



**DEPARTMENT OF
GENERAL
ENGINEERING**

PREFACE



PROFESSOR V.R.GAVAL

Ph.D (Tech),

Professor and Head of General Engineering
Department

Department of General Engineering since its inception has taken care of teaching foundation subject for under graduates but also produced distinguished alumni who occupy key positions of research, development, design, production and consultants in major plastic industries. Some of our alumni has completed their doctoral degrees and handling R&D departments of the industries successfully.

Department of general engineering was started in 1952 and right from its inception it is engaged in teaching of general engineering subject related to

mechanical engineering, civil engineering, electrical and electronic engineering. The department also carries out the equipment and infrastructure maintenance of the whole Institute. Post graduate course of Master in Plastic Engineering was started by the department from the year 1972 and has been instrumental in graduating students helping the plastic manufacturing industries of the India and abroad.

The department has facilities in engineering workshop, electrical and electronic machinery, Plastic processing and testing, CAD/ CAM & CAE facilities with licensed CAD and solid works software.

Structural mechanics laboratories, drawing class rooms, etc. catering the needs of undergraduate and post graduate students of the Institute. The department has set up a cement composites laboratory.

The faculty of the general engineering department has maintained a good rapport with plastic industries and this has helped in placement of our students. Presently students are working on the doctoral degrees in the field of Mechanical Engineering, Energy Engineering, Electrical Engineering, Plastic Engineering, and Civil engineering



PROFESSOR V.R.GAVAL

Ph.D (Tech),

Professor and Head of General Engineering Department

SUBJECTS TAUGHT

- Engg. graphics
- Design and fabrication of moulds
- Processing of plastics
- Energy Engg
- Equipment design and drawing.

RESEARCH INTERESTS

- Polymer Composites
- Injection mould design
- Conversion of metal parts into plastic parts

RESEARCH STUDENTS

M.E.(PLASTICS ENGG) - 1(on

going)

Ph.D(TECH) - 1 (ongoing)

RESEARCH PUBLICATIONS:

International- 6 peer reviewed

CONFERENCE

PROCEEDINGS/ PAPERS: 09

SEMINARS / LECTURES/

ORATION DELIVERED: 08

MASTERS AWARDED AS

SINGLE/ CO-GUIDE : 22

PROFESSIONAL

ACTIVITIES (MEMBERSHIP

OF IMPORTANT

COMMITTEES):

1. Member of Campus accommodation for faculty committee.
2. Member of Campus maintenance and beautification committee.
3. Member of Internal quality assurance cell.
4. Training and Placement coordinator of General Engineering Department.
5. Member of Unnat Maharashtra Abhiyan committee.
6. Member of Building and Construction committee.



PROF. S. P. DESHMUKH

M.E. (Prod. Engg), Ph. D. (Tech)

Professor cum workshop superintendent

SUBJECTS TAUGHT:

- Equipment Design & Drawing
- Engineering Graphics I

CAD/CAM/CAE

RESEARCH INTERESTS:

- Renewable Energy
- Heat transfer
- Plastic composites

RESEARCH STUDENTS:

RA - Ph.D. (Tech.) – 13 (on going)

M.E. (Plastic Engg.) : 1

RESEARCH PUBLICATIONS:

International- 32 peer

reviewed

CONFERENCE

PROCEEDINGS/ PAPERS: 18

SEMINARS / LECTURES/

ORATION DELIVERED: 03

Ph.D AWARDED AS SINGLE/

CO-GUIDE: 03

MASTERS AWARDED AS

SINGLE/ CO-GUIDE: 18

SPONSORED PROJECTS

GOVERNMENT: 01

H- INDEX: 6

CITATIONS: 65

H-INDEX : 7

NO. OF CITATIONS : 127

PROFESSIONAL

ACTIVITIES (MEMBERSHIP OF IMPORTANT COMMITTEES):

- Member of organizing committee of workshops conducted by Department
- Member of IIIE, UDCT Alumni association and VJTI Alumni Association
- Senior Member of Universal Association of Mechanical and Aeronautical Engineers



DR. D. D. SARODE

*Ph.D. (IIT Bombay), M. E.(Structures), B. E. (Civil),
P.G. D. Const.Mgt, D.C.S.T.
Head of General Engineering Department,
Associate Professor (Civil)*

SUBJECTS TAUGHT:

- Structural Mechanics to S Y Chem.Engg.
- Engineering Mechanics and Strength of Materials to S Y B Tech (all Branches)
- Process Equipment Design – I practical T Y C E

RESEARCH INTERESTS:

- Construction Chemicals, Formwork for R.C.C, Advance Concrete Technology, Anticorrosive coatings and inhibitors, Glass and Carbon fiber composites and Geotechnical Engineering, Risk Management

RESEARCH STUDENTS:

Ph.D. (Tech.) - 04 (on going)
M.E. (Plastic) - 02 (on going)

