Gnanamani College of Technology
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TRISHUL
Technical Magazine

Department of Mechanical Engineering

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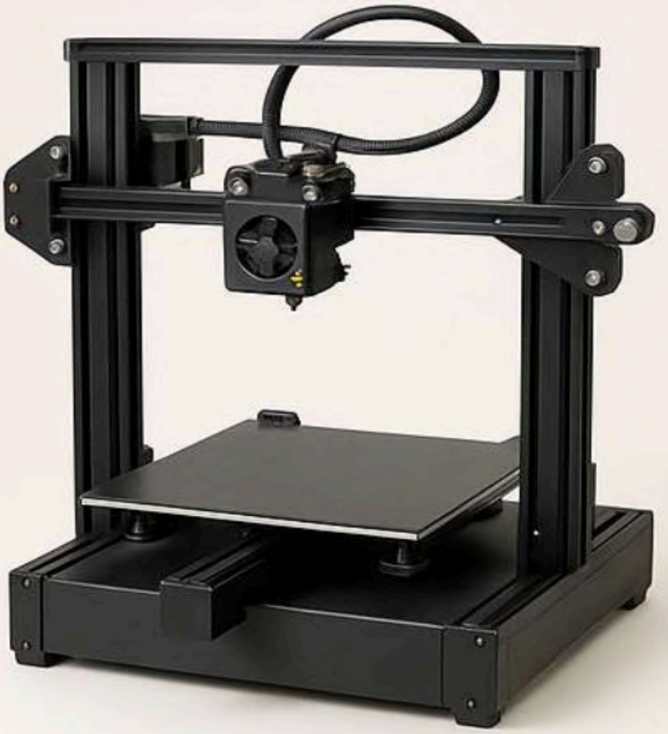


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TRISHUL

MECHANICAL
Engineers Association

Technical magazine

It is to provide a platform for the students, teachers, technical as well as non-technical staff of the college to express their work, ideas, views, opinions, etc. related to science and technology. They provide a platform for faculty and students to publish articles, share technical expertise, and highlight achievements, ultimately driving awareness of recent trends and enhancing technical skills.

Gnyanamani
AUTONOMOUS

Gnanamani College of Technology
(Approved By AICTE & Affiliated to Anna University, Chennai)
Accredited By NAAC "A" Grade & NBA
NH-7, A Samuthiram, Pachal (P.O.), Namakkal - 637018
Department of Mechanical Engineering

GNYANAMANI EDUCATIONAL INSTITUTIONS

Gnyanamani Educational Institutions that have carved a niche for itself in the field of engineering education within a very short span of time. Gnanamani College of Technology which was established in the year 2006, the group comprises of Gnanamani College of Education, established in the year 2005. Gnanodaya CBSE International School was established in the year 2015. These Institutions serve under the aegis of The Christian Educational Development Trust. Gnyanamani Educational Institutions were established in a well-planned campus with a green environment. The Colleges are spread on a sprawling 60 acres of serene land. The Colleges are easily accessible from all major cities by road and railway networks. These Institutions have emerged as a pioneer venture in the field of Technical Education. Dr.T.Arangannal – a Rashtria Vidhya Saraswathi Puraskar Awardee is the Chairman and Mrs.P.Malaleena is the Chairperson of the Educational Institutions.

GNANAMANI COLLEGE OF TECHNOLOGY

Gnanamani College of Technology is a leading Institution with state-of-the-art facility. The college is affiliated to Anna University and Autonomous approved by AICTE. The institution is rendering noble service to the youths in rural and urban areas. The college is accredited by the NAAC and NBA (CSE, ECE, EEE, and Mechanical). The college has grown in a short span of 17 years with 12 UG Courses namely Agricultural, Artificial Intelligence and Data Science, Bio-Medical, Biotechnology, Chemical, Computer Science, Electrical and Electronics, Electronics and Communication, Food Technology, Mechanical, Information Technology and Pharmaceutical Technology. The Institute also offers 9 PG courses in Computer Science, Construction Engineering and Management, Environmental Engineering, Embedded System Technology, Power Electronics and Drives, Industrial Engineering, VLSI Design, BME, MBA and MCA.

INSTITUTION VISION

Emerging as a technical institution of high standard and excellence to produce quality Engineers, Researchers, Administrators and Entrepreneurs with ethical and moral values to contribute the sustainable development of the society.

INSTITUTION MISSION

We facilitate our students

- To have in-depth domain knowledge with analytical and practical skills in cutting edge technologies by imparting quality technical education.
- To be industry ready and multi-skilled personalities to transfer technology to industries and rural areas by creating interests among students in Research and Development and Entrepreneurship.

