

ACADEMIC YEAR (2023-2024)



J.K.K.MUNIRAJAH COLLEGE OF TECHNOLOGY (AUTONOMOUS)  
T.N.Palayam(po),Gobi(tk)-638506, Erode(dt).

Metric No 1.3.2

S.No	Name of the course	Course code	Programme offering			Number of students
				Project work	Internship	
<b>(2023-2024 Regulation-2021)</b>						
1	Advanced in Manufacturing Technology	MF5101	MANUFACTURING ENGINEERING	✓	✓	1
2	Computer Integrated Manufacturing Systems	MF5102	MANUFACTURING ENGINEERING	✓		1
3	Advances in Metrology and Inspection	CM5251	MANUFACTURING ENGINEERING	✓	✓	2
4	Materials Testing and Characterization Techniques	MF5016	MANUFACTURING ENGINEERING	✓	✓	3
5	Project Work Phase I	MF5311	MANUFACTURING ENGINEERING	✓		3
6	Project Work Phase II	MF5411	MANUFACTURING ENGINEERING	✓		3

  
Principal

J.K.K.Munirajah College of Technology  
(Autonomous)  
T.N.Palayam, Gobi (Tk),  
Erode (Dt) - 638 506.



**J.K.K. MUNIRAJAH COLLEGE OF TECHNOLOGY  
(AUTONOMOUS)**

Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai.

Accredited by NAAC with "A" grade

T.N. Palayam (Po), Gobi (Tk), Erode (Dt) – 638 506



**MANUFACTURING ENGINEERING**

**2023-2024**

S.NO	REG.NO	STUDENT NAME	PROJECT	INTERNSHIP
1.	731222410001	JAGADEESH M	✓	✓
2.	731222410002	MITTU S THAMPI	✓	✓
3.	731222410003	MUKILAN S	✓	✓
4.	731223410002	VINOTH KUMAR K		✓

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# **PROJECT WORK**



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**MANUFACTURING ENGINEERING**

**2023-24**

S.No	Name of the Course that include experiential learning through Project Work/Internship/Field Visit
1	Advanced in Manufacturing Technology
2	Computer Integrated Manufacturing Systems
3	Advances in Metrology and Inspection
4	Materials Testing and Characterization Techniques
5	Project work phase-I
6	Project work phase-II

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**OBJECTIVE:**

- The students are expected to understand special machining processes, unconventional machining processes, micro machining process, nano fabrication processes and rapid prototyping.

**UNIT I UNCONVENTIONAL MACHINING** 10

Introduction-Bulk processes - surface processes- Plasma Arc Machining- Laser Beam Machining- Electron Beam Machining-Electrical Discharge Machining – Electro chemical Machining-Ultrasonic Machining- Water Jet Machining-Electro Gel Machining-Anisotropic machining-Isotropic machining-Elastic Emission machining – Ion Beam Machining.

**UNIT II PRECISION MACHINING:** 10

Ultra Precision turning and grinding: Chemical Mechanical Polishing (CMP) - ELID process – Partial ductile mode grinding-Ultra precision grinding- Binderless wheel – Free form optics. aspherical surface generation Grinding wheel- Design and selection of grinding wheel-High-speed grinding-High-speed milling- Diamond turning.

**UNIT III ADVANCES IN METAL FORMING** 7

Orbital forging, Isothermal forging, Warm forging, Overview of Powder Metal techniques –Hot and Cold isostatic pressing - high speed extrusion, rubber pad forming, Hydroforming, Superplastic forming, Peen forming-micro blanking –Powder rolling – Tooling and process parameters.

**UNIT IV MICRO MACHINING AND NANO FABRICATION** 10

Theory of micromachining-Chip formation-size effect in micromachining-microturning, micromilling, microdrilling- Micromachining tool design-Micro EDM-Microwire EDM-Nano fabrication:LIGA, Ion beam etching, Molecular manufacturing techniques –Atomic machining- Nano machining techniques – Top/Bottom up Nano fabrication techniques - Sub micron lithographic technique, conventional film growth technique, Chemical etching, Quantum dot fabrication techniques – MOCVD – Epitaxy techniques.

