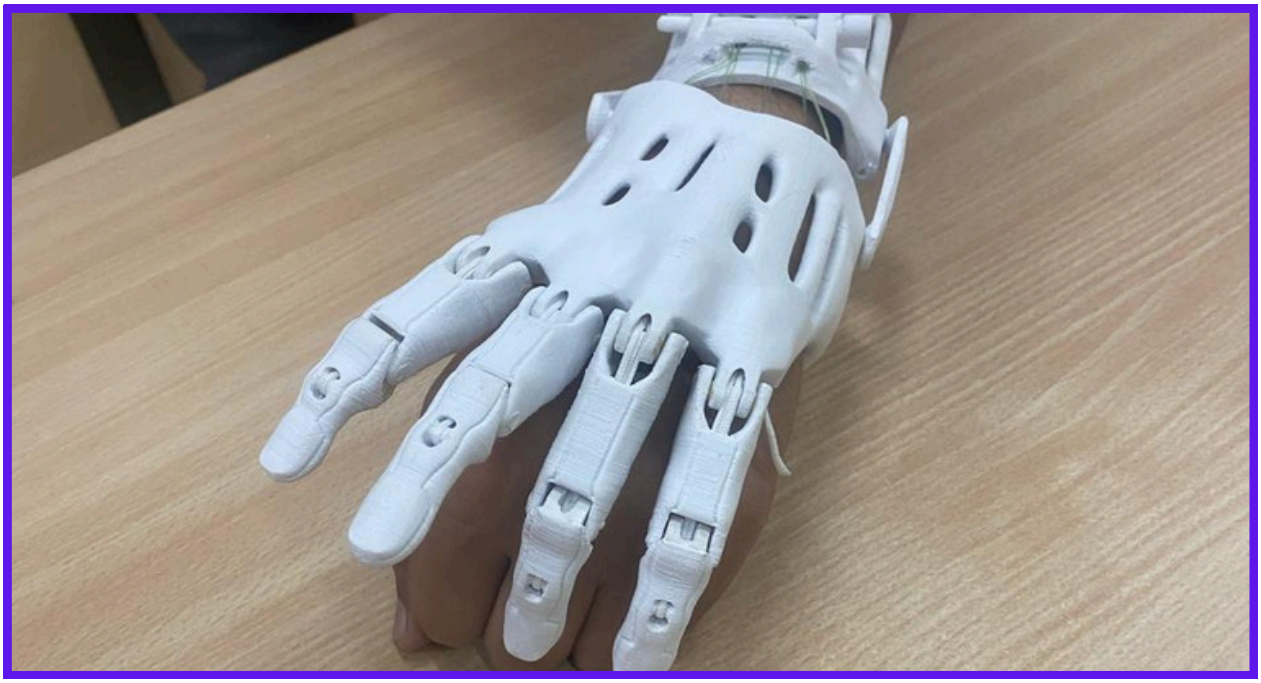
Established in 2005, the School of Mechanical Engineering at Shri Mata Vaishno Devi University (SMVDU) is committed to fostering innovation and technological advancement. We offer B.Tech, M.Tech, and Ph.D. programs, designed in collaboration with industry experts to meet evolving industrial and societal needs. Our curriculum integrates core engineering principles with emerging technologies, equipping students to tackle real-world challenges effectively.

We specialize in 3D Printing, Robotics, Sustainable Energy, and Smart Manufacturing, supported by state-of-the-art laboratories and advanced manufacturing training facilities. These resources provide hands-on experience in modern processes, complemented by guidance from experienced faculty and technical staff. Our learning environment emphasizes practical skills, research, and innovation to ensure well-rounded development.

The school maintains strong industry connections through collaborations, internships, and research initiatives. Our global alumni network thrives in leading companies, research institutions, and academia, contributing to technological progress. With a focus on academic excellence, industry engagement, and cutting-edge research, we continue to shape the future of mechanical engineering.

VISION

To produce globally competent, innovative, and ethically grounded professionals who will lead the advancement of intelligent systems through interdisciplinary knowledge.



MISSION

01 To provide students with a strong interdisciplinary foundation in robotics, artificial intelligence, and related technologies.

02 To promote innovation, problem-solving, and critical thinking in designing the intelligent and autonomous systems.

03 To support research and development in cutting-edge areas like machine learning, computer vision, and human-robot interaction.

