

Project ID: 23-24/ME/M3

Project Report
On

**DEVELOPMENT AND IMPLEMENTATION OF SOLAR POWERED WATER
PURIFICATION SYSTEM ALONG WITH PISTIA STRATITOEES FOR THE
TANNING INDUSTRY**

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

BACHELOR OF TECHNOLOGY

In

MECHANICAL ENGINEERING

by

**JATIN SINGH (2000270400048)
BHUPENDRA SINGH (2000270400031)
HARSHIT KUMAR (2000270400043)
ARYAN SINGH (2000270400024)
AYUSH SHARMA (2000270400029)**

Under the supervision
of

Dr. Pallab Biswas
Head of Department, Mechanical engineering
Dr. Suman Gothwal
Assistant Professor
Department of Mechanical Engineering



AJAY KUMAR GARG ENGINEERING COLLEGE GHAZIABAD
27th Km. Stone, NH-24, Delhi-Hapur Bypass Road, Adhyatmik Nagar, Ghaziabad- 201009

DR. A. P. J. ABDUL KALAM TECHNICAL UNIVERSITY LUCKNOW
Year: 2023 – 2024


Director
Ajay Kumar Garg Engg. College
Ghaziabad





AKGEC

AJAY KUMAR GARG ENGINEERING COLLEGE GHAZIABAD

CANDIDATES' DECLARATION

We hereby declare that the work being presented in the report entitled "**Development And Implementation Of Solar Powered Water Purification System Along With Pistia Stratiotes For The Tanning Industry**" submitted to Ajay Kumar Garg Engineering College, Ghaziabad, in partial fulfillment of the requirements for the award of the degree of Bachelor of Technology in Mechanical Engineering of Dr. A. P. J. Abdul Kalam Technical University, Lucknow, is an authentic record of our own work carried out during a period from July, 2022 to May, 2023 under the supervision of **Dr. Pallab Biswas** HEAD OF DEPARTMENT, Department of Mechanical Engineering and **Dr. Suman Gothwal**, Asst. Professor, Department of Mechanical Engineering. The matter presented in this report has not been submitted to any other university or institution for the award of any degree to the best of my knowledge.

Jatin Singh

JATIN SINGH
(2000270400048)

Bhupendra Singh.

BHUPENDRA SINGH
(2000270400031)

Harshit Kumar

HARSHIT KUMAR
(2000270400043)

Aryan Singh

ARYAN SINGH
(2000270400024)

Ayush Sharma

AYUSH SHARMA
(2000270400029)

i

AKG
Director
Ajay Kumar Garg Engg. College
Ghaziabad





**AJAY KUMAR GARG ENGINEERING COLLEGE
GHAZIABAD**

CERTIFICATE

This is to certify that the project report entitled “**Development And Implementation Of Solar Powered Water Purification System Along With Pistia Stratiotes For The Tanning Industry**” submitted to **Ajay Kumar Garg Engineering College, Ghaziabad**, in partial fulfillment of the requirements for the award of the degree of **Bachelor of Technology in Mechanical Engineering** of **Dr. A. P. J. Abdul Kalam Technical University, Lucknow**, is bona fide record of work submitted by **Jatin Singh (2000270400048)**, **Bhupendra Singh (2000270400031)**, **Harshit Kumar (2000270400043)**, **Aryan Singh (2000270400024)**, **Ayush Sharma (2000270400029)** under my supervision. The matter presented in this report has not been submitted to any other university or institution for the award of any degree to the best of my knowledge.

Dr. Pallab Biswas
HoD
Department of Mechanical
AKGEC, Ghaziabad

Dr. Suman Gothwal
Assistant Professor
Department of Mechanical
AKGEC, Ghaziabad

Project ID : 23-24/ME/M7

Project Report
On

ELECTROMAGNETIC BRAKING SYSTEM

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

BACHELOR OF TECHNOLOGY

In

MECHANICAL ENGINEERING

by

**RITESH KUMAR YADAV (2000270400074)
ADITYA MISHRA (2000270400006)
SAURABH SHUKLA (2000270400081)
ANURAG SENGAR (2000270400021)**

Under the supervision
of

Ms. Akriti Gupta

Assistant Professor

Department of Mechanical Engineering

Mr. Vivek Kumar Pansari

Assistant Professor

Department of Mechanical Engineering



AJAY KUMAR GARG ENGINEERING COLLEGE GHAZIABAD
27th Km. Stone, NH-24, Delhi-Hapur Bypass Road, Adhyatmik Nagar, Ghaziabad- 201009

DR. A. P. J. ABDUL KALAM TECHNICAL UNIVERSITY LUCKNOW

Year: 2023 – 2024


Director
Ajay Kumar Garg Engg. College
Ghaziabad



AJAY KUMAR GARG ENGINEERING COLLEGE GHAZIABAD

CANDIDATE'S DECLARATION

We hereby declare that the work being presented in the report entitled "**ELECTROMAGNETIC BRAKING SYSTEM**" submitted to Ajay Kumar Garg Engineering College, Ghaziabad, in partial fulfillment of the requirements for the award of the degree of Bachelor of Technology in Mechanical Engineering of Dr. A. P. J. Abdul Kalam Technical University, Lucknow, is an authentic record of our own work carried out during a period from September, 2023 to May, 2024 under the supervision of **Ms. Akriti Gupta** Asst. Professor, Department of Mechanical Engineering and **Mr. Vivek Kumar Pansari**, Asst. Professor, Department of Mechanical Engineering. The matter presented in this report has not been submitted to any other university or institution for the award of any degree to the best of my knowledge.

Ritesh K Yadav
RITESH KUMAR YADAV
(2000270400074)

Aditya Mishra
ADITYA MISHRA
(2000270400006)

Saurabh
SAURABH SHUKLA
(2000270400081)

Anurag Sengar
ANURAG SENGAR
(2000270400021)

A. K. G.
Director
Ajay Kumar Garg Engg. College
Ghaziabad



AJAY KUMAR GARG ENGINEERING COLLEGE GHAZIABAD

CERTIFICATE

This is to certify that the project report entitled "ELECTROMAGNETIC BRAKING SYSTEM" submitted to Ajay Kumar Garg Engineering College, Ghaziabad, in partial fulfillment of the requirements for the award of the degree of Bachelor of Technology in Mechanical Engineering of Dr. A. P. J. Abdul Kalam Technical University, Lucknow, is bona fide record of work submitted by RITESH KUMAR YADAV (2000270400074), ADITYA MISHRA (2000270400006), SAURABH SHUKLA (2000270400081), ANURAG SENGAR (2000270400021), under my supervision. The matter presented in this report has not been submitted to any other university or institution for the award of any degree to the best of my knowledge.

Ms. Akriti Gupta
Assistant Professor
Department of Mechanical
AKGEC, Ghaziabad

Dr. Pallab Biswas
Prof. & Head
Department of Mechanical
AKGEC, Ghaziabad

Mr. Vivek Kumar Pansari
Assistant Professor
Department of Mechanical
AKGEC, Ghaziabad

Director
Ajay Kumar Garg Engg. College
Ghaziabad

Project Report
on

**MATHEMATICAL MODELING AND DESIGN SIMULATION
OF MAGNETORHEOLOGICAL FINISHING SETUP**

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

BACHELOR OF TECHNOLOGY

In

MECHANICAL ENGINEERING

by

**ASHISH JAISWAL (2000270400027)
DEEPAK KUMAR (2000270400035)
MADHUSUDAN YADAV (2000270400050)
ABHINAV BAJPAI (2000270400002)**

Under the supervision
of

Mr. ABHISHEK GUPTA
Assistant Professor
Department of Mechanical Engineering
&
Dr. VISHWAS GROVER
Assistant Professor
Department of Mechanical Engineering



AJAY KUMAR GARG ENGINEERING COLLEGE, GHAZIABAD
27th Km. Stone, NH-24, Delhi-Hapur Bypass Road, Adhyatmik Nagar, Ghaziabad- 201009

DR. A. P. J. ABDUL KALAM TECHNICAL UNIVERSITY, LUCKNOW
Year: 2023 – 2024


Director
Ajay Kumar Garg Engg. College
Ghaziabad





AJAY KUMAR GARG ENGINEERING COLLEGE GHAZIABAD

CANDIDATE'S DECLARATION

We hereby declare that the work being presented in the report entitled "MATHEMATICAL MODELING AND DESIGN SIMULATION OF MAGNETORHEOLOGICAL FINISHING SETUP" submitted to Ajay Kumar Garg Engineering College, Ghaziabad, in partial fulfillment of the requirements for the award of the degree of Bachelor of Technology in Mechanical Engineering of Dr. A. P. J. Abdul Kalam Technical University, Lucknow, is an authentic record of our ownwork carried out during a period from July, 2023 to May, 2024 under the supervision of Mr. Abhishek Gupta, Assistant Professor, Department of Mechanical Engineering & Dr. Vishwas Grover, Assistant Professor, Department of Mechanical Engineering. The matter presented in this report has not been submitted to any other university or institution for the award of any degree to the best of my knowledge.

Ashish Jaiswal

ASHISH JAISWAL
(2000270400027)

Deepak Kumar

DEEPAK KUMAR
(2000270400035)

Madhusudan Yadav

MADHUSUDAN YADAV
(2000270400050)

Abhinav Bajpai

ABHINAV BAJPAI
(2000270400002)

A. G.
Director
Ajay Kumar Garg Engg. College
Ghaziabad





**AJAY KUMAR GARG ENGINEERING COLLEGE
GHAZIABAD**

CERTIFICATE

This is to certify that the project report entitled "MATHEMATICAL MODELING AND DESIGN SIMULATION OF MAGNETORHEOLOGICAL FINISHING SETUP" submitted to Ajay Kumar Garg Engineering College, Ghaziabad, in partial fulfillment of the requirements for the award of the degree of Bachelor of Technology in Mechanical Engineering of Dr. A. P. J. Abdul Kalam Technical University, Lucknow, is bona fide record of work submitted by Ashish Jaiswal (2000270400027), Deepak Kumar (2000270400035), Madhusudan Yadav (2000270400050) and Abhinav Bajpai (2000270400002) under my supervision. The matter presented in this report has not been submitted to any other university or institution for the award of any degree to the best of my knowledge.

Mr. Abhishek Gupta
Guide
Assistant Professor
Department of Mechanical Engineering
AKGEC, Ghaziabad

Prof. Pallab Biswas
Prof & Head
Department of Mechanical Engineering
AKGEC, Ghaziabad

Dr. Vishwas Grover
Co-Guide
Assistant Professor
Department of Mechanical Engineering
AKGEC, Ghaziabad

Project Report
on

**MATHEMATICAL MODELING AND DESIGN SIMULATION
OF MAGNETORHEOLOGICAL FINISHING SETUP**

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

BACHELOR OF TECHNOLOGY

In

MECHANICAL ENGINEERING

by

**ASHISH JAISWAL (2000270400027)
DEEPAK KUMAR (2000270400035)
MADHUSUDAN YADAV (2000270400050)
ABHINAV BAJPAI (2000270400002)**

Under the supervision
of

Mr. ABHISHEK GUPTA
Assistant Professor
Department of Mechanical Engineering
&
Dr. VISHWAS GROVER
Assistant Professor
Department of Mechanical Engineering



AJAY KUMAR GARG ENGINEERING COLLEGE, GHAZIABAD
27th Km. Stone, NH-24, Delhi-Hapur Bypass Road, Adhyatmik Nagar, Ghaziabad- 201009

DR. A. P. J. ABDUL KALAM TECHNICAL UNIVERSITY LUCKNOW
Year: 2023 – 2024


Director
Ajay Kumar Garg Engg. College
Ghaziabad



**AJAY KUMAR GARG ENGINEERING COLLEGE
GHAZIABAD**

CANDIDATE'S DECLARATION

We hereby declare that the work being presented in the report entitled "MATHEMATICAL MODELING AND DESIGN SIMULATION OF MAGNETORHEOLOGICAL FINISHING SETUP" submitted to Ajay Kumar Garg Engineering College, Ghaziabad, in partial fulfillment of the requirements for the award of the degree of Bachelor of Technology in Mechanical Engineering of Dr. A. P. J. Abdul Kalam Technical University, Lucknow, is an authentic record of our ownwork carried out during a period from July, 2023 to May, 2024 under the supervision of Mr. Abhishek Gupta, Assistant Professor, Department of Mechanical Engineering & Dr. Vishwas Grover, Assistant Professor, Department of Mechanical Engineering. The matter presented in this report has not been submitted to any other university or institution for the award of any degree to the best of my knowledge.

