

# MECHANICAL ENGINEERING



# IARE

Institute of  
Aeronautical Engineering



When **I hear**, I forget  
when **I see**, I remember  
when **I do**, I understand



# VISION & MISSION

## VISION

To produce comprehensively trained, socially responsible, innovative electrical engineers and researchers of high quality who can contribute for the nations and global development.

## MISSION

The mission of Electrical and Electronics Engineering is to provide academic environment with a strong theoretical foundation, practical engineering skills, experience in interpersonal communication and teamwork along with emphasis on ethics, professional conduct and critical thinking. Further, the graduates will be trained to have successful engagement in research and development and entrepreneurship.



# About

## Mechanical Engineering

Mechanical engineers are involved with the design, analysis, testing, manufacturing, control, operation, and maintenance of, any system that has a moving part. It deals with all aspects of the conversion of thermal energy into useful work and the machines that make this possible. If you are intrigued by how things work, fascinated by robots and automobile engines, then mechanical engineering may be the profession for you.



# About DEPARTMENT

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**The department of Mechanical Engineering was established in the year 2004 with an initial intake of 60 students and further a section with 60 students is added in the year 2013. The department is also offering M.Tech program in CAD/CAM with an intake of 18 students since 2011.**

The B.Tech. (Mechanical Engineering) Program has been accredited by the National Board of Accreditation (NBA) since 2013. The department has 35 eminent faculty assisted by 16 industrially skilled technical staff that earned design and manufacturing consultancy. The department has signed MOU with various industries like MTE Industries, Sree Rama nonferrous Foundry, Automotive Robotics, Med equip Industries, Sanathan Industries, and Hyderabad Dies-Moulds etc.

The department has well equipped laboratories with research facilities viz., (a ACE Micromatic, Bangalore make) 6-Station Vertical Machining Centre, CNC lathe, with excellent metrology equipments. The CAD/CAM laboratory has latest software's for modeling and analysis like AUTOCAD, ANSYS, CATIA, FULENT, IRONCAD, CADDEM, MATLAB AND ADAMS etc.



# PROGRAM OUTCOMES (POS): (POs)

## **PO-I**

Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems (Engineering Knowledge).

## **PO-IV**

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 (Conduct Investigations of Complex Problems).

## **PO-II**

Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences (Problem Analysis).

## **PO-V**

Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations (Modern Tool Usage).

## **PO-III**

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 (Design/Development of Solutions).

## **PO-VI**

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 (The Engineer and Society).

# PROGRAM OUTCOMES (POS): (POs)

## **PO-I**

Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development (Environment and Sustainability).

## **PO-II**

Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice (Ethics).

## **PO-III**

Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings (Individual and Team Work).

## **PO-IV**

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 (Communication).

## **PO-V**

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-VI**

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 (Life-long learning).

# Programme Educational Objectives (PEOs)

A graduate of Institute of Aeronautical Engineering, Mechanical Engineering should enjoy a successful career in Mechanical Engineering or a related field after graduation.

The program aims to:

## PEO-I

To provide students with a sound foundation in the mathematical, scientific and engineering fundamentals necessary to formulate, solve and analyze engineering problems.

## PEO-III

To prepare students for successful careers in industry that meet the needs of local, Indian and multinational companies.

## PEO-II

To develop the ability among students to synthesize data and technical concepts for application to product design and prepares students to work as part of teams on multidisciplinary projects.

## PEO-IV

To promote student awareness for life-long learning and to introduce them to codes of professional practice, ethics and prepare them for higher studies

# PROGRAM SPECIFIC OUTCOMES (PSO's)

## PSO-I

To produce engineering professional capable of synthesizing and analyzing mechanical systems including allied engineering streams.

## PSO-II

An ability to adopt and integrate current technologies in the design and manufacturing domain to enhance the employability.

## PSO-III

To build the nation, by imparting technological inputs and managerial skills to become Technocrats.



# ACADEMIC COMMITTEES:

## Department Advisory Board (DAB):

Mechanical Engineering Department has its own Department Advisory Committee which consists of:

- Head of the department concerned (Chairman)
- The entire faculty of each specialization
- Two experts in the subject from outside the college to be nominated by the Academic Council
- One expert to be nominated by the vice-chancellor of affiliating university
- One representative from industry/corporate sector/allied area relating to placement
- One postgraduate meritorious alumnus

## Programme Advisory Committee (PAC)

1. **Dr. KGK Murti**, Professor of Mechanical Engineering, Institute of Aeronautical Engineering.
2. **Dr. K V Sarma**, Professor of Mechanical Engineering, Jawaharlal Nehru Technological University Hyderabad, Hyderabad.
3. **Dr. Manzoor Hussian**, Director of Admissions, JNTU Hyderabad.
4. **Dr. A Krishnaiah**, Professor and Head of Mechanical Engineering, College of Engineering, Osmania University, Hyderabad.
5. **Sri. G Bala Krishna**, Senior Design Manager, Cyient (Infotech), Hyderabad.
6. **Sri Prof. V.V.S.H Prasad**, Head of Mechanical Engineering, IARE, Hyderabad.
7. **Sri Ch Jayasimha Reddy**, CEO, MTE Industries, Domadugu Village, Jinnaram Mandalam, Medak Dist.



