

MEXPRESS

Mechanical Engineering Department's Official Newsletter

Volume No. 06 Issue No. 05

For Internal Circulation Only

JANUARY 2023

Happy New Year - 2023!



REACH US AT



KUMARAGURU
college of technology
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Mechanical Engineering Association
DEPARTMENT OF MECHANICAL ENGINEERING



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From the Editors...

Good day, dear readers!

We wish you a very happy and prosperous new year on behalf of the editors, including associate editors, faculty members, and department students!

You are currently reading the fifth issue of the sixth volume of MExpress, our departmental newsletter. The Associate Editor continues Part 4 of Strictly Turbulent in this issue. You will also find information about the various activities conducted in the department by faculty members as well as student activities. This issue includes an article by a final-year student who was placed in four companies and shared his experience as well as suggestions for his juniors. We also have opportune section for the students to participate in training programs.

We cordially invite all readers to provide us with feedback by clicking on the various media links on the top page. We also invite our readers to contribute their ideas.

We wish you all a pleasant reading experience.

Editors....



STRICTLY TURBULENT – Part 4

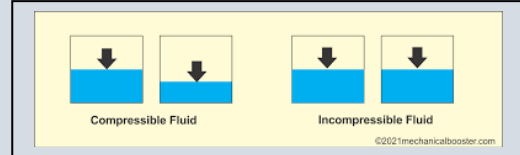


Ms. Jobisha Celin
20BME051
3rd year mechanical - B

Incompressible flow vs Incompressible fluid

Incompressible flow

We've come across these terms, and I am sure at least once we thought that both terms represented the same thing. Well, there is more to them than just density being constant throughout. Incompressible flow means that for a



[Compressible vs Incompressible fluid](#)

significant change in pressure at any point in the flow, the ratio of the change in pressure to the volumetric strain of the fluid is negligible, i.e., under five percent. This term is referred to as the bulk modulus of compressibility or the compressibility ratio. This is about the fluid flow, and therefore incompressibility can also be represented in terms of the velocity. If the Mach number is less than 0.3, the flow is called incompressible.

Incompressible fluid

For a significant change in the pressure, when the volumetric strain is zero, such a fluid is said to be incompressible. And now one can say that the coefficient of compressibility or the bulk modulus of compressibility is infinity for a truly incompressible fluid.

What is the infamous Navier-Stokes equation?

A brief history:

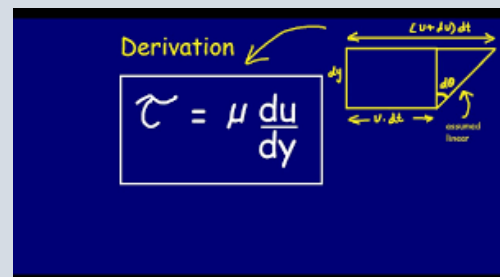


[Sir Isaac Newton](#)

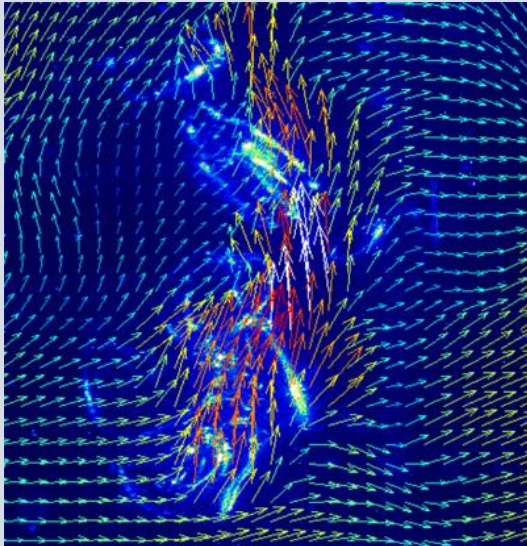
and studied fluid inertia, viscosity (i.e., Newton's law of viscosity), and free jets.

After his publication, Sir Isaac Newton and Leibniz independently developed infinitesimal calculus, or just calculus. Thus, it became easier to study fluid statics and dynamics, where the properties of the fluid or flow change from one point to another.

