



VASAVI COLLEGE OF ENGINEERING

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DEPARTMENT OF MECHANICAL ENGINEERING

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This is to certify that the work in this dissertation entitled "Investigation on the Effect of Core Thickness on the Vibration Frequency of Rubber Cored Metal Sandwich Beams" is submitted by MOHAMMAD ISMAIL bearing Roll number 1602-23-745-001 has been read and approved for meeting the requirements and regulations governing the award of the degree in Master of Engineering in Advanced Design and Manufacturing as specialization, to Vasavi College of Engineering during the academic year 2023-2025.

The work done in this dissertation has not been submitted to any other University/Institute for the award of any degree.

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ABSTRACT

Sandwich structures are widely utilized in various engineering applications due to their superior stiffness-to-weight ratio, enhanced damping capability, and improved vibration attenuation characteristics. These structures consist of two stiff face sheets bonded to a lightweight viscoelastic core, which collectively contribute to high structural efficiency and vibration control. The present work aims to investigate the damping and frequency response characteristics of metal-rubber-metal sandwich beams incorporating Ethylene Propylene Diene Monomer (EPDM) rubber as the viscoelastic core material.

In this study, sandwich beam specimens are fabricated by varying the thickness of the EPDM rubber core while using different metallic face sheets such as steel, aluminum, and copper. The purpose of this variation is to determine the optimal combination of face sheet material and core thickness that provides maximum damping performance and desirable frequency response. The experiments are conducted using Experimental Modal Analysis (EMA) to identify the natural frequencies and mode shapes, while Dynamic Mechanical Analysis (DMA) is employed to characterize the viscoelastic properties of EPDM rubber over a range of frequencies.

During the investigation, the hyperplastic behavior of the rubber layer is considered, whereas the face sheets are assumed to behave linearly elastic. Comparative analysis of different material combinations reveals the influence of substrate stiffness and core thickness on the dynamic response of the sandwich beam. From the results obtained, the most effective configuration in terms of damping efficiency and frequency stability is identified.

This study provides valuable insight into the selection of materials and geometric configurations for constrained layer damping applications, with potential relevance to automotive body panels, aerospace components, and vibration-sensitive structural systems.

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This is to certify that the work in this dissertation entitled “Stress & Strain Analysis of Advanced High Strength Steels (AHSS) Using Split-Hopkinson Pressure Bar for Automotive Applications” submitted by Mr. Saimanideep Mamindla (Roll No. 1602-23-745-002) has been read and approved for meeting during part of the requirements and regulations governing the award the degree of **Master of Engineering** in Mechanical Engineering with specialization in **Advanced Design and Manufacturing** during academic year 2024–25 in the Department of Mechanical Engineering, Vasavi College of Engineering.

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ABSTRACT

This dissertation presents an in-depth study on the dynamic mechanical behavior of Advanced High-Strength Steels (AHSS) when subjected to high strain-rate loading using the Split-Hopkinson Pressure Bar (SHPB) technique. The research primarily focuses on understanding how AHSS responds to impact conditions that simulate real-world automotive crash scenarios.

Experimental investigations were performed on AHSS specimens with varying dimensions of 6 mm, 7 mm, and 8 mm thickness, enabling an Analysis of the effect of specimen geometry on stress-strain behavior. The results obtained from SHPB experiments were further validated using finite element simulations carried out in Analysis Explicit Dynamics.

The study comprehensively evaluates strain-rate sensitivity, deformation characteristics, and energy absorption capacity of AHSS under high strain-rate conditions. Findings indicate that AHSS exhibits significant strain-rate hardening and excellent energy absorption capability, confirming its suitability for lightweight automotive safety components such as bumpers and crash beams.

By correlating experimental outcomes with simulation results, this work bridges the gap between laboratory testing and computational modeling, offering valuable insights for the development and optimization of impact-resistant automotive structures made from AHSS.


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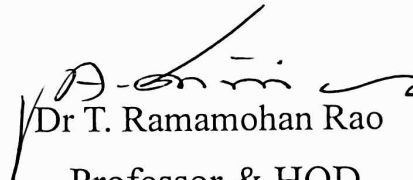
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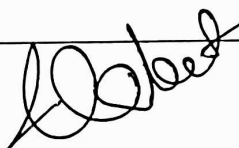
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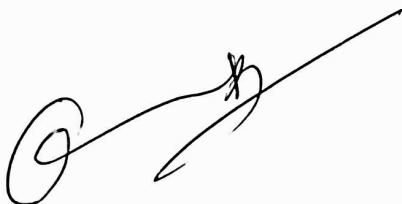
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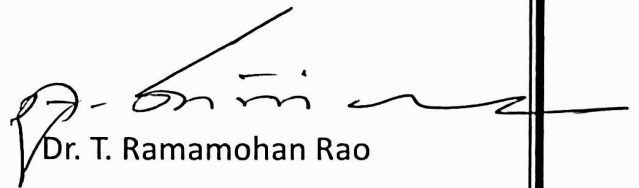
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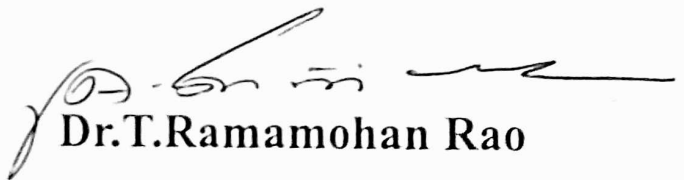
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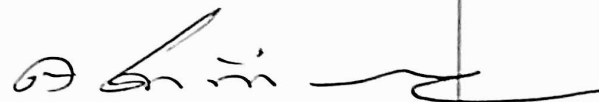
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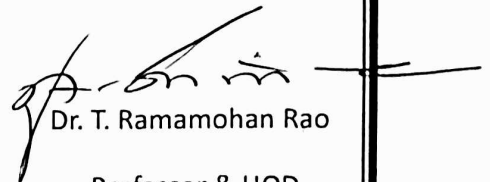
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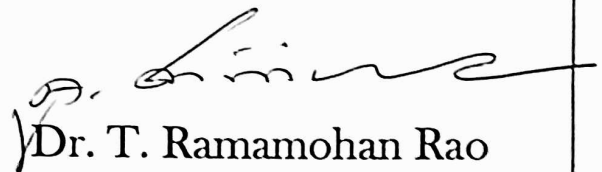
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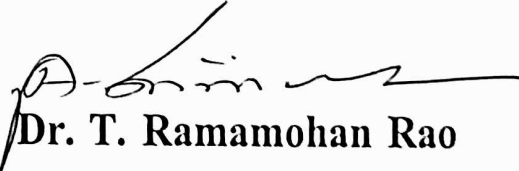
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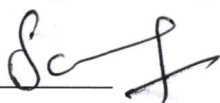
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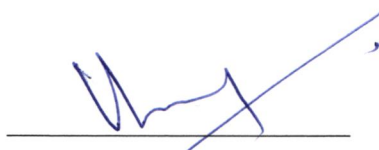
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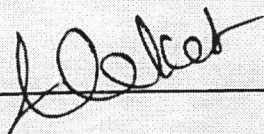
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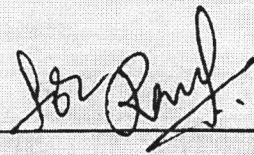
This is to certify that the project report entitled "Fabrication and Experimental Analysis of an Earth Pipe Air Heat Exchanger with Twisted tape insert" is a Bonafide record of a project carried out by

Nethi Saraschandra	1602-21-736-047
Saikumar Banoth	1602-21-736-043
Setan Sai Mallela	1602-21-736-039

in the Department of Mechanical Engineering, Vasavi College of Engineering (Autonomous) (affiliated to Osmania University), Hyderabad during the academic year 2024-25 in partial fulfillment for the award of Degree in Bachelor of Mechanical Engineering.



Mr. S. Venkateswarulu
Project Guide



Dr. T. Ramamohan Rao
Professor & HOD
Dept. of Mechanical Engg.