Ashish Jaiswal
ASHISH JAISWAL
(2000270400027)

Deepak Kumar
DEEPAK KUMAR
(2000270400035)

Madhusudan Yadav
MADHUSUDAN YADAV
(2000270400050)

Abhinav Bajpai
ABHINAV BAJPAI
(2000270400002)

A. K. G.
Director
Ajay Kumar Garg Engg. College
Ghaziabad



**AJAY KUMAR GARG ENGINEERING COLLEGE
GHAZIABAD**

CERTIFICATE

This is to certify that the project report entitled “**MATHEMATICAL MODELING AND DESIGN SIMULATION OF MAGNETORHEOLOGICAL FINISHING SETUP**” submitted to **Ajay Kumar Garg Engineering College, Ghaziabad**, in partial fulfillment of the requirements for the award of the degree of **Bachelor of Technology in Mechanical Engineering** of **Dr. A. P. J. Abdul Kalam Technical University, Lucknow**, is bona fide record of work submitted by **Ashish Jaiswal (2000270400027)**, **Deepak Kumar (2000270400035)**, **Madhusudan Yadav (2000270400050)** and **Abhinav Bajpai (2000270400002)** under my supervision. The matter presented in this report has not been submitted to any other university or institution for the award of any degree to the best of my knowledge.

Mr. Abhishek Gupta
Guide
Assistant Professor
Department of Mechanical Engineering
AKGEC, Ghaziabad

Prof. Pallab Biswas
Prof & Head
Department of Mechanical Engineering
AKGEC, Ghaziabad

Dr. Vishwas Grover
Co-Guide
Assistant Professor
Department of Mechanical Engineering
AKGEC, Ghaziabad

Project Report
on

DESIGN AND DEVELOPMENT OF BUMPER CAR

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

BACHELOR OF TECHNOLOGY

in

MECHANICAL ENGINEERING

by

**AKASH PANDEY (2000270400010)
ASHISH ANAND (2000240400026)
DAKSH SINGH (2000270400033)
GAURAV VISHWAKARMA (2000270400039)**

Under the supervision
of

Mr. VIKRAM SINGH RAJPUT
Asst Prof.
Department of Mechanical Engineering



AJAY KUMAR GARG ENGINEERING COLLEGE GHAZIABAD
27th Km. Stone, NH-24, Delhi-Hapur Bypass Road, Adhyatmik Nagar, Ghaziabad- 201009

DR. A. P. J. ABDUL KALAM TECHNICAL UNIVERSITY LUCKNOW
Year : 2023 – 2024


Director
Ajay Kumar Garg Engg. College
Ghaziabad





AJAY KUMAR GARG ENGINEERING COLLEGE GHAZIABAD

CANDIDATES' DECLARATION

We hereby declare that the work being presented in the report entitled "DESIGN AND DEVELOPMENT OF AUTO BUMPER CAR" submitted to Ajay Kumar Garg Engineering College, Ghaziabad, in partial fulfillment of the requirements for the award of the degree of Bachelor of Technology in Mechanical Engineering of Dr. A. P. J. Abdul Kalam Technical University, Lucknow, is an authentic record of our own work carried out during a period from July, 2023 to May, 2024 under the supervision of Vikaram Singh Rajput, Asst. Prof. Department of Mechanical Engineering. The matter presented in this report has not been submitted to any other university or institution for the award of any degree to the best of my knowledge.

AKASH PANDEY
(2000270400010)

ASHISH ANAND
(2000240400026)

DAKSH SINGH
(2000270400033)

GAURAV VISHWAKARMA
(2000270400039)



**AJAY KUMAR GARG ENGINEERING COLLEGE
GHAZIABAD**

CERTIFICATE

This is to certify that the project report entitled “**DESIGN AND DEVELOPMENT OF AUTO BUMPER CAR**” submitted to **Ajay Kumar Garg Engineering College, Ghaziabad**, in partial fulfillment of the requirements for the award of the degree of **Bachelor of Technology in Mechanical Engineering** of **Dr. A. P. J. Abdul Kalam Technical University, Lucknow**, is Bonafide record of work submitted **Akash Pandey (2000270400010)** **Ashish Anand (2000270400026)** **Daksh Singh (2000270400033)** **Gaurav Vishwakarma (2000270400039)** under my supervision. The matter presented in this report has not been submitted to any other university or institution for the award of any degree to the best of my knowledge.

Mr. Vikram Singh Rajput
Supervisor Asst. Prof.
Department of ME
AKGEC, Ghaziabad

DR. Pallab Vishwas
HOD & Prof
MECHANICAL DEPARTMENT
AKGEC, GHAZIABAD

Project
Report on

**SOLAR ENERGY DRIVEN OVEN AND
REFRIGERATOR USING PELTIER
DIODE**

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

BACHELOR OF TECHNOLOGY

in

MECHANICAL ENGINEERING

by

**ANIMESH TIWARI (2000270400015)
ANUJ SINGH (2000270400020)
MANAS VIR (2000270400051)
ANMOL GUPTA (2000270400017)**

Under the supervision
of

Mr. AJAY KANT DUBEY
(Assistant Professor)
Department of Mechanical Engineering
Mr. AMIT TRIPATHI
(Assistant Professor)
Department of Mechanical Engineering



AJAY KUMAR GARG ENGINEERING COLLEGE GHAZIABAD
27th Km. Stone, NH-24, Delhi-Hapur Bypass Road, Adhyatmik Nagar, Ghaziabad- 201009

DR. A. P. J. ABDUL KALAM TECHNICAL UNIVERSITY LUCKNOW

Year : 2023 – 2024


Director
Ajay Kumar Garg Engg. College
Ghaziabad





AJAY KUMAR GARG ENGINEERING COLLEGE GHAZIABAD

CANDIDATES' DECLARATION

We hereby declare that the work being presented in the report entitled "SOLAR ENERGY DRIVEN OVEN AND REFRIGERATOR USING PELTIER DIODE" submitted to Ajay Kumar Garg Engineering College, Ghaziabad, in partial fulfillment of the requirements for the award of the degree of Bachelor of Technology in Mechanical Engineering of Dr. A.P.J. Abdul Kalam Technical University, Lucknow, is an authentic record of our own work carried out during a period from July, 2022 to May, 2023 under the supervision of **Mr. Ajay Kant Dubey**, Assistant Professor, Department of Mechanical Engineering and **Mr. Amit Tripathi**, Asst. Professor, Department of Mechanical Engineering.. The matter presented in this report has not been submitted to any other university or institution for the award of any degree to the best of my knowledge.

ANIMESH TIWARI
(2000270400015)

MANAS VIR
(2000270400051)

ANUJ SINGH
(2000270400020)

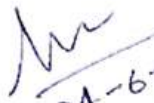
ANMOL GUPTA
(2000270400017)



**AJAY KUMAR GARG ENGINEERING COLLEGE
GHAZIABAD**

CERTIFICATE

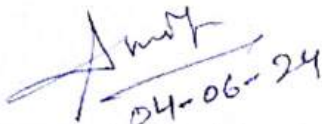
This is to certify that the project report entitled "SOLAR ENERGY DRIVEN OVEN AND REFRIGERATOR USING PELTIER DIODE" submitted to Ajay Kumar Garg Engineering College, Ghaziabad, in partial fulfillment of the requirements for the award of the degree of Bachelor of Technology in Mechanical Engineering of Dr. A. P. J. Abdul Kalam Technical University, Lucknow, is bona fide record of work submitted by Animesh Tiwari (2000270400015), Anuj Kumar (2000270400020), Manas Vir (2000270400051) and Anmol Gupta (2000270400017) under my supervision. The matter presented in this report has not been submitted to any other university or institution for the award of any degree to the best of my knowledge.


04-6-2024

Mr. Ajay Kant Dubey
Supervisor
Assistant Professor
Department of Mechanical Engineering
AKGEC, Ghaziabad


4/6/24

Dr. Pallab Biswas
Head of Department
Department of Mechanical Engineering
AKGEC, Ghaziabad


04-06-24

Mr. Amit Tripathi
Co-Supervisor
Assistant Professor
Department of Mechanical Engineering
AKGEC, Ghaziabad

Project ID: 23-24/ME/T1

A
Project Report
On

**Studies on Laser Based Additive Manufacturing of
Bio-compatible Metal Alloys for Human Bone Implants**

*Submitted in partial fulfilment of the
Requirement for the award of degree*

Of

BACHELOR OF TECHNOLOGY

In

MECHANICAL ENGINEERING

By

Aditya Saxena (2000270400007)
Aishwarya Lakshmi (2000270400009)
Harsh Katiyar (2000270400040)

UNDER THE SUPERVISION OF

Mr. Vikram Singh Rajput
(Assistant Professor)

&

Mr. Puneet Saini
(Assistant Professor)



DEPARTMENT OF MECHANICAL ENGINEERING
AJAY KUMAR GARG ENGINEERING COLLEGE GHAZIABAD
27th Km. Stone, NH-24, Delhi-Hapur Bypass Road, Adhyatmik Nagar, Ghaziabad- 201009

DR. A.P.J ABDUL KALAM TECHNICAL UNIVERSITY
YEAR 2023-2024


Director
Ajay Kumar Garg Engg. College
Ghaziabad



AJAY KUMAR GARG ENGINEERING COLLEGE GHAZIABAD

CANDIDATE'S DECLARATION

We hereby declare that the work being presented in the report entitled “**Studies on Laser Based Additive Manufacturing of Bio-compatible Metal Alloys for Human Bone Implants**” submitted to Ajay Kumar Garg Engineering College, Ghaziabad, in partial fulfilment of the requirements for the award of the degree of Bachelor of Technology in Mechanical Engineering of Dr. A. P. J. Abdul Kalam Technical University, Lucknow, is an authentic record of our own work carried out during a period from July, 2023 to May, 2024 under the supervision of **Mr. Vikram Singh Rajput**, Assistant Professor, Department of Mechanical Engineering & **Mr. Puneet Saini**, Assistant Professor, Department of Mechanical Engineering. The matter presented in this report has not been submitted to any other university or institution for the award of any degree to the best of my knowledge.


Aditya Saxena

2000270400007


Aishwarya Lakshmi

2000270400009


Harsh Katiyar

2000270400040



AJAY KUMAR GARG ENGINEERING COLLEGE GHAZIABAD

CERTIFICATE

This is to certify that the project report entitled “**Studies on Laser Based Additive Manufacturing of Bio-compatible Metal Alloys for Human Bone Implants**” submitted to Ajay Kumar Garg Engineering College, Ghaziabad, in partial fulfilment of the requirements for the award of the degree of Bachelor of Technology in Mechanical Engineering of Dr. A. P. J. Abdul Kalam Technical University, Lucknow, is bona fide record of work submitted by **Aditya Saxena (2000270400007)**, **Aishwarya Lakshmi (2000270400009)** and **Harsh Katiyar (2000270400040)** under my supervision. The matter presented in this report has not been submitted to any other university or institution for the award of any degree to the best of my knowledge.

