

**ANNA UNIVERSITY, CHENNAI**  
**AFFILIATED INSTITUTIONS**  
**B.E. MECHANICAL ENGINEERING**  
**REGULATIONS – 2017**  
**CHOICE BASED CREDIT SYSTEM**

**PROGRAMME EDUCATIONAL OBJECTIVES:**

Bachelor of Mechanical Engineering curriculum is designed to impart Knowledge, Skill and Attitude on the graduates to

1. Have a successful career in Mechanical Engineering and allied industries.
2. Have expertise in the areas of Design, Thermal, Materials and Manufacturing.
3. Contribute towards technological development through academic research and industrial practices.
4. Practice their profession with good communication, leadership, ethics and social responsibility.
5. Graduates will adapt to evolving technologies through life-long learning.

**PROGRAMME OUTCOMES**

1. An ability to apply knowledge of mathematics and engineering sciences to develop mathematical models for industrial problems.
2. An ability to identify, formulates, and solve complex engineering problems. with high degree of competence.
3. An ability to design and conduct experiments, as well as to analyze and interpret data obtained through those experiments.
4. An ability to design mechanical systems, component, or a process to meet desired needs within the realistic constraints such as environmental, social, political and economic sustainability.
5. An ability to use modern tools, software and equipment to analyze multidisciplinary problems.
6. An ability to demonstrate on professional and ethical responsibilities.
7. An ability to communicate, write reports and express research findings in a scientific community.
8. An ability to adapt quickly to the global changes and contemporary practices.
9. An ability to engage in life-long learning.

**PEO / PO Mapping**

<b>Programme Educational Objectives</b>	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>	<b>PO6</b>	<b>PO7</b>	<b>PO8</b>	<b>PO9</b>
<b>I</b>	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>II</b>	✓	✓	✓		✓			✓	
<b>III</b>		✓		✓	✓	✓		✓	
<b>IV</b>					✓	✓	✓		✓
<b>V</b>		✓	✓	✓	✓				✓

<b>ME8811</b>	<b>PROJECT WORK</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
		<b>0</b>	<b>0</b>	<b>20</b>	<b>10</b>

**OBJECTIVE:**

- To develop the ability to solve a specific problem right from its identification and literature review till the successful solution of the same. To train the students in preparing project reports and to face reviews and viva voce examination.

The students in a group of 3 to 4 works on a topic approved by the head of the department under the guidance of a faculty member and prepares a comprehensive project report after completing the work to the satisfaction of the supervisor. The progress of the project is evaluated based on a minimum of three reviews. The review committee may be constituted by the Head of the Department. A project report is required at the end of the semester. The project work is evaluated based on oral presentation and the project report jointly by external and internal examiners constituted by the Head of the Department.

**TOTAL: 300 PERIODS**

**OUTCOME:**

- On Completion of the project work students will be in a position to take up any challenging practical problems and find solution by formulating proper methodology.

<b>ME8091</b>	<b>AUTOMOBILE ENGINEERING</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
		<b>3</b>	<b>0</b>	<b>0</b>	<b>3</b>

**OBJECTIVES:**

- To understand the construction and working principle of various parts of an automobile.
- To have the practice for assembling and dismantling of engine parts and transmission system

**UNIT I VEHICLE STRUCTURE AND ENGINES 9**

Types of automobiles vehicle construction and different layouts, chassis, frame and body, Vehicle aerodynamics (various resistances and moments involved), IC engines –components-functions and materials, variable valve timing (VVT).

**UNIT II ENGINE AUXILIARY SYSTEMS 9**

Electronically controlled gasoline injection system for SI engines, Electronically controlled diesel injection system (Unit injector system, Rotary distributor type and common rail direct injection system), Electronic ignition system (Transistorized coil ignition system, capacitive discharge ignition system), Turbo chargers (WGT, VGT), Engine emission control by three way catalytic converter system, Emission norms (Euro and BS).

**UNIT III TRANSMISSION SYSTEMS 9**

Clutch-types and construction, gear boxes- manual and automatic, gear shift mechanisms, Over drive, transfer box, fluid flywheel, torque converter, propeller shaft, slip joints, universal joints, Differential and rear axle, Hotchkiss Drive and Torque Tube Drive.

**UNIT IV STEERING, BRAKES AND SUSPENSION SYSTEMS 9**

Steering geometry and types of steering gear box-Power Steering, Types of Front Axle, Types of Suspension Systems, Pneumatic and Hydraulic Braking Systems, Antilock Braking System (ABS), electronic brake force distribution (EBD) and Traction Control.

<b>Subject Code &amp; Name : ME8811 &amp; Project Work</b>					
<b>Schedule</b>					
SI	Roll No.	Register No.	Name of the	Batch	Name of the Guide
1	17UMEC08	920417114087	SARAVANAN.T.M	1	Dr.S.SENTHIL
2	17UMEC02	920417114077	RAJ KUMAR.C		
3	17UMEC00	920417114034	JEFREN JOSHUA.R		
4	17UMEC13	920417114303	N.BALAJI	2	Dr.S.SENTHIL
5	17UMEC12	920417114310	K.MATHANKUMAR		
6	17UMEC11	920417114304	N.BALAJI		
7	17UMEC08	920417114059	NANDHA	3	Dr.S.THANGA KASI RAJAN
8	17UMEC02	920417114115	YUVAGIRIDHARAN.		
9	17UMEC04	920417114060	NAVEEN		
10	17UMEC09	920417114075	RAJESH KUMAR.S	4	Dr.S.THANGA KASI RAJAN
11	17UMEC08	920417114011	AYYANAR.G		
12	17UMEC10	920417114082	SANTHANAM.R		
13	17UMEC05	920417114020	DIVAKAR.M	5	Mr.T.RAMESH
14	17UMEC04	920417114012	BALAGANESH.B		
15	17UMEC04	920417114066	PRASANTH.S		
16	17UMEC01	920417114092	SRINIKESH.G	6	Mr.S.CHIDAMBARAKUMAR AN
17	17UMEC01	920417114051	MOHAMED		
18	17UMEC01	920417114090	SHAHUL IRSATH.S		
19	17UMEC07	920417114038	KALAIVANAN.R	7	Mr.S.CHIDAMBARAKUMAR AN
20	17UMEC07	920417114071	RAGHUL.V		
21	17UMEC04	920417114006	ARUNKUMAR.M		
22	17UMEC06	920417114102	VENKADESH.M	8	Mr.P.SIVASUBRAMANIYAM
23	17UMEC08	920417114031	JASWANTHKUMAR.		
24	17UMEC06	920417114057	MUTHU.P		
25	17UMEC11	920417114013	BALAJI	9	Mr.P.SIVASUBRAMANIYAM
26	17UMEC09	920417114025	GOWTHAM.K		
27	17UMEC05	920417114018	DHIVAKER.S		
28	17UMEC02	920417114103	VENKATESH	10	Mr.R.SAKTHIVEL MURUGAN
29	17UMEC03	920417114062	PALANIVEL.S		
30	17UMEC00	920417114089	SENTHIL RAJ.M		
31	17UMEC06	920417114040	KARTHIK RAJA.M	11	Mr.N.R.MADHAN
32	17UMEC03	920417114035	JEYA AKASH.P		
33	17UMEC00	920417114063	PANDEESWARAMO		
34	17UMEC09	920417114091	SIVANPANDI.M	12	Mr.B.K.PARRTHIPAN
35	17UMEC05	920417114007	ARUNKUMAR.M		
36	17UMEC02	920417114009	ARUNRAMSUNDAR.		
37	17UMEC01	920417114004	ANANDKUMAR.V	13	Mr.M.PRITHIVIRAJI
38	17UMEC00	920417114001	ABINESH.A		
39	17UMEC06	920417114054	MOHAMMED		
40	17UMEC07	920417114055	MOHAMMED		

*P. Nalini*

*Senthil*

41	17UMEC03	920417114084	SARAVANAKUMAR.	13	Mr.M.P.INDRANATHAN
42	17UMEC09	920417114037	KALAI SELVAN.K		
43	17UMEC05	920417114081	SAKTHIVEL.R		
44	17UMEC06	920417114047	MANOJ KUMAR.V	14	Mr.T.SURESH
45	17UMEC08	920417114097	SURYA PRAKASH.L		
46	17UMEC07	920417114067	PRAVEEN.R		
47	17UMEC01	920417114086	SARAVANAN.T	15	Mr.A.SANKARANARAYANA MURTHY
48	17UMEC12	920417114311	S.NAVEEN KUMAR		
49	17UMEC12	920417114305	M.DILIP		
50	17UMEC05	920417114015	BHARATHWARAJ.S	16	Mr.A.SANKARANARAYANA MURTHY
51	17UMEC12	920417114317	R.YOGESH		
52	17UMEC13	920417114316	B.VIGNESH		
53	17UMEC10	920417114079	RAMACHANDRAN.P		
54	17UMEC03	920417114005	ARUN.S	17	Mr.DAVID BLESSLEY
55	17UMEC02	920417114070	RATHAKRISHNAN.J		
56	17UMEC06	920417114029	HARISANKAR.R		
57	17UMEC01	920417114039	KANAKAVEL.A	18	Mr.DAVID BLESSLEY
58	17UMEC11	920417114076	RAJESHWARAN.A.E		
59	17UMEC01	920417114032	JAYA SAJIN RAJ.J.S		
60	17UMEC11	920417114309	R.LAKSHMI	19	Mr.L.LOGANATHAN
61	17UMEC02	920417114098	TAIN A FRANISH		
62	17UMEC02	920417114096	SURULI		
63	17UMEC05	920417114026	GOWTHAM.M	20	Mr.L.LOGANATHAN
64	17UMEC03	920417114107	VIGNESH.S		

**B Section**

SI No.	Roll No.	Register No.	Name of the student	Batch	Name of the Guide
1	17UMEC08	920417114106	R.Vignesh	1	Dr.S.S.Saravana Kumar
2	17UMEC10	920417114043	T.S.Kishore		
3	17UMEC02	920417114088	S.Satheesh kumar		
4	17UMEC08	920417114022	T.Fazludeen ahamed		
5	17UMEC08	920417114085	M.Saravana kumar	2	Dr.P.Narayanasamy
6	17UMEC04	920417114045	A.Madhana Gopal		
7	17UMEC08	920417114046	K.Madhubala		
8	17UMEC12	920417114313	P.Senthil kumar		
9	17UMEC09	920417114041	R.Keerthivasan	3	Dr.P.Narayanasamy
10	17UMEC09	920417114100	B.Vasanthkumar		
11	17UMEC07	920417114003	M.Ajeeth		
12	17UMEC02	920417114093	M.Srinivasan		
13	17UMEC06	920417114048	S.Mareeswaran		Mr.T.Ramesh
14	17UMEC05	920417114049	V.Mathankumar	4	
15	17UMEC12	920417114315	S.Srivathsan		
16	17UMEC05	920417114033	Y.Jeeva rajan		Mr.D.Palanikumar
17	17UMEC00	920417114053	G.Mathavan	5	
18	17UMEC10	920417114050	K.Mohamed		
19	17UMEC10	920417114056	V.Muniyasamy	6	Mr.D.Palanikumar
20	17UMEC03	920417114061	M.Nithiesh Kumar		
21	17UMEC03	920417114113	S.Viswak		
22	17UMEC01	920417114014	V.Bharath Kumar		

*P. Nalini*

*Senthil*



23	17UMEC06	920417114105	K.Vignesh	7	Mr.B.Prabhu
24	17UMEC09	920417114065	D.Prakash		
25	17UMEC10	920417114068	K.Praveen kumar		
26	17UMEC04	920417114083	G.Santhosh	8	Mr.R.Sakthivel Murugan
27	17UMEC00	920417114019	R.Dinesh kumar		
28	17UMEC11	920417114042	KHalid Mohammed		
29	17UMEC07	920417114021	M.Edwin charles	9	Mr.B.Balavairavan
30	17UMEC07	920417114099	A.R.Thillainathan		
31	17UMEC06	920417114028	S.Harikrishnan		
32	17UMEC08	920417114111	V.Vishnuprabhu	10	Mr.B.Balavairavan
33	17UMEC10	920417114052	A.Mohamed Ibrahim		
34	17UMEC01	920417114095	M.Sundaravelan		
35	17UMEC03	920417114027	C.H.D.Graham	11	Mr.B.K.Parrthipan
36	17UMEC07	920417114080	M.Regupathiraj		
37	17UMEC03	920417114008	M.Arun kumar		
38	17UMEC00	920417114078	E.Rajvignesh	12	Mr.S.Devaraj
39	17UMEC00	920417114023	N.Gajendran		
40	17UMEC06	920417114072	R.Raguprasath		
41	17UMEC05	920417114104	B.Vignesh	13	Mr.S.Devaraj
42	17UMEC11	920417114109	K.Vijaysegar		
43	17UMEC12	920417114314	Senthil Venkatesh		
44	17UMEC10	920417114017	R.Dinakaran		
45	17UMEC01	920417114016	J.M.Binu	14	Mr.M.Prithiviraj
46	17UMEC04	920417114024	S.Gautam		
47	17UMEC03	920417114069	P.Praveen raj		
48	17UMEC02	920417114094	C.Subbaiya	15	Mr.L.Loganathan
49	17UMEC09	920417114058	K.Naga arjun		
50	17UMEC11	920417114308	A.Karthikeyan		
51	17UMEC09	920417114074	S.Raja	16	Mr.T.Suresh
52	17UMEC09	920417114110	A.Vikram		
53	17UMEC10	920417114002	V.Ajaysudharsan		
54	17UMEC05	920417114010	P.Ashokkumar	17	Mr.P.Senthamarai Kannan
55	17UMEC07	920417114064	G.Periasamy		
56	17UMEC13	920417114301	K.V.Ajay ram		
57	17UMEC13	920417114701	S.Sugitha sri	18	Mr.P.Senthamarai Kannan
58	17UMEC12	920417114306	R.Divash kannan		
59	17UMEC12	920417114307	R.Harivignesh		
60	17UMEC07	920417114112	G.Vishnusrikumar	19	Mr.S.Muthu Natarajan
61	17UMEC12	920417114312	V.Naveenkumar		
62	17UMEC04	920417114114	R.Viswanathan		
63	17UMEC04	920417114044	L.Logesh	20	Mr.S.Muthu Natarajan
64	17UMEC00	920417114030	M.Harish kumar		
65	17UMEC10	920417114101	M.Vasanth kumar		

P. Nalby

Senthil

**DEVELOPMENT AND ANALYSIS OF BIODEGRADABLE  
POLY VINYL ALCOHOL AND PINEAPPLE CONE FILLER  
COMPOSITE BIO FILMS**

**A PROJECT REPORT**

*Submitted by*

**R.VIGNESH (17UMEC087)  
T.FAZULDEEN AHMED (17UMEC080)  
S.SATHESH KUMAR (17UMEC025)  
T.S.KISHORE (17UMEC101)**

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

**BACHELOR OF ENGINEERING  
IN  
MECHANICAL ENGINEERING**



**DEPARTMENT OF MECHANICAL ENGINEERING  
KAMARAJ COLLEGE OF ENGINEERING AND TECHNOLOGY  
(An Autonomous Institution Affiliated to Anna University, Chennai)  
K.VELLAKULAM - 625 701 (Near Virudhunagar)**

**APRIL 2021**

**KAMARAJ COLLEGE OF ENGINEERING AND  
TECHNOLOGY**

**(An Autonomous Institution Affiliated to Anna University, Chennai)**

**K.VELLAKULAM - 625 701 (Near Virudhunagar)**

**BONAFIDE CERTIFICATE**

Certified that this project report “**Development and analysis of biodegradable poly vinyl alcohol and pineapple cone filler composite bio films**” is the bonafide of “**R.Vignesh(920417114106),T.FazuldeenAhmed(920417114022),S.Sathesh Kumar(920417114088),T.S.Kishore(920417114043)**” who carried out the project work under my supervision.

*Senthil*

**SIGNATURE**

**Dr.S.SENTHIL, M.E.,Ph.D.**

**HEAD OF THE DEPARTMENT**

Dept.of Mechanical Engineering,  
Kamaraj college of Engineering &  
Technology,  
K.Vellakulam, Madurai

**SIGNATURE**

**Dr.S.S.SARAVANA KUMAR,M.E.,Ph.D.**

**SUPERVISOR**

Dept. of Mechanical Engineering,  
Kamaraj college of Engineering &  
Technology,  
K.Vellakulam, Madurai

*P. Nalini*

**INTERNAL EXAMINER**

*S.S. Saravana Kumar  
27/4/21*

**EXTERNAL EXAMINER**

**Development and analysis of poly vinyl alcohol/  
sesame indicum coat powder bio composite films by solution casting  
method for packaging application**

**A PROJECT REPORT**

**Submitted by**

**S.MAREESWARAN(920417114048)**

**V.MATHANKUMAR(920417114049)**

**S.SRIVATHSAN (920417114315)**

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

**BACHELOR OF ENGINEERING  
IN  
MECHANICAL ENGINEERING  
KAMARAJ COLLEGE OF ENGINEERING AND  
TECHNOLOGY.**



**(An Autonomous Institution Affiliated to Anna University, Chennai)**

**K.VELLAKULAM - 625 701**

**(Near Virudhunagar)**

**KAMARAJ COLLEGE OF ENGINEERING AND TECHNOLOGY**  
**(An Autonomous Institution Affiliated to Anna University,**  
**Chennai) K.VELLAKULAM-625 701**

**BONAFIDE CERTIFICATE**

Certified that this project report “**Development and analysis of poly vinyl alcohol/ sesame indicum powder bio composite films by solution casting method for packaging application** ” is the bonafide of “**S.MAREESWARAN(920417114048), V.MATHANKUMAR(920417114049), S.SRIVATHSAN (920417114315)**” who carried out the project work under my supervision.



**SIGNATURE**

**Dr.S.SENTHIL, M.E.,Ph.D. .**

**HEAD OF THE DEPARTMENT**

Dept.of Mechanical Engineering,  
Mechanical Engineering,  
Kamaraj college of  
Engineering & Technology,  
Madurai- 625 701.



**SIGNATURE**

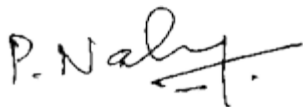
**MR.T.Ramesh,M.E,**

**SUPERVISOR**

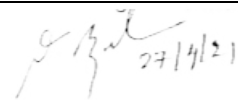
Dept. of

Kamaraj college of  
Engineering & Technology,  
Madurai- 625 701.

