

Department Establishment, Academic Scope, and Accreditation Status

The Department of Mechanical Engineering at V.R. Siddhartha Engineering College was established in the year 1977 and has since evolved into a comprehensive academic and research-oriented department offering undergraduate, postgraduate, and doctoral programs. The department offers an undergraduate B.Tech program in Mechanical Engineering with an approved intake capacity of 60 students, a postgraduate M.Tech program with an intake of 12 students, and Ph.D. programs supporting advanced research activities. The undergraduate program has achieved accreditation from the National Board of Accreditation (NBA) on four separate occasions, reflecting sustained compliance with national quality standards in engineering education. The department consists of a total of 34 faculty members, out of which 27 faculty members hold doctoral degrees, indicating a strong emphasis on advanced academic qualifications. The laboratories within the department are equipped with advanced machinery and state-of-the-art software tools to support curriculum delivery, experimentation, and research. The department actively collaborates with national organizations to promote student training, internships, projects, and research and development initiatives. Mechanical Engineering students from the department have secured placements across a wide spectrum of national and multinational companies spanning software, manufacturing, automotive, and core engineering sectors. The department is also recognized as a research center by Jawaharlal Nehru Technological University, Kakinada, enabling it to guide doctoral research and sponsored projects.

Department Vision and Long-Term Strategic Direction

The vision of the Department of Mechanical Engineering is to emerge as a globally recognized center of excellence in mechanical engineering education, research, innovation, and entrepreneurship. This vision emphasizes the integration of creativity with advanced engineering practices while advancing sustainable technologies that serve both industry and society. The department's vision highlights its commitment to global relevance by aligning academic programs and research initiatives with international standards and emerging technological trends. A strong focus is placed on sustainability, encouraging the development and adoption of technologies that address environmental challenges and resource efficiency. The department aims to foster innovation-driven learning environments that prepare graduates to respond effectively to complex engineering problems at national and global levels. This vision guides curriculum design, laboratory development, industry collaborations, and research priorities. By integrating research with practical applications, the department ensures that students acquire not only theoretical knowledge but also the ability to translate concepts into real-world solutions. The emphasis on entrepreneurship further supports the creation of job creators in addition to job seekers. The department's long-term strategic direction is rooted in producing graduates capable of contributing meaningfully to technological progress, industrial growth, and societal development.

Department Mission and Educational Philosophy

The mission of the Department of Mechanical Engineering is centered on providing transformative education that equips students with strong fundamentals in mechanical engineering, problem-solving skills, communication abilities, and leadership qualities. The department aims to prepare students to meet global engineering challenges by fostering analytical thinking and technical competence. A key component of the mission is the promotion of innovation and research through a collaborative academic environment that encourages creativity, entrepreneurship, and lifelong learning. The department actively supports research in emerging areas of mechanical engineering, enabling faculty and students to contribute to technological advancements. Strengthening industry–institute interaction forms another core mission objective, achieved through partnerships with industries, research organizations, and global institutions. These collaborations provide students with practical exposure through internships, consultancy projects, and technology transfer initiatives. The mission also emphasizes ethical responsibility and societal contribution by developing competent engineers committed to sustainable and inclusive growth. This holistic educational philosophy ensures balanced development across academic excellence, professional skills, research capability, and social responsibility.

Academic Programs Offered and Program Establishment Details

The Department of Mechanical Engineering offers a Bachelor of Technology program in Mechanical Engineering that was established in 1977 and admits 60 students annually. This undergraduate program is designed to provide comprehensive education in core mechanical engineering principles, manufacturing processes, thermal sciences, design, and materials engineering. The department also offers a Master of Technology program in Automated Manufacturing Systems, which was established in the year 2022 with an approved intake of 12 students. This postgraduate program focuses on advanced manufacturing technologies, automation, and systems integration aligned with current industrial requirements. In addition to undergraduate and postgraduate programs, the department introduced a Doctor of Philosophy program in 2024 with an intake capacity of 12 scholars. The Ph.D. program supports advanced research in specialized areas of mechanical engineering and is aligned with the department's recognition as a research center. These programs collectively prepare students for careers in industry, research, academia, and innovation-driven sectors.

Research Orientation, Collaborations, and Academic Recognition

The Department of Mechanical Engineering maintains active research groups focusing on areas such as characterization of metal matrix and natural fiber composites, alternative fuels, finite element analysis of composite systems, machine condition monitoring, and tribology. Faculty and students have collectively published 558 research articles in peer-reviewed journals indexed in Scopus and SCI, along with 358 conference publications, accumulating a total of 3035 citations. The department has received cumulative research funding exceeding INR 2 crores from national agencies including AICTE, DST, UGC, and DRDO laboratories. To date, the department has published 11 patents and filed 3 additional patent applications. The department actively participates in professional societies such as ASME, IE, and SAE, enhancing academic networking and professional development. These research and

collaboration efforts reinforce the department's academic standing and contribute to its national and international recognition.