Mr. Vikram Singh Rajput
Guide
Associate Professor
Department of Mechanical Engineering

Mr. Puneet Saini
Co- guide
Associate Professor
Department of Mechanical Engineering

Dr. Pallab Biswas
Prof & Head
Department of Mechanical Engineering
AKGEC, Ghaziabad

Director
Ajay Kumar Garg Engg. College
Ghaziabad

Project Report
On

EFFECT OF TOOL PROFILE ON FSW OF AL ALLOY PIPE

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

of

BACHELOR OF TECHNOLOGY

in

MECHANICAL ENGINEERING

by

**SURAJ GOND (2000270400090)
SAMBHAV SHARMA (2000270400077)
RITIK SRIVASTAV (2000270400075)
VEDANT KHARE (2000270400098)**

Under the supervision
of

Dr. NAMRATA GANGIL

Associate Professor
Department Of Mechanical Engineering

Mr. JITENDRA YADAV

Assistant Professor
Department Of Mechanical Engineering



AJAY KUMAR GARG ENGINEERING COLLEGE GHAZIABAD
27th Km. Stone, NH-24, Delhi-Hapur Bypass Road, Adhyatmik Nagar, Ghaziabad- 201009

DR. A. P. J. ABDUL KALAM TECHNICAL UNIVERSITY LUCKNOW
Year: 2023 – 2024

i


Director
Ajay Kumar Garg Engg. College
Ghaziabad





AJAY KUMAR GARG ENGINEERING COLLEGE GHAZIABAD

CANDIDATES' DECLARATION

We hereby declare that the work being presented in the report entitled "EFFECT OF TOOL PROFILE ON FSW OF AL ALLOY PIPE" submitted to Ajay Kumar Garg Engineering College, Ghaziabad, in partial fulfillment of the requirements for the award of the degree of Bachelor of Technology in Mechanical Engineering of Dr. A. P. J. Abdul Kalam Technical University, Lucknow, is an authentic record of our own work carried out during a period from July, 2022 to May, 2023 under the supervision of **Dr. Namrata Gangil**, Associate Professor, Department of Mechanical Engineering and **Mr. Jitendra Yadav**, Assistant Professor, Department of Mechanical Engineering. The matter presented in this report has not been submitted to any other university or institution for the award of any degree to the best of my knowledge.

SURAJ GOND
(2000270400090)

SAMBHAV SHARMA
(2000270400077)

RITIK SRIVASTAVA
(2000270400075)

VEDANT KHARE
(2000270400098)



**AJAY KUMAR GARG ENGINEERING COLLEGE
GHAZIABAD**

CERTIFICATE

This is to certify that the project report entitled “EFFECT OF TOOL PROFILE ON FSW OF AL ALLOY PIPE” submitted to Ajay Kumar Garg Engineering College, Ghaziabad, in partial fulfillment of the requirements for the award of the degree of **Bachelor of Technology in Mechanical Engineering** of **Dr. A. P. J. Abdul Kalam Technical University, Lucknow**, is bona fide record of work submitted by Suraj Gond (2000270400090), Sambhav Sharma (2000270400077), Ritik Srivastava (2000270400075) and Vedant khare (2000270400098) under my supervision. The matter presented in this report has not been submitted to any other university or institution for the award of any degree to the best of my knowledge.

Dr. Namrata Gangil
Associate Professor | Mechanical
Engineering Department
Associate Dean, Research & Development
AKGEC, Ghaziabad

Dr. Pallab Biswas
Head of Department | Mechanical
Engineering
AKGEC, Ghaziabad

Mr. Jitendra Yadav
Associate Professor | Mechanical
Engineering Department
AKGEC, Ghaziabad

Project ID: 23-24/ME/T2

**Project Report
on**

**Computational analysis of lattice Structure used in Aerospace
and Automobile using Selective Laser Melting techniques**

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

BACHELOR OF TECHNOLOGY

in

MECHANICAL ENGINEERING

by

ANUBHAV PAL	2000270400018
ARPITA RATHORE	2000270400023
BHASKAR TIWARI	2000270400030
DAKSH SINGH	2000270400034

Under the supervision

Mr. Vikram Singh Rajput(Asst. Prof. ME)

&

Mr. Puneet Kumar Saini(Asst. Prof. ME)



AJAY KUMAR GARG ENGINEERING COLLEGE GHAZIABAD
27th Km. Stone, NH-24, Delhi-Hapur Bypass Road, Adhyatmik Nagar, Ghaziabad- 201009

DR. A. P. J. ABDUL KALAM TECHNICAL UNIVERSITY LUCKNOW

Year : 2023 - 2024

i


Director
Ajay Kumar Garg Engg. College
Ghaziabad



AJAY KUMAR GARG ENGINEERING COLLEGE GHAZIABAD

CANDIDATES' DECLARATION

We hereby declare that the work being presented in the report entitled "**Computational analysis of lattice Structure used in Aerospace and Automobile using Selective Laser Melting techniques**" submitted to Ajay Kumar Garg Engineering College, Ghaziabad, in partial fulfillment of the requirements for the award of the degree of Bachelor of Technology in Mechanical Engineering of Dr. A. P. J. Abdul Kalam Technical University, Lucknow, is an authentic record of our own work carried out during a period from August, 2023 to May, 2024 under the supervision of **Mr. Vikram Singh Rajput**, Assitant Prof. , Department of Mechanical Engineering & **Mr. Puneet Kumar Saini**, Asistant Prof., Department of Mechanical Engineering. The matter presented in this report has not been submitted to any other university or institution for the award of any degree to the best of my knowledge.

Anubhav
Anubhav Pal
(2000270400018)

Arpita
Arpita Rathore
(2000270400023)

Bhaskar
Bhaskar Tiwari
(2000270400030)

Daksh Singh
Daksh Singh
(2000270400034)



AJAY KUMAR GARG ENGINEERING COLLEGE GHAZIABAD

CERTIFICATE

This is to certify that the project report entitled “Computational analysis of lattice structure used in Aerospace and Automobile using Selective Laser Melting” submitted to Ajay Kumar Garg Engineering College, Ghaziabad, in partial fulfillment of the requirements for the award of the degree of Bachelor of Technology in Mechanical Engineering of Dr. A. P. J. Abdul Kalam Technical University, Lucknow, is bona fide record of work submitted by Anubhav Pal (2000270400018), Arpita Rathore (2000270400023), Bhaskar Tiwari (2000270400030), Daksh Singh (2000270400034) under my supervision. The matter presented in this report has not been submitted to any other university or institution for the award of any degree to the best of my knowledge.

Mr. Vikram Singh Rajput
Guide
Assistant Professor
Department of Mechanical Engineering

Dr. Pallab Biswas
Prof. & HOD
Department of Mechanical Engineering
AKGEC, Ghaziabad

Mr. Puneet Kumar Saini
Co-Guide
Assistant Professor
Department of Mechanical Engineering

Project ID: 23-24/ME/T1

A
Project Report
On

**Studies on Laser Based Additive Manufacturing of
Bio-compatible Metal Alloys for Human Bone Implants**

*Submitted in partial fulfilment of the
Requirement for the award of degree*

Of

BACHELOR OF TECHNOLOGY

In

MECHANICAL ENGINEERING

By

Aditya Saxena (2000270400007)
Aishwarya Lakshmi (2000270400009)
Harsh Katiyar (2000270400040)

UNDER THE SUPERVISION OF

Mr. Vikram Singh Rajput
(Assistant Professor)

&

Mr. Puneet Saini
(Assistant Professor)



DEPARTMENT OF MECHANICAL ENGINEERING
AJAY KUMAR GARG ENGINEERING COLLEGE GHAZIABAD
27th Km. Stone, NH-24, Delhi-Hapur Bypass Road, Adhyatmik Nagar, Ghaziabad- 201009

DR. A.P.J ABDUL KALAM TECHNICAL UNIVERSITY
YEAR 2023-2024


Director
Ajay Kumar Garg Engg. College
Ghaziabad



AJAY KUMAR GARG ENGINEERING COLLEGE GHAZIABAD

CANDIDATE'S DECLARATION

We hereby declare that the work being presented in the report entitled “**Studies on Laser Based Additive Manufacturing of Bio-compatible Metal Alloys for Human Bone Implants**” submitted to Ajay Kumar Garg Engineering College, Ghaziabad, in partial fulfilment of the requirements for the award of the degree of Bachelor of Technology in Mechanical Engineering of Dr. A. P. J. Abdul Kalam Technical University, Lucknow, is an authentic record of our own work carried out during a period from July, 2023 to May, 2024 under the supervision of **Mr. Vikram Singh Rajput**, Assistant Professor, Department of Mechanical Engineering & **Mr. Puneet Saini**, Assistant Professor, Department of Mechanical Engineering. The matter presented in this report has not been submitted to any other university or institution for the award of any degree to the best of my knowledge.


Aditya Saxena

2000270400007


Aishwarya Lakshmi

2000270400009


Harsh Katiyar

2000270400040



AJAY KUMAR GARG ENGINEERING COLLEGE GHAZIABAD

CERTIFICATE

This is to certify that the project report entitled “**Studies on Laser Based Additive Manufacturing of Bio-compatible Metal Alloys for Human Bone Implants**” submitted to Ajay Kumar Garg Engineering College, Ghaziabad, in partial fulfilment of the requirements for the award of the degree of Bachelor of Technology in Mechanical Engineering of Dr. A. P. J. Abdul Kalam Technical University, Lucknow, is bona fide record of work submitted by **Aditya Saxena (2000270400007)**, **Aishwarya Lakshmi (2000270400009)** and **Harsh Katiyar (2000270400040)** under my supervision. The matter presented in this report has not been submitted to any other university or institution for the award of any degree to the best of my knowledge.

Mr. Vikram Singh Rajput
Guide
Associate Professor
Department of Mechanical Engineering

Mr. Puneet Saini
Co- guide
Associate Professor
Department of Mechanical Engineering

Dr. Pallab Biswas
Prof & Head
Department of Mechanical Engineering
AKGEC, Ghaziabad

Project Report
on

**FILLER WIRE EFFECT ON GTAW-WELDED IS2062E350C
PRESSURE VESSEL STEEL**

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

BACHELOR OF TECHNOLOGY

In

MECHANICAL ENGINEERING

by

ABHISHEK MISHRA (2000270400003)
AMAN SONI (2000270400013)
ANAND KUMAR YADAV (2000270400014)
ARJUNKARTIKEY (2000270400022)

Under the supervision
of

Dr. ALOK VARDHAN
Assistant Professor
Department of Mechanical Engineering
&
Mr. GAJESH CHAUHAN
Assistant Professor
Department of Mechanical Engineering



AJAY KUMAR GARG ENGINEERING COLLEGE, GHAZIABAD
27th Km. Stone, NH-24, Delhi-Hapur Bypass Road, Adhyatmik Nagar, Ghaziabad- 201009

DR. A. P. J. ABDUL KALAM TECHNICAL UNIVERSITY, LUCKNOW
Year: 2023 – 2024


Director
Ajay Kumar Garg Engg. College
Ghaziabad



AJAY KUMAR GARG ENGINEERING COLLEGE GHAZIABAD

CANDIDATE'S DECLARATION

We hereby declare that the work being presented in the report entitled "**FILLER WIRE EFFECTS ON GTAW-WELDED IS2062E350C PRESSURE VESSEL STEEL**" submitted to Ajay Kumar Garg Engineering College, Ghaziabad, in partial fulfillment of the requirements for the award of the degree of Bachelor of Technology in Mechanical Engineering of Dr. A. P. J. Abdul Kalam Technical University, Lucknow, is an authentic record of our own work carried out during a period from July, 2023 to May, 2024 under the supervision of **Dr. Alok Vardhan**, Assistant Professor, Department of Mechanical Engineering & **Mr. Gajesh Chauhan**, Assistant Professor, Department of Mechanical Engineering. The matter presented in this report has not been submitted to any other university or institution for the award of any degree to the best of my knowledge.

Abhishek

ABHISHEK MISHRA
(2000270400003)

Aman Soni
AMAN SONI
(2000270400013)

Anand Kumar Yadav
ANAND KUMAR YADAV
(2000270400014)

Arjunktikay
ARJUNKARTIKEY
(2000270400022)

A. G.
Director
Ajay Kumar Garg Engg. College
Ghaziabad



**AJAY KUMAR GARG ENGINEERING COLLEGE
GHAZIABAD**

CERTIFICATE

This is to certify that the project report entitled “**FILLER WIRE EFFECTS ON GTAW-WELDED IS2062E350C PRESSURE VESSEL STEEL**” submitted to Ajay Kumar Garg Engineering College, Ghaziabad, in partial fulfillment of the requirements for the award of the degree of **Bachelor of Technology in Mechanical Engineering** of **Dr. A. P. J. Abdul Kalam Technical University, Lucknow**, is bona fide record of work submitted by **Abhishek Mishra (2000270400003)**, **Aman Soni (2000270400013)**, **Anand Kumar Yadav (2000270400014)** and **Arjunktarikey (2000270400022)** under my supervision. The matter presented in this report has not been submitted to any other university or institution for the award of any degree to the best of my knowledge.




