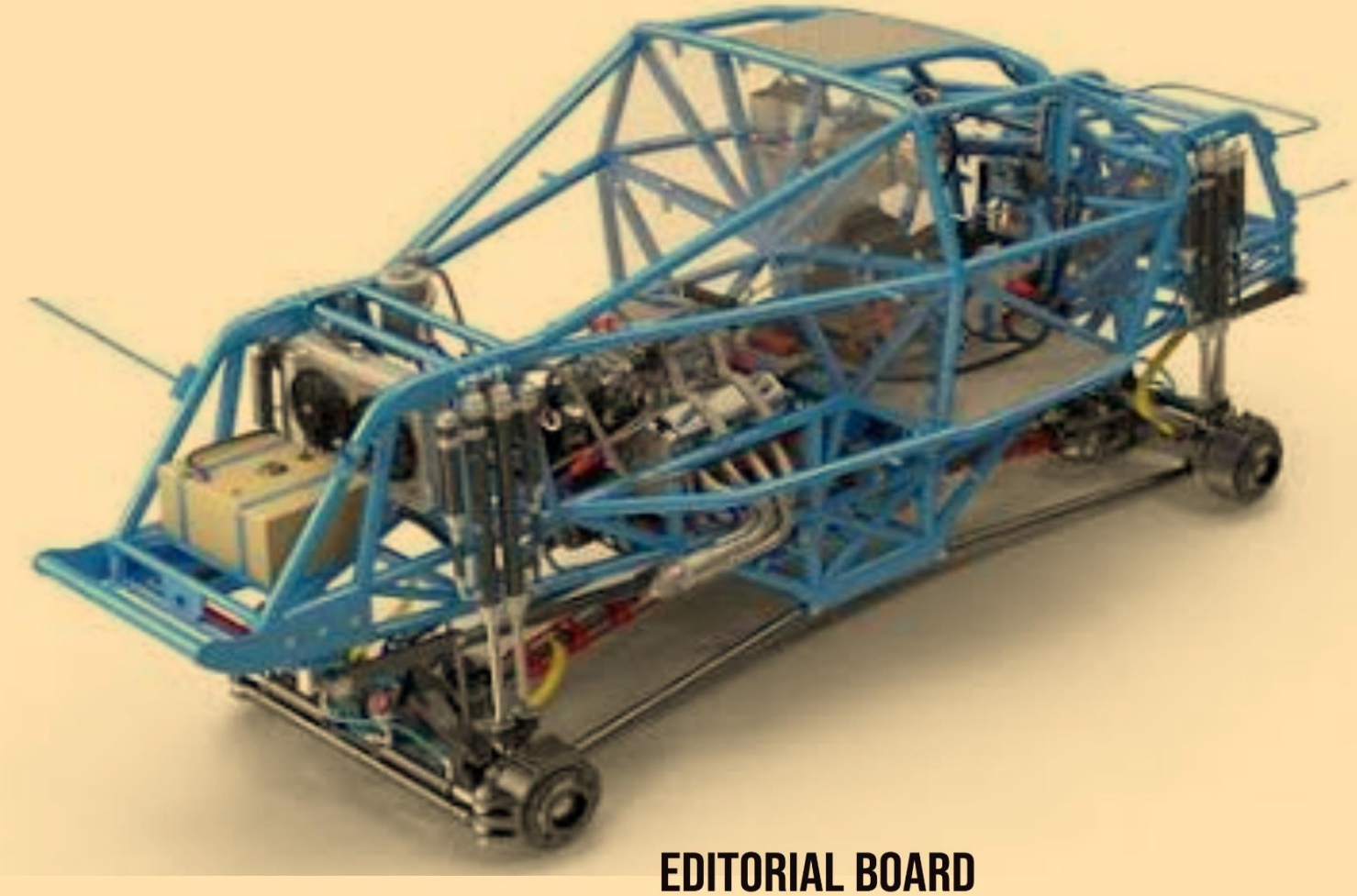
Aditya College of Engineering & Technology

Department of Mechanical Engineering

IGNITO MAGAZINE

DEC-MAY (2020-2021)



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Chairman's Message

I believe in the philosophy of thought, word and deed as eternal which made Aditya what it is today. My thought to set a high bar to the institutions I setup by rising to the challenges of the educational field and get prepared for a life dedicated to the pursuit of knowledge, my word which always reflected my vision and gained the conviction of the heads of the institutes and parents, and my deed which makes my home and workplace as extensions of each other by considering the staff and students as the members of my extended family shaped Aditya