The Navier-Stokes equations are a set of equations that govern fluid flow. It all started when Sir Isaac Newton came up with the three laws in his "Mathematical Principles of Natural Philosophy" in 1687. A solid object's future behaviour can be easily predicted by thoroughly studying its properties and surroundings. These results are linear and not chaotic when their initial conditions are changed slightly. Sir Isaac Newton applied his equations to fluids



[Newton's law of viscosity](#)



Vector field

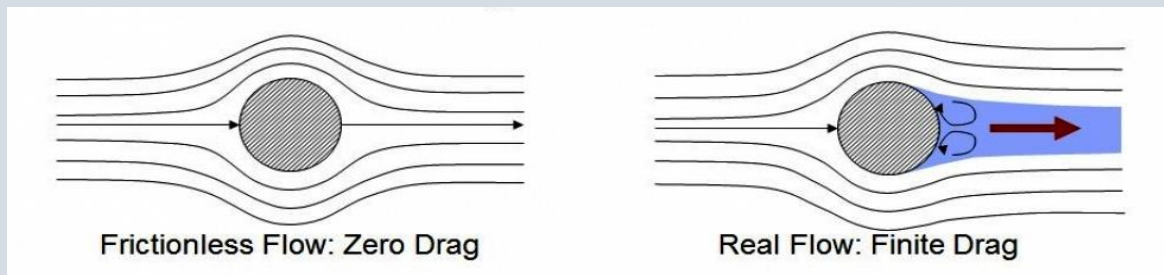
Therefore, one can realize that for us to arrive at a result, the result must be a vector field, in which if we substitute the values of the coordinate points on the field, we will arrive at the behaviour of the fluid flow at those points.

In 1738, the infamous Bernoulli equation came to be. With every assumption that can be made to simplify the problem, the fluid is assumed to be incompressible, the flow to be steady and uniform, and all viscous effects are neglected. With that, Bernoulli and his associate Euler built on Newton's work and defined energy and momentum equations.

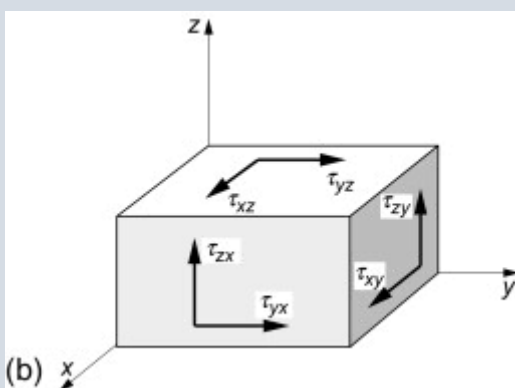


D'Alembert

In 1758, D'Alembert proved that for an object in an inviscid fluid flow, the drag occurring over its body is zero, i.e., there is no flow separation occurring on the rear side; this is called the D'Alembert paradox. This was very far from reality, meaning all those assumptions were futile and didn't make any sense to arrive at a result that was close to reality.



Zero drag paradox



Shear stress tensor

Navier-Stokes Equations

Continuity Equation

$$\nabla \cdot \vec{V} = 0$$

Momentum Equations

$$\rho \frac{D\vec{V}}{Dt} = -\nabla p + \rho \vec{g} + \mu \nabla^2 \vec{V}$$

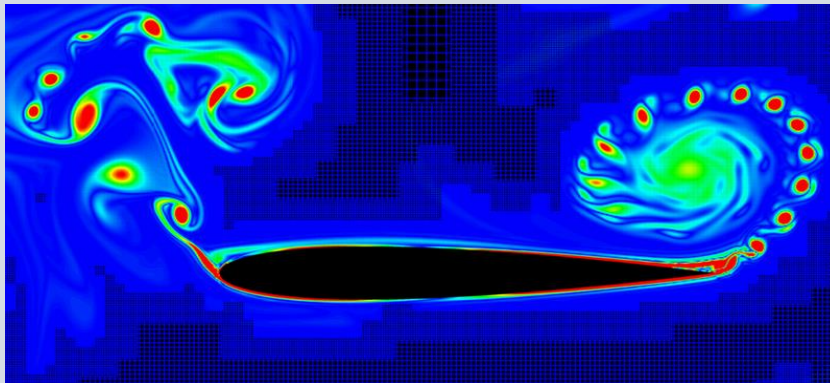
$\rho \left[\frac{\partial \vec{V}}{\partial t} + (\vec{V} \cdot \nabla) \vec{V} \right]$

Total derivative: Change of velocity with time
 Convective term: Fluid flows in the direction of largest change in pressure.
 Pressure gradient: External forces, that act on the fluid (gravitational force or electromagnetic).
 Body force term: For a Newtonian fluid, viscosity operates as a diffusion of momentum.
 Diffusion term:

Navier-Stokes continuity and momentum equations

In the 19th century, the mathematical fluid mechanics community tried to include the effects of viscosity into Euler's equation so that realistic results could be achieved. The shear stress tensors were included in the equation. A tensor is a vector having two indices, meaning that the tensor is a 2-dimensional tensor and is represented in matrix form.