**UNIT V RAPID PROTOTYPING AND SURFACE MODIFICATION TECHNIQUES** 8

Introduction – Classification – Principle advantages limitations and applications- Stereo lithography – Selective laser sintering –FDM, SGC, LOM, 3D Printing-Surface modification Techniques: Sputtering-CVD-PVD-Diamond like carbon coating-Plasma Spraying Technique.-Diffusion coatings-Pulsed layer deposition.

**TOTAL: 45 PERIODS****OUTCOMES:**

At the end of this course the students are expected

- to produce useful research output in machining of various materials
- use this knowledge to develop hybrid machining techniques
- Application of this knowledge to manage shop floor problems



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**EXPERIMENTAL INVESTIGATION ON  
PERFORMANCE OF SINGLE CYLINDER DIESEL  
ENGINE WITH MULLITE AND ALUMINUM  
TITANATE AS THERMAL BARRIER COATING**

**PHASE II REPORT**

*Submitted by*

**JAGADEESH M**

*in partial fulfillment for the award of the degree of*

**MASTER OF ENGINEERING IN  
MANUFACTURING ENGINEERING**



**J.K.K MUNIRAJAH COLLEGE OF TECHNOLOGY  
T.N. PALAYAM, GOBI-638 506.  
DEPARTMENT OF MANUFACTURING ENGINEERING  
ANNA UNIVERSITY, CHENNAI**

**AUGUST 2024**

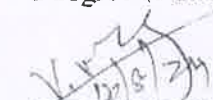
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# ANNA UNIVERSITY, CHENNAI

## BONAFIDE CERTIFICATE

Certified that this Report titled "EXPERIMENTAL INVESTIGATION ON PERFORMANCE OF SINGLE CYLINDER DIESEL ENGINE WITH MULLITE AND ALUMINUM TITANATE AS THERMAL BARRIER COATING" is the bonafide work of JAGADEESH M (Reg.No.7312222410001) who carried out the work under my supervision. Certified further that to the best of my knowledge and the work reported herein does not form part of any other thesis or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

  
SIGNATURE

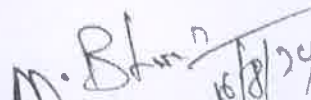
**Mr.V.MAGESH M.E.,**  
**HEAD OF THE DEPARTMENT**  
Assistant Professor  
Dept of Manufacturing Engineering  
JKK Munirajah College of Technology  
T.N.Palayam.

  
SIGNATURE

**Mr.V.MAGESH M.E.,**  
**SUPERVISOR**  
Assistant Professor  
Dept of Manufacturing Engineering  
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T.N.Palayam

Submitted for the Viva-Voce examination held on 16.08.2024.

  
Internal Examiner

  
External Examiner



**Principal**  
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Erode (Dist) 638 506.

**ABSTRACT**

The thermal efficiency of most commercially used engine ranges from 38% to 42%, as nearly 58% to 62 % of energy is lost of heat. Nearly 30% is retained in exhaust gas and the remaining is removed in cooling water/air, in order to save that energy the hot parts are insulated TBC. TBC is that ceramic is better than the conventional materials.  $\text{CaZrO}_3$ , Mullite and  $\text{Al}_2\text{O}_3 - \text{ZrO}_2$  are some of the ceramic materials used as TBC. A four stroke single cylinder Kirloskar diesel engine is selected for carrying out of the experiment. Mullite and aluminum titanate is used on the piston head by plasma spray process for the performance characteristics of the engine with and without TBC under various loading condition. Thermal barrier coatings (TBC) provide the potential for higher thermal efficiencies of the engine, improved combustion and reduced emissions. The purpose of using these materials is to reduce the heat loss from engine. As the experimental investigation results of significant reduction in specific fuel consumption is 1.4% and effective improvement in brake thermal efficiency is 1.1%.

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## CHAPTER 7

### CONCLUSION

#### 7.1 CONCLUSION

The main conclusions drawn from present experimental investigation on (Mullite + aluminum titanate coated) and conventional diesel engines are as follows.

Coated engine with 0.35 mm of Mullite+ aluminum titanate insulation coating on piston crown exhibits lower brake specific fuel Consumption than the conventional diesel engine. This insulation coating exhibits the brake specific fuel consumption very close to conventional engine with deviation by about 1.4% higher at full engine load. The brake thermal efficiency for LHR engine is higher by about 1.1 % than the conventional diesel engine at full engine load level. The Reduction in heat transfer leads to increase in combustion temperature, which leads to Better combustion. The higher combustion temperature will lead to more expansion Work. Finally the combustion chamber temperature increases the thermal efficiency of the engine also increases.

