**VNR VIGNANA JYOTHI INSTITUTE OF
ENGINEERING AND TECHNOLOGY
DEPARTMENT OF MECHANICAL ENGINEERING**

SWOC ANALYSIS

Strengths

- Experienced and dedicated faculty almost 50% of them is holding Doctorates in diversified specializations, and well trained supporting staff.
- Offering P.G programmes in Advanced Manufacturing Systems and CAD/CAM specializations.
- Faculty members published significant number of research papers in national and international journals, conferences and completed research projects funded by AICTE, UGC, DRDO, ARDB and DST.
- Department has 3-D Printers, 3-D Scanner and Artec Studio software for visualization and prototype development, recreation and improvement of products.
- Center of excellence for Joining Technology is established by the department with necessary infrastructure such as Precision TIG welding machine, Metallurgical Microscope, Digital Ultrasonic Flaw Detector, Micro Vicker Hardness Tester along with Thermo-Calc and Mathematica software to conduct advanced research in joining technologies.
- Equipped with wide range of CAD/CAM software like CATIA, IRON CAD, IDEAS, CREO, ADAMS, ANSYS, AUTOCAD, GIBBS CAM, EDGE CAM, MASTER CAM, FLEXSIM, AUTOMATION STUDIO etc. to cater to the UG/PG programmes for Design, Modeling and Analysis of engineering products and research projects.
- Having a digital library to support faculty and students carrying out their projects and research work by providing access to E-Journals, E-Books, text books and project reports.
- Facilitated to fabricate complex shaped components with CNC Lathe and CNC Milling machine apart from machine shop and workshop to carry out student and faculty research projects.
- Automation & Robotics Lab of the department is equipped with Pneumatic and Hydraulic Trainer kits, Industrial PLC, Microprocessor Trainer & Sensor kits, 5-Axis Industrial Robot Arm Trainer and Robotic Simulation Software to cater to UG& PG programmes as well as student research projects.
- Having high end computing facilities through Workstations and other softwares like Minitab and MATLAB for funded research projects.
- Workshops and FDPS in Advanced mechanical engineering concepts.
- Training & Certification Courses in order to impart skill development and enhance employability of students.

Weaknesses

- Adequate financial support is required to establish research facilities to conduct advanced research in areas such as Composite Materials, Bio-Materials, Subtractive and Additive Manufacturing, Machine Learning Applications, Predictive Analytics in Manufacturing, Solar Energy Applications and Computational Fluid Dynamics by faculty members. The research facilities shall be established by the grants of funding agencies such as AICTE, UGC, DST, DRDO etc subjected to the approval of project proposals apart from institutional funding.
- The interaction with local industries, higher learning institutions and research organizations need to be further developed to undertake collaborative research projects and consultancy for mutual benefit.

Opportunities

- To grow as a leading department at regional and national level by educating the students for their intellectual enrichment.
- To serve the local community and enterprises by offering technical solutions to societal issues & problems.
- To involve the students to carry out research projects in state-of-the-art technologies under the supervision of experienced faculty members.
- Faculty members shall carry out research in cutting edge technologies making use of online access to e-Journals through digital library and laboratories with state-of-the-art facilities.

Challenges

- To provide job opportunities to undergraduates and post graduates of the department in the reputed core companies by imparting adequate knowledge and employable skills.
- To establish research laboratories to enable the faculty members to conduct advanced research in the contemporary technological areas.
- To upgrade and adopt the curriculum to meet the expectations and standards of the industry by introducing/updating courses and laboratories in latest technologies in mechanical engineering domain.
- To motivate and train the students to seek the employment in public sectors, state and central government services.
- To encourage the students to register for courses offered by other departments, NPTEL etc. to do interdisciplinary projects.