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
AFFILIATED TO OSMANIA UNIVERSITY
IBRAHIMBAGH, HYDERABAD

CERTIFICATE

This is to certify that the project report entitled "Fabrication of wallbot for glass cleaning" is a bonafide record of a project carried out by

DORAGOLLA HARI PRIYA SRI HARSHITHA	--- 1602-21-736-015
GURRAM HARINI	--- 1602-21-736-017
Banoth Nagendar	--- 1602-21-736-027

in the Department of Mechanical Engineering, Vasavi College of Engineering(Autonomous) (affiliated to Osmania University), Hyderabad during the academic year 2021 – 2025 in partial fulfillment for the award of Degree in Bachelor of Mechanical Engineering.


Mr. K. Veladri

Associate Professor
Project Guide
Department of Mechanical
Engineering
Mechanical Engineering Dept.
Vasavi College of Engineering
Hyderabad-500 031.


Dr. T. RAMAMOCHAN RAO

Professor & HOD
Department of Mechanical
Engineering
Dept. Of Mechanical Engg
Vasavi College of Engg
Ibrahimbagh, Hyderabad-31

DEPARTMENT OF MECHANICAL ENGINEERING
VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
AFFILIATED TO OSMANIA UNIVERSITY
IBRAHIMBAGH, HYDERABAD

CERTIFICATE

This is to certify that the project report entitled "**FABRICATION OF MAGNETIC LEVITATION WIND TURBINE POWER SYSTEM**" is a bonafide record of a project seminar carried out by

P.AVINASH REDDY ----1602-21-736-007

G.RAHUL ----1602-21-736-035

B.RAMESH ----1602-21-736-036

in the Department of Mechanical Engineering, Vasavi College of Engineering (Autonomous) (affiliated to Osmania University), Hyderabad during the academic year 2024-25 in partial fulfillment

for the award of Degree in Bachelor of Mechanical Engineering.



Dr.J.ANJANEYULU

Sr.Assistant Professor



DR. T. RAMAMOCHAN RAO

Professor & HOD

Dept. of Mechanical Engg.

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
AFFILIATED TO OSMANIA UNIVERSITY
IBRAHIMBAGH, HYDERABAD

CERTIFICATE

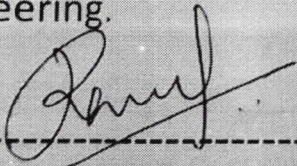
This is to certify that the project report entitled
**"Prediction of CI Engine Performance
Using Waste Plastic Oil and Diesel Blends
Using Artificial Neural Networks"** is a Bonafide
record of a project carried out by

RAJAPETA ROHITH CHARY 1602-21-736-301

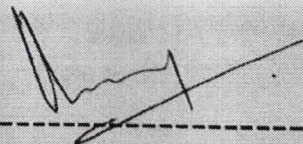
MODINPALLY RAVI TEJA 1602-21-736-307

ALIGE SHARANDEEP 1602-21-736-049

in the Department of Mechanical Engineering, Vasavi College of
Engineering (Autonomous) (affiliated to Osmania University),
Hyderabad during the academic year 2024-25 in partial
fulfillment for the award of Degree in Bachelor of Mechanical
Engineering.



Dr. P. Venkateswara Rao
Project Guide



Dr. T. Ramamohan Rao
Professor & HOD
Dept. of Mechanical Engg.

Batch: Ag

DEPARTMENT OF MECHANICAL ENGINEERING
VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
AFFILIATED TO OSMANIA UNIVERSITY
IBRAHIMBAGH, HYDERABAD

CERTIFICATE

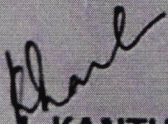
This is to certify that the project report entitled "**FABRICATION OF ROBOSCAN (MOBILE CRACK INSPECTION ROBOT USING MATLAB)**" is a Bonafide record of a project seminar carried out by

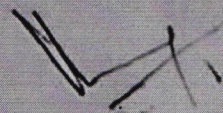
J. SHARATH KALYAN----1602-21-736-050

N. VENKAT MANIDEEP----1602-21-736-058

P. VIGNESH REDDY----1602-21-736-059

in the Department of Mechanical Engineering, Vasavi College of Engineering (Autonomous) (affiliated to Osmania University), Hyderabad during the academic year 2024-25 in partial fulfillment for the award of Degree in Bachelor of Mechanical Engineering.


Mr. J. KANTHARAO
Assistant Professor


DR. T. RAMAMOCHAN RAO
Professor & HOD

Dept. of Mechanical Engg.
Professor & HOD
Dept. Of Mechanical Engg
Vasavi College of Engg
Ibrahimbagh Hyderabad-31

DEPARTMENT OF MECHANICAL ENGINEERING
VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
AFFILIATED TO OSMANIA UNIVERSITY
IBRAHIMBAGH, HYDERABAD

CERTIFICATE

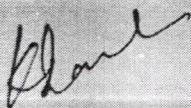
This is to certify that the project report entitled "**FABRICATION OF MULTIPURPOSE ROBOT**" is a Bonafide record of a project seminar carried out by:

N. NIRNAY----- 1602-21-736-028

M. RAVI TEJA-----1602-21-736-037

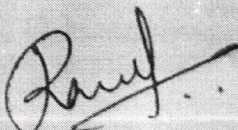
B. SAI SRIKAR----- 1602-21-736-041

in the Department of Mechanical Engineering, Vasavi College of Engineering (Autonomous affiliated to Osmania University), Hyderabad during the academic year 2024-25 in partial fulfillment for the award of Degree in Bachelor of Mechanical Engineering.


Mr. K. I. SPURGEON

Assistant Professor

Assistant Professor
MECHANICAL ENGINEERING
VASAVI COLLEGE OF ENGINEERING
IBRAHIMBAGH, HYDERABAD-31.


Dr. T. RAMMOHAN RAO

Professor & HOD

Dept. Mechanical engineering
Professor & Head
Dept. Of Mechanical Engg.
Vasavi College of Engg
Ibrahimbagh, Hyderabad-31.

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
AFFILIATED TO OSMANIA UNIVERSITY
IBRAHIMBAGH, HYDERABAD

CERTIFICATE

This is to certify that the project report entitled "DESIGN, FABRICATION AND ANALYSIS OF INTELLIGENT BRAKING SYSTEM BY PNEUMATIC BRAKE" is a Bonafide record of project work carried out by

S.HARSHA SREENATH

1602-21-736-018

M.KARTHIK

1602-21-736-021

D.SAI SANTHOSH RITHWIK

1602-21-736-040

in the Department of Mechanical Engineering, Vasavi College of Engineering (Autonomous) (Affiliated to Osmania University), Hyderabad during the academic year 2024-25 in partial fulfillment for the award of Degree in Bachelor of Mechanical Engineering.



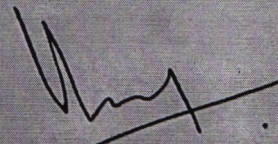
Dr.S.Venkataiah

Associate Professor

Project Guide

Associate Professor

Mechanical Engineering Dept.
Vasavi College of Engineering
Hyderabad-500 031



Dr.T.Ramamohan Rao

Professor & HOD

Dr. T. RAMAMOHAN RAO
Dept. of Mechanical Engg.

Professor & HOD

Dept. Of Mechanical Engg

Vasavi College of Engg

Ibrahimbagh Hyderabad-31

**VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
AFFILIATED TO OSMANIA UNIVERSITY
IBRAHIMBAGH, HYDERABAD**

CERTIFICATE

This is to certify that the project report entitled "Fabrication of Solar-Based Air Compressor for Tyre Inflation" is a bonafide record of a project carried out by

Adil Ahmed - - - 1602-21-736-003

Mohammed Aiman Hussain - - - 1602-21-736-024

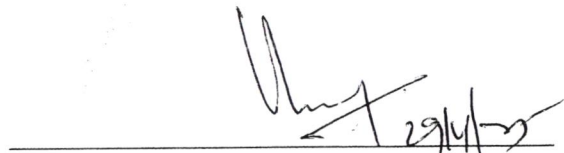
K. Mothilal - - - 1602-21-736-026

in the Department of Mechanical Engineering, Vasavi College of Engineering (Autonomous) (affiliated to Osmania University), Hyderabad during the academic year 2024-25 in partial fulfillment for the award of Degree in Bachelor of Mechanical Engineering.



