



Anand Nagar, Krishnankoil - 626126, Srivilliputtur (via), Virudhunagar District, Tamilnadu.

**APPLICATION FOR ADMISSION TO Ph.D. PROGRAMMES**

Date of Application:08-12-2020

Department	MECHANICAL ENGINEERING	Application No.	202020077
Area of Research	POLYMER NANOCOMPOSITES	Research Mode	FULL TIME

**Name** :T PRAMOD  
**Date of Birth / Age** :07-07-1989 / 31 Years  
**Gender** :MALE  
**Category** :OC  
**e-Mail ID** :tpramod5@yahoo.co.in  
**Mobile** :9740405480



*Tpramod*

<b>Father's/Husband's Name</b>	D T PRASAD	<b>Father's/Husband's Occupation</b>	-
<b>Family Income</b>	-	<b>Residential Type</b>	URBAN
<b>Birth Place</b>	BANGALORE	<b>Mother Tongue</b>	KANNADA
<b>Religion</b>	HINDU	<b>Martial Status</b>	SINGLE
<b>Aadhaar No.</b>	945486862292	<b>PAN No.</b>	AMQPT6649C
<b>Physically Challenged</b>	NO	<b>Type of Disability</b>	-
<b>Address for Communication:</b> 13/B 4TH BLOCK, 8TH MAIN, RAJAJINAGAR BANGALORE BANGALORE DISTRICT KARNATAKA INDIA Pin-560010		<b>Permenant Address:</b> 13/B 4TH BLOCK, 8TH MAIN, RAJAJINAGAR BANGALORE BANGALORE DISTRICT KARNATAKA INDIA Pin-560010	

Qualification						
Degree	Discipline	College/university	Year Passed	AVG/CGPA	Class	Mode
B E	MECHANICAL	VISVESVARAYA TECHNOLOGICAL UNIVERSITY	2011	64.17	FIRST	REGULAR
M.SC. (ENGG.) BY RESEARCH	MECHANICAL	VISVESVARAYA TECHNOLOGICAL UNIVERSITY	2018	62.83	FIRST	REGULAR

Experience				
Organization	Designation	Experience From	Experience TO	Work Nature
CENTRAL MANUFACTURING TECHNOLOGY INSTITUTE	GRADUATE ENGINEER	2011-09-15	2013-05-10	RESEARCH AND DEVELOPMENT
CENTRAL POWER RESEARCH INSTITUTE	RESEARCH FELLOW	2013-05-13	2016-07-15	RESEARCH AND DEVELOPMENT
THE ENERGY AND RESOURCES INSTITUTE	RESEARCH CONSULTANT	2018-01-12	2020-12-08	RESEARCH AND DEVELOPMENT

Payment Details
-----------------

Transaction ID	Reference	Date of transaction	Amount	Status
202020077_201224102719	VSM29589560309	24-12-2020	600	SUCCESS

आयकर विभाग

INCOME TAX DEPARTMENT



भारत सरकार

GOVT. OF INDIA

**THEERTHAPRASAD PRAMOD**

**DODDANANJAPPA THEERTHA PRASAD**

**07/07/1989**

Permanent Account Number

**AMQPT6649C**

*Pramod*

Signature



आयकर विभाग

INCOME TAX DEPARTMENT



भारत सरकार

GOVT. OF INDIA

**THEERTHAPRASAD PRAMOD**

**DODDANANJAPPA THEERTHA PRASAD**

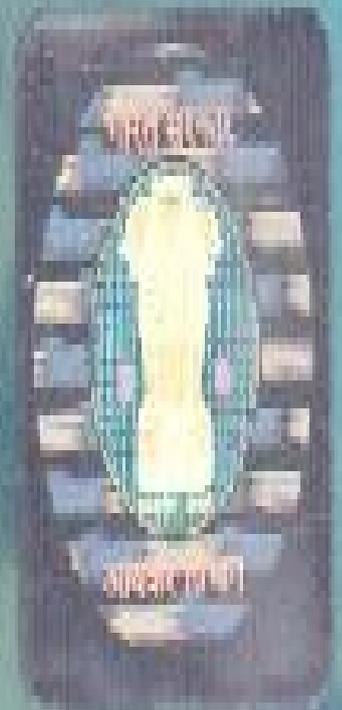
07/07/1989

Permanent Account Number

**AMQPT6649C**

*Pramod*

Signature





# Visvesvaraya Technological University

Jnana Sangama ,Belagavi- 590 018

Dr. H. G. Shekharappa  
Registrar (Evaluation)

Phone: (0831)2498136  
Fax (0831)2405461

Ref.No/VTU/Exam/2015-16/ 546

Date: 20 JUL 2015

## COURSE WORK COMPLETION CERTIFICATE

The candidate **Mr. T.Pramod.** bearing USN 1CP13MMN01 has completed six course work subjects as a prerequisite for the MSc Engg by Research Programme.

