



Department Of Mechanical Engineering

presents

MECHRONICLE

connect with your community



Odd 2020-21
Newsletter Volume-2

EDITOR'S NOTE

Dear Readers,

Mechronicle invites the readers for a journey into the Department of Mechanical Engineering at Atria Institute of Technology through the academic year 2020-2021. Years of memories have passed by, filled with a plethora of cherishing moments in our eyes; it is our responsibility to record every step. This newsletter shall show that we have given our best. AIT often buzzes with activities. This volume of our Newsletter bears testimony to it. Every day inspires us to look at life with a fresh perspective and this academic year was no different though we've all been physically distanced but we're socially close and it has sent us into a frenzied spirit of enthusiasm.

From the pre-industrial time to now, humans have seen great and marvelous works of human intelligence mostly in the development and advancements of grand to small machines. All this happened in the hands of proven-worthy mechanical engineers, just like the ones that are preparing here at AIT and set to go out to the world and prove worthy of themselves. It is an honor that we, the editorial team, are members of that dynamic fraternity. We wish all of our confrere and all our readers to do great in being their best.

These beautifully assembled pages would have just been a dream to us without the vision and support of our HOD Dr. MS Rajendra Kumar, who took personal interest and gave insightful inputs. We will always be thankful to this institution for giving us a platter of opportunities and allowing us to learn, grow and experience. To conclude, we'd like to quote Harriet Tubman "You have within you the strength, the patience, and the passion to reach for the stars to change the world. "

Dennis S J
Editorial Team

HOD'S MESSAGE

A warm welcome to the Department of Mechanical Engineering at Atria Institute Technology, Bangalore. The institute has been simply unstoppable in its progress as it has been actively involved in various activities that have brought to light the hidden talents of the department's students and staff. Mechanical Engineering is a professional core engineering discipline that deals with the design, thermal and production or manufacturing stream. Mechanical Engineering is one of the oldest and broadest engineering disciplines that plays a significant role in enhancing safety, economic vitality, enjoyment and overall quality of life throughout the world. A prerequisite for development is growth and that is directly related to production or output of a country. If production is done via a sustainable path it can maintain the sustainability of development.



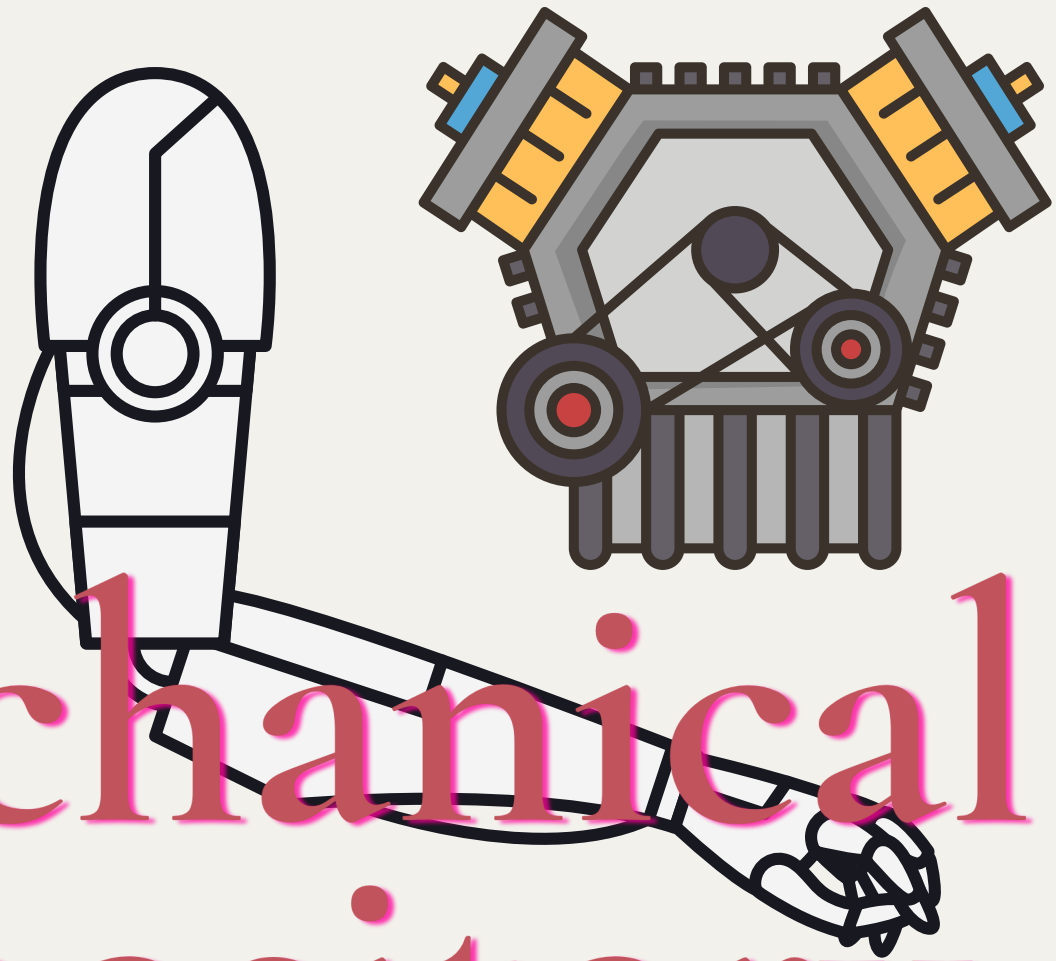
Our department has a team of highly qualified and experienced faculty, good infrastructure and lab facilities. We are striving hard continuously to improve upon the quality of education and to maintain its position of leadership in engineering and technology. We always work with the motto "Nothing can be achieved without genuine effort." The core values of the department help the students to develop their overall personality and make them worthy to compete and work at a global level. Our faculty are continuously attending various training programs and are also publishing research papers. Many are pursuing research. Our department has been conducting seminars / conferences to keep the faculty and students abreast with the latest developments in the field of technical education.