DEPARTMENT OF MECHANICAL ENGINEERING

The Mechanical Engineering Department was started in the year 2009 and accredited by NBA in 2019. It offers B.E. with 60 student intake, M.E. – I.E., and Ph.D. The department has 12 Curriculum Laboratories and Industry supported labs providing Value added courses and a Centre of Excellence Laboratory. Anna University recognized Research & Development Centre with 3 Ph.D. Supervisors and 6 Doctorates. The faculty of department have published in reputed journal publications. The Department has 3 Professional Societies namely IEI, ISTE and ISHRAE.

Department Vision

To produce competent Mechanical Engineer capable of working in an interdisciplinary environment contributing to benefits of society through innovation, leadership and entrepreneurship.

Department Vision

- Imparting the highest quality education through state-of-the-art facilities to build students' professional practice and make them globally competitive Mechanical Engineers by enhancing their knowledge.
- Fostering professional and ethical values and training the students to build leadership and entrepreneurship qualities for their career development.
- Undertaking research and developmental activities to provide service for the sustainable development of the society.

Program Educational Objectives (PEOs)

Graduates of Mechanical Engineering will

- PEO 1: Apply their mechanical and allied knowledge to address technical and societal problems with creativity and ethical values.
- PEO 2: Design and analyse mechanical systems with strong fundamentals and work in synchronisation with industries and research organisations as team members on multi-disciplinary projects
- PEO 3: Seek out positions of leadership actively within their profession and their community through lifelong learning.

Program Specific Outcomes (PSOs)

Graduates of the program will be able to

- PSO-1: Apply principles of basic sciences, machine design, manufacturing, thermal engineering and management to identify, formulate and solve real time problems and societal issues for the sustainable development.
- PSO-2: Develop their abilities to qualify for Employment, Higher studies and Research in Mechanical Engineering

Program Outcomes (POs)

- Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals and an engineering specialization to the solution of complex engineering problems
- 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.
- 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.
- Conduct investigations of complex problems: Use research-based knowledge and re-search methods including design of experiments, analysis and interpretation of data and synthesis of the information to provide valid conclusions.
- 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.
- The engineer and society: Apply reasoning in-formed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
- 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.
- Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
- Individual and team work: Function effectively as an individual and as a member or leader in diverse teams, and in multidisciplinary settings.
- 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.
- 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.
- 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.

Management Profile

Gnyanamani Educational Institutions are run by two legendary visionaries, Dr.T.Arangannal and Mrs.P.Malaleena, whose dedication to education has shaped the institution's identity and direction.

At the forefront is Dr.T.Arangannal, Chairman, a distinguished leader, who has been a driving force behind the institution's evolution. A recipient of the Rashtriya Vidya Saraswati Puraskar and an honorary Doctorate from the University of Sri Lanka, Dr. Arangannal is widely revered for his lifelong contributions to the field of education. His visionary leadership has cultivated a culture of excellence, discipline, and innovation across all levels of the institution.

Mrs.P.Malaleena, Chairperson, whose unwavering commitment and strategic foresight have been instrumental in establishing the institution's strong ethical and academic foundations. Her focus on student-centered learning and inclusive growth continues to define its mission, vision, and core values.

The leadership team also includes Ms.Madhuvanthinie Arangannal, Vice-Chairperson, who brings a contemporary vision and strategic insight to the institution's development. Her dynamic leadership focuses on aligning the institution with global academic standards and fostering innovation in education.

Operational administration is efficiently managed by Dr.P.Premkumar, Chief Administrative Officer, whose expertise in institutional management and policy implementation ensures the smooth functioning of all academic and support services. His strategic leadership plays a vital role in sustaining and enhancing the institution's quality standards.

Academic affairs are led by Dr.T.K.Kannan, Principal, who is committed to providing a rigorous and engaging academic environment. His leadership promotes research-driven teaching, skills development, and student empowerment, ensuring that learners are prepared to meet the demands of a rapidly changing global landscape.

Chairman's Message

It gives me immense pleasure to express that our Mechanical Engineering release the department magazine for the academic year 2023-24 highlighting the various activities and budding talents of the students on this special occasion. I value the emerging ability and the endowment of the students in their articles, poems, drawing etc., which bloom out their young talents and skills. I appreciate our magazine committee for their venture in bring out this memorable edition.

I wish the Principal, Magazine Committee and the Editorial team, Staff and Students and all the hands that rendered service to bring out a fabulous magazine for this year, I am passionately waiting for the editorial team to reach another mile stone of perfection in the next magazine. I wish them all success.

- Dr.T.Arangannal

Chairperson's Message

1 am glad to know that our Gnanamani College Of Technology is leading a step forward by releasing the magazine 2023-2024. This magazine would be a common platform for the students to express their hidden talents and creativity. My hearty wishes to the Principal, staff members and students for the completion of this TRISHUL. Wishing you all success in their Academic Endeavours.