Sl.No	Subject Code	Subject Title	Grade
1	10MPE154	Advanced Materials and Processing	C
2	10MPT251	Non-Destructive Testing	B
3	10MPE22	Advanced Joining Processes	B
4	10MCM21	Advanced Material Technology	C
5	10MPM252	Surface Treatment and Finishing	B
6	11PhD11	Research Methodology	B

  
REGISTRAR (EVALUATION)

**Abbreviations for 2012 batch onwards :** Grading System -S(Out Standing )-90-100 Marks, A(Excellent)- 75-89 Marks, B(Good)- 60-74 Marks, C(Satisfactory)- 50-59 Marks, Below 50 marks F(Fail)

**Abbreviations for Candidate admitted below 2012 batch :** Grading System -A- 76-100 Marks, B- 61-75 Marks, C- 50-60 Marks, Below 50 marks Not Eligible



# ವಿಶ್ವವಿದ್ಯಾರಣ್ಯ ತಾಂತ್ರಿಕ ವಿಶ್ವವಿದ್ಯಾಲಯ, ಬೆಳಗಾವಿ



## VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM

KARNATAKA, INDIA

J  
07 310548

### STATEMENT OF MARKS

BE First Semester January 2008

Mechanical Engineering

Name of the Student : T PRAMOD

Father's / Mother's Name : D T PRASAD

Seat No. : 1MJ07ME078

Name of the College : M.V. JAYARAMAN COLLEGE OF ENGINEERING, BANGALORE

Sl. No.	Subject		Examination Marks			Internal Assessment Marks			Total Marks			Subject Result
	Code	Title	Max.	Min.	Obtained	Max.	Min.	Obtained	Max.	Min.	Obtained	
1	06MAT11	Engineering Maths - I	100	35	51	25	-	15	125	50	66	Pass
2	06PHY12	Engineering Physics	100	35	54	25	-	18	125	50	72	Pass
3	06CIV13	Elements of Civil Engg. & Engg. Mechanics	100	35	19	25	-	15	125	50	34	Fail
4	06EME14	Elements of Mechanical Engg.	100	35	54	25	-	24	125	50	78	Pass
5	06ELE15	Basic Electrical Engg.	100	35	26	25	-	18	125	50	44	Fail
6	06WSL16	Workshop Practice	50	20	35	25	12	25	75	32	60	Pass
7	06PHYL17	Engg. Physics Lab	50	20	32	25	12	21	75	32	53	Pass
8	06CIP18	Constitution of India & Professional Ethics	50	18	20	25	-	20	75	30	40	Pass
GRAND TOTAL									775	314	407	

Total Marks Obtained (in words) : FOUR HUNDRED AND SEVEN ONLY

Result of the Semester : FAIL

DATE : JUN 15, 2008

06CIP/CIV18 is not considered for Grand Total and the Class Declaration



Registrar (Evaluation)

A - Absent NE - Not Eligible

# ವಿಶ್ವವಿದ್ಯಾರಣ್ಯ ತಾಂತ್ರಿಕ ವಿಶ್ವವಿದ್ಯಾಲಯ, ಬೆಳಗಾವಿ



## VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM

KARNATAKA, INDIA

### STATEMENT OF MARKS

BE First Semester July 2008

Mechanical Engineering

J  
07 371243

Name of the Student : T PRAMOD

Father's / Mother's Name : D T PRASAD

Seat No. : 1M.J07ME078

Name of the College : M.V. JAYARAMAN COLLEGE OF ENGINEERING, BANGALORE

Sl. No.	Subject		Examination Marks			Internal Assessment Marks			Total Marks			Subject Result
	Code	Title	Max.	Min.	Obtained	Max.	Min.	Obtained	Max.	Min.	Obtained	
1	06CIV13	Elements of Civil Engg. & Engg. Mechanics	100	35	54	25	-	15	125	50	69	Pass
2	06ELE15	Basic Electrical Engg.	100	35	35	25	-	18	125	50	53	Pass
<b>GRAND TOTAL</b>									***	***	***	

Total Marks Obtained (in words) : \*\*\*\*\*

Result of the Semester : SECOND CLASS

DATE : NOV 04, 2008



*(Signature)*

Registrar (Evaluation)

A - Absent NE - Not Eligible



# ವಿಶ್ವೇಶ್ವರಯ್ಯ ತಾಂತ್ರಿಕ ವಿಶ್ವವಿದ್ಯಾಲಯ, ಬೆಳಗಾವಿ



## VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM

KARNATAKA, INDIA

### STATEMENT OF MARKS

BE Second Semester July 2008

Mechanical Engineering

J  
07 202204

Name of the Student : T PRAMOD

Father's / Mother's Name : D T PRASAD

Seat No. : 1MJ07ME078

Name of the College : M.V. JAYARAMAN COLLEGE OF ENGINEERING, BANGALORE

Sl. No.	Subject		Examination Marks			Internal Assessment Marks			Total Marks			Subject Result
	Code	Title	Max.	Min.	Obtained	Max.	Min.	Obtained	Max.	Min.	Obtained	
1	06MAT21	Engineering Maths - II	100	35	56	25	-	22	125	50	78	Pass
2	06CHE22	Engineering Chemistry	100	35	72	25	-	22	125	50	94	Pass
3	06CCP23	Computer Concepts & C Programming	100	35	45	25	-	24	125	50	69	Pass
4	06CED24	Computer Aided Engineering Drawing	100	35	35	25	-	15	125	50	50	Pass
5	06ELN25	Basic Electronics	100	35	39	25	-	20	125	50	59	Pass
6	06CPL26	Computer Programming Lab	50	20	32	25	12	24	75	32	56	Pass
7	06CHEL27	Engg. Chemistry Lab	50	20	39	25	12	24	75	32	63	Pass
8	06CIV28	Environmental Studies	50	18	20	25	-	23	75	30	43	Pass
GRAND TOTAL									775	314	469	

Total Marks Obtained (in words) : FOUR HUNDRED AND SIXTY NINE ONLY

Result of the Semester : FIRST CLASS

DATE : NOV 07, 2008

06CIP/CIV28 is not considered for Grand Total and the Class Declaration



Registrar (Evaluation)