Dr. VBS Rajendra Prasad

Project Guide



Dr. T. Ramamohan Rao
Dept. Of Mechanical Engg
Vasavi College of Engg
Professor & HOD

Dept. of Mechanical Engg.

A12

VASAVI COLLEGE OF ENGINEERING
(AUTONOMOUS) AFFILIATED TO
OSMANIA UNIVERSITY
IBRAHIMBAGH, HYDERABAD


CERTIFICATE

This is to certify that the project report entitled "Design and Development of a Multi-Purpose Drone for Elderly Assistance and Defence Applications" is a Bonafide record of a project carried out by


Shyam Jagadeesh D

--- 1602-21-736-304

in the Department of Mechanical Engineering, Vasavi College of Engineering (Autonomous) (affiliated to Osmania University), Hyderabad during the academic year 2024-25 in partial fulfillment for the award of Degree in Bachelor of Mechanical Engineering.


Dr. S. Venkata Ramana
Principal V.C.E
Project Guide

Dr. S.V. RAMANA
PRINCIPAL
Vasavi College of Engineering
9-5-81, Ibrahimbagh, Hyderabad-31.


Dr. T. Ramamohan Rao
Professor & HOD
Dept. of Mechanical Engg.
Dr T RAMAMOHAN RAO
Professor & HOD
Dept. Of Mechanical Engg
Vasavi College of Engg
Ibrahimbagh Hyderabad-31

A-13

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
AFFILIATED TO OSMANIA UNIVERSITY
IBRAHIMBAGH, HYDERABAD

CERTIFICATE

This is to certify that the project report entitled
***"Fabrication and wear analysis of Al8011
alloy with Si₃N₄ nano reinforcement"*** is a
bonafide record of a project carried out by

MANICHARLA MOHANA GANESH

1602-20-736-313

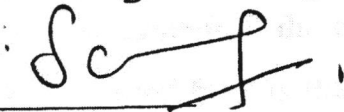
SYED HABEEB UR REHMAN

1602-21-736-055

KADAVATH VIJAY KUMAR

1602-21-736-061

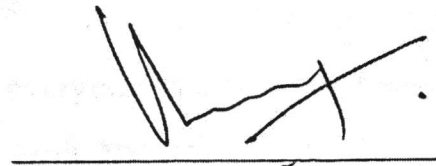
in the Department of Mechanical Engineering, Vasavi College
of Engineering (Autonomous) (affiliated to Osmania
University), Hyderabad during the academic year 2024-25 in
partial fulfillment for the award of Degree in Bachelor of
Mechanical Engineering.



Mr. B. Sandeep

Project Guide

Assistant Professor
MECHANICAL ENGINEERING
VASAVI COLLEGE OF ENGINEERING
IBRAHIMBAGH, HYDERABAD-31.



Dr. T. Ramamohan Rao

Professor & HOD

Dept. of Mechanical Engineering

Dr. T. RAMAMOHAN RAO
Professor & HOD
Dept. Of Mechanical Engg
Vasavi College of Engg
Ibrahimbagh Hyderabad-31

**VASAVI COLLEGE OF ENGINEERING
(AUTONOMOUS)
AFFILIATED TO OSMANIA UNIVERSITY
IBRAHIMBAGH, HYDERABAD.**

CERTIFICATE

This is to certify that the project report entitled "**DESIGN AND FABRICATION OF CAM-LESS VALVE MECHANISM FOR INTERNAL COMBUSTION ENGINES**" is a bonafide record of a project carried out by

D.B. Raj Reddy 1602-21-736-008

V. Hari Krishna Sai 1602-21-736-014

B. Sai 1602-21-736-038

in the Department of Mechanical Engineering, Vasavi College of Engineering (Autonomous) (affiliated to Osmania University), Hyderabad, during the academic year 2024-25, in partial fulfillment of the Degree in Bachelor of Mechanical Engineering award.

Dr. P. Venkateswara Rao
Professor and Project Guide
Department of
Mechanical Engineering

Dr. T. Ramamohan Rao
HOD
Department of
Mechanical Engineering

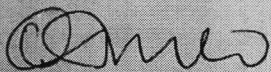
VASAVI COLLEGE OF ENGINEERING(AUTONOMOUS)
AFFILIATED TO OSMANIA UNIVERSITY
IBRAHIMBAGH, HYDERABAD

CERTIFICATE

This is to certify that the project report entitled "**DESIGN AND ANALYSIS OF PROGRESSIVE DIE**" is a bonafide record of a project carried out by

A. Bhargava	1602-21-736-009
C. Jithendar	1602-21-736-019
O.V. Jyothiradithya Nag	1602-21-736-057

In the Department of Mechanical Engineering, Vasavi College of Engineering (Autonomous) (affiliated to Osmania University), Hyderabad during the academic year 2024-25 in partial fulfillment for the award of Degree in Bachelor of Mechanical Engineering.



Mr. K. Srinivasa Rao

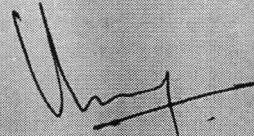
Project Guide

Department of

Mechanical Engineering

Associate Professor

Mechanical Engineering Dept.,
 Vasavi College of Engineering
 Hyderabad-500 031.



Dr. T. Ramamohan Rao

Professor & HOD

Department of

Mechanical Engineering

Dr T RAMAMOCHAN RAO
 Professor & HOD
 Dept. Of Mechanical Engg.
 Vasavi College of Engg.
 Ibrahimbagh Hyderabad-31

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
AFFILIATED TO OSMANIA UNIVERSITY
IBRAHIMBAGH, HYDERABAD

CERTIFICATE


This is to certify that the project report entitled “**Design and Fabrication of a Modified SCARA Manipulator using 3D printing**” is a bonafide record of a project work carried out by

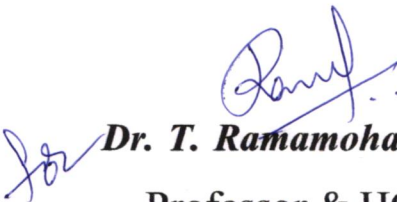
Samreeddhi Pani **1602-21-736-030**

Sri Karan Thati **1602-21-736-053**

Vinjamuri Jyothi Prateek **1602-21-736-313**

in the Department of Mechanical Engineering, Vasavi College of Engineering (Autonomous) (Affiliated to Osmania University), Hyderabad during the academic year 2023-24.


Dr. P. V. S. Subhashini
Project Guide


Dr. T. Ramamohan Rao
Professor & HOD

Dept. of Mechanical Engineering.

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
AFFILIATED TO OSMANIA UNIVERSITY
IBRAHIMBAGH, HYDERABAD

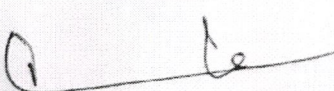
CERTIFICATE

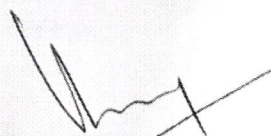
This is to certify that the project report entitled "*Design and Analysis of Sandwich Panels with Different Types of Core Structures for unmanned aerial vehicles*" is a bonafide record of a project carried out by

Pranavi Nyalapogula **1602-21-736-305**

Munigela Pranay Chandra **1602-21-736-309**

in the Department of Mechanical Engineering, Vasavi College of Engineering (Autonomous) (affiliated to Osmania University), Hyderabad during the academic year 2023-24 in partial fulfillment for the award of Degree in Bachelor of Mechanical Engineering.