  
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**OBJECTIVES:**

This course will enable the Student

- To gain knowledge about the basic fundamental of CAD.
- To gain knowledge on how computers are integrated at various levels of planning and manufacturing understand computer aided planning and control and computer monitoring.

**UNIT I COMPUTER AIDED DESIGN**

9

Concept of CAD as drafting and designing facility, desirable features of CAD package, drawing features in CAD – Scaling, rotation, translation, editing, dimensioning, labeling, Zoom, pan, redraw and regenerate, typical CAD command structure, wire frame modeling, surface modeling and solid modeling (concepts only) in relation to popular CAD packages.

**UNIT II COMPONENTS OF CIM**

9

CIM as a concept and a technology, CASA/Sme model of CIM, CIM II, benefits of CIM, communication matrix in CIM, fundamentals of computer communication in CIM – CIM data transmission methods – serial, parallel, asynchronous, synchronous, modulation, demodulation, simplex and duplex. Types of communication in CIM – point to point (PTP), star and multiplexing. Computer networking in CIM – the seven layer OSI model, LAN model, MAP model, network topologies – star, ring and bus, advantages of networks in CIM

**UNIT III GROUP TECHNOLOGY AND COMPUTER AIDED PROCESS PLANNING**

9

History Of Group Technology – role of G.T in CAD/CAM Integration – part families- classification and coding – DCLASS and MCLASS and OPTIZ coding systems – facility design using G.T – benefits of G.T – cellular manufacturing. Process planning - role of process planning in CAD/CAM

**UNIT IV SHOP FLOOR CONTROL AND INTRODUCTION TO FMS**

9

Shop floor control – phases – factory data collection system – automatic identification methods – Bar code technology – automated data collection system.  
FMS – components of FMS – types – FMS workstation – material handling and storage system – FMS layout- computer control systems – applications and benefits.

**UNIT V COMPUTER AIDED PLANNING AND CONTROL AND COMPUTER MONITORING**

9

Production planning and control – cost planning and control – inventory management – material requirements planning (MRP) – shop floor control. Lean and Agile Manufacturing. Types of production monitoring systems – structure model of manufacturing – process control and strategies – direct digital control.

**OUTCOMES:**

At the end of this course the students are expected

1. to produce useful research output in computer integrated manufacturing
2. use this knowledge to develop computer techniques
3. Application of this knowledge to functionalise computer aided planning.

**TOTAL: 45 PERIODS****REFERENCES:**

1. Chris McMahon and Jimmie Browne, "CAD CAM Principles, Practice and Manufacturing Management", Pearson Education second edition, 2005. Ranky, Paul G., "Computer Integrated Manufacturing", Prentice hall of India Pvt. Ltd., 2005.
2. James A. Regh and Henry W. Kreabber, "Computer Integrated Manufacturing", Pearson Education second edition, 2005.
3. Mikell. P. Groover "Automation, Production Systems and Computer Integrated Manufacturing", Pearson Education 2001.


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**MECHANICAL BEHAVIOUR OF NATURAL FIBER  
HYBRID COMPOSITE MATERIAL**

**PROJECT REPORT**

*Submitted by*

**MUKILAN S**

*in partial fulfillment for the award of the degree of*

**MASTER OF ENGINEERING IN  
MANUFACTURING ENGINEERING**



**J.K.K MUNIRAJAH COLLEGE OF TECHNOLOGY  
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**AUGUST 2024**

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## BONAFIDE CERTIFICATE

Certified that this Report titled "MECHANICAL BEHAVIOUR OF NATURAL FIBER HYBRID COMPOSITE MATERIAL" is the bonafide work of MUKILAN S (Reg.No.731222410003) who carried out the work under my supervision. Certified further that to the best of my knowledge and the work reported herein does not form part of any other thesis or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.


