

### ABOUT THE INSTITUTE

Alva's Institute of Engineering and Technology (AIET) is a premier engineering institute of Alva's Education Foundation established in the year 2008. AIET college is found adjacent to Moodbidri-Mangalore national highway, which is 24km from Mangalore international airport. AIET College has glorious infrastructural facilities that embrace spacious college rooms, well equipped laboratories, well stocked with hostels, canteen, transportation facility, library, Wi-fi etc. In short, each fashionable convenience has been provided to make sure that students learn in a setting that stimulates thinking and builds confidence to satisfy the challenges of tomorrow. Alva's Education Foundation is functioning on a singular method of mapping the aspirations of the engineering students together with skilled counselors.

### ABOUT THE DEPARTMENT

Department of Mechanical Engineering was established in the year 2008, recognized by AICTE, New Delhi and affiliated to VTU, Belgaum. The Department is running Undergraduate course (B.E.) in Mechanical Engineering with an intake of 180 students and Post Graduate course (M.Tech) in Thermal power engineering with an intake of 18 students. The Department is also recognized as a research centre by VTU and Research scholars are pursuing Ph.D programme in this centre. Department vision is to develop Quality Mechanical Engineers to meet the ever growing and ever changing needs of the economy. To strive hard in Inculcating students with best knowledge and latest skills to ensure competitive edge in the current standard. The Department is committed to provide high quality technical education at U.G and P.G level by means of state of art curriculum with best teaching-learning process. The main objective of the department is to provide academic excellence, knowledge and nurture talent in the area of Mechanical Engineering.

### VISION OF THE DEPARTMENT

Impart Quality Technical Education to excel in Mechanical Engineering to meet the needs of the community.

### MISSION OF THE DEPARTMENT

1. Empower Student knowledge in basic and applied areas of Mechanical Engineering.
2. Strengthening collaboration with industries, research organisations and institutes for internship, joint research and consultancy.
3. To inculcate entrepreneurial skills and human values in order to cater the needs of society.
4. Exposure to industrial practices for managerial skills and professionalism

**Alva's Institute of Engineering and Technology, Mijar,  
Shobhavana Campus, Mijar, Moodbidri—574225  
Mangalore Dist., Karnataka, India.**