# Technical Stream Coordinators:

The roles and responsibilities of the stream coordinator are as follows:

Mechanical Engineering Department has its own Department Advisory Committee which consists of:

1. Coordinate and supervise the faculty teaching the particular course in the stream
  2. Responsible for assessment of the course objectives and outcomes.
  3. Recommends and facilitates workshops, faculty development programmes, meetings or conferences to meet the course outcomes
  4. Analyzes results of particular course and recommends the programme coordinator and/or Head of the Department for appropriate action
  5. Liaises with students, faculty, programme coordinator and Head of the Department to determine priorities and policies.
- The entire faculty of each specialization
  - Two experts in the subject from outside the college to be nominated by the Academic Council
  - One expert to be nominated by the vice-chancellor of affiliating university
  - One representative from industry/corporate sector/allied area relating to placement
  - One postgraduate meritorious alumnus

Stream Coordinators	
Thermal Stream	Dr. CH V K N S N Moorthy
Computational Fluid Dynamics	Dr. P Srinivasa Rao
Design Stream	Prof. V V S H Prasad
Production Stream	Dr. K G K Murti
Industrial Stream	Mr. U S Prabhakar Rao
CAD/CAM	Prof. N. Krishna Mohan

# PG Programme Coordinator:

## Major Responsibilities of department PG Coordinator:

1. Coordinates the academic activities of the Post Graduate Program in Machine Design
2. Monitor the course delivery and make suggestions for improvement.
3. Ensure the progress of the course delivery according to the lesson plan & course handouts
4. Ensure proper mentoring system for PG students by coordinating the staff advisors of various PG classes
5. Conduct the internal examinations and finalize the internal marks.
6. Ensure the quality of the Master's Thesis work and manuscripts extracted from the thesis are published in journals and conferences.
7. Conduct the bi-weekly meeting of the Post Graduate students and discuss the academic progress.
8. Ensure the adherence to the PG academic calendar.
9. Coordinate the preparation and communication of the project proposals formulated by the students & the respective guides for external funding.
10. Delegate the project advisory ship and guarantee the timely completion of the project/thesis work.
11. Attend the PG cluster meeting and provide appropriate direction to the PG course coordinators and thesis guides based on the decisions taken in the meeting.
12. Attend the college level PG coordinators' meeting by representing the department and make suggestions for improvement in PG academic curriculum.
13. Provide adequate and appropriate direction to the faculty members handling classes for PG in line with institute policy.
14. Ensure the required technical quality of the PG academic program by adopting the necessary measures and taking judicious decisions.
15. Any other PG program related responsibility entrusted by the HOD from time to time

## Major Responsibilities of department PG Coordinator:

Chief Laboratory Coordinator will coordinate the laboratory related matters by properly guiding, directing and advising the faculty in charge of labs.

# Roles and Responsibilities of Chief Laboratory Coordinator are:

1. Reporting authority of all the faculty members in charge of various laboratories under the department, with regard to academic matters related to the concerned lab.
2. The Chief laboratory coordinator, in consultation with HOD, shall issue appropriate directions and guidelines to the faculty member(s) in charge of labs for timely processing and completion of the regular academic work.
3. Shall take adequate and proper initiatives to purchase / maintain the equipments / instruments required in each lab, which will be processed by the concerned faculty member in charge of the laboratory.
4. Ensure the systemic up keeping of all files, documents and registers, pertaining to each laboratory, in updated condition so as to present the same before the various inspection committees/teams and also before HOD/Principal/COO as and when required. Proper directions will be issued to the faculty members in charge of laboratories accordingly.
5. Oversee and monitor the conduct of lab examinations (both internal and university) by intimating and informing the concerned faculty members handling the laboratory classes.
6. Devise and implement appropriate plans and strategies with the objective of enhancing the academic quality with regard to training and learning exercise in the laboratories.
7. Supervise the equipment/instrument calibration process in each lab by urging the department laboratory calibration in charge and the other associated faculty members.
8. Entrusted to take proper and timely decision with regard to any other matter related to training / purchase / audit / HR management / file keeping / maintenance / repair of laboratory equipment / personal etc. by properly coordinating the faculty in charge of labs, in consultation with HOD.

# Class Advisory System

Each class is assigned with a Chief Staff Advisor (CSA) or Teacher in Charge. To give individual attention and help the students in matter of personal and academic importance, a class of 60 is again divided into three equal groups of 20 each under a Staff Advisor. The students can seek for both personal and academic advices of Staff Advisors. Besides, two students are elected as the class representatives.

Never stop fighting until  
you arrive at your  
destined place  
- that is, the unique you.  
Have an aim in life,  
continuously acquire  
knowledge, work hard,  
and have perseverance  
to realize the great life



**A. P. J. Abdul Kalam**

## Major responsibilities of Chief Staff Advisor (CSA) are:

1. Co-ordination of the staff advisors for maintaining the accreditation-related files.
2. Consolidation of fortnightly attendance and publishing the same.
3. Reporting the activities and progress of the class to the respective Head of the Department.
4. Intimating the parents about the result of Series Examinations, University Examinations, PTA meetings etc.
5. Class monitoring, in order to get the feedback from the students regarding the various subjects taught during the semester.
6. Should monitor and consolidate the duty leaves for internal programme and forward the same to the Vice – Principal / Principal.
7. Convene the meeting of staff advisors and reporting to Head of Department.
8. Conduct class committee meetings / course committee meetings of the class
9. Any other academic responsibilities entrusted by the Principal/HOD from time to time.