Submitted for the viva-voice examination held on 26/04/2021



**INTERNAL EXAMINER**



**EXTERNAL EXAMINER**

# **EFFECT OF ACACIA NILOTICA FILLER HYBRID ON MECHANICAL PROPERTIES OF CENTURY FIBER REINFORCED EPOXY COMPOSITE**

**A PROJECT REPORT**

**Submitted by**

**V.MUNIYASAMY (17UMEC105)**

**S.VISHWAK (17UMEC030)**

**M.NITHIESH KUMAR (17UMEC033)**

**V.BHARATH KUMAR (17UMEC017)**

**In partial fulfilment for the award of the degree**

**Of**

**BACHELOR OF ENGINEERING**

**IN**

**MECHANICAL ENGINEERING**

**KAMARAJ COLLEGE OF ENGINEERING AND TECHNOLOGY  
(An Autonomous Institution Affiliated to Anna university, Chennai)  
K.VELLAKULLAM-625 701 (Near Virudhunagar)**

**APRIL 2021**



**KAMARAJ COLLEGE OF ENGINEERING AND TECHNOLOGY**  
**(An Autonomous Institution Affiliated to Anna university, Chennai)**  
**K.VELLAKULLAM-625 701 (Near Virudhunagar)**

**BONAFIDE CERTIFICATE**

Certified that this project “EFFECT OF ACACIA NILOTICA FILLER HYBRID ON MECHANICAL PROPERTIES OF CENTURY FIBER REINFORCED EPOXY COMPOSITE” is the bona-fide work of V.MUNIYASAMY (17UMEC105), S.VISHWAK (17UMEC030), M.NITHIESH KUMAR (17UMEC033), V.BHARATH KUMAR (17UMEC017) Who carried out the project work under my supervision.



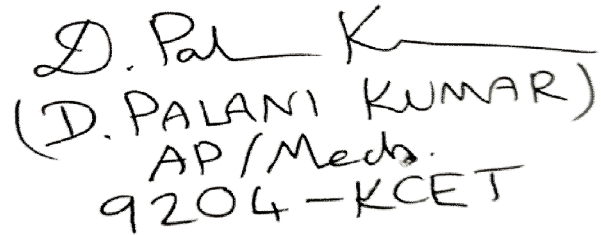
Signature of the HOD

**Dr.S.Senthil, M.E., Ph.D.,**  
Head of the Department,  
Department of  
Mechanical Engineering,  
Kamaraj College of Engineering  
And Technology,  
K.VELLAKULLAM– 625701.



**Internal Examiner**

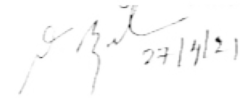
**Dean**  
**(Academic courses)**



(D. PALANI KUMAR)  
AP/Mech.  
9204-KCET

Signature of the Guide

**Mr.D.Palanikumar, M.E.,**  
Supervisor,  
Department of  
Mechanical Engineering,  
Kamaraj College of Engineering  
And Technology,  
K.VELLAKULLAM – 625701



**External Examiner**

**Dean**  
**(Examination)**

**Principal**



# **PRODUCTIVITY IMPROVEMENT BY REDUCTION OF CYCLE TIME AND REDUCTION OF LABOUR**

## **PROJECT REPORT**

*Submitted by*

**PRAKASH D**

**VIGNESH K**

**PRAVEENKUMAR K**

*In partial fulfilment for the award of the degree*

*of*

**BACHELOR OF ENGINEERING**

**IN**

**MECHANICAL ENGINEERING**



**KAMARAJ COLLEGE OF ENGINEERING & TECHNOLOGY**

**(An Autonomous Institution to Anna University, Chennai)**

**K.VELLAKULAM – 625 701 (Near Virudhunagar)**

**APRIL 2021**

# KAMARAJ COLLEGE OF ENGINEERING AND TECHNOLOGY

(An Autonomous Institution Affiliated to Anna University, Chennai)

K.VELLAKULAM - 625 701 (Near Virudhunagar)

## BONAFIDE CERTIFICATE

Certified that this project report “**PRODUCTIVITY IMPROVEMENT BY REDUCTION OF CYCLE TIME AND REDUCTION OF LABOUR**” is the bonafide work of “**PRAKASH D (920417114065), VIGNESH K (920417114105),PRAVEENKUMAR K (920417114068)**” who carried out the project work under my supervision.

ES 0000

### SIGNATURE

Dr.S.Senthil, M.E., Ph.D

### HEAD OF THE DEPARTMENT

Department of Mechanical  
Engineering

Kamaraj college of Engineering  
Technology, Madurai – 625106.

### SIGNATURE

Dr .B.Prabhu, M.E.,Ph.D

### SUPERVISOR

Department of Mechanical  
Engineering

Kamaraj college of Engineering  
Technology, Madurai – 625106.

Submitted for the viva-voce examination held on 26/04/2021

### INTERNAL EXAMINER

### EXTERNAL EXAMINER



**BHARGAVE RUBBER PRIVATE LTD.,**

Manufacturers : 'SPARK' Oil Seals 'O' Rings and MRP's



22/04/2021

The Head of the Department,  
Kamaraj College of Engineering and Technology,  
Madurai.

**To Whomsoever It may Concern**

This is to certify that **Mr. K.Vignesh (920417114105) BE (Mech)** Final Year Student of your college has undergone Project on **"Productivity Improvement of Reduction of Cycle Time and Reduction of Labour"** in our organization from 08.04.2021 to 22.04.2021.

Thanking You,

For Bhargave Rubber Pvt Ltd

  
(L.Aravind)  
Director

CIN U25190TN2011PTC079484

IEC No: 3511001285

GSTIN :33AAECB4728K1Z0

Regd. Office : TARA GARDENS, 342-Melakkal Main Road, Kochadai, Madurai - 625 016, S.India.

Tel.No.:+91-452-2384541, 2384542

Website : [www.bhargaveindustries.in](http://www.bhargaveindustries.in) E- mail : [bhargave95@yahoo.com](mailto:bhargave95@yahoo.com), [bhargave06@yahoo.co.in](mailto:bhargave06@yahoo.co.in)

IATF 16949 : 2016 certified Company



**BHARGAVE RUBBER PRIVATE LTD.,**

Manufacturers : 'SPARK' Oil Seals 'O' Rings and MRP's



22/04/2021

The Head of the Department,  
Kamaraj College of Engineering and Technology,  
Madurai.

**To Whomsoever It may Concern**

This is to certify that **Mr. D.Prakash (920417114065) BE (Mech)** Final Year Student of your college has undergone Project on **"Productivity Improvement of Reduction of Cycle Time and Reduction of Labour"** in our organization from 08.04.2021 to 22.04.2021.

Thanking You,

For Bhargave Rubber Pvt Ltd

(L.Aravind)  
Director

CIN:U25190TN2011PTC079484

IEC No: 3511001285

GSTIN :33AAECB4728K1Z0

Regd. Office : TARA GARDENS, 342-Melakkal Main Road, Kochadai, Madurai - 625 016, S.India.

Tel.No.:+91-452-2384541, 2384542

Website : [www.bhargaveindustries.in](http://www.bhargaveindustries.in) E-mail : [bhargave95@yahoo.com](mailto:bhargave95@yahoo.com), [bhargave06@yahoo.co.in](mailto:bhargave06@yahoo.co.in)

**LATE 16949 : 2016 certified Company**



22/04/2021

The Head of the Department,  
Kamaraj College of Engineering and Technology,  
Madurai.

To Whomsoever It may Concern

This is to certify that **Mr. K.Praveenkumar (920417114068) BE (Mech)** Final Year Student of your college has undergone Project on **“Productivity Improvement of Reduction of Cycle Time and Reduction of Labour”** in our organization from 08.04.2021 to 22.04.2021.

Thanking You,

For Bhargave Rubber Pvt Ltd

  
(L.Aravind)  
Director

CIN U25190TN2011PTC079484

IEC No: 3511001285

GSTIN :33AAECB4728K1ZO

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Tel.No.:+91-452-2384541, 2384542

Website : [www.bhargaveindustries.in](http://www.bhargaveindustries.in) E- mail : [bhargave95@yahoo.com](mailto:bhargave95@yahoo.com), [bhargave06@yahoo.co.in](mailto:bhargave06@yahoo.co.in)

IATF 16949 : 2016 certified Company

# **ANALYSIS OF REDUCTION HEAT IN RAILWAY AXLE BEARING**

**A PROJECT REPORT**

*Submitted by*

**SANTHOSH G (920417114083)**

**DINESH KUMAR R (920417114014)**

**KHALID MOHAMMED SHEIKH (920417114042)**

*In partial fulfillment for the award of the degree  
Of*

**BACHELOR OF ENGINEERING**

In

**MECHANICAL ENGINEERING**



**DEPARTMENT OF MECHANICAL ENGINEERING**

**KAMARAJ COLLEGE OF ENGINEERING AND TECHNOLOGY**

**(An Autonomous Institution Affiliated to Anna University, Chennai)**

**K.VELLAKULAM - 625 701 (Near Virudhunagar)**

**APRIL 2021**

# KAMARAJ COLLEGE OF ENGINEERING AND TECHNOLOGY

(An Autonomous Institution Affiliated to Anna University, Chennai)

K.VELLAKULAM - 625 701 (Near Virudhunagar)

## BONAFIDE CERTIFICATE

Certified that the project report “ ANALYSIS OF REDUCTION HEAT IN RAILWAY AXLES BEARING” is the bonafide work of “SANTHOSH G (920417114083) DINESH KUMAR R (920417114014) & KHALID MOHAMMED SHEIKH (920417114042)” who carried out the project work under my supervision

Who carried out the project work under my supervision.



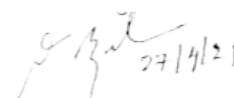
**SIGNATURE**

**Dr. S. SENTHIL M.E., Ph.D.,**  
**Head of the Department,**  
Professor,  
Dept. of Mechanical Engineering  
Kamaraj College of Engg& Tech,  
K.Vellakulam, Madurai.



**SIGNATURE**

**Mr.R.SAKTHIVEL MURUGAN M.E., (Ph.D)**  
**SUPERVISOR ,**  
Assistant Professor,  
Dept. of Mechanical Engineering  
Kamaraj College of Engg&Tech,  
K.Vellakulam, Madurai







# RAIL NET SOFTWARE SOLUTIONS

(Recognised by DOE, Government of India)

## PROJECT COMPLETION CERTIFICATE

This is to certify that R.DINESH KUMAR (Reg.No:920417114019), G.SANTHOSH (Reg.No:920417114083), KHALID MOHAMMED SHEIKH (Reg.No:920417114042) doing final year B.E (MECHANICAL) from KAMARAJ COLLEGE OF ENGINEERING & TECHNOLOGY have successfully completed the project entitled "ANALYSIS OF REDUCTION HEAT IN RAILWAY AXLE BEARING " for Southern Railway, Madurai Division .

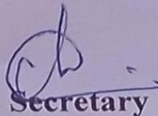
Their project period is from MARCH 06, 2021 to APRIL 15, 2021. During this period, their candidate's conduct was good.

S. Ashok  
Administrator  
(Ashok.S)

Administrator  
RAILNET  
SRWWO

Southern Railway / Madurai Division



  
Secretary

(ABINAYASUDHAGARAN)  
SECRETARY  
RAILNET / S RWWO  
RAILWAY COLONY  
MADURAI



Software  
Development



Web  
Design



Web  
Services



Desktop  
Application

E-mail : [railnet@srwwo.com](mailto:railnet@srwwo.com)

Phone : 0452 - 2308785, Railway : 72785

Railway Mixed Hr. Sec. School Campus, Railway Colony,

E-mail : [railnetmdu@gmail.com](mailto:railnetmdu@gmail.com) \* Web : [www.railnet.srwwo.com](http://www.railnet.srwwo.com)

OCO



# RAIL NET SOFTWARE SOLUTIONS

(Recognised by DOE, Government of India)

## PROJECT COMPLETION CERTIFICATE

This is to certify that R.DINESH KUMAR (Reg.No:920417114019), G.SANTHOSH (Reg.No:920417114083), KHALID MOHAMMED SHEIKH (Reg.No:920417114042) doing final year B.E (MECHANICAL) from KAMARAJ COLLEGE OF ENGINEERING & TECHNOLOGY have successfully completed the project entitled "ANALYSIS OF REDUCTION HEAT IN RAILWAY AXLE BEARING " for Southern Railway, Madurai Division .

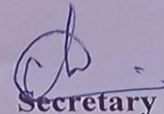
Their project period is from MARCH 06, 2021 to APRIL 15, 2021. During this period, their candidate's conduct was good.

S. Ashok  
Administrator  
(Ashok.S)

Administrator  
RAILNET  
SRWWO

Southern Railway / Madurai Division





Secretary  
(ABINAYASUDHAGARAN)  
SECRETARY  
RAILNET / S RWWO  
RAILWAY COLONY  
MADURAI



Software  
Development



Web  
Design



Web  
Services



Desktop  
Application

E-mail : [railnet@srwwo.com](mailto:railnet@srwwo.com)

Phone : 0452 - 2308785, Railway : 72785

Railway Mixed Hr. Sec. School Campus, Railway Colony,

E-mail : [railnetmdu@gmail.com](mailto:railnetmdu@gmail.com) \* Web : [www.railnet.srwwo.com](http://www.railnet.srwwo.com)

OCO

**INVESTIGATION ON PHYSIO-MECHANICAL PROPERTIES  
OF POLY VINYL ALCOHOL / MUSA ACUMINATA COLLA  
HUSK POWDER BIOFILMS**

**PROJECT REPORT**

*Submitted by*

**EDWIN CHARLES M (920417114021)**

**THILLAINATHAN A.R (920417114099)**

**HARIKRISHNAN S (920417114028)**

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

**BACHELOR OF ENGINEERING**

**IN**

**MECHANICAL ENGINEERING**



**DEPARTMENT OF MECHANICAL ENGINEERING  
KAMARAJ COLLEGE OF ENGINEERING AND TECHNOLOGY  
(An Autonomous Institution Affiliated to Anna University, Chennai)  
K.VELLAKULAM - 625 701 (Near Virudhunagar)**

**APRIL 2021**

**KAMARAJ COLLEGE OF ENGINEERING AND TECHNOLOGY**  
**(An Autonomous Institution Affiliated to Anna University, Chennai)**  
**K.VELLAKULAM - 625 701 (Near Virudhunagar)**

**BONAFIDE CERTIFICATE**

Certified that the project report “STUDIES ON INVESTIGATION ON PHYSIO-MECHANICAL PROPERTIES OF POLY VINYL ALCOHOL / MUSA ACUMINATA COLLA HUSK POWDER BIOFILMS” is the bonafide work of “EDWIN CHARLES M (920417114021), THILLAINATHAN A.R (920417114099) & HARIKRISHNAN S (920417114028) who carried out the project work under my supervision.



**SIGNATURE**

**Dr. S. SENTHIL M.E., Ph.D.,**  
**Head of the Department,**  
Professor,  
Dept. of Mechanical Engineering  
Kamaraj College of Engg & Tech,  
K.Vellakulam, Madurai.



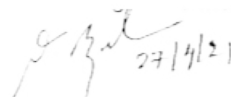
**SIGNATURE**

**Mr.B.BALAVAIRAVAN M.E.,Ph.d.,**  
**SUPERVISOR ,**  
Assistant Professor,  
Dept. of Mechanical Engineering  
Kamaraj College of Engg &Tech,  
K.Vellakulam, Madurai

Submitted for the viva-voice examination held on 26.04.2021



**INTERNAL EXAMINER**



**EXTERNAL EXAMINER**



**INVESTIGATION ON PHYSIO-MECHANICAL PROPERTIES  
OF POLY VINYL ALCOHOL / CITRUS PEEL POWDER  
BIOFILMS**

**PROJECT REPORT**

*Submitted by*

**VISHNU PRABHU V (920417114111)**

**MOHAMED IBRAHIM SATHICK A**

**(920417114052)**

**SUNDARA VELAN M (920417114095)**

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

**BACHELOR OF ENGINEERING**

**IN**

**MECHANICAL ENGINEERING**



**DEPARTMENT OF MECHANICAL ENGINEERING  
KAMARAJ COLLEGE OF ENGINEERING AND TECHNOLOGY  
(An Autonomous Institution Affiliated to Anna University, Chennai)  
K.VELLAKULAM - 625 701 (Near Virudhunagar)**

**APRIL 2021**

## BONAFIDE CERTIFICATE

Certified that the project report “STUDIES ON INVESTIGATION ON PHYSIO-MECHANICAL, WATER AFFINITY AND BIO DEGRADATION PROPERTIES OF POLY VINYL ALCOHOL / CITRUS PEEL POWDER BIOFILMS” is the bonafide work of “VISHNU PRABHU V (920417114111), MOHAMED IBRAHIM SATHICK A (920417114052) & SUNDARAVELAN M (920417114095) who carried out the project work under my supervision



SIGNATURE

**Dr. S. SENTHIL M.E., Ph.D.,**  
**Head of the Department,**  
Professor,  
Dept. of Mechanical Engineering  
Kamaraj College of Engg & Tech,  
K.Vellakulam, Madurai.



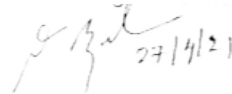
SIGNATURE

**Mr.B.BALAVAIRAVAN M.E.,(Ph.d),**  
**SUPERVISOR ,**  
Assistant Professor,  
Dept. of Mechanical Engineering  
Kamaraj College of Engg &Tech,  
K.Vellakulam, Madurai

Submitted for the viva-voice examination held on 26.04.2.21



**INTERNAL EXAMINER**



**EXTERNAL EXAMINER**

# **IMPLEMENTATION OF WATER COOLING CHILLER PLANT AT CONFERENCE HALL**

## **PROJECT REPORT**

*Submitted by*

**VIGNESH.B (920417114104)**

**DHINAKARAN.R (920417114017)**

**VIJAYASEGAR.K (920417114109)**

**SENTHIL VENKATESH (920417114314)**

*In partial fulfilment for the award of the degree of*



**BACHELOR OF ENGINEERING  
IN  
MECHANICAL ENGINEERING**



**DEPARTMENT OF MECHANICAL ENGINEERING  
KAMARAJ COLLEGE OF ENGINEERING AND TECHNOLOGY  
(An Autonomous Institution Affiliated to Anna University, Chennai)  
K.VELLAKULAM – 625701 (Near Virudhunagar)**

**April 2021**



**KAMARAJ COLLEGE OF ENGINEERING AND TECHNOLOGY**

(An autonomous institution affiliated to Anna university, Chennai)

**K.VELLAKULAM – 625 701 (Near virudhunagar)**

**BONAFIDE CERTIFICATE**

Certified that this project report “**IMPLEMENTATION OF WATER COOLING CHILLER PLANT AT CONFERENCE HALL**” is the bonafide work of “**SENTHIL VENKATESH (920417114314), VIGNESH.B (920417114104), VIJAYASEGAR.K(920417114109), DHINAKARAN.R (920417114017)**”who carried out the project work under my supervision.