I know the value of a good education, more so because I did not have the benefit of the facilities that make the learning process smooth. I began my career as a lecturer, giving up my desire of qualifying in the Service Commission Examination. Out of my despair was born a strong determination which took the shape of Aditya Educational Institutions. The present-day job market poses fresh challenges that need to be managed innovatively. Global business Incubation centre, Microsoft Innovation Centre, Technical Skill Development Institute, T-hub, Training and Placement Cell, GATE coaching

Vice- Chairman's Message

As a direct product of Aditya, I know how hard my father worked to put Aditya on the academic map of the country during its many stages of expansion, even in the most trying conditions. My master's degree from UTS Australia, the continent's premier university, has given me a better grasp of the educational system. Aditya technical campus in Surampalem was constructed in the aftermath to provide professional education in engineering, technology, management, and pharmacy, with the underlying principle of excellence and quality The campus has made rapid growth since its beginning in 2001 by upholding its unwavering dedication to advance knowledge and educate students in science and technology. The campus' main goal is to make teaching and research more relevant to the real world. The ultimate aim of Aditya is to make the campus the 'first stop' for companies in the recruitment process. Keeping in view the demands of the work environment which is beyond just knowledge and marks, a lot of emphasis is laid on the overall personality development of the students.

Principal's Message

Dr. T. K. Rama Krishna Rao
PRINCIPAL

The major issues we confront can't be handled at the same level of reasoning that we used to create them." Albert Einstein is credited with coining the phrase "theory of relativity." Man can only achieve immortality through knowledge. To stay relevant, knowledge must extend or grow. The road to excellence is the world's toughest, roughest, and steepest. Only quality is required and rewarded in our world. To develop new knowledge, available information must be directed by wisdom and intellect. Education's new duty is to promote creativity. The only way to address current and future problems and discover dynamic answers is to think creatively. Technology should be used to aid in the eradication of poverty around the world. In truth, India is home to 40% of the world's poor. Capacity is a result of confidence.

Miracles are the result of one's faith in oneself. At ACET, education aims to develop character, strengthen the mind, broaden the intellect, and foster a culture of problem-solving. The student is placed through rigorous training so that when he leaves the Institute, he can stand on his own two feet.

HOD Message

Dr. Puli Danaiah, HOD

Mechanical engineering is one of the oldest and broadest engineering discipline, and plays a significant role in enhancing safety, economic vitality, enjoyment and overall quality of life throughout the world.

Mechanical engineers develop state-of-the-art technologies and exhilarating solutions for the mankind. We attempt to provide our students with a cheerful, productive and satisfying experience at all levels of their program of studies to explore the amazing world of mechanical engineering.

Our department has a team of highly qualified and experienced faculty, good infra structure 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

Department of Mechanical Engineering

The Department of Mechanical Engineering is a pioneer department since the establishment of college in 2011. The department has extensive facilities in terms of faculty, infrastructure & equipment. The department is recognised as a research centre by JNTUK, Kakinada for pursuing Ph.D. programme in Mechanical Engineering. The department has spacious laboratories and well equipped with experimental set-ups as per the requirement of the curriculum. The faculty are very active and encourage the students in fabricating real models viz., Go-kart, Robots, Solar based vehicles and other working models, which are very useful in day-to-day life and teach students with live examples.

The department has an entrepreneurship cell through which it organises lectures by successful entrepreneurs, bank officers, MSME officials to nurture them as successful entrepreneurs in future. To nurture the students to gain all-round development, the department has many clubs like, ‘cultural club’, “We can talk” to improve soft skills and improve their intra and inter-personal skills, interactive skills to make them leaders of tomorrow. The faculty encourages students to participate in competitions like Go-kart at National level and present technical papers in conferences and publish papers in journals

Department Vision

To be a center of excellence in Mechanical Engineering education and research

Department Mission

- *To promote trainings with institutional association*
- *To achieve learning centric infra-structure.*
- *To provide skill-based education with focus on Automotive*
- *To promote innovative ideas through creativity and leadership quality*

PSO'S

PSO1 Mechanical Engineers must be able to analyze, design and evaluate mechanical components and systems using cutting edge software tools as required by the industries from time to time.

PSO2 The ability to work in manufacturing and other sectors operations and maintenance plants.