-Tmt.P.Malaleena

Vice Chairperson's Message

TRISHUL is particularly important as it encourages the students to share the knowledge they have acquired. Writing articles for the magazine also improves the communication skills of the budding engineers of the Mechanical department. It is common knowledge that representation of an idea is as important as, if not more important, than the idea itself.

I would like to congratulate the faculty and the students of the editorial team on bringing out the issue of Trishul and my best wishes to the students for a bright future.

-Ms. Madhuvanthinie Arangannal

CAO's Message

It is my privilege to know that Department of Mechanical Engineering releasing its achievements in a nutshell in the form of a magazine. This magazine is a skylight which always exhibit innovative and the creative thoughts of the blooming engineers. I take this opportunity to congratulate and wish all faculty members and students success.

-Dr.P.Premkumar

Principal Message

Trishul represents a cloud with a silver lining for the world of technology. It aims to inspire and nurture upcoming world of technology. The magazine captures the current engineers to bring a revolution in this ever evolving technological advancements. I would like to congratulate the Vice principal, HoD, Staff members and students for bringing out the issue of Trishul.

-Dr. T.K. Kannan

HoD's Message

Congratulations to the students and faculty associated to magazine committee for successfully publishing the issue of departmental technical magazine Trishul. Trishul is creating platform which provides an opportunity to the students and staff to express their original thoughts on technical topics. The magazine plays an instrumental role in providing exposure to the students to develop written communication skills and command over the language. It is a step towards building professional and ethical attitude in them. The entire journey of creating Trishul is an outcome of rigorous effort made by students and faculty. On concluding note, I would like to thank all the stakeholders for their involvement and encouragement and wish all the best for their bright future.

-Dr.N.Balakrishnan

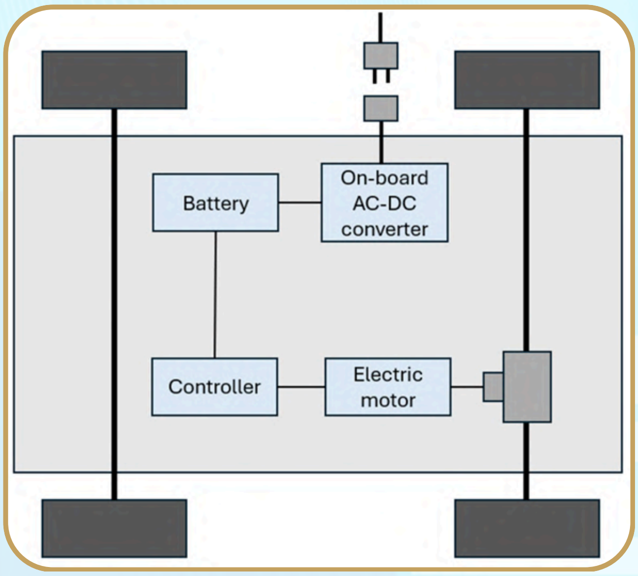
Table of Content

Battery Thermal Management System

Battery Thermal Management System plays a crucial role in Electric Vehicles. EV's have transformed the automotive industry, providing a more sustainable alternative to traditional internal combustion engines. At the heart of this revolution is the EV battery, a critical component that powers the vehicle and directly impacts its performance, range, and safety. Understanding the importance of EV batteries and the role of Battery Thermal Management Systems (BTMS) is essential for both current and future EV technology. This article discusses Battery Thermal Management Systems and their importance in the EV world.

Importance of Battery in an EV

The EV battery serves as the power source for the vehicle's electric motor, converting stored chemical energy into electrical energy for functioning. Energy capacity of the battery, measured in kilowatt-hours (kWh), determines how far an EV can travel on a single charge. Higher capacity batteries offer longer ranges, making EVs more practical for daily use and long trips significantly reducing range anxiety. The battery's power output affects the vehicle's acceleration and overall driving performance. A high-performance battery can deliver the necessary power for rapid acceleration and high speeds.



<u>NMC or LFP, which is the Better Choices for Electric Vehicles?</u>

NMC cells are composed of Nickel, Manganese, and Cobalt in various ratios and provide a balance between energy density, power density, and cycle life. And in general, NMC has higher energy density (150-220 Wh/kg). LFP is Composed of Lithium Iron Phosphate, also LFP has a stable chemistry. But LFP has lower energy density (90-160 Wh/kg).

Battery Thermal Management System

In terms of cycle life NMC has good cycle life but tends to degrade faster than LFP under high stress or fast charging conditions. LFP cells generally have longer cycle life and better thermal stability. It can handle more charge and discharge cycles before significant capacity loss.

Which is Best?

