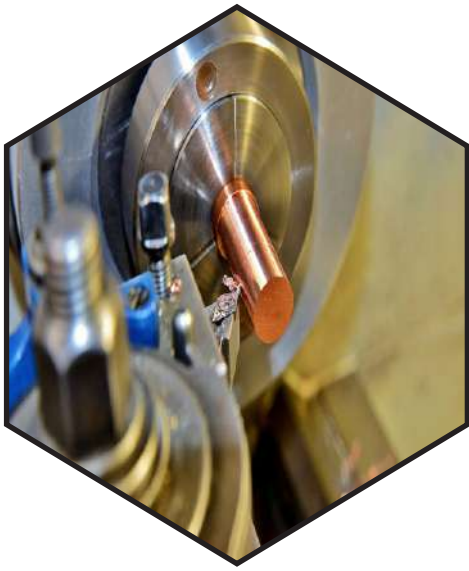
DEPARTMENT OF MECHANICAL ENGINEERING

MECHANIX WORLD

TECHNICAL MAGZINE

2021-22, EDITION-2



GANGA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, KABLANA

GANGA INSTITUTE OF TECHNOLOGY AND MANAGEMENT

DEPARTMENT OF MECHANICAL ENGINEERING

CONTENT

DIRECTOR'S MESSAGE

DR. AMAN AGGARWAL
GITAM, KABLANA

"It gives me great pleasure to extend my warmest greetings to all the passionate individuals and engineering enthusiasts in the mechanical world, as we proudly present the latest edition of "Mechanix G World." I am thrilled to witness the incredible strides and innovations that our mechanical engineering department has achieved. With each passing day, our field evolves; pushing the boundaries of what is possible. I extend my heartfelt gratitude to the editorial team, authors, and reviewers for their unwavering commitment to maintaining the highest standards of content. Together, let us continue to explore, innovate, and advance the realm of Mechanical engineering. I encourage all readers to immerse themselves in the exciting world of Mechanical engineering and be inspired to shape the future."

HOD'S MESSAGE

MR. VIVEK

GITAM, KABLANA

Welcome to the latest edition of our "Mechanix G World" Magazine! We invite you to explore the forefront of mechanical engineering excellence. I am immensely proud of the passion and dedication demonstrated by our community. I encourage you to immerse yourselves in this enriching knowledge, insights, and inspiration collection. This magazine celebrates the relentless pursuit of knowledge, creativity, and problem-solving that define our field. Your passion and dedication make our department a centre of excellence. We hope this edition sparks your curiosity and fuels your drive to create a better, more innovative world.

VISION MISSION OF INSTITUTE

VISION

GITAM aims to be an outstanding Institue in India through academic excellence in the field of Technology and Management to fulfill the need of the Industry and serve the society.

MISSION

- To Provide healthy environment to our students as well as faculty members.
- To achieve excellence in technical education
- To promote holistic development of students through interaction with alumni, academia, Industry and expert lectures.
- To attract nurture and retain the best faculty and technical manpower.
- To promote research and development Initiatives.
- To contribute to the society by inculcating professional ethics in the students.

VISION MISSION OF DEPARTMENT OF MECHANICAL ENGINEERING

VISION

"To become a center of excellence in the field of Mechanical Engineering, committed to address societal challenges and evolving needs of industry."

MISSION

- To achieve excellence in mechanical engineering by providing outcome-based education an a healthy learning environment.
- To enhance the student's technical and entrepreneurial skills by providing advanced learning facilities and co-curricular activities.
- To inculcate professional ethics, leadership qualities, and moral and social values among students through interaction with alumni and experts from industry and academia.
- To encourage students to research and innovate through project works, workshops, conferences, training sessions, etc.

PROGRAM OUTCOMES

Engineering Graduates will be able to:

- **PO-1 Engineering Knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
- **PO-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.
- **PO-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.
- **PO-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.
- **PO-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 limitation.
- **PO-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.
- **PO-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.
- **PO-8 Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
- **PO-9 Individual and Teamwork:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

- **PO-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.
- **PO-11 Project Management and Finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply the set to one's own work, as a member and leader in a team, to manage projects and in multi-disciplinary environments.
- **PO-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.

PEO (PROGRAMME EDUCATIONAL OUTCOMES

The students will be able to:

- **PEO-1** To produce competent Mechanical Engineers, capable of applying the knowledge of contemporary Science and Technology, to meet the challenges in Mechanical and allied Engineering fields.
- **PEO-2** To prepare the Mechanical Engineering graduates to work in diverse fields in different capacities involving individual and teamwork.
- **PEO-3** To inculcate among the students a sense of ethics, morality, creativity, leadership, teamwork, and professionalism.
- **PEO-4** To instill in the students, the ability to take up innovative research projects and to conduct investigations of complex Mechanical Engineering problems using research-based methods.