Faculty members have excellent academic credentials, the department has a good number of PhD scholars and are pursuing PhD. We promote student awareness for life-long learning and to introduce them to professional ethics

Our dedicated faculty tries to disseminate amongst the students the latest developments in Additive Manufacturing, Nano Sciences, Bio – Medical Robotics, SIEMENS Mechatronics System and latest Softwares.

Welcome to this world of machines.

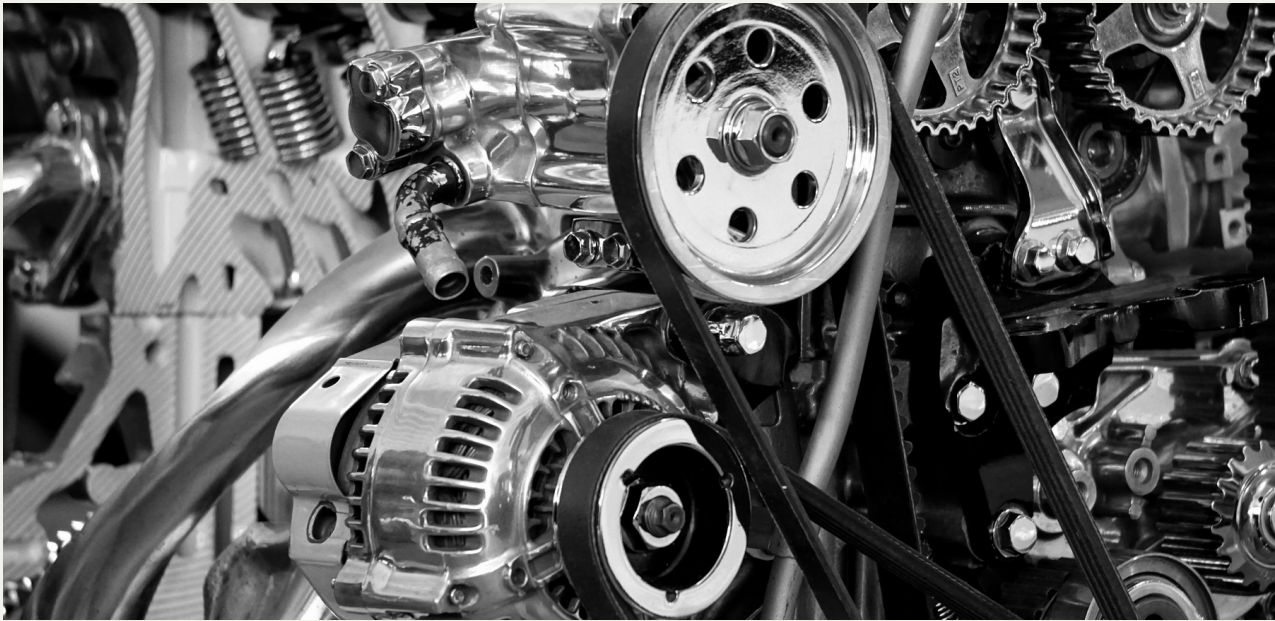
Dr. M. S. Rajendra Kumar



Mechanical repository



Volume-2



Tribological Impact on Vehicle and Its Performance

Tribology is the study of interacting surfaces moving in relation to one another which comprise of three key factors: friction, wear and lubrication. In fact, the impact of Tribology on vehicles is high as there are more components and many rely on interactions of their surface to function. This leads to an enormous advance in the field of Tribology. Advantages being, reduced fuel consumption by using low viscous oils, which leads to reduction in exhaust emission, reduced maintenance and high engine output. In vehicles, due to combustion and continuously moving piston, there will be carbonaceous deposits and the liner in the piston varnishes as it moves. Due to this, there will be a higher value of pressure variation. As the deposition starts accumulating, the efficiency and emission will be affected due to which combustion products like NO_x, CO, CH are formed which lead to corrosive and abrasive wear. Due to the wear and tear between cylinder liner and piston skirt, the life of engine reduces. One of the key operations of a vehicle is to start and stop. This start and stop system of an automobile engine will undergo friction loss in slider bearing which will lead to fatigue failure in the bearing. Since viscosity is one of the key tribological factors, low engine viscosity has an effect on low engine fuel consumption, but their potential is linked to the driving conditions and engine design, but the fuel consumption can also be reduced by using different lubricants. Fatigue failure damage in vehicle transmission and tooth profile wear is caused due to excessive heating. As there is increasing demand, global energy consumption has increased and it has a significant impact on our environment. Growing concerns over energy and environment sustainability has lately drawn interests in clean transportation. Friction consumes onethird of the energy used in vehicles. Therefore, different methods have been implemented to reduce friction for a cleaner and sustainable environment. There is growing interest in electric vehicles as the energy output in electric cars is 3-4 times that of the energy produced by combustion engine. The electric motor in the EVs contribute to 57% of the electric energy to overcome friction, while about 79% of the power is lost in combustion engines.

