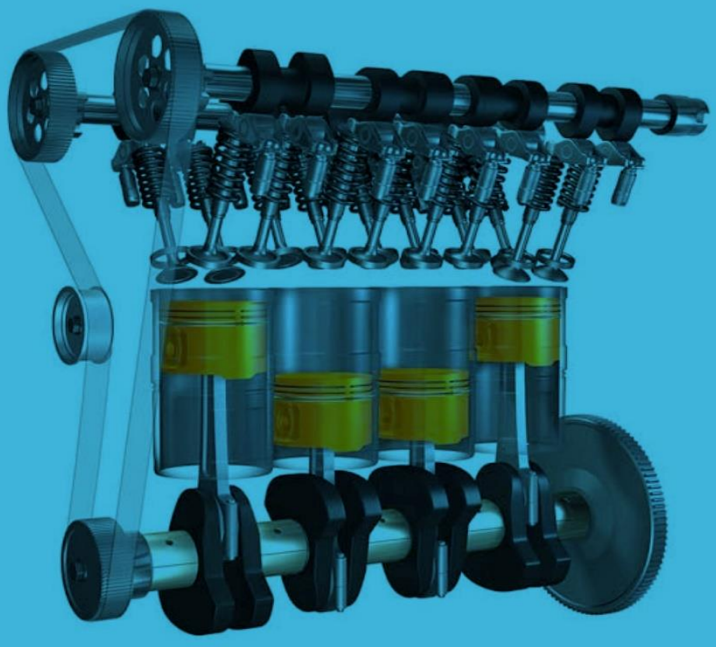
Aditya College of Engineering & Technology

Department of Mechanical Engineering

IGNITO MAGAZINE

JUNE-NOV 2018



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Mr. P. Prabhu Teja (Student)

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. T. Srihari, 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.

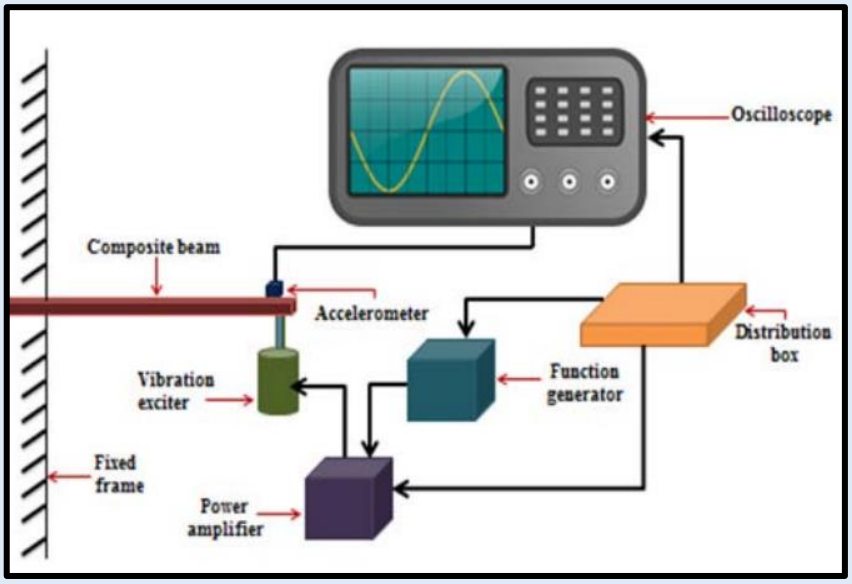
PSO3 As part of a team or individually, plan and manage activities in micro, small, medium and large enterprise.