PSO (PROGRAMME SPECIFIC OUTCOMES

The students will be able to:

- **PSO-1** Solve the real life problems by integrating design, thermal and manufacturing areas of Mechanical Engineering.
- **PSO-2** Adapt to rapid changes in the field of Mechanical Engineering and excel in a multidisciplinary work environment.

PEO (PROGRAMME EDUCATIONAL OUTCOMES

"The Department of Mechanical Engineering was established in 2010 with the aim to provide the best knowledge and environment to ensure complete success in whatever field the students choose. This Department is one of the key strength of the Institute. It is making very sincere efforts to produce excellent Mechanical Engineering graduates to meet the present day needs of organizations and the Industry. The experienced and dedicated faculties along with its excellent facilities provide the necessary resources to keep the students updated with the latest industrial trends. The department has created state-of–the-art infrastructure in terms of Workshops, Laboratories and other facilities."

PROGRAMME	DURATION	INTAKE
B.TECH MECHANICAL ENGINEERING	4 YEARS	90
B.TECH MECHANICAL ENGINEERING (LEET)	3 YEARS	09
M.TECH MACHINE DESIGN	2 YEARS	12
M.TECH MANUFACTURING AND AUTOMATION	2 YEARS	18

Why GITAM?	Why ME?	Aspirants often Made Mistakes While Choosing Engineering Branch
Best Academics and Results	Problem-solving opportunities in various industries.	Advised by Parents
State-of-the-art Laboratories	Versatility with a wide range of applications and specializations.	Advised by Relatives
Experienced and dedicated Faculty	Global demand, providing job stability and growth opportunities.	Advised by Friends
Best Placement	Collaboration with diverse engineering disciplines in interdisciplinary teams.	Do not see the Market Scenario after 3-4 Years
Best Infrastructure	Continuous learning and adaptation to new technologies.	Do not See Future Prospects of the Branches

JOB OPPORTUNITIES

PUBLIC SECTOR

PSU: DMRC, BEL, ISRO, ONGC, DRDO, ECIL,BHEL,BARC, NTPC, HPCL, NHPC,POWER GRID, CIL, IOCL, NALCO, VIZAG STEEL SJVNL, IFFCO, AAI, GAIL, SAIL, HAL, BPCL, Railways and many more.....
Defence-Sector: ARMY. NAVY, AIR-FORCE and Paramilitary Forces.

PRIVATE SECTOR

Tata Motors, Larsen & Toubro (L&T), Mahindra & Mahindra, Reliance Industries, Bajaj Auto, Hero MotoCorp, Maruti Suzuki, Godrej & Boyce, Ashok Leyland, Thermax, Suzlon Energy, TATA Power, Escorts Limited, TVS Motor Company

SPECIALISATIONS

» Aeronautical Engineer: Performs and supervises the design, development, manufacture and maintenance work of all types of flight vehicles.
» Automotive Engineer: design, manufacture and operate ground-based vehicles, such as motorcycles, automobiles, buses and trucks and their respective engineering subsystems.
» Consultant Engineer: undertake independent contract work for clients in a particular field. Consulting Engineers generally work on a project-by-project basis for a variety of clients.
» Engineering Project Manager: plan, administer and review engineering and technical projects.
» Manufacturing Systems Engineer: design and improve systems and equipment that complete tasks accurately and change raw materials into products with minimal time, materials and energy waste.
» Mechanical Design Engineer: design new machines, equipment or systems taking into account cost, availability of materials, strength and maintenance requirements.
» Mining Engineer: plan and direct the engineering aspects of extracting mineral resources from the earth.

ENTREPRENEUR

Nuts and Bolts Manufacturing, Solar Panel Installation, Product Assembly Service, Mechanical Engineering Consultancy Firm, Supply Chain Management, Chemical Industry Machines Designing, CNC Machining Business, E-waste Recycling, Machinery Designing, Machinery Distribution, Water disposal machine, Aluminium doors and windows manufacturing unit, Scrap metal business, Manufacturing household gadgets, Mechanical industry machines, Manufacturing of defence weapons, CCTV manufacturing, Mining equipment lease, Generator maintenance services, Fitness equipment manufacturing, Metal sign boards, Outdoor bicycle rack, Teach CAD/CAM/CAE, Repair of automobiles, Manufacturing 3D printers, Training school, Customization of automobiles