Shashank R | 4th Year



Importance of Stealth Technology in Modern Warfare

Stealth means act of moving, proceeding in a secretive manner (or in a covert way). The concept of stealth technology is applied to aircraft, ships, submarines, tanks, armored vehicles etc. Even nature uses stealth in its own way e.g., coloring insects and animals, which change their skin color and merge themselves into their backgrounds. Aircraft stealth technology improves the combat survivability in a man-made hostile environment and its importance realized in Gulf War. As stealth fighters were only 2-3% of the total 1900 fighters and bombers but carried out 40% of strategic target attacks during this war. A stealth aircraft must be stealthy in four disciplines: RADAR (Radio Detection And Ranging), IR (Infra-Red), visual (including smoke and contrail), and acoustic to evade the various detection systems. The cost of a stealth aircraft is much more than a conventional fighter, but the high cost is justified by the high survivability of these aircraft in man-made hostile environments. Missiles also incorporate stealth features, because they also need to be undetectable just like aircraft / helicopters. But stealth feature in combat aircraft is more important than missiles because aircraft are much costlier as compared to the missiles

Aircraft signature can be classified into two categories: i) active signatures e.g. RADAR, and ii) passive signature e.g., IR. Active signals are produced when the target is illuminated, and the reflected signal is used to obtain the information about the target. However, passive signatures are obtained due to the signals emitted by the target as an inevitable consequence of its existence (i.e., target is unaware of being detected). Now, passive IR-signatures are imp. aspect of, Aircraft Stealth Technology since IR-guided missiles are increasingly used against aircraft [from Vietnam War (1955) to latest Armenia Azerbaijan Conflict (2020)]. Due to the passive detection by IR-guided missiles, aircraft IR signature study has become crucial even in design stage itself. Therefore, IR-signature suppression systems are used in airborne targets (aircraft / helicopters) to reduce the susceptibility against the lethal MANPADS (Man Portable Air Defense Systems) e.g., Igla-S (9K338), Stinger (FIM-92G), Strela-2 (9K32). Progress in stealth technology is incorporated in modern 5 th gen. fighter aircraft, e.g., high aspect ratio S-shaped nozzle, thrustvectoring, to improve survivability. The F-35 Lightning II exhaust system uses cooled turbine face blocker and low-observable axisymmetric nozzle to reduce IR-signature from rear view.