The Department of Mechanical Engineering maintains a strong core faculty structure consisting of highly qualified academicians occupying leadership, professorial, and teaching roles across the department. The senior-most academic leadership includes Dr. P. V. Rao serving as Vice Chancellor with a Ph.D. qualification and Dr. A. V. Ratna Prasad serving as Pro-Vice Chancellor, also holding a Ph.D. degree. The department is academically headed by Dr. N. Ravi Kumar, who serves as Professor and Head of the Department and holds a Ph.D. qualification. Professorial roles within the department include Dr. Ch. Naga Raju, Dr. V. Bala Krishna Murthy, and Dr. S. Srinivas Prasad, all designated as Professors and holding Ph.D. degrees. These faculty members contribute to academic planning, research leadership, postgraduate supervision, and departmental administration. The presence of senior professors with doctoral qualifications ensures academic stability, curriculum relevance, and research continuity. Leadership responsibilities such as departmental coordination, research mentoring, and institutional representation are distributed among these senior faculty members, strengthening governance and academic oversight within the department.

Associate Professors and Senior Assistant Professors

The department includes several Associate Professors who contribute significantly to teaching, research, and academic administration. These include Dr. G. Dilli Babu, Dr. K. Naga Malleswara Rao, Dr. M. Balaji, and Dr. K. Ramanaiah, all of whom hold Ph.D. qualifications and serve in Associate Professor roles. Senior Assistant Professors form another important academic layer and include Sri P. Sateesh Kumar Reddy with an ME degree and Ph.D. in progress, Dr. C. Mahesh, Dr. K. Srinivas, Dr. M. Suma Latha, Dr. M. Bala Chennaiah, and Dr. K. Siva Prasad, all holding Ph.D. degrees. Additional Senior Assistant Professors include Smt. A. N. Phani Deepthi with an M.Tech degree and Ph.D. in progress. These faculty members are actively involved in undergraduate and postgraduate teaching, laboratory supervision, student mentoring, sponsored research projects, and patent development. Their roles ensure continuity between academic instruction and applied research activities within the department.

Assistant Professors and Teaching Faculty Strength

The Assistant Professor cadre in the Department of Mechanical Engineering consists of faculty members with strong academic backgrounds and ongoing research involvement. This group includes Sri V. Sudheer Kumar with an M.Tech degree and Ph.D. in progress, Dr. K. Prakash Babu, Dr. V. Sridhar, Sri M. Rajesh with an ME degree and Ph.D. in progress, Dr. V. Bapi Raju, Dr. B. Supraja Reddy, Dr. R. V. Kiran Kumar, Dr. G. Jamuna Rani, Sri P. Gopinath Chowdary with an M.Tech degree and Ph.D. in progress, Dr. V. Vasu, Sri Ch. Venkata Prasad with an M.Tech degree and Ph.D. in progress, Sri K. Sundeeep with an M.Tech degree, Sri V. Sambasiva Rao with an M.Tech degree, Dr. M. Jogendra Prasad with a Ph.D. degree, Sri D. Siva Sankar with an M.Tech degree, and Sri K. V. N. S. Sudheer Kumar

with an M.Tech degree. These faculty members handle core theory courses, laboratory courses, student projects, and research guidance, contributing directly to curriculum delivery and student academic outcomes.

Adjunct and Visiting Faculty Contributions

The department is supported by adjunct and visiting faculty who provide additional academic and industry-oriented expertise. The adjunct faculty members include Mr. M. Srinivasa Rao, who serves as Adjunct or Visiting Faculty and holds an M.Tech qualification, Mr. K. Rami Reddy, who also serves as Adjunct or Visiting Faculty with an M.Tech qualification, and Dr. B. V. Reddy, who serves as Adjunct or Visiting Faculty and holds both M.Tech and Ph.D. qualifications. These faculty members contribute through guest lectures, specialized subject delivery, industry exposure sessions, and academic mentoring. Their involvement strengthens industry–academia interaction and enhances practical knowledge transfer to students.

Technical, Laboratory, and Support Staff Structure

The Department of Mechanical Engineering is supported by a dedicated team of technical and non-teaching staff who ensure smooth laboratory operations, equipment maintenance, and administrative support. The staff includes Sri K. Venkateswara Rao serving as Mechanic, Sri T. Siva Sankara Rao and Sri P. Rama Rao serving as Junior Mechanics, Sri D. N. Malleswara Rao serving as Lab Technician, Sri K. Koteswara Rao serving as Sweeper, Sri G. Naga Anilkumar and Sri B. Sreemannarayana serving as Junior Mechanics, Smt. K. Anupama serving as Hardware Technician, Sri B. Veera Brahman serving as Welder, Sri B. Sudhakar and Sri P. Kanakaiah serving as Lab Technicians, Smt. M. Naga Deepika serving as Lab Associate, N. Uma Sainath serving as Lab Technician, and Y. Roopa Chandra serving as Lab Technician and Data Entry Operator. This staff structure ensures operational efficiency, laboratory readiness, and continuous academic support.