FACULTY EDITOR'S

MR. PARVESH

STUDENT EDITOR'S

KM PRACHI GAUTAM	18ME001	2021-22
AMAN	19LME029	2021-22
ARYAN	19ME006	2021-22

POETRY

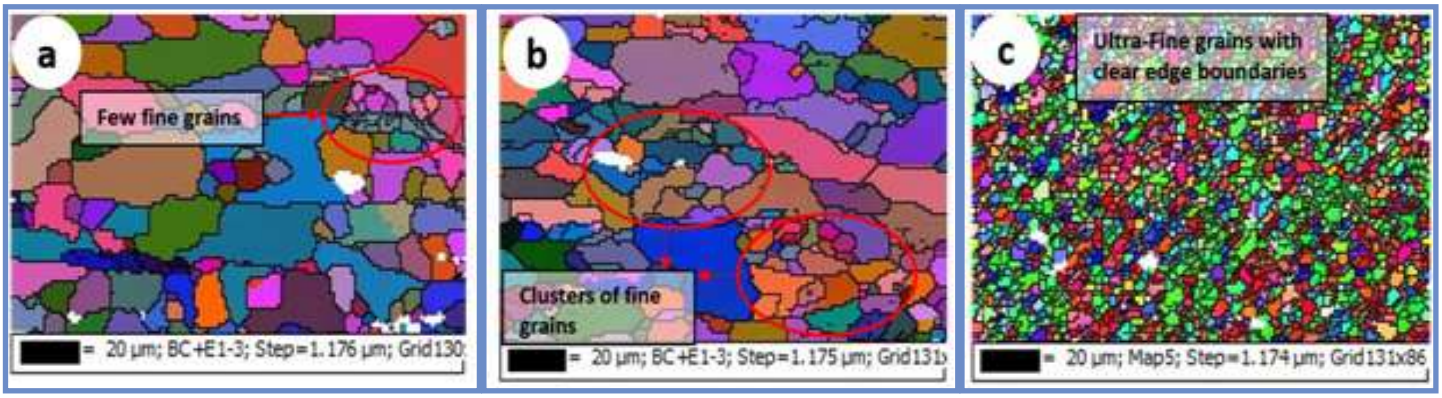
"With calipers and rulers, dimensions precise, Blueprints and schematics, a visionary's device. Machinery emerges, born from imagination's might, A testament to human will, an awe-inspiring sight.

The engineer's mind, a canvas so bright, Sketching designs in the day and night. From pencils to CAD, the process refined, Concepts taking shape, designs intertwined."

SEVERE PLASTIC DEFORMATION (SPD)

DR. SUNIL KADIYAN
ASS. P (ME)

"Severe Plastic Deformation (SPD) is a promising technique in materials science to enhance the mechanical properties of metals and alloys. This process involves subjecting the material to intense strain, inducing significant plastic deformation. Common SPD methods include Equal Channel Angular Pressing (ECAP), High-Pressure Torsion (HPT), and Accumulative Roll Bonding (ARB). The extreme strain leads to grain refinement, resulting in ultrafine-grained microstructures with improved strength and hardness. SPD offers various advantages, such as excellent formability, increased fatigue resistance, and reduced susceptibility to corrosion. As a cutting-edge approach, SPD has the potential to revolutionize industries like aerospace, automotive, and biomedical engineering"

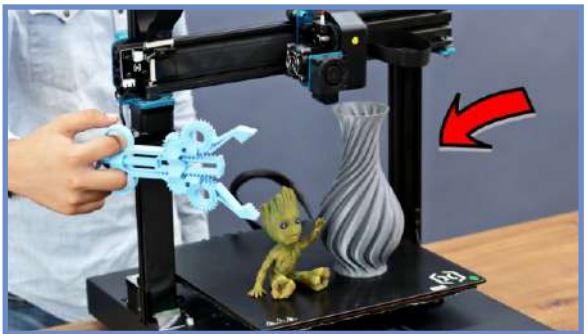


"Pattern of Grain Deformation" can be written as follows:
a) "Presence of a few fine grains"
b) "Clusters of fine grains"
c) "Formation of ultrafine grains"

ADDITIVE MANUFACTURING & 3D PRINTING

MR.VIVEK
HOD (ME)

- **3D Printing is about utilizing a printer that builds a part or an object from the ground up, one layer at a time.**
- **It adds one layer on top of another, making it an additive process!**
- **Using computer software, it can print ideas in 3 Dimensions!**
- **Can make very detailed designs... it brings ideas to life!**
- **Here are some fun examples of the many things you can build!**
- **Your own Finding Dory figurine , Robot, Pineapple Slinky**
- **To understand 3D Printing and how it works, first we need to learn about the 3D Printer!**
- **3D Printers come in all different shapes and sizes.**
- **Each 3D Printer has the same parts that make it work properly.**



Parts of 3D Printing:

Display Unit: shows the functions such as time to print and fill rate.

Extruder – heats up the material so it is soft and sticky and pushes it out a nozzle to create the part.