Dr Nidhi Baranwal | Faculty

DEPARTMENTAL ACTIVITIES

PARTICIPATION IN WEBINARS

1. Mr. Chetan C S has participated in a Webinar on “Introduction to 3d printing” organized by Don Bosco College of Engineering, Goa on 7-8’ Aug, 2020.
2. Mr. Chetan C S has participated in a Webinar on “Management Mantras: Managing stress, Immunity & Decision” organized by Dept. of IS Engg. Atria Institute of Technology on 10’ Aug, 2020.
3. Mr. Praveen Kumar B C has participated in a Seminar on “Awareness on cancer” organized by Prof. Vasanthi & Dr. Nalinakshi on 22 nd Sept 2020
4. Mr. Praveen Kumar B C has participated in a Seminar on “Importance of blood donation” organized by Prof. Vasanthi & Dr. Nalinakshi on 1 st Oct 2020
5. Mr. Praveen Kumar B C has participated in a Seminar on “Reinventing Emphasis of library during contemporary times of new education policy 2020” organized by Dr. Usha on 5 th Oct 2020
6. Mr. Chetan C S has participated in a Webinar on “Program outcome attainment” organized by Atria Institute of Technology on 10’ Oct, 2020.
7. Mr. Chetan C S has participated in a Webinar on “National Education Policies 2020 & its impacts” organized by Atria Institute of Technology on 6’ Nov, 2020.
8. Dr. Nidhi Baranwal has attended a Virtual Conference on “Future of aviation and aerospace 2021” organized by IIM Bangalore on 17’ Feb, 21

PARTICIPATION IN FACULTY DEVELOPMENT PROGRAM

1. Mr. Chetan C S has participated in a FDP on “Advanced Nano Materials, Nano Fabrication Techniques & Devices” organized by Dept. of ME Engg., BMSIT on 10-14’ Aug, 2020.

Though the whole world was socially distanced due to the coronavirus that was ravaging the world. It couldn't stop our staffs and students from gaining knowledge and being socially connected

DEPARTMENTAL ACTIVITIES

A Technical Seminar on “Demonstration of Automated Pneumatic Material Sorting System” was organized by Dept. of Mechanical Engineering by Mr. Praveen Kumar B C of Atria Institute of Technology on 27th Nov 2020

Atria Institute of Technology
Department of Mechanical Engineering
Presents



Speaker

Mr. Praveen Kumar B.C
Associate Professor,
Department of Mechanical Engineering
Atria Institute of Technology
Hebbal, Bangalore, Karnataka

Technical Seminar
"Demonstration of Automated Pneumatic Material
Sorting System"

November 27th 2020 | 10:30 AM - 12:00 PM

Convenors:

Mr.Srinivasa Chari
Dr. Venkate Gowda

Dr. M.S. Rajendra Kumar
HoD, Dept of ME

Dr.T.N. Sreenivasa
Principal, AIT



meet.google.com/aeg-ymsv-wk

DEPARTMENTAL ACTIVITIES

A Technical Seminar on & Principle of Linear and Angular Momentum' was organized by Department of Mechanical Engineering by Dr Umashankar Professor, SIT on 20th Nov 2020.

Atria Institute of Technology
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Speaker

Dr Umashankar
Associate Proffesor.
Sidaganga Institute of Technology
Tumkur, Karnataka.

Technical Seminar

"Principle of Linear and Angular Momentum"

November 20nd 2020 | 10:00 AM - 12:00 PM

Convenors:

Dr.Prasanth Ramachandran

Dr. M.S.Rajendra kumar
HoD, Dept of ME

Dr.T.N.Sreenivasa
Principal, AIT



meet.google.com/aeg-ymsv-wkv

DEPARTMENTAL ACTIVITIES

An webinar on “Augment Reality and Animation Enabled CAED ” was organized by Dept. of ME of Atria Institute of Technology on 29 th Jan 2021



ATRIA INSTITUTE OF TECHNOLOGY



DEPARTMENT OF MECHANICAL ENGINEERING

A webinar
on
Augmented Reality
and Animations Enabled
Computer Aided Engineering Drawing

"Certificates will be given to all attendees"

Speakers



(1) Dr.K.BALAVEERA REDDY



(2) Dr.RAJASHEKHAR PATIL

29th JANUARY 2021 | 3:30PM - 5:00PM

Zoom Link: <https://us02web.zoom.us/j/89816786869?pwd=YWp5NVV8ETM4MTE9ncmVlMlY3c2YnJtdz09>