Department Infrastructure and Teaching–Learning Facilities

The Department of Mechanical Engineering is supported by comprehensive infrastructure designed to facilitate effective teaching, learning, and academic engagement. All classrooms within the department are equipped with modern Information and Communication Technology facilities that support interactive and technology-enabled instructional methods. These ICT-enabled classrooms allow faculty members to integrate digital content, simulations, and multimedia resources into regular teaching, enhancing conceptual understanding among students. The department maintains a dedicated departmental library that provides access to a wide range of reference books, textbooks, journals, and technical resources relevant to undergraduate, postgraduate, and doctoral programs. An air-conditioned seminar hall equipped with advanced audio-visual systems is available for conducting guest lectures, seminars, workshops, faculty development programs, and departmental meetings. High-speed internet connectivity is provided through a 2 Gbps leased line, ensuring uninterrupted access to online academic resources, research databases, and digital learning

platforms. Campus-wide Wi-Fi connectivity supports mobile learning and research activities for students and faculty. Separate waiting rooms are provided for boys and girls to ensure comfort and convenience. RO water facilities are installed across the department premises to provide safe drinking water, contributing to a conducive academic environment.

Advanced Thermal Engineering Laboratory Facilities

The Advanced Thermal Engineering Laboratory is a key academic and research facility supporting experiments and project work in solar energy, wind energy, and fluid flow applications. This laboratory is offered as part of the first semester curriculum of the M.Tech Thermal Engineering program and is also utilized for advanced experimental studies and project work. The laboratory is equipped with a Solar Thermal Training System for studying solar energy conversion, a Subsonic Wind Tunnel with a test section size of 300 mm by 300 mm for aerodynamic experimentation, and a Wind Energy Training System rated at 200 W for renewable energy studies. Additional equipment includes an Experimental Cooling Tower, a Shell and Tube Heat Exchanger, a Vapour Absorption Refrigeration system, and experimental setups for Drop-wise and Film-wise Condensation studies. These facilities enable students to analyze heat transfer, fluid mechanics, and energy systems under controlled experimental conditions. The laboratory supports both academic instruction and applied research, allowing students and faculty to validate theoretical models through experimentation.

Centre of Excellence in Composites and Research Equipment

The Department of Mechanical Engineering has established a Centre of Excellence in Composites funded by the DST-FIST scheme at a total cost of Rs. 60 lakhs. This center is equipped with advanced facilities for mechanical and thermal characterization of composite materials and supports research activities of postgraduate students, Ph.D. scholars, and faculty members from the institute and other regional colleges. The center houses specialized equipment including thermal conductivity measurement equipment, a dilatometer for thermal expansion studies, a wear test rig for tribological analysis, a tensometer for tensile testing, an impact tester for evaluating impact strength, and a computerized optical microscope for microstructural analysis. Research outcomes generated using these facilities are disseminated through patent filings and publications in reputed journals. The Centre of Excellence plays a crucial role in advancing composite materials research and supports interdisciplinary collaboration and high-impact research output.

SIEMENS Center of Excellence and Advanced Manufacturing Laboratories

The SIEMENS Center of Excellence was established through collaboration between the Department of Mechanical Engineering and SIEMENS to provide skill-oriented training and industry exposure to B.Tech and M.Tech students. The center includes multiple specialized laboratories such as the NC Programming Laboratory equipped with Sinumerik 808D and Sinumerik 828D controllers for turning and milling operations. The CNC Machines

Laboratory houses a 2-axis CNC turning machine with an 8-tool turret and a 3-axis CNC vertical milling machine with an automatic tool changer. The Test and Optimization Laboratory is equipped with an LMS vibration test rig and Siemens NX software. The Rapid Prototyping Laboratory features the SST 1200ES 3D printer capable of processing ABS+ polymer materials. The Robotics Laboratory includes robotic spot welding, arc welding, and pick-and-place cells supported by RobCAD and ABB Robot Studio software.

Mechatronics Laboratory and 3D Experience Centre

The Mechatronics Laboratory under the SIEMENS Center of Excellence is equipped with the Modular Automation Production System MAPS 6S consisting of five individual stations, Siemens S7-1200 PLCs, Diagnostic Kit 2006, and Siemens TIA Portal V13 software. This laboratory provides hands-on training in industrial automation, PLC programming, and mechatronics systems. In addition, the department has established the 3D Experience Centre in collaboration with APSSDC and Dassault Systemes with support from the Government of Andhra Pradesh. This center is utilized to impart skills in solid modeling, engineering analysis, and product lifecycle management. The facility is equipped with Dassault Systemes software modules including CATIA for design and assembly, SIMULIA for structural analysis and simulation, and DELMIA for manufacturing process planning and plant layout design. The 3D Experience Centre supports undergraduate and postgraduate learning and research, enhancing industry readiness and design competency.