PSO3 As part of a team or individually, plan and manage activities in micro, small, medium and large enterprise.

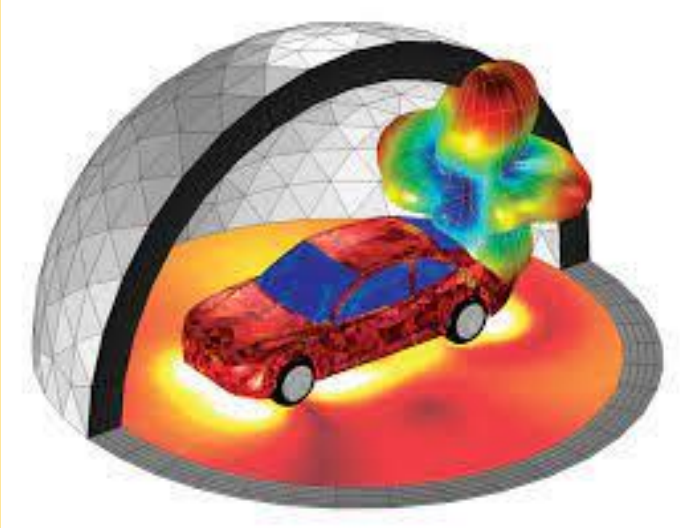
Article

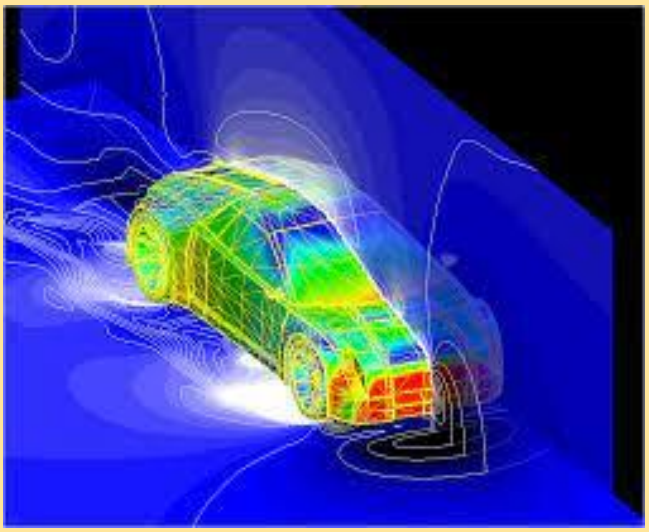
Automotive

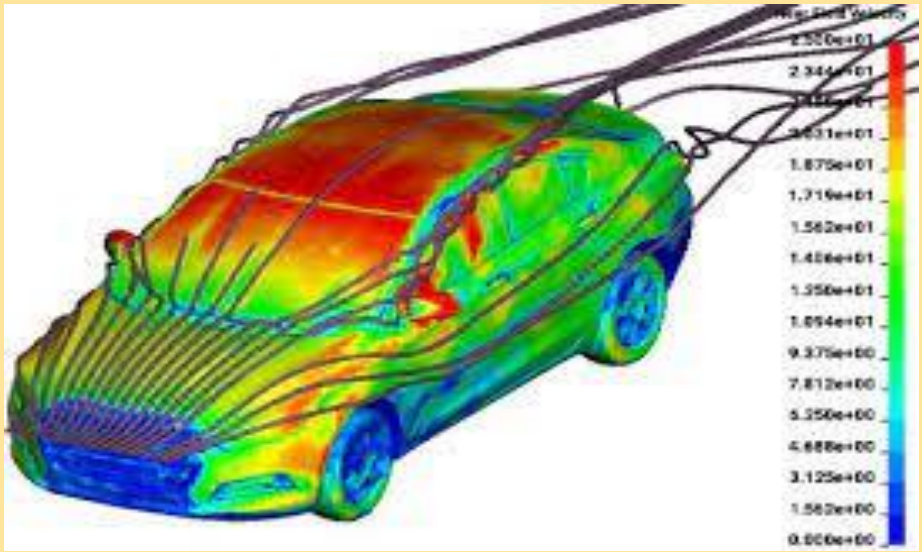
The automotive industry has undergone profound changes in recent years. Cars need to be more fuel-efficient and environmentally friendly. Traditional combustion engines are being replaced by fuel cells, batteries, opposed-piston technologies or electric traction motors.