## Major responsibilities of Staff Advisor (SA) are:

1. A friend, philosopher and advisor to the student.
2. Meeting the student once in a fortnight at least in normal circumstances.
3. Interaction with parents on academic and non-academic matters pertaining to the students in his/her group.
4. Ensuring the attendance of the student in class and general and total behavior including adherence to the dress code.
5. Grievance redressal of the students.
6. Maintenance of the student profile, which include the progress of the student since his/her inception in the first year
7. Reporting to the Head of the Department in the fortnightly appraisal form for the first and second half of the month, through the CSA & Chief Coordinator (Staff Advisory System).
8. Motivating the students for co-curricular and extra-curricular activities.
9. Identifying the strength and weakness of students and timely action for special attention can be suggested to the Head of the Department.
10. Should update the attendance and marks in the website.
11. Any other student mentoring related duties assigned by the CSA with regard to the mentees under the SA.



# Lab Facilities

The department has number of sector relevant laboratories which are well equipped with state of the art equipments which provides an opportunity to gain hands on experience of the instruments which are used in the industry. With exposure to such great facilities the students gain invaluable practical knowledge enabling them to meet the industry standards.

## HARDWARE LABS

Basic Engineering Workshop

Metallurgy and Mechanics of Solids Laboratory

Production Technology Laboratory

Mechanics of Fluids and Hydraulic Machines Laboratory

Thermal Engineering Laboratory

Machine Tools and Metrology Laboratory

Theory of Machines Laboratory

Heat Transfer Laboratory

Instrumentation and Control Systems Laboratory

## SOFTWARE LABS

Machine Drawing Through CAD Lab

Fluid Thermal Modelling and Simulation Laboratory

Computer Aided Design and Production Drawing Practice

Computer Aided Numerical Control Laboratory

Robotics simulation laboratory

## BASIC WORKSHOP

This laboratory is intended to provide hands on experience for the common engineering practices to equip the students for shaping of metals & non-metals and principles of domestic electrical house hold utilities & appliances. Also exposure to the machine tools lab.

Facilities: Carpentry, Fitting, Electrical wiring, Plumbing, Foundry, Tin smithy, Black smithy and standard conventional machine tools and power tools.



## METALLURGY AND MECHANICS OF SOLIDS LABORATORY

To investigate the constitutive relations and mechanical properties of metals and their micro structure to determine strength and toughness for engineering applications.

### Facilities:

The laboratory is established with computerized universal testing machine to determine micro strains using standard specimen along with compression, torsion, spring and deflection test rigs. Possessing unique trinocular video microscope supported by sufficient number of binocular microscopes along with specimen preparation and standard comparison ASME grain size specimens.



## MACHINE DRAWING THROUGH CAD LAB

To prepare orthographic, sectional, part and assembly drawings as per BIS standards and to develop bill of materials using AutoCAD.

**Facilities:** 60 numbers High configuration Dell desktop systems with licensed AutoCAD version 2016.



## COMPUTATIONAL MECHANICAL ENGINEERING LABORATORY

To develop MAT Lab programs for intra and inter disciplinary complex engineering problems.

**Facilities:** 60 numbers High configuration Dell desktop systems with licensed MAT Lab version 8.5.



## PRODUCTION TECHNOLOGY LABORATORY

To study different manufacturing processes.

**Facilities:** Wood working lathes, Electrical melting furnace, TIG welding, MIG welding and Plasma welding, Injection and blow moulding, Hydraulic presses with simple, compound and progressive dies, equipment for special casting processes, Pipe bending and riveting tools.





# MECHANICS OF FLUIDS AND HYDRAULIC MACHINES LABORATORY

To study and characterize the Newtonian fluids and understand the mass, momentum and energy.

**Facilities:** Venturi & orifice meters, Pipe friction, Impact of jets, Flow through notches and weirs, Impulse and reaction turbines, Centrifugal and reciprocating pumps.



# THERMAL ENGINEERING LABORATORY

To study the performance of SI and CI engines.

**Facilities:** Cut sectioned petrol and diesel engines, Multi cylinder petrol engine, Single cylinder petrol engine, 4-Stroke diesel engine, Variable compression ratio diesel engine, Air compressor test rigs. Boiler models, Assembly and dis-assembly of engines.



# MACHINE TOOLS AND METROLOGY LABORATORY

To understand different machining and characterization of the geometrical and dynamic parameters.

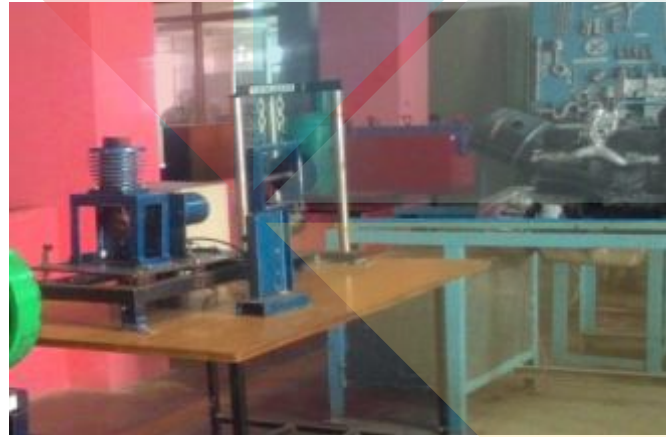
**Facilities:** Lathes, Drilling, Planning, Slotting, Shaper, Surface grinding, Cylindrical grinding, Tool and cutter grinder, Milling, Gear tooth Vernier, 2 and 3 wire, Tally surf, Surface plate, Bevel protractor, Sine bar, Slip gauges, Toolmakers microscope.