Dr. CH V K N S N Moorthy
Professor
Associate Director R & D
Project Guide

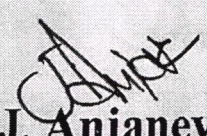

Dr. T. Ramamohan Rao
Professor & HOD
Dept. of Mech Engg
Vasavi College of Engineering
Dr T RAMAMOCHAN RAO
Professor & HOD
Dept. Of Mechanical Engg
Vasavi College of Engg
Ibrahimbagh Hyderabad-31

**VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
AFFILIATED TO OSMANIA UNIVERSITY
IBRAHIMBAGH, HYDERABAD
CERTIFICATE**

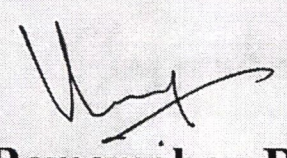
This is to certify that the project report entitled "**Modelling and Analysis of Scramjet Combustor**" is a Bonafide record of a project carried out by

Archana Vuppula	1602-21-736-006
Goli Daniel Mark	1602-21-736-011
Ramavath Harika	1602-21-736-016

in the Department of Mechanical Engineering, Vasavi College of Engineering (Autonomous) (affiliated to Osmania University), Hyderabad during the academic year 2021-25 in partial fulfillment for the award of Degree in Bachelor of Mechanical Engineering.


Dr. J. Anjaneyulu
Project Guide

Assistant Professor
MECHANICAL ENGINEERING
VASAVI COLLEGE OF ENGINEERING
IBRAHIMBAGH, HYDERABAD-31.


Dr. T. Ramamohan Rao
Professor & HOD

Dept. of Mechanical Engg
DR. RAMAMOHAN RAO
Professor & HOD
Dept. Of Mechanical Engg
Vasavi College of Engg
Ibrahimbagh, Hyderabad-31

Batch A-19



GOVERNMENT OF INDIA
RESEARCH CENTRE IMARAT
DRDO, Ministry of Defence
Vignyanakancha P.O
HYDERABAD - 500 069

Tel: 040 - 24306124/24307000

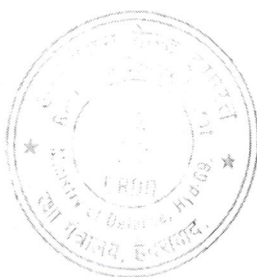
Fax: 040 - 24306626

RCI/DNS/PROJ/VCE/2025

23 April 2025

CERTIFICATE

This is to certify that **Mr. KHAJA MUBASHIR UDDIN (Roll No. 1602-21-736-022) B.E. VIII Semester in Mechanical Engineering** student from **Vasavi College of Engineering, Hyderabad** has successfully completed his Internship Training on "**Design & Analysis of Nose Cone Profiles for Aerospace Applications**" from January 2025 to April 2025 at **Directorate of Navigation System, Research Centre Imarat, DRDO, Ministry of Defence.** under the guidance of **Mr. Amit Kumar Chaurasiya, Scientist 'C'.** His performance was good and we wish him success for future endeavors.



(PASALAPUDI NVN RAO)
Sc 'G'
Head-PED, DNS/RCI

न वि एन राव पासलपुडी / NVN RAO PASALAPUDI
वैज्ञानिक 'जी' / Scientist 'G'
प्रधान पी ई डी / Head PED
Directorate of Navigation Systems (DNS)
Dr. A.P.J Abdul Kalam Missile Complex,
अनुसंधान केन्द्र इमारत / Research Centre Imarat
रक्षा मंत्रालय, हैदराबाद / Min. of Defence, Hyderabad-69.

DEPARTMENT OF MECHANICAL ENGINEERING
VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
(Affiliated to Osmania University, approved by AICTE and accredited by NBA)

CERTIFICATE

This is to certify that the project report entitled "EFFECT OF CO-FLOWING AIR STREAM ON SPRAY DRYING PROCESS" is a Bonafide record of a project work carried out by

Bharadwaj Aditya Singh ----- 1602-21-736-004

in the Department of Mechanical Engineering, Vasavi College of Engineering (Autonomous) (affiliated to Osmania University), Hyderabad during the academic year 2021 – 2025 in partial fulfilment for the award of Degree in Bachelor of Mechanical Engineering.



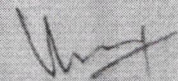
Signature of the Project Guide (Internal),

Dr. P.V.S. SUBHASHINI

Assistant Professor

Department of Mechanical Engineering

Assistant Professor
MECHANICAL ENGINEERING
VASAVI COLLEGE OF ENGINEERING
IBRAHIMBAGH, HYDERABAD-50.
31.



Signature of the Head of the Dept.

Dr. T. RAMAMOCHAN RAO

Professor & HOD

Department of Mechanical Engineering

Dr. T. RAMAMOCHAN RAO

Professor & HOD

Dept. Of Mechanical Engg.

Vasavi College of Engg.

Ibrahimbagh Hyderabad-50.
31.



राष्ट्रीय प्रौद्योगिकी संस्थान कलिकट
National Institute of Technology Calicut

एन आई टी कैम्पस (पी.ओ.), कलिकट, केरल 673601 भारत • NIT Campus (P.O.), Kozhikode, Kerala 673601, India

Phone
0495 2286100, 2286101
website
www.nitc.ac.in

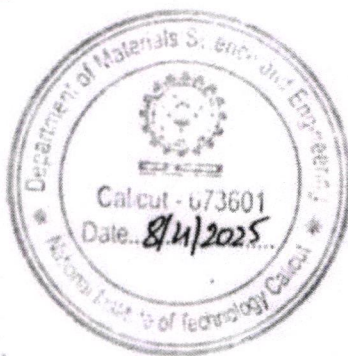
08/04/2025

TO WHOMSOEVER IT MAY CONCERN

This is to certify that Mr. Om Kadem has completed his internship in the Department of Materials Science and Engineering at the National Institute of Technology Calicut from February 1, 2025 to April 8, 2025 under the guidance of Dr. Aparna Zagabathuni.

He worked on a project titled 'Fabrication and Mechanical Characterization of High Surface Area Structures Using SLA 3D printer'. During his internship, he demonstrated good design skills and a self-motivated attitude. His enthusiasm for the project was evident in his willingness to learn and experiment with different approaches. He showed commendable dedication to his assigned project during the internship period.

We wish him all the best in his future endeavors.



Dr. Hanas J
(Head of the Department)
Dr. Hanas J

Head
Dept. of Materials Science and Engineering
National Institute of Technology Calicut
Calicut, Kerala - 673601


**VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
AFFILIATED TO OSMANIA UNIVERSITY
IBRAHIMBAGH, HYDERABAD**

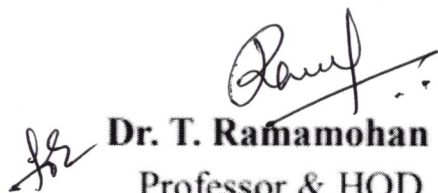
C E R T I F I C A T E

This is to certify that the project report entitled **CFD Analysis of Effect of ambient air temperature on spray drying process** is a Bonafide record of a project carried out by

V. SAI VYBHAV - - - 1602-21-736-042

in the Department of Mechanical Engineering, Vasavi College of Engineering (Autonomous) (affiliated to Osmania University), Hyderabad during the academic year 2024-25 in partial fulfilment for the award of Degree in Bachelor of Mechanical Engineering.


Dr. S. Venkataiah,
Associate Professor
Project Guide
(Internal)


Dr. T. Ramamohan Rao
Professor & HOD
Dept. of Mech Eng
Vasavi College of Engineering

**VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
AFFILIATED TO OSMANIA UNIVERSITY
IBRAHIMBAGH, HYDERABAD**

CERTIFICATE


This is to certify that the project report entitled “**Analysis of Various Greases by Performing Wear and Penetration Tests**” is a bonafide record of a project carried out by

Satvik Gorti

1602-21-736-048

in the Department of Mechanical Engineering, Vasavi College of Engineering (Autonomous) (affiliated to Osmania University), Hyderabad during the academic year 2021-25 in partial fulfillment for the award of Degree in Bachelor of Mechanical Engineering.