Innovations come at a high cost, while customers always want the latest innovations at the lowest price. Innovations require lots of testing using expensive prototypes and equipment. This is where mechanical simulation comes into its own by providing efficient ways to simulate any automotive part or system with a lower overall cost and less time.

Simulation provides an efficient platform for both simulation analysts and designers in one interface, improving the communication between the teams and allowing designers to perform simple simulations upward in the automobile design process. Also provides all types of high-end analysis (linear, nonlinear and dynamic) in the same work environment, eliminating the tedious task of platform changing for specific analysis (Crash, Impact, Fluid dynamics…)





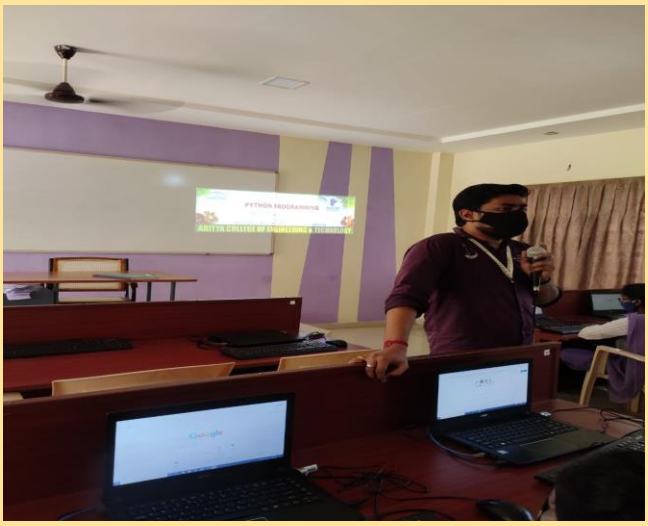


Mr. Y S Durga Prasad
III Mechanical

Student Training Programs

Python Programming

To improve computational skills of mechanical engineering students, training and placement cell has organized a training on python programming



Computational Fluid Dynamics

Department of mechanical engineering has conducted certified training program on implementation of meshing methods in CFD

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Aditya Nagar, ADB Road, Surampalem-533437

CERTIFICATE

This is to Certify that Mr./Ms. DHRITIMAN DEKA with roll number 15P31A0315 of Department of Mechanical Engineering has participated in certification course on "IMPLEMENTATION OF MESHING METHODS IN CFD" organized by Department of Mechanical Engineering, Aditya College of Engineering & Technology, Surampalem from 05TH to 13TH April 2021.

Co-ordinator HoD-ME Principal

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CERTIFICATE

This is to Certify that Mr./Ms. PINDI NAGA VENKATA SURYA SAI KUMAR with roll number 17A81A0334 of Department of Mechanical Engineering has participated in certification course on "IMPLEMENTATION OF MESHING METHODS IN CFD" organized by Department of Mechanical Engineering, Aditya College of Engineering & Technology, Surampalem from 05TH to 13TH April 2021.

Co-ordinator HoD-ME Principal

Simulation Using Ansys Workbench

Department of mechanical engineering has conducted certified training program on Design and analysis using Ansys Workbench

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CERTIFICATE

This is to Certify that Mr./Ms. ADAPA PARISUDHA VISWA TEJAS with roll number 17P31A0301 of Department of **Mechanical Engineering** has participated in certification course on "**DESIGN AND SIMULATION USING ANSYS WORKBENCH**" organized by Department of Mechanical Engineering, Aditya College of Engineering & Technology, Surampalem from 01st to 11th February 2021.

Co-ordinator HoD-ME Principal

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CERTIFICATE

This is to Certify that Mr./Ms. AKULA SAINAVEEN with roll number 17P31A0302 of Department of **Mechanical Engineering** has participated in certification course on "**DESIGN AND SIMULATION USING ANSYS WORKBENCH**" organized by Department of Mechanical Engineering, Aditya College of Engineering & Technology, Surampalem from 01st to 11th February 2021.

Co-ordinator HoD-ME Principal

Student Technical Events

SAE BAJA

Due to pandemic situations event is completely organised through virtual mode by using IPG Car Maker for endurance of the vehicles along with other static rounds like business plan, design report. In this event totally 25 students Mechanical, Electrical and Electronics, Electronics and communications Engineering with two faculty advisors from Mechanical are participated.