Active Memorandums of Understanding and Industry Collaborations

The Department of Mechanical Engineering maintains multiple active Memorandums of Understanding with industries and institutions to strengthen technology exploration, research, innovation, student training, and placement opportunities. An MoU with Jindal Urban Waste Management (Guntur) Ltd. was signed on 16 September 2024 and is valid until 15 September 2027, focusing on technology exploration, startup support, research, and innovation. Another MoU with Krishna Engineering Works, Vijayawada was executed on 24 October 2023 with validity until 23 October 2028, covering technology exploration and innovation support. The department signed an MoU with Kusalava International Limited, Gollagudem-521212 on 21 October 2023 valid until 20 October 2028, encompassing student projects, internships, placements, curriculum design, seminars, workshops, and faculty and student training. An MoU with Ramesh's Aerospace Products & Services Pvt. Ltd. was signed on 1 October 2022 and remains valid until 15 June 2025, focusing on student projects, internships, and job opportunities. Additional MoUs include EPOWERX Learning Technologies Pvt. Ltd. (Skill-Lync), Chennai signed on 28 July 2022 valid until 28 July 2025 for projects, internships, and interview preparation guidance, and an MoU with NIT Warangal signed on 21 January 2022 valid until 21 January 2027 for guest lectures, FDPs, workshops, and conferences. Further collaborations include AVANTEL Limited, Hyderabad signed on 10 November 2021 valid until 10 November 2024, STARPLAST Industries, Telangana signed on 30 July 2021 valid until 30 July 2024, and PRAKASA SPECTRO CAST Pvt. Ltd. and SYNERGEM, Vijayawada signed on 22 March 2021 valid until 22 March 2026.

Industry Linkages Supporting Training and Practical Exposure

Beyond formal MoUs, the department sustains active industry linkages that facilitate training programs, internships, industrial visits, collaborative projects, and exposure to industrial practices. Key industry linkage partners include Jindal Urban Waste Management (Guntur) Ltd. and Krishna Engineering Works, Vijayawada, both supporting technology exploration and innovation initiatives. Kusalava International Limited, Gollagudem-521212 supports student projects, internships, placements, curriculum development, seminars, workshops, and training programs. Ramesh's Aerospace Products & Services Pvt. Ltd. contributes to student projects, internships, and job opportunities, strengthening aerospace-related competencies. EPOWERX Learning Technologies Pvt. Ltd. provides guidance for technical interview preparation along with project and internship support. NIT Warangal contributes through guest lectures, FDP participation, and academic workshops. Additional linkages with AVANTEL Limited, STARPLAST Industries, and PRAKASA SPECTRO CAST Pvt. Ltd. and SYNERGEM enable industrial training programs, student internships, and industrial visits, reinforcing industry-academia collaboration and applied learning.

Industrial Visits Conducted During the Academic Year 2024–25

During the academic year 2024–25, the Department of Mechanical Engineering organized multiple industrial visits to provide students with practical exposure to industrial operations. For II/IV B.Tech A section, an industrial visit to Sri Krishna Engineering Works located at Enikepadu, Vijayawada was conducted on 9 August 2024 with faculty assistance from THK, KR, and KFN. On the same date, II/IV B.Tech B section visited Sri Krishna Engineering Works with faculty assistance from MBC, PG, and NAN. For III/IV B.Tech A section, a visit to the Central POH Depot of South Central Railway at Rayannapadu, Vijayawada was conducted on 19 September 2024 with faculty assistance from VVM and GJR. III/IV B.Tech B section visited the same facility on 20 September 2024 with faculty assistance from KNMR and GDB. Dr. K. Srinivas served as the Department Tour Coordinator for B.Tech Mechanical Engineering during this period. These visits were structured to enhance students' understanding of industrial processes, maintenance operations, and real-world engineering practices.

Industrial Visits Conducted During the Academic Year 2023–24

In the academic year 2023–24, the department conducted a wide range of industrial visits covering manufacturing, process industries, and railway operations. II/IV B.Tech A section visited Coca-Cola Beverages Pvt. Ltd., Vadlamudi on 20 September 2023 with faculty assistance from VSK and MAC, and again on 21 September 2023 with faculty assistance from CM and MSL. II/IV B.Tech B section visited the same facility on 22 September 2023 with faculty assistance from CHCH and MJP. III/IV B.Tech C section visited the Railway Track Machines Depot at Guntupalli on 11 October 2023 with faculty assistance from APD and KPB, while I/IV B.Tech A section visited the same facility on 12 October 2023 with faculty assistance from KNMR and VV. II/IV B.Tech B section visited on 13 October 2023 with faculty assistance from CHVP and PGN. Additional visits included Kusalava Industries Ltd., Adivinekkalam, Vijayawada on 14 and 15 November 2023, KCP Industries Ltd.,

Vuyyuru on 13, 14, and 15 February 2024, and The Pratap Industries, Enikepadu on 6 and 7 March 2024. Dr. K. Srinivas served as the Department Tour Coordinator for these visits.