Little did they know that in the year 1822, Claude Louis Navier would come up with the Navier-Stokes equation, which remains unsolved as a millennial problem to this day. In 1845, George Stokes presented a mathematically rigorous derivation of the Navier-Stokes equation. And in 1904, Ludwig Prandtl modified and arrived at a form of the Navier-Stokes equations that is still used today for the design of different hydrodynamic and aerodynamic systems. Prandtl showed that in a fluid flow, the flow near the walls can be divided into a layer, i.e., the boundary layer, where the effects of friction are significant, and the simplified equations of Euler and Bernoulli can be used to solve the problem.

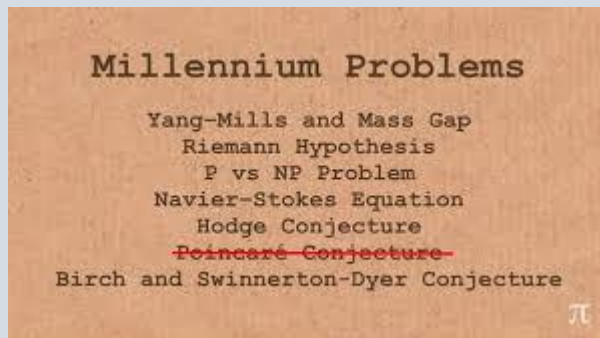


The oldest unsolved problem in physics - turbulence

conditions of the fluid flow, the difference in the results is much higher. In Chaos theory, turbulence is a mathematically modeled phenomenon. Chaos theory is used to model systems that produce random values for small changes in their initial conditions.

The only issue with these equations in any form is that there is no clear understanding theoretically, and if the fluid flow transitions to turbulent flow and the equations become highly non-linear, a smooth result cannot be obtained. Even for a small change in the initial

The Navier Stokes existence and smoothness problem – A millennium problem



[The millennium problems - list](#)

Basic properties of the solutions to Navier-Stokes equations have never been proved. And the existence of smooth solutions for a given set of initial conditions is not proven for the 3-dimensional system of these equations in space. What is meant here by "smooth solution" is that the derivative of the result should be continuous at all points. Imagining turbulence, we know that it is highly non-uniform and unsteady; therefore, if included, common sense tells us that the

result would contain holes and discontinuities. The knowledge of the turbulence phenomenon is critical to the design of systems involving three dimensions, and therefore the solution to Navier-Stokes is important because only via that can the turbulence phenomenon be well understood, and just by knowing the weather at a place, one can predict if the plane would experience turbulence or not when flying over it.

Don't you just love living in a world where there is turbulence? In the next issue,

What is the shear stress tensor?

FACULTY AS RESOURCE PERSONS



Mr. B. Jeeva, Assistant Professor – II, delivered a talk on "CII Industrial Innovation Award 2022 Highlights" in the Weekly Forum at Kumaraguru College of Technology on 12-09-2022.

Dr. S. Balasubramanian, Associate Professor, acted as a resource person in one of the sessions in the International Virtual FDP on Emerging Technologies in Computer Science Research, organized by the PPG School of Computer Science, Coimbatore, from 19-12-2022 to 27-12-2022.



PAPERS PUBLISHED



Dr. S. Sivakumar, Assistant Professor – III, published following papers as detailed below.