Article

Vibration Damping

The vibrations produced in the structures or components are the primary source of problems in machine tools, aircraft and automobile structures. Vibration produces detrimental stresses in these components. These problems can be overcome by introducing damping in these structures. Damping is the dissipation of energy stored due to oscillatory motions. This is one of the vital parameters in the design of a dynamic system in order to enhance their service life. A recent method to improve the damping ability of structures is by fabricating these with composites. In addition, composites are found to have superior strength, stiffness, improved corrosion and fatigue resistance. Composite materials, particularly fiber reinforced (FR) composites are widely used in aerospace and automotive applications due to their less weight and high damping characteristics. The damping of FR composites depends on the structure, diameter and orientation of fiber in matrix. Damping at the fibermatrix interface dissipates a significant amount of energy. In the current investigation, damping of structural composite beams has been studied to estimate the damping ratios and natural frequencies. The various composite beams used are Glass Fibre Reinforced Epoxy (GFE), Glass Fibre Reinforced Polyester (GFP) and Carbon Black Filled Epoxy (CBFE). To accomplish the requirements of the projected investigation, composite beams of 170 mm cantilever length has been used. The cantilever beams are mounted on a heavy and rigid framework. The frame has provisions to hold the fixed end of the beam rigidly, thus ensuring perfect cantilever condition. Forced vibration is imparted to the cantilever beam using a vibration exciter. A contact type accelerometer is used to obtain the signal and feed it to a digital storage oscilloscope (DSO). Logarithmic decrement method is used to evaluate the damping parameters from the obtained amplitude versus time plots. The damping ratio and natural frequency values are found to be 0.2281 and 1664.94 rad/s respectively for CBFE. CBFE has highest damping property as compared to GFE and GFP.

The composite beam is placed on a frame made of steel by welding process. This frame is joined to heavy concrete base by making use of foundation bolt, and it has slotted guide ways for usage of different lengths of beams. The frame has provision to hold beam tightly and rigidly at one end in order to achieve the cantilever condition.



Gadi Ganesh
III Mechanical, Student

NPTEL Certifications

NPTEL Online Certification

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

This certificate is awarded to

ABDUL ARIF

for successfully completing the course

Engineering Thermodynamics

with a consolidated score of 43 %

Online Assignments	19.88/25	Proctored Exam	22.9/75

Total number of candidates certified in this course: 134

Prof. T. V. Prabhakar, Chairman, Center for Continuing Education, IITK

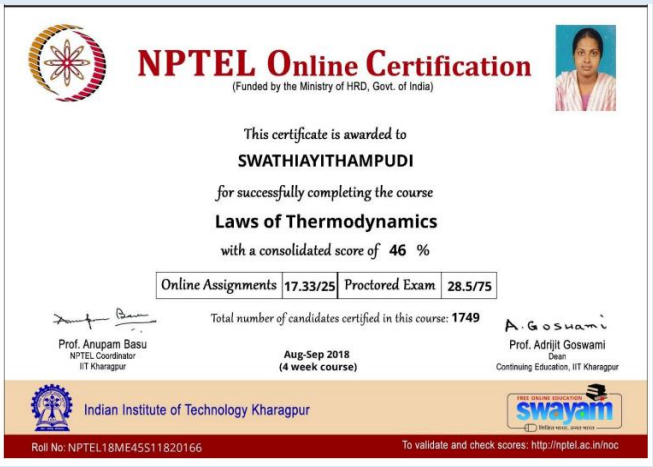
Jul-Oct 2018 (12 week course)

Prof. Satyaki Roy, NPTEL Coordinator, IIT Kanpur

Indian Institute of Technology Kanpur

swayam

Roll No: NPTEL18AE05S12000235 To validate and check scores: http://nptel.ac.in/noc



NPTEL Online Certification

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This certificate is awarded to

SWATHIAYITHAMPUDI

for successfully completing the course

Laws of Thermodynamics

with a consolidated score of 46 %

Online Assignments	17.33/25	Proctored Exam	28.5/75

Total number of candidates certified in this course: 1749

Prof. Anupam Basu, NPTEL Coordinator, IIT Kharagpur

Aug-Sep 2018 (4 week course)

Prof. Adrijit Goswami, Dean, Continuing Education, IIT Kharagpur

Indian Institute of Technology Kharagpur

swayam

Roll No: NPTEL18ME45S11820166 To validate and check scores: http://nptel.ac.in/noc

NPTEL Online Certification

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

This certificate is awarded to

CH RAM PRASAD

for successfully completing the course

Principles of Casting Technology

with a consolidated score of 53 %

Online Assignments	17.50/25	Proctored Exam	35.21/75

Total number of candidates certified in this course: 567

Prof. B. K. Gandhi, Coordinator, Continuing Education Center, NPTEL Coordinator, IIT Roorkee

Aug-Sep 2018 (8 week course)

Indian Institute of Technology Roorkee

swayam

Roll No: NPTEL18ME50S11930286 To validate and check scores: http://nptel.ac.in/noc