EMBRACING CHALLENGES

CERTIFICATE OF PARTICIPATION

This is to certify that

SRIVIDYA PATRAYANI

representing

ADITYA COLLEGE OF ENGINEERING AND TECHNOLOGY

has participated in BAJA SAEINDIA 2021 event, organized by SAEINDIA under the aegis of Chitkara University from 21st to 25th April 2021.

Sagar Bendre Harshit Merchant

Our Sponsors

EMBRACING CHALLENGES

CERTIFICATE OF PARTICIPATION

This is to certify that

VIJAY KOTAMARTHI

representing

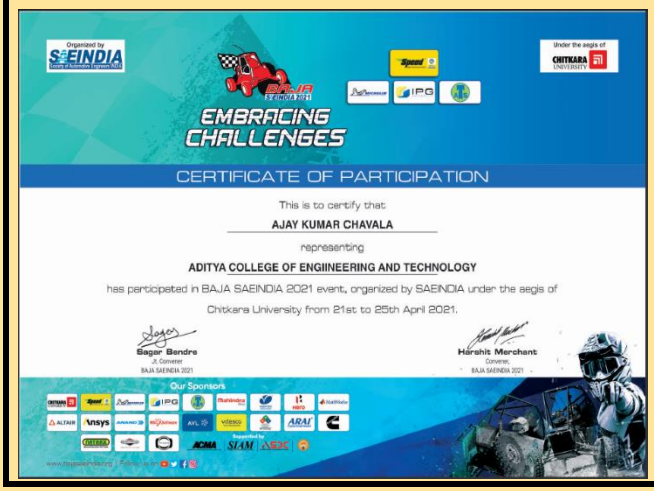
ADITYA COLLEGE OF ENGIINEERING AND TECHNOLOGY

has participated in BAJA SAEINDIA 2021 event as **Faculty Advisor**, organized by SAEINDIA under the aegis of Chitkara University from 21st to 25th April 2021.

Sagar Bendre Harshit Merchant

Our Sponsors

SAE BAJA



Student Placements

Congratulations

 D SURESH RONCH POLYMERS	 N NAGENDRA PRASAD RONCH POLYMERS	 N JAGADEESH RONCH POLYMERS
 M ASIN HIJAN DAEJOO AUTOMOTIVE	 K BHASKARA RAO DAEJOO AUTOMOTIVE	 D S LAKSHMAN RAJU DAEJOO AUTOMOTIVE
 P. VENKAT SRI RAM DAEJOO AUTOMOTIVE	 S SAI KUMAR DAEJOO AUTOMOTIVE	 P CHANDRA SHEKAR DAEJOO AUTOMOTIVE

Student Placements

Congratulations

 P S BHANU SUDHEER HYUNDAI STEEL	 R KALYAN HYUNDAI STEEL	 D V S SUBBA RAJU HYUNDAI STEEL
 A SRINIVAS AVTECH	 P SRINIVAS AVTECH	 R CHANDRAKALYAN AVTECH
 A V RAJESH REDDY SURYA TECH SOLUTIONS	 S SAI KUMAR SURYA TECH SOLUTIONS	 T SURYA SURYA TECH SOLUTIONS
 A P VISWA TEJA M/S KWANGJIN INDIA	 D SURESH M/SK WANGJIN INDIA	 B MAHESH M/SK WANGJIN INDIA

Article

Solar Roadways

Solar roads are created using photovoltaic cells installed into road systems. The idea behind these projects is to be able to melt snow, power street lights and even eliminate the need to paint white or yellow lines on asphalt.

The first attempt at a solar road was in the small village of Tourouvre au Perche in Normandy in 2014. The French project, named “World’s first solar road” by ARS Technica, was strategically placed in a so-called “not-so-sunny-village”. While the project was initially created to power the village’s street lights, the solar roads were not economically viable, and the project was deemed a failure.

Taking a different approach, the Dutch implemented a solar bicycle path called Solar road. Though the project had a rocky start due to the top layer of the pathway breaking off during the first year, the bike lane was replaced with a more durable material. Despite the smaller project, the road was still deemed too expensive and caused much controversy in the country.