Dr. J. Anjaneyulu
Project Guide


Dr. T. Ramamohan Rao
Professor & HOD
Dept. of Mechanical Engg.
Dept. Of Mechanical Engg
Vasavi College of Engg
Ibrahimbagh, Hyderabad-31

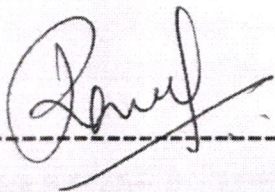
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IBRAHIMBAGH, HYDERABAD

CERTIFICATE

This is to certify that the project report entitled **“Thermal Management for Cockpit Lighting Optimization”** is a Bonafide record of a project carried out by

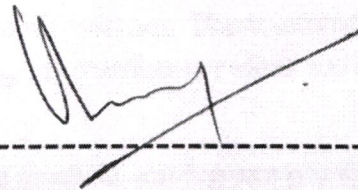
PITTALA MANOHHARR 1602-21-736-301

in the Department of Mechanical Engineering, Vasavi College of Engineering (Autonomous) (affiliated to Osmania University), Hyderabad during the academic year 2024-25 in partial fulfillment for the award of Degree in Bachelor of Mechanical Engineering.



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DEPARTMENT OF MECHANICAL ENGINEERING
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CERTIFICATE

This is to certify that the project report entitled "**Root Cause Analysis of Centrifugal Pump Vibrations**" is a Bonafide record of Major project work carried out by

Mullapudi Rahul Chakravarthy - - - 1602-21-736-303

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CERTIFICATE

This is to certify that the project report entitled "**PRELIMINARY STUDY OF ABRASIVE WATER JET MILLING FOR AEROSPACE MATERIAL**" is a bonafide record of a project carried out by

C SAM JOEL 1602-21-736-044

R SANDEEP NAYAK 1602-21-736-046

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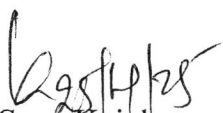
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This is to certify that the project report entitled **Design of Piping and Instrumentation Diagram (P&ID) Development for a Single Room in a Gas Pipeline Facility using SmartPlant P&ID (SPPID)** is a Bonafide record of a project carried out by

A. Varunn	1602-21-736-056
N. Yashwanth Sai	1602-21-736-062

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IBRAHIMBAGH, HYDERABAD**

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This is to certify that the project report entitled "**DESIGN, KINEMATIC ANALYSIS AND FABRICATION OF A LINEAR DELTA ROBOT**" is a Bonafide record of a project carried out by

K. ABHINAV YADAV --- 1602-21-736-063

S.Harshini --- 1602-21-736-075

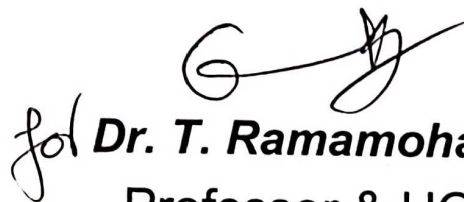
K.Meghana --- 1602-21-736-085

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K. Srinivasa Rao

Project Guide



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B-2

Batch-2

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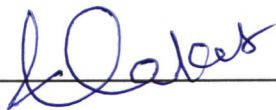
This is to certify that the project report entitled "Fabrication and experimental study of an earth pipe air heat exchanger using plain and baffled aluminum pipes" is a bonafide record of a project carried out by

VVS AKASH 1602-21-736-064

B. Anil Kumar 1602-21-736-068

Abhilash A wood 1602-21-736-069

in the Department of Mechanical Engineering, Vasavi College of Engineering (Autonomous) (affiliated to Osmania University), Hyderabad during the academic year 2024-25 in partial fulfillment for the award of Degree in Bachelor of Mechanical Engineering.



Mr. S. Venkateswarulu
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Dr. T. Ramamohan Rao
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AFFILIATED TO OSMANIA UNIVERSITY
IBRAHIMBAGH, HYDERABAD**

CERTIFICATE

This is to certify that the project report entitled “**Design and Fabrication of a 3 DOF Robot**” is a bonafide record of a project carried out by

I. ROHAN AARON - - - 1602-24-736-096

S. AKHIL - - - 1602-21-736-066

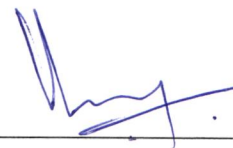
G. JEEVAN KUMAR - - - 1602-21-736-078

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Mr. K. Veladri

Project Guide



Dr. T. Ramamohan Rao

Professor & HOD

B-4

**VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
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IBRAHIMBAGH, HYDERABAD**

CERTIFICATE

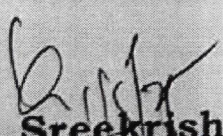
This is to certify that the project report entitled "**Design, Analysis and Fabrication of 360° Virtual Reality Chair**" is a bonafide record of a project carried out by

Chinthakunta Akshay Kumar --- 1602-21-736-067

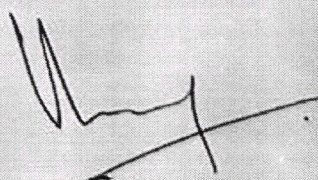
Kallem Lokesh Reddy --- 1602-21-736-080

Boddupally Harsha Vardhan --- 1602-21-736-322

in the Department of Mechanical Engineering, Vasavi College of Engineering (Autonomous) (affiliated to Osmania University), Hyderabad during the academic year 2021-25 in partial fulfillment for the award of Degree in Bachelor of Mechanical Engineering.


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DR. T. RAMAMOCHAN RAO
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Ibrahimbagh Hyderabad-31

Batch-5 B-5

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
AFFILIATED TO OSMANIA UNIVERSITY IBRAHIMBAGH,
HYDERABAD

CERTIFICATE

This is to certify that the project report entitled
"FABRICATION OF PIPE INSPECTION ROBOT" is a
bonafide record of a project carried out by

M. BHANU KUMAR	1602-21-736-000
V. PAVAN KUMAR	1602-21-736-000
K. RANADEEP	1602-21-736-004

In the Department of Mechanical Engineering, Vasavi College
of Engineering (Autonomous) (affiliated to Osmania
University), Hyderabad during the academic year 2024-25 in
partial fulfillment for the award of Degree in Bachelor of
Mechanical Engineering.


Mr. M. VENUGOPAL REDDY

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Assistant Professor
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Dr. T. RAMMOHAN RAO

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Ibrahimbagh, Hyderabad-31.

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This is to certify that the project report entitled "**Prediction of Wear Rate of Aluminium 8011 Alloy reinforced with Silicon Nitride using Random Forest Algorithm**" is a Bonafide record of a project carried out by

V. Dayanand	--- 1602-21-736-072
P.V.R. Swaroop Thrushna	--- 1602-21-736-089
P. Sathwik	--- 1602-21-736-108

in the Department of Mechanical Engineering, Vasavi College of Engineering (Autonomous) (affiliated to Osmania University), Hyderabad during the academic year 2024-25 in partial fulfillment for the award of Degree in Bachelor of Mechanical Engineering.


Mr. J. Kantha Rao

Project Guide


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Dept. Of Mechanical Engg.
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Ibrahimbagh, Hyderabad-31.

Batch -07

B-7

**VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
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This is to certify that the project report entitled "***Comparison between a commercial 3D printer and a custom assembled 3D printer***" is a bonafide record of a project carried out by

Jarapala Ganesh	--- 1602-21-736-073
P Sai Surya Krishna Teja	--- 1602-21-736-102
Mohammad Sameer	--- 1602-21-736-316

in the Department of Mechanical Engineering, Vasavi College of Engineering (Autonomous) (affiliated to Osmania University), Hyderabad during the academic year 2021-25 in partial fulfillment for the award of Degree in Bachelor of Mechanical Engineering.



Dr. T Ramamohan Rao
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Dr. T Ramamohan Rao
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Dr T RAMAMOHAN RAO
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NAAC)



CERTIFICATE

This is to certify that the work in this dissertation entitled "**High Strain Rate Impact Loading Analysis on Various Materials using SHPB**" submitted by **P. HARISHWAR REDDY** bearing Roll no **1602-21-736-074**, **MANAV AGARWAL** bearing Roll no **1602-21-736-083** and **K. DEEKSHITH VARMA** bearing Roll no **1602-21-736-320** have been read and approved for meeting during part of the requirements and regulations governing the award the degree of **Bachelors of Engineering** in Mechanical Engineering during academic year 2024-25 in the Department of Mechanical Engineering, Vasavi College of Engineering.