## Department of Mechanical Engineering

### Contact Details

**Dr. Satyanarayan**

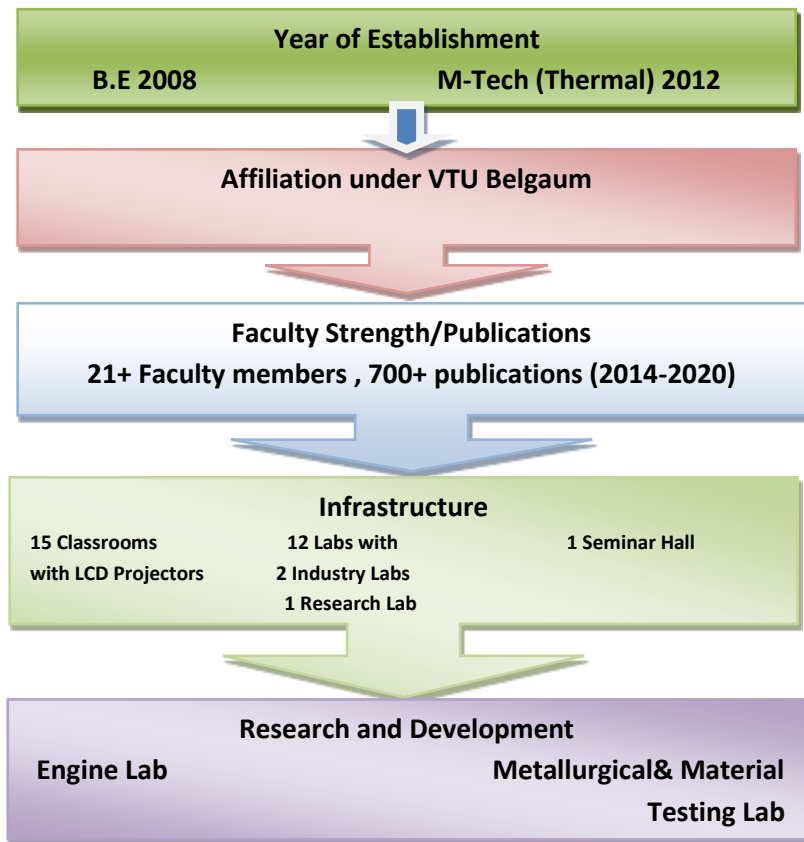
**HOD, Mechanical Engineering**

**Alva's Institute of Engineering & Technology,  
Shobhavana Campus, Mijar, Moodbidri—574225  
Mangalore Dist., Karnataka, India.**

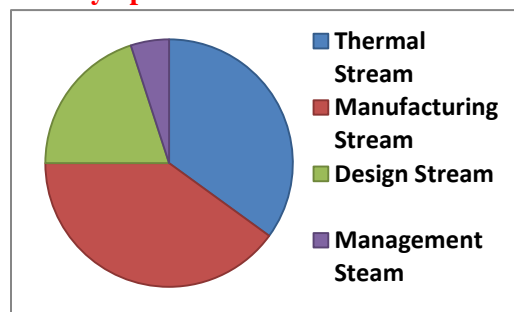
**Mobile Number: 9964810960, 08258 – 262724, 25**

**Website :** <https://www.aiet.org.in/department/mechanical-engineering/>

## DEPARTMENT AT A GLANCE



## Faculty Specialization



## Total Publication

**Indexed Journal- 262**  
**Non Indexed Journal-564**

Three Professors with Ph.D, 20% of the professors with 15 years of teaching experience, 50% of the professors with 10 years of teaching experience , more than 20% of the professors with 5 years of teaching experience.

## MESSAGE

**Dr. M. Mohan Alva, Chairman, AEF**

Knowledge is power and education is a path to imbibe it. Alva's Education Foundation (AEF) purports to do exactly the same that is, transform education into knowledge. It is knowledge that will empower the youth of today to understand the information explosions taking place in the rapidly globalizing world. Personal integrity and ethics can be maintained only with a strong mind and a mind can become strong only with knowledge.

Alva's Education Foundation (AEF) aims to develop individuals who will be ready to take up real challenges presented to them. At the same time foundation wants these individuals to be culturally and ethically enlightened because not only the industry but our country needs such individuals today. Alva's Education Foundation (AEF) also believes in sensitizing students to the Indian culture and ethos to preserve the basic fabric of the Indian society. Sports are the integral part of the foundation curriculum that aims at developing a competitive spirit amongst the students. In brief Alva's Education Foundation aims at holistic development of students who will ultimately become responsible citizens of this country.

## UNIQUENESS OF THE DEPARTMENT

- The department is functionally divided into four broad areas of specialization with well qualified and dedicated faculty: (i) Design (ii) Manufacturing (iii) Thermal and iv) Materials Engineering.
- The students undergo hands-on-training in industrial relevant laboratories.
- The value added basic courses benefit the students to ignite their area of interest moving ahead.
- Students have filed for patent based on research projects.
- The department is recognized as research centre by VTU Belagavi
- The faculties and students have published more than 200 publications in reputed journals and conferences.
- Industry institute interaction through MoU and Non-MoU activities
- Regular organizing of FDP/STP/workshops, conferences.
- The department is recognized as nodal centre for PMKVY Automotive sector skill development programs such as CNC, Lathe, welding practices.
- The students are involved in forums and clubs to unleash/nurture their talent in curricular, extracurricular, cultural, sports
- The Auto club of department successfully designed, developed formula race car and received appreciation in national formula race event.
- Student mentoring program is well designed to achieve comprehensive development.

## DOMAINS OF EXPERTISE

Bio Diesel and Alternative Fuels  
Bio-quenchants for heat transfer applications  
Composite materials  
Thermal interface materials (TIM)  
Solidification and Mechanical behavior of Al-Sn alloys  
Lead-Free solders  
Super hydrophobic surfaces in nature  
Thermal properties of materials

## MEMORANDUM OF UNDERSTANDINGs (MOUs)

### Foreign Universities

Kumamoto University ,Kumamoto, Japan

### Govt. Organizations for Students projects and Internships

NARL ISRO, Thirupati, NRSC ISRO, Hyderabad, IISC , Bangalore, HAL (F& F Division), Bangalore, RRSC ISRO, Bangalore, ISAC Bangalore BEL ,Bangalore, BHEL Banaglore, DIAT Pune, Manalore university.