1. "An investigation on influence of battery materials for efficient lithium-ion battery pack design", AIP Conference Proceedings 2446, 080001 (2022); <https://doi.org/10.1063/5.0108156> Published Online: 29 November 2022, Scopus indexed International Journal
2. "Exploring the efficacy of nano fluid (Al₂O₃) based battery thermal management system using CFD", AIP Conference Proceedings 2446, 130003 (2022); <https://doi.org/10.1063/5.0108198> Published Online: 29 November 2022, Scopus indexed International Journal.
3. "Effect of ferromagnetic and diamagnetic coil materials study on a wireless energy transfer system using mathematical model", AIP Conference Proceedings 2446, 180064 (2022); <https://doi.org/10.1063/5.0108229> Published Online: 29 November 2022, Scopus indexed International Journal.
4. "Thermal analysis of stacked type supercapacitors for different material structures", AIP Conference Proceedings 2446, 180047 (2022); <https://doi.org/10.1063/5.0108260>, Published Online: 29 November 2022, Scopus indexed International Journal.
5. "An investigation on the performance of permanent magnet brushless DC motor based on different materials", AIP Conference Proceedings 2446, 100004 (2022); <https://doi.org/10.1063/5.0108137>, Published Online: 29 November 2022, Scopus indexed International Journal.



Mr. B. Jeeva, Assistant Professor – II, published following papers as detailed below.

1. "Experimental Study on Heat Transfer Enhancement for the Multi-Channel Flow of Graphene Nanofluid", AIP Conference Proceedings 2446, 130002-1 – 130002-5, (2022); <https://doi.org/10.1063/5.0108494>, November 2022, PP 1-5, Scopus indexed International Journal.
2. "Two Phase Numerical Analysis of Graphite Nanoparticle in Circular Pipe", AIP Conference Proceedings, 2446, 030004-1 -030004-5, (2022); <https://doi.org/10.1063/5.0108357>, November 2022, PP. 1-5, Scopus indexed International Journal.
3. "Numerical Study of Heat Transfer Characteristics of Graphite Nanofluid in Flat Tubes", AIP Conference Proceedings, 2446, 030001-1 - 030001-5 (2022); <https://doi.org/10.1063/5.0108346>, November 2022, PP. 1-5 Scopus indexed International Journal.
4. "Drying Kinetics of Turkey Berry Using Solar Tunnel Dryer: Natural Convection", AIP Conference Proceedings 2446, 180014-1 - 180014-5 (2022); <https://doi.org/10.1063/5.0108383>, November 2022, PP. 1-5, Scopus indexed International Journal.



Dr. B. N. Sreeharan, Assistant Professor – II, published following papers as detailed below.

1. "An investigation on selection and validation of suitable material to a steering knuckle of quad bike, AIP Conference Proceedings 2446, 110003 (2022); <https://doi.org/10.1063/5.0108320>, Scopus indexed International Journal.
2. "Cutting process parameter optimization of CF8M steel", AIP Conference Proceedings 2446, 160001 (2022); <https://doi.org/10.1063/5.0108338>, Scopus indexed International Journal.
3. "An investigation on selection and validation of suitable material to a roller of an automated solar panel cleaning system using DEAR algorithm", AIP Conference Proceedings 2446, 110005 (2022); <https://doi.org/10.1063/5.0108389>, Scopus indexed International Journal.
4. "Optimization of GMAW control factors over weld bead parameters of AA 6351 material using Taguchi L16 orthogonal array", AIP Conference Proceedings 2446, 110001 (2022); <https://doi.org/10.1063/5.0108326>, Scopus indexed International Journal.
5. "Application of DEAR algorithm in selection of material for making a flexible fixture for ATV control arms", AIP Conference Proceedings 2446, 180017 (2022); <https://doi.org/10.1063/5.0108345>, Scopus indexed International Journal.



Dr. S. Balasubramanian, Associate Professor, published following papers as detailed below.

1. "Prediction of Thermal Disruption and Microstructure study on Cast Iron pump casing in metal removal process", AIP Conference Proceedings 2446, 160004-5 (2022); <https://doi.org/10.1063/5.0109647>, Scopus indexed International Journal.
2. "A comparative surface roughness study of silicon wafer by Laser speckle technique, Atomic force Microscopy and Stylus profilometry", AIP Conference Proceedings 2446, 170012-1 - 170012-5 (2022); <https://doi.org/10.1063/5.0108226> Scopus indexed International Journal.
3. "Experimental and computational structural cum fatigue data investigations on various lightweight materials under tensile load", AIP Conference Proceedings 2446, 180048-1 - 180048-6(2022); <https://doi.org/10.1063/5.0108365>, Scopus indexed International Journal.
4. "Experimental investigations on effect of Magnesium on Wear properties of Cast Iron", AIP Conference Proceedings 2446, 160005-1 - 160005-4 (2022), <https://doi.org/10.1063/5.0108628>, Scopus indexed International Journal.
5. "Roughness measurement of Mild steel plate by speckle images", AIP Conference Proceedings 2446, 170011-1-170011-5(2022); <https://doi.org/10.1063/5.0108111>, Scopus indexed International Journal.