# THEORY OF MACHINES LABORATORY

To study the basic mechanisms for mobility and forces that are acting, analyse and synthesise the machines.

Facilities: Test rigs for Gyroscope, Governors, Bearings, Vibration and Indexing mechanisms.



## HEAT TRANSFER LABORATORY

To understand fluid flow through pipes, external flows associated with thermal time boundaries.

Facilities:

Hypermesh, Fluent, Gambit, 60 numbers High configuration Dell desktop systems



## FLUID THERMAL MODELLING AND SIMULATION LABORATORY

To understand fluid flow through pipes, external flows associated with thermal time boundaries.

Facilities: Hypermesh, Fluent, Gambit, 60 numbers High configuration Dell desktop systems





# COMPUTER AIDED DESIGN AND PRODUCTION DRAWING PRACTICE

Understand code of drawing practice using parametric modelling software's and analyse thermal and structural complex engineering problems.

Facilities: 60 numbers High configuration Dell desktop systems with licensed CATIA and ANSYS modelling software's.



## COMPUTER AIDED NUMERICAL CONTROL LABORATORY

To understand the basic principles of CNC machines and prepare the process planning and tool layouts and executing the part programs.

Facilities: CNC vertical machining center, CNC turning centre, 3D printing machine, 6 Axis Aristo Robot, Basic hydraulic and pneumatic training kit, CAM software and Aristosim software.



## INSTRUMENTATION AND CONTROL SYSTEMS LABORATORY

To measure and calibrate physical quantities like pressure, temperature, speed, displacement, flow, and vibration in real time engineering applications using transducers with amplification circuits. **Facilities:** Capacitive transducer, LVDT, RTD, Thermistor, Thermocouple, Pressure gauge, Strain gauge, Photo and Magnetic speed pickup, Rotameter, Vibrometer, McLeod vacuum gauge



# Academic regulations

For pursuing four year undergraduate Bachelor Degree programme of study in Engineering (B.Tech) offered by Institute of Aeronautical Engineering under Autonomous status and herein after referred to as IARE.

## Choice Based Credit System

Choice Based Credit System (CBCS) is a flexible system of learning and provides choice for students to select from the prescribed elective courses. A course defines learning objectives and learning outcomes and

comprises of lectures / tutorials / laboratory work / field work / project work / comprehensive Examination / seminars / assignments / alternative assessment tools / presentations / self-study etc. or a combination of some of these.

Under the CBCS, the requirement for awarding a degree is prescribed in terms of number of credits to be completed by the students.

### **The CBCS permits students to:**

1. Choose electives from a wide range of elective courses offered by the departments.
2. Undergo additional courses of interest.
3. Adopt an interdisciplinary approach in learning.
4. Make the best use of expertise of the available faculty.



# MEDIUM OF INSTRUCTION

The medium of instruction shall be English for all courses, examinations, seminar presentations and project work. The curriculum will comprise courses of study as given in course structure, in accordance with the prescribed syllabi.

## TYPES OF COURSES

Courses in a programme may be of three kinds: Foundation / Skill, Core and Elective.

### Foundation / Skill Course

Foundation courses are the courses based upon the content leads to enhancement of skill and knowledge as well as value based and are aimed at man making education. Skill subjects are those areas in which one needs to develop a set of skills to learn anything at all. They are fundamental to learning any subject.

### Core Course

There may be a core course in every semester. This is the course which is to be compulsorily studied by a student as a core requirement to complete the requirement of a programme in a said discipline of study.



# ELECTIVE COURSE

Electives provide breadth of experience in respective branch and applications areas. Elective course is a course which can be chosen from a pool of courses. It may be:

- Supportive to the discipline of study
- Providing an expanded scope
- Enabling an exposure to some other discipline/domain
- Nurturing student's proficiency/skill.

An elective may be discipline centric (Professional Elective) focusing on those courses which add generic

proficiency to the students or may be chosen from an unrelated discipline called as Open Elective.

There are six professional elective groups; students can choose not more than two courses from each group. Overall, students can opt for four professional elective courses which suit their project work in consultation with the faculty advisor/mentor. Nevertheless, one course from each of the two open electives has to be selected. A student may also opt for more elective courses in his area of interest.