Objectives and Academic Value of Industrial Exposure Programs

The industrial exposure programs conducted by the Department of Mechanical Engineering are designed to bridge the gap between theoretical learning and practical application. By organizing structured industrial visits across multiple academic years, the department ensures that students gain firsthand exposure to manufacturing systems, process control, maintenance practices, and industrial safety standards. Faculty-assisted visits allow students to correlate classroom concepts with operational realities and interact with industry professionals. These programs enhance employability by familiarizing students with industrial environments, workflows, and professional expectations. The continuity of industrial visits across semesters reflects the department's commitment to experiential learning and industry relevance within the mechanical engineering curriculum.

Ongoing Sponsored Research and Development Projects

The Department of Mechanical Engineering is actively engaged in multiple ongoing sponsored research and development projects supported by reputed industries, defense laboratories, and research organizations. One ongoing project titled "Design and Analysis of Indigenous Composite Structures" is funded by Ramesh's Aerospace Products & Services Pvt. Ltd., Vijayawada, with a sanctioned amount of 7.08 lakhs approved on 4 September 2025. This project is coordinated by Dr. A. V. Ratna Prasad as Principal Investigator, with Dr. B. Supraja Reddy serving as Co-Principal Investigator and Dr. V. Bala Krishna Murthy acting as Mentor. Another project titled "Services for Chassis Fabrication for Hybrid EV Four-Wheeler and Energy Management Simulation Studies" is funded by Cyber Shakthi Private Limited, Chennai, with a sanctioned amount of 2.32 lakhs approved on 30 July 2025, coordinated by Dr. G. Dilli Babu as Co-Principal Investigator. A further project titled "Optimization of Composite Stack in Cylindrical Section of a CPV and Modeling of Interlaminar Debond Using FEA" is funded by Advanced Systems Laboratory, Hyderabad, with a sanctioned amount of 5 lakhs approved on 30 May 2025, coordinated by Dr. A. V. Ratna Prasad as Principal Investigator and Dr. V. Bala Krishna Murthy as Co-Principal Investigator. These projects focus on advanced composite structures, electric vehicle systems, and finite element modeling, reflecting the department's strong research orientation.

Additional Ongoing Research Projects and Funding Details

Further ongoing projects demonstrate the department's engagement with aerospace, defense, medical, and energy research domains. A project titled "Development of a Composite Launch Tubes and Revalidation of a Composite Canister" is funded by Ramesh's Aerospace Products & Services Pvt. Ltd., Vijayawada, with a sanctioned amount of 3 lakhs approved on 16 September 2024, coordinated by Dr. B. Supraja Reddy and Dr. V. Bala Krishna Murthy. Another project titled "Design of a Prosthetic Foot" is funded by the same organization with

a sanctioned amount of 0.75 lakhs approved on 25 June 2024, coordinated by Dr. B. Supraja Reddy and Dr. V. Bala Krishna Murthy. A defense-sponsored project titled “Study Project on Effect of Temperature on Thermo-Physical Properties of Composite Material Using Molecular Dynamic Simulation and Experimental Validation” is funded by DRDL Hyderabad with a sanctioned amount of 9.77 lakhs approved on 21 March 2024 and coordinated by Dr. K. Naga Malleswara Rao. These projects strengthen applied research in biomedical devices, aerospace composites, and material science.

Industry and Institutional Sponsored Development Projects

The department also undertakes development-oriented projects sponsored by academic and industrial institutions. A project titled “Design and Development of a Semi-Automatic Paper Shredder” is funded by Pinnamaneni Siddhartha Institute of Medical Science & Research Foundation, Vijayawada, with a sanctioned amount of 1.49 lakhs approved on 2 February 2024 and coordinated by Dr. G. Dilli Babu. Another project titled “Design and Development of a Composite Tube” is funded by High Energy Materials Research Laboratory, DRDO, Pune, with a sanctioned amount of 9.971 lakhs approved on 31 January 2024 and coordinated by Dr. V. Bala Krishna Murthy and Dr. B. Raghava Rao. Additionally, the project “Design and FE Analysis of a Composite Pressure Vessel” is funded by Advanced Systems Laboratory, Hyderabad, with a sanctioned amount of 5 lakhs approved on 29 December 2023 and coordinated by Dr. V. Bala Krishna Murthy and Dr. B. Raghava Rao. These projects contribute to defense manufacturing, advanced materials, and industrial product development.

Earlier Ongoing Projects Supporting Advanced Engineering Research

Earlier sanctioned projects that remain active include the project titled “Design and Fabrication of Non-Axisymmetric VRTM Mould” funded by Universal Engineering Technics, Hyderabad, with a sanctioned amount of 5.13 lakhs approved on 30 June 2023 and coordinated by Dr. N. Ravi Kumar. Another significant project titled “Design and Finite Element Analysis of Airworthy Composite Container” is funded by NSTL, Visakhapatnam, with a sanctioned amount of 9.50 lakhs approved on 7 June 2023 and coordinated by Dr. B. Raghava Rao and Dr. V. Bala Krishna Murthy. A long-term research project titled “Studies on Mixing and Combustion of Methane-Air in the Presence of a Vortex Flow Field” is funded under the SERB-TARE scheme with a sanctioned amount of 18.30 lakhs approved on 6 December 2021 and coordinated by Dr. M. Jogendra Prasad. These projects emphasize combustion research, composite structures, and advanced manufacturing methodologies.