RESEARCH PUBLICATIONS:

- International- 12peer reviewed

CONFERENCE

PROCEEDINGS/ PAPERS: 20

SEMINARS / LECTURES/

ORATION DELIVERED: 28

PH.D AWARDED AS

SINGLE/ CO-GUIDE: 01

MASTERS AWARDED AS

SINGLE/ CO-GUIDE: 8

SPONSORED PROJECTS

Government: 01

h- INDEX:

CITATIONS: 100

PROFESSIONAL ACTIVITY:

- Member of Institution of Engineers since 18th June 1992.
- Chartered Engineer (India) of Institution of Engineers (India) since 3rd Feb 1994.
- Life Fellow (LF 0456) of Indian Geotechnical Society from Jan 2011, Life member of Indian Geotechnical Society since 1993,
- Life member of Indian Society for Technical Education (LM 10865) since 1992.
- Member of Managing Committee Member, V J T I Alumni Association.
- Member of UDCT Alumni

Association

SPECIAL AWARDS/ HONOURS:

- Keynote on “Use of Agriculture, forest and garden waste as alternate fuel” at Bioprocessing 2017 on 10th December 2017 at I I T Guwahati
- Member of Board of studies in Civil Engineering at DrBabasahebAmbedkar Technological University, Lonere, Raigad, Maharashtra.
- Member of Board of studies in Civil Engineering at VJTI.
- Delivered a public lecture on “How to select Good Engineering College and Different Engineering Courses” in a Career Guidance Program, organized by EktaMitraMandal, CIDCO, Nashik on Saturday, 19th May 2018.



MRS. PRERNA GOSWAMI

B.E. (Electrical), M.E.
(Instrumentation & Control)
Assistant Professor

SUBJECTS TAUGHT

Odd semester

- Basic Electrical Engineering and Electronics Theory (GET 1105)
- Andpracticals GEP 1106 to S.Y.B.TECH.(All branches)

Even semester

- Electrical engineering and Electronics theory(GET 1109) AND Practical (GEP1110) to S.Y.

B.ChemEngg.

RESEARCH INTERESTS

- Sustainable Energy, Power systems , MATLAB simulations

RESEARCH PUBLICATIONS:

TOTAL NO. OF PUBLICATIONS (PEER REVIEWED) SO FAR : 11

TOTAL NO. CONFERENCE PROCEEDINGS/PAPERS: 4

TOTAL NO. OF SEMINARS/ LECTURES/ORATIONS

DELIVERED : 1

PROFESSIONAL ACTIVITIES:

- Member of Abhyankar award committee.
- Member semester time table committee.
- Member Examination time table committee.



SHRI M.A.K. KERAWALLA

B.E. (Electrical),
M.E. (Power Systems)
Associate Professor

SUBJECTS TAUGHT

Electrical Engineering & Electronics

RESEARCH INTERESTS

Power Electronics applications in Power systems analysis

FELLOWSHIPS/ MEMBERSHIPS OF

PROFESSIONAL BODIES: A.M.I.E.

- Member of U.G. Admission Committee



DR. A. C. RAO

B.E. (Mechanical) M.E. (Mechanical with Plastic Engg.), Ph.D(Tech)
Associate Professor in Mechanical Engineering

SUBJECTS TAUGHT

- Testing of Plastics,
- Plastic Product Design,
- Design of Moulds I,
- Design of Moulds –II,

- Design and Fabrication of Moulds and Dies.

RESEARCH INTERESTS

- Plastic Mold and Die

Design, Plastic Processing.

- Plastic Product Design

RESEARCH STUDENTS

Ph.D. (Tech.): 1(on going)



DR. R.S.N. SAHAI

*B.E.(Mechanical),
M.E.(Plastics Engg), Ph.D(Tech)*
Associate Professor in Mechanical
Engineering.

RESEARCH PUBLICATIONS:
International :

**TOTAL NO. OF
PUBLICATIONS (PEER
REVIEWED) SO FAR : 6**

**TOTAL NO. OF PH.D.S
AWARDED AS SINGLE
GUIDE : 3**

**TOTAL NO. OF MASTERS
AWARDED AS SINGLE
GUIDE : 28**

**FELLOWSHIPS/
MEMBERSHIPS OF**

PROFESSIONAL BODIES :

- A.M.I.E.(Mech.)

- Member of Educational Committee of All India Plastics Manufacturers Association.
- Member of Educational Committee of Plast India Foundation.