### Private Industries and organizations

SKF Boilers Moodbidri, Agrima Roof Bangalore, AMCAT Bangalore, V&G Industrial Testing Laboratory , Mangalore .

## LEARNING METHODOLOGY

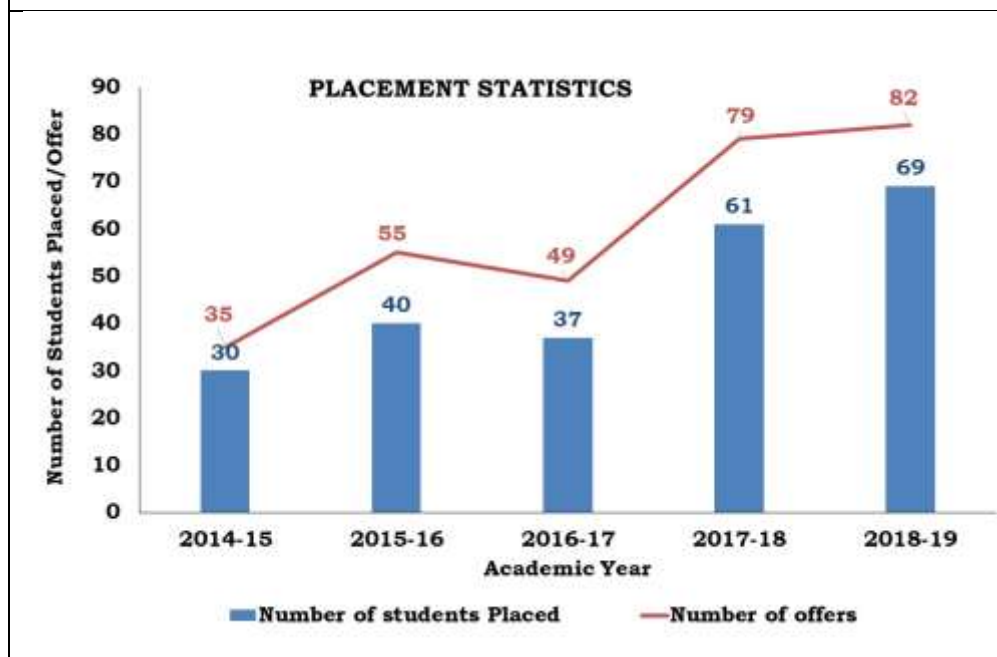
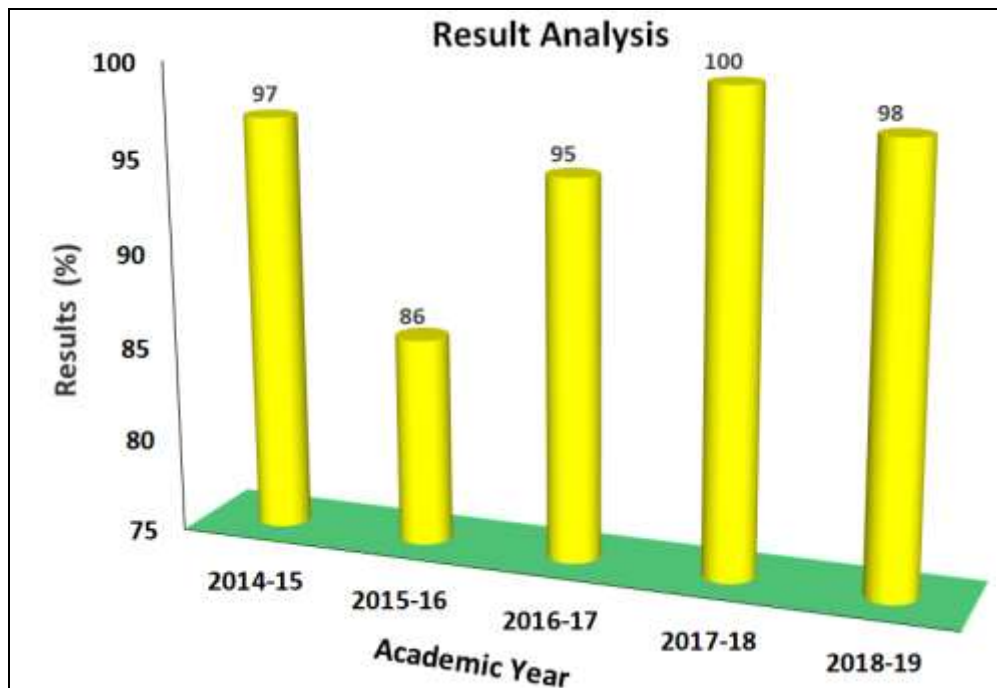
|                        |  |
|------------------------|--|
| Interactive learning   | Video Classes, NPTELcourse,E-Learning        |
| Active Learning        | Active Lab task, Hands on Training, Auto Lab |
| Collaborative Learning | Auto Club, Innovation Club, Activity Class   |
| Project based Learning | Internships, Project work, Mini Projects     |
| Supportive Learning    | Workshops, Hands on Training                 |
| Independent learning   | Students seminar, Technical Debate           |