**SIGNATURE**

**Dr.S.SENTHIL M.E.,Ph.D.,**

**HEAD OF THE DEPARTMENT**

Mechanical Engineering,

Kamaraj College of

Engineering & Technology,

Madurai.



**INTERNAL EXAMINER**



**SIGNATURE**

**Mr.S.DEVARAJ M.E.,**

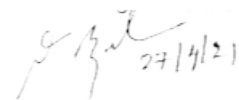
**SUPERVISOR**

Mechanical Engineering,

Kamaraj College of

Engineering & Technology,

Madurai.



**EXTERNAL EXAMINER**

## MMgreen Engineering Solutions

Manpower requirement, MEP Design services & Business consultants

#486/1-3A, 3rd Floor, Flower Garden 4th Cross,  
Babusab Palya, Kalyan Nagar, Bangalore-560043  
Mobile: +91 98804 91338

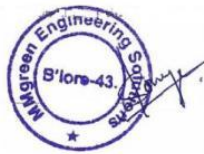


### TO WHOM IT MAY CONCERN

This is to certify that **Mr. R.Dhinakaran**, studied in **Kamaraj College of Engineering & Technology** has completed his **ACADEMIC PROJECT** successfully in our organization for a period starting from February 14, 2021 to February 28, 2021.

During this period, he had done project on “**Implementation of water Cooling Chiller Plant at Conference hall**” and had shown an exemplary attitude and approach.

### MMgreen Engineering Solutions



Soumya SB  
Managing Director

Date : 20 April 2021  
Place : Bangalore

## MMgreen Engineering Solutions

Manpower requirement, MEP Design services & Business consultants

#486/1-3A, 3rd Floor, Flower Garden 4th Cross,  
Babusab Palya, Kalyan Nagar, Bangalore-560043  
Mobile: +91 98804 91338



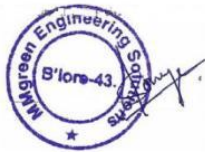
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### TO WHOM IT MAY CONCERN

This is to certify that **Mr. K.Vijaya Sekar** , studied in **Kamaraj College of Engineering & Technology** has completed his **ACADEMIC PROJECT** successfully in our organization for a period starting from February 14, 2021 to February 28, 2021.

During this period, he had done project on “**Implementation of water Cooling Chiller Plant at Conference hall**” and had shown an exemplary attitude and approach.

## MMgreen Engineering Solutions



Soumya SB  
Managing Director

Date : 20 April 2021  
Place : Bangalore

**DESIGN AND FABRICATION OF ELECTRIC  
BIKE WITH NUMERIC ANTI-THEFT SYSTEM**

**PROJECT REPORT**

*Submitted by*

**BINU JM (920417114016)**

**PRAVEEN RAJ P (920417114069)**

**GAUTAM S (920417114024)**

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

**BACHELOR OF ENGINEERING**

**IN**

**MECHANICAL ENGINEERING**



**DEPARTMENT OF MECHANICAL ENGINEERING  
KAMARAJ COLLEGE OF ENGINEERING AND TECHNOLOGY  
(An Autonomous Institution Affiliated to Anna University, Chennai)  
K.VELLAKULAM - 625 701 (Near Virudhunagar)**

**APRIL 2021**

**KAMARAJ COLLEGE OF ENGINEERING AND TECHNOLOGY  
(An Autonomous Institution Affiliated to Anna University, Chennai)**

**K.VELLAKULAM - 625 701 (Near Virudhunagar)**

**BONAFIDE CERTIFICATE**

Certified that the project report “**DESIGN AND FABRICATION OF ELECTRIC BIKE WITH NUMERIC ANTI-THEFT SYSTEM**” is the bonafide work of “**J.M.BINU (920417114016) P.PRAVEEN RAJ (920417114069) & S.GAUTAM (920417114024)**” who carried out the project work under my supervision

**SIGNATURE**

**Dr. S. SENTHILM.E.,Ph.D.,**  
**M.E., Head of theDepartment,**  
Professor,  
Dept. ofMechanicalEngineering  
Kamaraj College of Engg&Tech,  
K.Vellakulam,Madurai.

**SIGNATURE**

**Mr. PRITHIVIRAJ**  
**SUPERVISOR,**  
Assistant Professor,  
Dept. of Mechanical Engineering  
Kamaraj College of Engg&Tech,  
K.Vellakulam,Madurai

**INTERNALEXAMINER**

**EXTERNAL EXAMINER**

# **DESIGN AND ANALYSIS OF VRF SYSTEM FOR FOUR WAY CASSETTE UNIT**

**A PROJECT REPORT**

*Submitted by*

**SUBBAIYA.C.C (920417114094)**

**KARTHIKEYAN.A (920417114308)**

**NAGA ARJUN.K(920417114058)**

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

**BACHELOR OF ENGINEERING  
IN  
MECHANICAL ENGINEERING**



**DEPARTMENT OF MECHANICAL ENGINEERING  
KAMARAJ COLLEGE OF ENGINEERING AND TECHNOLOGY  
(An Autonomous Institution Affiliated to Anna University, Chennai)  
K.VELLAKULAM - 625 701 (Near Virudhunagar)**

April 2021

# **DESIGN AND ANALYSIS OF VRF SYSTEM FOR FOUR WAY CASSETTE UNIT**

**A PROJECT REPORT**

*Submitted by*

**SUBBAIYA.C.C (920417114094)**

**KARTHIKEYAN.A (920417114308)**

**NAGA ARJUN.K (920417114058)**

*In partial fulfillment for the award  
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**BACHELOR OF ENGINEERING  
IN  
MECHANICAL ENGINEERING**



**DEPARTMENT OF MECHANICAL ENGINEERING  
KAMARAJ COLLEGE OF ENGINEERING AND TECHNOLOGY  
(An Autonomous Institution Affiliated to Anna University, Chennai)  
K.VELLAKULAM - 625 701 (Near Virudhunagar)**

April 2021



# KAMARAJ COLLEGE OF ENGINEERING AND TECHNOLOGY

(An Autonomous Institution Affiliated to Anna University, Chennai)

K.VELLAKULAM - 625 701 (Near Virudhunagar)

## BONAFIDE CERTIFICATE

Certified that this project report “**DESIGN AND ANALYSIS OF VRF SYSTEM FOR FOUR WAY CASSETTE UNIT**” is the bonafide work of “**SUBBAIYA.C.C (920417114094), KARTHIKEYAN.A (920417114308), NAGA ARJUN.K (920417114058)**” who carried out the project work under my supervision.



**SIGNATURE**

Dr.S.Senthil, M.E., Ph.D

**HEAD OF THE DEPARTMENT**

Department of Mechanical

Engineering

Kamaraj College of Engineering &

Technology

Madurai-625 701



**SIGNATURE**

Mr.L.LOGANATHAN, M.E.,

**SUPERVISOR**

Department of Mechanical

Engineering

Kamaraj College of Engineering &

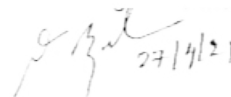
Technology

Madurai-625 701

Submitted for the viva-voce examination held on \_\_\_\_\_



**INTERNAL EXAMINER**



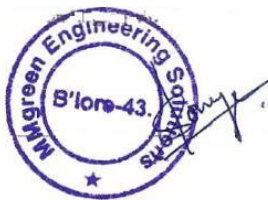
**EXTERNAL EXAMINER**

## TO WHOM IT MAY CONCERN

This is to certify that **Mr. C.C.Subbaiya** , studied in **Kamaraj College of Engineering & Technology** has completed his **ACADEMIC PROJECT** successfully in our organization for a period starting from February 28, 2021 to March 14, 2021.

During this period, he had done project on “**Design and Analysis of Variable Refrigerent Flow for Four way Cassette Unit**” and had shown an exemplary attitude and approach.

**MMgreen Engineering Solutions**



Soumya SB  
Managing Director

Date: 20 April 2021  
Place: Bangalore

# MMgreen Engineering Solutions

Manpower requirement, MEP Design services & Business consultants

#486/1-3A, 3rd Floor, Flower Garden 4th Cross,  
Babusab Palya, Kalyan Nagar, Bangalore-560043  
Mobile: +91 98804 91338

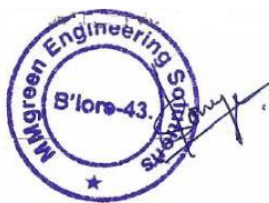


## TO WHOM IT MAY CONCERN

This is to certify that **Mr. A.Karthikeyan**, studied in **Kamaraj College of Engineering & Technology** has completed his **ACADEMIC PROJECT** successfully in our organization for a period starting from February 28, 2021 to March 14, 2021.

During this period, he had done project on “**Design and Analysis of Variable Refrigerent Flow for Four way Cassette Unit**” and had shown an exemplary attitude and approach.

## MMgreen Engineering Solutions



Soumya SB  
Managing Director

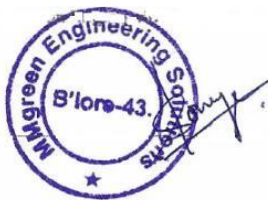
Date: 20 April 2021  
Place: Bangalore

## TO WHOM IT MAY CONCERN

This is to certify that **Mr. K.Naga Arjun**, studied in **Kamaraj College of Engineering & Technology** has completed his **ACADEMIC PROJECT** successfully in our organization for a period starting from February 28, 2021 to March 14, 2021.

During this period, he had done project on “**Design and Analysis of Variable Refrigerent Flow for Four way Cassette Unit**” and had shown an exemplary attitude and approach.

**MMgreen Engineering Solutions**



Soumya SB  
Managing Director

Date: 20 April 2021  
Place: Bangalore

**PERFORMANCE ANALYSIS OF VARIABLE REFRIGERANT VOLUME  
FOR ONE WAY DUCTABLE CASSETTE UNIT  
PROJECT REPORT**

*Submitted by*

**RAJA S**

**VIKRAM A**

**AJAY SUDHARSHAN V**

*In partial fulfilment for the award of the degree*

*of*

**BACHELOR OF ENGINEERING**

**IN**

**MECHANICAL ENGINEERING**



**KAMARAJ COLLEGE OF ENGINEERING & TECHNOLOGY**

**(An Autonomous Institution to Anna University, Chennai)**

**K.VELLAKULAM – 625 701 (Near Virudhunagar)**

**APRIL 2021**

# KAMARAJ COLLEGE OF ENGINEERING AND TECHNOLOGY

(An Autonomous Institution Affiliated to Anna University, Chennai)

K.VELLAKULAM - 625 701 (Near Virudhunagar)

## BONAFIDE CERTIFICATE

Certified that this project report “**PERFORMANCE ANALYSIS OF VARIABLE REFRIGERANT VOLUME FOR ONE WAY DUCTABLE CASSETTE UNIT**” is the bonafide work of “**RAJA S (920417114074), VIKRAM A (920417114110), AJAY SUDHASHAN (920417114002)**” who carried out the project work under my supervision.

**SIGNATURE**

Dr.S.Senthil, M.E., Ph.D

**HEAD OF THE DEPARTMENT**

Department of Mechanical  
Engineering

Kamaraj college of Engineering  
Technology, Madurai – 625106.

**SIGNATURE**

Mr.T.SURESH M.E.,

**SUPERVISOR**

Department of Mechanical  
Engineering

Kamaraj college of Engineering  
Technology, Madurai – 625106.

Submitted for the viva-voce examination held on 26/04/2021

**INTERNAL EXAMINER**

**EXTERNAL EXAMINER**

## MMgreen Engineering Solutions

Manpower requirement, MEP Design services & Business consultants

#486/1-3A, 3rd Floor, Flower Garden 4th Cross,  
Babusab Palya, Kalyan Nagar, Bangalore-560043  
Mobile: +91 98804 91338



---

### TO WHOM IT MAY CONCERN

This is to certify that **Mr. S.Raja**, studied in **Kamaraj College of Engineering & Technology** has completed his **ACADEMIC PROJECT** successfully in our organization for a period starting from February 28, 2021 to March 14, 2021.

During this period, he had done project on "**Performance Analysis of Variable Refrigerant Volume for One-way Ductable Cassette Unit**" and had shown an exemplary attitude and approach.

### MMgreen Engineering Solutions



Soumya SB  
Managing Director

Date : 20 April 2021  
Place : Bangalore



## MMgreen Engineering Solutions

Manpower requirement, MEP Design services & Business consultants

#486/1-3A, 3rd Floor, Flower Garden 4th Cross,  
Babusab Palya, Kalyan Nagar, Bangalore-560043  
Mobile: +91 98804 91338



### TO WHOM IT MAY CONCERN

This is to certify that **Mr. A.Vikram** , studied in **Kamaraj College of Engineering & Technology** has completed his **ACADEMIC PROJECT** successfully in our organization for a period starting from February 28, 2021 to March 14, 2021.

During this period, he had done project on **"Performance Analysis of Variable Refrigerant Volume for One-way Ductable Cassette Unit"** and had shown an exemplary attitude and approach.

### MMgreen Engineering Solutions



Soumya SB  
Managing Director

Date : 20 April 2021  
Place : Bangalore

## MMgreen Engineering Solutions

Manpower requirement, MEP Design services & Business consultants

#486/1-3A, 3rd Floor, Flower Garden 4th Cross,  
Babusab Palya, Kalyan Nagar, Bangalore-560043  
Mobile: +91 98804 91338



### TO WHOM IT MAY CONCERN

This is to certify that **Mr. V.Ajay Sudharshan** , studied in **Kamaraj College of Engineering & Technology** has completed his **ACADEMIC PROJECT** successfully in our organization for a period starting from February 28, 2021 to March 14, 2021.

During this period, he had done project on **“Performance Analysis of Variable Refrigerant Volume for One-way Ductable Cassette Unit”** and had shown an exemplary attitude and approach.

## MMgreen Engineering Solutions



Soumya SB  
Managing Director

Date : 20 April 2021  
Place : Bangalore

# **FABRICATION AND CHARACTERIZATION OF ACACIA NILOTICA / EPOXY COMPOSITE**

**A PROJECT REPORT**

*Submitted by*

**K.V.AJAYRAM (920417114301)**

**P.ASHOK KUMAR (920417114010)**

**G.PERIYASAMI (920417114064)**

*In partial fulfillment for the award of the degree Of*

**BACHELOR OF ENGINEERING**

**IN**

**MECHANICAL ENGINEERING**



**DEPARTMENT OF MECHANICAL ENGINEERING**

**KAMARAJ COLLEGE OF ENGINEERING AND TECHNOLOGY**

**(An Autonomous Institution Affiliated to an Anna University, Chennai)**

**K.VELLAKULAM – 625701 (Near Virudhunagar)**

**APRIL 2021**

**KAMARAJ COLLEGE OF ENGINEERING AND TECHNOLOGY**

**(An Autonomous Institution Affiliated to an Anna University, Chennai)**

**K.VELLAKULAM – 625701 (Near Virudhunagar)**

**BONAFIDE CERTIFICATE**

Certified that this Project “**FABRICATION AND CHARACTERIZATION OF ACACIA NILOTICA / EPOXY COMPOSITE**” is the Bona-fide work of **K.V.AJAY RAM (920417114301), P.ASHOK KUMAR (920417114010), G.PERIYASAMI (920417114064)** who carried out the project work under my Supervision.



**SIGNATURE**

**Dr.S.Senthil, M.E., Ph.D.,**  
**HEAD OF THE DEPARTMENT,**  
Dept. of Mechanical Engineering,  
Kamaraj College of Engineering  
And Technology,  
Madurai – 625701

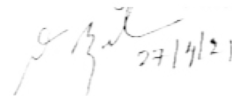


**SIGNATURE**

**Mr.P.Senthamarai kannan,M.E.,**  
**SUPERVISOR,**  
Dept. of Mechanical Engineering,  
Kamaraj College of Engineering  
And Technology,  
Madurai – 625701



**INTERNAL EXAMINER**



**EXTERNAL EXAMINER**

# **INCREASING PRODUCTIVITY USING REGENERATION MACHINE PROCESS**

**PROJECT REPORT**

*Submitted by*

**DIVASH KANNAN R (920417114306)**

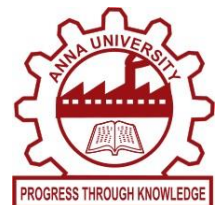
**HARIVIGNESH R (920417114307)**

**SUGITHA SRI S (920417114701)**

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



**BACHELOR OF ENGINEERING  
IN  
MECHANICAL ENGINEERING**



**DEPARTMENT OF MECHANICAL ENGINEERING  
KAMARAJ COLLEGE OF ENGINEERING AND TECHNOLOGY  
(An Autonomous Institution Affiliated to Anna University, Chennai)  
K.VELLAKULAM - 625 701 (Near Virudhunagar)**

**APRIL 2021**

**KAMARAJ COLLEGE OF ENGINEERING AND TECHNOLOGY  
(An Autonomous Institution Affiliated to an Anna University, Chennai)**

**K.VELLAKULAM – 625701 (Near Virudhunagar)**

**BONAFIDE CERTIFICATE**

Certified that the project report “**STUDIES ON INCREASING PRODUCTIVITY USING REGENERATION MACHINE PROCESS**” is the bonafidework of **HARIVIGNESH R (920417114307) DIVASH KANNAN R (920417114306) & SUGITHA SRI S (920417114701)**”who carried out the project work under my supervision



**SIGNATURE**

**Dr.S.Senthil, M.E., Ph.D.,**  
**HEAD OF THE DEPARTMENT,**  
Professor,  
Dept. of Mechanical Engineering  
Kamaraj College of Engg& Tech,  
K.Vellakulam, Madurai.