NPTEL Online Certification

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

This certificate is awarded to

ABDUL ARIF

for successfully completing the course

Refrigeration And Air-Conditioning

with a consolidated score of 57 %

Online Assignments	21.38/25	Proctored Exam	35.21/75

Total number of candidates certified in this course: 672

Prof. B. K. Gandhi, Coordinator, Continuing Education Center, NPTEL Coordinator, IIT Roorkee

Aug-Sep 2018 (8 week course)

Indian Institute of Technology Roorkee

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Roll No: NPTEL18ME46S11820016 To validate and check scores: http://nptel.ac.in/noc

Sports and Games

On the occasion of birth anniversary of Indian hockey legend **Major Dhyan Chand,** the **National sports Day** is celebrated in the campus, students of Mechanical engineering have participated 3000 mts running race

MECHANICAL ENGINEERING

Student Training Programs

Robotics workshop has been conducted jointly by Departments of Mechanical Engineering and Electronics and communication engineering of ACET, to improve the skills and to attain interdisciplinary knowledge to the students

ADITYA COLLEGE OF ENGINEERING & TECHNOLOGY
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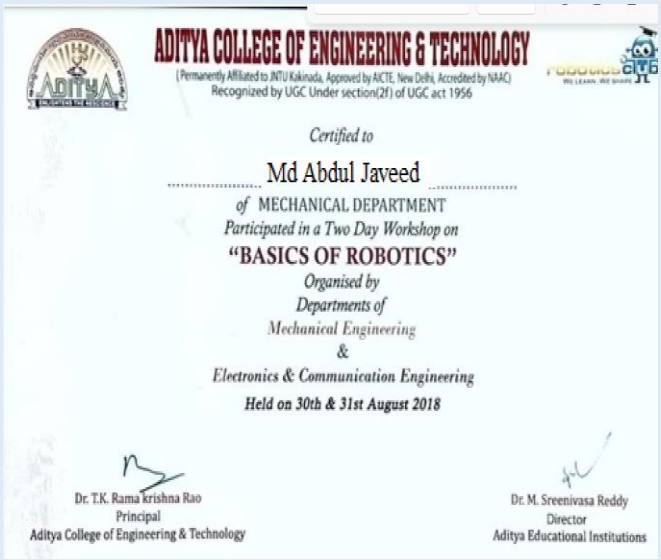
Recognized by UGC Under section(2f) of UGC act 1956

Certified to
Kumar Nishant
of MECHANICAL DEPARTMENT
Participated in a Two Day Workshop on
"BASICS OF ROBOTICS"
Organised by
Departments of
Mechanical Engineering
&
Electronics & Communication Engineering
Held on 30th & 31st August 2018

Dr. T.K. Rama Krishna Rao
Principal
Aditya College of Engineering & Technology

Dr. M. Sreenivasa Reddy
Director
Aditya Educational Institutions



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Certified to
Md Abdul Javeed
of MECHANICAL DEPARTMENT
Participated in a Two Day Workshop on
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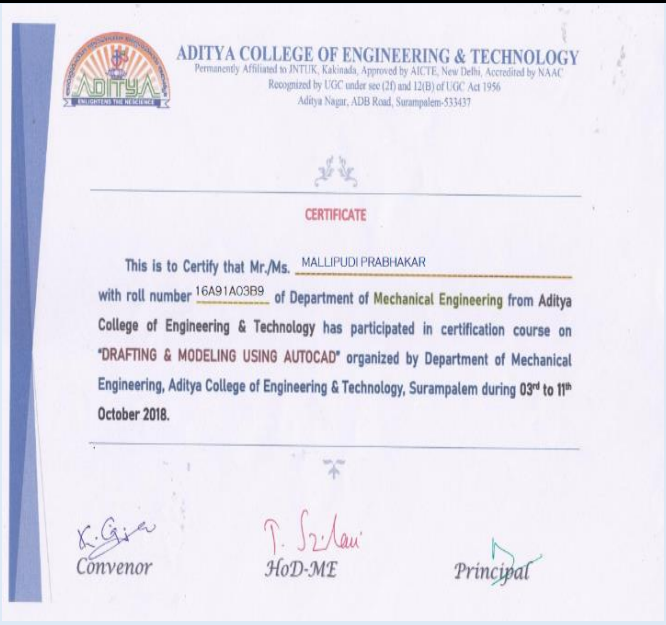
Organised by
Departments of
Mechanical Engineering
&
Electronics & Communication Engineering
Held on 30th & 31st August 2018