Research Focus and Institutional Impact of Ongoing Projects

The ongoing research and development projects undertaken by the Department of Mechanical Engineering collectively address critical engineering challenges in composites, aerospace systems, energy management, biomedical devices, and advanced manufacturing. Each project involves clearly defined funding agencies, sanctioned amounts, approval dates, and designated investigators, ensuring transparency and accountability. Faculty members

involved in these projects contribute to knowledge generation, student research training, and technology development. The outcomes of these projects are intended for industrial application, defense utilization, academic dissemination, and patent generation. Through sustained engagement with sponsored research, the department reinforces its role as a recognized research center and strengthens its contribution to national technological advancement and innovation ecosystems.

Completed Sponsored Research and Development Projects

The Department of Mechanical Engineering has successfully completed a wide range of sponsored research and development projects supported by industry, government agencies, and defense laboratories. One completed project titled “Smart Lift Mechanism” was funded by Efftronics, Guntur, with a sanctioned amount of 1 lakh approved in January 2024 and coordinated by Dr. G. Dilli Babu. Another major completed project titled “Health Assessment of an Existing GFRP Composite Shell” was funded by NSTL, Visakhapatnam, with a sanctioned amount of 16.93 lakhs approved in March 2023 and coordinated by Dr. B. Raghava Rao and Dr. V. Bala Krishna Murthy. The project “Fabrication and Performance Analysis of Ventilation Assist Unit” was funded by IMEDS Global Pvt. Ltd., Visakhapatnam, sanctioned in February 2022 for a duration of two years with a total funding of 10.5 lakhs and coordinated by Prof. N. Vijaya Sai and Prof. S. Srinivas Prasad as Principal Investigator, along with Dr. A. Vijay Shankar from the Department of ECE as Co-Principal Investigator. These projects contributed to product development, structural health monitoring, and medical device engineering.

Defense, DST, and AICTE Funded Completed Projects

Several completed projects funded by national agencies highlight the department’s long-standing research contributions. The “Center of Excellence in Composites” project was funded by DST-FIST with a sanctioned amount of 40 lakhs approved in November 2014 and coordinated by Dr. A. V. Ratna Prasad, Dr. K. Mohana Rao, Dr. K. Naga Malleswara Rao, Mr. N. Vijay Kumar, and Mr. K. Ramanaiah. A defense-funded project titled “Hydrodynamic and Acoustic Analysis of a Metallic and Composite Marine Propeller” was supported by NSTL, Visakhapatnam, sanctioned in May 2020 for one year with funding of 6 lakhs and coordinated by Dr. S. Srinivasa Prasad, Dr. B. Raghava Rao, and Dr. V. Bala Krishna Murthy. Another DRDO-funded project titled “Analysis and Fabrication of a Bracket of a Space Vehicle using FRP Composite Material” was sanctioned by Research Centre Imarat, Hyderabad, in January 2017 for two years with funding of 8.9 lakhs and coordinated by Dr. V. Bala Krishna Murthy, Dr. N. Vijaya Sai, Mr. P. Satheesh Kumar Reddy, Mr. V. V. Venu Madhav, Mr. P. Gopinath Chowdary, and Mr. N. Pardhasaradhi.

Laboratory Modernization and Infrastructure Development Projects

The department has completed multiple projects focused on laboratory modernization and infrastructure enhancement through AICTE schemes. The “Modernization of Metrology

Laboratory” project was funded by AICTE under MODROBS, sanctioned in May 2019 for two years with funding of 15.29 lakhs and coordinated by Dr. N. Vijaya Sai and Dr. G. Dilli Babu. Another completed project titled “Composite Flex Seal Design” was funded by DRDL, Hyderabad, under ANSP Lab, sanctioned in 2013 for six months with funding of 9 lakhs and coordinated by Dr. N. Ravi Kumar, Dr. V. Bala Krishna Murthy, and Dr. G. Samba Siva Rao. The “Machine Vision Technology for Automobile and Agricultural Based Small Scale Industries” project was funded by AICTE under the Research Promotion Scheme, sanctioned in March 2015 for three years with funding of 14.11 lakhs and coordinated by Dr. N. Ravi Kumar. These projects strengthened laboratory capabilities and supported applied industrial research.

Materials, Manufacturing, and Mechanical Systems Research Projects

Completed projects in materials science and manufacturing include the “Investigating the Effect of Heat Treatment on Microstructure and Mechanical Properties of Weldments using Computer Integrated Optical Microscope” project funded by UGC under the Major Research Project scheme, sanctioned in November 2014 for three years with funding of 3.3 lakhs and coordinated by Dr. M. Bala Chennaiah. The project “Analysis and Optimization of Mechanical Hardware of INS Mounted on a Bracket in a Space Vehicle” was funded by Research Centre Imarat, Hyderabad, sanctioned in July 2013 for six months with funding of 5.3 lakhs and coordinated by Dr. V. Bala Krishna Murthy. Another project titled “Experimental Investigation of Agro Waste–Nano Clay Reinforced Composites” was funded by UGC under MRP, sanctioned in July 2012 for three years with funding of 11.76 lakhs and coordinated by Dr. A. V. Ratna Prasad. These projects contributed to advancements in materials characterization and aerospace component analysis.