SUBJECTS TAUGHT

- Engg.graphics I,
- Processing of plastics- I
- Engineering graphics II
- Energy Engg,
- Equipment design & drawing -II
- Principles of plastic machinery design

RESEARCH INTERESTS

- Polymer Composites

RESEARCH STUDENTS

- M.E.(Plastics engg) - 2 (on going)
- Ph.D (Tech) - 2 (on going)

RESEARCH PUBLICATIONS

**TOTAL NO. OF
PUBLICATIONS (PEER
REVIEWED) SO FAR : 8**

**TOTAL NO. CONFERENCE
PROCEEDINGS/PAPERS : 1**

**TOTAL NO. OF MASTERS
AWARDED AS SINGLE
GUIDE : 10**

SUPPORT STAFF



P. R. Gaikwad
Workshop Instructor



V. B. Gorule
Engineering Assistant



P. S. Wale
Mechanic



B. R. Budhawale
Mechanic



J. M. Ghag
Boiler Attendant



P. G. Jadhav
Instrument Mechanic



R. G. Butkar
Plumber



L. D. Nunis
Carpenter



G. L. Bhagat
Carpenter



R. T. Dhudhmal
Mason & Fitter



P. K. Chavan
Lab. Attendant



D. G. Malusare
Lab. Attendant



S. D. Vengurlekar
Lab. Attendant



D. R. Tajane
Lab. Attendant



S. L. Pawar
Lab Attendant



S. N. Shelar
Lab. Attendant



D. T. Baraskar
Lab. Attendant



S.D. Patel
Lab Attendant



K.T. Gurav
Lab Attendant

PUBLICATIONS

No.	Title and Authors	Journal	Vol. No.	Pages	Year
1	Polymer electrolyte membrane fuel cells for sustainable energy production, M Jamb, Y Suryawanshi, MN D'Abreo, P Goswami, Research Journal of Engineering and Technology 8 (2), 2017	Invertis journal of Renewable Energy, 7 (4), 200-207.	7(4)	200-207	2017
2	PrernaGoswami, S.P. Deshmukh, Assessment of Wave and Solar Energy Potential Along Western coast of India,.	Research Journal of Engineering and Technology	8(3)	197-207	2017
3	Modifications of ZnO Inter-layer to Improve the Power Conversion Efficiency of Organic Photovoltaic Cells: A Review, PrernaGoswami, M.A.K. Kerawalla, DivyaJayram, AditiGoyal and DurvaNayak, Asian Journal of Chemistry 29 (9), 2017, pp 1879-1887,	Asian Journal of Chemistry	29(9)	1879-1887	2017
4	Recent advances in optimization of photoanodes and counter electrodes of dye-sensitized solar cells, S. Bhagwat, R Dani, P Goswami, MAK Kerawalla,	CURRENT SCIENCE	113 (2),	228-235	2017
5	<i>PrernaGoswami, S. P. Deshmukh "Reduction in Carbon Footprints with Wave -Solar Hybrid"</i>	InvertisJourn. Of Renewable Energy	7	200-207	2017
6	Raji S, D DSarode, SuhelGholap and SwapnilGangurde "Value addition to Temple Waste	Journal of Chemical Society	Vol 95	231-234	March 2018

SUPPORT STAFF

- P. R. Gaikwad, Workshop Instructor
- V. B. Gorule, Engineering Assistant
- P. S. Wale, Mechanic
- B. R. Budhawale, Mechanic
- J. M. Ghag, Boiler Attendant
- P. G. Jadhav, Instrument Mechanic
- R. G. Butkar, Plumber
- L. D. Nunis, Carpenter
- G. L. Bhagat, Carpenter
- R. T. Dhudhmal, Mason & Fitter
- P. K. Chavan, Lab. Attendant
- D. G. Malusare, Lab. Attendant
- S. D. Vengurlekar, Lab.

Attendant

- D. R. Tajane, Lab. Attendant
- Prafulla.U.Waghmare, Lab Attendant
- S.D. Patel, Lab Attendant
- K.T. Gurav, Lab Attendant
- RishikeshBhosle, Lab attendant
- P.S.Potdar, electrician (contract basis)
- Prashant Dalvi (Temporary)

IN-HOUSE FACULTY RESPONSIBILITIES

PROF. V. R. GAVAL

- Member of Campus accommodation for faculty committee.
- Member of Campus maintenance and

beautification committee.

- Member of Internal quality assurance cell.
- Training and Placement coordinator of General Engineering Department.

PROF. S. P. DESHMUKH

- Member Equivalence Committee.
- Nodal Officer.
- Member Campus Development.
- Manzer Convener.
- Member Examination Committee.
- Member RRC in General Engg. Subjects.