A - Absent NE - Not Eligible



ವಿಶ್ವವಿದ್ಯಾರಣ್ಯ ತಾಂತ್ರಿಕ ವಿಶ್ವವಿದ್ಯಾಲಯ, ಬೆಳಗಾವಿ



VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM

KARNATAKA, INDIA

J  
08

123712

**STATEMENT OF MARKS**

BE Third Semester January 2009

Mechanical Engineering

Name of the Student : T PRAMOD

Father's / Mother's Name : D T PRASAD

Seat No. : 1M.J07ME078

Name of the College : M.V. JAYARAMAN COLLEGE OF ENGINEERING, BANGALORE

Sl. No.	Subject		Examination Marks			Internal Assessment Marks			Total Marks			Subject Result
	Code	Title	Max.	Min.	Obtained	Max.	Min.	Obtained	Max.	Min.	Obtained	
1	06MAT31	Engineering Mathematics -III	100	35	35	25	-	24	125	50	59	Pass
2	06ME32A	Material Science & Metallurgy	100	35	38	25	-	22	125	50	60	Pass
3	06ME33	Basic Thermodynamics	100	35	41	25	-	22	125	50	63	Pass
4	06ME34	Mechanics of Materials	100	35	40	25	-	25	125	50	65	Pass
5	06ME35	Manufacturing Process - I	100	35	77	25	-	23	125	50	100	Pass
6	06ME36A	Computer Aided Machine Drawing	100	35	59	25	-	24	125	50	83	Pass
7	06MEL37A	Metallography & Material Testing Lab	50	20	40	25	12	19	75	32	59	Pass
8	06MEL38A	Foundry & forging Laboratory	50	20	37	25	12	22	75	32	59	Pass
GRAND TOTAL									900	364	548	

Total Marks Obtained (in words) : FIVE HUNDRED AND FORTY EIGHT ONLY

Result of the Semester : FIRST CLASS



*[Signature]*

Registrar (Evaluation)

DATE: MAY 20, 2009

A - Absent NE - Not Eligible



ವಿಶ್ವವರಯ ತಾಂತ್ರಿಕ ವಿಶ್ವವಿದ್ಯಾಲಯ, ಬೆಳಗಾವಿ



VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM

KARNATAKA, INDIA

STATEMENT OF MARKS

BE Fourth Semester July 2009

Mechanical Engineering

J 288478  
08

Name of the Student : T PRAMOD

Father's / Mother's Name : D T PRASAD

Seat No. : 1MJ07ME078

Name of the College : M.V. JAYARAMAN COLLEGE OF ENGINEERING, BANGALORE

Sl. No.	Subject		Examination Marks			Internal Assessment Marks			Total Marks			Subject Result
	Code	Title	Max.	Min.	Obtained	Max.	Min.	Obtained	Max.	Min.	Obtained	
1	06MAT41	Engineering Mathematics - IV	100	35	72	25	-	18	125	50	90	Pass
2	06ME42B	Mechanical Measurements & Metrology	100	35	45	25	-	20	125	50	65	Pass
3	06ME43	Applied Thermodynamics	100	35	41	25	-	19	125	50	60	Pass
4	06ME44	Kinematics of Machines	100	35	47	25	-	19	125	50	66	Pass
5	06ME45	Manufacturing Process - II	100	35	88	25	-	22	125	50	110	Pass
6	06ME46B	Fluid Mechanics	100	35	59	25	-	19	125	50	78	Pass
7	06ME147B	Mechanical Measurements & Metrology Lab	50	20	39	25	12	23	75	32	62	Pass
8	06ME148B	Machine Shop	50	20	48	25	12	21	75	32	69	Pass
GRAND TOTAL									900	364	600	

Total Marks Obtained (in words) : SIX HUNDRED ONLY

Result of the Semester : FIRST CLASS

DATE : OCT 30, 2009



*[Signature]*

Registrar (Evaluation)

A - Absent NE - Not Eligible



ವಿಶ್ವೇಶ್ವರಯ್ಯ ತಾಂತ್ರಿಕ ವಿಶ್ವವಿದ್ಯಾಲಯ, ಬೆಳಗಾವಿ



# VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM

KARNATAKA, INDIA

J  
09 253951

## STATEMENT OF MARKS

BE Fifth Semester January 2010

Mechanical Engineering

Name of the Student : T PRAMOD

Father's / Mother's Name : D T PRASAD

Seat No. : 1MJ07ME078

Name of the College : M.V. JAYARAMAN COLLEGE OF ENGINEERING, BANGALORE

Sl. No.	Subject		Examination Marks			Internal Assessment Marks			Total Marks			Subject Result
	Code	Title	Max.	Min.	Obtained	Max.	Min.	Obtained	Max.	Min.	Obtained	
1	06AL51	Management & Entrepreneurship	100	35	73	25	-	18	125	50	91	Pass
2	06ME52	Design of Machine Elements - I	100	35	36	25	-	22	125	50	58	Pass
3	06ME53	Dynamics of Machines	100	35	49	25	-	20	125	50	69	Pass
4	06ME54	Energy Engineering	100	35	64	25	-	19	125	50	83	Pass
5	06ME55	Turbo Machines	100	35	76	25	-	18	125	50	94	Pass
6	06ME56	Engineering Economics	100	35	45	25	-	23	125	50	68	Pass
7	06ME157	Fluid Mechanics Machinery Laboratory	50	20	36	25	12	24	75	32	60	Pass
8	06ME158	Energy Conversion Engg. Laboratory	50	20	34	25	12	24	75	32	58	Pass
GRAND TOTAL									900	364	581	

