



J.K.K. MUNIRAJAH COLLEGE OF TECHNOLOGY

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

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



MANUFACTURING ENGINEERING

2021-2022

S.NO	REG.NO	STUDENT NAME	PROJECT WORK	INTERNSHIP	INDUSTRIAL VISIT
1	731220410001	MANOJ U	✓		✓
2	731221410001	DEEPA S		✓	✓
3	731221410002	DENNIS MATHEW		✓	✓
4	731221410003	DHARMADURAI T		✓	✓
5	731221410004	GOWTHAM V		✓	✓
6	731221410005	GURUPRABHU K			✓
7	731221410006	JENITH CHRISTOBER J			✓
8	731221410007	PERIYASAMY N			✓
9	731221410008	SIVASANKAR A		✓	✓
10	731221410009	VINOTH A			✓
11	731221410010	VINOTH KUMAR R		✓	✓

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ME-MANUFACTURING ENGINEERING

PROJECT BATCH LIST (2021-2022)

S. No	REGISTER NUMBER	NAME LIST	PROJECT TITLE	GUIDE NAME
1.	731220410001	MANOJ U	THERMAL BEHAVIOUR OF NATURAL FIBER REINFORCED HYBRID COMPOSITE MATERIAL	P.SURESH

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**THERMAL BEHAVIOUR OF NATURAL FIBER
REINFORCED HYBRID COMPOSITE MATERIAL**

PHASE II REPORT

Submitted by

MANOJ U


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**

MAY 2022


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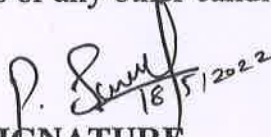
ANNA UNIVERSITY, CHENNAI

BONAFIDE CERTIFICATE

Certified that this Report titled **“THERMAL BEHAVIOUR OF NATURAL FIBER REINFORCED HYBRID COMPOSITE MATERIAL”** is the bonafide work of **MANOJ U** 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.

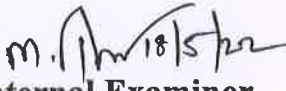

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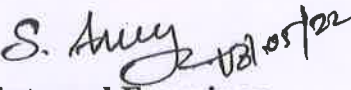
Mr.M.THIYAKARAJAN M.E.,
HEAD OF THE DEPARTMENT
Assistant Professor
Dept of Manufacturing Engineering
J.K.K Munirajah College of Technology
T.N.Palayam.



SIGNATURE

Mr.P.SURESH M.E.,
SUPERVISOR
Assistant Professor
Dept of Manufacturing Engineering
J.K.K Munirajah College of Technology
T.N.Palayam.

Submitted for the Viva-Voce examination held on 18.05.22


Internal Examiner


External Examiner


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ACKNOWLEDGEMENT

I express my sincere thanks and grateful acknowledgement to our Chairman **Dr.J.K.K.Munirajahh M.Tech (Bolton), D.Litt.**, for providing all facilities during the course of study in this college.

I have immense pleasure in expressing my extreme gratitude thanks to our beloved Principal **Dr.K.Sridharan M.E., M.B.A., Ph.D., M.I.S.T.E.**, for his encouragement and support.

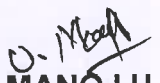
I wish to express my heartfelt thanks to our respectful Head of the Department **Mr.M.Thiyakarajan M.E.**, and project coordinator for his inspiring help, guidance, efforts and energy in the right direction for completing this project.

I also thank my guide, **Mr.P.Suresh M.E.**, who has been a driving force to unveil the immense talents in us.

I sincerely thank my lovable parents for their motivation and great support to complete this project successfully.


I also thank all the teaching and non-teaching staffs of the Department of Manufacturing Engineering and all my friends for their help and support to complete this project successfully.


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MANOJ U

ABSTRACT

This project mainly deals with the analysis of moisture absorption effect and the thermal properties of palmyra fiber reinforced epoxy composites. The hybrid composites were prepared using palmyra fiber and glass fibers with epoxy resin and three different compositions by using hand layup technique. Specimens were cut from the fabricated laminate according to the ASTM (American society for Testing & Materials) standards for different experiments. The thermal property of palmyra fiber composite material can be obtained by means of Dynamic Mechanical Analysis (DMA), Differential scanning calorimetric Analysis (DSCA), Thermal Conductivity test (Physical and Software through Ansys). The thermal degradation properties of the specimen is examined using Thermo gravimetric analysis. Water absorption studies of Palmyra fiber composites shows that the untreated fiber absorbs more water than treated fiber.