Filament – is the material that is used to create the part. Usually, the part is made from different kinds of plastic, either PLA, Carbon Fiber or Nylon

Hot End - Tip of the extruder where hot material comes out.

Print Bed – base in which the part is built upon.

Build Volume– the three-dimensional space in which the part can be created.

Cooling Fan – Fan near the extruder that cools the material as it comes out of the hot end.

Categories of Additive Manufacturing:

- **Extrusion Deposit**
- **Vat Photopolymerisation**
- **Material Jetting**
- **Binder Jetting**
- **Powder Bed Fusion**
- **Sheet Lamination**

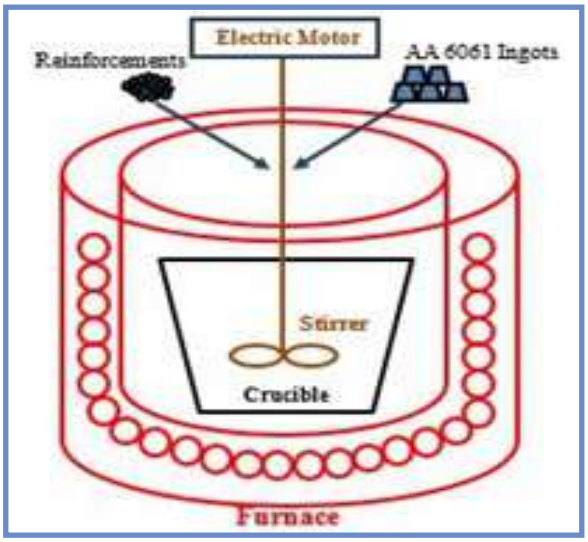
Stir Casting Latest Trend in ME

MR. BALRAJ HOODA
AP (ME)

The stir casting is one the techniques that uses liquid state material processing as homogenous dispersion is achieved with reduced porosity. Moreover, it is more economical as compared to other methods. Generally, an electric furnace is used for heat generation that melts the solid metal held in a crucible. The crucible is made up of refractory materials that are inert and non-reactive. The preheated reinforcement is poured in the crucible which is kept at an inert condition. An injection gun is used to place reinforcement in the molten crucible to further reduce the entrapment of reactive gases. The stirring is achieved using propeller blades which is rotated through an electric motor connected via a shaft. The rotational speed of the stirrer is controlled using stepper motor. The schematic of the setup which is generally used for the stir casting processfor AA 6061 MMC is given in Fig. 3.

There are many different parameters namely reinforcement shape and size, stirring time, stirring blade design, stirring speed, and operating range of temperature that determine the characteristics for theMMC produced. Thus, deciding optimum parameters for manufacturing is of prime importance considering tradeoff between the quality of the product and cost of manufacturing [7]. Each of the process parameters has been discussed in detail below.

Reinforcement Size: The reinforcement size affects the overall strength of the cast product. Generally, it is seen that smaller the reinforcement size more is the strength [8, 9].



Stirring speed and time: Predicting the optimum time and speed for stirring is very vital which is very much dependent on the different parameters like viscosity of fluid and inter-particle spacing. The larger viscosity of fluids resists smooth stirring of the reinforcement particles which is not desirable. If the viscosity of the fluid is small the distribution of reinforcement may not be uniform and there are chances of agglomeration. The homogeneity and inter-particle spacingin-between the reinforcement particles could be reduced by increasing the stirring time. The design of the propeller blade also determines the stirring time. Moses et al. [10] examined the variation of stirring frequency and rotational speed on the mechanical properties of MMC produced.

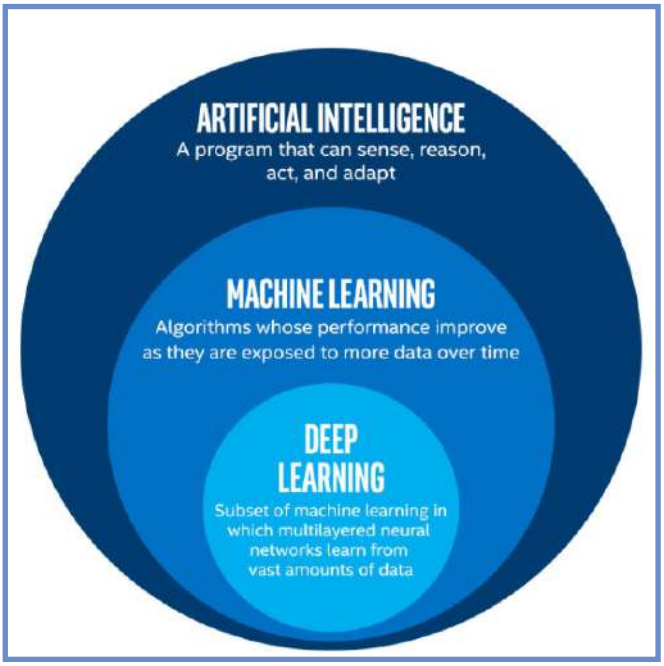
"The Integration of Artificial Intelligence in Mechanical Systems"