While talking about safety NMC cells are generally safe but can be prone to thermal runaway if damaged or improperly managed and the presence of cobalt and nickel can increase the risk of thermal instability and safety. It is less likely to catch fire or explode, even under extreme conditions. Their electric counterparts, which emit no tailpipe emissions, provide a significant environmental benefit. However, the success of these EVs hinges on the efficiency and convenience of their charging infrastructure. On the other hand, LFP cells are known for their excellent thermal stability and safety. It is less likely to catch fire or explode, even under extreme conditions. Coming to economy, cost of NMC cell is higher due to cobalt and nickel. Whereas the cost of LFP cells is lower due to using more abundant and cheaper iron. In conclusion LFP batteries are preferred for applications where safety, cost, and cycle life are prioritized over energy density. They are more durable and cost-effective but have lower energy density and power output compared to NMC.

Why do EV Batteries Need Battery Thermal Management Systems?

EV batteries need to operate optimally within a specific temperature range. Extreme temperatures, both high and low, can negatively impact battery performance and longevity. Lower temperatures result in sluggish performance of the battery, while higher temperatures accelerate the cell degradation. The process of generating heat in a conductor or resistive material when an electric current flows through it, due to the material's electrical resistance is called Ohmic heating. Thus, heat is produced while charging and discharging the battery.

- Dr. S.Saravanan, ASP/Mech

Additive Manufacturing

Introduction to Additive Manufacturing (AM)

Additive Manufacturing (AM), commonly known as 3D printing, is a revolutionary manufacturing technology that fabricates components layer-by-layer directly from digital CAD models. Unlike conventional subtractive processes (machining), AM reduces material waste, enables complex geometries, and shortens product development cycles.

Among various metal AM processes, the most advanced and widely used powder-bed fusion techniques are:

- Selective Laser Melting (SLM)
- Electron Beam Melting (EBM)

These technologies are extensively used in aerospace, biomedical implants, automotive, tooling, and defense sectors due to their capability to produce high-strength, near-net-shape metal components.

Selective Laser Melting (SLM)

Overview

Selective Laser Melting (SLM) is a powder-bed fusion process in which a high-power laser fully melts metal powder particles, forming dense, high-strength components.

One of the major commercial systems is developed by SLM Solutions.

Working Principle

SLM operates inside an inert gas environment (argon or nitrogen) to prevent oxidation.

Step-by-Step Mechanism

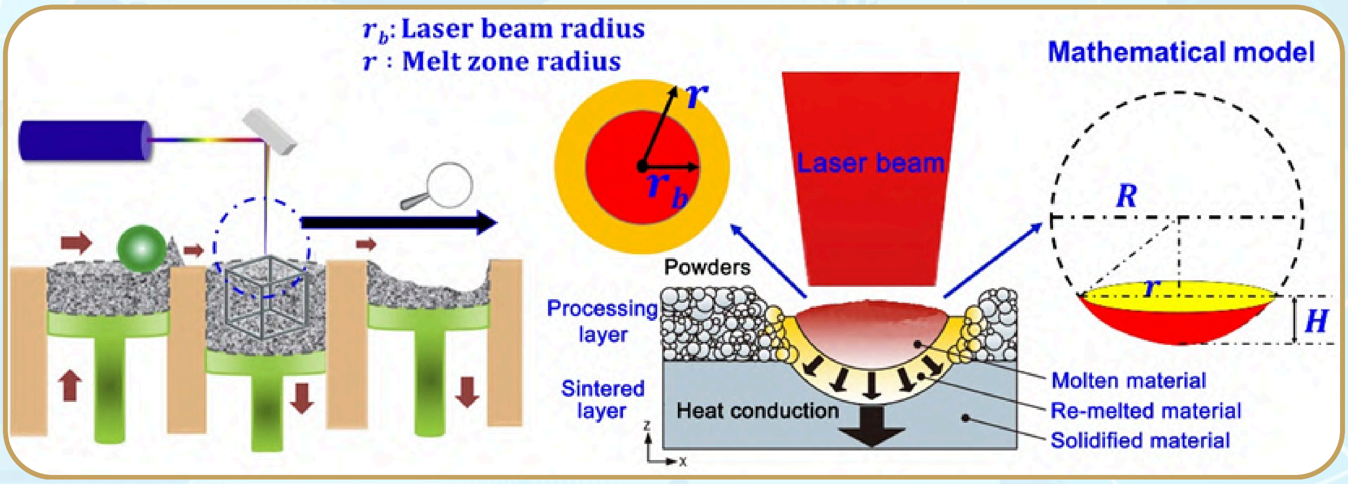
1. A thin layer of metal powder (20–60 µm) is spread over the build platform.
2. A high-power fiber laser scans the powder layer based on CAD slice data.
3. The laser fully melts the powder, forming a molten pool.
4. The molten metal solidifies rapidly.
5. The build platform lowers by one layer thickness.

The process repeats until the part is complete.