Total Marks Obtained (in words) : FIVE HUNDRED AND EIGHTY ONE ONLY

Result of the Semester : FIRST CLASS

DATE : MAY 06, 2010



Registrar (Evaluation)

A - Absent NE - Not Eligible



ವಿಶ್ವವಿದ್ಯಾರಣ್ಯ ತಾಂತ್ರಿಕ ವಿಶ್ವವಿದ್ಯಾಲಯ, ಬೆಳಗಾವಿ



# VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM

KARNATAKA, INDIA

## STATEMENT OF MARKS

BE Sixth Semester July 2010

Mechanical Engineering

J  
10255849

Name of the Student : T PRAMOD

Father's / Mother's Name : D T PRASAD

Seat No. : 1MJ07ME078

Name of the College : M.V. JAYARAMAN COLLEGE OF ENGINEERING, BANGALORE

Sl. No.	Subject		Examination Marks			Internal Assessment Marks			Total Marks			Subject Result
	Code	Title	Max.	Min.	Obtained	Max.	Min.	Obtained	Max.	Min.	Obtained	
1	06ME61	Design of Machine Elements - II	100	35	37	25	-	22	125	50	59	Pass
2	06ME62	Mechanical Vibration	100	35	38	25	-	21	125	50	59	Pass
3	06ME63	Modeling & Finite Element Analysis	100	35	73	25	-	21	125	50	94	Pass
4	06ME64	Mechatronics & Microprocessor	100	35	52	25	-	22	125	50	74	Pass
5	06ME65	Heat & Mass Transfer	100	35	44	25	-	21	125	50	65	Pass
6	06ME665	Non Traditional Machining	100	35	59	25	-	25	125	50	84	Pass
7	06MEL67	Computer Aided Modeling & Analysis Lab	50	20	37	25	12	23	75	32	60	Pass
8	06MEL68	Heat & Mass Transfer Laboratory	50	20	42	25	12	23	75	32	65	Pass
GRAND TOTAL									900	364	580	

Total Marks Obtained (in words) : FIVE HUNDRED AND SIXTY ONLY

Result of the Semester : FIRST CLASS

DATE : NOV 05 2010



*Krishanthy G.N.*

Registrar (Evaluation)

A - Absent NE - Not Eligible



# ವಿಶ್ವೇಶ್ವರಯ್ಯ ತಾಂತ್ರಿಕ ವಿಶ್ವವಿದ್ಯಾಲಯ, ಬೆಳಗಾವಿ



## VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM

KARNATAKA, INDIA

J 330451  
11

### STATEMENT OF MARKS

BE Seventh Semester January 2011

Mechanical Engineering

Name of the Student : T PRAMOD

Father's / Mother's Name : D T PRASAD

Seat No. : 1M107ME078

Name of the College : M.V. JAYARAMAN COLLEGE OF ENGINEERING, BANGALORE

Sl. No.	Subject		Examination Marks			Internal Assessment Marks			Total Marks			Subject Result
	Code	Title	Max.	Min.	Obtained	Max.	Min.	Obtained	Max.	Min.	Obtained	
1	06ME71	Control Engineering	100	35	47	25	-	23	125	50	70	Pass
2	06ME72	Computer Integrated Manufacturing	100	35	45	25	-	23	125	50	68	Pass
3	06ME73	Manufacturing Process - III	100	35	60	25	-	22	125	50	82	Pass
4	06ME74	Operation Research	100	35	50	25	-	24	125	50	74	Pass
5	06ME753	Product Design & Manufacturing	100	35	64	25	-	22	125	50	86	Pass
6	06ME766	Robotics	100	35	61	25	-	23	125	50	84	Pass
7	06MEL77	CIM & Automation Laboratory	50	20	41	25	12	23	75	32	64	Pass
8	06MEL78	Design Laboratory	50	20	38	25	12	24	75	32	62	Pass
GRAND TOTAL									900	364	590	

Total Marks Obtained (in words) : FIVE HUNDRED AND NINETY ONLY

Result of the Semester : FIRST CLASS

DATE : JUL 26, 2011



*Krishnamurthy G.N.*

Registrar (Evaluation)

A - Absent NE - Not Eligible



# ವಿಶ್ವೇಶ್ವರಯ್ಯ ತಾಂತ್ರಿಕ ವಿಶ್ವವಿದ್ಯಾಲಯ, ಬೆಳಗಾವಿ



## VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM

KARNATAKA, INDIA

### STATEMENT OF MARKS

BE Eighth Semester (Mechanical Engineering)

F<sub>11</sub> 025504

Name of the Student : T PRAMOD

Father's / Mother's Name : D T PRASAD

Seat No. : 1MJ07ME078

Name of the College : M.V. JAYARAMAN COLLEGE OF ENGINEERING, BANGALORE

Sl. No.	Subject		Examination Marks			Internal Assessment Marks			Total Marks			Month & Year of Passing
	Code	Title	Max	Min	Obtained	Max	Min	Obtained	Max	Min	Obtained	
1	06ME81	Industrial Management	100	35	67	25	-	20	125	50	87	Jul 11
2	06ME82	Hydraulics & Pneumatics	100	35	81	25	-	23	125	50	104	Jul 11
3	06ME838	Foundry Technology	100	35	54	25	-	22	125	50	76	Jul 11
4	06ME844	Automotive Engineering	100	35	43	25	-	23	125	50	66	Jul 11
5	06ME85	Project Work	100	40	86	100	50	97	200	90	183	Jul 11
6	06ME86	Seminar	-	-	-	50	20	45	50	20	45	Jul 11