Dr. R. Manivel, Professor, published following papers as detailed below.



1. "Design and Parametric Study of Counter-Rotating Propeller of Unmanned Aerial Vehicles for High-Payload Applications based on CFD-MRF Approach IJVSS : ISSN: 0975-3060 (Print), 0975-3540 (Online), Scopus indexed International Journal.
2. "Prediction of Temperature Distribution in a Thermal Jacket Through Simulation During Hot and Cold Environment", Scopus indexed International Journal.
3. "Experimental Study on Heat Transfer Enhancement for the Multi-Channel Flow of Graphene Nanofluid", Scopus indexed International Journal.
4. "Design and multi-disciplinary computational investigations on PVEH patches attached horizontal axis hybrid wind turbine system for additional energy extraction in HALE UAVs", Scopus indexed International Journal.

MANUSCRIPTS REVIEWED



Dr. C. Velmurugan, Professor and HoD, reviewed a couple of papers as detailed below

"Influence of Nano Graphite Particles on the Mechanical and Wear Characterization of Al6082 Alloy Nano Composites" and "Study of SiC nanoparticles on the mechanical properties of AA7075 through solidification process assisted by Ultrasonic cavitation method for the Advances in Material Science and Engineering, an International Journal.

Mr. B. Jeeva, Assistant Professor – II, reviewed a paper titled "Research on engine speed control based on Tuna Swarm Optimization", International Journal of Engineering Research and Reports.



PROGRAMMES ATTENDED



Mr. S. Sivakumar, Assistant Professor – II, participated in a workshop on "Proposal Writing in Metal 3D Printing for Young Professionals" on 05-12-2022 organized by KLDA, KCT.

Mr. B. Jeeva, Assistant Professor – II, participated in a Short-Term Course on "CFD for Applied Engineering Problems with Hands-On Practice" from 19-12-2022 to 23-12-2022, organized by the National Institute of Technology, Rourkela, Odisha 769008.



Dr. S. Balasubramanian, Associate Professor, participated in an FDP on "Emerging Technologies in Computer Research-Robotics" from 19-12-2022 to 27-12-2022, organized by PPG School of Computer Science, PPG College of Arts and Science, Viswapuram, Saravanampatti, Coimbatore, Tamil Nadu 641035. He also participated in a workshop on "Proposal Writing in Metal 3D Printing for Young Professionals" on 05-12-2022 organized by KLDA, KCT.

Dr. R. Manivel, Professor, participated in the DRDO DEBEL Research Topics Meeting on 29-12-2022 organized by DRDO DEBEL, Bangaluru.





Dr. M. Thirumalaimuthukumar, Assistant Professor – III, participated in a workshop on "Proposal Writing in Metal 3D Printing for Young Professionals" on 05-12-2022 organized by KLDA, KCT. He also participated in a Webinar on "The Impact of Digital Twins, Modeling, and Predictive Simulation on Business Process Analysis" on 09-12-2022 organized by NIVID Informatics."

Dr. B. N. Sreeharan, Assistant Professor – II, participated in a workshop on "Proposal Writing in Metal 3D Printing for Young Professionals" on 05-12-2022 organized by KLDA, KCT.



INDUSTRIAL VISITS



An industrial visit was arranged to ISRO-VSSC Thiruvananthapuram on 21-12-2022 and 22-12-2022. **Dr. S. Balasubramanian**, Associate Professor; **Dr. N. Sangeetha**, Senior Associate Professor; and **Dr. A. P. Arun**, Assistant Professor – III coordinated the visit.



STUDENT PARTICIPATIONS

- **Ms. R. Pavithra**, our Alumni and **Mr. K. T. Imayan** participated in "Tamil Nadu Agriculture Hackathon 2022" from 13-12-2022 to 14-12-2022 organized by "Tamil Nadu Startup and Innovation Mission, Entrepreneurship Development and Innovation Institute, Parthasarathy St, Hindustan Teleprinters Staff Quarters, SIDCO Industrial Estate, Guindy, Chennai, Tamil Nadu 600032.
- Following second year students, through Centre of Exemplary Learning, got certified from M/s. Dassault Systems as Certified Associate in Solid Works.