  
SIGNATURE

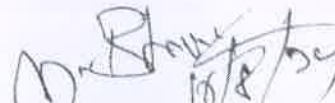
**Mr.V.MAGESH M.E.,**  
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Submitted for the Viva-Voce examination held on 16/03/2024

  
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External Examiner

  
Principal

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## ABSTRACT

This project is focused on the evaluation of Mechanical properties of palmyra fiber reinforced hybrid composites. The composites were developed using 5% alkali treated and raw Borassus fruit fibers of 5 mm length with epoxy resin by using the hand layup and compression mould technique. Specimens were cut from the fabricated laminate according to the ASTM (American society for Testing & Materials) standards for different experiments. The mechanical testing of composite structures to obtain parameters such as strength and stiffness is a time consuming and often difficult process. Tensile test and compressive test are used to determine the mechanical properties of the materials. Also the mechanical properties were obtained by using the impact, flexural and the hardness test. The izod impact testing showed the impact strength was improved by decreasing the fiber length and by increasing the friction stress between the fiber and the matrix. Fiber morphology and the fiber/matrix interface were further characterized by Scanning Electron Microscopic (SEM) Test.

*Keywords: Palmyra Fiber, Glass Fiber, Epoxy Resin, Mechanical properties.*

*SEM*

  
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## CHAPTER 7

### CONCLUSION

The mechanical properties of composites were investigated. The impact test, flexural test, Hardness test, tensile test, and SEM analysis were conducted on the specimen and following conclusions were arrived at.

- Out of the six specimens the impact strength of T3 hybrid polymer matrix samples was found improved upto 15% than the rest of the samples.
- The flexural strength of T3 ratio samples was found improved upto 30% than the remaining sample. The flexural strength is noticed as 48.7N of this sample.
- The tensile strength of T3 specimen was found better than the other five specimen. Similarly the Eng stress values corresponding to the strain values of T3 specimen was better than other.
- The fourier transform infrared spectroscopy conformed the existence of O-H bonds at the peaks between  $3000\text{cm}^{-1}$  to  $3500\text{cm}^{-1}$  this indicates strong bonding strength of this composites.
- The SEM analysis revealed the good bonding strength of glass fiber with the matrix. The fiber breakage, presence of debris also confined the same.



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**OBJECTIVES:**

- To teach the students basic concepts in various methods of engineering measurement techniques and applications, understand the importance of measurement and inspection in manufacturing industries.
- To make the students capable of learning to operate and use advanced metrological devices with ease in industrial environments.

**UNIT I CONCEPTS OF METROLOGY:**

8

Terminologies – Standards of measurement – Errors in measurement – Interchangeability and Selective assembly – Accuracy and Precision – Calibration of instruments – Basics of Dimensional metrology and Form metrology

**UNIT II MEASUREMENT OF SURFACE ROUGHNESS:**

9

Definitions – Types of Surface Texture: Surface Roughness Measurement Methods- Comparison, Contact and Non Contact type roughness measuring devices, 3D Surface Roughness Measurement, Nano Level Surface Roughness Measurement – Instruments.

**UNIT III INTERFEROMETRY:**

8

Introduction, Principles of light interference – Interferometers – Measurement and Calibration – Laser Interferometry.

**UNIT IV MEASURING MACHINES AND LASER METROLOGY:**

10

Tool Makers Microscope – Microhite – Coordinate Measuring Machines – Applications – Laser Micrometer, Laser Scanning gauge, Computer Aided Inspection techniques - In-process inspection, Machine Vision system-Applications.

**UNIT V IMAGE PROCESSING FOR METROLOGY:**

10

Overview, Computer imaging systems, Image Analysis, Preprocessing, Human vision system, Image model, Image enhancement, gray scale models, histogram models, Image Transforms - Examples.

TOTAL: 45 PERIODS

**OUTCOMES:**

At the end of this course the students are expected to

1. Understand the advanced measurement principles with ease.
2. Operate sophisticated measurement and inspection facilities.
3. Design and develop new measuring methods.

**REFERENCES**

1. "ASTE Handbook of Industries Metrology", Prentice Hall of India Ltd., 1992.
2. Bewoor, A.K. and Kulkarni, V.A., "Metrology and Measurement", Tata Mc Graw-Hill, 2009.
3. Galyer, F.W. and Shotbolt, C.R., "Metrology for engineers", ELBS, 1990.
4. Gupta, I.C., "A Text Book of engineering metrology", Dhanpat Rai and Sons, 1996.
5. Jain, R.K., "Engineering Metrology", Khqanna Publishers, 2008.
6. Rajput, R.K., "Engineering Metrology and Instrumentations", Kataria & Sons Publishers, 2001.