\*First Attempt Total (in words) : FIVE HUNDRED AND SIXTY ONE ONLY

GRAND TOTAL 750 310 561 \*

Result of the Semester : FIRST CLASS WITH DISTINCTION

Results of V to VIII Semesters :

Semesters	V	VI	VII	VIII	V TO VIII
Marks at First Attempt	581	560	590	561	2292
Total Marks (Max.)	900	900	900	750	3450
Result	FC	FC	FC	FCD	FC

First Attempt Total ( V to VIII Sem) in words : TWO THOUSAND TWO HUNDRED AND NINETY TWO ONLY

Result of the Degree : FIRST CLASS

Date : SEP 14, 2011



*Krishnamurthy G.N.*

Registrar (Evaluation)

## PhD Proposal

# **MULTILAYER SELF REINFORCED POLYPROPYLENE NANOCOMPOSITES: ENHANCED MECHANICAL AND FIRE RETARDANT CHARACTERISTICS**

### **ABSTRACT**

Polymeric materials are widely used as compared to traditional inorganic materials as they have excellent insulation characteristics, low electric losses and are easily mouldable. The commonly used wire and cable sheathing materials for low to medium voltage include HDPE, EVA, LLDPE, PVC and EPDM elastomer. However, PVC is gradually being replaced with other polyolefins as it is hazardous and releases chlorine containing compounds. Hence, the other polyolefins resins such as PP, HDPE, EVA, LLDPE and EPDM are in demand. However these polyolefins are inflammable and fire safety is a major issue. Generally, halogenated fire retardant additives are added but they are not environment friendly. Thus, non-halogenated fire retardants such as metal hydroxides are used. These metal hydroxides have to be used in large quantities to achieve adequate fire retardancy which lower the mechanical properties. However, a good cable jacketing materials need both good flame retardancy and mechanical properties. Thus, intumescent fire retardants and nanoparticles such as nanoclays and nanotubes are being used but dispersability and interfacial adhesion have to be improved. Intumescent fire retardant systems comprised of Ammonium Polyphosphate (APP) are used but they are moisture sensitive and can easily hydrolyze. Further it also tends to migrate to the surface.

Thus in this study, non-halogenated fire retardant PP nanocomposites with incorporation of Glass Fiber, Woven Cloth, Nano Clay, Charring Agent and Acid for automobile and electrical industries will be developed. The developed polymer nanocomposites will be characterized for its mechanical, flame retardant and thermal properties as well as its surface morphology and molecular interaction.

## STATEMENT OF THE RESEARCH PROBLEM AND OBJECTIVES

The project aims at development and characterization of polymeric nanocomposites. The following intumescent flame retardant additives will be used in combination to study and improve fire safety.

- a) Polypropylene reinforced with Glass Fiber, Nano Clay, Charring Agent and Acid Source
  - Synthesis of Triazine charring agent
  - Modification of Ammonium polyphosphate with silane (mAPP)
  - Preparation of nanocomposites
- b) Polypropylene reinforced with Woven Cloth, Nano Clay and Acid Source
  - Modification of Ammonium polyphosphate with silane (mAPP)
  - Microencapsulation of mAPP and Dipentaerythritol in Melamine Formaldehyde
  - Preparation of nanocomposites

The effects of incorporation of Glass Fiber, Woven Cloth, Nano Clay, Charring Agent and Acid Source on synthesized polymer nanocomposites for its mechanical, flame retardant and thermal properties as well as characterization of nanocomposites for its surface morphology and molecular interaction shall be studied.

## MATERIALS AND METHODS

- *Blend Preparation:*
- *Compression moulding:*
- *FTIR spectroscopy:*
- *Universal testing machine:*
- *X-Ray diffraction:*
- *Differential scanning calorimetry:*
- *Thermo gravimetric Analysis:*
- *Cone calorimetry:*
- *Morphology:*

## **EXPECTED OUTCOMES**

- Improvement in the mechanical and flame retardant properties of multilayered reinforced nanocomposites used mainly in automobile and electrical industries for manufacturing of bumpers, tanks, carpet fibers, cable sheathing etc.
- Development of fire retardant materials would help to delay for the fire to occur which may takes place either due to short circuiting or any other type of mishap, thus saving human lives.

413

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM  
KARNATAKA, INDIA



*This is to certify that*

**T Pramod**

*has been conferred the Degree of*

**Master of Science (Engg.) by Research**

*in*

Faculty of Mechanical Engineering Sciences

*for the thesis entitled*

**Studies on Cavitation Behavior of Hydro Turbine Steels and  
Coatings: Experimental and Numerical Approach**

*in recognition of the fulfillment of requirements  
for the said degree*

MS 07 000199

Given under the seal of the University

USN: 1CP13MMN01



BELGAUM

DATE : January 09, 2018

VICE CHANCELLOR

ವಿಶ್ವೇಶ್ವರಯ್ಯ ತಾಂತ್ರಿಕ ವಿಶ್ವವಿದ್ಯಾಲಯ, ಬೆಳಗಾವಿ  
VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM  
KARNATAKA, INDIA



Certifies that

**T PRAMOD**

**ಬ್ಯಾಚಲರ್ ಆಫ್ ಇಂಜಿನಿಯರಿಂಗ್**

ಪದವಿಗೆ ಅಗತ್ಯವಾದ ಅರ್ಹತೆಗಳನ್ನು ಪೂರೈಸಿದುದು ಪರಿಗಣಿಸಲ್ಪಡುವ ಕಾರಣ  
ಮೇಲೆ ಕಾಣಿಸಿದ ಪದವಿಗೆ ಅವರನ್ನು ಅಂಗೀಕರಿಸಲಾಗಿದೆ.