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CHAPTER 6

CONCLUSION

Treated and untreated Palmyra fiber sample were submerged in distilled water at different time period 0,2,4,6,8,10,and 12 hours. The Samples were taken out periodically and weighted immediately, after wiping out the water on the fiber, using a precise four-digit balance to find out the content of water absorbed. All the samples weight is measured, previously to be immersed in water. The percentage of water absorption at any time y , M_t , was calculated by the equation.

Untreated fiber absorbed more water than treated fiber. From the water absorption study the alkaline treatment reduce the moisture absorption property on the fiber.



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INTERNSHIP



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ME-MANUFACTURING ENGINEERING

INTERNSHIP DETAILS (2021-22)

S.NO	REGISTER NO	NAME OF THE STUDENT	NAME OF THE COMPANY	LOCATION	DATE
1.	731221410001	DEEPA S	QUEEN INDIA ENGINEERING SERVICES	ERODE	04.04.2022 To 08.04.2022
2.	731221410002	DENNIS MATHEW			
3.	731221410003	DHARMADURAI T			
4.	731221410004	GOWTHAM V			
5.	731221410008	SIVASANKAR A			
6.	731221410010	VINOTH KUMAR R			

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Internship

1message

FRI 25 MAR 2022 at 1.30 pm

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

Date: FRI 25 MAR 2022 at 1.30 pm

Subject: Internship -reg

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

Dear Sir,

I am requesting to be joining your **QUEEN INDIA ENGINEERING SERVICES**. The requirements are exactly what I have prepared for and hoped to do. I feel confident that I can make a significant contribution to your organization while at the same time learning from your staff.

Additionally, I shall complete all insurance forms for the new intern orientation. I look forward to working with you and your fine team. I appreciate your confidence in me and providing the chance to work with and observe your outstanding staff.

Refer the following students : **(DEEPA S, DENNIS MATHEW, DHARMADURAI T, GOWTHAM V, SIVASANKAR A, VINOTH KUMAR R)**

Sincerely,


First Year MFG Students,

J K K. Munirajah College of Technology,

T.N. Palayam,

Erode-638506,

Tamilnadu.


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JKK MUNIRAJAH COLLEGE
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Internship

lmessage

TUE 29 MAR 2022 at 2.30 Pm

From:QUEEN INDIA ENGINEERING SERVICES< info@queenindiaengineeringervices.com >

Date: TUE 29 MAR 2022 at 2.30 Pm

Subject: Internship-reg

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

Dear Sir,


I am writing to confirm my acceptance of your internship offer of 04.04.2022 TO 08.04.2022 and to tell you how to be joining my **QUEEN INDIA ENGINEERING SERVICES**. The requirements are exactly what I have prepared for and hoped to do. I feel confident that I can make a significant contribution to your organization while at the same time learning from my staff.

Additionally, I shall complete all insurance forms for the new intern orientation. I look forward to working with you and your fine team. I appreciate your confidence in me and providing the chance to work with and observe my outstanding staff.

Refer the following students : **(DEEPA S, DENNIS MATHEW, DHARMADURAI T, GOWTHAM V, SIVASANKAR A, VINOTH KUMAR R)**

Sincerely,

The Managing Director,
Queen India Engineering Services,
Erode.


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QUEEN INDIA
ENGINEERING SERVICES

Internship Certificate

This is to certify that Mr.DENNIS MATHEW, 1 year M.E. Manufacturing Engineering of JKK Munirajah College of Technology has successfully completed internship Program on Non-Destructive Testing (NDT) from 04.04.2022 to 08.04.2022. During the above the 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
08.04.2022

FOR QUEEN INDIA ENGINEERING SERVICES,


PRINCIPAL
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GOBI (Tk), ERODE (Dt).





QUEEN INDIA

— ENGINEERING SERVICES —

Internship Certificate

This is to certify that Mr. R.VINOTH KUMAR, 1 year M.E. Manufacturing Engineering of JKK Munirajah College of Technology has successfully completed **internship** Program on Non-Destructive Testing (NDT) from 04.04.2022 to 08.04.2022. During the above the 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
08.04.2022

FOR QUEEN INDIA ENGINEERING SERVICES,


PRINCIPAL

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QUEEN INDIA

ENGINEERING SERVICES

Internship Certificate

This is to certify that Miss. S.DEEPA, 1 year M.E. Manufacturing Engineering of JKK Munirajah College of Technology has successfully completed internship Program on Non-Destructive Testing (NDT) from 04.04.2022 to 08.04.2022. During the above the 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
08.04.2022

FOR QUEEN INDIA ENGINEERING SERVICES,


PRINCIPAL
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GOBI (TK), ERODE (Dt).