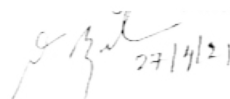


**SIGNATURE**

**Mr.P.SenthamaraiKannan,M.E.,**  
**SUPERVISOR ,**  
Assistant Professor,  
Dept. of Mechanical Engineering  
Kamaraj College of Engg& Tech,  
K.Vellakulam, Madurai



**INTERNAL EXAMINER**



**EXTERNAL EXAMINER**



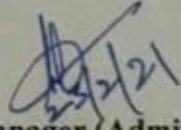
A.1301. The Madurai District Cooperative Milk Producers' Union Limited,  
Sivagangai Main Road, Sathamangalam, Madurai 625 020.

Date: 23.02.2021

TO WHOMSOEVER IT MAY CONCERN

This is to certify that Thiru.R.Harivignesh(RegisterNo.17UMEC126), pursuing IV year B.E.(Mech) at Kamaraj College Of Engineering & Technology ,Viruthunagar, has undergone project work for the Eight semester from 08 February 2021 to 22 February 2021.

During the above period, her involvement in the subject & conduct was good.

  
Manager (Admin)







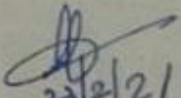
A.1301. The Madurai District Cooperative Milk Producers' Union Limited,  
Sivagangai Main Road, Sathamangalam, Madurai 625 020.

**Date: 23.02.2021**

**TO WHOMSOEVER IT MAY CONCERN**

This is to certify that Selvi.S.Sugitha Sri(RegisterNo.17UMEC133), pursuing IV year B.E.(Mech) at Kamaraj College Of Engineering & Technology ,Viruthunagar, has undergone project work for the Eight semester from 08 February 2021 to 22 February 2021.

During the above period, her involvement in the subject & conduct was good.

  
23/2/21  
**Manager (Admin)**





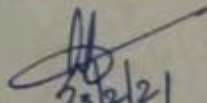
A.1301. The Madurai District Cooperative Milk Producers' Union Limited,  
Sivagangai Main Road, Sathamangalam, Madurai 625 020.

Date: 23.02.2021

TO WHOMSOEVER IT MAY CONCERN

This is to certify that Thiru.R.Divash Kannan(RegisterNo.17UMEC129), pursuing IV year B.E.(Mech) at Kamaraj College Of Engineering & Technology ,Viruthunagar, has undergone project work for the Eight semester from 08 February 2021 to 22 February 2021.

During the above period, her involvement in the subject & conduct was good.

  
23/2/21  
**Manager (Admin)**



# MECHANICAL CHARACTERIZATION OF PLA/BAMBOO FILLER FOR 3D PRINTING APPLICATIONS

PROJECT REPORT

*Submitted by*

VISHNU SRI KUMAR G (920417114112)

VISWANATHAN R (920417114114)

NAVEENKUMAR V (920417114312)

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

BACHELOR OF TECHNOLOGY  
IN  
MECHANICAL ENGINEERING



DEPARTMENT OF MECHANICAL ENGINEERING



KAMARAJ COLLEGE OF ENGINEERING AND TECHNOLOGY

(An Autonomous Institution Affiliated to Anna University, Chennai)

K.VELLAKULAM - 625 701 (Near Virudhunagar)

APRIL 2021

**KAMARAJ COLLEGE OF ENGINEERING AND TECHNOLOGY**

(An Autonomous Institution Affiliated to Anna University, Chennai)

K.VELLAKULAM - 625 701 (Near Virudhunagar)

**BONAFIDE CERTIFICATE**

Certified that this project “**MECHANICAL CHARACTERIZATION OF PLA / BAMBOO FILLER FOR 3D PRINTING APPLICATION**” is the bonafide work of **G.VISHNU SRI KUMAR (920417114112), V.NAVEENKUMAR (920417114312), R.VISWANATHAN (920417114114)** Who carried out the project work under my supervision.

**SIGNATURE**

**Dr. S. SENTHIL M.E., Ph.D.,**

Head of the Department

Assistant Professor

Dept. of Mechanical Engineering

Kamaraj College of Engg. & Tech.,

K.Vellakulam, Madurai

**SIGNATURE**

**Mr. S. MUTHU NATRAJAN M.E., (Ph.D),**

Supervisor

Assistant Professor

Dept. of Mechanical Engineering

Kamaraj College of Engg. & Tech.,

K.Vellakulam, Madurai

Submitted for the viva-voce examination held on **26.04.2021**

**Internal Examiner**

**External Examiner**

**MECHANICAL CHARACTERIZATION OF PLA/  
BANANA FILLER FOR 3D PRINTING  
APPLICATIONS**

**A PROJECT REPORT**

*Submitted by*

**HARISH KUMAR .M (920417114030)**

**LOGESH .L (920417114044)**

**VASANTHA KUMAR.M (920417114101)**

*in partialfulfilled for the award of degreeof*

**BACHELOR OF ENGINEERING**

in

**MECHANICAL ENGINEERING**



**DEPARTMENT OF MECHANICAL ENGG.  
KAMARAJ COLLEGE OF ENGINEERING & TECHNOLOGY**

**(An Autonomous Institution to Anna University, Chennai)**

**K.VELLAKULAM – 625 701 (Near Virudhunagar)**

**APRIL 2021**

# KAMARAJ COLLEGE OF ENGINEERING & TECHNOLOGY

(An Autonomous Institution to Anna University, Chennai)

K.VELLAKULAM – 625 701 (Near Virudhunagar)

## BONAFIDE CERTIFICATE

Certified that this project report “MECHANICAL CHARACTERIZATION OF PLA/ BANANA FILLER FOR 3D PRINTERS” is the bonafide work of “M.HARISH KUMAR (920417114030), L.LOGESH (920417114044), M.VASANTHA KUMAR (920417114101)” who carried out the project work under my supervision.

**SIGNATURE**

**Dr. S. SENTHIL M.E., Ph.D.,**

Head of the Department

Assistant Professor

Dept. of Mechanical Engineering

Kamaraj College of Engg. & Tech.,

K.Vellakulam, Madurai

**SIGNATURE**

**Mr. S. MUTHU NATRAJAN M.E., (Ph.D),**

Supervisor

Assistant Professor

Dept. of Mechanical Engineering

Kamaraj College of Engg. & Tech.,

K.Vellakulam, Madurai

**INTERNAL EXAMINAR**

**EXTERNAL EXAMINAR**

# DESIGN OF E-CART

## PROJECT REPORT

*Submitted by*

**JEFREN JOSHUA R           (920417114034)**

**RAJKUMAR C               (920417114077)**

**SARAVANAN T M           (920417114087)**

*In partial fulfilment for the award of the degree*

*Of*

**BACHELOR OF ENGINEERING**

*in*

**MECHANICAL ENGINEERING**



**KAMARAJ COLLEGE OF ENGINEERING AND TECHNOLOGY**

**(An Autonomous Institution Affiliated to Anna University, Chennai)**

**K.VELLAKULAM -625 701 (Near Virudhunagar)**

**APRIL 2021**



**KAMARAJ COLLEGE OF ENGINEERING AND TECHNOLOGY**  
**(An Autonomous Institution Affiliated to Anna University, Chennai)**  
**K.VELLAKULAM - 625 701 (Near Virudhunagar)**

**BONAFIDE CERTIFICATE**

Certified that this project report “**DESIGN OF E-CART**” is the bonafide work of **JEFREN JOSHUA R (920417114034)**”**RAJKUMAR C (920417114077)** **SRAVANAN T M (920417114087)** who carried out the project work under my supervision.



**SIGNATURE**

**Dr. S.SENTHIL, M.E.,Ph.D.,**

**HEAD OF THE DEPARTMENT**

Dept. of Mechanical Engineering  
Kamaraj college of Engineering  
&Technology  
Madurai-625 701



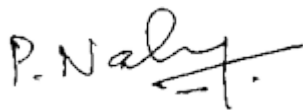
**SIGNATURE**

**Dr. S.SENTHIL, M.E.,Ph.D.,**

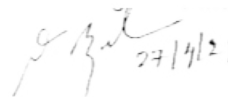
**SUPERVISOR**

Dept. of Mechanical Engineering  
Kamaraj college of Engineering  
&Technology  
Madurai-625 701

Submitted for viva-voce examination held on \_\_\_\_\_



**INTERNAL EXAMINER**



**EXTERNAL EXAMINER**

**DESIGN & ANALYSIS OF FLOWER POT CONE  
MAKING MACHINE – A CASE STUDY IN  
FIREWORKS INDUSTRY**

**A PROJECT REPORT**

*Submitted by*

**BALAJI.N (920417114303)**

**MATHANKUMAR.K (920417114310)**

**BALAJI.N (920417114304)**

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

**BALCHELOR OF ENGINEERING**

**IN**

**MECHANICAL ENGINEERING**



**DEPARTMENT OF MECHANICAL ENGINEERING  
KAMARAJ COLLEGE OF ENGINEERING AND TECHNOLOGY  
(An Autonomous Institution Affiliated to Anna University, Chennai)  
K.VELLAKULAM – 625 701 (Near Virudhunagar)**

**APRIL 2021**

**KAMARAJ COLLEGE OF ENGINEERING AND TECHNOLOGY**  
**(An Autonomous Institution Affiliated to Anna University, Chennai)**  
**K.VELLAKULAM – 625 701 (Near Virudhunagar)**

**BONAFIDE CERTIFICATE**

Certified that this project report “**DESIGN AND ANALYSIS OF FLOWER POT CONE MAKING MACHINE –A CASE STUDY IN FIREWORKS INDUSTRY**” is the bonafide work of “**N. BALAJI (920417114303) N. BALAJI (920417114304) K. MATHANKUMAR (920417114310)**” who carried out the project work under my supervision.



**SIGNATURE**

Dr. S. SENTHIL, M.E., Ph.D.

**HEAD OF THE DEPARTMENT**

Department of Mechanical

Kamaraj College of Engineering &  
Technology

Madurai-625 701



**SIGNATURE**

Dr. S. SENTHIL, M.E., Ph.D.

**SUPERVISOR**

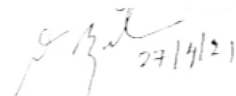
Department of Mechanical

Kamaraj College of Engineering &  
Technology

Madurai-625 701



**INTERNAL EXAMINER**



**EXTERNAL EXAMINER**

<b>ME8682</b>	<b>DESIGN AND FABRICATION PROJECT</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
		<b>0</b>	<b>0</b>	<b>4</b>	<b>2</b>

**OBJECTIVE:**

- The main objective is to give an opportunity to the student to get hands on training in the fabrication of one or more components of a complete working model, which is designed by them.

**GUIDELINE FOR REVIEW AND EVALUATION**

The students may be grouped into 2 to 4 and work under a project supervisor. The device/system/component(s) to be fabricated may be decided in consultation with the supervisor and if possible with an industry. A project report to be submitted by the group and the fabricated model, which will be reviewed and evaluated for internal assessment by a Committee constituted by the Head of the Department. At the end of the semester examination the project work is evaluated based on oral presentation and the project report jointly by external and internal examiners constituted by the Head of the Department.

**TOTAL : 60 PERIODS**

**OUTCOMES:**

**Upon the completion of this course the students will be able to**

CO1 design and Fabricate the machine element or the mechanical product.

CO2 demonstrate the working model of the machine element or the mechanical product.

<b>HS8581</b>	<b>PROFESSIONAL COMMUNICATION</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
		<b>0</b>	<b>0</b>	<b>2</b>	<b>1</b>

**OBJECTIVES: The course aims to:**

- Enhance the Employability and Career Skills of students
- Orient the students towards grooming as a professional
- Make them Employable Graduates
- Develop their confidence and help them attend interviews successfully.

**UNIT I**

Introduction to Soft Skills-- Hard skills & soft skills - employability and career Skills—Grooming as a professional with values—Time Management—General awareness of Current Affairs

**UNIT II**

Self-Introduction-organizing the material - Introducing oneself to the audience – introducing the topic – answering questions – individual presentation practice— presenting the visuals effectively – 5 minute presentations

**UNIT III**

Introduction to Group Discussion— Participating in group discussions – understanding group dynamics - brainstorming the topic – questioning and clarifying –GD strategies- activities to improve GD skills

**UNIT IV**

Interview etiquette – dress code – body language – attending job interviews– telephone/skype interview -one to one interview &panel interview – FAQs related to job interviews

**END SEMESTER PRACTICAL EXAMINATIONS ONLINE PROCTORED MODE**

Subject Code & NAME : ME 8682 : Design and Fabrication Project						
Year / SEM / Class : III / VI / 'B'						
Sl. No	Roll No	Reg. No.	Name of the student	Batch No.	Title of the Project	Guide Name with Designation
1	18UMEC039	920418114002	ABISON GURUGEE.M	1	Design and Fabrication of Ayurvedic formulation drier	Dr. S. Thanga Kasi Rajan, AP/ Mech
2	18UMEC087	920418114301	BALAVINOTH B			
3	18UMEC085	920418114026	HARI VIGNESHA			
4	18UMEC007	920418114056	PRAVIN KUMAR. S	2	DESIGN AND FABRICATION OF DIMENSIONAL ANALYSER	Dr. S. Thanga Kasi Rajan, AP/ Mech
5	18UMEC022	920418114017	BALAMURUGAN.S			
6	18UMEC027	920418114064	ROBERT MANICKAM.D.J			
7	18UMEC057	920418114046	NALLA PERUMAL.T	3	DESIGN AND FABRICATION OF FITNESS ENHANCEMENT MACHINE	Er. T. Suresh, AP/ Mech
8	18UMEC060	920418114067	SANTHOSH.G			
9	18UMEC052	920418114019	BALASHIVAM.S			
10	18UMEC016	920418114021	BALA VIGNESH.J	4	Design and Fabrication of Solar Operated Litter Raking Machine for Poultry farm	Er. T. Suresh, AP/ Mech
11	18UMEC091	920418114305	Navaneetha Krishnan			
12	18UMEC002	920418114070	SATHEESH KUMAR.S			
13	18UMEC078	920418114082	VIJAYARAGAVAN.G	5	Design and Fabrication of Portable 3 in 1 car washer using wiper	Er. M. Prithiviraj, AP/Mech
14	18UMEC051	920418114047	NANTHAKUMAR.G			
15	18UMEC084	920418114001	ABELPRIYAN. S			
16	18UMEC042	920418114079	VETRIVEL.M	6	Design and Fabrication of Streering control using IoT	Er. R. Sakthivel Murugan, AP/ Mech
17	18UMEC075	920418114057	RAHUL KRISHNAN.K			
18	16UMEC112	920418114501	Karthikeyan. S			
19	18UMEC021	920418114016	BALAMURUGAN.R	7	Design and fabrication of Ice Bonded Abrasive Polishing Machine	Er. S. Chidambarakumar, AP/Mech
20	18UMEC053	920418114008	ARUL RAJ.D.R			
21	18UMEC010	920418114086	YOGESSWAR.R			
22	18UMEC049	920418114081	VIGNESH.S	8	Design and Fabrication of Semiautomatic floor cleaning machine	Er. S. Muthu Natarajan, AP/Mech
23	18UMEC062	920418114018	BALASANKAR.K			
24	18UMEC074	920418114023	GOWSIC.T			
25	18UMEC063	920418114032	KARTHIKEYAN.R(20/07/2001)	9	Performance monitoring and controlling of Shell and tube heat exchanger using IOT	Er. T. Ramesh, AP/Mech
26	18UMEC029	920418114031	KARTHIKEYAN.R(26/07/2000)			
27	18UMEC083	920418114042	MELWIN.M			
28	18UMEC044	920418114029	JERRY ROBINSON.J	10	DESIGN AND FABRICATION OF POWER GENERATION USING MAGNETIC WHEEL	Er. M. Prithiviraj, AP/Mech
29	18UMEC092	920418114303	MOHAMED IRFAN KHAN. J			
30	18UMEC032	920418114055	PRATHIYUNNAN.M			
31	18UMEC020	920418114007	ARAVINTHAN.C.S	11	Development of Magnetic Pulse Forming	Er. S. Chidambarakumar, AP/Mech
32	18UMEC090	920418114304	MOHAN RAJ C			
33	18UMEC005	920418114041	MARIYA ARUN POTHAGARA			
34	18UMEC012	920418114038	MANOJ.M	12	Design and fabrication of multipurpose foldable vessel cleaner	Er. S. Muthu Natarajan, AP/Mech
35	18UMEC003	920418114037	MANIVEL.M			
36	18UMEC040	920418114072	SIVA GANESH.N			
37	18UMEC048	920418114040	MARI KANNAN.A	13	DESIGN AND FABRICATION OF IOT BASED STRENUOUS EXERCISER FOR INJURED PATIENT	Er. D. Palanikumar, AP/ Mech
38	18UMEC037	920418114063	RITHEESH BABU.S.G			
39	18UMEC077	920418114035	MADESHWARA MITHRAN.B			
40	18UMEC080	920418114083	VINOTH KUMAR.S	14	DESIGN AND FABRICATION OF 3D PRINTED CORAL REEFS TO PROTECT NATURE	Dr. S. Senthil, Prof & Head/ Mech
41	18UMEC065	920418114061	RAM PRASATH.S			
42	18UMEC064	920418114011	ARUNPRAKASH.P			
43	18UMEC023	920418114077	VASANTH.R	15	Design and Fabrication of LPG Refrigeration system	Er. L. Loganathan, AP/ Mech
44	18UMEC089	920418114302	JAWAHAR PANDI P			
45	18UMEC034	920418114068	SARAVANA PANDI.S			
46	18UMEC070	920418114003	AJAY KRISHNA.S	16	Design and Fabrication of Vertical Axis wind turbine for E-vehicles.	Er. L. Loganathan, AP/ Mech
47	18UMEC031	920418114074	TAMILSELVAN.A			
48	18UMEC067	920418114050	PAUL JACOB.R			
Subject Code & NAME : ME 8682 : Design and Fabrication Project				Batch - 2018-2022		
Year / SEM / Class : III / VI / 'A'						
SL.No	Roll No	Register No	Name of the Students	Batch No	Project Title	Guide Name
1	18UMEC041	920418114012	ARUNRIYAS.V	1	Design and Fabrication of bladeless fan	Er.S.Devaraj AP/Mech
2	18UMEC079	920418114014	BALAGANESH.N			
3	18UMEC072	920418114043	MOHAMEDRABITHEEN.M			
4	18UMEC017	920418114036	MAHESWARAN.S	2	Design and Fabrication of water dispenser using 3D Printing	Er.R.Sakthivelmurugan AP/Mech
5	18UMEC015	920418114024	HARIHARAGURU.M			
6	18UMEC014	920418114065	ROHITKANNA.S			
7	18UMEC033	920418114078	VENGATESAPERUMAL.V	3	Design and Fabrication of snake repellent Stick with grass cutting machine	Er.A.Sankaranarayanamurthy AP/Mech
8	18UMEC081	920418114076	VAITHEESWARAN V.G.			
9	18UMEC008	920418114005	ANAND HARIHARAN.R			
10	18UMEC025	920418114049	NAVEEN KARRTHIK.D	4	Design and Fabrication of automatic Flow control using smart App.	Er.N.R.Madhan AP/Mech
11	18UMEC024	920418114033	KISHORE.R			
12	18UMEC013	920418114004	AKASH.V			
13	18UMEC030	920418114073	SRINIVASAN.C	5	Design and Fabrication of advancement in LPG sector	Er.B.K.Parrthipan AP/Mech
14	18UMEC046	920418114030	KARTHICK.J			
15	18UMEC004	920418114075	THARAKALINGAM.M			
16	18UMEC056	920418114051	PAVITHRAN.M	6	Design and Fabrication of IoT quadcopter	Er.B.K.Parrthipan AP/Mech
17	18UMEC001	920418114022	DEEPAK HARIHARAN.D			
18	18UMEC071	920418114028	JEBARSON. N			
19	18UMEC026	920418114085	YOGESHRAJ.S	7	Design and Fabrication of Exo-arm for paralytic	Er.B.Balavairavan AP/Mech
20	18UMEC006	920418114034	KRISHNA RAJ. B			
21	18UMEC088	920418114306	SATHEESH.P			
22	18UMEC047	920418114066	ROHITH KHAN.S	8	Design and Fabrication of gas sensing and control system in automobiles	Er.S.Devaraj AP/Mech
23	18UMEC045	920418114009	ARUN.R			
24	18UMEC061	920418114071	SIVA.M			
25	18UMEC059	920418114045	NADARAJAN.R	9	Design and Fabrication of bone scaffolds from natural composites material with help of 3D printing.	Er.K.Muruganandham AP/Mech
26	18UMEC058	920418114060	RAMANUJAM P			
27	18UMEC066	920418114069	SASIKUMAR.K			
28	18UMEC011	920418114054	PRASANNA KUMAR.K	10	Design and Fabrication of atmosphere water harvesting machine	Dr.B.Prabu AP/Mech
29	18UMEC073	920418114062	RATCHIPPU RAJAL			