In addition to this, there are many safety concerns regarding the solar roads. This is mainly focused on putting automobiles or bicycles on textured glass.
Currently, the investigation into solar roads is still ongoing but have yet to make much progress. Until manufacturing costs become lower, it is highly unlikely that we will be seeing solar roads being implemented in cities soon

Dr. M. Murugan
Associate Professor

NPTEL Certifications

NPTEL Online Certification

(Funded by the Ministry of HRD, Govt. of India)

This certificate is awarded to

SATYA SURYA PRAKASH VINNAKOTA

for successfully completing the course

Innovation by Design

with a consolidated score of 58 %

Online Assignments	13.58/25	Proctored Exam	44.27/75

Total number of candidates certified in this course: 136

Feb-Mar 2021
(4 week course)

Prof. Sridhar Iyer
Head CDEEP & NPTEL Coordinator
IIT Bombay

Indian Institute of Technology Bombay

Roll No:NPTEL21DE05S14390007

To validate and check scores: https://nptel.ac.in/noc

Elite

NPTEL Online Certification

(Funded by the Ministry of HRD, Govt. of India)

This certificate is awarded to

RATNALA PRASAD

for successfully completing the course

Conduction and Convection Heat Transfer

with a consolidated score of 69 %

Online Assignments	20.31/25	Proctored Exam	48.75/75

Total number of candidates certified in this course: 41

Prof. G P Raja Sekhar
Dean, Continuing Education
IIT Kharagpur

Jan-Apr 2021
(12 week course)

Prof. Debjani Chakraborty
Coordinator, NPTEL
IIT Kharagpur

Indian Institute of Technology Kharagpur

NPTEL Online Certification

(Funded by the Ministry of HRD, Govt. of India)

This certificate is awarded to

P V S MURALIKRISHNA

for successfully completing the course

Steam and Gas Power Systems

with a consolidated score of 57 %

Online Assignments	18.67/25	Proctored Exam	38.25/75

Total number of candidates certified in this course: 117

Prof. V. C. Srivastava
Coordinator, Continuing Education Centre
IIT Roorkee

Feb-Apr 2021
(8 week course)

Prof. Inderdeep Singh
NPTEL Coordinator
IIT Roorkee

Indian Institute of Technology Roorkee

Roll No:NPTEL21ME21S14390165

To validate and check scores: https://nptel.ac.in/noc

Elite

NPTEL Online Certification

(Funded by the Ministry of HRD, Govt. of India)

This certificate is awarded to

GOLLAPALLI VEERA SATYA SRINIVAS

for successfully completing the course

Fluid Machines

with a consolidated score of 60 %

Online Assignments	22.33/25	Proctored Exam	37.5/75

Total number of candidates certified in this course: 89

Prof. G P Raja Sekhar
Dean, Continuing Education
IIT Kharagpur

Aug-Oct 2021
(8 week course)

Prof. Debjani Chakraborty
Coordinator, NPTEL
IIT Kharagpur

Indian Institute of Technology Kharagpur

Roll No:NPTEL21ME75S14410181

To validate and check scores: https://nptel.ac.in/noc

MECHANICAL ENGINEERING

Faculty Publications

Dr. Nitla Stanley Ebenezer has published in scopus indexed journal, a paper entitled Corrosion Behaviour of Bamboo Leaf Ash-Reinforced Nickel Surface-Deposited Aluminium Metal Matrix Composites. Journal of Bio- and Tribo-Corrosion DOI 7, 72(2021). https://doi.org/10.1007/s40735-021-00510-x	
Dr. Pramod Kumar and Dr. M Murugan has published a paper entitled Study of microstructure and mechanical properties of NiTi wire cladding on super austenitic stainless steel 904L by TIG cladding process. In the journal of Sādhanā 46, 91(2021). https://doi.org/10.1007/s12046-021-01602-7	 
Dr. Pramod Kumar, Dr. M Murugan and Dr. Akilesh Kumar Singh has published a paper entitled Investigation of TIG Cladding of NiTi Wire on Substrate 304L to Study the Effect of Applied Current on Microstructure and Mechanical Properties in the Journal of Trans Indian Inst Met 74, 1333–1348(2021).	  
Dr. Pramod Kumar, Dr. M Murugan, Dr. Akilesh Kumar Singh, Dr. P. Daniah and Mr A Arif has published paper entitled Study of Welding process parameter in TIG joining of Aluminium Alloy (6061).	 

Article

DRONES

An unmanned aerial vehicle (UAV), commonly known as a drone, is an aircraft without any human pilot, crew, or passengers on board. UAVs are a component of an unmanned aircraft system (UAS), which includes adding a ground-based controller and a system of communications with the UAV. The flight of UAVs may operate under remote control by a human operator, as remotely-piloted aircraft (RPA), or with various degrees of autonomy, such as autopilot assistance, up to fully autonomous aircraft that have no provision for human intervention.