MR. PRAVEEN KUMAR
AP (ME)

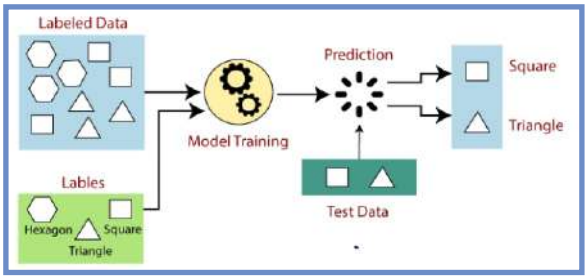
Mechanical design plays a pivotal role in mechanical engineering, encompassing the creation or modification of machinery and equipment. This process entails converting resources or energy into practical mechanical forms or processes, yielding useful output from machines that align with human needs. The design process can lead to the development of entirely new machines or the refinement (optimization) of existing ones. These concepts and optimization techniques are embedded in many software solutions available today. Among the most prominent are CAx (Computer-aided technologies) systems, which have the capability to simulate the various stages of the life cycles of individual components, as well as entire machines and equipment, within a virtual environment.

Goals of Artificial Intelligence

- **Solving knowledge-intensive tasks.**
- **Making the connection between perceptions and actions.**
- **Developing machines that can perform tasks that require human intelligence.**
- **Creating systems that can exhibit intelligent behaviour, learn new things on their own, and demonstrate, explain, and advise their users.**



Machine learning: Machine learning is a branch of artificial intelligence (AI) that enables systems to learn and improve from experience without being explicitly programmed. It focuses on developing algorithms to learn from data, identify patterns, and make predictions. Machine learning algorithms are used in various applications, from email filtering and fraud detection to medical diagnosis and self-driving cars.

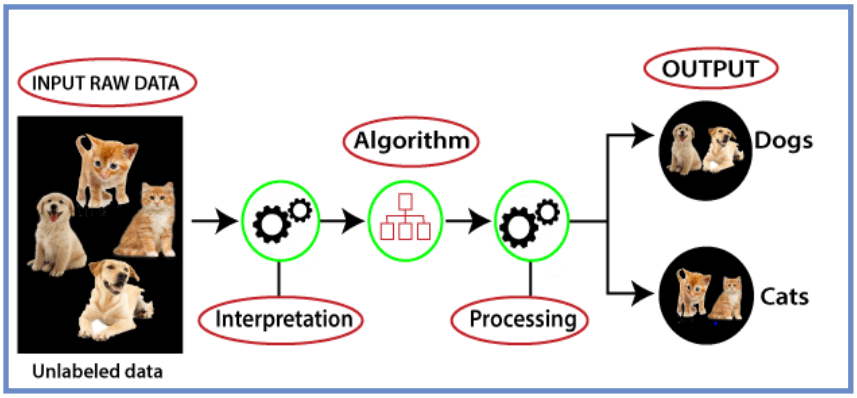


Supervised learning (SL):

Supervised learning (SL) is a paradigm in machine learning where input objects (for example, a vector of predictor variables) and a desired output value (also known as human-labeled supervisory signal) train a model. The training data is processed, building a function that maps new data on expected output values.

Unsupervised learning:

Unsupervised learning in artificial intelligence is a type of machine learning that learns from data without human supervision. Unlike supervised learning, unsupervised machine learning models are given unlabeled data and allowed to discover patterns and insights without any explicit guidance or instruction.



"Advancements in Robotics: Transforming Manufacturing and Beyond"

MR. PRADEEP KUMAR
AP (ME)

Mechanical engineering, at its core, is about leveraging scientific principles to design and build machines that make life easier. In recent decades, one of the most transformative developments in the field has been the integration of robotics. This article explores how advancements in robotics are reshaping the landscape of manufacturing and extending into various aspects of our daily lives.

The Evolution of Robotics in Manufacturing:

Traditionally, manufacturing processes were heavily reliant on human labor. However, as technology advanced, the introduction of robots brought a new level of precision, efficiency, and safety to the production line. Early industrial robots were large, cumbersome machines performing repetitive tasks. Today, we witness the rise of collaborative robots, or cobots, designed to work alongside human workers, enhancing productivity and flexibility.

Industry 4.0 and Smart Factories:

The fourth industrial revolution, often referred to as Industry 4.0, is marked by the integration of digital technologies into manufacturing. Robotics plays a central role in the concept of smart factories. These intelligent manufacturing environments use robotics, artificial intelligence, and the Internet of Things (IoT) to create interconnected systems that can adapt to changing demands, optimize production processes, and minimize downtime.