QUEEN INDIA
ENGINEERING SERVICES

Internship Certificate

This is to certify that Mr. T.DHARMADHURAI, 1 year M.E. Manufacturing Engineering of JKK Munirajah College of Technology has successfully completed **internship** Program on Non-Destructive Testing (NDT) from 04.04.2022 to 08.04.2022. During the above the mentioned period the attendance and conduct of the student are found to be good. We wish him every success in his life and career.

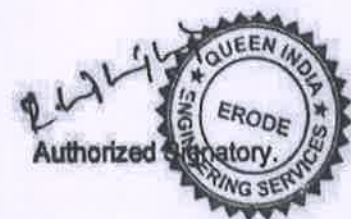
Erode
08.04.2022

FOR QUEEN INDIA ENGINEERING SERVICES,

Sreed

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GOBI (Tk), ERODE (Dt).





QUEEN INDIA
— ENGINEERING SERVICES —

Internship Certificate

This is to certify that Mr.V.GOWTHAM, 1 year M.E. Manufacturing Engineering of JKK Munirajah College of Technology has successfully completed **internship** Program on Non-Destructive Testing (NDT) from 04.04.2022 to 08.04.2022. During the above the 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
08.04.2022

FOR QUEEN INDIA ENGINEERING SERVICES,

Sreedee

PRINCIPAL

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OF TECHNOLOGY
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GOBI (Tk), ERODE (Dt).





QUEEN INDIA


ENGINEERING SERVICES

Internship Certificate

This is to certify that Mr. A.SIVASANKAR, 1 year M.E. Manufacturing Engineering of JKK Munirajah College of Technology has successfully completed internship Program on Non-Destructive Testing (NDT) from 04.04.2022 to 08.04.2022. During the above the 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
08.04.2022

FOR QUEEN INDIA ENGINEERING SERVICES,


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INDUSTRIAL VISIT



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ME-MANUFACTURING ENGINEERING

INDUSTRIAL VISIT DETAILS (2021-22)

S.NO	REGISTER NO	NAME OF THE STUDENT	NAME OF THE COMPANY	LOCATION	DATE
1.	731220410001	MANOJ U	SAKTHI GEAR PRODUCT	COIMBATORE	17.12.2021
2.	731221410001	DEEPA S			
3.	731221410002	DENNIS MATHEW			
4.	731221410003	DHARMADURAI T			
5.	731221410004	GOWTHAM V			
6.	731221410008	SIVASANKAR A			
7.	731221410010	VINOTH KUMAR R			

PRINCIPAL

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T.N. PALAYAM (Po)-638 506.
GOBI (Tk), ERODE (Dt).



Industrial Visit
1 message

MON 06 DEC 2021 at 12.05 PM

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

Date: MON 06 DEC 2021 at 12.05 PM

Subject: Industrial Visit -reg


To: SAKTHI GEAR PRODUCT <hr@sakthigear.com >

Dear Sir,

We are at JKK Munirajah College of Technology are very keen in providing industrial exposure to our students to actual industrial atmosphere will help the students in developing their knowledge and technical skills. So I request you to give us permission for first, second year ME-Manufacturing engineering students and second, third year students with three faculties of B.E Mechanical engineering to visit your company on 17.12.2021.

Yours faithfully,

Head of the Department,
Department of Mechanical Engineering,
JKK Munirajah College of Technology,
T.N.Palayam, Erode-638506
Tamilnadu.


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JKK MUNIRAJAH COLLEGE
OF TECHNOLOGY
T.N. PALAYAM (Po)-638 506.
GOBI (Tk), ERODE (Dt).



Industrial Visit
1message

FRI 10 DEC 2021 at 3.20 PM

From: SAKTHI GEAR PRODUCT<hr@sakthigear.com >

Date: FRI 10 DEC 2021 at 3.20 PM

Subject: Industrial Visit-reg

To: SRIRAMKS<hodmech@jkkmct.edu.in>

Dear Sir,

This is to inform your department first, second year ME-Manufacturing engineering students and second, third year students with three faculties of B.E Mechanical engineering of your college is granted permission for their industrial visit which will be on 17.12.2021 in our company. So kindly make necessary arrangements for the same.

Sincerely,

HR Manager,
Sakthi Gear Product,
Coimbatore – 641006
Tamil Nadu, India

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GOBI (Tk), ERODE (Dt).

SAKTHI GEAR PRODUCTS



TO WHOMSEVER IT MAY CONCERN

This is to certify that **First year, Second ME-Manufacturing** and Second Year & Third Year students of Mechanical Engineering Department of J.K.K.Munirajah College of Technology, T.N.Palayam, Erode, are under gone the **Industrial Visit**, at **Sakthi Gear Products, Coimbatore** on 17.12.2021 as per the company norms and regulations and completed successfully.

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General Manager



Internal Guide



Sreedh
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