| Roll No. | Name of the Student |
|----------|---------------------|
| 21BME002 | ABHISHEEK C |
| 21BME008 | AKSHAY KANNA |
| 21BME009 | ANAND R |
| 21BME011 | ARUN K L |
| 21BME017 | DEEPAK R |
| 21BME024 | GOKULAKRISHNAN M |
| 21BME036 | KABILASH S |
| 21BME058 | NAVEEN G G |
| 21BME103 | YUHENDRAN R J |

SCOUT OUT



Mechanical Engineering Association has organized an event named SCOUT OUT mainly to test their knowledge on basic concepts of mechanical engineering. This event had comprised of riddle-based questions and identification of Mechanical Components. It was conducted on 15th December, 2022. Dr. M. A Vinayaga Moorthi, Assistant Professor II were the Faculty Co-ordinators followed by the student organiser Mr. Vijay Adithya K. V, Joint Secretary and Mr. Sanjay

R, Executive member, MEA. Totally 40 students were participated in the event. The outcome of the event is to gain knowledge on technical concepts related to Mechanical Engineering. The top 3 participants who had scored the maximum marks are the winners of the event which is mentioned below:

1. Jackin M - 21BAU010
2. Sabarinath G - 21BME068
3. Viknesh U M - 22BME125

PLACEMENT PREPARATION



Mr. Kamalesh S
19BME031
3rd year mechanical - B

I am **Kamalesh S.**, pursuing a final year Bachelor of Engineering in Mechanical Engineering Specialization. I got placed in four companies: Capgemini, Cognizant, LTI, and Titan TEAL. Out of the companies mentioned above, Capgemini and Titan TEAL were core companies, while Cognizant and LTI were IT companies. I am elated to share my placement experience through this article. I will also provide some suggestions on how to prepare for placement with core and IT companies. The general aptitude section should be the first step in preparing for placements. Regardless of which company you attend, aptitude is the first door to be opened. According to my personal experience, I started preparing for general aptitude at the beginning of the 4th semester. I put aside a separate note for aptitude and maintained it consistently. Early aptitude preparation ensures that you will tackle the first round easily. Maintain a notebook and study consistently. YouTube is the primary source for aptitude preparation. I strongly recommend the "FEEL FREE TO LEARN" channel for aptitude preparation. After watching videos on YouTube, kindly practice some questions asked in the banking sector entrance exam. Some may find it difficult, but it helps once you attend company interviews since similar models asked in banking will appear in most company interviews.

Let me explain the preparation strategy for IT companies. To get into an IT company, one should be proficient in at least two programming languages. Python and C are the two programming languages I am best known for. Don't narrow down your learning to the basics. Get deep knowledge of the programming language. For example, if you're learning Python, don't limit yourself to data structures (lists, tuples, dictionaries, and sets). Try your best to study advanced modules such as Numpy, Matplotlib, and Pandas, which will be very helpful for your technical coding round and develop your logical thinking. When it comes to C programming, don't stop at loops. Try to learn structures, unions, binary trees, and linked lists. The best source for absolute beginners was "Geeks for Geeks." According to my personal experience, I started learning the programming languages during my 5th semester. Try to have group studies with your friends, which will be very helpful for gaining detailed knowledge about the subject. Finally, one should fix their area of interest to get into the core companies as early as possible. Basic knowledge about each subject studied in previous semesters is enough to crack the Core

Technical round. Preparing for the core technical round will take nearly two months since we are familiar with the topics.

Coming to an area of interest, don't simply say Design, Thermal, or Manufacturing. Narrow down your topic as much as possible. My area of interest is material science and metallurgy, which doesn't fall under any of the above categories but has a significant effect on the mechanical world. During the interview, the majority of Core companies will ask about your area of interest. They will ask a question from that field if you are well versed in that area. Narrowing the interest area will help us decrease the time taken for the interview preparation. Doing some mini-projects and research papers in that area will increase your probability of being selected. In Titan TEAL, they asked me detailed questions in material science. Once I answered them all correctly, they asked simple questions from other areas. So prepare a topic of interest in as much detail as possible. At last, don't lose your self-confidence throughout this placement process. All of your friends may be placed at the core and IT companies that you continue to attend. Don't lose hope. It happened to me. Also, I attended 14 companies, out of which the last four were those from which I was selected. If you are not selected for a particular company you have attended, make a simple self-analysis of the reasons for being rejected. Keep those findings in mind and make sure they don't happen again in the next company. This is how I got placed in companies. Remember two Cs while preparing for placement: confidence and consistency. All the best for your future endeavors.