29/5/24

Dr. Alok Vardhan
Guide
Assistant Professor
Department of Mechanical Engineering



29/5/24

Dr. Pallab Biswas
Prof. & Head
Department of Mechanical Engineering
AKGEC, Ghaziabad



29/05/24

Mr. Gajesh Chauhan
Co-Guide
Assistant Professor
Department of Mechanical Engineering
AKGEC, Ghaziabad

Project Report
On
Design and Fabrication of Magnetorheological Finishing Setup

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

BACHELOR OF TECHNOLOGY

in

MECHANICAL ENGINEERING

by

ABHISHEK ANIL YADAV (2000270400004)

AKSHAY KUMAR YADAV (2000270400011)

DEEPANSHU KUMAR (1900270400041)

ROHIT KUMAR (1900270400095)

Under the supervision

of

Dr. VISHWAS GROVER

Assistant Professor

Department of Mechanical Engineering

&

Dr. AJAY PRATAP SINGH

Associate Professor

Department of Mechanical Engineering



AJAY KUMAR GARG ENGINEERING COLLEGE GHAZIABAD
27th Km. Stone, NH-24, Delhi-Hapur Bypass Road, Adhyatmik Nagar, Ghaziabad- 201009
DR. A. P. J. ABDUL KALAM TECHNICAL UNIVERSITY LUCKNOW

Year: 2023 – 2024


Director
Ajay Kumar Garg Engg. College
Ghaziabad





AJAY KUMAR GARG ENGINEERING COLLEGE GHAZIABAD

CANDIDATE'S DECLARATION

We hereby declare that the work being presented in the report entitled "Design and Fabrication of Magnetorheological Finishing Setup" submitted to Ajay Kumar Garg Engineering College, Ghaziabad, in partial fulfillment of the requirements for the award of the degree of Bachelor of Technology in Mechanical Engineering of Dr. A. P. J. Abdul Kalam Technical University, Lucknow, is an authentic record of our own work carried out during a period from July, 2023 to May, 2024 under the supervision of Dr. Vishwas Grover Assistance Professor & Dr. Ajay Pratap Singh Associate Professor Department of Mechanical Engineering . The matter presented in this report has not been submitted to any other university or institution for the award of any degree to the best of my knowledge.

ABHISHEK ANIL YADAV
(2000270400004)

AKSHAY KUMAR YADAV
(2000270400011)

DEEPANSHU KUMAR
(1900270400041)

ROHIT KUMAR
(1900270400095)


Director
Ajay Kumar Garg Engg. College
Ghaziabad



**AJAY KUMAR GARG ENGINEERING COLLEGE
GHAZIABAD**

CERTIFICATE

This is to certify that Project report entitled “**Design and Fabrication of Magnetorheological Finishing Setup**” which is submitted by **Abhishek Anil Yadav, Akshay Kumar Yadav, Deepanshu Kumar, Rohit Kumar** in the partial fulfillment of requirement for the award of degree of Bachelor of Technology (Mechanical Engineering) submitted to Dr. A.P.J. Abdul Kalam Technical University, Lucknow is a record of students’ own work carried out under my supervision. The matter in this report has not been submitted to any University or Institution for award of any degree.

Dr Vishwas Grover
Guide
Assistant Professor
Department of Mechanical Engineering

Dr. Pallab Biswas
Prof. & Head
Department of Mechanical Engineering
Ajay Kumar Engineering
College Ghaziabad

Co-Guide
Dr Ajay Pratap Singh
Associate Professor
Department of Mechanical Engineering

Project Report
on

**DESIGN ANALYSIS AND FABRICATION OF LATTICE
STRUCTURE AND ITS SCAFFOLD FOR MECHANICAL
PROPERTY CHARACTERIZATION USING POWDER BED
FUSION ADDITIVE MANUFACTURING TECHNIQUE**

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

**BACHELOR OF TECHNOLOGY
in**

**MECHANICAL ENGINEERING
by**

**ABHAY KANT SINGH (2000270400001)
ISHAAN AGARWAL (2000270400046)
VIKAS YADAV (2000270400099)
NAMAN AGARWAL (2000270400055)**

Under the supervision

of

Mr. VIKRAM SINGH RAJPUT (Assistant Professor)

Mr. D.K. SINGH (Assistant Professor)

Department of Mechanical Engineering



AJAY KUMAR GARG ENGINEERING COLLEGE GHAZIABAD
27th Km. Stone, NH-24, Delhi-Hapur Bypass Road, Adhyatmik Nagar, Ghaziabad- 201009

DR. A. P. J. ABDUL KALAM TECHNICAL UNIVERSITY LUCKNOW

Year : 2023 – 2024


Director
Ajay Kumar Garg Engg. College
Ghaziabad



**AJAY KUMAR GARG ENGINEERING COLLEGE
GHAZIABAD**

CANDIDATES' DECLARATION

We hereby declare that the work being presented in the report entitled “**DESIGN ANALYSIS AND FABRICATION OF LATTICE STRUCTURE AND ITS SCAFFOLD FOR MECHANICAL PROPERTY CHARACTERIZATION USING POWDER BED FUSION ADDITIVE MANUFACTURING TECHNIQUE**” submitted to Ajay Kumar Garg Engineering College, Ghaziabad, in partial fulfillment of the requirements for the award of the degree of Bachelor of Technology in Mechanical Engineering of Dr. A. P. J. Abdul Kalam Technical University, Lucknow, is an authentic record of our own work carried out during a period from July, 2023 to May, 2024 under the supervision of **Mr. Vikram Singh Rajput** Assistant Professor, Department of Mechanical Engineering and **Mr. D.K. Singh**, Assistant Professor, Department of Mechanical Engineering. The matter presented in this report has not been submitted to any other university or institution for the award of any degree to the best of my knowledge.

ABHAY KANT SINGH
(2000270400001)

ISHAAN AGARWAL
(2000270400046)

VIKAS YADAV
(2000270400099)

NAMAN AGARWAL
(2000270400055)



**AJAY KUMAR GARG ENGINEERING COLLEGE
GHAZIABAD**

CERTIFICATE

This is to certify that the project report entitled “**DESIGN ANALYSIS AND FABRICATION OF LATTICE STRUCTURE AND ITS SCAFFOLD FOR MECHANICAL PROPERTY CHARACTERIZATION USING POWDER BED FUSION ADDITIVE MANUFACTURING TECHNIQUE**” submitted to **Ajay Kumar Garg Engineering College, Ghaziabad**, in partial fulfillment of the requirements for the award of the degree of **Bachelor of Technology in Mechanical Engineering** of **Dr. A. P. J. Abdul Kalam Technical University, Lucknow**, is bona fide record of work submitted by **Abhay Kant Singh (2000270400001)**, **Ishaan Agarwal (2000270400046)**, **Vikas Yadav (2000270400099)** And **Naman Agarwal (2000270400055)** under my supervision. The matter presented in this report has not been submitted to any other university or institution for the award of any degree to the best of my knowledge.

Mr. Vikram Singh Rajput

&

Mr. D.K. Singh

Supervisor

Assistant Professor

**Department of Mechanical Engineering
AKGEC, Ghaziabad**

Dr. Pallab Biswas

Prof & Head

**Department of Mechanical Engineering
AKGEC, Ghaziabad**

Project Report
on

**SYNTHESIS OF MULTI COMPONENT ALLOY VIA
FRICTION STIR PROCESSING**

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

BACHELOR OF TECHNOLOGY

in

MECHANICAL ENGINEERING

by

**DEEPANJALI RAJPUT (2000270400036)
SHASHWAT YADAV (2000270400084)**

Under the supervision
of

Dr. Namrata Gangil
Associate Professor
Dr. Tarun Bhardwaj
Assistant Professor

Department of Mechanical Engineering



AJAY KUMAR GARG ENGINEERING COLLEGE GHAZIABAD
27th Km. Stone, NH-24, Delhi-Hapur Bypass Road, Adhyatmik Nagar, Ghaziabad- 201009

DR. A. P. J. ABDUL KALAM TECHNICAL UNIVERSITY LUCKNOW
Year : 2023 – 2024


Director
Ajay Kumar Garg Engg. College
Ghaziabad



AJAY KUMAR GARG ENGINEERING COLLEGE GHAZIABAD

CANDIDATES' DECLARATION

We hereby declare that the work being presented in the report entitled "**Synthesis of Multi- Component Alloy via Friction Stir Processing**" submitted to Ajay Kumar Garg Engineering College, Ghaziabad, in partial fulfillment of the requirements for the award of the degree of Bachelor of Technology in Mechanical Engineering of Dr. A. P. J. Abdul Kalam Technical University, Lucknow, is an authentic record of our own work carried out during a period from July, 2022 to May, 2023 under the supervision of **Dr. Namrata Gangil**, Asso. Professor, Department of Mechanical Engineering and **Dr. Tarun Bhardwaj**, Asst. Professor, Department of Mechanical Engineering. The matter presented in this report has not been submitted to any other university or institution for the award of any degree to the best of my knowledge.

SHASHWAT YADAV
(2000270400084)

DEEPANJALI RAJPUT
(2000270400036)



**AJAY KUMAR GARG ENGINEERING COLLEGE
GHAZIABAD**

CERTIFICATE

This is to certify that the project report entitled “**Synthesis of Multi-Component Alloy via Friction Stir Processing**” submitted to **Ajay Kumar Garg Engineering College, Ghaziabad**, in partial fulfillment of the requirements for the award of the degree of **Bachelor of Technology in Mechanical Engineering** of **Dr. A. P. J. Abdul Kalam Technical University, Lucknow**, is bona fide record of work submitted by **Shashwat Yadav (2000270400084)** and **Deepanjali Rajput (2000270400036)** under my supervision. The matter presented in this report has not been submitted to any other university or institution for the award of any degree to the best of my knowledge.

Dr. Namrata Gangil
Supervisor
Associate Professor
Department of Mechanical
AKGEC, Ghaziabad

Dr. Pallab Biswas
Head of Department
Department of Mechanical
AKGEC, Ghaziabad

Dr. Tarun Bhardwaj
Co-Supervisor
Assistant Professor
Department of Mechanical
AKGEC, Ghaziabad

Project Report
On
Design and Fabrication of Magnetorheological Finishing Setup

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

BACHELOR OF TECHNOLOGY

in

MECHANICAL ENGINEERING

by

ABHISHEK ANIL YADAV (2000270400004)

AKSHAY KUMAR YADAV (2000270400011)

DEEPANSHU KUMAR (1900270400041)

ROHIT KUMAR (1900270400095)

Under the supervision

of

Dr. VISHWAS GROVER

Assistant Professor

Department of Mechanical Engineering

&

Dr. AJAY PRATAP SINGH

Associate Professor

Department of Mechanical Engineering



AJAY KUMAR GARG ENGINEERING COLLEGE GHAZIABAD
27th Km. Stone, NH-24, Delhi-Hapur Bypass Road, Adhyatmik Nagar, Ghaziabad- 201009
DR. A. P. J. ABDUL KALAM TECHNICAL UNIVERSITY LUCKNOW

Year: 2023 – 2024


Director
Ajay Kumar Garg Engg. College
Ghaziabad





AJAY KUMAR GARG ENGINEERING COLLEGE GHAZIABAD

CANDIDATE'S DECLARATION

We hereby declare that the work being presented in the report entitled “**Design and Fabrication of Magnetorheological Finishing Setup**” submitted to **Ajay Kumar Garg Engineering College, Ghaziabad**, in partial fulfillment of the requirements for the award of the degree of Bachelor of Technology in Mechanical Engineering of Dr. A. P. J. Abdul Kalam Technical University, Lucknow, is an authentic record of our own work carried out during a period from July, 2023 to May, 2024 under the supervision of **Dr. Vishwas Grover** Assistance Professor & **Dr. Ajay Pratap Singh** Associate Professor Department of Mechanical Engineering . The matter presented in this report has not been submitted to any other university or institution for the award of any degree to the best of my knowledge.