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**STUDY THE EFFECT OF BIONIC STRUCTURE IN  
LIGHT WEIGHT POLYMER MATERIAL**

**PROJECT REPORT**

*Submitted by*

**MITTU S THAMBI**

*in partial fulfillment for the award of the degree of*

**MASTER OF ENGINEERING IN  
MANUFACTURING ENGINEERING**



**J.K.K MUNIRAJAH COLLEGE OF TECHNOLOGY  
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DEPARTMENT OF AUTOMOBILE ENGINEERING  
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**AUGUST 2024**



**Principal**

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# ANNA UNIVERSITY, CHENNAI

## BONAFIDE CERTIFICATE

Certified that this Report titled **"STUDY THE EFFECT OF BIONIC STRUCTURE IN LIGHT WEIGHT POLYMER MATERIAL"** is the bonafide work of **MITTU S THAMBI (Reg.No.7312222410002)** who carried out the work under my supervision. Certified further that to the best of my knowledge and the work reported herein does not form part of any other thesis or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

  
SIGNATURE

Mr.V.MAGESH M.E.,

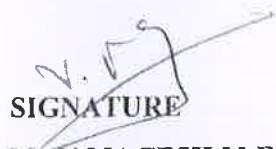
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Submitted for the Viva-Voce examination held on 16/08/24

  
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## ABSTRACT

Research into the manufacture of lightweight automobiles is driven by the need to reduce fuel consumption to preserve decreasing hydrocarbon resources without compromising other attributes such as safety, performance, recyclability and cost. Design of structure plays an important role against this background, since significant weight decrease is made possible through the development of various bionic structures and more precise adjustment of material parameters to the functional requirements of components. They are finding that every 10% reduction in vehicle weight can cut fuel consumption by about 7%. In concept automobile components which have the scope of weight reduction identified the survey. As a pilot study five automobile components such as car window handle, gear rod, steering core, steering column, and alloy wheel were selected. Bionic structure was developed and analyzed for all five components using SolidWorks design software. Specimens for a gear rod, steering column and steering core were manufactured on a 3D printer for existing and honeycomb structure. Both specimens were analyzed to evaluate the mechanical properties such as compressive, hardness and tensile strengths. The result is honeycomb specimen mechanical properties are almost very nearly too solid specimen. So it is concluded that by using bionic honeycomb structure for all five components which gives equivalent strength.

**Keywords:** Automobile Components, Redesigning, Weight Reduction



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## CHAPTER 8

### CONCLUSION

#### 8.1 CONCLUSION

The main goal with this work has been to develop honeycomb structures for automobile parts by computational design and analysis. The work has shown that honeycomb structures such as are weight efficient. The bionic honeycomb structures are given more efficient of weight and strength. The sample 3D printing specimen solid and honey comb weight is 28.4g and 15.1g. The reduce weight will be around 46 % but they are compared strength and weight ratio the bionic honeycomb structures less weight and also give equivalent strength. So in this concept to apply bionic honeycomb structures for gear rod, window handle, steering column, steering core, alloy wheel to reduce 17.3 kg of weight .The automobile survey report find 100 kg mass reduction achieved on a car saves 9 grams of exhaust gas per km. Reducing weight by 100 kg leads to a fuel savings of 0.35l lit /100 km and 8.4 g CO<sub>2</sub>/km with gasoline engines if taking into account an adjustment of the gear shifting without a change in elasticity and acceleration values due to the lower weight. So 17.3 kg of weight reduction in a car saves 1.7 grams of exhaust gas and 1.5g CO<sub>2</sub> per km. To use advance manufacturing method 3D printing is reduce material cost. machine cost, post processing and minimizing the overall cost. And also using advance manufacturing technology like 3D printing to get better result for minimizing overall cost



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# **INTERNSHIP**

**OBJECTIVE:**

This course aims to impart knowledge on various techniques of material characterization.