DR.D.D.SARODE

- TEQIP Co-ordinator of General Engineering Department
- Member of Unfair means committee
- Co-chair Handbook committee
- TEQIP Coordinator for Department of General Engineering

MRS. PRERNA GOSWAMI

- Time table committee,
- Abhyankar award committee

SHRI M.A.K. KERAWALLA

- Member of UG admission committee

DR. RAI SUJIT NATH SAHAI

- P. G Admission committee,
- Department accreditation committee

SEMINARS/LECTURES/ CONFERENCES/ SYMPOSIA/ WORKSHOPS/ SUMMER OR WINTER TRAINING SCHOOLS ATTENDED/ ORAL OR POSTER PRESENTATIONS

PROF. V. R. GAVAL

- Attended skill development public training program on “patent filing procedure, proceedings of patents, introduction to patent specification, patent search ” conducted during 28/08/2017 to 30/08/2017 at Rajiv Gandhi national institute of intellectual property management (RGNIIPM), Nagpur through TEQIP 3.
- Attended 5 day workshop

- on “ Pedagogy and Management capacity enhancement Programme for Teaching staff “ held at Goa between 25th Feb-1st March 2018 organized by ESCI,Hydrabad through TEQIP 3.
- Invited speaker and session chair in the ISSRD international conference held at Mumbai on 8th April 2018.
- Presented paper titled “Study of Jute fibers filled Polypropylene Composites ” in the ISER- 383rd International Conference on Science, Technology, Engineering and Management (ICSTEM-2018) to be held on 18th-19th June , 2018 at Langkawi, Malaysia through “ICT Travel grant “

DR. D. D. SARODE

- Attended a TEQIP sponsored short term course under TEQIP III on “Flyash Management for Thermal Power Plants from 22nd May 2018 to 25th May 2018 at I I T Delhi.
- Delivered a public lecture on “How to select Good Engineering College and Different Engineering Courses” in a Career Guidance Program, organized by EktaMitraMandal, CIDCO, Nashik on Saturday, 19th May 2018. Lecture was attended by 1000 students

- and parents.
- Delivered a lecture on Innovative formwork systems for High Rise Building Construction at V J T I on Tuesday, 10th April 2018
- Expert for Avishkar an Intercollegiate technical festival of North Maharashtra University Jalgaon on 29th and 30th Dec 2017
- Attended a 2 day conference on Bioprocessing 2017 on 9th and 10th Dec 2017 at I I T Guwahati. Delivered a key note address on Use of Agriculture, Forest and Garden Waste as Alternate Fuel
- Delivered an invited talk on “Scope of Engineering for Nation Building” to First year Engineering students at J T Mahajan College of Engineering on 19th Sept 2017.
- Raji.S, D.D.Sarode, paper on “Value addition to Temple Waste- A study ”National Conference on Sustainable Advanced Technologies for Environmental Management(SATEM-2017) organized by Indian Institute of Engineering Science and Technology, Shibpur, West Bengal, 28th June 2017
- Conducted training programs on Conservation of water, Recycle and Reuse of water on Saturday, 16th

- September 2017 at Sunshine English Medium School, Ausa
- Azad College, Ausa
- Conducted training programs on Conservation of water, Recycle and Reuse of water on Thursday, 1st February 2018 at Kumarswami College, Ausa
- Azad College, Ausa
- Dr D DSarode given a lecture on “Value added products from wastes” in short term training program on Waste Management – Case Studies and Practices at National Institute of Technology, Tiruchirappalli, Tamilnadu on 30th August 2017
- Attended a Short Term Course on “Waste Management : Practices

and Case Studies from 28th August to 1st Sept 2017 at Department of Energy and Environment of National Institute of Technology, Tiruchirappalli, Tamilnadu.

MRS. PRERNA GOSWAMI

- Given oral presentation on Assessment of wave energy potential along western coast of India in Triennial National conference of Indian Women Scientists Association 2 to 4 December 2016 at IWSA Vashi, Mumbai

DR. R.S.N. SAHAI

- Attended one week short term course on “Industrial Tribology” sponsored by AICTE under QIP at VJTI Mumbai, 11-

15December2017

- Attended International Conference on Advances in Thermal System, Materials and Design Engineering (ATSMDE), 21-22nd December, 2017 at V.J.T.I, Mumbai

EVENTS ORGANIZED :

- Inauguration of DST Sponsored project at Ausa Lake site on Friday, 15th Sept 2017. Attended by Chief Officer, Mrs Vasudha Phad, Mayor of Ausa Municipal council Prof. Afsar Shaikh, elected representatives, Council Engineers and residents of Ausa.

Given lecture on Overall project out line Mitigation of water problems in Ausa town, Latur:

Wastewater management, Gaothan lake rejuvenation, Potable water production through desalination of lake water and Training of residents in matters of sanitation and water conservation.

Handed over 2 sets of posters to the council for displaying at various places in Ausa Council and Town.

Conducted Training sessions on 16th Sept 2017 on Conservation of water, Recycle and Reuse of water at Sunshine English Medium School, Ausa Mukteswar School and Junior College, Ausa

Azad Mahavidyalaya, Ausa Conducted training session in Kumarswami College Ausa on Feb 18.

- Prof V.R.Gaval organized one day workshop on “ Basics of Fire Fighting “ for ICT faculty and support staff in February 2018.