Key Characteristics

- Full melting of powder
- High density (>99%)
- Fine microstructure due to rapid cooling
- Requires support structures
- Inert gas atmosphere

Additive Manufacturing



Advantages

- Excellent mechanical strength
- Complex geometries
- Internal lattice structures possible
- Suitable for aerospace-grade parts

Limitations

- High equipment cost
- Residual stresses
- Post-processing required (heat treatment, machining)

Electron Beam Melting (EBM)

Overview

Electron Beam Melting (EBM) uses a high-energy electron beam instead of a laser to melt metal powder.

Working Principle

EBM operates inside a high vacuum environment.

Step-by-Step Mechanism

1. Powder layer is spread over the build platform.
2. Electron beam is generated using tungsten filament.
3. Beam is accelerated and focused using electromagnetic coils.
4. Powder is preheated to reduce thermal stresses.
5. Electron beam fully melts the powder.

Platform lowers, and next layer is deposited.

- Mr.S.Gopalakrishnan, AP/Mech

Phase Transformation & TTT/CCT Diagram

Advanced Microstructural Control in Engineering Steels

Fundamentals of Phase Transformation in Steels

Phase transformation plays a vital role in determining the mechanical properties of steels. By controlling temperature and cooling rate, engineers can tailor hardness, strength, ductility, and toughness.

Basic Phases in Iron–Carbon System

- Ferrite (α-Fe) – Soft and ductile BCC structure
- Austenite (γ-Fe) – FCC structure with high carbon solubility
- Cementite (Fe_3C) – Hard and brittle carbide phase
- Pearlite – Lamellar mixture of ferrite and cementite
- Bainite – Fine microstructure offering high strength
- Martensite – Supersaturated BCT structure, very hard

Transformation Mechanisms

Phase transformations may be diffusion-controlled (pearlite and bainite) or diffusionless (martensitic transformation). Martensite forms through a rapid shear mechanism without carbon diffusion.

TTT (Time–Temperature–Transformation) Diagram Analysis

The TTT diagram represents transformation behavior of austenite under isothermal conditions. It shows start and finish curves of transformation.

Key Features of TTT Diagram

- C-curve (nose) – Fastest transformation region
- Start and finish transformation lines
- Pearlite and bainite regions
- Martensite start (M_s) and finish (M_f) temperatures
- To obtain martensite, the cooling curve must bypass the nose of the TTT diagram.

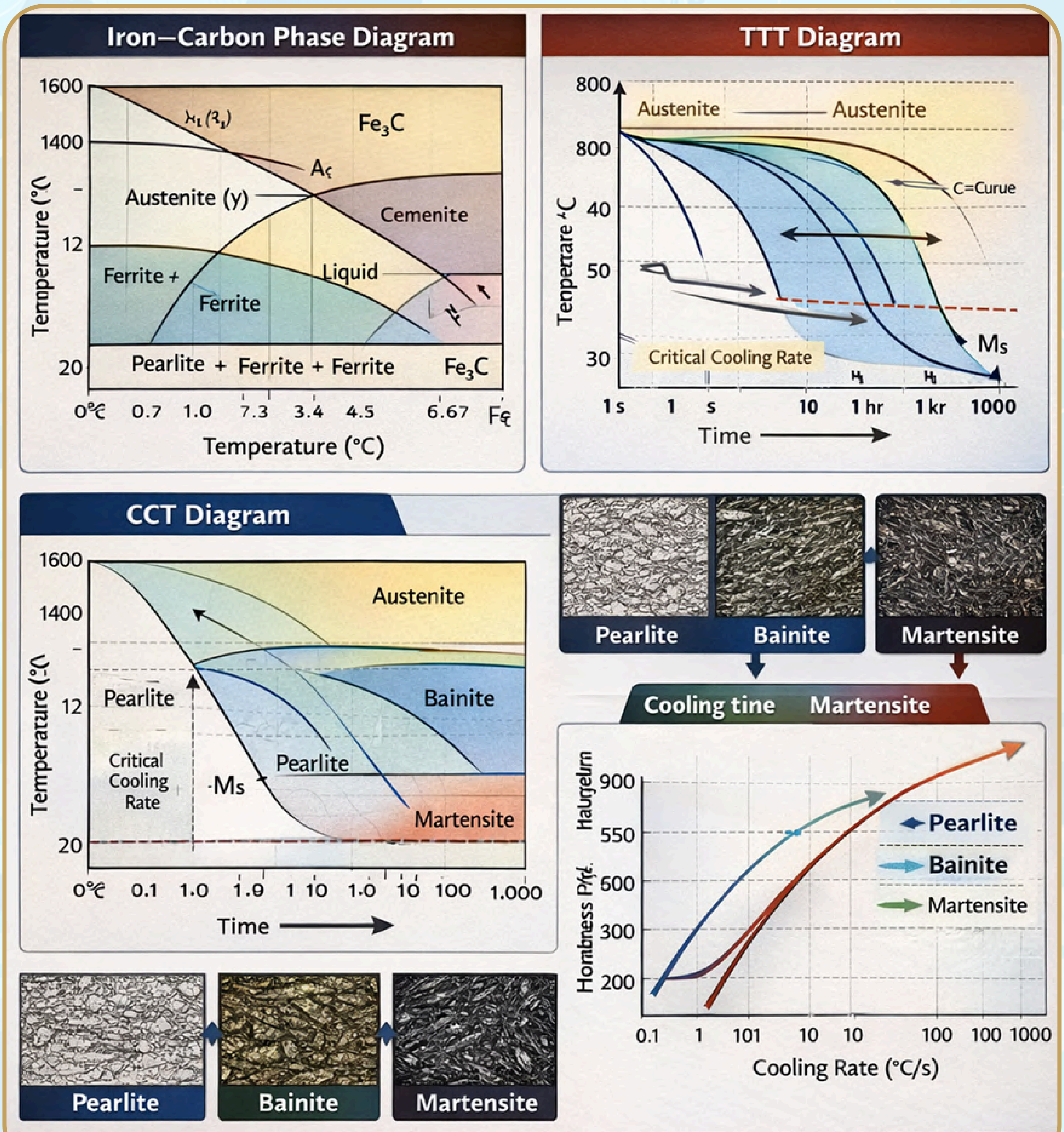
CCT (Continuous Cooling Transformation) Diagram