## INTERSHIP OPPORTUNITIES FOR STUDENTS

HAL, Bangalore, NMPT, Mangalore, Toyota, Bangalore, TIFR, Mumbai. ISRO, Bangalore MCF, Mangalore, TIEI ,Bangalore, Triveni Engineering, NAL, Bangalore, MRPL, Mangalore, Toyota Kirloskar, TVS motor Company ,BHEL , Bangalore, NRSC ISRO, Hyderabad, Myco Industries, United Rubber Industries TVS, Mysore ,F& F Division HAL ,New Mangalore Post Trust Wonderla, Bangalore, NRAL ISRO, Thirupati ISAC Bangalore ,NIIST, Trivendrum ,Gama industries Pvt. Ltd and many more companies.

Students are undergoing training and internship in more than 150+ industries in India and even outside the India.

## STUDENT RESULT AND PLACEMENTS





## BEST PRACTICES OF MECHANICAL DEPARTMENT

### Innovative Teaching

Mini Projects  
and  
Activity Classes

Industrial Visits  
(6/Sem) &  
Internships

Hands on Training  
CNC, CATIA, ANSYS

NPTEL Course for  
Every Student

12 Guest Talks in  
Every year

Skill Development  
Student Seminar,  
Quizzes, GD  
assignments, Activity

Faculty Video Lectures  
Impartus, NPTEL, EduSAT

Simulation Labs  
(ANSYS, Solid Edge,  
CATIA, CNC Labs

Foreign  
Internships and  
Research  
Collabration

### Major Laboratories

IC Engine Lab  
Material Testing Lab  
Fluid Machinery Lab  
Metrology and Measurement Lab  
Ansys - Analysis Lab  
Heat Transfer Lab  
Energy Conversion Lab  
Design Lab  
Innovation and We Lab  
Computer Aided Modeling Lab  
Machine Shop  
Fabrication Lab  
Foundry and Forging Lab  
CAED Lab  
Active Learning Lab  
F&F Lab  
Machine Shop  
Fabrication Lab

### Major Laboratory Equipment

Computerized Diesel Engine Test  
Setup  
CNC Lathe and Milling  
Single Cylinder Four Stroke Test  
Rig  
Metallurgical Microscope  
Emission Test Rig  
Profile Projector  
Center Lathe (20 No's)  
Drilling and Milling Machine  
Air-Conditioning Test Rig  
Tool Maker's Microscope  
Multi Cylinder Four Stroke Test Rig  
Wear Testing Setup  
Induction Furnace  
UTM Machine  
TIG Welding Setup  
Journal Bearing Test Rig

## CURRICULAR ASPECTS

Employability

Pre placement (Boot Camp) training for every students.  
Industry specific training for every students.  
Compulsory internship programme.  
Industry supported syllabus and activity class.  
AMCAT assessment in every semester.