Early-Era Sponsored Projects and Research Legacy

Earlier sponsored projects demonstrate the department’s long-standing research legacy. The “Modernization of CAM Lab” project was funded by AICTE under MODROBS, sanctioned in March 2012 for one year with funding of 6.6 lakhs and coordinated by Dr. A. V. Ratna Prasad. The “Experimental Investigations on Preparation and Properties of Copper Alloy–Fly Ash Composites by Powder Metallurgy” project was funded by AICTE under RPS, sanctioned in December 2012 for two years with funding of 9.3 lakhs and coordinated by Dr. N. Vijaya Sai. The “Fault Diagnostics in Rotor Bearing System” project was funded by AICTE under RPS, sanctioned in January 2011 for two years with funding of 7.5 lakhs and coordinated by Dr. C. Naga Raju. The “Fracture Analysis of IM Composite Rocket Motor Casing” project was funded by DRDO, sanctioned in January 2010 for two years with funding of 9.92 lakhs and coordinated by Dr. K. Mohana Rao. These projects reflect sustained excellence in mechanical engineering research.

The current intake for the B.Tech program is 120 students (formerly 180, check latest seat matrix).

Cutoffs vary by category; however, the closing rank typically ranges from **15,000 to 55,000** depending on the admission cycle and category.

Yes, the UG program has been accredited by the **National Board of Accreditation (NBA)** multiple times (currently under Tier-1 status).

Students with a Diploma in Mechanical Engineering from a recognized board with at least 45% marks (40% for reserved categories) are eligible for lateral entry into the 2nd year.

The annual tuition fee is approximately **₹70,000 to ₹1,00,000**, as per the latest Andhra Pradesh Higher Education Regulatory and Monitoring Commission (APHERMC) guidelines.

The department offers M.Tech and specializations in **CAD/CAM** and **Thermal Engineering**.

Yes, students are encouraged to complete NPTEL or Coursera certifications as part of their "Open Electives" or self-learning credits.

Yes, students can opt for a **Minor Degree** in fields like CSE, AI&ML, or Data Science by earning 18–20 additional credits.

Students are trained in **AutoCAD, CATIA, Creo, ANSYS, and MATLAB**.

Siemens Center of Excellence (CoE) is a state-of-the-art facility established in collaboration with APSSDC and Siemens, offering training in Product Design, CNC Programming, and Digital Manufacturing.

Key labs include the **IC Engines Lab, Heat Transfer Lab, Metrology Lab (with CMM), and the Robotics & Mechatronics Lab**.

The department has industrial-grade **CNC Lathe and CNC Milling** machines for hands-on training.

Major recruiters include **JSW, Hyundai, Ashok Leyland, L&T, KCP Ltd, and Tata Motors**.

many students secure roles in **TCS, Infosys, Wipro, and Cognizant** through the college-wide placement drives.

The highest package for Mechanical typically ranges between **₹8 LPA to ₹12 LPA**, while the average is around **₹4 LPA**.

Over **24 faculty members** in the department hold Ph.D. degrees from prestigious institutes like IITs and NITs.

Research focus includes **Composite Materials, Alternative Fuels (Biodiesel), CFD, and Additive Manufacturing**.

You can join student chapters of **ASME** (American Society of Mechanical Engineers), **SAE** (Society of Automotive Engineers), and the **Institution of Engineers (IE)**.

Mechanical students regularly design and build off-road vehicles for national competitions like **BAJA SAEINDIA** and various Go-Kart championships.

the college hosts **AFOSEC**, a national-level technical symposium where Mechanical students showcase projects and compete in technical events.

Eagle Club is a college-level club focused on competitive exams like GATE, GRE, and CAT preparation.

You can contact the **Head of the Department (HOD)** or use the college's online grievance redressal portal.

The labs are structured to support both the **B.Tech (Mechanical)** and **M.Tech (Thermal/CAD-CAM)** programs.

Core Engineering Labs

- **IC Engines Lab:** This facility is utilized in the **5th Semester** for performance testing and combustion analysis of petrol and diesel engines; it features computerized VCR engines and multi-fuel test rigs.
- **Heat Transfer Lab:** Dedicated to **6th Semester** students, this lab focuses on the three modes of heat transfer (conduction, convection, radiation) using equipment like Pin Fin and Emissivity apparatus.
- **Fuels and Models Lab:** Used in the **5th Semester**, this lab provides hands-on experience with automobile chassis and the evaluation of fuel properties like viscosity and calorific value.
- **Metrology Lab:** Students in the **7th Semester** use this lab for precision measurement technologies, featuring advanced tools like the **Coordinate Measuring Machine (CMM)** and Profile Projectors.
- **CAM Lab (Computer Aided Manufacturing):** Catering to **8th Semester** UG and **M.Tech CAD/CAM** students, it houses CNC Lathes, Milling machines, and Robotic Manipulators for part programming training.