The work done in this dissertation has not been submitted to any other University/Institute for the award of any degree or diploma.

Date: 1/5/25

.....
Signature of the Supervisor,

Dr. V.B.S. RAJENDRA PRASAD
Associate Professor,

Department of Mechanical Engineering

Date: 1/5/25

.....
Signature of the Head of the Dept.

Dr. T. RAMAMOCHAN RAO
Professor & HOD,
Department of Mechanical Engineering

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CERTIFICATE

This is to certify that the project report entitled "*ANALYSIS OF AUTOMOBILE RADIATOR USING WATER, WATER-ETHYLENE GLYCOL MIXTURE AND NANOFLUIDS*" is a bonafide record of a project carried out by

BANOTH JAILSINGH	--- 1602-21-736-077
BANOTHU RAJESH	--- 1602-21-736-093
MITTAPALLI SAI RADEEP	--- 1602-21-736-100

in the Department of Mechanical Engineering, Vasavi College of Engineering (Autonomous) (affiliated to Osmania University), Hyderabad during the academic year 2024-25 in partial fulfillment for the award of Degree in Bachelor of Mechanical Engineering.


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ASSOCIATE PROFESSOR

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A-Kirthan 1602-21-736-079
T-Rohan 1602-21-736-097 | Batch B-10
mechanical-B

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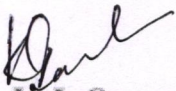
CERTIFICATE

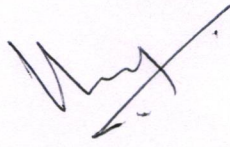
This is to certify that the project report entitled
**"Design and Development of an Immersive
Virtual Reality Chair"** is a Bonafide record of a
project carried out by

Kirthan Ashtekar 1602-21-736-079

Tadem Rohan 1602-21-736-097

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College of Engineering (Autonomous) (affiliated to
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CERTIFICATE

This is to certify that the project report entitled
**"DEVELOPMENT OF PCM AND STF BASED STRUCTURES FOR
BALLISTIC APPLICATIONS"** is a bonafide record of a project
carried out by

Vedika Takalkar- - - 1602-21-736-098

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B-12 - MECH-B
K. Tushar - 103
B. Sandeep - 104
G. Deepika - 319

DEPARTMENT OF MECHANICAL ENGINEERING
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HYDERABAD

MAY - 2025

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IBRAHIMBAGH, HYDERABAD

CERTIFICATE

This is to certify that the project report entitled "FABRICATION AND IDENTIFICATION OF MECHANICAL PROPERTIES OF ALUMINIUM 8011 METAL MATRIX COMPOSITE REINFORCED WITH SILICON NITRIDE" is a bonafide record of a project carried out by

K. SAI VENKAT TUSHAR

--- 1602-21-736-103


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G. DEEPIKA

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Mr. B. Sandeep

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Dr. T. Ramamohan Rao

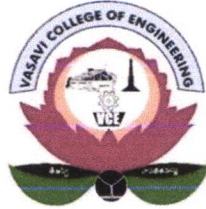
Professor & HOD
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III

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**DEPARTMENT OF MECHANICAL ENGINEERING VASAVI
COLLEGE OF ENGINEERING (AUTONOMOUS)**

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CERTIFICATE

This is to certify that the project report entitled "**STRENGTHENING OF EPOXY COATINGS USING GRAPHENE NANOPATELETS**" is a Bonafide record of a project carried out by

SANKALP.A.G	--- 1602-21-736-105
K. SASHANK	--- 1602-21-736-107
B. SHYAM SUNDAR	--- 1602-21-736-110

in the Department of Mechanical Engineering, Vasavi College of Engineering (Autonomous) (affiliated to Osmania University), Hyderabad during the academic year 2024-25 in partial fulfillment for the award of Degree in Bachelor of Mechanical Engineering.

Date: 02/05/25

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Signature of the Supervisor
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Date:

.....

Signature of the Head of the Dept.
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This is to certify that the project report entitled
"**Fabrication of Pedal Operated Forklift**" is a bonafide
record of a project carried out by

Chepuri Sindhuja	--- 1602-21-736-111
Bolgam Suryagoud	--- 1602-21-736-112
Akula Tharun	--- 1602-21-736-314

in the Department of Mechanical Engineering, Vasavi
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Mr. D Govinda Rao

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IBRAHIMBAGH, HYDERABAD**

CERTIFICATE

This is to certify that the project report entitled "Hand Gesture and Voice-Controlled Wheelchair" is a bonafide record of a project carried out by

Malagam Tanuj	--- 1602-21-736-113
Lalappa Shivanand	--- 1602-21-736-315
Mangi Tharun	--- 1602-21-736-323

in the Department of Mechanical Engineering, Vasavi College of Engineering (Autonomous) (affiliated to Osmania University), Hyderabad during the academic year 2024-25 in partial fulfillment for the award of Degree in Bachelor of Mechanical Engineering.



Dr. CH V K N S N Moorthy

Professor
Associate Director R & D
Project Guide



Dr. T. Ramamohan Rao

Professor & HOD
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CERTIFICATE


This is to certify that the project report entitled "**DESIGN, KINEMATIC ANALYSIS AND FABRICATION OF A TRIPTERON ROBOT**" is a Bonafide record of a project carried out by


Y. VARUN --- 1602-20-736-115

K. VINEET KUMAR --- 1602-21-736-116

B.S.S.D ABHISHEK --- 1602-21-736-117

in the Department of Mechanical Engineering, Vasavi College of Engineering (Autonomous) (affiliated to Osmania University), Hyderabad during the academic year 2024-25 in partial fulfillment for the award of Degree in Bachelor of Mechanical Engineering.


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This is to certify that the project report entitled
" **Power generation using speed breaker and solar** "
is a bonafide record of a project carried out by

D.Rajashekhar	--- 1602-20-736-092
S.M.Rohan	--- 1602-21-736-317
Ch.Aravind	--- 1602-21-736-318

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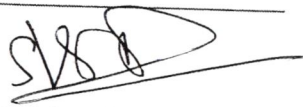
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IBRAHIMBAGH, HYDERABAD**

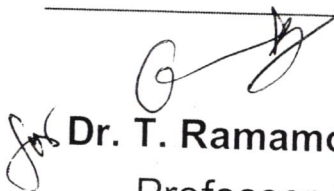
CERTIFICATE

This is to certify that the project report entitled "**Design and analysis of impeller and volute casing of a centrifugal pump**" is a bonafide record of a project carried out by

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TO OSMANIA UNIVERSITY IBRAHIMBAGH, HYDERABAD

CERTIFICATE

This is to certify that the Theme Based project report entitled "**ORTHOGONAL
PROJECTION KIT USING ROBOTIC ARM – A TEACHING AID**" is a Bonafide record
of a Theme Based project carried out by

Paladi Aravind Kumar 1602-22-736-003

V. Durga Vilas Goud 1602-22-736-008

Mote Karnaji 1602-22-736-014

in the Department of Mechanical Engineering, Vasavi College of
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during the academic year 2024-25 in partial fulfillment for the award of
Degree in Bachelor of Mechanical Engineering.

 **Dr. M. V. Gayatri**

Asst. Professor

Theme based Project Guide

 **Dr. T. Ramamohan Rao**

Professor & HOD

Dept. of Mechanical Engg

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VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
AFFILIATED TO OSMANIA UNIVERSITY
IBRAHIMBAGH, HYDERABAD

CERTIFICATE

This is to certify that the Theme based project report entitled "**An IoT-Based Intelligent Helmet for Enhanced Rider Protection**" is a bonafide record of a Theme based project work carried out by

Anhik Arya Prakash - - - 1602-22-736-005

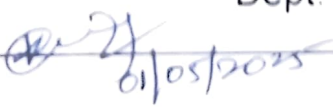
Ronny Jose - - - 1602-22-736-010

Mohammad Junaid - - - 1602-22-736-019

in the Department of Mechanical Engineering, Vasavi College of Engineering (Autonomous) (Affiliated to Osmania University), Hyderabad during the academic year 2024-25.