				harvesting machine	
30	18UMEC068	920418114080	VIGNSEHP		
31	18UMEC036	920418114044	MUTHUVENKATESAN.P	11	Design and Fabrication of natural composite reinforced helmet for various applications
32	18UMEC055	920418114015	BALAMURUGAN.P		
33	18UMEC038	920418114039	MANOJ KUMAR. R		
34	18UMEC086	920418114308	VISHNU SHANKAR	12	Design and Fabrication of smary poultry farm
35	18UMEC082	920418114059	RAMANA.S		
36	18UMEC093	920418114307	SURYA PRAKASH. B		
37	18UMEC043	920418114058	M.RAJADURAI	13	Design and Fabrication of speed breaker incorporated with manual road blocking system
38	18UMEC028	920418114084	VISHNU PRIYAN.K		
39	18UMEC018	920418114010	ARUN KARTHIK.M		
40	18UMEC035	920418114052	PRABHU.N.S	14	Design and Fabrication of automatic water level sensor and controlling system
41	18UMEC050	920418114020	BALASURIYA.K		
42	18UMEC069	920418114027	JASWANTH RAJ.S		
43	18UMEC019	920418114006	ARAVIND. V	15	Design and fabrication of gripper
44	18UMEC054	920418114025	HARIROSHAN. K.S		
45	18UMEC009	920418114048	NARASINGAMOORTHY.S		
46	18UMEC076	920418114013	ASHOK KUMAR.G		

S. Thy. in Q/L  
09/06/21

*Sentinel*

**DESIGN AND FABRICATION OF  
AYURVEDIC FORMULATION DRIER**

**PROJECT REPORT**

*Submitted by*

**ABISON GURUGEE .M (920418114002)**

**BALA VINOOTH .B (920418114301)**

**HARI VIGNESH .A (920418114026)**

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

**BACHELOR OF ENGINEERING  
IN  
MECHANICAL ENGINEERING**



**KAMARAJ COLLEGE OF ENGINEERING AND TECHNOLOGY**

**(An Autonomous Institution Affiliated to Anna University, Chennai**

**K.VELLAKULAM - 625 701 ( Near Virudhunagar )**

**APRIL 2021**



# KAMARAJ COLLEGE OF ENGINEERING AND TECHNOLOGY

(An Autonomous Institution Affiliated to Anna University, Chennai)

K.VELLAKULAM - 625 701 (Near Virudhunagar)

## BONAFIDE CERTIFICATE

Certified that this project report “DESIGN AND FABRICATION OF AYURVEDIC FORMULATION DRIER” is the bonafide of “ABISON GURUGEE.M(920418114002), BALAVINOTH.B (920418114301), HARI VIGNESH.A (920418114026)” who carried out the project work under my supervision.



SIGNATURE

Dr. S. SENTHIL, M.E., Ph.D.

HEAD OF THE DEPARTMENT

Dept. of Mechanical Engineering,  
Kamaraj college of Engineering &  
Technology.

K.Vellakulam , Madurai.



SIGNATURE

06.06.2021

Dr. S. THANGA KASI RAJAN,  
M.E., Ph.D.

SUPERVISOR

Dept. of Mechanical Engineering  
Kamaraj college of Engineering &  
Technology.

K.Vellakulam , Madurai.

Submitted for the viva-voce examination held on \_\_\_ 09.06.2021 \_\_\_



INTERNAL EXAMINER



EXTERNAL EXAMINER



# **DESIGN AND FABRICATION OF BLADELESS FAN**



## **PROJECT REPORT**

*Submitted by*

**ARUN RIYAS V (920418114012)**

**BALA GANESH N (920418114014)**

**MOHAMED RABIUTHEEN M (920418114043)**

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

**BACHELOR OF ENGINEERING**

**IN**

**MECHANICAL ENGINEERING**

**DEPARTMENT OF MECHANICAL ENGINEERING  
KAMARAJ COLLEGE OF ENGINEERING AND TECHNOLOGY  
(An Autonomous Institution Affiliated to Anna University, Chennai)  
K.VELLAKULAM - 625 701 (Near Virudhunagar)**

**APRIL 2021**

**KAMARAJ COLLEGE OF ENGINEERING AND TECHNOLOGY**  
(An Autonomous Institution Affiliated to  
Anna University, Chennai)

**K.VELLAKULAM - 625 701 (Near Virudhunagar)**

**BONAFIDE CERTIFICATE**

Certified that the project report “FABRICATION OF BLADELESS FAN” is  
the bonafide work of “ ARUN RIYAS V (920418114012),  
BALA GANESH N (920418114014), MOHAMED RABIUTHEEN.M  
(920418114043)” who carried out the project work under my supervision

*Senthil*

**SIGNATURE**

**Dr. S. SENTHIL M.E., Ph.D.,**

**Head of the Department,**

Professor,

Dept. of Mechanical Engineering

Kamaraj College of Engg & Tech,

K. Vellakulam, Madurai

*S. Devaraj*  
*6/6/21*

**SIGNATURE**

**Mr.S.DEVARAJ**

**SUPERVISOR ,**

Assistant Professor,

Dept. of Mechanical

Kamaraj College of Engg & Tech

K.Vellakulam, Madurai.

Submitted for the viva-voce examination held on

08.06.2021

*P. Senthil*

**INTERNAL EXAMINER**

*T. Senthil*

**EXTERNAL EXAMINER**

# **FABRICATION OF PRE-SIGNAL ANALYSER**

## **A PROJECT REPORT**

**Submitted by**

**PRAVIN KUMAR S (920418114056)**

**BALAMURUGAN S (920418114017)**

**ROBERT MANICKAM DJ (920418114064)**

*In partial fulfillment for the award of the degree*

*Of*

**BACHELOR OF ENGINEERING**

**IN**

**MECHANICAL ENGINEERING**



**KAMARAJ COLLEGE OF ENGINEERING AND TECHNOLOGY**

**(An Autonomous Institution Affiliated to Anna University, Chennai)**

**K.VELLAKULAM - 625 701 (Near Virudhunagar)**

**APRIL 2021**

**BONAFIDE CERTIFICATE**

Certified that this project report **DESIGN AND FABRICATION OF TABLE TOP SINGLE SCREW EXTRUDER MACHINE** is the bonafide work of **PRAVIN KUMAR S (920418114056), BALAMURUGAN S (920418114017), ROBERT MANICKAM DJ (920418114064)** who carried out the project work under my supervision.



**SIGNATURE**

**Dr. S. SENTHIL M.E., Ph.D.**

**HEAD OF THE DEPARTMENT**

Dept. of Mechanical Engineering,  
Kamaraj College of Engineering  
& Technology,  
Madurai – 625701.



**SIGNATURE**

**Dr. S. THANGA KASI RAJAN M.E., Ph.D.**

**ASSISTANT PROFESSOR**

Dept. of Mechanical Engineering,  
Kamaraj College of Engineering  
& Technology,  
Madurai – 625701.

Submitted for the viva-voce examination held on 09.06.2021



**INTERNAL EXAMINER**



**EXTERNAL EXAMINER**

# **DESIGN AND FABRICATION OF WATER DISPENSER USING 3D PRINTING**

## **PROJECT REPORT**

*Submitted by*

<b>ROHITH KANNA.S</b>	<b>(920418114065)</b>
<b>HARIHARA GURU.M</b>	<b>(920418114024)</b>
<b>MAHESWARAN.S</b>	<b>(920418114036)</b>

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

**BACHELOR OF ENGINEERING**

**IN**

**MECHANICAL ENGINEERING**

**DEPARTMENT OF MECHANICAL ENGINEERING**



**KAMARAJ COLLEGE OF ENGINEERING AND TECHNOLOGY**

**(An Autonomous Institution Affiliated to Anna University, Chennai)**

**K.VELLAKULAM - 625 701 (Near Virudhunagar)**

**APRIL 2021**

# KAMARAJ COLLEGE OF ENGINEERING AND TECHNOLOGY

(An Autonomous Institution Affiliated to Anna University, Chennai)

K.VELLAKULAM - 625 701 (Near Virudhunagar)

## BONAFIDE CERTIFICATE

Certified that this project report “DESIGN AND FABRICATION OF WATER DISPENSER USING 3D PRINTING” is the bonafide of “ROHITH KANNA.S (920418114065), HARIHARA GURU.M (920418114024), MAHESWARAN.S (920418114036)” who carried out the project work under My supervision.

**SIGNATURE**

**Dr.S.SENTHIL M.E.,Ph.D.**

**HEAD OF THE DEPARTMENT**

Dept.of Mechanical Engineering,  
college of Engineering &  
Technology,  
Madurai- 625 701.

**LATE**

**SIGNATURE**

**Mr.R.SAKTHIVEL MURUGAN,M.E.,(Ph.D.)**

**SUPERVISOR**

Dept.of MechanicalEngineering, Kamaraj  
Kamaraj college of Engineering&  
Technology,  
Madurai- 625 701.

R\_Sakthivel Murugan  
2021-06-07 22:44:57

Submitted for the viva-voce examination held on 08.06.2021

**INTERNAL EXAMINER**

**EXTERNAL EXAMINER**

# **DESIGN AND FABRICATION OF FITNESS ENHANCEMENT MACHINE**

**PROJECT REPORT**

*Submitted by*

**BALASHIVAM.S (920418114019)**

**NALLAPERUMAL.T (920418114046)**

**SANTHOSH.G (920418114067)**

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

**BACHELOR OF ENGINEERING**

**IN**

**MECHANICAL ENGINEERING**



**DEPARTMENT OF MECHANICAL ENGINEERING  
KAMARAJ COLLEGE OF ENGINEERING AND TECHNOLOGY  
(An Autonomous Institution Affiliated to Anna University, Chennai)  
K.VELLAKULAM - 625 701 (Near Virudhunagar)**

**APRIL 2021**



# KAMARAJ COLLEGE OF ENGINEERING & TECHNOLOGY

(An Autonomous Institution Affiliated to Anna University, Chennai)

**K.VELLAKULAM - 625 701 (Near Virudhunagar)**

## BONAFIDE CERTIFICATE

Certified that the project report “FABRICATION OF FITNESS ENHANCEMENT MACHINE” is the bonafide work of “BALASHIVAM S (920418114016), NALLAPERUMAL T(920418114046), SANTHOSH G (920418114067)” who carried out the project work under my supervision



**SIGNATURE**

**Dr. S. SENTHIL M.E., Ph.D.,**  
**Head of the Department,**  
Professor,  
Dept. of Mechanical Engineering,  
Kamaraj College of Engg & Tech,  
K.Vellakulam, Madurai.



**SIGNATURE**

**Mr.T.SURESH M.E**  
**SUPERVISOR,**  
Assistant Professor,  
Dept. of Mechanical Engineering,  
Kamaraj College of Engg & Tech,  
K.Vellakulam, Madurai.

Submitted for the viva-voce examination held on 09.06.2021



**INTERNAL EXAMINER**



**EXTERNAL EXAMINAR**

# **DESIGN AND FABRICATION OF GRASS CUTTING MACHINE WITH SNAKE REPELLENT STICK**

**PROJECT REPORT**

*Submitted by*

**VENGATESHAPERUMAL V (920418114078)**

**VAITHEESWARAN V G (920418114076)**

**ANAND HARIHARAN R. (920418114005)**

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



**BACHELOR OF ENGINEERING**

**IN**

**MECHANICAL ENGINEERING**



**DEPARTMENT OF MECHANICAL ENGINEERING**

**KAMARAJ COLLEGE OF ENGINEERING AND TECHNOLOGY**

**(An Autonomous Institution Affiliated to Anna University, Chennai)**

**K.VELLAKULAM - 625 701 (Near Virudhunagar)**

**APRIL 2021**

**KAMARAJ COLLEGE OF ENGINEERING AND TECHNOLOGY**

**(An Autonomous Institution Affiliated to Anna University, Chennai)**

**K.VELLAKULAM - 625 701 (Near Virudhunagar)**

**BONAFIDE CERTIFICATE**

Certified that the project report “**FABRICATION OF GRASS CUTTING MACHINE WITH SNAKE REPELLENT STICK** ” is the bonafide work of “**VENGATESHAPERUMAL V (920418114078), VAITHEESWARAN V G (920418114076), ANAND HARIHARAN R(920418114005)**” who carried out the project work under my supervision



**SIGNATURE**

**Dr. S. SENTHIL M.E., Ph.D., Mr.A.SANKARA NARAYANA MURTHY, M.E.,Ph. D**

**Head of the Department,**

Professor,

Dept. of Mechanical Engineering

Kamaraj College of Engg & Tech,

K.Vellakulam, Madurai



**SIGNATURE**

**SUPERVISOR ,**

Assistant Professor,

Dept. of Mechanical Engineering

Kamaraj College of Engg &Tech,

K.Vellakulam, Madurai.

Submitted for the viva-voce examination held on 8.6.2021



**INTERNAL EXAMINER**



**EXTERNAL EXAMINER**

# **DESIGN AND FABRICATION OF SOLAR OPERATED LITTER RAKING MACHINE FOR POULTRY FARM**

**A PROJECT REPORT**

*Submitted by*

**BALA VIGNESH.J (920418114021)**

**SATHEESH KUMAR.S (920418114070)**

**NAVANEETHA KRISHNAN.T (920418114305)**

*in partial fulfillment for the award of the degree*

*of*

**BACHELOR OF ENGINEERING**

**IN**

**MECHANICAL ENGINEERING**



**DEPARTMENT OF MECHANICAL ENGINEERING  
KAMARAJ COLLEGE OF ENGINEERING AND TECHNOLOGY  
(An Autonomous Institution Affiliated to Anna University, Chennai)  
K.VELLAKULAM - 625 701 (Near Virudhunagar)**

**APRIL 2021**

**KAMARAJ COLLEGE OF ENGINEERING AND TECHNOLOGY**  
**(An Autonomous Institution Affiliated to Anna University, Chennai)**  
**L. VELLAKULAM - 625 701 (Near Virudhunagar)**

**BONAFIDE CERTIFICATE**

Certified that this project report “**DESIGN AND FABRICATION OF SOLAR OPERATED LITTER RAKING MACHINE FOR POULTRY FARM**” is the bonafide of “**BALA VIGNESH.J (920418114021), SATHEESH KUMAR.S (920418114070), NAVANEETHA KRISHNAN.T (920418114305)**” who carried out the project work under my supervision.



**SIGNATURE**

**Dr.S.SENTHIL M.E.,Ph.D.,**  
**HEAD OF THE DEPARTMENT,**  
Professor,  
Dept. of Mechanical Engineering,  
Kamaraj college of Engg & Tech,  
K.Vellakulam, Madurai.



**SIGNATURE**

**Mr.T.SURESH M.E,**  
**SUPERVISOR,**  
Assistant professor,  
Dept. of Mechanical Engineering,  
Kamaraj college of Engg & Tech,  
K.Vellakulam, Madurai.

Submitted for the viva-voce examination held on 09.06.2021



**INTERNAL EXAMINER**



**EXTERNAL EXAMINER**

# **DESIGN AND FABRICATION OF AUTOMATIC FLOW CONTROL USING SMART APP**

**A PROJECT REPORT**

*Submitted by*

**NAVEEN KARRTHIK.D (920418114049)**

**KISHORE.R (920418114033)**

**AKASK.V (920418114004)**

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

**BACHELOR OF ENGINEERING**

**IN**

**MECHANICAL ENGINEERING**



**DEPARTMENT OF MECHANICAL ENGINEERING**

**KAMARAJ COLLEGE OF ENGINEERING AND TECHNOLOGY**

**(An Autonomous Institution Affiliated to Anna University, Chennai)**

**K.VELLAKULAM - 625 701 (Near Virudhunagar)**

**APRIL 2021**

# KAMARAJ COLLEGE OF ENGINEERING AND TECHNOLOGY

(An Autonomous Institution Affiliated to Anna University, Chennai)

K.VELLAKULAM - 625 701 (Near Virudhunagar)

## BONAFIDE CERTIFICATE

Certified that the project report “**DESIGN AND FABRICATION OF AUTOMATIC FLOW CONTROL USING SMART APP** is the bonafide work of “**NAVEEN KARRTHIK.D (920418114049), KISHORE.R (920418114033), V.AKASH (920418114004)**” who carried out the project work under my supervision.