STUDENTS' SEMINARS/PROJECTS/HOME PAPERS

POST GRADUATE STUDENT SEMINARS

No.	Title and Authors	Journal
1	Prediction of warpage in plastic injection moulding based on design of experiments.	Prof. V. R. GAVAL
2	The effect of water absorption on Mechanical properties of wood flour/ wheat husk polypropylene hybrid composites.	DR.R.S.N.SAHAI
3	Enhancing the Mechanical properties of Epoxy composites using spider silk reinforcement.	Prof. S.P.DESHMUKH
4	Cost optimization of Recycling of Linear low density polyethylene waste to manufacture drip irrigation pipes.	DR.D.D.SARODE

5	Design and Development of innovative plastic product for automotive application.	Prof. S.P.DESHMUKH
6	Product development of mobile cradle for multi cavity injection mould with the help of mold flow simulation.	Dr R.S.N.Sahai

UNDERGRADUATE STUDENTS

PROJECT UNDER STRUCTURAL MECHANICS LABORATORY OF S. Y C E .

SR. NO.	ROLL NO.	NAME	PROJECT TOPIC
1	16CHE175	Suyog GirishShaha	Epoxy Resin
	16CHE165	Shubham Shinde	
	16CHE148	Prathmesh Bolaj	
	16CHE134	KalashPai	
	16CHE113	Aniket Murumkar	
2	16CHE161	ShivaniKulkarni	Dr. R. S. N. Sahai
	16CHE139	MalharMankar	
	16CHE140	MihirKulkarni	
	16CHE162	ShivaniBisen	
	16CHE130	EashaanGodbole	
3	16CHE115	AnirudhVenkatesh	Use of Green Materials in the construction of buildings
	16CHE177	Vartul Jain	
	16CHE123	Bosco	
	16CHE153	Saagar Gandhi	
	16CHE131	GauravMampally	
4	16CHE161	ShivaniKulkarni	Dr. R. S. N. Sahai
	16CHE139	MalharMankar	
	16CHE140	MihirKulkarni	
	16CHE162	ShivaniBisen	
	16CHE130	EashaanGodbole	
	16CHE172	SurajShinde	
5	16CHE147	OjaswiRathi	Types of Coating
	16CHE112	AmrutBagdi	
	16CHE168	SiddheshSarda	
	16CHE104	AbhinavHandu	
	16CHE101	AadeshBhakkad	
6	16CHE182	YASH MB	Graphene and its uses
	16CHE179	VIDIT SHAH	
	16CHE181	VISHAL KUMAR	
	16CHE180	VISHAL GORE	
	15CHE187	RUPANSHI ANAND	

7	16CHE169	SnehalPatil	Testing of Polymers
	16CHE170	Sreejith Nair	
	16CHE171	Surabh KT	
	16CHE163	ShreekantGokhale	
	16CHE136	Keith Dsouza	
8	16CHE117	AnuDeshmukh	Materials for Pipe Manufacturing
	16CHE120	AsmeePrabhu	
	16CHE126	DarshanaMalusare	
	16CHE124	KaustubhRane	
	16CHE129	DnyaneshSarawate	
9	16CHE108	AkshayPatil	Processing of Polymers
	16CHE164.	ShriramRajendraChavan	
	16CHE145.	Ninadkhelukar	
	16CHE146.	NishantPardeshi	
	16CHE155	SahilGhormare	
10	16CHE152	RounakNaryani	
	16CHE156	SahilKhatavkar	
	16CHE142	Naman Joshi	
	16CHE138	KshitijThaware	
	16CHE137	KoviRishyaShrung	
11	16CHE150	RaunakBalkote	Low Cost Housing Techniques
	16CHE166	ShubhamRavan	
	16CHE135	KaushalKaloo	
	16CHE107	AkashNogaja	
	16CHE119	AshishTangade	
12	16CHE118	Ashin Antony Sunny	Low Cost Housing Materials
	16CHE110	AmoghNagarkar	
	16CHE125	ChinmayMhatre	
	16CHE114	AniketPote	
	16CHE102	AagamKhandor	
13	16CHE160	ShitalSuryavanshi	Zirconia toughped Alumina
	16CHE105	AditiSawant	
	16CHE122	BharatiPonrathnam	
	16CHE143	NamitaJadhav	
	16CHE133	HarshadaGabhale	

14	16CHE144	NayantaraPradhan	Non Destructive Testing
	16CHE76	VaishnaviHonavar	
	16CHE127	Dhiraj Jain	
	16CHE128	DishitGhumra	
	16CHE159	ShalakaDhande	
15	16CHE141	MonikMagiya	Polymer Composites and its Applications
	16CHE111	AmolKhatke	
	16CHE109	AmitejRaoNeti	
	16CHE121	Avinash Suresh Nayak	
	16CHE129	DnyaneshSarawate	
16	16CHE157	Sai Nazare	Materials for Sports
	16CHE132	Gautami Kelkar	
	16CHE151	Razeen Shaikh	
	16CHE154	Saaksshi Tenpe	
	16CHE174	Sushmita Khole	