*has been duly admitted to the Degree of*

**Bachelor of Engineering**

*in recognition of the fulfilment of requirements*

*for the said degree*



ಪರೀಕ್ಷಾ ಕ್ರಮ ಸಂಖ್ಯೆ

University Seat Number : 1MJ07ME078

ವಿಷಯ

Subject : Mechanical Engineering

ಕ್ರಮ

Class : First Class

D 000490

ವಿಶ್ವವಿದ್ಯಾಲಯದ ಮುದ್ರೆಯೊಂದಿಗೆ ಕೊಡಲ್ಪಟ್ಟಿದೆ

Given under the seal of the University

ಬೆಳಗಾವಿ

Belgaum

ದಿನಾಂಕ

Date : APR 08, 2012

ಕುಲಪತಿ

VICE CHANCELLOR



ಕರ್ನಾಟಕ ಸರ್ಕಾರ

GOVERNMENT OF KARNATAKA

0960938

ಪದವಿ ಪೂರ್ವ ಶಿಕ್ಷಣ ಇಲಾಖೆ

DEPARTMENT OF PRE-UNIVERSITY EDUCATION

ಪ್ರಮಾಣ ಪತ್ರ CERTIFICATE

ಈ ಕೆಳಗೆ ನಮೂದಿಸಿದ ಅಭ್ಯರ್ಥಿಯು ಪದವಿ ಪೂರ್ವ ಶಿಕ್ಷಣದ ದ್ವಿತೀಯ ವರ್ಷದ ಪರೀಕ್ಷೆಯಲ್ಲಿ ಕೆಳಗಿನ ವಿವರಗಳೊಂದಿಗೆ ತೇರ್ಗಡೆಯಾಗಿ ಕೋರ್ಸನ್ನು ಸಂಪೂರ್ಣಗೊಳಿಸಿರುವುದು ಎಂದು ಪ್ರಮಾಣೀಕರಿಸಲಾಗಿದೆ :

This is to certify that the candidate mentioned below has passed the second year pre-university examination and completed the course with the following details :

ಅಭ್ಯರ್ಥಿಯ ಹೆಸರು } PRAMOD T  
 Candidates Name }  
 ವರದಿಯ ದಿನಾಂಕ } 11.08.2007  
 Date of result }  
 ತಾಯಿಯ ಹೆಸರು } PANCHARATHNA BG  
 Mother's Name }  
 ನೋಂದಣಿ ಸಂಖ್ಯೆ } 543093  
 Register No. }  
 ತಂದೆಯ ಹೆಸರು } PRASAD DT  
 Father's Name }

ವಿಷಯಗಳು Subjects	ನೋಂದಣಿ ಸಂಖ್ಯೆ Register No.	ತೇರಿಕೆ/ವರ್ಷ Month/Year	ಸಿರಿಮಾರ್ಕ Max. Marks	ಪಡೆದ ಅಂಕಗಳು Marks Obtained	ಅಂಕಗಳು In figures	ಅರ್ಜಿಯಲ್ಲಿ ಆಧಾರು In words
ಭಾಗ - I ಭಾಷೆಗಳು Part - I Languages						
ENGLISH	401243	APR2007	100	58	FIVE EIGHT	
HINDI	401243	APR2007	100	60	SIX ZERO	
ಭಾಗ - II ಆಯ್ಕೆ ವಿಷಯಗಳು Part - II Optionals						
PHYSICS	401243	APR2007	100	70	SEVEN ZERO	
CHEMISTRY	401243	APR2007	100	37	THREE SEVEN	
MATHEMATICS	401243	APR2007	100	46	FOUR SIX	
BIOLOGY	543093	JUL2007	100	55	FIVE FIVE	
ಕಾಲೇಜು ಸಂಕೇತ ಸಂಖ್ಯೆ College Code No.	AS277	ಒಟ್ಟು ಅಂಕಗಳು Total Marks	600	326	ಪಡೆದ ವರ್ಗ Class Obtained	
ಅಂಕಗಳು ಆಧಾರು Marks in words	THREE HUNDRED AND TWENTY SIX ONLY					SECOND
ಕಾಲೇಜು College	SRI CAUVERY PU COLLEGE INDIRANAGAR DOUBLE ROAD , BANGALORE 560038					

*Jawahar mityal*  
 ಪ್ರಾಚಾರ್ಯರ ಸಹಿ - Signature of the Principal  
**PRINCIPAL**  
 SREE CAUVERY COMPOSITE  
 PRE-UNIVERSITY COLLEGE  
 Indiranagar, Bangalore-560 038

3766

*Channappa*  
 ಅಧ್ಯಕ್ಷರು, ಪದವಿ ಪೂರ್ವ ಶಿಕ್ಷಣ ಇಲಾಖೆ  
 Commissioner  
 Department of Pre-University Education  
 ಬೆಂಗಳೂರು Bangalore

क्रमांक 116424  
S.No. 2005

केन्द्रीय माध्यमिक शिक्षा बोर्ड  
CENTRAL BOARD OF SECONDARY EDUCATION  
अंक विवरणिका MARKS STATEMENT