ABHISHEK ANIL YADAV
(2000270400004)

AKSHAY KUMAR YADAV
(2000270400011)

DEEPANSHU KUMAR
(1900270400041)

ROHIT KUMAR
(1900270400095)

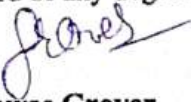

Director
Ajay Kumar Garg Engg. College
Ghaziabad





**AJAY KUMAR GARG ENGINEERING COLLEGE
GHAZIABAD**

CERTIFICATE

This is to certify that Project report entitled “**Design and Fabrication of Magnetorheological Finishing Setup**” which is submitted by **Abhishek Anil Yadav, Akshay Kumar Yadav, Deepanshu Kumar, Rohit Kumar** in the partial fulfillment of requirement for the award of degree of Bachelor of Technology (Mechanical Engineering) submitted to Dr. A.P.J. Abdul Kalam Technical University, Lucknow is a record of students’ own work carried out under my supervision. The matter in this report has not been submitted to any University or Institution for award of any degree.


Dr Vishwas Grover
Guide
Assistant Professor
Department of Mechanical Engineering


Dr. Pallab Biswas
Prof. & Head
Department of Mechanical Engineering
Ajay Kumar Engineering
College Ghaziabad


Co -Guide
Dr Ajay Pratap Singh
Associate Professor
Department of Mechanical Engineering



AJAY KUMAR GARG ENGINEERING COLLEGE GHAZIABAD

CANDIDATES' DECLARATION

We hereby declare that the work being presented in the report entitled "SOLAR ENERGY DRIVEN OVEN AND REFRIGERATOR USING PELTIER DIODE" submitted to Ajay Kumar Garg Engineering College, Ghaziabad, in partial fulfillment of the requirements for the award of the degree of Bachelor of Technology in Mechanical Engineering of Dr. A.P.J. Abdul Kalam Technical University, Lucknow, is an authentic record of our own work carried out during a period from July, 2022 to May, 2023 under the supervision of **Mr. Ajay Kant Dubey**, Assistant Professor, Department of Mechanical Engineering and **Mr. Amit Tripathi**, Asst. Professor, Department of Mechanical Engineering.. The matter presented in this report has not been submitted to any other university or institution for the award of any degree to the best of my knowledge.

ANIMESH TIWARI
(2000270400015)

MANAS VIR
(2000270400051)

ANUJ SINGH
(2000270400020)

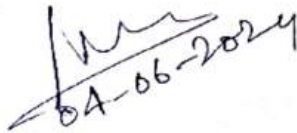
ANMOL GUPTA
(2000270400017)



**AJAY KUMAR GARG ENGINEERING COLLEGE
GHAZIABAD**

CERTIFICATE

This is to certify that the project report entitled “SOLAR ENERGY DRIVEN OVEN AND REFRIGERATOR USING PELTIER DIODE” submitted to Ajay Kumar Garg Engineering College, Ghaziabad, in partial fulfillment of the requirements for the award of the degree of Bachelor of Technology in Mechanical Engineering of Dr. A. P. J. Abdul Kalam Technical University, Lucknow, is bona fide record of work submitted by Animesh Tiwari (2000270400015), Anuj Kumar (2000270400020), Manas Vir (2000270400051) and Anmol Gupta (2000270400017) under my supervision. The matter presented in this report has not been submitted to any other university or institution for the award of any degree to the best of my knowledge.



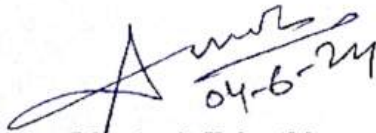
04-06-2024

Mr. Ajay Kant Dubey
Supervisor
Assistant Professor
Department of Mechanical Engineering
AKGEC, Ghaziabad



4/6/24

Dr. Pallab Biswas
Head of Department
Department of Mechanical Engineering
AKGEC, Ghaziabad



04-6-24

Mr. Amit Tripathi
Co-Supervisor
Assistant Professor
Department of Mechanical Engineering
AKGEC, Ghaziabad

Project Report
on

DESIGN AND DEVELOPMENT OF BUMPER CAR

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

BACHELOR OF TECHNOLOGY

in

MECHANICAL ENGINEERING

by

**AKASH PANDEY (2000270400010)
ASHISH ANAND (2000240400026)
DAKSH SINGH (2000270400033)
GAURAV VISHWAKARMA (2000270400039)**

Under the supervision
of

Mr. VIKRAM SINGH RAJPUT
Asst Prof.
Department of Mechanical Engineering



AJAY KUMAR GARG ENGINEERING COLLEGE GHAZIABAD
27th Km. Stone, NH-24, Delhi-Hapur Bypass Road, Adhyatmik Nagar, Ghaziabad- 201009

DR. A. P. J. ABDUL KALAM TECHNICAL UNIVERSITY LUCKNOW
Year : 2023 – 2024


Director
Ajay Kumar Garg Engg. College
Ghaziabad



AJAY KUMAR GARG ENGINEERING COLLEGE GHAZIABAD

CANDIDATES' DECLARATION

We hereby declare that the work being presented in the report entitled "DESIGN AND DEVELOPMENT OF AUTO BUMPER CAR" submitted to Ajay Kumar Garg Engineering College, Ghaziabad, in partial fulfillment of the requirements for the award of the degree of Bachelor of Technology in Mechanical Engineering of Dr. A. P. J. Abdul Kalam Technical University, Lucknow, is an authentic record of our own work carried out during a period from July, 2023 to May, 2024 under the supervision of Vikaram Singh Rajput, Asst. Prof. Department of Mechanical Engineering. The matter presented in this report has not been submitted to any other university or institution for the award of any degree to the best of my knowledge.

AKASH PANDEY
(2000270400010)

ASHISH ANAND
(2000240400026)

DAKSH SINGH
(2000270400033)

GAURAV VISHWAKARMA
(2000270400039)



**AJAY KUMAR GARG ENGINEERING COLLEGE
GHAZIABAD**

CERTIFICATE

This is to certify that the project report entitled “**DESIGN AND DEVELOPMENT OF AUTO BUMPER CAR**” submitted to **Ajay Kumar Garg Engineering College, Ghaziabad**, in partial fulfillment of the requirements for the award of the degree of **Bachelor of Technology in Mechanical Engineering** of **Dr. A. P. J. Abdul Kalam Technical University, Lucknow**, is Bonafide record of work submitted **Akash Pandey (2000270400010)** **Ashish Anand (2000270400026)** **Daksh Singh (2000270400033)** **Gaurav Vishwakarma (2000270400039)** under my supervision. The matter presented in this report has not been submitted to any other university or institution for the award of any degree to the best of my knowledge.

Vikram

Mr. Vikram Singh Rajput

Supervisor Asst. Prof.

Department of ME

AKGEC, Ghaziabad

DR. Pallab Vishwas

HOD & Prof

MECHANICAL DEPARTMENT

AKGEC, GHAZIABAD

Project
Report on

**SOLAR ENERGY DRIVEN OVEN AND
REFRIGERATOR USING PELTIER
DIODE**

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

BACHELOR OF TECHNOLOGY

in

MECHANICAL ENGINEERING

by

**ANIMESH TIWARI (2000270400015)
ANUJ SINGH (2000270400020)
MANAS VIR (2000270400051)
ANMOL GUPTA (2000270400017)**

Under the supervision
of

Mr. AJAY KANT DUBEY
(Assistant Professor)
Department of Mechanical Engineering
Mr. AMIT TRIPATHI
(Assistant Professor)
Department of Mechanical Engineering



AJAY KUMAR GARG ENGINEERING COLLEGE GHAZIABAD
27th Km. Stone, NH-24, Delhi-Hapur Bypass Road, Adhyatmik Nagar, Ghaziabad- 201009

DR. A. P. J. ABDUL KALAM TECHNICAL UNIVERSITY LUCKNOW

Year : 2023 – 2024


Director
Ajay Kumar Garg Engg. College
Ghaziabad



AJAY KUMAR GARG ENGINEERING COLLEGE GHAZIABAD

CANDIDATES' DECLARATION

We hereby declare that the work being presented in the report entitled "SOLAR ENERGY DRIVEN OVEN AND REFRIGERATOR USING PELTIER DIODE" submitted to Ajay Kumar Garg Engineering College, Ghaziabad, in partial fulfillment of the requirements for the award of the degree of Bachelor of Technology in Mechanical Engineering of Dr. A.P.J. Abdul Kalam Technical University, Lucknow, is an authentic record of our own work carried out during a period from July, 2022 to May, 2023 under the supervision of **Mr. Ajay Kant Dubey**, Assistant Professor, Department of Mechanical Engineering and **Mr. Amit Tripathi**, Asst. Professor, Department of Mechanical Engineering.. The matter presented in this report has not been submitted to any other university or institution for the award of any degree to the best of my knowledge.

ANIMESH TIWARI
(2000270400015)

MANAS VIR
(2000270400051)

ANUJ SINGH
(2000270400020)

ANMOL GUPTA
(2000270400017)



**AJAY KUMAR GARG ENGINEERING COLLEGE
GHAZIABAD**

CERTIFICATE

This is to certify that the project report entitled "SOLAR ENERGY DRIVEN OVEN AND REFRIGERATOR USING PELTIER DIODE" submitted to Ajay Kumar Garg Engineering College, Ghaziabad, in partial fulfillment of the requirements for the award of the degree of Bachelor of Technology in Mechanical Engineering of Dr. A. P. J. Abdul Kalam Technical University, Lucknow, is bona fide record of work submitted by Animesh Tiwari (2000270400015), Anuj Kumar (2000270400020), Manas Vir (2000270400051) and Anmol Gupta (2000270400017) under my supervision. The matter presented in this report has not been submitted to any other university or institution for the award of any degree to the best of my knowledge.

Mr. Ajay Kant Dubey
Supervisor
Assistant Professor
Department of Mechanical Engineering
AKGEC, Ghaziabad

Dr. Pallab Biswas
Head of Department
Department of Mechanical Engineering
AKGEC, Ghaziabad

Mr. Amit Tripathi
Co-Supervisor
Assistant Professor
Department of Mechanical Engineering
AKGEC, Ghaziabad

Year : 2023 – 2024

DR. A. P. J. ABDUL KALAM TECHNICAL UNIVERSITY LUCKNOW
27th Km, Stone, NH-24, Delhi-Hapur Bypass Road, Adhyatmik Nagar, Ghaziabad-201009
AJAY KUMAR GARG ENGINEERING COLLEGE GHAZIABAD



Department of Mechanical Engineering

Mr. D.K. SINGH (Assistant Professor)

Mr. VIKRAM SINGH RAJPUT (Assistant Professor)

of

Under the supervision

ABHAV KANT SINGH (200027040001)
ISHAN AGARWAL (200027040046)
VIKAS YADAV (200027040099)
NAMAN AGARWAL (200027040055)

by

MECHANICAL ENGINEERING

in

BACHELOR OF TECHNOLOGY

of

Submitted in partial fulfillment of the
requirements for the award of the degree

DESIGN ANALYSIS AND FABRICATION OF LATTICE
STRUCTURE AND ITS SCAFFOLD FOR MECHANICAL
PROPERTY CHARACTERIZATION USING POWDER BED
FUSION ADDITIVE MANUFACTURING TECHNIQUE

on

Project Report

PROJECT ID: 23-24/ME/T3


Director
Ajay Kumar Garg Engg. College
Ghaziabad

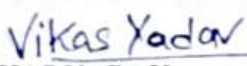


**AJAY KUMAR GARG ENGINEERING COLLEGE
GHAZIABAD**

CANDIDATES' DECLARATION

We hereby declare that the work being presented in the report entitled "DESIGN ANALYSIS AND FABRICATION OF LATTICE STRUCTURE AND ITS SCAFFOLD FOR MECHANICAL PROPERTY CHARACTERIZATION USING POWDER BED FUSION ADDITIVE MANUFACTURING TECHNIQUE" submitted to Ajay Kumar Garg Engineering College, Ghaziabad, in partial fulfillment of the requirements for the award of the degree of Bachelor of Technology in Mechanical Engineering of Dr. A. P. J. Abdul Kalam Technical University, Lucknow, is an authentic record of our own work carried out during a period from July, 2023 to May, 2024 under the supervision of **Mr. Vikram Singh Rajput** Assistant Professor, Department of Mechanical Engineering and **Mr. D.K. Singh**, Assistant Professor, Department of Mechanical Engineering. The matter presented in this report has not been submitted to any other university or institution for the award of any degree to the best of my knowledge.