The CCT diagram represents transformation during continuous cooling, which is more practical for industrial applications.

TTT vs CCT Comparison

- TTT: Isothermal cooling, laboratory-based
- CCT: Continuous cooling, industrial practice
- Transformation curves shift to longer times in CCT

Phase Transformation & TTT/CCT Diagram



Phase Transformation Pathways in Steel During Heat Treatment

<u>Microstructure Control</u>

- Slow cooling → Pearlite
- Moderate cooling → Bainite
- Rapid cooling → Martensite

Alloying elements such as chromium, nickel, and molybdenum increase hardenability by shifting transformation curves to the right.

- Mr.S.Karthick, AP/Mech

Laser Interferometry

Laser interferometers have found wide usage in a variety of precision measurement applications. The ability to gain precise position information with minimal change to the dynamics of the device being measured has a large set of advantages. This allows interferometer systems to be used in feedback loops for precision systems. This paper presents a tutorial on laser interferometers, their use in precision motion feedback systems, the issues faced by such systems, and some of the solutions that have been applied to these issues.

Michelson type laser interferometers measure distance by measuring the phase difference between two portions of the same beam, one sent to a reflector at a fixed distance, and one sent to a measurement surface at an unknown distance. When the two signals are recombined in the interferometer, the resulting phase is related to the distance of the reflected surface from the interferometer.

As the distance changes, so does the phase of the combined signal. The utility of these methods are that the measurement can be made over long distances while maintaining accuracy. However, as the needed accuracy of the target applications has increased, interferometers have been adjusted to desensitize them to an increasing number of effects.