Dr. T.K. Rama krishna Rao
Principal
Aditya College of Engineering & Technology

Dr. M. Sreenivasa Reddy
Director
Aditya Educational Institutions

Drafting and modelling using AutoCAD



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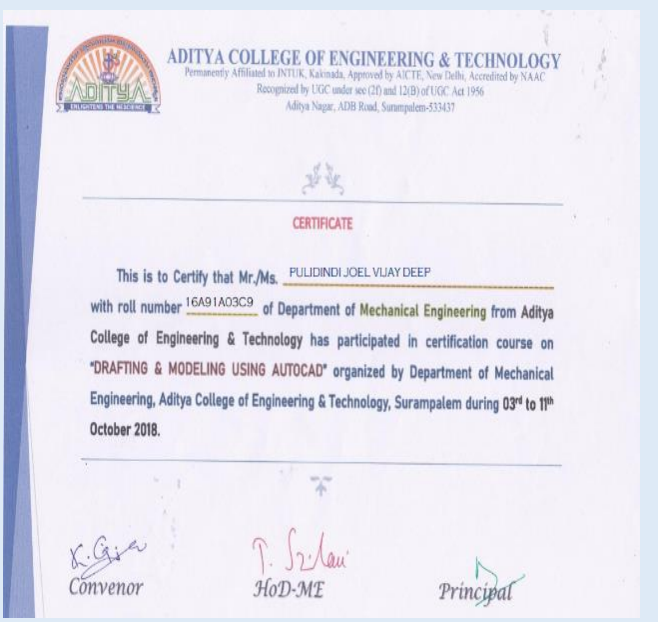
Aditya Nagar, ADB Road, Surampalem-533437

CERTIFICATE

This is to Certify that Mr./Ms. MALLIPUDI PRABHAKAR with roll number 16A91A03B9 of Department of Mechanical Engineering from Aditya College of Engineering & Technology has participated in certification course on "DRAFTING & MODELING USING AUTOCAD" organized by Department of Mechanical Engineering, Aditya College of Engineering & Technology, Surampalem during 03rd to 11th October 2018.

Convenor HoD-ME Principal



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CERTIFICATE

This is to Certify that Mr./Ms. PULIDINDI JOEL VIJAY DEEP with roll number 16A91A03C9 of Department of Mechanical Engineering from Aditya College of Engineering & Technology has participated in certification course on "DRAFTING & MODELING USING AUTOCAD" organized by Department of Mechanical Engineering, Aditya College of Engineering & Technology, Surampalem during 03rd to 11th October 2018.

Convenor HoD-ME Principal

MECHANICAL ENGINEERING

Student Internships

S.No	Name of the Student	Organisation of Internship	Duration
1	Kola Veera Hema Sundar	Nava Bharat Ventures Limited	05-05-2018 To 26-05-2018
2	Ajjarapu Satya Sai Bharadwaj	Hindustan Shipyard Limited	11-06-2018 To 23-06-2018
3	Arigi Yamanth	Hindustan Shipyard Limited	11-06-2018 To 23-06-2018
4	Chowhan Suraj Hanuman Singh	Hindustan Shipyard Limited	11-06-2018 To 23-06-2018
5	Gadi Ganesh	Hindustan Shipyard Limited	11-06-2018 To 23-06-2018
6	Katta Naga Satya Durga Shiva Shankar	Hindustan Shipyard Limited	11-06-2018 To 23-06-2018
7	Kella Premsagar	Hindustan Shipyard Limited	11-06-2018 To 23-06-2018
8	Khandavalli Venkata Satya Manideep	Hindustan Shipyard Limited	11-06-2018 To 23-06-2018
9	Kollluri Sivateja	Hindustan Shipyard Limited	11-06-2018 To 23-06-2018
10	Manda Harischandra Reddy	Hindustan Shipyard Limited	11-06-2018 To 23-06-2018
11	Matturthi Sridhar	Hindustan Shipyard Limited	11-06-2018 To 23-06-2018
12	Muggulla Durga Prasad	Hindustan Shipyard Limited	11-06-2018 To 23-06-2018
13	Panduri Omkar	Hindustan Shipyard Limited	11-06-201 8 To23-06-2018