# Research FACILITIES

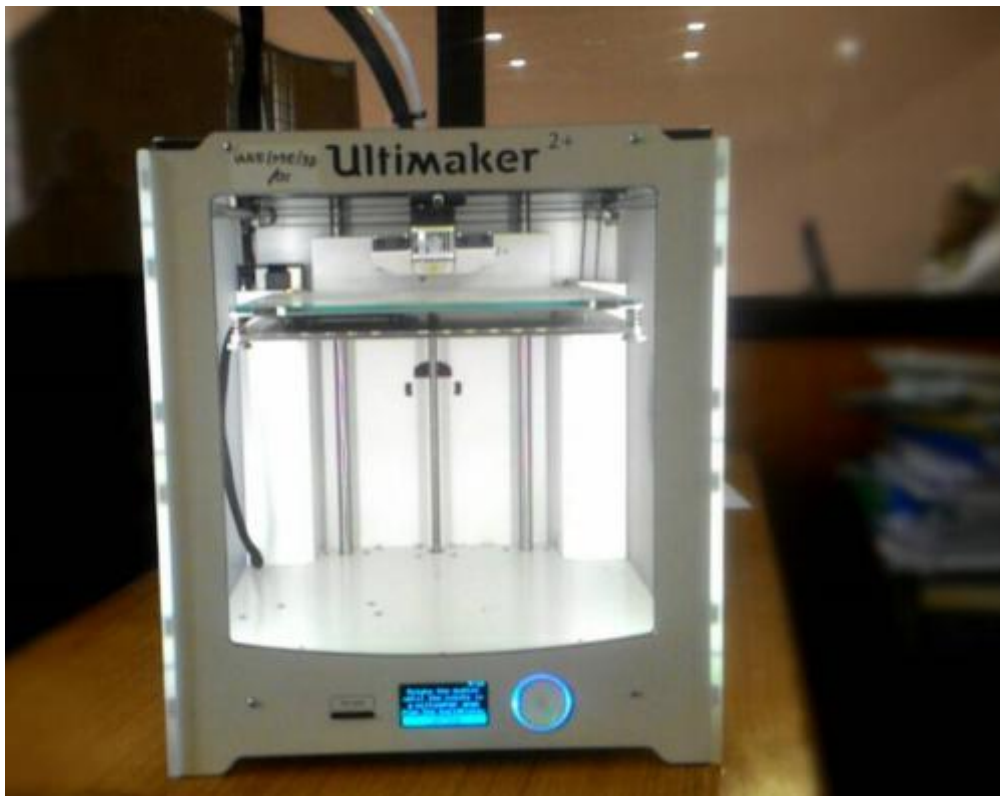


## Research and Development Centre

Research and Development (R & D) plays a critical role in the process of innovation. It is primarily an investment and effort in technology and future capabilities which is transformed into new products, processes, and services. IARE has taken a quantum leap into Research and Development initiatives in recent years, constantly encouraging faculty and students for out-of-the-box thinking and generating new and revolutionary ideas to bring about societal change.

IARE Research Centre put in motion proactive applied research to help solve the technical and scientific problems of the industries and defense organizations. It focuses on research areas related to educational research and develop tools and techniques to address the needs of a university, faculty members and prospective students.





IARE is devoted to enhancing knowledge through research across all academic disciplines. Focus areas include Nanotechnology, Environment, Aerospace and Dynamics, CAD/CAM, CNC Machining, Embedded Systems and Low Power VLSI Digital System Design. Emphasis is also being laid on Business Analytics, Big Data, Cloud Computing, Wireless technology and Multimedia for video, text processing and Next Generation Networks.

The Institution has to its credit, over 300+ research publications in International Journals, National Journals, International Conferences and National Conferences. This includes over 30+ research papers listed in the Scopus database. 04 Patents have been filed / granted to faculty and students. Earlier, eleven research proposals worth Rs. 2.43 crores have been submitted by faculty members for getting research grant from DST, UGC, AICTE and other Government agencies.

# CNC MACHINES

Rapidly changing market demands, designs, more complicate designs with variety of materials and low products life cycle time, made product designer to evaluate various design

alternatives within short period time. By using CAD/CAM & CAE made the task of product designer easier with more accuracy and precision. The facilities in the research lab includes a CNC Lathe and a Milling machine (Make: LMW, CNC: Sinumeric-Siemens).



# Industrial & Research and Consultancy

The Centre for Research & Consultancy was established to improve the Institute-Industry interaction and provide need based technology to existing industries. The Centre intends to carry out major consultancy projects, minor projects and testing work. Its aim is to bridge the gap between Industry and Institute and provide the necessary technical support to industries to solve their problems.



# Industrial & Research and Consultancy

The Centre for Research & Consultancy was established to improve the Institute-Industry interaction and provide need based technology to existing industries. The Centre intends to carry out major consultancy projects, minor projects and testing work. Its aim is to bridge the gap between Industry and Institute and provide the necessary technical support to industries to solve their problems.



## The Indian Society for Technical Education



The Indian Society for Technical Education is a national, professional, non-profit making Society registered under the Societies Registration Act of 1860. First started in 1941 as the Association of Principals of Technical Institutions (APTI), it was converted into Indian Society for Technical Education in 1968 with a view to enlarge its activities to advance the cause of technological education in the country.

## IARE ISTE Student Chapter

ISTE CHAPTER was established at Institute of Aeronautical Engineering on 2006. The Chapter started with 20 staff members and continued till date with all the staff members as registered members. IARE encourages the students and staff equally to become a member and take advantage of the various benefits of the Chapter. Every year the ISTE Student chapter of IARE conducts various events such as expert lectures, workshops, seminars, Industrial visits, etc. to assist staff and students for updating their technical knowledge.

## The Institution of Engineers India



The Institution of Engineers (India) (IEI), the premier professional body of engineers in India, has contributed significantly in all faculties of engineering and all sectors of applications like academics, administration, industry, infrastructure and consultancy. IEI has been functioning under the objectives laid down in the Royal Charter, sanctioned

in 1935, and has contributed to the national socio-techno-economic development policies.



## IARE IEI Student Chapter

IEI CHAPTER was established at Institute of Aeronautical Engineering in the year 2012. IARE encourages the students and staff equally to become a member and take advantage of the various benefits of the Chapter. The IEI chapter of IARE conducts various events such as expert lectures, workshops, seminars, Industrial visits, etc. to assist staff and students for updating their technical knowledge. The department of Mechanical Engineering conducted a National seminar on "Emerging trends on material sciences and technologies" in association with IEI, A.P Centre in the month of March 2014

## American Society of Mechanical Engineers



ASME is a not-for-profit membership organization that enables collaboration; knowledge sharing, career enrichment, and skills development across all engineering disciplines, toward a goal of helping the global engineering community develop solutions to benefit lives and livelihoods. Founded in 1880

by a small group of leading industrialists, ASME has grown through the decades to include more than 130,000 members in 151 countries. Thirty-two thousand of these members are students.