ABHAY KANT SINGH
(2000270400001)


VIKAS YADAV
(2000270400099)


ISHAAN AGARWAL
(2000270400046)


NAMAN AGARWAL
(2000270400055)



**AJAY KUMAR GARG ENGINEERING COLLEGE
GHAZIABAD**

CERTIFICATE

This is to certify that the project report entitled "DESIGN ANALYSIS AND FABRICATION OF LATTICE STRUCTURE AND ITS SCAFFOLD FOR MECHANICAL PROPERTY CHARACTERIZATION USING POWDER BED FUSION ADDITIVE MANUFACTURING TECHNIQUE" submitted to Ajay Kumar Garg Engineering College, Ghaziabad, in partial fulfillment of the requirements for the award of the degree of Bachelor of Technology in Mechanical Engineering of Dr. A. P. J. Abdul Kalam Technical University, Lucknow, is bona fide record of work submitted by Abhay Kant Singh (2000270400001), Ishaan Agarwal (2000270400046), Vikas Yadav (2000270400099) And Naman Agarwal (2000270400055) under my supervision. The matter presented in this report has not been submitted to any other university or institution for the award of any degree to the best of my knowledge.

Mr. Vikram Singh Rajput

&

Mr. D.K. Singh

Supervisor

Assistant Professor

**Department of Mechanical Engineering
AKGEC, Ghaziabad**

Dr. Pallab Biswas

Prof & Head

**Department of Mechanical Engineering
AKGEC, Ghaziabad**

Project ID : 23-24/ME/M7

Project Report
On

ELECTROMAGNETIC BRAKING SYSTEM

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

BACHELOR OF TECHNOLOGY

In

MECHANICAL ENGINEERING

by

RITESH KUMAR YADAV (2000270400074)

ADITYA MISHRA (2000270400006)

SAURABH SHUKLA (2000270400081)

ANURAG SENGAR (2000270400021)

Under the supervision
of

Ms. Akriti Gupta

Assistant Professor

Department of Mechanical Engineering

Mr. Vivek Kumar Pansari

Assistant Professor

Department of Mechanical Engineering



AJAY KUMAR GARG ENGINEERING COLLEGE GHAZIABAD

27th Km. Stone, NH-24, Delhi-Hapur Bypass Road, Adhyatmik Nagar, Ghaziabad- 201009

DR. A. P. J. ABDUL KALAM TECHNICAL UNIVERSITY LUCKNOW

Year: 2023 – 2024


Director
Ajay Kumar Garg Engg. College
Ghaziabad



AJAY KUMAR GARG ENGINEERING COLLEGE GHAZIABAD

CANDIDATE'S DECLARATION

We hereby declare that the work being presented in the report entitled "ELECTROMAGNETIC BRAKING SYSTEM" submitted to Ajay Kumar Garg Engineering College, Ghaziabad, in partial fulfillment of the requirements for the award of the degree of Bachelor of Technology in Mechanical Engineering of Dr. A. P. J. Abdul Kalam Technical University, Lucknow, is an authentic record of our own work carried out during a period from September, 2023 to May, 2024 under the supervision of Ms. Akriti Gupta Asst. Professor, Department of Mechanical Engineering and Mr. Vivek Kumar Pansari, Asst. Professor, Department of Mechanical Engineering. The matter presented in this report has not been submitted to any other university or institution for the award of any degree to the best of my knowledge.

Riteshkr yadav.

RITESH KUMAR YADAV
(2000270400074)

Aditya Mishra

ADITYA MISHRA
(2000270400006)

Saurabh

SAURABH SHUKLA
(2000270400081)

Anurag Sengar

ANURAG SENGAR
(2000270400021)

A.K.G.
Director
Ajay Kumar Garg Engg. College
Ghaziabad



**AJAY KUMAR GARG ENGINEERING COLLEGE
GHAZIABAD**

CANDIDATE'S DECLARATION

We hereby declare that the work being presented in the report entitled "ELECTROMAGNETIC BRAKING SYSTEM" submitted to Ajay Kumar Garg Engineering College, Ghaziabad, in partial fulfillment of the requirements for the award of the degree of Bachelor of Technology in Mechanical Engineering of Dr. A. P. J. Abdul Kalam Technical University, Lucknow, is an authentic record of our own work carried out during a period from September, 2023 to May, 2024 under the supervision of Ms. Akshai Gupta, Asst. Professor, Department of Mechanical Engineering and Mr. Vivek Kumar Pansari, Asst. Professor, Department of Mechanical Engineering. The matter presented in this report has not been submitted to any other university or institution for the award of any degree to the best of my knowledge.

Ritesh Kumar Yadav
RITESH KUMAR YADAV
(2000270400074)

Aditya Mishra
ADITYA MISHRA
(2000270400006)

Saurabh Shukla
SAURABH SHUKLA
(2000270400081)

Anurag Sengar
ANURAG SENGAR
(2000270400021)

A. K. G.
Director
Ajay Kumar Garg Engg. College
Ghaziabad



**AJAY KUMAR GARG ENGINEERING COLLEGE
GHAZIABAD**

CERTIFICATE

This is to certify that the project report entitled "ELECTROMAGNETIC BRAKING SYSTEM" submitted to Ajay Kumar Garg Engineering College, Ghaziabad, in partial fulfillment of the requirements for the award of the degree of Bachelor of Technology in Mechanical Engineering of Dr. A. P. J. Abdul Kalam Technical University, Lucknow, is bona fide record of work submitted by RITESH KUMAR YADAV (2000270400074), ADITYA MISHRA (2000270400006), SAURABH SHUKLA (2000270400081), ANURAG SENGAR (2000270400021), under my supervision. The matter presented in this report has not been submitted to any other university or institution for the award of any degree to the best of my knowledge.

Ms. Akriti Gupta
Assistant Professor
Department of Mechanical
AKGEC, Ghaziabad

Dr. Pallab Biswas
Prof. & Head
Department of Mechanical
AKGEC, Ghaziabad

Mr. Vivek Kumar Pansari
Assistant Professor
Department of Mechanical
AKGEC, Ghaziabad

A

Project Report

On

TOPOLOGY OPTIMIZATION OF BRAKE PEDAL

Submitted in partial fulfillment of the

Requirement for the award of degree

Of

BACHELOR OF TECHNOLOGY

In

MECHANICAL ENGINEERING

By

AYUSH PANDEY	(2100270409002)
ADITYA BHATTACHARYA	(2000270400005)
ABHINANDAN KUMAR	(2100270409001)
PRATEEK GUPTA	(1900270400087)

Under the Supervision

Of

Mr. Som Ashutosh
(Associate Professor)
&

Mr. Vikram Singh Rajput
(Assistant Professor)



DEPARTMENT OF MECHANICAL ENGINEERING

AJAY KUMAR GARG ENGINEERING COLLEGE GHAZIABAD

27th Km. Stone, NH-24, Delhi-Hapur Bypass Road, Adhyatmik Nagar, Ghaziabad- 201009

DR. A. P. J. ABDUL KALAM TECHNICAL UNIVERSITY LUCKNOW

Year : 2023 – 2024


Director
Ajay Kumar Garg Engg. College
Ghaziabad



**AJAY KUMAR GARG ENGINEERING COLLEGE
GHAZIABAD**

CANDIDATE'S DECLARATION

We hereby declare that the work being presented in the report entitled "TOPOLOGY OPTIMIZATION OF THE BRAKE PEDAL" submitted to Ajay Kumar Garg Engineering College, Ghaziabad, in partial fulfillment of the requirements for the award of the degree of Bachelor of Technology in Mechanical Engineering of Dr. A. P. J. Abdul Kalam Technical University, Lucknow, is an authentic record of our own work carried out during a period from July, 2023 to May, 2024 under the supervision of Mr. Som Ashutosh, Associate Professor, Department of Mechanical Engineering & Mr. Vikram Singh Rajput, Assistant Professor, Department of Mechanical Engineering. The matter presented in this report has not been submitted to any other university or institution for the award of any degree to the best of my knowledge.

Ayush Pandey

Ayush pandey

(2100270409002)

Abhinandan Kumar

Abhinandan Kumar

(2100270409002)

Aditya Bhattacharya

Aditya Bhattacharya

(2000270400005)

Prateek Gupta

Prateek Gupta

(1900270400087)



**AJAY KUMAR GARG ENGINEERING COLLEGE
GHAZIABAD**

CERTIFICATE

This is to certify that the project report entitled "TOPOLOGY OPTIMIZATION OF THE BRAKE PEDAL" submitted to Ajay Kumar Garg Engineering College, Ghaziabad, in partial fulfillment of the requirements for the award of the degree of Bachelor of Technology in Mechanical Engineering of Dr. A. P. J. Abdul Kalam Technical University, Lucknow, is bona fide record of work submitted by Ayush Pandey (2100270409002), Aditya Bhattacharya (2000270400005), Abhinandan Kumar (2100270409001) and Prateek Gupta (1900270400087) under my supervision. The matter presented in this report has not been submitted to any other university or institution for the award of any degree to the best of my knowledge.

Mr. Som Ashutosh
Guide
Associate Professor
Department of Mechanical Engineering
AKGEC, GHAZIABAD

Dr. Pallab Biswas
Prof & Head
Department of Mechanical Engineering
AKGEC, Ghaziabad

Mr. Vikram Singh Rajput
Guide
Assistant Professor
Department of Mechanical Engineering

Project Name:

or

प्रिय विद्यार्थी, आपका प्रोजेक्ट का नाम यहाँ लिखें।

Submitted to partial fulfillment of the requirements for the award of the degree of

or

प्रस्तुत किया है आंशिक रूप से डिग्री के

or

आंशिक रूप से डिग्री के लिए

or

AKASH PANDA (2000)XXXXXXXXXX

ASHINI KANDI (2000)XXXXXXXXXX

HAANI SINGH (2000)XXXXXXXXXX

CAJALY ANAND KUMAR (2000)XXXXXXXXXX

Under the supervision of

or

DR. VIKRAM SINGH KAPUR

Asst. Prof.

Department of Mechanical Engineering



AJAY KUMAR GARG ENGINEERING COLLEGE GHAZIABAD

Plot No. 10, Sector-28, Delhi-Gurgaon Express Road, Gurgaon, Haryana - 201009

Dr. A. T. J. ABHIJIT KALAM TECHNICAL UNDERGRADUATE COLLEGE

Year : 2023 - 2024


Director
Ajay Kumar Garg Engg. College
Ghaziabad

Project Report
on

DESIGN AND DEVELOPMENT OF BUMPER CAR

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

BACHELOR OF TECHNOLOGY

in

MECHANICAL ENGINEERING

by

**AKASH PANDEY (2000270400010)
ASHISH ANAND (2000240400026)
DAKSH SINGH (2000270400033)
GAURAV VISHWAKARMA (2000270400039)**

Under the supervision
of

Mr. VIKRAM SINGH RAJPUT
Asst Prof.
Department of Mechanical Engineering



AJAY KUMAR GARG ENGINEERING COLLEGE GHAZIABAD
27th Km. Stone, NH-24, Delhi-Hapur Bypass Road, Adhyatmik Nagar, Ghaziabad- 201009

DR. A. P. J. ABDUL KALAM TECHNICAL UNIVERSITY LUCKNOW
Year : 2023 – 2024


Director
Ajay Kumar Garg Engg. College
Ghaziabad

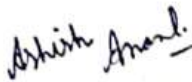


AJAY KUMAR GARG ENGINEERING COLLEGE GHAZIABAD

CANDIDATES' DECLARATION

We hereby declare that the work being presented in the report entitled "DESIGN AND DEVELOPMENT OF AUTO BUMPER CAR" submitted to Ajay Kumar Garg Engineering College, Ghaziabad, in partial fulfillment of the requirements for the award of the degree of Bachelor of Technology in Mechanical Engineering of Dr. A. P. J. Abdul Kalam Technical University, Lucknow, is an authentic record of our own work carried out during a period from July, 2023 to May, 2024 under the supervision of Vikaram Singh Rajput, Asst. Prof. Department of Mechanical Engineering. The matter presented in this report has not been submitted to any other university or institution for the award of any degree to the best of my knowledge.