MECHANICAL ENGINEERING

Student Internships

S.No	Name of the Student	Organisation of Internship	Duration
1	Parimi Bhargava Venkata Sivaram	Hindustan Shipyard Limited	11-06-2018 TO 23-06-2018
2	Pulidindi David Manikranth	Hindustan Shipyard Limited	11-06-2018 TO 23-06-2018
3	Sodapaneedi Satya Bhaskar	Hindustan Shipyard Limited	11-06-2018 TO 23-06-2018
4	Vanaparthi Venkatesh	Hindustan Shipyard Limited	11-06-2018 TO 23-06-2018
5	Yakkala Jaswanth Prakash	Hindustan Shipyard Limited	11-06-2018 TO 23-06-2018
6	Penkey Rahul Satya Sai Krishna	Hindustan Shipyard Limited	11-06-2018 TO 23-06-2018
7	Inti Venkata Giri	Hindustan Shipyard Limited	11-06-2018 TO 23-06-2018
8	Gottimukkala Sai Krishna Varama	Hindustan Shipyard Limited	11-06-2018 TO 23-06-2018
9	Tammosetty Bhanu Prakash	Hindustan Shipyard Limited	11-06-2018 TO 23-06-2018
10	Jammula Satya Veera Durga Vamsi	Hindustan Shipyard Limited	11-06-2018 TO 23-06-2018
11	Bathini Subhash	Hindustan Shipyard Limited	11-06-2018 TO 23-06-2018
12	Gudivada Ramesh	Hindustan Shipyard Limited	11-06-2018 TO 23-06-2018
13	Medisetti Siva Sai Kumar	Hindustan Shipyard Limited	11-06-2018 TO 23-06-2018
14	Mudunuri Teja Varma	Hindustan Shipyard Limited	11-06-2018 TO 23-06-2018
15	Balla Srinivas	Hindustan Shipyard Limited	11-06-2018 TO 23-06-2018

Article

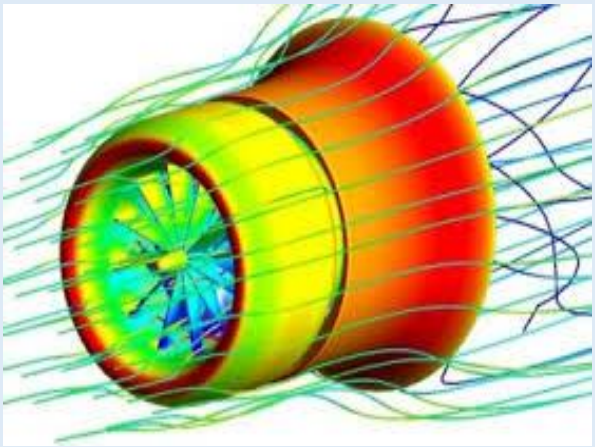
Computational fluid dynamics (CFD)

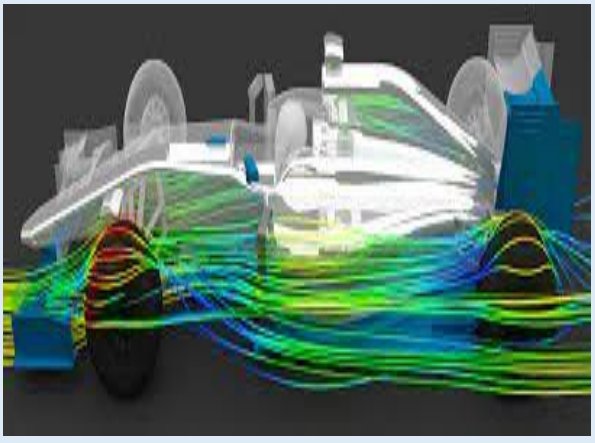
Computational fluid dynamics (CFD) is a branch of fluid mechanics that uses numerical analysis and data structures to analyse and solve problems that involve fluid flows. Computers are used to perform the calculations required to simulate the free-stream flow of the fluid, and the interaction of the fluid (liquids and gases) with surfaces defined by boundary conditions. With high-speed supercomputers, better solutions can be achieved, and are often required to solve the largest and most complex problems. Ongoing research yields software that improves the accuracy and speed of complex simulation scenarios such as transonic or turbulent flows. Initial validation of such software is typically performed using experimental apparatus such as wind tunnels. In addition, previously performed analytical or empirical analysis of a particular problem can be used for comparison. A final validation is often performed using full-scale testing, such as flight tests.