Applications beyond Manufacturing:

While robotics has revolutionized manufacturing, its influence extends far beyond factory floors. In the medical field, robotic-assisted surgeries are becoming increasingly common, allowing for more precise and minimally invasive procedures. Autonomous robots are employed in hazardous environments, such as disaster-stricken areas or nuclear facilities, reducing the risk to human lives.

The Rise of Soft Robotics:

Traditional robots are often rigid and suited for structured environments. However, the emerging field of soft robotics is challenging this notion. Soft robots, inspired by the flexibility of natural organisms, are designed with pliable materials that enable them to navigate complex and unstructured environments. These robots show great promise in areas such as search and rescue missions and medical applications.

Challenges and Ethical Considerations:

As with any technological advancement, the integration of robotics comes with challenges. Questions about job displacement, ethical considerations in AI, and ensuring the safety of robotic systems are topics that demand careful consideration. Mechanical engineers are not only tasked with designing advanced robotic systems but also with addressing these ethical and societal implications.

Educational and Research Opportunities:

The field of robotics presents exciting opportunities for education and research in mechanical engineering. Universities and research institutions are at the forefront of developing cutting-edge robotic technologies. Students in mechanical engineering programs have the chance to explore the interdisciplinary nature of robotics, combining elements of mechanical engineering, computer science, and electrical engineering.

Conclusion:

The integration of robotics into mechanical engineering has ushered in a new era of innovation and efficiency. From transforming manufacturing processes to enhancing medical procedures and exploring uncharted territories, robots are becoming indispensable in our rapidly evolving world. As the field continues to advance, the role of mechanical engineers will be pivotal in shaping the future

CERTIFICATE COURSE

The Department of Mechanical Engineering conducted a five days certificate course on "INDUSTRIAL ROBOTICS" from 15/11/2021 to 19/11/2021. Mr. Parveen Kumar was the resource person of this interactive session.

Objective: This course is designed to develop student's skills in kinematics analysis of robot systems, trajectory planning and robot control.


Certificate No.: ME/IR/002

GITAM

GANGA INSTITUTE OF TECHNOLOGY AND MANAGEMENT
Bahadurgarh-Jhajjar Road, Kablana (Jhajjar)

DEPARTMENT OF MECHANICAL ENGINEERING

Certificate

This is to certify that Mr./Ms. Neha Dagar
S/D/o Sh. Ramesh Chander Roll No. 18ME092
of B.Tech (M.E.) has successfully completed
the certificate course on "INDUSTRIAL ROBOTICS".
Dated 15th - 19th Nov 2021

Coordinator

Head of Department

Course Outcomes:

- Demonstrate an ability to apply spatial transformation to obtain forward kinematics equation of robot manipulators.
- Demonstrate an ability to solve inverse kinematics of simple robot manipulators.
- Demonstrate an ability to obtain the Jacobian matrix and use it to identify singularities.

CERTIFICATE COURSE

The Department of Mechanical Engineering conducted a five days certificate course on "SUPPLY CHAIN MANAGEMENT & LOGISTICS" from 13/12/2021 to 17/12/2021. Mr. Sumit Verma was the resource person of this interactive session.

Objective: The Supply Chain is to make product available to meet customer demand that includes delivery to the appropriate location, on time, in sufficient quantity. Supply Chain Management is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Bahadurgarh-Jhajjar Road, Kablana (Jhajjar)-Haryana
DEPARTMENT OF MECHANICAL ENGINEERING
Certificate
This is to certify that Mr./Ms. ... Ray ... S/D/o Sh. ... Kumar ... of ... B.Tech. (ME) ... bearing Roll no. ... has successfully completed the certificate course on SUPPLY CHAIN MANAGEMENT & LOGISTICS from ... to ...
Coordinator
Head of Department

Course Outcomes:

- **Understand fundamental of Supply Chain Management Concepts.**
- **Apply knowledge to evaluate and manage an effective supply chain.**
- **Understand the foundational role of logistics as it relates to transportation and warehousing.**
- **Analyze and improve supply chain processes.**

CERTIFICATE COURSE

The Department of Mechanical Engineering conducted a five days certificate course on "CNC Machining" from 25/04/2022 to 29/04/2022. Mr. Anand Tyagi was the resource person of this interactive session.

Objective: This course covers Fundamentals and concepts of CNC Machining and offers more hands on experience through which the participants will be developing CNC programs and machining complicated shapes by using the CNC machine tools.