ALL INDIA

सेकण्डरी स्कूल परीक्षा, 2005  
SECONDARY SCHOOL EXAMINATION, 2005

नाम Name T PRAMOD

अनुक्रमांक Roll No. 4115674

माता का नाम Mother's Name B G PANCHARATHNA

पिता का नाम Father's Name D T PRASAD

जन्म तिथि Date of Birth 7TH JULY NINETEEN HUNDRED EIGHTY NINE

विद्यालय School 06364 KENDRIYA VIDYALAYA C V RAMAN NGR BANGALORE KK

विषय कोड SUB. CODE	विषय SUBJECT	प्राप्तांक MARKS OBTAINED				स्थितीय ग्रेड POSITIONAL GRADE
		लि. TH	प्रै. PR	योग TOTAL	योग शब्दों में TOTAL IN WORDS	
101	ENGLISH COMM.	055	XXX	055	FIFTY FIVE	C2
122	COMM. SANSKRIT	075	XXX	075	SEVENTY FIVE	B1
041	MATHEMATICS	061	XXX	061	SIXTY ONE	B2
086	SCIENCE & TECH.	043	023	066	SIXTY SIX	B2
087	SOCIAL SCIENCE	036	XXX	036	THIRTY SIX	D2

AB : विषय में अनुपस्थित Absent in the Subject

परिणाम Result

PASS

दिल्ली Delhi

दिनांक Dated 24-05-2005

परीक्षा नियंत्रक

Controller of Examinations

आयकर विभाग

INCOME TAX DEPARTMENT



भारत सरकार

GOVT. OF INDIA

**THEERTHAPRASAD PRAMOD**

**DODDANANJAPPA THEERTHA PRASAD**

07/07/1989

Permanent Account Number

**AMQPT6649C**

*Pramod*

Signature





**INDIA**

# KARNATAKA STATE

**DRIVING LICENCE Form-7**

**KA - 03**



**DL No. 1173/2009**

**T PRAMOD**

**S/O D T PRASAD**

**D16/9 DRDO TOWNSHIP**

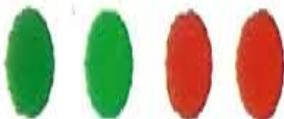
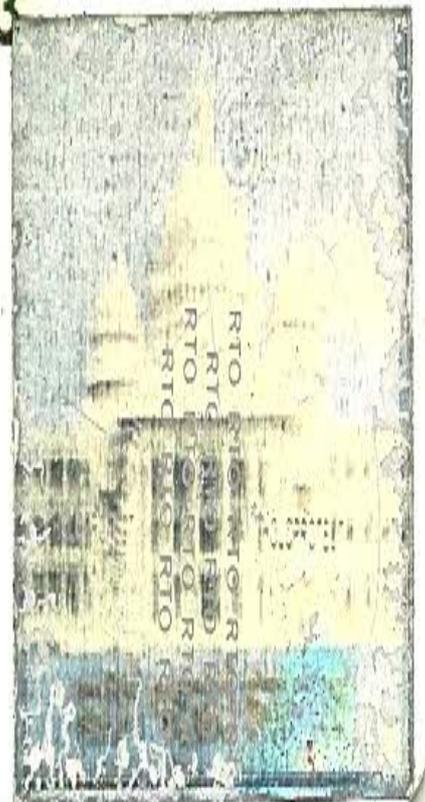
**C V RAMANNAGAR**

**BANGALORE --560093**

**Blood Group: O+**

**DOB 07/07/1989**

**PH: 25244243**



*T Pramod*

Valid through-out India:

M/CY-WOG

LMV[M/car] wef

02/05/2009[RTO BNG EAST]

Validity: From To

Non- 02/05/2009 01/05/2029  
Trans.

1173/2009

Tested by: IMV EAST

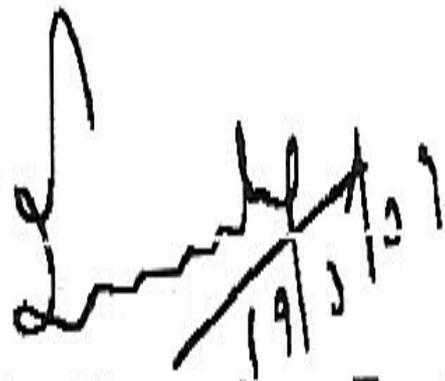
OLA: RTO BNG EAST

DOI: 02/05/2009

CDL DOI: 19/05/2009

Temp. Address:

DHANUSH M D T S



T.C.S.Ltd.

BANGALORE

560038

LA - Bangalore East

Darbari Seth Block  
 I H C Complex, Lodhi Road  
 New Delhi – 110 003  
 Tel. (11) 2468 2100 or 4150 4900  
 E-mail mailbox@teri.res.in  
 Fax (11) 2468 2144 or 2468 2145

**North-Eastern Regional Centre**  
 Guwahati  
 Tel. (361) 233 4790  
 E-mail terine@teri.res.in  
 Fax (361) 233 4869

**Southern Regional Centre**  
 Goa  
 Tel. (832) 245 9306 or 245 9328  
 E-mail terisrc@teri.res.in  
 Fax (832) 245 9338

**Western Regional Centre**  
 Mumbai  
 Tel. (22) 2758 0021 or 4024 1615  
 E-mail terimumbai@teri.res.in  
 Fax (22) 2758 0022