CFD is applied to a wide range of research and engineering problems in many fields of study and industries, including aerodynamics and aerospace analysis, hypersonics, weather simulation, natural science and environmental engineering, industrial system design and analysis, biological engineering, fluid flows and heat transfer, engine and combustion analysis, and visual effects for film and games.

In all of these approaches the same basic procedure is followed.

- The geometry and physical bounds of the problem can be defined using computer aided design (CAD). From there, data can be suitably processed (cleaned-up) and the fluid volume (or fluid domain) is extracted.
- The volume occupied by the fluid is divided into discrete cells (the mesh). The mesh may be uniform or non-uniform, structured or unstructured, consisting of a combination of hexahedral, tetrahedral, prismatic, pyramidal or polyhedral elements.
- The physical modelling is defined – for example, the equations of fluid motion + enthalpy + radiation + species conservation
- Boundary conditions are defined. This involves specifying the fluid behaviour and properties at all bounding surfaces of the fluid domain. For transient problems, the initial conditions are also defined.
- The simulation is started and the equations are solved iteratively as a steady-state or transient.
- Finally, a postprocessor is used for the analysis and visualization of the resulting solution.



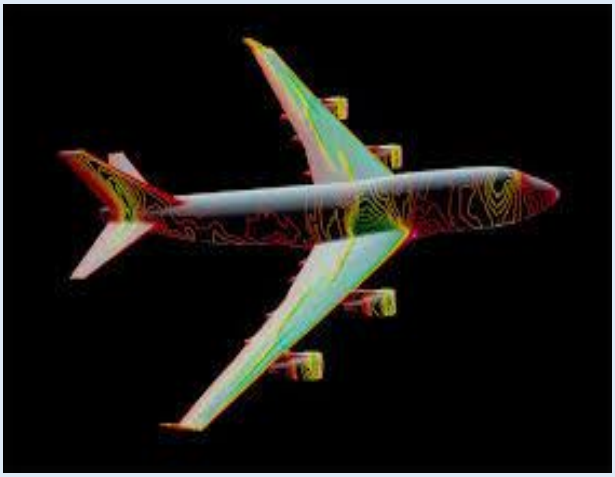


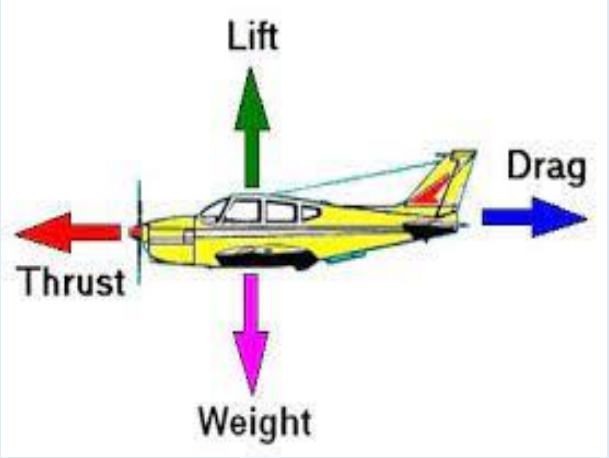
M Rambabu
Assistant Professor

Article

Aerodynamics

Aerodynamics, is the study of the motion of air, particularly when affected by a solid object, such as an airplane wing. It involves topics covered in the field of fluid dynamics and its subfield of gas dynamics. The term aerodynamics is often used synonymously with gas dynamics, the difference being that "gas dynamics" applies to the study of the motion of all gases, and is not limited to air. The formal study of aerodynamics began in the modern sense in the eighteenth century, although observations of fundamental concepts such as aerodynamic drag were recorded much earlier. Most of the early efforts in aerodynamics were directed toward achieving heavier-than-air flight, which was first demonstrated by Otto Lilienthal in 1891. Since then, the use of aerodynamics through mathematical analysis, empirical approximations, wind tunnel experimentation, and computer simulations has formed a rational basis for the development of heavier-than-air flight and a number of other technologies. Recent work in aerodynamics has focused on issues related to compressible flow, turbulence, and boundary layers and has become increasingly computational in nature.





B Srinivas
III Mechanical, Student