**SIGNATURE**

**Dr. S. SENTHIL M.E., Ph.D.,**

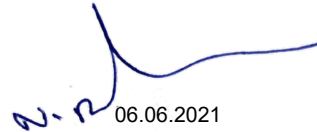
**Head of the Department,**

Professor,

Dept. of Mechanical Engineering

Kamaraj College of Engg & Tech,

K.Vellakulam, Madurai.



**SIGNATURE**

**Mr.N.R.MADHAN,M.E.(Ph.D),**

**SUPERVISOR ,**

Assistant Professor,

Dept. of Mechanical Engineering

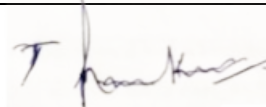
Kamaraj College of Engg &Tech,

K.Vellakulam, Madurai.

Submitted for the viva-voce examination held on 08.06.2021



**INTERNAL EXAMINER**



**EXTERNAL EXAMINER**

# **DESIGN AND FABRICATION OF ADVANCEMENT IN LPG SECTOR**

**PROJECT REPORT**

*Submitted by*

**THARAKALINGAM .M (920418114075)**

**SRINIVASAN. C (920418114073)**

**KARTHICK. J (920418114030)**

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

**BACHELOR OF ENGINEERING**

**IN**

**MECHANICAL ENGINEERING**

**DEPARTMENT OF MECHANICAL ENGINEERING**



**KAMARAJ COLLEGE OF ENGINEERING AND TECHNOLOGY**

**(An Autonomous Institution Affiliated to Anna University, Chennai)**

**K.VELLAKULAM - 625 701 (Near Virudhunagar)**

**APRIL 2021**



**KAMARAJ COLLEGE OF ENGINEERING AND TECHNOLOGY**

**(An Autonomous Institution Affiliated to Anna University, Chennai)**

**K.VELLAKULAM - 625 701 (Near Virudhunagar)**

**BONAFIDE CERTIFICATE**

Certified that this project report ‘ **DESIGN AND FABRICATION OF ADVANCEMENT IN LPG SECTOR**’ is the bonafide of ‘**THARAKALINGAM. (920418114075), SRINIVASAN.C (92048114073), KARTHICK.J (920418114030)**’ who carried out the project under my supervision.



**SIGNATURE**

**Dr . S .SENTHIL M.E., Ph.D**

**HEAD OF THE DEPARTMENT**

Dept of Mechanical Engineering,  
Kamaraj college of Engineering &  
Technology,  
Madurai- 625701



**SIGNATURE**

**Mr. B. K. PARRTHIPAN.,**  
**ME.,(Ph.D),**

**SUPERVISOR**

Dept of Mechanical Engineering,  
Kamaraj College of Engineering &  
Technology,  
Madurai – 625 701

Submitted for the Viva – Voce Examination held on 08.06.2021



**INTERNAL EXAMINER**



**EXTERNAL EXAMINER**

# **DESIGN AND FABRICATION OF PORTABLE 3 IN 1 CAR WASHER**

A PROJECT REPORT

*Submitted by*

**G. NANTHA KUMAR**

**(920418114047)**

**G. VIJAYARAGAVAN**

**(920418114082)**

**S. ABEL PRIYAN**

**(920418114001)**



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



**BACHELOR OF ENGINEERING**

**IN**

**MECHANICAL ENGINEERING**

**DEPARTMENT OF MECHANICAL ENGINEERING**

**KAMARAJ COLLEGE OF ENGINEERING AND TECHNOLOGY**

**(An Autonomous Institution Affiliated to Anna University, Chennai)**

**K.VELLAKULAM - 625 701 (Near Virudhunagar) APRIL 2021**

# KAMARAJ COLLEGE OF ENGINEERING AND TECHNOLOGY

(An Autonomous Institution Affiliated to Anna University, Chennai)

K.VELLAKULAM - 625 701 (Near Virudhunagar)

## BONAFIDE CERTIFICATE

Certified that the project report “**DESIGN AND FABRICATION OF PORTABLE 3 IN 1 CAR WASHER**” is the bonafide work of “ **NANTHA KUMAR G (920418114047), VIJAYARAGAVAN G(920418114078),ABEL PRIYAN S (920418114001)**” who carried out the project work under my supervision



**SIGNATURE**

**Dr.S.SENTHIL M.E.,Ph.D.**

**HEAD OF THE DEPARTMENT**

Dept.of Mechanical Engineering,  
Kamaraj college of Engineering & Technology  
Madurai- 625 701.



**SIGNATURE**


**Mr.M.PRIITHVIRAJ, M.E,**

**SUPERVISOR**

Dept.of Mechanical Engineering,  
Kamaraj college of Engineering&Tech

Madurai- 625 701.

Submitted for the viva-voce examination held on 09.06.2021



**INTERNAL EXAMINE R**



**EXTERNAL EXAMINER**

**DESING AND FABRICATION  
OF  
STEERING CONTROL SYSTEM USING IOT**

**PROJECT REPORT**

*Submitted by*

**VETRIVEL . M (920418114079)  
RAHULKRISHNAN . K (920418114057)  
KARTHIKEYAN . S (920418114501)**

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

**BACHELOR OF ENGINEERING  
IN  
MECHANICAL ENGINEERING**



**DEPARTMENT OF MECHANICAL ENGINEERING  
KAMARAJ COLLEGE OF ENGINEERING AND TECHNOLOGY  
(An Autonomous Institution Affiliated to Anna University, Chennai)  
K.VELLAKULAM - 625 701 (Near Virudhunagar)**

**APRIL 2021**

**KAMARAJ COLLEGE OF ENGINEERING AND  
TECHNOLOGY  
(An Autonomous Institution Affiliated to Anna University, Chennai)  
K.VELLAKULAM - 625 701 (Near Virudhunagar)**

## BONAFIDE CERTIFICATE

Certificate that the project report “**DESIGN & FABRICATION OF STEERING CONTROL SYSTEM USING IOT**” is the bonafide work of “**VETRIVEL M (920418114079), RAHULKRISHNAN . K (920418114057), KARTHIKEYAN . S (920418114501)**” who carried out the project work under my supervision



**SIGNATURE**

**Dr. S. SENTHIL M.E., Ph.D.,**  
**Head of the Department,**  
Professor,  
Dept. Of Mechanical Engineering  
Kamaraj College Of Engg & Tech,  
K.Vellakulam, Madurai.



**SIGNATURE**

**R.SAKTHIVEL MURUGAN M.E.,(Ph.D).,**  
**SUPERVISOR ,**  
Assistant Professor,  
Dept. Of Mechanical Engineering  
Kamaraj College Of Engg & Tech,  
K.Vellakulam, Madurai.

Submitted for the viva-voce examination held on 09.06.2021



**INTERNAL EXAMINER**



**EXTERNAL EXAMINER**

# DESIGN AND FABRICATION OF IoT QUAD-COPTER

## PROJECT REPORT

*Submitted by*

**PAVITHRAN M (920418114051)**

**DEEPAK HARIHARAN D (920418114022)**

**JEBARSON N (920418114028)**

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



## BACHELOR OF ENGINEERING IN MECHANICAL ENGINEERING



**DEPARTMENT OF MECHANICAL ENGINEERING  
KAMARAJ COLLEGE OF ENGINEERING AND TECHNOLOGY  
(An Autonomous Institution Affiliated to Anna University, Chennai)  
K.VELLAKULAM - 625 701 (Near Virudhunagar)**

**APRIL 2021**

# KAMARAJ COLLEGE OF ENGINEERING AND TECHNOLOGY

(An Autonomous Institution Affiliated to Anna University, Chennai)

**K.VELLAKULAM - 625 701 (Near Virudhunagar)**

## BONAFIDE CERTIFICATE

Certified that the project report “**DESIGN AND FABRICATION OF IoT QUAD-COPTER**” is the bonafide work of “**PAVITHRAN.M (920418114051),**

**DEEPAK HARIHARAN.D (920416114022) and JEBARSON.N (920416114028)”**

who carried out the project work under my supervision



**SIGNATURE**

**Dr.S.SENTHIL M.E., Ph.D.,**

**HEAD OF THE DEPARTMENT,**

Professor,

Dept. of Mechanical Engineering

Kamaraj College of Engg & Tech,

K.Vellakulam, Madurai.



**SIGNATURE**

**Mr.B.K.PARRTHIPAN., M.E., M.B.A.,  
(Ph.D.)**

**SUPERVISOR,**

Assistant Professor,

Dept. of Mechanical Engineering

Kamaraj College of Engg &Tech,

K.Vellakulam, Madurai

08.06.2021

Submitted for the viva-voce examination held on \_\_\_\_\_



**INTERNAL EXAMINER**



**EXTERNAL EXAMINER**

**DESIGN AND FABRICATION OF ICE  
BONDED ABRASIVE POLISHING  
MACHINE**

**PROJECT REPORT**

*Submitted by*

**BALA MURUGAN R (920418114016)**

**ARUL RAJ D R (920418114008)**

**YOGESSWAR R (920418114086)**

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



**BACHELOR OF ENGINEERING  
IN  
MECHANICAL ENGINEERING**



**DEPARTMENT OF MECHANICAL ENGINEERING  
KAMARAJ COLLEGE OF ENGINEERING AND TECHNOLOGY  
(An Autonomous Institution Affiliated to Anna University, Chennai)  
K.VELLAKULAM - 625 701 (Near Virudhunagar)**

**APRIL 2021**



# KAMARAJ COLLEGE OF ENGINEERING AND TECHNOLOGY

(An Autonomous Institution Affiliated to Anna University, Chennai)

K.VELLAKULAM - 625 701 (Near Virudhunagar)

## BONAFIDE CERTIFICATE

Certified that the project report “DESIGN AND FABRICATION OF ICE BONDED ABRASIVE POLISHING MACHINE” is the bonafide work of **BALA MURUGAN R (920418114016), ARUL RAJ D R (920418114008), YOGESSWAR R (920418114086)**” who carried out the project work under my supervision



**SIGNATURE**

**Dr. S. SENTHIL M.E., Ph.D.,**

**Head of the Department,**

Professor,

Dept. of Mechanical Engineering

Kamaraj college of Engg & Tech,

K.Vellakulam, Madurai.

For



**SIGNATURE**

**S.CHIDAMBARA KUMARAN M.E**

**Supervisor,**

Assistant Professor,

Dept. of Mechanical Engineering

Kamaraj College of Engg &Tech,

K.Vellakulam, Madurai

Submitted for the viva-voce examination held on 09/06/2021



**INTERNAL EXAMINER**



**EXTERNAL EXAMINER**

**DESIGN AND FABRICATION OF  
EXO-ARM FOR PARALYZED PATIENT**

**PROJECT REPORT SUBMITTED BY:-**

**KRISHNA RAJ B (920418114034)**

**YOGESHRAJ S (920418114085)**

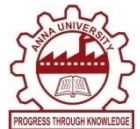
**SATHEESH P (920418114306)**

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

**BACHELOR OF ENGINEERING**

**IN**

**MECHANICAL ENGINEERING**



**DEPARTMENT OF MECHANICAL ENGINEERING  
KAMARAJ COLLEGE OF ENGINEERING AND TECHNOLOGY  
(An Autonomous Institution Affiliated to Anna University, Chennai)  
K.VELLAKULAM - 625 701 (Near Virudhunagar)**

**APRIL 2021**

**KAMARAJ COLLEGE OF ENGINEERING AND TECHNOLOGY  
(An Autonomous Institution Affiliated to Anna University, Chennai)  
K.VELLAKULAM - 625 701 (Near Virudhunagar).**

## BONAFIDE CERTIFICATE

Certified that this project report “**DESIGN AND FABRICATION OF EXOARM FOR PARALYZED PATIENT**” is the bonafide of “**KRISHNA RAJ B (920418114034) YOGESHRAJ S (920418114085) SATHESH P (920418114306)**” carried out the project work under my supervision.



**SIGNATURE**

**Dr.S.SENTHIL M.E.,Ph.D.**  
**HEAD OF THE DEPARTMENT**  
Dept.of Mechanical Engineering,  
Kamaraj college of Engineering &  
Technology,  
Madurai- 625 701.



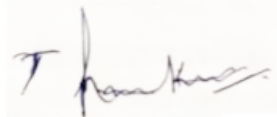
**SIGNATURE**

**Mr.B.BALAVAIRAVANM.E.,(Ph.D.)**  
**SUPERVISOR**  
Dept.of MechanicalEngineering,  
Kamaraj college of Engineering&  
Technology,  
Madurai- 625 701.

Submitted for the viva-voce examination held on 08.06.2021



**INTERNAL EXAMINER**



**EXTERNAL EXAMINER**

# FABRICATION OF SEMI AUTOMATED FLOOR CLEANING MACHINE

## PROJECT REPORT

*Submitted by*

**VIGNESH.S (920418114081)**

**GOWSIC.T (920418114023)**

**BALA SANKAR.K (920418114018)**

**In partial fulfilment for the award of the degree**  
*of*

**BACHELOR OF ENGINEERING**

*in*

**MECHANICAL ENGINEERING**

**DEPARTMENT OF MECHANICAL ENGINEERING KAMARAJ COLLEGE OF  
ENGINEERING AND TECHNOLOGY**

**(An Autonomous Institution Affiliated to Anna University, Chennai)**

**K.VELLAKULAM - 625 701 (Near Virudhunagar)**

**JUNE 2021**



**KAMARAJ COLLEGE OF ENGINEERING AND TECHNOLOGY**  
**(An Autonomous Institution Affiliated to Anna University, Chennai)**  
**K.VELLAKULAM - 625 701 (Near Virudhunagar)**

**BONAFIDE CERTIFICATE**

Certified that the project report “**Fabrication of Semi-Automated Floor Cleaning Machine**” is the bonafide work of “**S.Vignesh (920418114081), T.Gowsic (920418114023), K.Bala Sankar (920418114018)**” who carried out the project work under my supervision



**SIGNATURE**

**Dr.S.Senthil M.E., Ph.D.,**

Professor & Head

Department of Mechanical Engineering  
Kamaraj College of Engineering and  
Technology, Madurai - 625701



**SIGNATURE**

**Mr.S.Muthu Natarajan M.E., (Ph.D).,**


Professor & Head

Department of Mechanical Engineering  
Kamaraj College of Engineering and  
Technology, Madurai - 625701

Submitted for the viva-voce examination held on 09.06.2021



**Internal Examiner**



**External Examiner**

# **DESIGN AND FABRICATION OF GAS SENSING AND CONTROL SYSTEM IN AUTOMOBILES**

**A Project Report**

*Submitted by*

**M.SIVA (920418114071)**

**R.ARUN (920418114009)**

**S.ROHITHKHAN (920418114066)**

*in partial fulfilment for the award of the degree*

*of*

**BACHELOR OF ENGINEERING**

*in*

**MECHANICAL ENGINEERING**



**DEPARTMENT OF MECHANICAL ENGINEERING**

**KAMARAJ COLLEGE OF ENGINEERING & TECHNOLOGY**

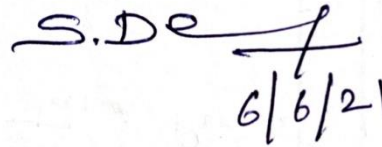
**(An Autonomous Institution Affiliated to Anna University, Chennai)**

**K.VELLAKULAM - 625 701 (Near Virudhunagar)**

April 2021

**BONAFIDE CERTIFICATE**

Certified that this project report “**DESIGN AND FABRICATION OF GAS SENSING AND CONTROL SYSTEM IN AUTOMOBILES** ” is the bonafide work of **M.SIVA (920418114071), R.ARUN (920418114009) and S.ROHITHKHAN (920418114066)** who carried out this project under my supervision.




S. Devaraj  
6/6/21


*Senthil*  
**SIGNATURE**  
**Dr.S.SENTHIL M.E.,Ph.D.,**  
**HEAD OF THE DEPARTMENT,**  
Department of Mechanical Engineering,  
Kamaraj College of Engineering and  
Technology.  
Madurai – 625 701.

**SIGNATURE**  
**Mr.S.DEVARAJ M.E.,**  
**SUPERVISOR,**  
Department of Mechanical Engineering,  
Kamaraj College of Engineering and  
Technology.  
Madurai – 625 701.

Submitted for viva-voce examination held on 08.06.2021



**INTERNAL EXAMINER**



**EXTERNAL EXAMINER**

# **DESIGN AND FABRICATION OF BONE SCAFFOLDS FROM NATURAL COMPOSITE MATERIAL WITH HELP OF 3D PRINTING**

**PROJECT REPORT**

*Submitted by*

**NADARAJAN R (920418114045)**

**RAMANUJAM P (920418114060)**

**SASIKUMAR K (920418114069)**

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



**BACHELOR OF ENGINEERING  
IN  
MECHANICAL ENGINEERING**



**DEPARTMENT OF MECHANICAL ENGINEERING  
KAMARAJ COLLEGE OF ENGINEERING AND TECHNOLOGY  
(An Autonomous Institution Affiliated to Anna University, Chennai)**

**K.VELLAKULAM - 625 701 (Near Virudhunagar)**

**APRIL 2021**



# KAMARAJ COLLEGE OF ENGINEERING AND TECHNOLOGY

(An Autonomous Institution Affiliated to Anna University, Chennai)

K.VELLAKULAM - 625 701 (Near Virudhunagar)

## BONAFIDE CERTIFICATE

Certified that the project report “DESIGN AND FABRICATION OF BONE SCAFFOLDS FROM NATURAL COMPOSITE MATERIAL WITH HELP OF 3D PRINTING” is the bonafide work of “NADARAJAN R (920418114045) RAMANUJAM P (920418114060), SASIKUMAR K (920418114069)” who carried out the project work under my supervision

**SIGNATURE**

**Dr. S. SENTHIL M.E., Ph.D.,**  
**Head of the Department,**  
Professor,  
Dept. of Mechanical Engineering  
Kamaraj College of Engg & Tech,  
K.Vellakulam, Madurai.