## IARE ASME Student Chapter

American Society of Mechanical Engineers (ASCE) is a community of students, faculty and staff members of the Department of Mechanical Engineering started in the year 2009. ASCE primarily aims at increasing the level of interaction among the students and faculty members, through several events and programs like conducting the Departmental Fresher's and Farewell ceremony and dinners, managing Mechanical Library, organizing industrial trips, movie sessions, lecture series, departmental magazines, summer camps etc.

## The Institution of Mechanical Engineers



The Institution of Mechanical Engineers (IMechE) is an independent engineering society, headquartered in central London that represents mechanical engineers. With over 113,000 members

in 140 countries, working across various industries, the Institution is licensed by the Engineering Council, UK (EngC) to assess candidates for inclusion on its Register of Chartered Engineers. Our Vision is to improve the world through engineering by inspiring the next generation, developing professional engineers and setting the agenda.

## IARE IMechE Student Chapter

The IMechE IARE Student Chapter India was initially established in the year 2015. Currently, there are over 150 active members based in IARE Student Chapter India supported by an active Group committee. If you are an existing student affiliate member or have recently joined to any professional course in IARE, Hyderabad and are considering joining the Institution of Mechanical Engineers, we would certainly like to hear from you.

# PLACEMENT SYLLABUS



## Aptitude Syllabus for B.Tech First Year

Numerical Aptitude	Logical Reasoning	Verbal Ability
How to Prepare for Maths Addition & Subtraction; Multiplication & Division; Divisibility; Squaring; Cube; Square roots & Cube roots; HCF & LCM; Fractions; Decimals; Fractions; Surds & Indices	Syllogism; Blood Relation; Venn Diagram; Series Completion; Directions and senses; Coding & Decoding	Grammar Introduction; Adverbs, Adjectives; Articles & Tenses; Subject verb agreement & Preposition Articulation skills; Listening skills; Techniques to reading; Essay and precis writing; Report writing; Presentation skills

## Aptitude Syllabus for B.Tech 3rd Semester

Numerical Aptitude	Logical Reasoning	Verbal Ability
Permutation and Combination; Probability; Ratio and Proportion; Partnership; Percentage; Average; Problems Based on Ages; Profit and Loss; Simple Interest; Compound Interest	Logical Deduction; Seating arrangement problems; Circular arrangement Problems; Inserting Missing Character	Communication; Listening skills; Reading comprehension; Presentation techniques; Group discussion; Interview skills; Technical writing skills; Curriculum Vitae; Report writing

Aptitude Syllabus for B.Tech 4th Semester		
Numerical Aptitude	Logical Reasoning	Verbal Ability
Alligation; Time and Work; Work and Wages; Pipes and Cisterns; Time and Distance; Trains; Boats and Streams; Elementary Mensuration-1; Measurement of Areas; Elementary Mensuration 2; Measurement of Volume and Surface Areas; Number series	Cubes and Dice; Data Sufficiency; Day Sequences; Puzzle test	Comprehension; Vocabulary Enhancement; Antonyms and synonyms; Choose the right word; One word substitutes; Subject verb agreement; Active and passive voice; Tenses; Articles and prepositions; GK exercise

Aptitude Syllabus for B.Tech 5th Semester		
Numerical Aptitude	Logical Reasoning	Verbal Ability
Data Analysis & Interpretation; Trigonometry; Clocks & Calendar; Chain Rule; True discount; Banker's discount	Number ranking and time sequence; Logical sequence of words ; Assertion and reasoning; Analogy	Speaking exercises; Conversations; Extempore; Grammar exercises; Vocabulary improvement game and exercises; Free Writing; Reading comprehension passages; Letter writing

Aptitude Syllabus for B.Tech 6th Semester		
Numerical Aptitude	Logical Reasoning	Verbal Ability
Permutation and Combination; Probability; Ratio and Proportion; Partnership; Percentage; Average; Problems Based on Age; Profit and Loss; Alligation; Time and Work; Work and Wages; Pipes and Cisterns; Time and Distance; Trains; Boats and Streams; Data Analysis & Interpretation ; Clocks & Calendar; Chain Rule	Syllogism; Blood Relation; Venn Diagram; Series Completion; Directions and senses; Coding and Decoding ; Logical Deduction; Seating arrangement problems; Circular arrangement Problems; Cubes and Dice; Data Sufficiency; Day Sequences; Puzzle test; Number ranking and time sequence of words	Group discussion Skills; Mock GD's; Interview; Skills; Mock Interviews; Personality development; Anger management; Corporate Grooming; Mobile phone etiquette; Dining etiquette

## EMINENT PROFESSORS



### Prof. V V S H Prasad

#### Professor & Head

**Prof. V V S H Prasad** is a professor and head of Mechanical Engineering has 35 years of vast experience in research and development, Industrial and Teaching. He is a graduate in Mechanical Engineering from the Institution of Engineers (India); M.Tech from JNT University, Hyderabad and is in the process of obtaining Ph.D from the Osmania University, Hyderabad. He worked for 25 years as a General Manager at M/S Praga Tools Limited, Hyderabad. He has published 10 research papers in reputed national and international journals.