**Himalayan Centre**  
 Mukteshwar  
 Tel. (5942) 286 433  
 E-mail arana@teri.res.in  
 Fax (5942) 286 460/433

**TERI North America**  
 Tel. (+91) 9811150290  
 E-mail  
 annapurna.vancheswaran@terina.org

**TERI Europe**  
**London**  
 Tel. (+44 20) 8947 9145  
 E-mail rkumarrobins@gmail.com

**Antwerp**  
 TERI-VITO  
 Tel. (+32 3) 286 74 31  
 E-mail arun.jacob@grihaindia.org

**Utrecht**  
 Utrecht University, The Netherlands  
 Tel. (+31 030) 253-5801  
 E-mail f.romein@uu.nl

**Nordic**  
 University of Eastern Finland  
 Tel. (+358) 40 7470711  
 E-mail pradipta.halder@uef.fi

**TERI Japan**  
 Tokyo  
 Tel. (+81 3) 3519 8970  
 E-mail teri@iges.or.jp  
 Fax +81 33 5195 1084

**TERI Africa**  
**Ethiopia**  
 Tel. +251 (0) 936 56 6641  
 E-mail rita.effah@teri.res.in

**TERI Gulf**  
 Dubai, UAE  
 Tel. (+971 50) 865 0912  
 E-mail meenasj@teri.res.in

Date: 17/02/2020

## TO WHOMSEVER IT MAY CONCERN

**Mr. T PRAMOD** has been working in RET (Resource Efficient Technology) group in The Energy and Resources Institute, Bangalore as a Research Consultant since **12<sup>th</sup> Jan 2018** to till date. He is currently involved in a R&D project titled: Development of Intumescent Fire Retardant Nano Composites for Medium Voltage Cable Sheathing Applications. The specific areas of expertise acquired in this work are:

- Synthesis of fire retardant additives, followed by analyzing for their spectra using FTIR and XRD.
- Blending of HDPE, LLDPE and PP along with EVA/EPDM composites with Ammonium Polyphosphate, Hyperbranched Triazine based Char Forming Agent, MWCNT grafted POSS, Nanoclay and Talc.
- Characterization of these blends for their Mechanical and Thermal properties, followed by morphological behavior.

Besides, he has been involved in optimization of laboratory protocols for materials processing, characterization and analysis of various equipment's such as Pin on Disc, Dry Abrasion Tester and Cone Calorimeter etc.

I found him to be enthusiastic in his work as also diligent and sincere in carrying out all the task assigned to him.

*Sailaja*



**(Dr. R R N Sailaja Bhattacharya)**  
 Senior Fellow  
 Resource Efficient Technology  
 The Energy & Resource Institute- SRC  
 Bangalore  
 Email: [sailajab@teri.res.in](mailto:sailajab@teri.res.in)



# केन्द्रीय विद्युत अनुसंधान संस्थान

(भारत सरकार की सोसाइटी, विद्युत मंत्रालय)

प्रो सर सी. वी. रामन रोड, सदाशिवनगर डाक घर, पो. बा. सं. 8066, बेंगलूर - 560 080

**CENTRAL POWER RESEARCH INSTITUTE**

(A Govt of India Society under Min. of Power)

Prof. Sir C.V. Raman Road, Sadashivanagar P.O., P.B. No. 8066, Bangalore - 560 080, India

वेबसाइट/website : <http://www.cpri.in>

15-07-2016

## TO WHOMSOEVER IT MAY CONCERN

Mr. T.PRAMOD has worked in Materials Technology Division of this institution as a Junior Research Fellow from 13<sup>th</sup> May 2013 to 15<sup>th</sup> July 2016 as a part of MSc by Research course affiliated under VTU.

He was involved in research and development project titled "Studies on Cavitation Behavior of Hydro Turbine Steels and Coatings: Experimental and Numerical Approach". The specific area of expertise acquired as a part of R&D work include the following:

- Comprehensive characterization of hydro turbine steels and coatings in terms of their cavitation resistance under accelerated conditions using vibratory type cavitation test rig.
- Design modifications of vibratory rig and standardization of test methodology for evaluation of synergistic effect of silt and cavitation.
- Evaluation of combined effect of silt and cavitation on the erosion performance of different materials, surface topography analysis in respect of mechanism of material removal.

Besides, he has been involved in various testing activities like tensile testing using UTM, measurement of residual stresses by X-Ray Diffraction method, chemical composition of materials by optical emission spectrometry, co-efficient of friction by pin on disc method as well as involved in failure analysis of different thermal power plant components. He has published technical papers related to his research.

During the period of his assignment, we found him sincere, hardworking and a keen learner.

We wish him every success in his future career.

Dr. M Shekhar Kumar  
Additional Director

Date: 10<sup>th</sup> May, 2013

**EXPERIENCE CERTIFICATE**

**TO WHOMSOEVER IT IS CONCERNED**

Mr. T.PRAMOD has worked in Nano Manufacturing Technology Centre of this institution as Contract Graduate Engineer from 15<sup>th</sup> Sept. 2011 to 10<sup>th</sup> May 2013.

He had involved in research and development project:

- CMTI and Western Michigan University collaborative project titled, "Ductile Regime Machining of Brittle Materials".

He had also shown his competency in the areas of literature survey, experimentations like nano scratches and indentations, optimizing the results using the Taguchi's Approach for the above research and development project.

- Worked on Nano characterization equipments like Nano Indenter G200 and Confocal Microscope OLS 4000 for in-house R&D activities and customer services.

Besides, he had involved in various activities like Preparation of Quality Manual for Proficiency Testing and Calibration Laboratories, Design of Sphere Lapping Machine, Formulation of technical specification for procurement of Tribo-meter and Silicon Wafers, Assembly of Air Bearing Spindle etc.,

He had been found to be hard working and dedicated in execution of the responsibilities assigned to him. He has consistently displayed the ability to learn and excel in all tasks assigned to him.

We wish him all the best in his future endeavors.



**N. Balashanmugam**  
HOD (NMTC)