AKASH PANDEY
(2000270400010)


ASHISH ANAND
(2000240400026)


DAKSH SINGH
(2000270400033)


GAURAV VISHWAKARMA
(2000270400039)


Director
Ajay Kumar Garg Engg. College
Ghaziabad



AJAY KUMAR GARG ENGINEERING COLLEGE GHAZIABAD

CANDIDATES' DECLARATION

We hereby declare that the work being presented in the report entitled "DESIGN AND DEVELOPMENT OF AUTO BUMPER CAR" submitted to Ajay Kumar Garg Engineering College, Ghaziabad, in partial fulfillment of the requirements for the award of the degree of Bachelor of Technology in Mechanical Engineering of Dr. A. P. J. Abdul Kalam Technical University, Lucknow, is an authentic record of our own work carried out during a period from July, 2023 to May, 2024 under the supervision of Vikaram Singh Rajput, Asst. Prof. Department of Mechanical Engineering. The matter presented in this report has not been submitted to any other university or institution for the award of any degree to the best of my knowledge.

AKASH PANDEY
(2000270400010)

ASHISH ANAND
(2000240400026)

DAKSH SINGH
(2000270400033)

GAURAV VISHWAKARMA
(2000270400039)



AJAY KUMAR GARG ENGINEERING COLLEGE GHAZIABAD

CERTIFICATE

This is to certify that the project report entitled "DESIGN AND DEVELOPMENT OF AUTO
UMPER CAR" submitted to Ajay Kumar Garg Engineering College, Ghaziabad, in partial
fulfillment of the requirements for the award of the degree of **Bachelor of Technology** in
Mechanical Engineering of **Dr. A. P. J. Abdul Kalam Technical University, Lucknow**, is
in the record of work submitted by Akash Pandey (2000270400010) Ashish Anand
(2000270400026) Daksh Singh (2000270400033) Gaurav Vishwakarma (2000270400039) under
my supervision. The matter presented in this report has not been submitted to any other university
institution for the award of any degree to the best of my knowledge.

Vikram Singh Rajput

Supervisor Asst. Prof.

Department of ME

AKGEC, Ghaziabad

Ashiv Shah

HOD & Prof

TIFAC CORE

AKGEC, GHAZIABAD

Director
Ajay Kumar Garg Engg. College
Ghaziabad



**AJAY KUMAR GARG ENGINEERING COLLEGE
GHAZIABAD**

CERTIFICATE

This is to certify that the project report entitled “**DESIGN AND DEVELOPMENT OF AUTO BUMPER CAR**” submitted to **Ajay Kumar Garg Engineering College, Ghaziabad**, in partial fulfillment of the requirements for the award of the degree of **Bachelor of Technology in Mechanical Engineering** of **Dr. A. P. J. Abdul Kalam Technical University, Lucknow**, is Bonafide record of work submitted Akash Pandey (2000270400010) Ashish Anand (2000270400026) Daksh Singh (2000270400033) Gaurav Vishwakarma (2000270400039) under my supervision. The matter presented in this report has not been submitted to any other university or institution for the award of any degree to the best of my knowledge.

Mr. Vikram Singh Rajput
Supervisor Asst. Prof.
Department of ME
AKGEC, Ghaziabad

Ashiv Shah
HOD & Prof
TIFAC CORE
AKGEC, GHAZIABAD

Director
Ajay Kumar Garg Engg. College
Ghaziabad

Project Report
on

**INVESTIGATION OF MECHANICAL AND TRIBOLOGICAL
PROPERTIES OF ZA27 / GRAPHITE / SiC ALLOY COMPOSITE
MATERIAL USED FOR BEARING APPLICATION**

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

BACHELOR OF TECHNOLOGY

in

MECHANICAL ENGINEERING

by

**RAUSHAN KUMAR (2000270400071)
ASHISH TULSYAN (2000270400028)
SANCHIT SINGH (2000270400078)**

Under the supervision of

Dr. SUMAN GOTHWAL

Associate Professor

Department of Mechanical Engineering

&

H.S. CHAURASIYA

Assistant Professor

Department of Mechanical Engineering



AJAY KUMAR GARG ENGINEERING COLLEGE GHAZIABAD

27th Km. Stone, NH-24, Delhi-Hapur Bypass Road, Adhyatmik Nagar, Ghaziabad- 201009

DR. A. P. J. ABDUL KALAM TECHNICAL UNIVERSITY LUCKNOW

Year: 2023 – 2024


Director
Ajay Kumar Garg Engg. College
Ghaziabad



**AJAY KUMAR GARG ENGINEERING COLLEGE
GHAZIABAD**

CANDIDATES' DECLARATION

We hereby declare that the work being presented in the report entitled "INVESTIGATION OF MECHANICAL AND TRIBOLOGICAL PROPERTIES OF ZA27 / GRAPHITE / SiC ALLOY COMPOSITE MATERIAL USED FOR BEARING APPLICATION" submitted to Ajay Kumar Garg Engineering College, Ghaziabad, in partial fulfillment of the requirements for the award of the degree of Bachelor of Technology in Mechanical Engineering of Dr. A. P. J. Abdul Kalam Technical University, Lucknow, is an authentic record of our own work carried out during a period from July, 2023 to May, 2024 under the supervision of **Dr. Suman Gothwal**, Associate Professor, Department of Mechanical Engineering & **H.S. Chaurasiya**, Assistant Professor, Department of Mechanical Engineering. The matter presented in this report has not been submitted to any other university or institution for the award of any degree to the best of my knowledge.

RAUSHAN KUMAR
(2000270400071)

ASHISH TULSYAN
(2000270400028)

SANCHIT SINGH
(2000270400078)

Director
Ajay Kumar Garg Engg. College
Ghaziabad



**AJAY KUMAR GARG ENGINEERING COLLEGE
GHAZIABAD**

CERTIFICATE

This is to certify that the project report entitled “**INVESTIGATION OF MECHANICAL AND TRIBOLOGICAL PROPERTIES OF ZA27 / GRAPHITE / SiC ALLOY COMPOSITE MATERIAL USED FOR BEARING APPLICATION**” submitted to **Ajay Kumar Garg Engineering College, Ghaziabad**, in partial fulfillment of the requirements for the award of the degree of **Bachelor of Technology in Mechanical Engineering** of **Dr. A. P. J. Abdul Kalam Technical University, Lucknow**, is bona fide record of work submitted by **Raushan Kumar (2000270400071)**, **Ashish Tulsyan (2000270400028)** And **Sanchit Singh (2000270400078)** under my supervision. The matter presented in this report has not been submitted to any other university or institution for the award of any degree to the best of my knowledge.

Dr. Suman Gothwal
Guide
Associate Professor
Department of Mechanical Engineering
AKGEC, Ghaziabad

Dr. Pallab Biswas
Prof & Head
Department of Mechanical
Engineering
AKGEC, Ghaziabad

H.S. Chaurasiya
Guide
Assistant Professor
Department of Mechanical Engineering
AKGEC, Ghaziabad

Director
Ajay Kumar Garg Engg. College
Ghaziabad

Project Report
on

**DIMENSIONAL ANALYSIS OF WIRE ARC ADDITIVE
MANUFACTURING USING MILD STEEL**

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

**BACHELOR OF TECHNOLOGY
In
MECHANICAL ENGINEERING**

by

**SHASHIKANT YADAV (2000270400083)
UTSAH SINGH (2000270400096)
SHIV KUMAR CHAUHAN (2000270400086)
SUSHIL KUMAR (2000270400091)**

Under the supervision
of

Dr. PRADEEP JAIN

Professor

Department of Mechanical Engineering
&

Dr. SUMAN GOTHWAL

Assistant Professor

Department of Mechanical Engineering



AJAY KUMAR GARG ENGINEERING COLLEGE, GHAZIABAD
27th Km. Stone, NH-24, Delhi-Hapur Bypass Road, Adhyatmik Nagar, Ghaziabad- 201009

DR. A. P. J. ABDUL KALAM TECHNICAL UNIVERSITY, LUCKNOW
Year: 2023 – 2024


Director
Ajay Kumar Garg Engg. College
Ghaziabad



AJAY KUMAR GARG ENGINEERING COLLEGE GHAZIABAD

CANDIDATE'S DECLARATION

We hereby declare that the work being presented in the report entitled "DIMENSIONAL ANALYSIS OF WIRE ARC ADDITIVE MANUFACTURING USING MILD STEEL" submitted to Ajay Kumar Garg Engineering College, Ghaziabad, in partial fulfillment of the requirements for the award of the degree of Bachelor of Technology in Mechanical Engineering of Dr. A. P. J. Abdul Kalam Technical University, Lucknow, is an authentic record of our own work carried out during a period from July, 2023 to May, 2024 under the supervision of **Dr. Pradeep Jain**, Professor, Department of Mechanical Engineering & **Dr. Suman Gothwal**, Assistant Professor, Department of Mechanical Engineering. The matter presented in this report has not been submitted to any other university or institution for the award of any degree to the best of my knowledge.

SHASHIKANT YADAV

(2000270400083)

Shashi

UTSAH SINGH

(2000270400096)

Utsah

SHIV KUMAR CHAUHAN

(2000270400086)

Shiv

SUSHIL KUMAR

(2000270400091)

Sushil

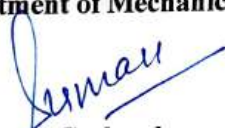


**AJAY KUMAR GARG ENGINEERING COLLEGE
GHAZIABAD**

CERTIFICATE

This is to certify that the project report entitled “**DIMENSIONAL ANALYSIS OF WIRE ARC ADDITIVE MANUFACTURING USING MILD STEEL**” submitted to **Ajay Kumar Garg Engineering College, Ghaziabad**, in partial fulfillment of the requirements for the award of the degree of **Bachelor of Technology in Mechanical Engineering** of **Dr. A. P. J. Abdul Kalam Technical University, Lucknow**, is bona fide record of work submitted by **Shashikant Yadav (2000270400083)**, **Utsah Singh (2000270400096)**, **Shiv Kumar Chauhan (2000270400086)** and **Sushil Kumar (2000270400091)** under my supervision. The matter presented in this report has not been submitted to any other university or institution for the award of any degree to the best of my knowledge.


Dr. Pradeep Jain
Guide
Professor
Department of Mechanical Engineering


Dr. Suman Gothwal
Co-Guide
Assistant Professor
Department of Mechanical Engineering
AKGEC, Ghaziabad


Dr. Pallab Viswas
Prof & Head
Department of Mechanical Engineering
AKGEC, Ghaziabad

Project report

On

DESIGN & FABRICATION OF HIGH TEMPERATURE EXTRUDER

Submitted in partial fulfillment of

The requirements for the award of degree

Of

BACHELOR OF TECHNOLOGY IN

MECHANICAL ENGINEERING

By

PRIYANSHU PATEL(2000270400065)

VINAY (2000270400100)

PRANAV MISHRA(2000270400061)

SHARIF AHMAD(2000270400082)

Under the supervision

Of

DR. PRADEEP JAIN

Professor

Department of Mechanical Engineering &

Dr. SUMAN GOTHWAL

Assistant Professor

Department of Mechanical Engineering



AJAY KUMAR GARG ENGINEERING COLLEGE GHAZIABAD 27th Km.
Stone, NH-24, Delhi-Hapur Bypass Road, Adhyatmik, Nagar, Ghaziabad-201009 DR.
A. P. J. ABDUL KALAM TECHNICAL UNIVERSITY, LUCKNOW Year: 2023
- 2023 AJAY KUMAR GARG ENGINEERING COLLEGE GHAZIABAD


Director
Ajay Kumar Garg Engg. College
Ghaziabad



CANDIDATES'S DECLARATION

We hereby declare that the work being presented in the report entitled “**DESIGN & FABRICATION OF HIGH TEMPERATURE EXTRUDER**” submitted to Ajay Kumar Garg Engineering College, Ghaziabad, in partial fulfillment of the requirements for the award of the degree of Bachelor of Technology in Mechanical Engineering of Dr. A. P. J. Abdul Kalam Technical University, Lucknow, is an authentic record of our own work carried out during a period from July, 2023 to May, 2024 under the supervision of Dr. PRADEEP JAIN, Professor, Department of Mechanical Engineering & Dr. SUMAN GOTHEAL, Assistant Professor, Department of Mechanical Engineering. The matter presented in this report has not been submitted to any other university or institution for the award of any degree to the best of my knowledge.