**Dr. K G K Murti** is a senior professor in the department of Mechanical Engineering. He obtained B.Tech and M.Tech from Indian Institute of Technology (IIT), Chennai and Ph.D from the University of Madras. His career spans over 41 years which includes industrial, research in BHEL and teaching. He holds 2 patents to his credit and has published 80 research papers in national and international journals. He has guided 6 PhD scholars from IIT, Chennai and J N T University, Hyderabad



**Dr. CH VKNSN Moorthy** is a professor of Mechanical Engineering. He completed his B.Tech from KL University, Guntur; M.Tech in Heat Power Refrigeration and Air-Conditioning from JNT University, Ananthapuram. He was awarded Ph.D degree from GITAM University, Vishakhapatnam.

Dr. Moorthy has 15 years of teaching experience. He has published 6 scholarly articles in reputed international referred journals. He is on review panel for various international journals published by Springer, Elsevier, Sage and John Wiley. His thrust areas of research include NanoTechnology, Nano Fluid Heat Transfer, Automotive Coolants, Computational Fluid Dynamics (CFD) and Renewable Solar Energy.



**Dr. G.V. R. Seshagiri Rao** is working as Professor of Mechanical Engineering. He is a graduate in Mechanical Engineering from the Institute of Engineers (India); M.Tech from JNT University, Hyderabad and Ph.D from JNTU-Kakinada. He has 10 years of experience in teaching and 3 years in Industry. He has published 26 research papers in National and International journals. His thrust areas of research Design, Acoustics and Vibrations



**Dr. A K Kasiwanath** is working as Professor of Mechanical Engineering. He is a graduate in Mechanical Engineering from the Institute of Engineers (India); M.Tech from MANIT, Bhopal and Ph.D from NIT, Waranagal. He has 10 years of experience in teaching. He has published 26 research papers in National and International journals. His thrust areas of research stress analysis and Vibrations.



## EMINENT PROFESSORS



**Dr. G. Naveen Kumar** is an Associate Professor in the department of Mechanical Engineering. He obtained B.Tech from G. Pulla Reddy Engineering College (GPREC), Kurnool and M.Tech from National Institute of Technology, Tiruchirappalli (NIT-TRICHY) and Ph.D from J N T University, Ananthapuramu. His career spans over 9 years teaching experience. He published 13 research papers in national and international journals.

### Faculty

#### Professors

Dr.KGK.Murti - M.Tech, Ph.D

Dr. CH V K N S N Moorthy-M.Tech, Ph.D

Dr. P Srinivasa Rao – M.Tech, Ph.D

Dr. Adapa Rama Rao-ME, Ph.D

#### Associate Professors

Prof. G Naveen Kumar - M.Tech, Ph.D (Submitted)

Prof. GVR Seshagiri Rao - M.Tech, Ph.D (Submitted)

Prof. A K Kasiwanath - M.Tech, Ph.D (Submitted)

Prof. VKSVS Krishnam Raju - M.Tech

#### Assistant Professors

Mr. U S Prabhakar Rao-M.Tech

Mr. B V Satya Narayana Rao- M.E

Mr. N Krishna Mohan - M.Tech

Ms. A Somaiah- M.Tech, (Ph.D) (Pursuing)

Mr. G Sarat Raju- M.Tech, (Ph.D) (Pursuing)

Mrs. T Vanaja- M.Tech, (Ph.D) (Pursuing)

Mrs. N Santhi Sree- M.Tech, (Ph.D) (Pursuing)

Mr. B D Y Sunil- M.Tech,(Ph.D) (Pursuing)

Mr. C Labesh Kumar- M.Tech

Mr. M V Aditya Nag- M.Tech

Mr. V Mahidhar Reddy- M.Tech

Mr. S Srikrishnan- M.E

Mr. CH Satya Sandeep– M.Tech

Mr. A Anudeep Kumar- M.Tech

Mr. M Sunil Kumar- M.Tech

Mrs. D Krishnaja- M.Tech

Mrs. J Swetha- M.Tech

Ms. G Karunya- M.Tech

Mr. . Prashanth Reddy - M.Tech

Mr. A Venuprasad - M.Tech

Mr. G S Vivek - M.Tech

Mr. S Lokesh - M.Tech

### Associations

1. The department has got memorandum of understanding with leading organizations like M/s Cyient (Infotech), M/s MTE Industries, M/s Airhub technologies, M/S Sanathan Industries, M/s Envirotech technologies, M/s BEVCON WAYERS Pvt.Ltd for Industrial consultancy and Research Projects.

2. A Number of Guest Lectures and Training Programs, workshops were conducted under Professional Society activities, under the auspices of MESTA, IMECHE, SAE, IEI, Technical Associations.

3. Conducted workshop Jointly with The Institution of Engineers (India), Andhra Pradesh State Centre In association with Institute of Aeronautical Engineering on "Emerging Technologies in Material Sciences and Engineering".

### Funded Projects

1. Innovation Process Design and Manufacturing of run flat systems. NID Ahmadabad (Govt of India) and M/S Sanathan Industries – Hyd –IARE-Hyd.

2. Design of Tooling and Fixture development for thread rolling machine components. MTE Industries Pvt.Ltd, Narsapur Road, Hyderabad.