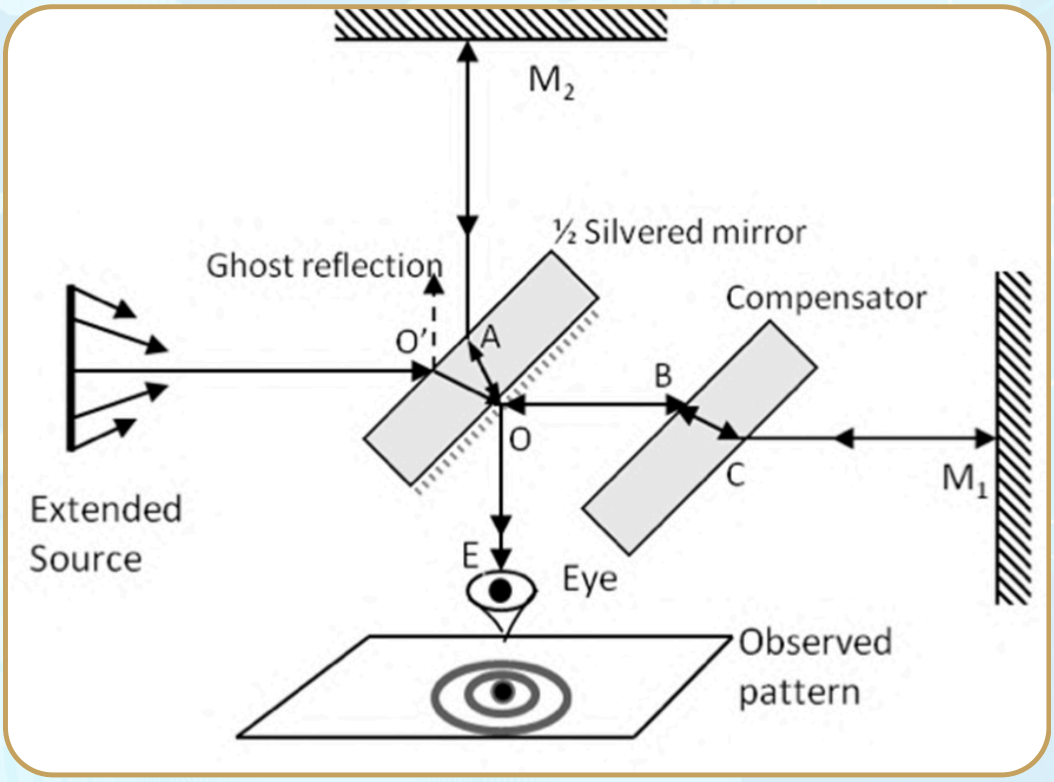
Michelson Interferometer

With the proper control of the polarization states of the source light, one could split it into two components and com- bine them with minimal loss at the equivalent of position 5 except that in place of the half silvered mirror is the PBS. The key then is controlling the polarization of each of the split beams so that they are in matching polarizations when they arrive. This is done with a combination of mirrors, cube corners (to be described below), and wave plates.

This tutorial has hopefully given the reader an introduction to laser interferometers as a measurement device with strong applications to feedback loops. The ability to make non-contact, highly precise, multi-dimensional, high speed measurements of moving physical objects should be quite attractive to most control engineers.

The bulk of the document has been spent on giving the reader an understanding of how these position transducers work, what can limit their accuracy, and the incredible design innovations that have gone into improving the accuracy, robustness, and speed of devices

Laser Interferometry



However, as with all control systems, certain issues re- main. In particular, data age (or the latency in the interferom- eter from the time that position is sensed until it is available to the control computer, is described in Section IX-A. Issues of digital interconnect between interferometers and digital control systems are discussed briefly in Section IX-B.

Using Interferometer Measurements in Feedback Loops

While precision IF measurements can be used for static measurements, the ability to tie these systems into feedback loops has dramatically raised their utility. Non-contact, multi- dimensional, measurements provide a lot of advantages, and with resolution in the sub-nm range, and sample rates up to 20 MHz, there are few control problems that can outrun the data at sample rate provided. Control using precision interferometers allow enough measurement precision to push new control methodologies

- Mr.R.Naveenkumar, III Year

Topology Optimization in Manufacturing Design

Introduction

For generations, mechanical design has been an exercise in legacy and intuition. An engineer, armed with experience and standard tables of stock shapes, would sketch a bracket, simulate its performance, and reinforce areas of high stress through a process of educated guesswork. While functional, this traditional approach is inherently conservative, often resulting in components that are heavier, stiffer than necessary, and inefficient in their use of material. In an era demanding sustainability, performance, and cost reduction, this "design by intuition" is no longer sufficient.

Enter Topology Optimization (TO) - a computational design methodology that inverts the traditional workflow. Instead of asking, "Is this design strong enough?", TO answers a more fundamental question: "What is the most efficient shape for this job in the first place?" By leveraging mathematical algorithms and simulation, TO allows engineers to shed the constraints of conventional geometry and arrive at organically efficient structures that use material only where it is mechanically necessary.

Definition

Topology Optimization is a physics-based, mathematical approach that determines the optimal distribution of material within a defined design space. The algorithm iteratively removes and redistributes material to satisfy specific performance targets (such as maximum stiffness) while respecting predefined constraints (such as a maximum allowable mass or stress).

In essence, it transforms the design process from a subjective exercise into an objective, data-driven optimization. The result is a structure that is often unintuitive—resembling the trabecular patterns of bone or the branching of trees—demonstrating that nature's efficiency principles can be codified into engineering software.

The Core Principle: Load Paths and Stress Flow

The fundamental principle behind topology optimization is the visualization and exploitation of load paths. When a force travels through a component, it creates a network of stress trajectories. Material that lies directly on these load paths is critical for structural integrity. Material that lies off these paths contributes little to strength but adds significant weight and cost.

Topology Optimization in Manufacturing Design

Methodology

The workflow for topology optimization is a systematic departure from traditional CAD modeling.

1. Defining the Design Space (The Envelope): The process begins by defining the maximum allowable volume the part can occupy—often a simple, solid block (or "envelope") that encompasses all mounting points and interfaces. This space represents the raw material from which the algorithm will "carve" the final design.
2. Applying Physics (The Boundary Conditions): Real-world loads, pressures, and constraints are applied to the design space. Fixed supports, force vectors, and thermal loads are defined to simulate the exact operating environment the component will face.
3. Establishing the Objective (The Goal): A clear mathematical goal is defined. The most common objective is compliance minimization—making the structure as stiff as possible. This is typically paired with a volume constraint, such as "reduce the mass by 60%." Other objectives can include frequency optimization (to avoid resonance) or stress minimization.
4. The Iterative Loop (The Algorithm): The software divides the design space into millions of tiny elements (via FEA). It then runs iterative loops, calculating stress on each element and progressively removing those that are underutilized. The solver continues this process until the objective is met and all constraints are satisfied.
5. Reconstruction (The Interpretation): The raw output of topology optimization is a complex, organic mesh. This geometry must be reconstructed into a smooth, watertight CAD model suitable for manufacturing.