Dr. J. Anjaneyulu
Project Guide


Dr. T. Ramamohan Rao
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VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)

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HYDERABAD

April 2025

This is to certify that the Theme based project report entitled
"DESIGN AND FABRICATION OF AN AUTOMATED MINI HACKSAW"
is a bona fide record of a Theme based project work carried
out by

N Hanmanthu 1602-22-736-011

M Bhanu prasad 1602-22-736-006

M Ganesh 1602-22-736-009

In the department of mechanical engineering, Vasavi
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year 2025


Mr. K VELADRI

Associate Professor


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Dr. T. Ramamohan Rao

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EXTERNAL:-
EXAMINER


01/05/2025

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
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CERTIFICATE

This is to certify that the Theme based project report entitled "**MULTITASKING ROBOT FOR AGRICULTURE PURPOSE**" is a Bonafide record of a Theme based project work carried out by

K. Karthik Yadav	1602-22-736-015
J. Pranav Sai	1602-22-736-021
K. Arun Kumar	1602-22-736-004

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Mr. K. Srinivasa Rao
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This is to certify that the Theme based project report entitled
"**SELF-BALANCING ROBOT USING MEMS**" is a Bonafide record
of a Theme based project work carried out by

Bake Anish Kumar - - - 1602-22-736-002
Durgam Prashanth - - - 1602-22-736-022
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IBRAHIMBAGH, HYDERABAD

CERTIFICATE

This is to certify that the Theme based project report entitled "***Fabrication of mini cooler using thermoelectric cell***" is a bonafide record of a Theme based project work carried out by

C Srikar

--- 1602-22-736-001

A Harshavardhan reddy

--- 1602-22-736-013

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M. Venugopal Reddy

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20/10/2024



VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)

Affiliated to Osmania University

Ibrahimbagh, Hyderabad, Telangana-500031

Certificate of Appreciation

This is to certify that Theme based project report entitled "**IoT Based Food Monitoring System**" is a bonofied copy of Theme based project work carried ou by

T. Sahithya (1602-22-736-026)

K. Rushik (1602-22-736-025)

J. Shirisha (1602-22-736-028)

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Kodubs
Mr. Sree Krishna

Project Guide,
Assistant Professor, MED

Dr. T. Rama Mohan Rao
Professor & HOD, MED

Dr. Y 01/05/2025

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IBRAHIMBAGH, HYDERABAD

CERTIFICATE

This is to certify that the Theme based project report entitled "**Arduino-Powered Gas Leak Detection with Automatic Regulator Control and SMS Notification**" is a bonafide record of a Theme based project work carried out by

Roushan	1602-22-736-027
Nitesh Reddy	1602-21-736-029
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Mr. B. Sandeep
Project Guide



Dr. T. Ramamohan Rao
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01/05/2025

THEME BASED PROJECT REPORT ON

Smart Hydration System for Urban Green Spaces

Submitted by: _____

A. Someshwara Kartheek	1602-22-736-029
S. Sushmitha Chouhan	1602-22-736-031
B. Reethika Varma	1602-22-736-033

IN PARTIAL FULFILLMENT FOR THE AWARD OF THE DEGREE
OF BACHELOR OF ENGINEERING IN
MECHANICAL ENGINEERING

Under Guidance Of

Dr. P. V. S. Subhashini
Assistant Professor



DEPARTMENT OF MECHANICAL ENGINEERING

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)

**AFFILIATED TO OSMANIA UNIVERSITY
HYDERABAD**

April 2025


VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
AFFILIATED TO OSMANIA UNIVERSITY
IBRAHIMBAGH, HYDERABAD


CERTIFICATE

This is to certify that the Theme based project report entitled "FIRE FIGHTING ROBOT" is a Bonafide record of a Theme based project work carried out by

CH. VARUN SAI --- 1602-22-736-034
A. RAMAKRISHNA --- 1602-22-736-301
N. SRIRAM --- 1602-22-736-302

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Dr. T. Ramamohan Rao
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HYDERABAD

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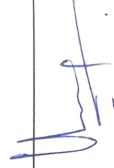
This is to certify that the project report entitled “WIRELESS
ROUGH TERRAIN ROCKER-BOGIE VEHICLE ” is a bonafide record
of a project carried out by

MANDULA VISHWESHWAR ADITHYA 1602-22-736-303
MEDURI GOUTHAM 1602-22-736-314
MATAM GUNASHEKAR 1602-22-736-319

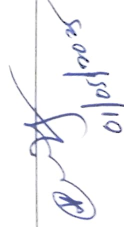
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partial fulfillment for the award of Degree in Bachelor of
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Dr. K. KISHORE
Theme-based project
guide



Dr. T. Ramamohan Rao
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VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
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CERTIFICATE

This is to certify that the Theme based project report entitled
“METAL DETECTING ROBOT” is a bonafide record of a
Theme based project work carried out by

K.SOWMYA - - - 1602-22-736-312
C.RISHITHA - - - 1602-22-736-306
S.ROHAN - - - 1602-22-736-305


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Dr.J.Anjaneyulu
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IBRAHIMBAGH, HYDERABAD

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This is to certify that the Theme based project report entitled "*Automatic Fertilizer Spraying Robot*" is a bonafide record of a Theme based project work carried out by

K Vidya	-	1602-22-736-307
G Subhash Reddy	-	1602-22-736-311
V Sumanth	-	1602-22-736-313

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AFFILIATED TO OSMANIA UNIVERSITY
IBRAHIMBAGH, HYDERABAD


CERTIFICATE

This is to certify that the Theme based project report entitled "Android Bluetooth Smart phone controlled wheel chair" is a bonafide record of a Theme based project work carried out by

B. Harshavardhan 1602-22-736-317
T. Krishna Prasad 1602-22-736-315
R. Sai Karthik 1602-22-736-308

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AFFILIATED TO OSMANIA UNIVERSITY
IBRAHIMBAGH, HYDERABAD

CERTIFICATE

This is to certify that the Theme based project report
entitled "Automatic Water filler with sensor through
Geneva mechanism" is a bonafide record of a Theme
based project work carried out by

B.KIRAN KUMAR 1602-22-736-309
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RITESH JADAV 1602-22-736-320

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Dr. K. KISHORE PROFESSOR
& **DIRECTOR (T&P)**
Project guide



Dr. T. RAMAMOCHAN RAO
Professor & HOD
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VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
AFFILIATED TO OSMANIA UNIVERSITY
IBRAHIMBAGH, HYDERABAD

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This is to certify that the Theme based project report entitled
"REMOTE CONTROLLED ENVIRONMENT
TRACKING ROBOT" is a Bonafide record of a Theme
based project work carried out by

CH. SWATHI - - - 1602-22-736-304

G. RAHUL - - - 1602-22-736-310

B. HARSHINI - - - 1602-22-736-316

in the Department of Mechanical Engineering, Vasavi
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B. N. Manohar
Mr. B. Naga Manohar
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Dr. T. Ramamohan Rao
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B. N. Manohar
01/05/2025


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AFFILIATED TO OSMANIA UNIVERSITY
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CERTIFICATE

This is to certify that the Theme based project report entitled "Solar Powered Automated Grass Cutter" is a bonafide record of a Theme based project work carried out by

Uzair Ahmed	--- 1602-22-736-035
Sai Pavan	--- 1602-22-736-024
Raghavendra	--- 1602-22-736-023

in the Department of Mechanical Engineering, Vasavi College of Engineering (Autonomous) (Affiliated to Osmania University), Hyderabad during the academic year 2024-25.


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Mr. B .Sandeep
Project Guide

Dr. T. Ramamohan Rao
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AFFILIATED TO OSMANIA UNIVERSITY
IBRAHIMBAGH, HYDERABAD.