**SIGNATURE**

**Mr. K. MURUGANATHAN M.E.,(Ph.D)**  
**Supervisor ,**  
Assistant Professor,  
Dept. of Mechanical Engineering  
Kamaraj College of Engg &Tech,  
K.Vellakulam, Madurai

Submitted for the viva-voce examination held on 08/06/2021

**INTERNAL EXAMINER**

**EXTERNAL EXAMINER**

**DESIGN AND FABRICATION OF PERFORMANCE MONITORING  
AND CONTROLLING OF SHELL AND TUBE HEAT EXCHANGER  
USING IOT**

A PROJECT REPORT  
*Submitted by*

KARTHIKEYAN.R (920418114031)

KARTHIKEYAN.R (920418114032)

MELWIN.M (920418114042)

*In partial fulfilment for the award of the  
Degree of*

**BACHELOR OF ENGINEERING IN  
MECHANICAL ENGINEERING**

**KAMARAJ COLLEGE OF ENGINEERING AND TECHNOLOGY  
ANNA UNIVERSITY:CHENNAI 600 025**

APRIL-MAY-2021

**MADURAI 625 701**

**ANNA UNIVERSITY: CHENNAI 600 025**

ANNA UNIVERSITY:CHENNAI 600 025

BONAFIDE CERTIFICATE

Certified that this project report **DESIGN AND FABRICATION OF PERFORMANCE MONITORING AND CONTROLLING OF SHELL AND TUBE HEAT EXCHANGER USING IOT** is the bonafide of **KARTHIKEYAN.R (920418114031),KARTHIKEYAN.R (920418114032), MELWIN.M (920418114042)** who carried out the project work under my supervision.



**SIGNATURE**

**Dr.S.SENTHIL M.E,Ph.D.**

HEAD OF THE DEPARTMEN T

Dept of Mechanical Engineering

Kamaraj college of engineering and technology

Madurai-625 701

**SIGNATURE**

**T.RAMESH (M.E,Ph.D)**

SUPERVISOR

Dept of Mechanic Engineering

kamaraj college of engineering

And technology

Madurai-625 701

Submitted for the viva-voce held on 09.06.2021



# DESIGN AND FABRICATION OF POWER GENERATION USING MAGNETIC WHEEL

APROJECTREPORT

*Submitted by*

**JERRY ROBINSON .J** (920418114029)

**PRATHIYUNNAN .M** (920418114055)

**MOHAMED IRFAN KHAN .J** (920418114303)

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

**BACHELOR OF ENGINEERING  
IN  
MECHANICAL ENGINEERING**



**DEPARTMENT OF MECHANICAL ENGINEERING  
KAMARAJ COLLEGE OF ENGINEERING AND TECHNOLOGY  
(An Autonomous Institution Affiliated to Anna University, Chennai)  
K.VELLAKULAM - 625 701 (Near Virudhunagar)**

**APRIL 2021**

**KAMARAJ COLLEGE OF ENGINEERING AND  
TECHNOLOGY**

**(An Autonomous Institution Affiliated to Anna University, Chennai)**

**K.VELLAKULAM - 625 701 (Near Virudhunagar)**

**BONAFIDE CERTIFICATE**

Certified that the project report “**DESIGN AND FABRICATION OF POWER GENERATION USING MAGNETIC WHEEL**” is the bonafide work of “**JERRY ROBINSON J (920418114029), PRATHIYUNNAN .M (920418114055), MOHAMED IRFAN KHAN .J (920418114303)**” who carried out the project work under my supervision



**SIGNATURE**

**Dr.S.SENTHIL M.E., Ph.D.**

**HEAD OF THE DEPARTMENT**

Dept. of Mechanical Engineering,  
, Kamaraj college of Engineering &  
& Technology,  
Madurai-625 701.



**SIGNATURE**

**Mr.M.PRIITHVIRAJ, M.E,**

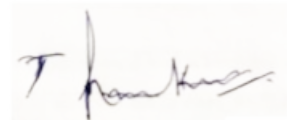
**SUPERVISOR**

Dept. of Mechanical Engineering  
Kamaraj college of  
Engineering & Technology,  
Madurai-625701.

Submitted for the viva-voce examination held on \_\_\_\_\_ 09.06.2021 \_\_\_\_\_



**INTERNAL EXAMINER**



**EXTERNAL EXAMINER**

**DESIGN AND FABRICATION OF  
WATER HARVESTING DEVICE**

**PROJECT REPORT**

*Submitted by*

**PRASANNA KUMAR.K (920418114054)**

**VIGNESH.P (920418114080)**

**RATCHIPPU RAJA.L (920418114062)**

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

**BACHELOR OF ENGINEERING**

**IN**

**MECHANICAL ENGINEERING**

**DEPARTMENT OF MECHANICAL ENGINEERING**



**KAMARAJ COLLEGE OF ENGINEERING AND TECHNOLOGY  
(An Autonomous Institution Affiliated to Anna University ,Chennai)**

**K.VELLAKULAM-625 701(Near Virudhunagar)**

**APRIL 2021**

## BONAFIDE CERTIFICATE

Certified that this project report “**DESIGN AND FABRICATION OF WATER HARVESTING DEVICE**” is the bonafide of **PRASANNA KUMAR.K (920418114054), VIGNESH.P (920418114080), RATCHIPPU RAJA.L (920418114062)**” Who carried out the project Under my super vision.



**SIGNATURE**

**Dr. SENTHIL M.E., Ph.D.**

**HEAD OF THE DEPARTMENT**

Dept of Mechanical Engineering,  
Kamaraj CollegeOf Engineering &  
Technology,  
Madurai-625 701



**SIGNATURE**

**Dr. B. PRABHU., M.E., Ph.D.**


**SUPERVISOR**

Dept of Mechanical Engineering,  
Kamaraj CollegeOf Engineering &  
Technology,  
Madurai-625 701

Submitted for the Viva – Voce Examination held on 08/06/2021\_\_\_\_\_



**INTERNAL EXAMINER**



**EXTERNAL EXAMINER**



**DESIGN AND FABRICATION OF NATURAL COMPOSITE  
REINFORCED HELMET FOR VARIOUS APPLICATION**

**PROJECT REPORT**

*Submitted by*

**MUTHUVENKATESAN P (920418114044)**

**BALAMURUGAN P (920418114015)**

**MANOJ KUMAR R (920418114039)**

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

**BACHELOR OF ENGINEERING  
IN  
MECHANICAL ENGINEERING**



**DEPARTMENT OF MECHANICAL ENGINEERING  
KAMARAJ COLLEGE OF ENGINEERING AND TECHNOLOGY  
(An Autonomous Institution Affiliated to Anna University, Chennai)  
K.VELLAKULAM - 625 701 (Near Virudhunagar)**

**APRIL 2021**

**KAMARAJ COLLEGE OF ENGINEERING AND TECHNOLOGY  
(An Autonomous Institution Affiliated to Anna University, Chennai)  
K.VELLAKULAM - 625 701 (Near Virudhunagar)**

## BONAFIDE CERTIFICATE

Certified that the project report is the bonafide work of  
“MUTHUVENKATESAN P (920418114044), BALAMURUGAN P  
(920418114015), MANOJ KUMAR R (920418114039)” who carried out the  
project work under my supervision



**SIGNATURE**

Dr. S. SENTHIL M.E., Ph.D.,  
**Head of the Department,**  
Professor,  
Dept. of Mechanical Engineering  
Kamaraj College of Engg & Tech,  
K.Vellakulam, Madurai.




**SIGNATURE**

Mr.B.BALAVARIAVAN M.E.,(Ph.D.,)  
**SUPERVISOR,**  
Assistant Professor,  
Dept. of Mechanical Engineering  
Kamaraj College of Engg &Tech,  
K.Vellakulam, Madurai

Submitted for the viva-voce examination held on 08.06.2021



**INTERNAL EXAMINER**



**EXTERNAL EXAMINER**

# **DESIGN AND FABRICATION OF DEVELOPMENT OF MAGNETIC PULSE FORMING MACHINE**

## **PROJECT REPORT**

*Submitted by*

**ARAVINTHAN C S (920418114007)**

**MARIYA ARUN POTHAGARAJ S (920418114041)**

**MOHAN RAJ C (920418114304)**

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

**BACHELOR OF ENGINEERING**

**IN**

**MECHANICAL ENGINEERING**



**DEPARTMENT OF MECHANICAL ENGINEERING  
KAMARAJ COLLEGE OF ENGINEERING AND TECHNOLOGY  
(An Autonomous Institution Affiliated to Anna University, Chennai)  
K. VELLAKULAM - 625 701 (Near Virudhunagar)**

**APRIL 2021**

# KAMARAJ COLLEGE OF ENGINEERING AND TECHNOLOGY

(An Autonomous Institution Affiliated to Anna University, Chennai)

K. VELLAKULAM - 625 701 (Near Virudhunagar)

## BONAFIDE CERTIFICATE

Certified that the project report “**DESIGN AND FABRICATION OF DEVELOPMENT OF MAGNETIC PULSE FORMING MACHINE**” is the bonafide work of **ARAVINTHAN C S (920418114007), MOHAN RAJ C(920418114304), MARIYA ARUN POTHAGARAJ S (920418114041)**” who carried out the project work under my supervision



**SIGNATURE**

**Dr. S. SENTHIL M.E., Ph.D.,**

**Head of the Department,**

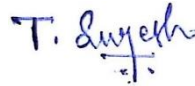
Professor,

Dept. of Mechanical Engineering

Kamaraj college of Engg & Tech,

K.Vellakulam, Madurai.

For



**SIGNATURE**

**S.CHIDAMBARAKUMARAN M.E**

**Supervisor,**

Assistant Professor,

Dept. of Mechanical Engineering

Kamaraj College of Engg &Tech,

K.Vellakulam, Madurai

Submitted for the viva-voce examination held on 09/06/2021



**INTERNAL EXAMINER**



**EXTERNAL EXAMINER**

# **DESIGN AND FABRICATION OF SMART POLUTRY FARM**

**A PROJECT REPORT**

*Submitted by*

**RAMANA.S(18UMEC082)**

**(920418114059)**

**VISHNU SANKAR.R(18UMEC086)**

**(920418114308)**

**SURYA PRAKASH .B(18UMEC093)**

**(920418114307)**

*in partial fulfillment for the award of the degree*

*of*

**BACHELOR OF ENGINEERING**

**IN**

**MECHANICAL ENGINEERING**



**DEPARTMENT OF MECHANICAL ENGINEERING**

**KAMARAJ COLLEGE OF ENGINEERING AND TECHNOLOGY**

**(An Autonomous Institution Affiliated to Anna University, Chennai)**

**K.VELLAKULAM - 625 701 (Near Virudhunagar)**

**APRIL 2021**

## BONAFIDE CERTIFICATE

Certified that this project report “**DESIGN AND FABRICATION OF SMART POULTRY FARM**” is the bonafide of “**RAMANA.S (920418114059), VISHNU SANKAR.R (920418114308), SURYA PRAKASH.B (920418114307)**” who carried out the project work under my supervision.

**SIGNATURE**



**Dr.S.SENTHIL M.E.,Ph.D**

**SIGNATURE**



**Mr.A SANKARA NARAYANA**

**MURTHY M.E,(Ph.D).**

**HEAD OF THE DEPARTMENT**

Professor,  
Dept.of Mechanical Engineering,  
Kamaraj college of Engineering &  
Technology,  
K.Vellakulam  
Madurai- 625 701.

**SUPERVISOR**

Assistant professor,  
Dept.of Mechanical Engineering,  
Kamaraj college of Engineering &  
Technology,  
K.Vellakulam  
Madurai- 625 701.

Submitted for the viva-voce examination held on 08.06.2021



**INTERNAL EXAMINER**



**EXTERNAL EXAMINER**

# **DESIGN AND FABRICATION OF MULTIPURPOSE FOLDABLE VESSEL CLEANER**

**A PROJECT REPORT**

*Submitted by*

**SIVA GANESH. N (920418114072)**

**MANOJ. M (920418114038)**

**MANIVEL. M (920418114037)**

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

**BACHELOR OF ENGINEERING**

**IN**

**MECHANICAL ENGINEERING**



**DEPARTMENT OF MECHANICAL ENGINEERING  
KAMARAJ COLLEGE OF ENGINEERING AND TECHNOLOGY  
(An Autonomous Institution Affiliated to Anna University, Chennai)  
K.VELLAKULAM - 625 701 (Near Virudhunagar)**

**APRIL 2021**

# KAMARAJ COLLEGE OF ENGINEERING & TECHNOLOGY

(An Autonomous Institution Affiliated to Anna University, Chennai)

K.VELLAKULAM - 625 701 (Near Virudhunagar)

## BONAFIDE CERTIFICATE

Certified that this project report “**DESIGN AND FABRICATION OF MULTIPURPOSE FOLDABLE VESSEL CLEANER**” is the bonafide of “**MANOJ .M (920418114038), SIVA GANESH .N (920418114072), MANI VEL .M (920418114037)**” who carried out the project work under my supervision.

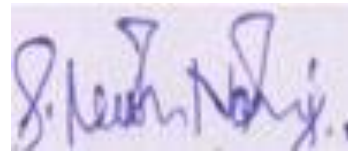


**SIGNATURE**

**Dr.S.SENTHIL M.E.,Ph.D.**

**HEAD OF THE DEPARTMENT**

Dept.of Mechanical Engineering,  
Kamaraj college of Engineering &  
Technology,  
Madurai- 625 701.



**SIGNATURE**

**Mr. S. MUTHU NATARAJAN M.E.,(Ph.D),**

**SUPERVISOR**

Dept.of MechanicalEngineering,  
Kamaraj college of Engineering&  
Technology,  
Madurai- 625 701.

Submitted for the viva-voce examination held on 09.06.2021



**INTERNAL EXAMINER**



**EXTERNAL EXAMINER**



# **DESIGN AND FABRICATION OF SPEED BREAKER INCORPORATED WITH MANUAL BARRICADE SYSTEM**

**A PROJECT REPORT**

*Submitted by*

**RAJADURAI M (920418114058)**

**VISHNU PRIYAN K (920418114084)**

**ARUN KARTHICK M (920418114010)**

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



**BACHELOR OF ENGINEERING**

**IN**

**MECHANICAL ENGINEERING**



**DEPARTMENT OF MECHANICAL ENGINEERING  
KAMARAJ COLLEGE OF ENGINEERING AND TECHNOLOGY  
(An Autonomous Institution Affiliated to Anna University, Chennai)  
K.VELLAKULAM - 625 701 (Near Virudhunagar)**

**APRIL 2021**

## BONAFIDE CERTIFICATE

Certified that this project report “**DESIGN AND FABRICATION OF SPEED BREAKER INCORPORATED WITH MANUAL BARRICADE SYSTEM**” is the bonafide of “**RAJADURALM (920418114058), VISHNU PRIYAN.K (920418114384), ARUN KARTHICK.M (920418114310)**” who carried out the project work under my supervision.



**SIGNATURE**

**Dr S. SENTHIL M.E., Ph.D.,**

**HEAD OF THE DEPARTMENT**

Professor,

Dept.of Mechanical Engineering,

Kamaraj college of Engineering &

Technology,

K.Vellakulam

Madurai- 625 701.



**SIGNATURE**

**Dr B. PRABHU M.E., Ph.D.,**

**SUPERVISOR**

Assistant professor,

Dept.of Mechanical Engineering,

Kamaraj college of Engineering&

Technology,

K.Vellakulam

Madurai- 625 701.

Submitted for the viva-voce examination held on 08/06/2021



**INTERNAL EXAMINER**



**EXTERNAL EXAMINER**

**DESIGN AND FABRICATION OF IOT BASED PORTABLE  
STRENUOUS EXERCISER  
A PROJECT REPORT**

*Submitted by,*

**MARI KANNAN.A (920418114040)**

**RITHEESH BABU.G (920418114063)**

**MADESHWARA MITHRAN.B (920418114035)**

*in partial fulfillment for the award of the degree*

*of*

**BACHELOR OF ENGINEERING**

**IN**

**MECHANICAL ENGINEERING**

**DEPARTMENT OF MECHANICAL ENGINEERING**

**KAMARAJ COLLEGE OF ENGINEERING AND TECHNOLOGY**

**(An Autonomous Institution, Affiliated to Anna University, Chennai)**

**K.VELLAKULAM - 625 701 (Near Virudhunagar)**

**APRIL 2021**



# KAMARAJ COLLEGE OF ENGINEERING AND TECHNOLOGY

(An Autonomous Institution, Affiliated to Anna University, Chennai)

K.VELLAKULAM - 625 701 (Near Virudhunagar)

## BONAFIDE CERTIFICATE

Certified that this project report “**DESIGN AND FABRICATION OF IOT BASED PORTABLE STRENUOUS EXERCISER**” is the bonafide of “**MARI KANNAN.A(920418114040), G.RITHEESH BABU(920418114063), B.MADESHWARA MITHRAN(920418114035)**” who carried out the project work under my supervision.

SIGNATURE

**Dr.S. SENTHILM.E.,(Ph.D.)**

**HEAD OF THE DEPARTMENT**

Dept.of Mechanical Engineering,  
Kamaraj college of Engineering &  
Technology.  
K.VELLAKULAM , Madurai.

SIGNATURE

**Mr. D. PALANI KUMAR M.E.,**

**SUPERVISOR**

Dept. of Mechanical Engineering  
Kamaraj college of Engineering &  
Technology.  
K.VELLAKULAM , Madurai.

Submitted for the viva-voce examination held on 09.06.2021

**Internal Examiner**

**External Examiner**

# **DESIGN AND FABRICATION OF AUTOMATIC WATER LEVEL SENSOR AND CONTROLLING SYSTEM**

## **PROJECT REPORT**

**Submitted by**

**PRABHU.N.S (920418114052)**

**BALASURIYA.K (920418114020)**

**JASWANTHRAJ.S (920418114027)**

in partial fulfillment for the award of the degree of



## **BACHELOR OF ENGINEERING IN MECHANICAL ENGINEERING**



**DEPARTMENT OF MECHANICAL ENGINEERING  
KAMARAJ COLLEGE OF ENGINEERING AND TECHNOLOGY.  
(An Autonomous Institution Affiliated to Anna University, Chennai)  
K.VELLAKULAM - 625 701 (Near Virudhunagar)**

**APRIL 2021**

**KAMARAJ COLLEGE OF ENGINEERING AND TECHNOLOGY**  
**(An Autonomous Institution Affiliated to Anna University, Chennai)**  
**K.VELLAKULAM - 625 701 (Near Virudhunagar)**

**BONAFIDE CERTIFICATE**

Certified that this project report “**DESIGN AND FABRICATION OF AUTOMATIC WATER LEVEL SENSOR AND CONTROLLING SYSTEM**” is the bonafide of “**PRABHU.N.S (920418114052),BALASURIYA.K (920418114020),JASWANTH RAJ.S(920418114027)**” who carried out the project work under my supervision.