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DEPARTMENT OF MECHANICAL ENGINEERING
Bahadurgarh-Jhajjar Road, Kablana (Jhajjar)-Haryana
Certificate
This is to certify that Mr./Ms. Mohit
S/D/o Sh. Ramesh Kumar of B.Tech. (ME)
bearing Roll no. ... has successfully completed the course on CNC Machining.
Dated 25-29th Apr. 2022
Coordinator
Head of Department

Course Outcomes:

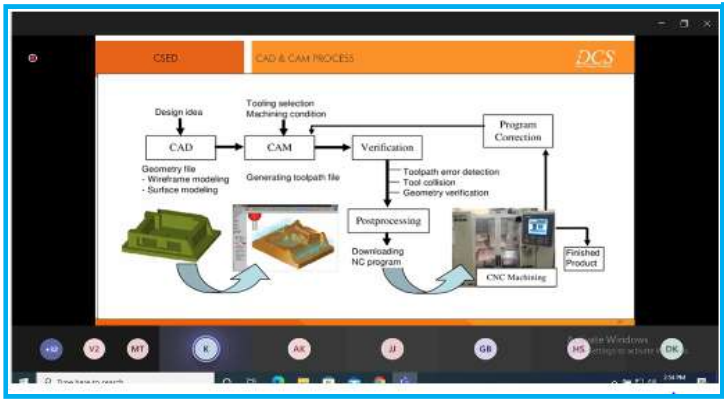
- **Have knowledge of work and tool holding devices on CNC Machines.**
- **Job setting and simple programming on CNC Machines.**
- **Simulate tool movements programs using software.**
- **Perform machining operations on CNC Machines.**
- **Checking the quality of machined components**

WORKSHOP ON "CAD/CAM"

Objective: This course is to teach the theory and tools of Computer Aided Design (CAD) and Computer Aided Manufacturing (CAM) with an emphasis on the central role of the geometric model in their seamless integration. It focuses on the integration of these tools and the automation of the product development cycle. It also covers the machining theory, automated CNC machining, and process control.

Course Outcomes after completing this course, participants will be able to:

- Explain the concepts and underlying theory of modeling and the usage of models in different engineering applications
- Create accurate and precise geometry of complex engineering systems and use the geometric models in different engineering applications.
- Compare the different types of modeling techniques and explain the central role solid models play in the successful completion of CAD/CAM-based product development.
- Use and assess commercial CAD/CAM tools efficiently, effectively and intelligently in advanced engineering applications.
- Extend CAD/CAM technology for research and development purposes.
- Explain the basic concepts of CNC programming and machining .



INDUSTRIAL VISIT AT "A.K. AUTOMATIC

Objective: Purpose of visit was to provide an opportunity to the students to have real insight of gear manufacturing processes and experience the working environment of the production unit. So that students will be able to compare their theoretical knowledge with the practical one.

ABOUT A.K. AUTOMATIC: A.K. Automatics is one of the largest integrated automotive component manufacturers in India . It has 12 world class manufacturing facilities mainly located in North & West India. With the infrastructure and technology platform developed over 40 years, the Group is well positioned in the Indian Auto and Non-Auto component markets. With over 1600 various components, AK Automatic is mainly into the manufacturing of Transmission Gear Train Assembly, Kick Start Mechanism, Gear Shifting Towers & Forks, All types of Sprockets, Ratchets, Pinions, Special Engine Fasteners, Clutch Shafts, Armature Shafts, Spline Shafts, Balancer Shafts, Bearing Races & Rings, Fabricated Frames, 2-WHD Axles, Precision Ground Bushes and Special Turned Components. Moving with a growth rate of 11% CAGR, the company has posted a turnover of USD $225 Million in the last year. AK Automatic mainly aims at expanding their business across the globes through technological excellence. We significantly feature Good Quality, High Volume & Competitive Cost.

PRODUCTS:

- A wide range of ground gears like spur and helical gears and transmission gears commercial vehicle are manufactured in the company.
- Standard products cover most of the international standards ISO, ANSI /ASME, BS, JIS, DIN etc. and are engineered as per respective standards.
- These standard products cover a very wide range of industries viz Automobile sectors, standard / special m/c building sectors etc.

CONCLUSION: This industrial visit will benefit the students in terms of learning working culture & various machining processes involved in making different types of gears. During the plant visit, students enthusiastically interacted with the workshop supervisor to learn all the basics of manufacturing processes and cleared their doubts. Overall it was nice and fruitful to visit the company.

INDUSTRIAL VISIT AT "CLP (APRAAVA) THERMAL POWERPLANT"

Objective: The visit was organized by the college in a thermal power plant to provide basic knowledge of power production and experience the working environment of the production unit. So that students are capable enough to correlate the theoretical cycle of power plant with Rankine's practical cycle.