PH.D. STUDENTS' RESEARCH PROJECTS

No.	Title and Authors	Journal	Project	Supervisor
1	Mr. Peter D'souza	VJTI Mumbai	Use of Microchannel Heat Sink in Refrigerator to enhance the Heat Transfer rate to Enhance COP.	S. P. Deshmukh
2	M. Dipak H. Kokate	MSDCL Mumbai	Resource Conservation Through Energy Monitoring & training Agricultural Water Pumps	S. P. Deshmukh
3	M. Mohad Khalid A.	SabboSidhique College of Engg. Mumbai	Investigation on Phase Change Due to Heat Transfer in Micro-channel / capillaries	S. P. Deshmukh
4	Mr. Vikramsinha S. Korpale	ICT, Mumbai	Optimization of Solar Assisted Dryer for Thermal Power Reneration.	S. P. Deshmukh
5	Mr. Kavhale Nagnath B.	Vartak Polytechnic, Vasai	Design and Analysis of Solar Chimney Power Plant	S. P. Deshmukh
6	Mr. Vishnu G Arude	CIRCOT	Design and development of lintel processing machine	S. P. Deshmukh
7	Mr. Deepankar Biswas	HBNIT	Design and optimization of Concentrated Solar Thermal Systems	S. P. Deshmukh
8	Mrs. Prasannti A Kulkarni	BharatiVidyapeeth	Optimize the Performance of Traditional Solar cell Using Embeded PV Converter.	S. P. Deshmukh

9	Mr.Mahammadayub A. Gulbarga	Shivaji Engg. College	Design & Development of Processes for Making Natural Fibre-Polypropelene Bio – composite pellets, up scaling manufacturing, & Veritable Process optimization.	S. P. Deshmukh
10	Mr. Rajesh K Behara	Thakur Engg. College	A Holistic Relation between Key Performance Indicators & Their Influencing Factors for Sustainability in Manufacturing for Small and Medium Scale Enterprises in Indian Scenario.	S. P. Deshmukh
11	Mr.Jitendra S. Thombre	Parshwanath Engg. College	Experimental and Numerical Analysis of Heat Distribution for Solidification of Polypropelene inside the Barrel of Vertical Injection Moulding machine	S. P. Deshmukh
12	Ms.Pragya Jain	Thakur College of Engg.	Cost effective Inverter With Improved Efficiency & Increased Stability by Cascading DC-DC Converter with Multilevel Inverter	S. P. Deshmukh
13	Mr.Prakash V Shirsat	MCGM	Development of Efficient Treatment System for Reuse of Municipal Wastewater	S. P. Deshmukh
14	Mr.Deshmukh Manoj Prakash	SPCE	Development of Fibre reinforced cement composite with industrial waste	D. D. Sarode
15	Ms Raji S	I I T Bombay	Value Addition to Biomadd waste as Alternate Fuel	Dr D DSarode
16	Mr.Rohan S. Oak	I I T Bombay	Design and Application of Biochar for Improving Soil Fertility	Dr D DSarode
17	Mr.Avinash N. Phirke	M G M, Navi Mumbai	Industrial Wastes for Development of Cement Composites Materials for Low Cost Housing	Dr D DSarode

DETAILS OF SPONSORED PROJECTS:

Dr D DSarode as Principal Investigator and Prof P. K. Ghosh as Co Principal Investigator are presently doing a Department of Science and Technology (DST) funded project of Rs. 19847000/- vide DST sanction order No. DST/TM/WTI/2K16/306 dated 10th July 2017

Sponsor	Department of Science and Technology
Title	“Mitigation of water problems in AUSA town, Latur: Wastewater management, Gaohan lake rejuvenation, Potable water production through desalination of lake water and Training of residents in matters of sanitation and water conservation”
Duration	2 years
Total amount	Rs. 19847000/-
Principal Investigator	Dr D. D. Sarode
Co-Principal Investigator	Prof. P K Ghosh
Research Associate	DrLokeshRamteke
Project Staff	Shri. Amar Utge

PATENTS :

No.	Inventors	Title	Country	Funding agency
1	Dr D DSarode, Dr. P R Nemade, Dr V H Dalvi, Dr S M Sontakke, Rahul Zambare, Dr N V Mukadam	“A Water Resistant Phosphogypsum Composition”	Under Process in India	TEQIP
2	MrSangitKadu , Dr V.R. Gaval, Mr Sachin Solanke	“ SANGITS Approximate Straight Line Mechanism /01-00	Under process in India	TEQIP 3

SEMINARS/LECTURES/CONFERENCES/SYMPOSIA/WORKSHOPS/ SUMMER OR WINTER TRAINING SCHOOLS ATTENDED/ORAL OR POSTER PRESENTATIONS