CERTIFICATE

This is to certify that the theme-based project report entitled "**Designing and Development of Automatic Whiteboard Cleaning System**" is a Bonafide record of a mini project work carried out by,

RAMAVATH THARUN	1602-22-736-325
J MATTHEW RAJ	1602-22-736-332
K ANSHIKA YADAV	1602-22-736-338

in the Department of Mechanical Engineering, Vasavi college of engineering (Autonomous)
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Mr. K Srinivasa Rao

(Associate professor)

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External Examiner



Dr. T. Ram Mohan Rao

Professor &HOD

Dept. Of Mechanical Eng.

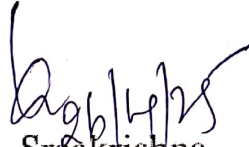
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AFFILIATED TO OSMANIA UNIVERSITY,
IBRAHIMBAGH, HYDERABAD (500031).**

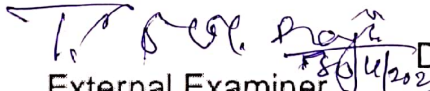
CERTIFICATE


**This is to certify that the report entitled “Design and Fabrication of
HydroBot” is a bonafide record of a Theme based project work
carried out by**

P ASHISH	-1602-22-736-322
Y SIDDARTHA REDDY	-1602-22-736-323
M PRAVEEN KUMAR	-1602-22-736-340

**In the
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During the academic year
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Mr. S. Sreekrishna
Assistant Professor
Project Guide


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Dr. T. RAMAMOHAN RAO
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IBRAHIMBAGH, HYDERABAD

CERTIFICATE

This is to certify that the Theme based project report entitled “Fabrication of Collision Avoiding Self Navigating Robot” is a bonafide record of a Theme based project work carried out by

MD. Wasif (1602-22-736-324)

B. Manaswitha (1602-22-736-326)

K. Varun Kumar (1602-22-736-329)

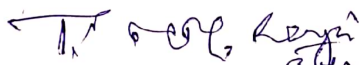
in the Department of Mechanical Engineering, Vasavi College of Engineering (Autonomous) (Affiliated to Osmania University), Hyderabad during the academic year 2024-25.



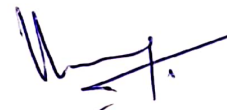
Dr. P.V.S. Subhashini

Assistant Professor.

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Dr. T. Ramamohan Rao

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This is to certify that the Theme based project report entitled
“FABRICATON OF BALL MIXER FOR POWDER BLENDING” is a
bonafide record of a Theme based project work carried out by

K. Sathyasheela Reddy (1602-22-736-337)

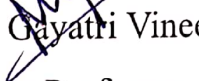
T. Tharun (1602-22-736-341)

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Department of Mechanical Engineering


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(Affiliated to Osmania University), Hyderabad during the academic year
2024-25


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Page

CERTIFICATE

This is to certify that the theme-based project report entitled "**Design and Fabrication of Wi-Fi Controlled Car**" is a Bonafide record of a mini project work carried out by,

CH DIVYA TEJA	1602-22-736-327
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V KARTHIK REDDY	1602-22-736-334

in the Department of Mechanical Engineering, Vasavi college of engineering (Autonomous)
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Mr. K Veladri

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IBRAHIMBAGH, HYDERABAD

CERTIFICATE

This is to certify that the Theme based project report entitled “ SOLAR WATER PURIFIER INTEGRATED WITH EMBEDDED C AND MACHINE LEARNING ” is a bonafide record of a Theme based project work carried out by

P. Aravind Goud (1602-22-736-321)

K. Dhanush (1602-22-736-330)

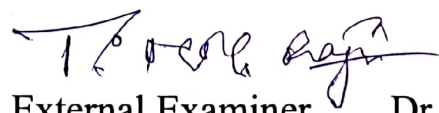
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Mr. S. Sreekrishna

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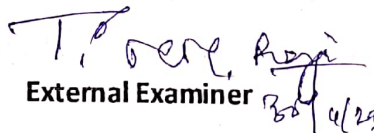
CERTIFICATE


This is to certify that the Theme-based project report entitled “**Design and Fabrication of Driver Nap Detection System**” is carried out by,

M KARTHIK - 1602-22-736-051
KRISHNA PATEL - 1602-22-736-054
V MAHENDRA NADH - 1602-22-736-057

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Mr. Venu Gopal Reddy
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External Examiner


Dr. T. Ram Mohan Rao
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IBRAHIMBAGH, HYDERABAD**

CERTIFICATE

This is to certify that the Theme based project report entitled "**FABRICATION OF PELTIER REFRIGERATION UNIT**" is a bonafide record of a Theme based project work carried out by

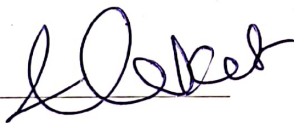
BHERI GIRIDHAR KARTIKEYA ----1602-22-736-046

G BHAVANI CHAUHAN ----1602-22-736-044

A KIRANMAYEE----1602-22-736-040

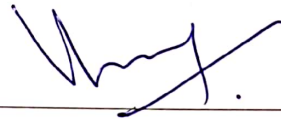
Y MADHURI ----1602-22-736-056

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Mr. SUDA VENKATESWARULU

Project Guide



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Professor & HOD
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T. Ramamohan Rao
20/04/2025

VASAVI COLLEGE OF
ENGINEERING(AUTONOMOUS) AFFILIATED TO
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HYDERABAD.

CERTIFICATE


This is to certify that the mini project report entitled
"Fabrication of solar powered air cooler" is a Bonafide
record of a mini project work carried out by,

1.Mohammad Anas Ahmed-1602-22-736-059

2.B. Jagadesh-1602-22-73-6-048

3.R. Anji-1602-22-736-041

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Mr. Venu Gopal Reddy
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Certificate

This is to certify that Theme based project report entitled
"2-D Mini plotter Machine" is a bonofied copy of Theme
based project work carried ou by

Hemanth Gupta(1602-22-736-047)
Naveen kasoju (1602-22-736-061)
Kennith Akkiligunta(1602-22-736-052)
Aravind Banothu(1602-22-736-042)

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Dr. P.V.S. Subhashini
Project Guide,
Assistant Professor, MED


Dr. T. Rama Mohan Rao
Professor & HOD, MED

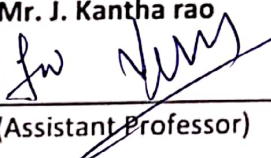
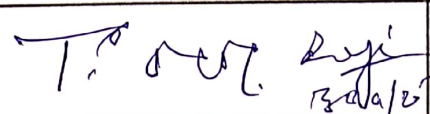
CERTIFICATE

This is to certify that the theme-based project report entitled "Design & fabrication of hydraulic jack" is a Bonafide record of a mini project work

carried out by,

AKSA KEESARI	1602-22-736-039
KOTESHWAR RAO	1602-22-736-053
LAKSHMI NARAYANA	1602-22-736-055
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It gives us immense pleasure to express our heartfelt gratitude and appreciation to all those who have contributed to the successful completion of our theme based project titled "design & fabrication of mini hydraulic jack".


ACKNOWLEDGMENT CERTIFICATE



This is to certify that the Mini project report entitled "Fabrication of an FDM Based 3d Printer Prototype" is a bonafide record of a Theme Based project work carried out by

We are thankful P. Jyothi Bindu (1602-22-736-050) College of Engineering, for
permitting us to M. Pavan (1602-22-736-062) highly grateful to Dr. T
Ram Mohan Rao for his kind support and for
permitting us to K. Mani Pavan Teja (1602-22-736-058)

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This is to certify that the Theme Based Project report entitled
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Bi-Axial Mechanism For Steering Systems”**
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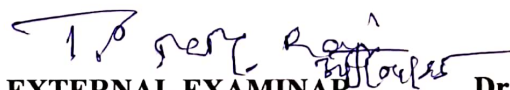
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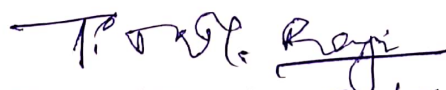
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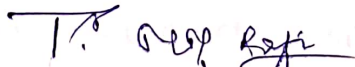
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This is to certify that the theme-based project report entitled **“FABRICATION OF FOOT STEP POWER GENERATION BY USING RACK AND PINION MECHANISM”** is a Bonafide record of a mini project work carried out by,

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