04 To prepare students for successful careers in industry, academia, and entrepreneurship in the fields of robotics and AI

ABOUT THE PROGRAMME

The B.Tech in Robotics and Artificial Intelligence is a cutting-edge undergraduate program designed to equip students with interdisciplinary knowledge and practical skills in the fields of robotics, intelligent systems, and artificial intelligence. This program blends core engineering principles with advanced computing and data-driven technologies, preparing students to build autonomous systems that can perceive, learn, and act intelligently.

Key Features:

Interdisciplinary Curriculum:

Integrates concepts from various disciplines of engineering like Mechanical, Electronics, Computer Science, and Electrical to develop a holistic understanding of intelligent systems.

Core Areas of Study:

- Robotics Design and Kinematics
- Control Systems and Automation
- Artificial Intelligence
- Machine Learning and Deep Learning
- Computer Vision and Image Processing
- Embedded Systems and IoT
- Robot Operating systems

Hands-on Learning:

- Focus on laboratory work, real-world projects, and prototyping using robotic kits, sensors, actuators, and AI tools.
- Encourages undergraduate research, innovation challenges, and participation in robotics and AI competitions.

Industry Integration:

- Collaborations with leading tech companies and startups through internships, industrial visits, guest lectures, and capstone projects.

Career Opportunities:

- Graduates can pursue roles such as Robotics Engineer, AI Developer, Data Scientist, Automation Engineer, Research Scientist, or continue with higher studies in Robotics, AI, or allied fields.

Future-Ready Skills:

- The program emphasizes on understanding and implementing ethical AI, sustainability, and lifelong learning to prepare students for dynamic technological landscapes and societal needs.

HOD'S MESSAGE

Dr. Yatheshth Anand

Associate Professor
& Head of School

Educational Background
Ph.D in Mechanical Engineering

Experience
18 years of Teaching and Administration

Specialization
Energy Management

The B.Tech in Robotics and Artificial Intelligence at the School of Mechanical Engineering, Shri Mata Vaishno Devi University, is a forward-thinking program that aims to equip students with the skills and knowledge required to excel in the dynamic fields of intelligent automation and robotics. Rooted in the school's strong foundation in mechanical engineering and a tradition of innovation, the program offers an interdisciplinary curriculum that combines mechanical systems, electronics, computer science, and artificial intelligence.

In alignment with the National Education Policy (NEP) 2020, the program emphasizes experiential learning through hands-on projects, internships, and industry-oriented training. Students are encouraged to undertake mini-projects and work on real-time, solution-driven tasks that benefit local industries, thereby reinforcing practical application and social relevance. Supported by cutting-edge laboratory infrastructure and the mentorship of a dedicated faculty team, students are actively involved in research and innovation across areas such as machine learning, computer vision, control systems, and robotic design.

The program not only focuses on technical excellence but also fosters leadership, teamwork, and entrepreneurial thinking, preparing graduates for careers in advanced manufacturing, AI development, automation, and research. With strong industry collaboration and a focus on holistic development, this program aims to produce professionals capable of driving technological progress and generating employment opportunities in the fast-evolving landscape of robotics and AI

CORE FACULTY

Dr. Yatheshth Anand

Associate Professor and Head of School

Educational Background
Ph.D in Mechanical Engineering

Experience
18 years of Teaching

Teaching Subjects
CAD/CAM and Robotics

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Dr. Sashi Bhushan Kotwal

Associate Professor

Educational Background
Ph.D., M. Tech

Experience
22 years of Teaching

Teaching Subjects
- Microprocessor, Sensor Networks

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Dr. Ankush Raina

Assistant Professor

Educational Background
Ph.D., M. Tech

Experience
11 years of Teaching

Teaching Subjects
Mechanical System Design

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Swastik Gupta

Assistant Professor

Educational Background
M. Tech

Experience
15 years of Teaching

Teaching Subjects
Machine Learning,Industrial IoT

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Dr.Prabhu Omer

Assistant Professor

Educational Background
Ph.D., M. Tech

Experience
02 years of Teaching

Teaching Subjects
AI and Data Science

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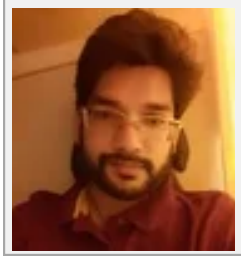

Dr. Vipal Kumar Sharma

Assistant Professor

Educational Background
Ph.D.