The Critical Enabler: Finite Element Analysis (FEA)

Topology optimization is not a standalone tool; it is inextricably linked to Finite Element Analysis. FEA provides the "eyes" for the optimization algorithm. Without a robust FEA simulation to calculate stress, strain, and deformation across the design space, the optimizer would be blind. The fidelity of the optimization result is directly dependent on the accuracy of the underlying FEA model, including mesh quality, material properties, and load definitions.

Topology Optimization in Manufacturing Design

Strategic Advantages in Modern Manufacturing

The adoption of topology optimization is driven by compelling engineering and business benefits:

- Radical Weight Reduction: By eliminating all passive mass, TO can achieve weight savings of 30-50% or more compared to traditionally designed components. This is critical in aerospace and automotive sectors where weight translates directly to fuel consumption and emissions.
- Material Efficiency and Sustainability: Less material in the part means less raw material extracted, processed, and potentially scrapped as swarf. This aligns with circular economy principles and reduces manufacturing costs.
- Performance Integration: Optimization can consolidate multiple parts into a single, monolithic optimized structure, reducing assembly costs and eliminating potential failure points at joints and fasteners.

Unlocking Additive Manufacturing (AM): The organic, complex geometries generated by TO are often impossible to produce with subtractive methods like milling or turning. However, they are perfectly suited for Additive Manufacturing (3D printing). The pairing of TO and AM is a cornerstone of Industry 4.0, enabling a seamless digital workflow from simulation to final part.

Industrial Applications Across the Engineering Spectrum

Aerospace: Pursuit of Grams

Automotive: Efficiency and Electrification

Biomedical: Patient-Specific Implants

Industrial Machinery: Performance and Cost

- Mr.A.Praveen, II Year

கவிதை - உனவு

உன் வருகைக்காய் காத்திருக்கும் நிமிடங்களும்

யுகங்களாய்க் கழியுதடி,

உனக்காய் ஒவ்வொரு நொடியும்

இதயம் ஏங்கித் தவிக்குதடி,

எனை நோக்கி நீ வந்த பொழுதினிலே

பிறவிப்பயன் அடைந்ததை உணர்ந்தேனடி,

என் தவிப்பறியாமல் எனைத் தாண்டி மற்றவனிடம் நீ செல்ல

பற்ற வைத்த சருகாய் நெஞ்சம் எரியுதடி..

இப்படிக்கு, உன(ணவு)க்காக ஓட்டலில் காத்திருப்போர் சங்கம்!!

- இரா.தீபக், இறுதி ஆண்டு

Poem - Mother

Mother" is such a simple word,

But to me there's meaning seldom heard.

For everything I am today,

My mother's love showed me the way.

I'll love my mother all my days,

For enriching my life in so many ways.

She set me straight and then set me free,

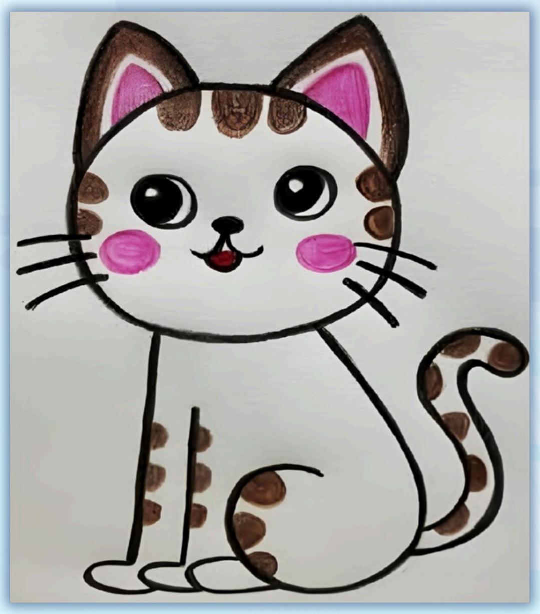
And that's what the word "mother" means to me.

Thanks for being a wonderful mother, Mom..........!

- Sagar Kumar, III year

Pencil Arts

Mr. C.Sudharsan,
IV Year



Mr. S.Boobesh,
III Year

Mr. S.Kaviyasaran,
II Year

YOU MUST BE THE CHANGE YOU WISH TO SEE IN THE WORLD.

- Mahatma Gandhi

Department of Mechanical Engineering