PRIYANSHUPATEL

(2000270400065)

SHARIF AHMAD

(2000270400082)

VINAY

(2000270400100)

PRANAV MISHRA

(2000270400061)

Director
Ajay Kumar Garg Engg. College
Ghaziabad



AJAY KUMAR GARG ENGINEERING COLLEGE GHAZIABAD

CERTIFICATE

This is to certify that the project report entitled “**DESIGN & FABRICATION OF HIGH TEMPERATURE EXTRUDER**” submitted to **Ajay Kumar Garg Engineering College, Ghaziabad**, in partial fulfillment of the requirements for the award of the degree of **Bachelor of Technology in Mechanical Engineering of Dr. A. P. J. Abdul Kalam Technical University, Lucknow**, is bona fide record of work submitted by **PRIYANSHU PATEL (2000270400065), VINAY (2000270400100), SHARIF AHMAD C (2000270400082) and PRANAV MISHRA(2000270400061)** under my supervision. The matter presented in this report has not been submitted to any other university or institution for the award of any degree to the best of my knowledge.

Dr. Pradeep Jain

Guide

Professor

Department of Mechanical Engineering

Dr. Suman Gothwal

~~Dr.~~ Guide

Assistant Professor

Department of Mechanical Engineering

AKGEC, Ghaziabad

Dr. Pallab Viswas

Prof & head

Department of Mechanical Engineering

AKGEC, Ghaziabad

Director
Ajay Kumar Garg Engg. College
Ghaziabad

PROJECT ID: 24/ ME/ M10

A PROJECT REPORT ON
ELECTRIC TURBO-JET ENGINE

A DISSERTATION

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE
AWARD OF THE DEGREE OF

BACHELOR OF TECHNOLOGY

IN

MECHANICAL ENGINEERING

SUBMITTED BY

BIPIN GUPTA (2000270400032)

ISHAAN JAISWAL (2000270400047)

ISHU BHARDWAJ (2000270409003)

SATYAM KUMAR RAWAT (2000270400079)

UNDER THE SUPERVISION OF

MR. H. S. CHAURASIA (ASST. PROF. ME)

&

MR. AMIT TRIPATHI (ASST. PROF. ME)



AJAY KUMAR GARG ENGINEERING COLLEGE GHAZIABAD
27th Km. Stone, NH-24, Delhi-Hapur Bypass Road, Adhyatmik Nagar, Ghaziabad- 201009

DR. A. P. J. ABDUL KALAM TECHNICAL UNIVERSITY LUCKNOW

SESSION: 2023-2024


Director
Ajay Kumar Garg Engg. College
Ghaziabad



AJAY KUMAR GARG ENGINEERING COLLEGE, GHAZIABAD

CANDIDATES DECLARATION

I hereby declare that the work presented in the report titled "**Electric Turbo Jet Engine**," submitted to Ajay Kumar Garg Engineering College, Ghaziabad, is in partial fulfillment of the requirements for the degree of Bachelor of Technology in Mechanical Engineering from Dr. A. P. J. Abdul Kalam Technical University, Lucknow. This work was carried out between August 2023 and May 2024 under the supervision of **Mr. H. S. Chaurasia**, Assistant Professor, Department of Mechanical Engineering, and **Mr. Amit Tripathi**, Assistant Professor, Department of Mechanical Engineering. I affirm that the matter presented in this report has not been submitted to any other university or institution for the award of any degree, to the best of my knowledge.

BIPIN GUPTA
(2000270400032)

ISHU BHARDWAJ
(2000270409003)

ISHAAN JAISWAL
(2000270400047)


SATYAM KUMAR RAWAT
(2000270400079)



**AJAY KUMAR GARG ENGINEERING COLLEGE
GHAZIABAD**

CERTIFICATE

This is to certify that the project report entitled “ **Electric Turbo Jet Engine**” submitted to **Ajay Kumar Garg Engineering College, Ghaziabad**, in partial fulfillment of the requirements for the award of the degree of **Bachelor of Technology in Mechanical Engineering** of **Dr. A. P. J. Abdul Kalam Technical University, Lucknow**, is a bonafide record of work submitted by Bipin Gupta (2000270400032), Ishaan Jaiswal (2000270400047), Ishu Bhardwaj (2000270409003), and Satyam Kumar Rawat (2000270400079) under my supervision. The matter presented in this report has not been submitted to any other university or institution for the award of any degree, to the best of my knowledge.


05/06/24

**Mr. H. S. Chaurasia
Asst. Prof.**

**Department of Mechanical Engineering
AKGEC, Ghaziabad**



**Dr. Pallab Biswas
Prof. & HOD**

**Department of Mechanical Engineering
AKGEC, Ghaziabad**


05-06-2024

**Mr. Amit Tripathi
Asst. Prof.**

**Department of Mechanical Engineering
AKGEC, Ghaziabad**

PROJECT REPORT

on

**TO EXAMINE THE CHARACTERISTICS AND MECHANICAL BEHAVIOUR OF DUPLEX
STAINLESS STEEL AFTER GAS TUNGSTEN ARC WELDING (GTAW)**

*Submitted in partial fulfilment of
the requirement of the degree*

of

**Bachelors of Technology
in Mechanical Engineering**

by

Natasha Tomar (2100270409006)

Shivam Sharma (2100270409007)

Vivek Vishwas (2000270400103)

Vineet Kumar (2000270400101)

Under the guidance

of

Mr. Amit Kumar Tripathi (Guide)

(Asst. Professor, Department of Mechanical Engineering)

&

Mr. H.S. Chaurasiya (CO-Guide)

(Asst. Professor, Department of Mechanical Engineering)



DEPARTMENT OF MECHANICAL ENGINEERING

AJAY KUMAR GARG ENGINEERING COLLEGE, GHAZIABAD

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DR. A.P.J ABDUL KALAM TECHNICAL UNIVERSITY LUCKNOW, Y


Director
Ajay Kumar Garg Engg. College
Ghaziabad



AJAY KUMAR GARG ENGINEERING COLLEGE GHAZIABAD

CANDIDATE'S DECLARATION

We hereby declare that the work being presented in the report entitled "TO EXAMINE THE CHARACTERISTICS AND MECHANICAL BEHAVIOUR OF DUPLEX STAINLESS STEEL AFTER GAS TUNGSTEN ARC WELDING (GTAW)" Submitted to Ajay Kumar Garg Engineering College, Ghaziabad, in partial fulfilment of the requirements for the award of the degree of Bachelor of Technology in Mechanical Engineering of Dr. A. P. J. Abdul Kalam Technical University, Lucknow, is an authentic record of our ownwork carried out under the supervision of Mr. Amit Kumar Tripathi, assistant professor, Department of Mechanical Engineering. The matter presented in this report has not been submitted to any other university or institution for the award of any degree to the best of my knowledge.

Natasha Tomar

NATASHA TOMAR

(2100270409006)

Shivam Sharma

SHIVAM SHARMA

(2100270409007)

Vivek Vishwas

VIVEK VISHWAS

(2000270400103)

Vineet Kumar

VINEET KUMAR

(2000270400101)

A.K.G.
Director
Ajay Kumar Garg Engg. College
Ghaziabad



**AJAY KUMAR GARG ENGINEERING
COLLEGE, GHAZIABAD**

CERTIFICATE

This is to certify that the project report entitled "TO EXAMINE THE CHARACTERISTICS AND MECHANICAL BEHAVIOUR OF DUPLEX STAINLESS STEEL AFTER GAS TUNGSTEN ARC WELDING (GTAW)" Submitted to Ajay Kumar Garg Engineering College, Ghaziabad, in partial fulfilment of the requirements for the award of the degree of Bachelor of Technology in Mechanical Engineering of Dr. A.P.J Abdul Kalam Technical University, Lucknow, is bona fide record of work submitted by **Natasha Tomar(2100270409006), Shivam Sharma(2100270409007), Vivek Vishwas(2000270400103), Vineet Kumar(2000270400101)** under my supervision. The matter presented in this report has not been submitted to any other university or institution for the award of any degree to the best of my knowledge.

Amit
05-06-2024

Mr. Amit Kumar Tripathi (Guide)
Assistant Professor
Department of Mechanical Engineering
AKGEC, Ghaziabad

[Signature]
05/06/24

Dr. Pallab Biswas
Prof & Head
Department of Mechanical
Engineering
AKGEC, Ghaziabad

[Signature]
05/06/24

Mr. H.S. Chaurasiya (CO-Guide)
Assistant Professor
Department of Mechanical Engineering
AKGEC, Ghaziabad

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Director
Ajay Kumar Garg Engg. College
Ghaziabad

Project
Report on

SMART HIGHWAY USING ENERGY GENERATION FROM RENEWABLE RESOURCES AND SPEED BREAKER

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

of

**BACHELOR OF TECHNOLOGY
In**

MECHANICAL ENGINEERING

by

**UTKARSH SINGH (2000270400095)
RAJAT RAI (2000270400069)
UTKARSH KAUSHIK (2000270400094)
SAURABH GUPTA (2000270400080)**

**Under the
supervision of**

**Dr. KAMAL KUMAR MITTAL
Assistant Professor
Department of Mechanical
Engineering**

&

**Mr. ASHUTOSH YADAV
Assistant Professor
Department of Mechanical
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Year: 2023 – 2024


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ACKNOWLEDGEMENTS

We would like to thank, first and foremost, our parents, for the unconditional and continuous support, through their thick and thin that they faced due to our project work. We would like to express our deepest gratitude to **Dr. Pallab Biswas**, Professor & Head, Department of Mechanical engineering, A.K.G.E.C, Ghaziabad for his guidance and support. We would like to especially thank our respected supervisors, **Dr. Kamal Kumar Mittal**, Assistant Professor, Department of Mechanical Engineering & **Mr. Ashutosh Yadav** Assistant Professor, Department of Mechanical Engineering, A.K.G.E.C, Ghaziabad for giving an opportunity to work under their supervision and guiding us throughout our project work. It has been an honor working under their guidance, without which this dissertation would not have been possible. The guidance and the valuable inputs provided by her helped us towards improving our thesis document. We extend our heartfelt gratitude to **Ajay Kumar Garg Engineering College, Ghaziabad**, for their invaluable support and provision of essential resources that greatly facilitated the successful completion of our project. The state-of-the-art equipment and facilities available at

A.K.G.E.C were instrumental in our endeavor, enabling us to conduct our research with utmost efficiency and precision. We are sincerely thankful to A.K.G.E.C. for their unwavering assistance and for fostering an environment conducive to academic excellence. We also thank all those who were involved directly or indirectly in the completion of the present thesis work. Lastly, but not the least, we would like to thank God for helping us to achieve this milestone.


UTKARSH SINGH
(2000270400095)


RAJAT RAI
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(2000270400094)


SAURABH GUPTA
(2000270400080)



**AJAY KUMAR GARG ENGINEERING COLLEGE
GHAZIABAD**

CERTIFICATE

This is to certify that the project report entitled "SMART HIGHWAY USING ENERGY GENERATION FROM RENEWABLE RESOURCES AND SPEED BREAKER" submitted to Ajay Kumar Garg Engineering College, Ghaziabad, in partial fulfillment of the requirements for the award of the degree of Bachelor of Technology in Mechanical Engineering of Dr. A. P. J. Abdul Kalam Technical University, Lucknow, is bona fide record of work submitted by Utkarsh Singh (2000270400095), Rajat Rai (2000270400096), Utkarsh Kaushik (2000270400094) and Saurabh Gupta (2000270400080) under my supervision. The matter presented in this report has not been submitted to any other university or institution for the award of any degree to the best of my knowledge.

Dr. Kamal Kumar Mittal
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