"Consistency is the belt that fastens excellence in position." "If you don't do it repeatedly, you'll not excel at it."

– Israelmore Ayivor

SCI-Festa Vol 3 - India's Scientific Symposium by Project Contest Innovations LLP(Online)

Category: Scientific Symposium

Event Date: 04/02/2023 & 05/02/2023

Last date for Registration: 29/01/2023

Reward: Cash Prize + Award E-Certificates

Event type: Virtual

Organizer: Annamalai Innovation And Incubation Research foundation

Category for registration:

- I - All degree first year students
- II - Higher Semesters
(from 2 year students & PG)

Registration Link:

<https://bit.ly/pciscifesta3>

Registration Fees:

Individual:

- Presentation + Quiz-200 INR
- Quiz Event Only-50 INR
- Only Workshop -200 INR
- Presentation + Quiz + Workshop-350 INR

Team (Per Member):

- Presentation + Quiz-150 INR/member
- Presentation + Quiz + Workshop-350 INR/member (Note: Maximum Team size 4 Members)

PAYMENT MODE: GOOGLE PAY | PHONEPE | PAYTM | UPI ID

UPI ID: eeem.rajasekar@okaxis

UPI No: 8015368752

NEFT: CANARA BANK

A/C No : 1225101048941

IFSC: CNRB0001225

Contact Details:

CONTACT: 9500293472, 9514411140

MAIL: training@projectcontest.com

WEBSITE: <https://aiirf.com>

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ANNAMALAI INNOVATION AND INCUBATION RESEARCH FOUNDATION

IDEA EVENT 11
INDIA'S SCIENTIFIC SYMPOSIUM FESTIVAL (VIRTUAL)

PAPER / PROJECT PRESENTATION
ADVANCE PYTHON PROGRAMMING WORKSHOP
INTELLECTUAL PROPERTY RIGHTS QUIZ

SCI Festa
Volume 3
04th & 05th February 2023

2 CATEGORY PARTICIPATION | Exclusive for First Years | Higher Semesters from 2nd Years

REGISTRATION FEE

| Category | Individual | Team (Per Member) |
|--------------------------------|------------|-------------------|
| Presentation + Workshop + Quiz | ₹ 350 | ₹ 300 |
| Paper Presentation Only | ₹ 200 | ₹ 150 |
| Quiz Event Only | ₹ 50 | - |
| Workshop Only | ₹ 200 | - |

DOMAIN / VERTICAL FOR PRESENTATION

- Science (Physics, Chemistry & Biology)
- Humanities (Language & Mathematics)
- Engineering & Technology
- Management
- Any other Streams

MENTOR PERKS:

- Faculty Mentor will receive Mentoring Certificate if Students Enroll as a Team (Min 4) & Best Mentor Award if the team wins.

RULES AND GUIDELINES:

- Students as an Individual or a Team of max 5 members can participate.
- Entire Paper/PPT with max length of 8 pages/10 slides (File Size < 2MB) to be submitted in the Registration Link (if available or Submit later)
- Payment can be made in the given UPI ID or NEFT and the Screen shot to be submitted in the registration Link.

REWARDS
Awards | e-Certificate | Cash Prize / Gift

LAST DATE TO REGISTER
29.01.2023

Payable at:
@ 8015368752
eeem.rajasekar@okaxis

Register Now!
www.bit.ly/pciscifesta3

EVENT PARTNERS
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Contact Us : +91 95002 93472 | 95144 11140
f @ @ @ @ProjectContest

Two Day Workshop on Electric and Hybrid Vehicle 2023, Top Engineers, Chennai, Tamil Nadu, 28th - 29th January 2023

Category: Workshop

Event Type: Venue/Offline Mode

Start Date: 28th January 2023

End Date: 29th January 2022

Location: Chennai, Tamil Nadu

Organizer: [Top Engineers](http://TopEngineers)

Contact Details:

9840728806 / 9940322437

MAIL:

admin@topengineersindia.com

WEBSITE:

www.topengineersindia.com

Last Dates for Registration:

25.1.2023

Only limited seats per batch and the seats are filled on "first come & first serve"

Registration Fees: Certificate from top engineers with iso certified number and hologram sticker will be provided by the end of the workshop which will add value during placements.