UAVs were originally developed through the twentieth century for military missions too dull, dirty or dangerous for humans, and by the twenty-first, they had become essential assets to most militaries. As control technologies improved and costs fell, their use expanded to many non-military applications. These include forest fire monitoring, aerial photography, product deliveries, agriculture, policing and surveillance, infrastructure inspections, science, smuggling, and drone racing.

UAVs may be classified like any other aircraft, according to design configuration such as weight or engine type, maximum flight altitude, degree of operational autonomy, operational role, etc.

- Based on the weight
- Based on the degree of autonomy
- Based on the altitude
- Based on the composite criteria

Drones have two basic functions: flight mode and navigation.

To fly, drones must have a power source, such as battery or fuel. They also have rotors, propellers and a frame. The frame of a drone is typically made of a lightweight, composite material to reduce weight and increase maneuverability. Drones require a controller, which lets the operator use remote controls to launch, navigate and land the aircraft. Controllers communicate with the drone using radio waves, such as Wi-Fi.

Mr. V. Hari Kumar
Student II Mechanical

Faculty as Resource person

Dr M Murugan delivered a lecture on Solar energy and Renewable energy for a STTP conducted by JKKN college of engineering and technology& Nehru Institute of Engineering & technology, Coimbatore

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Kumarapalayam - 638 183, Namakkal District, Tamil Nadu.

Mrs. N. SENDAMARAAI, Chairperson
Dr. K. TAMIZHARASU, M.E., Ph.D., Principal

CERTIFICATE OF APPRECIATION

This certificate is awarded to ***Dr. M. Murugan, Associate Professor in Department of Mechanical Engineering, Aditya College of Engineering and Technology*** *in recognition of valuable contribution to Short Term Training Programme Phase-II /~~workshop~~/~~seminar~~/~~conference~~/~~symposium~~ on* ***"Renewable Energy"*** *in the Department of* ***Mechanical Engineering and Electrical and Electronics Engineering*** *in our college on* ***14-May-2021 at 02.00 pm to 04.00 pm.*** *We thank him/~~her~~ for sparing his/~~her~~ valuable time with us, teaching us, inspiring us, encouraging us and motivating us. It was a great session. Thank you for your dedicated contribution.*

PRINCIPAL
Dr. K. TAMIZHARASU, M.E.,Ph.D.,
PRINCIPAL
J.K.K.NATTRAJA COLLEGE OF ENGINEERING AND TECHNOLOGY
KUMARAPALAYAM - 638 183.

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Mrs. N. SENDAMARAAI, Chairperson
Dr. K. TAMIZHARASU, M.E., Ph.D., Principal

CERTIFICATE OF APPRECIATION

This certificate is awarded to ***Dr. M. Murugan, Associate Professor in Department of Mechanical Engineering, Aditya College of Engineering and Technology*** *in recognition of valuable contribution to Short Term Training Programme Phase-I /~~workshop~~/~~seminar~~/~~conference~~/~~symposium~~ on* ***"Solar Energy"*** *in the Department of* ***Mechanical Engineering and Electrical and Electronics Engineering*** *in our college on* ***07-May-2021 at 02.00 pm to 04.00 pm.*** *We thank him/~~her~~ for sparing his/~~her~~ valuable time with us, teaching us, inspiring us, encouraging us and motivating us. It was a great session. Thank you for your dedicated contribution.*

PRINCIPAL
Dr. K. TAMIZHARASU, M.E.,Ph.D.,
PRINCIPAL
J.K.K.NATTRAJA COLLEGE OF ENGINEERING AND TECHNOLOGY
KUMARAPALAYAM - 638 183.

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Accredited by NAAC, NBA Accredited UG Coursers : AERO, CSE, MECH

Ref: NIET/MECH/WEB-17/2020 **DATE: 02-12-2020**

APPRECIATION LETTER

To

Dr.M.Murugan
Professor, Department of Mechanical Engineering
Aditya College of Engineering & Technology,
Surampalem, East Godavari,
Andhra Pradesh, India.

Dear Sir,

We are happy to convey our sincere thanks to you for delivering a webinar, organized by Department of Mechanical Engineering on **"Challenges and Opportunities in Solar Thermal Collectors".** It is a goodwill measure during the COVID-19 pandemic, the only who accepted our invitation and presented. The topic is quite informative and overwhelmed by large number of participants.