Innovation

Auto club and Innovation lab for promoting innovation.  
Active Learning in envision Lab and Activity class every day.  
Students are actively involved in multi disciplinary projects.

Entrepreneurship

CNC Hands on Certification course for every student.  
Training through Entrepreneurship Development cell  
Guest talks on Entrepreneurship.  
PMKVY Course for Students skill development.

## AUTO CLUB - STUDENT ACTIVITIES

Department motivates students to involve in Design and Development of vehicles and also exhibit them in national and international competitions /events



## STUDENT PATENT

**Title of the Project:** A process of enhancing hydrogen fuel cells performance with nation proton exchange membrane optimal UV irradiation  
**Application Number :** 201941035383, Date:03/09/2019

## AWARDS AND APPRECIATIONS

Final year Mechanical Engineering, ALET, got 4<sup>th</sup> place in National Level Competition - **kpitsparkle 2020** conducted by KPIT (*Kirtaney Pandit Information Technologies*) at Pune for the project title as "**Hydrogen fuel cell where polymer membrane were exposed to UV rays**"

**Mr. Byre Gowda G** and His team have developed a solar, electric, three-wheeler vehicle and called it '**Go Green Glow Green - SET 3**'.



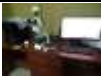







## MOUs AND FUTURE OPPORTUNITIES

Department actively involved in providing the opportunities to get internship in reputed industries as well as universities. Also MOUs are signed with industries viz., DIAT, Pune, V&G Industrial Testing Laboratories Pvt Ltd, SKF Boilers & Driers Pvt, Ltd, HAL (F&F) and foreign universities like Kumamoto University.



Our Students & Faculties at Kumamoto University, Kumamoto, Japan

## MAJOR LABS AND SOFTWARES AVAILABLE FOR STUDENTS

| Research Laboratory      |   | Software Available      |   |
|--------------------------|---|-------------------------|---|
| Computerized Engine Lab  |    | CNC Simulation Software |    |
| Metallurgical Microscope |    | CATIA                   |    |
| CNC Lathe CNC Milling    |    | FEA and CFD             |    |
| Disc Polishing Setup     |   | Solid Edge              |   |
| Wear testing machine     |  | Cut viewer              |  |

## MAJOR RESEARCH FACILITIES

- 1) Computerized Diesel Engine test setup for advanced bio diesel research
- 2) Metallurgical Research Microscope
- 3) Computerized smoke test with multi Exhaust gas analyzer rig for research activity
- 4) Induction Furnace for melting and metal casting for advanced research
- 5) Hytech CNC milling and Turning Machines for hands on training and assessment

## STUDENT MANDATORY ACTIVITIES

UG Students projects awarded with KSCST, VGST Financial assistance  
 UG Students are actively involved in internship program  
 Students encouraged to do mini project as well as industry based projects.  
 Students are encouraged to pursue higher studies in abroad under student exchange program and

## CNC CERTIFICATION PROGRAMS

To cater the industry needs of aspiring rural students of ITI/Diploma, CNC hands on training being organized on regular basis.



## STUDENT ACTIVITIES

Students are engaged actively in hands on technical skill development session during value-added activity classes



## INDUSTRIAL VISITS

To enhance exposure of students to premium organizations like HAL, TOYOTA, BOSCH, RTPS etc. across the country, department organizes Industrial visits.





## TECHNICAL TALKS

Department organizes 12 technical talks per year for students as well as faculties. Speakers from industry and research institutes share their knowledge to undergraduate students and faculty members.