- UNIT I MICRO AND CRYSTAL STRUCTURE ANALYSIS 10**  
Principles of Optical Microscopy – Specimen Preparation Techniques – Polishing and Etching – Polarization Techniques – Quantitative Metallography – Estimation of grain size – ASTM grain size numbers – Microstructure of Engineering Materials - Elements of Crystallography – X- ray Diffraction – Bragg’s law – Techniques of X-ray Crystallography – Debye – Scherer camera – Geiger Diffractometer – analysis of Diffraction patterns – Inter planer spacing – Identification of Crystal Structure, Elements of Electron Diffraction.
- UNIT II ELECTRON MICROSCOPY 9**  
Interaction of Electron Beam with Materials – Transmission Electron Microscopy – Specimen Preparation – Imaging Techniques – BF & DF – SAD – Electron Probe Microanalysis – Scanning Electron Microscopy – Construction & working of SEM – various Imaging Techniques – Applications- Atomic Force Microscopy- Construction & working of AFM - Applications .
- UNIT III CHEMICAL AND THERMAL ANALYSIS 9**  
Basic Principles, Practice and Applications of X-Ray Spectrometry, Wave Dispersive X-Ray Spectrometry, Auger Spectroscopy, Secondary Ion Mass Spectroscopy, Fourier Transform Infra Red Spectroscopy (FTIR)- Proton Induced X-Ray Emission Spectroscopy, Differential Thermal Analysis, Differential Scanning Calorimetry (DSC) And Thermo Gravimetric Analysis (TGA)
- UNIT IV MECHANICAL TESTING – STATIC TESTS 8**  
Hardness – Brinell, Vickers, Rockwell and Micro Hardness Test – Tensile Test – Stress – Strain plot – Proof Stress – Torsion Test - Ductility Measurement – Impact Test – Charpy & Izod – DWTT - Fracture Toughness Test, Codes and standards for testing metallic and composite materials.
- UNIT V MECHANICAL TESTING – DYNAMIC TESTS 9**  
Fatigue – Low & High Cycle Fatigues – Rotating Beam & Plate Bending HCF tests – S-N curve – LCF tests – Crack Growth studies – Creep Tests – LM parameters – AE Tests-modal analysis - Applications of Dynamic Tests.


**TOTAL: 45 PERIODS**

**OUTCOMES:**

At the end of this course the students are expected to be knowledgeable in microstructure evaluation, crystal structure analysis, electron microscopy, Chemical Thermal Analysis, static and dynamic mechanical testing methods.

**REFERENCES:**

1. ASM Hand book-Materials characterization, Vol – 10, 2004.
2. Cullity B.D., Stock S.R& Stock S., Elements of X ray Diffraction, (3<sup>rd</sup> Edition). Prentice Hall, 2001.
3. Davis J. R., Tensile Testing, 2<sup>nd</sup> Edition, ASM International, 2004.
4. Davis, H.E., Hauck G. & Troxell G.E., The Testing of engineering Materials, (4<sup>th</sup> Edition), McGraw Hill, College Divn., 1982.

  
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## Internship

1 message

MON 4 DEC 2023 at 09.40 AM

From: SRIRAM <hodmech@jkkmct.edu.in>

Date: MON 4 DEC 2023 at 09.40 AM

Subject: Requesting Internship -reg

To: QUEEN INDIA ENGINEERING SERVICES <info@queenindiaengineeringservices.com >

Dear Sir,

I am writing to request an opportunity for internship at **QUEEN INDIA ENGINEERING SERVICES** on behalf of the following students:

**1. JAGADEESH M, 2.MITTU S THAMPI, 3.MUKILAN S and 4.VINOTH KUMAR K**

The students are enthusiastic and well-prepared to meet the requirements of your esteemed organization. The internship aligns with their academic training and career aspirations, and they are eager to contribute meaningfully to your projects while gaining valuable learning experiences from your skilled team.

The students are committed to completing all required documentation, including insurance forms and other formalities for the internship orientation. They look forward to working with your team, observing your esteemed staff, and gaining insight into the exceptional practices at **QUEEN INDIA ENGINEERING SERVICES**.

Thank you for considering this request. We greatly appreciate your confidence in providing them the opportunity to collaborate with your organization.

Sincerely,

Mr.K.Sriram, HoD/MECH

J K K.Munirajah College of Technology,

T.N.Palayam,

Erode-638506,

Tamilnadu.

Principal

J.K.K.Munirajah College of Technology  
(Autonomous)  
T.N.Palayam, Gobi (TK),  
Erode (Dt) - 638 506.