We look forward for your valuable sharing of professional knowledge in future.

Thanking You

Yours Sincerely

The Principal / NIET
Dr. P. MANIIARASAN
Principal
Nehru Institute of Engg. & Technology
T.M.Palayam, Coimbatore - 641 105

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Mr ABHISHEK SINHA
18P31A0302 8.09 (SGPA)

Mr D YASWANTH KUMAR
18P31A0311 7.95 (SGPA)

III B.TECH - II SEM MECHANIACL – B TOPPERS

Mr. P GANGADHAR
19P35A0380 8.23 (SGPA)

Mr. M.T. SUBRAHMANYAM
19P35A0377 8.09 (SGPA)

Mr. R SAIKRISHNA
19P35A0384 8.09(SGPA)

III B.TECH - II SEM MECHANIACL – C TOPPERS

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18P31A03518.09 (S GPA)

Mr G SIVANNARAYANA
19P35A03A9 7.95 (SGPA)

Mr Y S DURGA PRASAD
19P35A03D9 7.82 (SGPA)

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Mr.A R N KAUSHIK
19P31A0301 8.07 (SGPA)

Mr. P S GANESH
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Mr.*VELUGULVENKATESH*
20P35A0350 7.43 (SGPA)

Mr.S R CHANDRA
20P35A0389 7.43SGPA

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20P35A03A0 8.4SGPA

Mr. P RAJESH
20P35A03D7 8.14 SGPA

Mr. K MANIKANTA
20P35A03C7 7.79 (SGPA

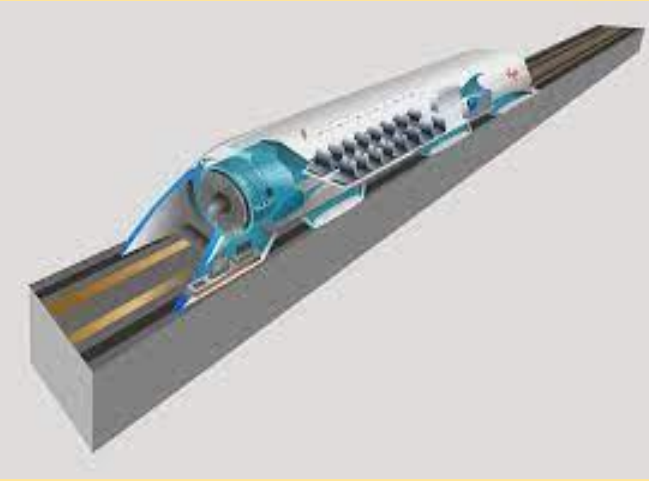
Article

HYPERLOOP

A hyperloop is a proposed high-speed transportation system for both public and goods transport. The term was popularized by Elon Musk to describe a modern project based on the vactrain concept (first appearance 1799). Hyperloop designs employ three essential components: tubes, pods, and terminals. The tube is a large sealed, low-pressure system (usually a long tunnel). The pod is a coach pressurized at atmospheric pressure that runs substantially free of air resistance or friction inside this tube, using aerodynamic or magnetic propulsion. The terminal handles pod arrivals and departures. The Hyperloop, in the initial form proposed by Musk, differs from vactrains by relying on residual air pressure inside the tube to provide lift by aerofoils and propulsion by fans.

The hyperloop concept has been promoted by Musk and SpaceX, and other companies or organizations have been encouraged to collaborate and develop the technology. Technical University of Munich Hyperloop set the hyperloop speed record of 463 km/h (288 mph) in July 2019 at the pod design competition hosted by SpaceX in Hawthorne, California. Virgin Hyperloop conducted the first human trial in November 2020 at its test site in Las Vegas, reaching a top speed of 172 km/h (107 mph).

The vactrain concept resembles a high-speed rail system without substantial air resistance by employing magnetically levitating trains in evacuated (airless) or partly evacuated tubes. However, the difficulty of maintaining a vacuum over large distances has prevented this type of system from ever being built. The hyperloop is similar to a vactrain system but operates at approximately one millibar (100 Pa) of pressure.



Mr. Abishek Sinha
Student III Mechanical

NSS Activities

A blood donation camp was organized by NSS unit of ACET in collaboration government hospital Kakinada

As a part of Jagananna Pachathoranam, NSS unit of ACET distributed saplings to medical staff and faculty