Experience
03 years of Teaching

Teaching Subjects
Neural Networks

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vipal.sharma@smvdu.ac.in

Dr. Pradeep Singh

Assistant Professor

Educational Background
Ph.D., M. Tech

Experience
03 years of Teaching

Teaching Subjects
Drives and Actuators

Email
pradeep.singh@smvdu.ac.in

LIST OF PATENTS (SUBMITTED/ AWARDED)

- Selective coating for solar absorption with high thermo- mechanical stability and material obtained thereof (Published).
- Multitasking Mop Handle. Patent No. 508337. Patent granted by Indian Patent Office, Govt. of India.
- 3D printed bite blocker with detachable tongue retractor, Application No: 202411058382 (filed at Indian Patent Office, August 2024).
- Solar Cooking Pot – Encapsulation of Latent Heat Storage Material in Longitudinal Dome Container
- AI-Powered Energy-Efficient Waste Compaction Device. Design no: 427361-001.
- 3D Printed bite blocker with grooved lock mechanism for improved dental procedures.
  Reinforced aluminum matrix composites and method of preparation there

LIST OF BOOKS AND MONOGRAPHS PUBLISHED

- Tribology and Sustainability, 1st Edition (2021) CRC Press (T&F Group) ISBN 9780367551469.
- Nanomaterials for Sustainable Tribology, 1st Edition (2023) CRC Press (T&F Group) ISBN 9781032306902.
- 3D Printing and Sustainable Product Development, 1st Edition (2024) CRC Press (T&F Group) ISBN 9781032306803.
- Engineering Mechanics, Kirti Publishers (India) 2019, ISBN: 9789389411010.
- Advancements in Natural Fibre Composites for Industrial Applications, Global Academic Excellence (M), SDN BHD, Malaysia EISBN:978-967-2426-46-2.
- Effect of Finite Element Mesh Orientation – Subjected to Torsion Problems. A monograph from VDM Verlag, Germany.

LAB INFRASTRUCTURE

BASIC ELECTRONICS LAB

EMBEDDED SYSTEMS LAB

CONTROL SYSTEMS LAB

ELECTRICAL MACHINES LAB

MECHATRONICS LAB

3D PRINTING LAB

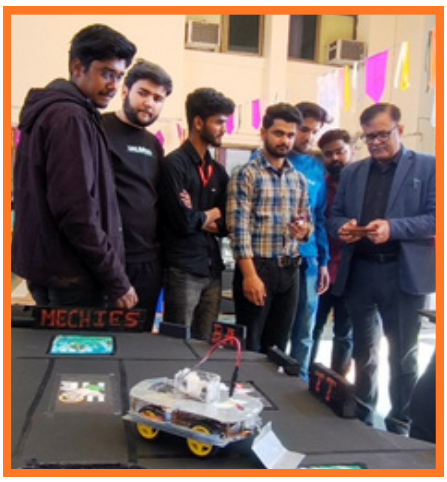
COMPUTER VISION LAB

AI/ML LAB

STUDENT LIFE

Diverse Students

Our school prides itself on its diverse student population, with students from over 18 states/UT, creating a vibrant and multicultural community. This diversity enriches the learning experience and encourages cross-cultural friendships.



Extracurricular Activities

Our students actively engage in various extracurricular activities, including sports, arts clubs, workshops etc.

Community Service

Students at SMVDU are committed to giving back to the community. They actively participate in various community service projects like NSS, NCC etc. volunteering their time and skills to make a positive impact locally and globally.

Global Perspective

We encourage students to embrace a global perspective through cultural exchange programs, international partnerships, and educational trips. These experiences broaden their horizons and prepare them for an interconnected world.

Academic Excellence

School of Mechanical at SMVDU places a strong emphasis on academic excellence. Our students are dedicated to their studies and many of them achieve high honors and go on to attend prestigious universities/ Industries.

CARRIER OPPORTUNITIES

- Robotics Design Engineer
- Cyber -Physical systems Engineer
- Industrial Automation Engineer
- ROS Developer (Robot Operating System)
- Data Scientist
- AI/ML Researcher
- Natural Language Processing (NLP) Engineer
- Computer Vision Engineer
- Deep Learning Specialist
- Healthcare Robotics Specialist
- UAV and Drone Specialist
- Simulation Engineer
- Mechatronics Engineer
- HMI Specialist

INDUSTRIES YOU CAN WORK IN

- Aerospace & Defense
- Automotive
- Healthcare & Medical Devices
- Industrial Automation
- Consumer Electronics
- Agriculture (AgriTech)
- Logistics & Warehousing
- Space Exploration
- Entertainment & Gaming
- Smart Homes & IoT

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www.smvdu.ac.in
School of Mechanical Engineering

Design Team

Mr.Deepankur Gupta , LA, SoECE
Mr. Devesh Pratap Singh Chauhan, 4th Year, SoECE
Mr. Utsav Manideep, 3rd Year, SoECE