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**Internship**

I message

TUE 12 DEC 2023 at 10.20 AM

From: QUEEN INDIA ENGINEERING SERVICES &lt;info@queenindiaengineeringservices.com &gt;

Date: TUE 12 DEC 2023 at 10.20 AM

Subject: Acceptance of Internship-reg

To: SRIRAM &lt;hodmech@jkkmct.edu.in &gt;

**Dear Sir,**

I am writing to formally confirm my acceptance of your internship offer for the period from **18.12.2023 to 22.12.2023**. I am pleased about the opportunity to join **QUEEN INDIA ENGINEERING SERVICES** and contribute to your esteemed organization.

The internship requirements align perfectly with my skills and career aspirations. I am confident that I can make a meaningful contribution to your organization while gaining valuable experience. Additionally, I will complete all necessary insurance forms and other documentation required for the new intern orientation as per your instructions.

I am excited to collaborate with you and your team. Thank you for placing your trust in me and providing me with this wonderful opportunity. I also take this opportunity to refer the following students for your consideration:

**1. JAGADEESH M, 2. MITTU S THAMPI, 3. MUKILAN S and 4. VINOTH KUMAR K**

Thank you once again for this opportunity. I look forward to joining and contributing to your organization.

Sincerely,

The Managing Director,  
Queen India Engineering Services,  
Erode.

**Principal**

**J.K.K. Munirajah College of Technology**  
(Autonomous)  
T.N. Palayam, Gobi (Tk),  
Erode (Dt) - 638 506.



# QUEEN INDIA

ENGINEERING SERVICES

## Internship Certificate

This is to certify that **Mr.JAGADEESH M,** II<sup>nd</sup> year Manufacturing Engineering of JKK Munirajah College of Technology has successfully completed **internship** Program on Non-Destructive Testing (NDT) from **18.12.2023 to 22.12.2023** During the above mentioned period the attendance and conduct of the student are found to be good. We wish him every success in his life and career

Erode

22.12.2023

FOR QUEEN INDIA ENGINEERING SERVICES,

Principal

J.K.K.Munirajah College of Technology  
(Autonomous)  
T.N.Palayam, Gobi (Tk),  
Erode (Dt) - 638 506.



Office Address: 247, First Floor, KCL Building, Bhavani Main Road, Asokapuram, Erode - 638 004.

Mail ID: [info@queenindiaes.com](mailto:info@queenindiaes.com) Website: [www.queenindiaes.com](http://www.queenindiaes.com) Phone: 0424 - 4061631

Mobile: +91 7373647070



# QUEEN INDIA

ENGINEERING SERVICES

## Internship Certificate

This is to certify that **Mr. MITTU S THAMPI**, II<sup>nd</sup> year Manufacturing Engineering of JKK Munirajah College of Technology has successfully completed **internship** Program on Non-Destructive Testing (NDT) from **18.12.2023 to 22.12.2023**. During the above mentioned period the attendance and conduct of the student are found to be good. We wish him every success in his life and career.

Erode

22.12.2023

FOR QUEEN INDIA ENGINEERING SERVICES,

Principal

J.K.K. Munirajah College of Technology  
(Autonomous)  
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Erode (Dt) - 638 506.



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Mobile: +91 7373647070



# QUEEN INDIA

ENGINEERING SERVICES

## Internship Certificate

This is to certify that **Mr.MUKILAN S**, II<sup>nd</sup> year Manufacturing Engineering of **JKK Munirajah College of Technology** has successfully completed **internship** Program on Non-Destructive Testing (NDT) from **18.12.2023 to 22.12.2023**. During the above mentioned period the attendance and conduct of the student are found to be good. We wish him every success in his life and career.

Erode

22.12.2023

FOR QUEEN INDIA ENGINEERING SERVICES,

**Principal**

**J.K.K.Munirajah College of Technology**  
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Erode (Dt) - 638 506.



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Mobile: +91 7373647070



# QUEEN INDIA

ENGINEERING SERVICES

## Internship Certificate

This is to certify that **Mr. VINOTH KUMAR K**, 1<sup>st</sup> year Manufacturing Engineering of **JKK Munirajah College of Technology** has successfully completed **internship** Program on Non-Destructive Testing (NDT) from **18.12.2023 to 22.12.2023**. During the above mentioned period the attendance and conduct of the student are found to be good. We wish him every success in his life and career.

Erode

22.12.2023

FOR QUEEN INDIA ENGINEERING SERVICES,

  
Principal

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(Autonomous)  
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Erode (Dt) - 638 506.



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