INR1999/- per person (India) (including GST, note pad, pen, certificate, morning tea and lunch - only veg)

\$200 USD (FOR OTHER COUNTRIES)

GROUP DISCOUNT OFFER

Group of 5 & above will get 5% Discount

Group of 10 & above will get 10% Discount



TOP ENGINEERS
(A MIT - ANNA UNIVERSITY ALUMNI START UP)
[INDIA'S LEADING EDUCATIONAL SERVICE CONDUCTING FIRM]

TWO DAY WORKSHOP ON ELECTRIC AND HYBRID VEHICLE

28.1.2023 - SATURDAY & 29.1.2023 - SUNDAY
9:30 A.M. - 4:30 P.M. IST

UPGRADING ENGINEERING VERSION

VENUE
IIT MADRAS RESEARCH PARK
Chennai, Tamil Nadu - INDIA
(IITM Research park is only a venue and the event is organized by TOPENGINEERS only)

REGISTRATION FEES
INR 1999/- PER PERSON (INDIA)
(Including GST, NOTE PAD, PEN, CERTIFICATE, MORNING TEA AND LUNCH - ONLY VEG)
\$200 USD (FOR OTHER COUNTRIES)

GROUP DISCOUNT OFFER
Group of 5 & above will get 5% Discount
Group of 10 & above will get 10% Discount

REGISTER

www.topengineersindia.com
09840728806 / 09940322437



KUMARAGURU
college of technology

COIMBATORE – 641 049

Department of Mechanical Engineering

INSTITUTE VISION:

The vision of the college is to become a technical university of International Standards through continuous improvement.

INSTITUTE MISSION:

Kumaraguru College of Technology (KCT) is committed to providing quality Education and Training in Engineering and Technology to prepare students for life and work equipping them to contribute to the technological, economic, and social development of India. The College pursues excellence in providing training to develop a sense of professional responsibility, social and cultural awareness and set students on the path to leadership.

DEPARTMENT VISION:

To emerge as a centre, that imparts quality higher education through the programme in the field of Mechanical Engineering and to meet the changing needs of the society.

DEPARTMENT MISSION:

The department involves in sustained curricular and co-curricular activities with competent faculty through teaching and research that generates technically capable Mechanical Engineering professionals to serve the society with delight and gratification.

B. E. MECHANICAL ENGINEERING

PROGRAM EDUCATIONAL OUTCOMES (PEO's):

- PEO 1 :** Graduates will take up career in manufacturing and design related disciplines.
- PEO 2 :** Graduates will be involved in the execution of Mechanical Engineering projects.
- PEO 3 :** Graduates will take up educational programme in mastering Mechanical sciences and management studies.

PROGRAM OUTCOMES (PO's):

1. **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

2. **Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
3. **Design/development of solutions:** 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.
4. **Conduct investigations of complex problems:** 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.
5. **Modern tool usage:** 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.
6. **The engineer and society:** 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.
7. **Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
8. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
9. **Individual and teamwork:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
10. **Communication:** 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.
11. **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.
12. **Life-long learning:** 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.

PROGRAM SPECIFIC OUTCOMES (PSO's):

1. Apply the fundamentals of science and mathematics to solve complex problems in the field of design and thermal sciences.
2. Apply the concepts of production planning and industrial engineering techniques in the field of manufacturing engineering.

M. E. INDUSTRIAL ENGINEERING

PROGRAM EDUCATIONAL OBJECTIVES (PEO's):

- PEO 1 :** Graduates will be mid to higher level management / engineering professionals with responsibilities in engineering management, data analysis and business operations.
- PEO 2 :** Graduates will be engineering professionals, and technology leaders who would manage such functions as plant engineering, production, supply chain and quality management.
- PEO3 :** Graduates would function as educators or researchers in academic institutions.

PROGRAM OUTCOMES (PO's):

- P01 :** An ability to independently carry out research /investigation and development work to solve practical problems.
- P02 :** An ability to write and present a substantial technical report/document.
- P03 :** Students should be able to demonstrate a degree of mastery over the area as per the specialization of the program. The mastery should be at a level higher than the requirements in the appropriate bachelor program.
- P04 :** Apply knowledge and competencies in manufacturing, analytics, supply chain, quality and engineering management.
- P05 :** Apply principles of industrial engineering to solve problems in industry.
- P06 :** An ability to work as part of interdisciplinary teams, communicate effectively, model and design engineering systems optimally.