Specialized & R&D Labs

- **Advanced Thermal Engineering Lab:** Primarily used for the **M.Tech Thermal Engineering** program, focusing on Solar Thermal systems and Wind Energy training.
- **Centre of Excellence in Composites:** A **DST-FIST funded** facility (₹60 Lakhs) used for the characterization of materials, featuring Tensometers and Wear Test Rigs.
- **Siemens Center of Excellence:** A collaborative hub for industry-ready training in digital manufacturing and industrial automation.
- **3D Experience Centre:** Powered by **Dassault Systèmes**, this lab is used for solid modeling and simulation using software like **CATIA, SIMULIA, and DELMIA**.

Software & Technical Capabilities

To prepare students for industry roles, the department integrates specific software suites into the academic timeline:

- **Design & Modeling:** AutoCAD, CATIA, and Creo.

- **Analysis & Simulation:** ANSYS and MATLAB.
- **Manufacturing:** CNC Simulation software and 3D Printing (Additive Manufacturing).

The department currently operates with 35 faculty members, of whom 24 hold doctoral degrees.

- **Dr. P.V. Rao's** designation is **Vice Chancellor** with email id **vc@vrsiddhartha.ac.in**.
- **Dr. A.V. Ratna Prasad's** designation is **Pro-Vice Chancellor** with email id **provc@vrsiddhartha.ac.in**.
- **Dr. N. Ravi Kumar's** designation is **Professor & Head of Department** with email id **hodme@vrsiddhartha.ac.in**.
- **Dr. B. Raghava Rao's** designation is **Professor & Dean Academics** with email id **dac@vrsiddhartha.ac.in**.
- **Dr. Ch. Naga Raju's** designation is **Professor** with email id **chnagaraju@vrsiddhartha.ac.in**.
- **Dr. V. BalaKrishna Murthy's** designation is **Professor** with email id **vbkmurthy@vrsiddhartha.ac.in**.
- **Dr. S. Srinivas Prasad's** designation is **Professor** with email id **ssprasad@vrsiddhartha.ac.in**.
- **Dr. G. Dilli Babu's** designation is **Associate Professor** with email id **gdillibabu@vrsiddhartha.ac.in**.
- **Dr. K. Naga Malleswara Rao's** designation is **Associate Professor** with email id **knmrao@vrsiddhartha.ac.in**.
- **Dr. M. Balaji's** designation is **Associate Professor** with email id **mbalaji@vrsiddhartha.ac.in**.
- **Sri. P. Sateesh Kumar Reddy's** designation is **Sr. Assistant Professor** with email id **pskreddy@vrsiddhartha.ac.in**.
- **Dr. C. Mahesh's** designation is **Sr. Assistant Professor** with email id **cmahesh@vrsiddhartha.ac.in**.
- **Dr. K. Ramanaiah's** designation is **Sr. Assistant Professor** with email id **kramanaiah@vrsiddhartha.ac.in**.
- **Dr. K. Srinivas's** designation is **Sr. Assistant Professor** with email id **ksrinivas@vrsiddhartha.ac.in**.
- **Sri. V. Sudeer Kumar's** designation is **Assistant Professor** with email id **vsudeerkumar@vrsiddhartha.ac.in**.
- **Dr. M. Suma Latha's** designation is **Assistant Professor** with email id **msumalatha@vrsiddhartha.ac.in**.
- **Dr. K. Prakash Babu's** designation is **Assistant Professor** with email id **kprakashbabu@vrsiddhartha.ac.in**.
- **Dr. M. Bala Chennaiah's** designation is **Assistant Professor** with email id **mbalachennaiah@vrsiddhartha.ac.in**.
- **Dr. B. Supraja Reddy's** designation is **Assistant Professor** with email id **bsuprajareddy@vrsiddhartha.ac.in**.

The placement cell ensures a mix of core engineering and IT opportunities for Mechanical students.

- The **Highest Package** recorded for the department recently reached **₹12 LPA**, while the college-wide highest was **₹44 LPA**.
- The **Median Salary** for undergraduate mechanical graduates is **₹4.50 LPA**.
- A total of **128 placement offers** were made specifically to Mechanical students during the 2023-24 academic year.
- Top **Core Recruiters** for the department include **Hyundai Motors, Ashok Leyland, L&T, JSW Group, Reliance Industries, KCP Limited, and Jasper Industries**.
- In the **IT and Consulting sector**, students are frequently placed in **TCS, Infosys, Wipro, Cognizant, Accenture, and Capgemini**.
- The **Placement Percentage** for the overall college remains strong at approximately **87.73%**, with Mechanical engineering maintaining a consistent presence in both national and multinational firm selections.