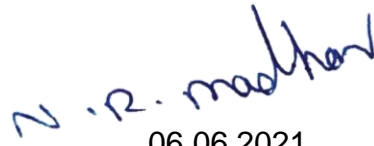


**SIGNATURE**

**Dr.S.SENTHIL M.E.,Ph.D.**

**HEAD OF THE DEPARTMENT**

Dept.of Mechanical Engineering,  
Kamaraj college of Engineering &  
Technology,  
Madurai- 625 701.



06.06.2021

**SIGNATURE**

**Er.N.R.MADHAN M.E.,(Ph.D).**

**SUPERVISOR**

Dept.of Mechanical Engineering,  
Kamaraj college of Engineering &  
Technology,  
Madurai- 625 701.

08.06.2021

Submitted for the viva-voce examination held on \_\_\_\_\_



**INTERNAL EXAMINER**



**EXTERNAL EXAMINER**

# **DESIGN AND FABRICATION OF 3D PRINTED CORAL REEFS TO PROTECT NATURE**

## **PROJECT REPORT**

*Submitted by*

**VINOTH KUMAR S(920418114083)**

**RAM PRASATH S (920418114061)**

**ARUN PRAKASH P (920418114011)**

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

**BACHELOR OF ENGINEERING  
IN  
MECHANICAL ENGINEERING**



**DEPARTMENT OF MECHANICAL ENGINEERING  
KAMARAJ COLLEGE OF ENGINEERING AND TECHNOLOGY  
(An Autonomous Institution Affiliated to Anna University, Chennai)  
K.VELLAKULAM - 625 701 (Near Virudhunagar)**

**APRIL 2021**

**KAMARAJ COLLEGE OF ENGINEERING AND TECHNOLOGY**  
**(An Autonomous Institution Affiliated to Anna University, Chennai)**  
**K.VELLAKULAM - 625 701 (Near Virudhunagar)**

**BONAFIDE CERTIFICATE**

Certified that the project report“ **DESIGN AND FABRICATION OF 3D PRINTED CORAL REEFS TO PROTECT NATURE** ”is the bonafide work of “**VINOTH KUMAR S (920418114083), RAM PRASATH S (920418114061), ARUN PRAKASH P (920418114011)**”who carried out the project work under my supervision

**SIGNATURE**

**Dr. S. SENTHIL M.E., Ph.D.,**

**HEAD OF THE DEPARTMENT**

Professor,  
Dept. of Mechanical Engineering  
Kamaraj College of Engg& Tech,  
K.Vellakulam, Madurai

**SIGNATURE**

**Dr. S. SENTHIL M.E., Ph.D.,**

**SUPERVISOR ,**

Professor,  
Dept. of Mechanical Engineering  
Kamaraj College of Engg &Tech,  
K.Vellakulam, Madurai

Submitted for the viva-voce examination held on 9/6/2021

**INTERNAL EXAMINER**

**EXTERNAL EXAMINER**



# **DESIGN AND FABRICATION OF LPG REFRIGERATION SYSTEM**

**PROJECT REPORT**

*Submitted by*

**VASANTH. R (920418114077)**

**JAWAHAR PANDI. P (920418114302)**

**SARAVANA PANDI. S (920418114068)**

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

**BACHELOR OF ENGINEERING  
IN  
MECHANICAL ENGINEERING**



**DEPARTMENT OF MECHANICAL ENGINEERING  
KAMARAJ COLLEGE OF ENGINEERING AND TECHNOLOGY  
(An Autonomous Institution Affiliated to Anna University, Chennai)  
K.VELLAKULAM - 625 701 (Near Virudhunagar)**

**APRIL 2021**

# **KAMARAJ COLLEGE OF ENGINEERING AND TECHNOLOGY**

**(An Autonomous Institution Affiliated to Anna University, Chennai)**

**K.VELLAKULAM - 625 701 (Near Virudhunagar)**

## **BONAFIDE CERTIFICATE**

Certified that the project report “**DESIGN AND FABRICATION OF LPG REFRIGERATION SYSTEM**” is the bonafide work of “**VASANTH.R (920418114077), JAWAHAR PANDI.P (920418114302), SARAVANA PANDI.S (920418114068)**” who carried out the project work under my supervision.

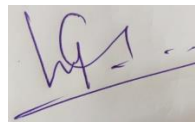


**SIGNATURE**

**Dr.S.SENTHIL, M.E.,Ph.D**

**HEAD OF THE DEPARTMENT**

Dept.of Mechanical Engineering,  
Kamaraj college of Engineering &  
Technology,  
Madurai- 625 701.



**SIGNATURE**

**Mr. L. LOGANATHAN, M.E.,(Ph.D)**

**SUPERVISOR**

Dept.of Mechanical Engineering,  
Kamaraj college of Engineering &  
Technology,  
Madurai- 625 701.

Submitted for the viva-voce examination held on 09.06.2021.



**INTERNAL EXAMINER**



**EXTERNAL EXAMINER**

# **DESIGN & FABRICATION OF VERTICAL AXIS WIND TURBINE FOR E-VEHICLES**

**PROJECT REPORT**

*Submitted by*

**TAMIL SELVAN A (920418114074)**

**AJAY KRISHNA S (920418114003)**

**PAUL JACOB R (920418114050)**

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



**BACHELOR OF ENGINEERING**

**IN**

**MECHANICAL ENGINEERING**



**DEPARTMENT OF MECHANICAL ENGINEERING  
KAMARAJ COLLEGE OF ENGINEERING AND TECHNOLOGY  
(An Autonomous Institution Affiliated to Anna University, Chennai)  
K. VELLAKULAM - 625 701 (Near Virudhunagar)**

APRIL 2021

**KAMARAJ COLLEGE OF ENGINEERING AND TECHNOLOGY**

(An Autonomous Institution Affiliated to Anna University, Chennai)

**K. VELLAKULAM - 625 701 (Near Virudhunagar)**

**BONAFIDE CERTIFICATE**

Certified that the project report “**DESIGN & FABRICATION OF VERTICAL AXIS WIND TURBINE FOR E-VEHICLES**” is the bonafide work of “**TAMIL SELVAN A (920418114074), AJAY KRISHNA S (920418114003), PAUL JACOB (920418114050)**” who carried out the project work under my supervision



**SIGNATURE**

**Dr. S. SENTHIL M.E., Ph.D.,**

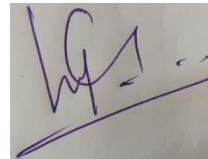
**Head of the Department,**

Professor,

Dept. of Mechanical Engineering

Kamaraj College of Engg & Tech,

K. Vellakulam, Madurai.



**SIGNATURE**

**Mr. L. Loganathan M.E.,(Ph.D).,**

**SUPERVISOR,**

Assistant Professor,

Dept. of Mechanical Engineering

Kamaraj College of Engg & Tech,

K. Vellakulam, Madurai.

Submitted for the viva-voce examination held on 09.06.2021



**INTERNAL EXAMINER**



**EXTERNAL EXAMINER**

**ANNA UNIVERSITY, CHENNAI**  
**AFFILIATED INSTITUTIONS**  
**REGULATIONS 2017**  
**M.E. MANUFACTURING ENGINEERING**  
**CHOICE BASED CREDIT SYSTEM**

**PROGRAMME EDUCATIONAL OBJECTIVES (PEOs) :**

- I. To prepare students to excel in research or to succeed in Manufacturing engineering profession through global, rigorous post graduate education.
- II. To provide students with a solid foundation in mathematical, scientific and engineering fundamentals required to solve Manufacturing engineering problems
- III. To train students with good scientific and engineering knowledge so as to comprehend, analyze, design, and create novel products and solutions for the real life problems.
- IV. To inculcate students in professional and ethical attitude, effective communication skills, teamwork skills, multidisciplinary approach, and an ability to relate Manufacturing engineering issues to broader social context.
- V. To provide student with an academic environment aware of excellence, leadership, written ethical codes and guidelines, and the life-long learning needed for a successful professional career

**PROGRAMME OUTCOMES:**

On successful completion of the programme,

1. Graduates will demonstrate knowledge of mathematics, science and engineering.
2. Graduates will demonstrate an ability to identify, formulate and solve engineering problems.
3. Graduate will demonstrate an ability to design and conduct experiments, analyze and interpret data.
4. Graduates will demonstrate an ability to design a system, component or process as per needs and specifications.
5. Graduates will demonstrate an ability to visualize and work on laboratory and multidisciplinary tasks.
6. Graduate will demonstrate skills to use modern engineering tools, software and equipment to analyze problems.
7. Graduates will demonstrate knowledge of professional and ethical responsibilities.
8. Graduate will be able to communicate effectively in both verbal and written form.
9. Graduate will show the understanding of impact of engineering solutions on the society and also will be aware of contemporary issues.
10. Graduate will develop confidence for self education and ability for life-long learning.

**SEMESTER IV**

<b>SL. NO.</b>	<b>COURSE CODE</b>	<b>COURSE TITLE</b>	<b>CATEGORY</b>	<b>CONTACT PERIODS</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
<b>PRACTICAL</b>								
1	MF5411	Project Work Phase II	EEC	24	0	0	24	12
<b>TOTAL</b>				<b>24</b>	<b>0</b>	<b>0</b>	<b>24</b>	<b>12</b>

**TOTAL CREDITS TO BE EARNED FOR THE AWARD OF THE DEGREE = 72**

**INVESTIGATION ON MICROSTRUCTURE AND  
MECHANICAL CHARACTERIZATION OF TIG  
WELDED INCONEL 625 NICKEL BASED  
ALLOY**

**PROJECT REPORT**

*Submitted by*

**AJITH KUMAR M (920419410001)**

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

**MASTER OF ENGINEERING**

**IN**

**MANUFACTURING ENGINEERING**



**DEPARTMENT OF MECHANICAL ENGINEERING  
KAMARAJ COLLEGE OF ENGINEERING AND TECHNOLOGY  
(An Autonomous Institution Affiliated to Anna University, Chennai)  
K.VELLAKULAM - 625 701 (Near Virudhunagar)**

**JUNE 2021**

# KAMARAJ COLLEGE OF ENGINEERING AND TECHNOLOGY

(An Autonomous Institution Affiliated to Anna University, Chennai)

K.VELLAKULAM - 625 701 (Near Virudhunagar)

## BONAFIDE CERTIFICATE

Certified that the project report “**INVESTIGATION ON MICROSTRUCTURE AND MECHANICAL CHARACTERIZATION OF TIG WELDED INCONEL 625 NICKEL BASED ALLOYS** ” is the bonafide work of “**M.AJITH KUMAR (92041941001)**” who carried out the project work under my supervision

**SIGNATURE**

**Dr. S. SENTHIL M.E., Ph.D.,**

**Head of the Department,**

Professor,

Dept. of Mechanical Engineering

Kamaraj College of Engg & Tech,

K.Vellakulam, Madurai.

**SIGNATURE**

**Dr.P.NARAYANASAMY M.E., Ph.D**

**SUPERVISOR ,**

Assistant Professor,

Dept. of Mechanical Engineering

Kamaraj College of Engg &Tech,

K.Vellakulam, Madurai.

**INTERNAL EXAMINER**

**EXTERNAL EXAMINER**





**(An Autonomous Institution** - AFFILIATED TO ANNA UNIVERSITY, CHENNAI)

S.P.G.Chidambara Nadar - C.Nagammal Campus

S.P.G.C.Nagar, K.Vellakulam - 625 701 (Near Virudhunagar), Madurai District.

**DEPARTMENT OF MECHANICAL ENGINEERING**

**M.E. MANUFACTURING ENGINEERING**

**REGULATIONS - 2020 (AUTONOMOUS)**

**CHOICE BASED CREDIT SYSTEM**

**VISION OF THE DEPARTMENT:**

To make the Department of Mechanical Engineering unique of its kind in the field of Research and Development activities in the prominent fields of Mechanical Engineering in this part of the world.

**MISSION OF THE DEPARTMENT:**

To impart highly Innovative and Technical knowledge in the field of Mechanical Engineering to the urban and unreachable rural students' folks, through "TOTAL QUALITY EDUCATION".

**PROGRAMME EDUCATIONAL OBJECTIVES (PEOs):**

- I. To provide graduates with a solid foundation in mathematical, scientific and engineering fundamentals required to solve Manufacturing engineering problems
  - II. To train graduates with good scientific and engineering knowledge so as to comprehend, analyze, design, and create novel products and solutions for the real-life problems.
  - III. To provide graduates with an academic environment aware of excellence, leadership, written ethical codes and guidelines, and the life-long learning needed for a successful professional career.
-

MF1321

**PROJECT WORK –PHASE 1**

L	T	P	C
0	0	12	6

**OBJECTIVES:**

- To identify a specific problem for the current need of the society and collecting information related to the same through detailed review of literature.
- To develop the methodology to solve the identified problem then publish paper at least in conference.

**PROJECT CONTENT**

1. The learner individually works on a specific topic approved by the head of the division under the guidance of a faculty member who is familiar in this area of interest.
2. The student can select the specific topic related to the area of manufacturing engineering. The topic may be theoretical or industrial case studies.
3. At the end of the semester, a detailed report on the work done should be submitted which contains clear definition of the identified problem, detailed literature review related to the area of work and methodology for carrying out the work.
4. The learners will be evaluated through a viva-voce examination by a panel of examiners including one external examiner.

**TOTAL: 12 PERIODS**

**OUTCOMES**

Student will be able to

- CO 1 : Identify the potential problems scientifically in a systematic way
- CO 2 : Analyze the problem through detailed literatures clearly to explore the ideas and methods
- CO 3 : Justify the limitations of the work and finding feasible scope
- CO 4 : Formulate the objectives and methodology to solve the identified problem
- CO 5 : Drawing conclusions based on feasibility & methodology in developing solution for the identified problem and also its need in social relevance

**DEVELOPMENT AND CHARACTERIZATION  
OF POLY VINYL ALCOHOL / IPOMOEA  
BATATAS PEEL POWDER (IBPP) BIOFILMS**

**PHASE I REPORT**

*Submitted by*

**RAJAN SUSEEDHARAN R  
(20PMF02)**

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

**MASTER OF ENGINEERING IN  
MANUFACTURING ENGINEERING**



**DEPARTMENT OF MECHANICAL ENGINEERING**

**KAMARAJ COLLEGE OF ENGINEERING & TECHNOLOGY,  
(An Autonomous Institution)  
VIRUDHUNAGAR**

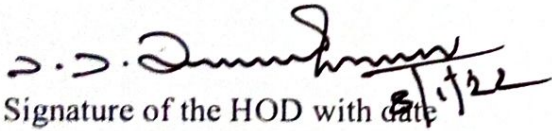
**JANUARY 2022**




**KAMARAJ COLLEGE OF ENGINEERING & TECHNOLOGY,**  
**(An Autonomous Institution)**  
**VIRUDHUNAGAR**

**BONAFIDE CERTIFICATE**

Certified that this report titled “**DEVELOPMENT AND CHARACTERIZATION OF POLY VINYL ALCOHOL / IPOMOEA BATATAS PEEL POWDER (IBPP) BIOFILMS**” is the bonafide work of **RAJAN SUSEEDHARAN R (20PMF02)** who carried out the work under my supervision. Certified further that to the best of my knowledge the work reported herein does not form part of any other thesis or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

  
Signature of the HOD with date

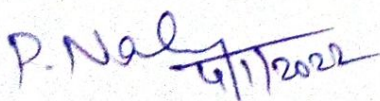
Dr. S. Saravanakumar M.E., Ph.D.,  
Associate Professor and Head,  
Dept. of Mechanical Engineering  
Kamaraj College of Engineering,  
& Technology, Virudhunagar.

  
Signature of the Supervisor with date

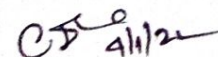
Dr. P. Narayanasamy M.E., Ph.D.,  
Assistant Professor,  
Dept. of Mechanical Engineering  
Kamaraj College of Engineering  
& Technology, Virudhunagar.

Submitted for the viva-voice examination held on

04-01-2022



**INTERNAL EXAMINER**



**EXTERNAL EXAMINER**

**DRY SLIDING WEAR BEHAVIOR OF SELF-  
LUBRICATING Al-SiC-Gr HYBRID  
COMPOSITES**

**PHASE I REPORT**

*Submitted by*

**VIJAYA MADHAVAN M  
(20PMF01)**

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

**MASTER OF ENGINEERING IN  
MANUFACTURING ENGINEERING**



**DEPARTMENT OF MECHANICAL ENGINEERING**

**KAMARAJ COLLEGE OF ENGINEERING & TECHNOLOGY,**

**(An Autonomous Institution)**

**VIRUDHUNAGAR**

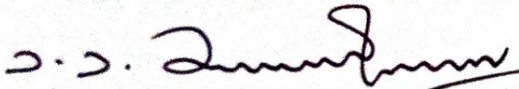
**JANUARY 2022**




**KAMARAJ COLLEGE OF ENGINEERING & TECHNOLOGY,**  
**(An Autonomous Institution)**  
**VIRUDHUNAGAR**

**BONAFIDE CERTIFICATE**

Certified that this report titled "DRY SLIDING BEHAVIOR OF SELF LUBRICATING Al-SiC-Gr HYBRID COMPOSITES" is the bonafide work of VIJAYA MADHAVAN M ( 20PMF01 ) who carried out the work under my supervision. Certified further that to the best of my knowledge the work reported herein does not form part of any other thesis or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

  
Signature of the HOD with date 3/1/22

Dr. S. Saravanakumar M.E., Ph.D.,  
Associate Professor and Head,  
Dept. of Mechanical Engineering  
Kamaraj College of Engineering,  
& Technology, Virudhunagar .

  
Signature of the Supervisor with date 3/1/2022

Dr. P. Narayanasamy M.E., Ph.D.,  
Assistant Professor,  
Dept. of Mechanical Engineering  
Kamaraj College of Engineering  
& Technology, Virudhunagar.

Submitted for the viva-voice examination held on 04-01-2022

  
**INTERNAL EXAMINER**

  
**EXTERNAL EXAMINER**