3. Design and development of jaw crusher for Dalmai Cements by BEVCON WAYERS Pvt.Ltd, Hyderabad.

4. National Seminar on Recent Trends in welding Process for Automotive Industries-Approved by DST Govt of India

### Students Achievements

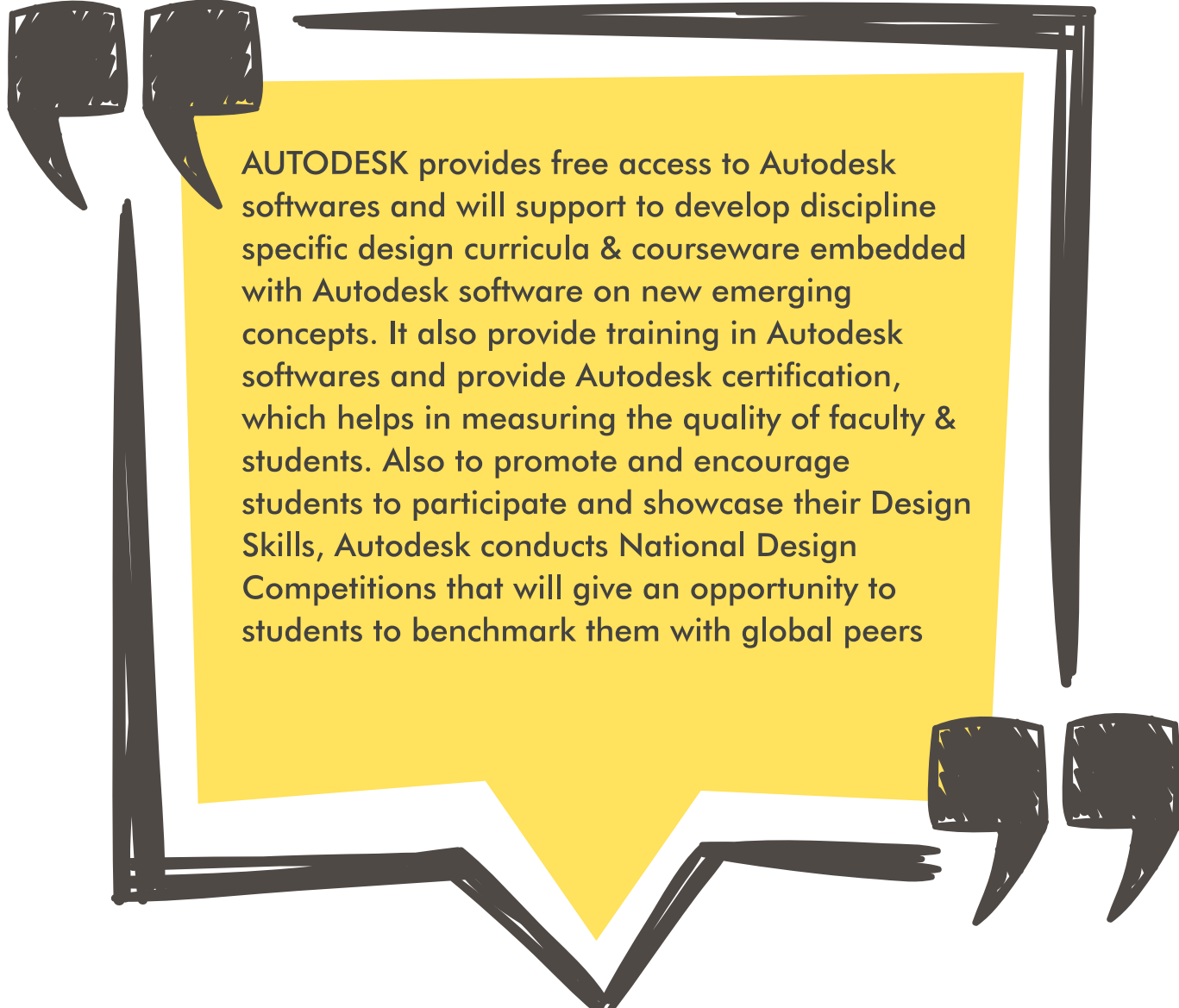
A National Level SAE SUPRA Championship 2015-2016, Participated 25 Students from Mechanical Engineering department and cleared technical inspection round among 300 teams, conducted at New Delhi.

2. A National Level Hybrid Go-Kart Championship 2014-2015, Participated 14 Students from Mechanical department and placed 14th Position among 150 teams

# MEMORANDUM OF UNDERSTANDING (MOU'S)


The department has signed MOU's with Autodesk Asia PTE Ltd, CADD Centre Training Services and MTE Industry.

## Autodesk Asia PTE Ltd.



AUTODESK provides free access to Autodesk softwares and will support to develop discipline specific design curricula & courseware embedded with Autodesk software on new emerging concepts. It also provide training in Autodesk softwares and provide Autodesk certification, which helps in measuring the quality of faculty & students. Also to promote and encourage students to participate and showcase their Design Skills, Autodesk conducts National Design Competitions that will give an opportunity to students to benchmark them with global peers

# CADD Centre Training Services



2.CADD Centre provides training in mechanical design & CAD softwares to students as part of their curriculum as per the latest trends in the area of mechanical design. The training is in accordance with latest software and industry requirements

## MTE Industry



.MTE always focuses on Customer Delight and have been delivering the right product at the right price. The combination of experienced machine tool designers, one of the best machine tool manufacturing facilities and dedicated application/service team helps us achieve our commitment to the industry. The innovative technology, desired quality and reliability in the products is what MTE gives to its customers



# **Institute of Aeronautical Engineering** (Autonomous)

Approved by AICTE | NAAC Accreditation with 'A' Grade | Accredited by NBA | Affiliated to JNTUH, Hyderabad

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