Dr. K N Prabhu, NITK



Dr. Shuichi Torii, Japan



Dr. Anand Kumar, CPRI



Dr. R Ramachandra Rao, NAL



Mr. Nanjundaswamy, HAL



Dr. TPD Rajan, NIIST

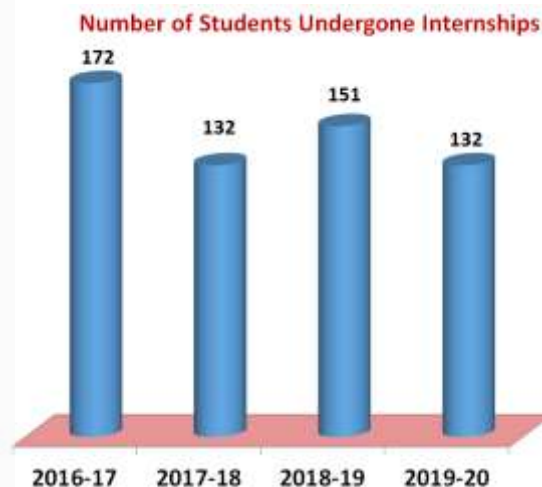
Guest Lectures by Experts

## INTERNSHIPS

Internships are provided for experiential learning and to share student learning and innovative ideas with the experts from various organizations.

Post internship Evaluation conducted to facilitate sharing of knowledge.

Students required to select the internship organisation of their choice. Some of the students whose parents/relatives were working in PSUs were given the option to take internship in the respective PSUs.



## PLACEMENT ACTIVITIES

Department ensures participation of students in Pre-placement trainings (Boot Camps) to prepare them to get placed in their dream/premier companies. Domain specific technical, group discussions and other soft skills trainings are being regularly provided for all semester students. The companies visit regularly for the recruitment are M/s Bosch, Indo-Mim, Automotive Axles, TATA motors, Toyoto Kirloskar Motor Pvt Ltd, Silver Peak, Maniranjan Diesel Engines etc.

## STUDENTS PLACED COMPANIES





### **METALLURGICAL AND METALLOGRAPHY LAB**

The lab is equipped with induction melting furnace, heat treatment furnace, muffle furnace, wear testing machine, hardness tester, Low speed cutter, metallography sample preparation units viz, disc polisher, advanced metallurgical research microscopes, TIG welding machine. The facility is being regularly used by research scholars and for consultancy works.



**Research Microscope**



**Double Disc Polisher**

### **IC ENGINE LAB**

The setup consists of single cylinder, four stroke, CRDI VCR (Common rail direct injection, Variable Compression Ratio) engine connected to eddy current type dynamometer for loading. Nira i7r software package is provided for programming open ECU of the engine. The lab facility is being regularly used by research scholars and for consultancy works.



**CRDI Engine**



**Conduction of Experiments**

### **STUDENTS ACHIEVEMENTS**



**Team Dhrutha Participated in Formula Bharath competition organized by SAE India in 2019**



**Students got 4<sup>th</sup> place in National Level Competition - kpitsparkle 2020 conducted by KPIT at Pune**

### **INDUSTRY AND RESEARCH EXPOSURE TO THE STUDENTS**



**Hands on exposure to model manufacturing & research facility**



**Students involvement in industry**

### **TEACHING FACILITY**



**Well equipped classroom with audio visual facility**



**Well-equipped Lab facilities**

### **INNOVATION**



**Students presented their projects in national level competition**



**Innovation Lab Activities**



## PROJECT EXHIBITION



Student exhibited their academic Projects (Sea Plane Model)



Demonstration of pedal-powered washing machine

## MAJOR MOU'S



MOU Signed by Kumamoto University, Japan



MOU with V&G Industrial Testing Laboratories Pvt. Ltd.

## CONFERENCES AND WORKSHOPS



International Conference on Laser Deposition



Workshop on Nano Fluids

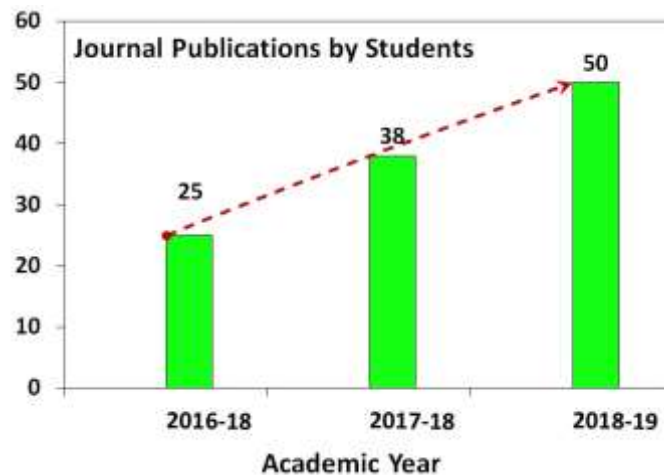


Swachha Mijar - Inauguration



Students participated in the cleaning program enthusiastically

## RESEARCH AND PUBLICATIONS



### Winners

Miss Jyothi S and team bagged Best Paper Award in ICALMS-2k20 organised by CMR Campus, Hyderabad .