DETAILS OF POSTGRADUATE/PH.D. STUDENTS WHO PASSED OUT

No.	Name	Course	Tlitle	Research Guide
1	Sunny .N.Santwani	M.E. (Plastic Engg)	Design and Development of innovative plastic product for automotive application.	Prof S.P.Deshmukh
2	RoshanJaiswal	M.E. (Plastic Engg)	Product development of Mobile Cradle for multi cavity injection mould with the help of mould flow simulation.	Dr. R.S.N. Sahai
3	Ashok Kumar Bharimalla	Ph. D. (Tech.) Mech. Engg.	Production of Nanocellulose by Chemo-mechanical process and its Polymer composites for Application in Agricultural packaging	Prof S.P.Deshmukh
4	PreranaGoswami	Ph. D. (Tech) Electrical Engg	Assessment of Wave and Solar Energy for Electricity Generation Along western Coast of India.	Prof S.P.Deshmukh

SHORT ABSTRACT ON SALIENT FEATURES OF RESEARCH WORK

**ASHOK KUMAR
BHARIMALLA**

*Ph. D. Tech. Mechanical
Engineering*

Research Guide : **Prof
S.P.Deshmukh**

Research Topic : Production of Nanocellulose by Chemo-mechanical process and its Polymer composites for Application in Agricultural packaging.

Abstract:

Nano cellulose is a unique material which can be used in many engineering applications. Worldwide, there are few facilities where the production of the Nano cellulose has become possible as there are many challenges in its production. The processes involved in manufacturing of these materials are very energy intensive and demands use of sophisticated techniques and highly specialized equipment. Production of Nano cellulose of the desired size, aspect ratio and maintaining its mechanical, physical, and other properties also was a challenging process ensuring that the cost of manufacturing of the same can be brought down drastically so that it can be used successfully in many applications ensuring proper properties of composite without affecting cost of such materials.

A novel Chemo-mechanical process was designed and used for manufacturing of the Nano

Cellulose achieving the saving on the energy, and reduction in overall cost of manufacturing. The size and quality of the Nano cellulose thus produced was ascertained using international standards. The fiber diameter of it was of the size of 114nm with grate saving in the order of 1500kWh per metric ton of Nano cellulose. With this considerable energy in the order of 50% was found saved in its manufacture as compared to its production cost reported in various research works. This was a novel method producing the Nano cellulose efficiently and maintaining its optimum size. Using the designed pilot plant the Nano cellulose was produced with its approximate rate of Rs. 322 per kg.

The Nano cellulose thus produced was used as reinforcement filler in various materials, such as Kraft paper, Plastic composites, Cement concrete etc., and the performance of these materials was tested for their intended applications.

It was found during these studies that addition of these materials in Kraft paper enhanced certain mechanical properties making it more suitable for the various applications. The main reason for such increase in mechanical properties of Nano cellulose filled craft paper was increase in inter fiber bonding of the Kraft paper increasing the concentration of Nano cellulose. It was mainly because of strong hydrogen bonding

between Kraft paper fibers and Nano cellulose which further gave support for stronger network of fibers generated in craft paper.

Various chemo-mechanical processes such as production of Nano cellulose using UHPH, processing of it with Zink Chloride, and use of wet grinding techniques for production of nano cellulose and specialized ball mill for the same are some of the methods which were tried and tested for manufacture of Nano cellulose at various stages of the experimental work. In this work the refining process was found satisfactory producing Nano cellulose suitable for Kraft paper. The effective process was required to be performed by controlling processing temperatures in the range of 23 degree centigrade. The pretreatment of cellulose with certain enzymes followed by mechanical treatment such as beating at controlled environment, helped in production of Nano cellulose saving considerable energy. Such Nano cellulose was successfully used and tested for Kraft paper improving its mechanical properties and improving inter-fiber bonding. It also helped to improve the brightness and opacity of the Kraft paper. It was also observed that the Cobb value of Kraft paper increases with addition of Nano cellulose making this paper more suitable for packaging applications.

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Research Topic : Assessment of Wave and Solar Energy for Electricity Generation Along western Coast of India.

Abstract:

India is a vast country with high population density living without sufficient energy availability due to the requirement of high infrastructure investment involved in setting up such facilities. Even though it is claimed that the electricity has reached to every village, it is still a challenge to supply the sufficient quantity of the same to every house hold in the country. India is located demographically where its borders are surrounded mostly by the sea. For solving energy crises we can think of using tidal wave and solar energy as one of the alternative renewable energy sources for generating energy. India receives good amount of solar radiation throughout the year except the monsoon season. With the vast coastal area India can setup number of Wave energy power plants as a suitable alternative for harnessing solar energy during monsoon months to bridge the gap where solar energy cannot be used for its full potential. Wave energy plants set up on the sea shore can generate moderate energy which will help to minimize

the shortfall which may arise during monsoon when less amount of solar energy will be generated due to cloudy atmosphere throughout the country.