Meeting ID: 898 1678 6869

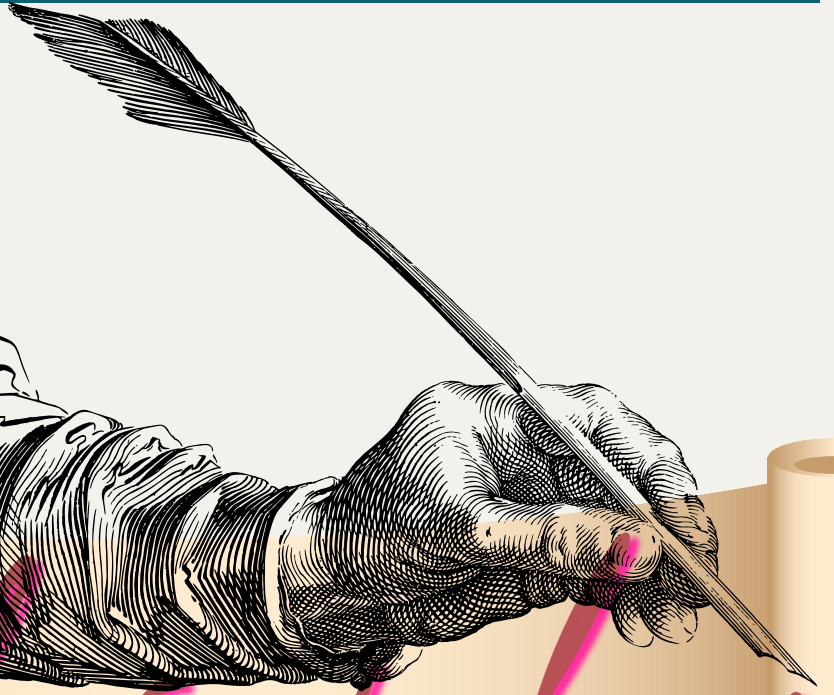
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Principal, Atria I.T



Philosophy



Volume-2



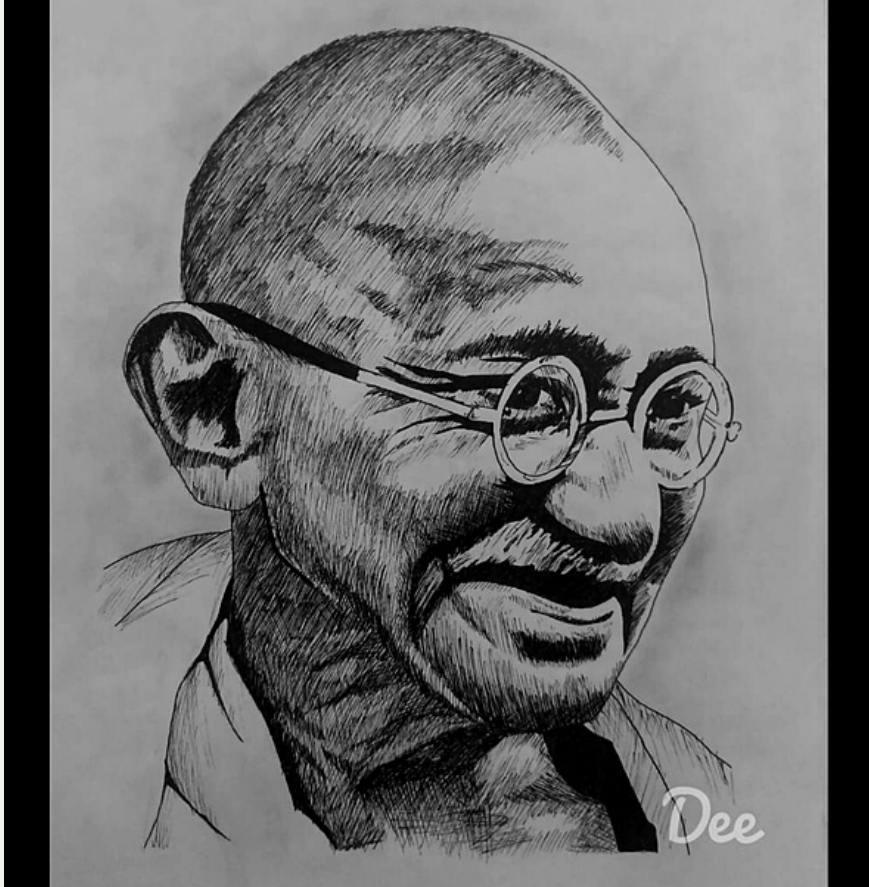
Purushotham | 4th year

Sathish | 4th year





Sanjay | 3rd Year



Deepak | 3rd year

I had a Dream

I HAD A DREAM, AN IDEA TO BRING CHANGE.
WHEN I TOLD IT TO MY PEERS THEY CALLED ME WEIRD AND STRANGE.
I DIDN'T GIVE UP, I WORKED HARD AND PROGRESSED.
ROOM FOR LETHARGY I DID DETEST.