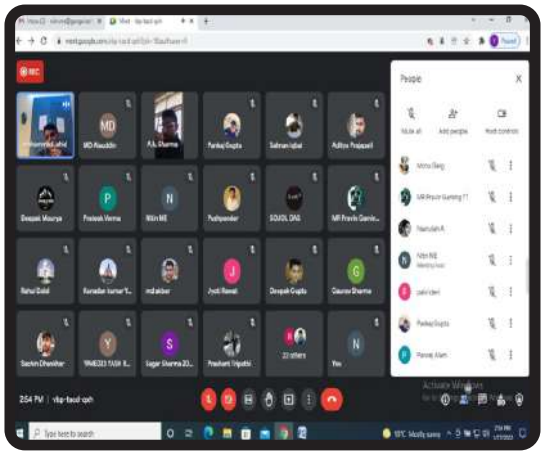
At first, Plant operational engineer instructed about the safety precautions to be followed by the visitors during presentation and industrial visit also. They gave valuable information about thermal power plant which works on Dr. Rankine Cycle and also compared this cycle with Carnot cycle which is most efficient cycle in thermal power plant.Overall they summarized their training with useful questionnaire which were asked from interested students. At last, Assistant Manager, Operational Engineer and other staff members were very supportive.

CONCLUSION: This thermal power plant visit will be fruitful for the students in terms of learning working culture & various power plant operations which correlate the thermal engineering concepts. During the plant visit, students enthusiastically interacted with the plant operational engineer to learn all the basics of power production and cleared their doubts about Dr Rankine cycle. Overall, thermal power plant visit was highly appreciable and fruitful for students to see live power production.

ALUMNI TALK

An Alumni Talk was organized for students of the Mechanical Engineering Department on 27th of Jan 2022. Mr. Nishul was invited for Alumni Talk. He interacted with the students and gave career guidance regarding higher studies. The alumni provided course-specific information to the students.

Objective of Alumni Talk: Alumni talk helps the student to better understand their curriculum and the use of curriculum during their job. Alumni talks become an eye opener for the students on how to enter a company after completion of their course and use their skill for better performance.



EXPERT LECTURE ON "ADVANCEMENT IN MANUFACTURING"

Objective: To increase the awareness of the Mechanical Engineering students about advancement in Manufacturing Processes. To aware the students about expectations of industries from fresher /graduates.

Some of the key objectives of advancements in manufacturing include:

1. Cost Reduction: One of the primary objectives is to reduce manufacturing costs by optimizing processes, reducing waste, and improving resource utilization. This can involve automation, lean manufacturing, and supply chain optimization.

2. Quality Improvement: Manufacturing advancements aim to enhance product quality and consistency. This can be achieved through better process control, improved materials, and stricter quality control measures.

3. Efficiency and Productivity: Increasing efficiency and productivity is a central goal. This involves streamlining processes, reducing downtime, and improving the utilization of equipment and labor.

4. Innovation and Product Development: Manufacturing advancements often enable the creation of new and innovative products. This can involve the development of new materials, product designs, and production techniques.

5. Flexibility and Customization: Manufacturing advancements allow for greater flexibility in production, enabling customization and the ability to quickly adapt to changing customer demands and market conditions. with strict standards, is a key objective in manufacturing advancements.

Outcomes:

1. Cost Savings: Reduced production costs lead to higher profitability and potentially lower consumer prices.

2. Improved Product Quality: Enhanced product quality increases customer satisfaction and loyalty.

3. Increased Efficiency: Improved efficiency results in quicker production, reduced waste, and increased resource utilization.

4. Innovation and New Products: Manufacturing advancements lead to the creation of innovative products, driving market growth and competitiveness.

5. Customization: The ability to customize products meets individual customer needs and preferences.

6. Environmental Benefits: Sustainable manufacturing practices reduce the environmental footprint of production.

EXPERT LECTURE ON "AUTO CAD"

An Expert Lecture on "CAD'' was organized for students of the Mechanical department on 15th of March 2022. Mr. Sahil was invited as the expert.

Objective: Autocad is used to create computer aided designs or software applications including drafting & developing the application in both the 2D and 3D formats and providing the information to the application. Autocad provides tools to design the softwares used in the industry, architectures and project management.

After completing this session, participants will be able to:

- **Demonstrate basic concepts of the AutoCAD software.**
- **Apply basic concepts to develop construction (drawing) techniques.**
- **Understand geometric construction**
- **Produce 2D Orthographic Projections**
- **Understand and demonstrate dimensioning concepts and techniques**
- **Understand Section and Auxiliary Views**

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"Knowledge is never the exclusive possession of any favoured race; the whole world is inter-dependent and a constant stream of thought had through ages enriched the common heritage of mankind."

J. C. BOSE

PROGRAMMES OFFERED

M. TECH	B. TECH	B. TECH (LEET)
DIPLOMA	DIPLOMA (LEET)	MBA
MCA	BCA	BBA

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