The work carried out by PrernaGoswami on the above topic helps in scientific assessment of potential of Solar and wave energy along the western coast of India.

During monsoon wave energy can be used effectively for the generation of electricity as the tidal wave energy is directly proportional to product of wave period and square of wave height. The data related to waves was collected from various wave rider buoys installed at various location of western coast and collected from MNRE data sheets.

The assessment of solar energy potential was carried out on solar Modules of 310W capacity with simulations on MATLAB Simulink environment and tested for month wise solar irradiance data for locations of Indian western coast and results were analyzed for generation of electricity for various months throughout the year. Assessment of wave energy was also carried out for electricity generation on generation plant based on oscillating water column principal with Wells turbine and synchronous generator. For this study the wave data was collected from INCOIS Hyderabad. The values of wave energy were tested and simulated for wave energy

generation plant model. By analyzing the results of both simulation studies it can be concluded that the wave energy can sufficiently compensate the deficit on energy generation by solar power plants during the peak monsoon months where solar irradiance decreases substantially reducing the generation of electricity.

With the long coast line on eastern and western side, India can harness ocean energy with estimated potential of 40GW and by using other sources of renewable energy can reduce carbon footprints substantially. The above study was carried out at four locations of western coast of India viz, Ratnagiri, Karwar, Kozicod and Kollam assessing the wave and solar energy potential. The simulation studies carried out using the available wave energy data and solar irradiance data on these location helped to suggest the use of wave energy as an alternative of the solar energy during the monsoon months when considerable amount of wave energy leads to increase in wave energy generation capacity compensating the loss in energy generation with solar power plants due to reduction in solar irradiance in this period. Cost analysis of the generation of electricity was also carried out to conclude the economic viability of the proposed energy generation schemes.

SUNNY N SANTWANI,*M. E. Plastic Engineering*Research Guide : **Prof****S.P.Deshmukh**

Project Topic : Design and Development of innovative plastic product for automotive application.

Abstract

Plastic industry is one of the world's fastest growing industries, ranked as one of the few billion-dollar industries. Almost every product that is used in daily life involves the usage of plastic and most of these products can be produced by plastic injection moulding method (Crawford, 1987). Plastic injection moulding process is well known as the manufacturing process to create products with various shapes and complex geometry at low cost (Min, 2002). The automotive industry today is a very competitive industry.

In short, plastics meet the Challenges of an industry whose demands are greater than ever. While motorists want high performance cars with greater comfort, safety, fuel efficiency, style and lower prices, society demands lower pollution levels and increased recovery at end of life. Continual innovation is a key feature in the use of plastics in cars.

The automotive industry is on the brink of a revolution, and the plastics industry poised to play a major role. The real plastics revolution in automotive industry began in 1950 when thermoplastics made their debut, starting with ABS and going on to polyamide, polyacetal and polycarbonate together with introduction of alloys and blends of various polymers. The on-going development of advanced, high-performance polymers

has dramatically increased their usage. Originally plastics were specified because they offered good mechanical properties combined with excellent appearance, including the possibility of self-colouring. Mounting costs are being met by the ability of plastics to be molded into components of complex geometries, often replacing several parts in other materials, and offering integral fitments that all add up to easier assembly. Many types of polymers are used in more than thousand different parts of all shapes and sizes. A look inside any model of the car shows that plastics are now used in exterior and interior components such as bumpers, doors, safety and windows, headlight and side view mirror housing, trunk lids, hoods, grilles and wheel covers.

AWARDS & HONOURS**PROF. V.R.GAVAL****DR.A.C.RAO**



From left: Peter Desouza, Khalid Usmani, Prerana Goswami, S. P. Deshmukh, V. N. Palaskar, Ashok Bharimalla, Nagnath Kavhale, V. S. Korpale



From Left: AvinashPhirke, Sagar Gawande, Rohan Oak, S.Raji, Dr Sarode, Lokesh kumar Ramteke, Mahesh Masurkar, Manoj Deshmukh.

Photographs of various activities of training conducted at various educational institutes and in Ausa Municipal Council.



Training session on Conservation of water, Recycle/ Reuse of water in progress at Sunshine English Medium School, Ausa on 16th Sept 2017.



Training session on Conservation of water, Recycle/ Reuse of water in progress at Sunshine English Medium School, Ausa on 16th Sept 2017.



Presentation on DST funded project to Ausa Municipal Council C O, Council staff and Elected Representatives on 15th Sept 2017.



Awareness of Conservation of water, Recyle/ Reuse of water and Cleanliness drive, Publication of Posters with C O MrsVasudhaPhad, Ausa Municipal Council and Elected representative on 15th Sept 2017 at Ausa Lake site.



Training session at Azad Mahavidyalaya, Ausa, Dist :Latur on 16th Sept 2017



Photographs of Educational Guidance Lecture at Nashik on 21st May 2018



More than 1000 students/parents for Educational Guidance Lecture at Nashik on 21st May 2018