I WANTED TO SOLVE A PROBLEM, TO ANALYSE AND DESIGN.
I WANTED TO GIVE MY BEST, TO RISE AND SHINE.
FOR ME THE SKY IS THE LIMIT AND I AIN'T AFRAID OF ANYTHING.
I'M A MECHANICAL ENGINEER, I STOP AT NOTHING.

RUSHWIN CARDOZA

ಮಾಸದ ಪರ್ವ

ಕಳೆದಿರಲು ವಿದ್ಯಾರ್ಥಿಯಾಗಿ ಈ ನಾಲ್ಕು ವರುಷ
ಜೀವನದ ಮುನ್ನಡೆಯಲು ಪಡೆದಿರುವೆ ಹೊಸ ಹರುಷ
ಮುಗಿಯುತ್ತಿರಲು ನನ್ನ ಕನಸಿನ ಪದವಿಯ ಅಭ್ಯಾಸ
ಬಯಕೆಯೊಂದು ಮೂಡಿದೆ ಕಳೆಯಲಿಲ್ಲ ಮತ್ತಷ್ಟು ದಿವಸ

ಈ ಜಾಗದ ಜೊತೆಯಲಿ ಎಂದಿಗೂ ಮುಗಿಯದ ಬಂಧನ
ಬೇಸರಗಳ ಮರೆಸುವ ನೆನಪುಗಳಲ್ಲಿ ಅನುದಿನ
ಶಿಕ್ಷಣದ ಜೊತೆ ಸ್ನೇಹದ ಅಪೂರ್ವ ಸಮ್ಮಿಶ್ರಣ
ಅಮೂಲ್ಯ ಭಾವಗಳಿವು. ಎಂದಿಗೂ ಅಚ್ಚಳಿಯದ ಲಾಂಛನ

ಹಲವಾರು ದಿವಸಗಳ ಸಂಗಮದಲ್ಲಿ ಜ್ಞಾನದ ಸಮಾವೇಶ
ಕೃತಜ್ಞತೆ ತಿಳಿಸುವೆ ನೀಡಿರಲು ನನಗೊಂದು ಅವಕಾಶ

ಬರವಣಿಗೆಯ ಮೂಲಕ ನನ್ನದೊಂದು ಕಾಣಿಕೆ
ಖುಷಿಯಾಗಿ ಬರೆಯಲಿದು ನಮ್ಮ ವಲಯದ ಸುದ್ದಿಪತ್ರಿಕೆ !!!!

**ಸಂಜಯ್ ಕುಮಾರ್
(SANJAY)**

Meet The Team.



Deep Narayan
(Faculty In-charge)



Dr. MS Rajendra
Kumar (HoD)



Dennis SJ (Editor)



VISION

TO BE A CENTRE OF EXCELLENCE IN MECHANICAL ENGINEERING EDUCATION AND INTERDISCIPLINARY RESEARCH TO CONFRONT REAL WORLD SOCIETAL PROBLEMS WITH PROFESSIONAL ETHICS.

MISSION

M1 - TO PROMOTE THE FRONTIERS OF PEDAGOGY AMONGST STUDENTS AND DEVELOP NEW PARADIGMS IN RESEARCH.

M2 - TO DEVELOP PRODUCTS, PROCESSES, AND TECHNOLOGIES FOR THE BENEFIT OF THE SOCIETY IN COLLABORATION WITH INDUSTRY AND COMMERCE.

M3 - TO MOLD YOUNG MINDS AND BUILD A COMPREHENSIVE PERSONALITY BY NURTURING STRONG PROFESSIONALS WITH HUMAN ETHICS THROUGH INTERACTION WITH THE ALUMNI, EXPERTS FROM ACADEMIA / INDUSTRY, RESEARCH ORGANIZATIONS, HIGHER STUDY INSTITUTIONS AND AREA EXPERTS.