Mr. Shikhar V Jain, got JASSO Scholarship from Govt of Japan to present paper in IES – 2020, Japan.

Prof. Kumarswamy M C received Best Paper Award (Poster) in iCOLD - 2019, at AIET.



## TESTIMONIALS



**Arshid**  
Lead piping engineer,  
Woodland Energy  
Services, Abu Dhabi  
.UAE (2012).

AIET campus has the best teachers, who would drop to our level (as I was average student in academics). Because of their efforts I emerged as distinction student. Faculties & management have all been very supportive by giving us opportunities to get maximum exposure. They supported us well in sports and cultural activities too..



**Sheikh Nihal Ahmad**  
Senior Sales Engineer-  
lubricants, Alshaya  
enterprises LLC,  
Dubai, UAE (2012)

I have very vivid memories from my Engg days. To be honest the initial years of Engg were not as pleasant as one would wanted it to be. Given the fact that we were the 1st batch in 2008 and the institute was in its budding years. Having said that, when I look at the current status of AIET, I can proudly say that the institute has transformed over the years into a reputed one which offers good infrastructure, campus placements, experienced faculties so on so forth.



**Hithesh G Shetty**  
Toyota Kirloskar Motor Pvt. Ltd,  
Bangalore (2017)

Alva's is best educational institutions I have ever come across because of tremendous support from management and bellowed chairman. I really feel very proud to be an Alvasian. I have received a great support from faculties & placement office. I love my AIET for ever.



**Nicky Harries O S**  
CoE Aerospace &  
Defence, Systems  
Engineer - Product  
Design (2018)

AIET has been the best part of my life, full of learning opportunities that were filled with fun and frolic. The most I admire is the support that I received from professors especially from the Dept. ME. I'm also grateful to the Institute for providing us the training and the best of placement opportunities, am also thankful for the management team for their intensive support.



**K P Rahul**  
MS Student Kumamoto  
University, Japan (2018)

I feel that one of the best decisions that I made in my academics was to get admitted into AIET which has moulded me into a person what I am today. I thank all the Professors for shaping a normal student into a Mechanical engineer with goals to achieve.



**Nihkil Kadam**  
Entrepreneur,  
Kadam Steels, Nippani (2017)

I am proud to be a alvasian because there are allot of clubs where I was a part to improve myself from the guest speakers and lecturers and even college has given a permission to start our own clubs that is comic on club, we used to go for cultural activities trainings.



**Mounesh Badagi**  
PSI, Karnataka Police  
(2016)

I am very proud to be an AIET'ian. College has given me a wonderful life with good career and motivation by giving opportunities to participate in all activities. I loved the infrastructure of AIET and its environmental life. The events that I took part in AIET helped me to grow my confidence level.



**Bharathesh Hegde**  
Sun Electric, Bangalore (2019)

The 3 years in the Dept. of ME in AIET have been the greatest 3 years of my education. The department allowed me to broaden my knowledge on the course, gave close opportunities to work under the guidance of top professors during project helping me narrowing in what I'm really interested to pursue in future as a career.



**Aakash Devadiga**  
MS Student, Germany  
(2018)

I'll always value the time spent at AIET, both in academics and extracurricular activities. AIET has helped me mould my career in many ways. I'll always be thankful to my lecturers for their guidance, making me more disciplined and punctual, which has eventually helped me a lot in my journey of higher studies in Germany".



**Sunil G M, Design**  
HCL Technologies, (2017)

My B.E with Alvas was one of the best experiences of my life. It brought clarity of thought, knowledge, confidence, courage and conviction to me and my goals. Real time exposure was immense throughout the program. Faculty contributes significantly to our knowledge base at Alva's. It made me realized that learning environment makes it different. I owe my success to "Alvas" and presently feel of proud of being alumni of Alva's.