DEPARTMENT OF GENERAL ENGINEERING

PREFACE

PROFESSOR D.D. SARODE

Professor and Head General Engineering

B E (Civil), PGD Const Mgt,
M E (Structures), Ph.D. (IIT Bombay)

Department of General Engineering was started in 1952, since its inception has taken care of teaching foundation subjects of Mechanical, Civil and Electrical and Electronics for under graduates. Some advance courses such as Design and fabrication of molds, Process Equipment Design and Drawing are also taught by Department of General Engineering. Besides this department offers Master degree program in Plastic Engineering (which was started in 1972) and Research programs in Plastic, Civil, Mechanical, Electrical and Electronics Engineering. Many persons from industries such as BASF, TVS motors, DOW Chemicals are presently pursuing masters and doctoral programs in our department. Faculty members from various educational institutions are also doing Masters/Ph D in the department.

The department has Engineering Workshop, Electrical and Electronic Machinery laboratory, Plastic Processing and Testing, CAD/ CAM & CAE facilities with licensed CAD and solid works softwares. Structural Mechanics laboratory, Drawing halls catering the needs of undergraduate and post graduate students of the Institute. The department has recently set up a cement composites laboratory for doing research in cement composites. Department call industry personal for taking some of the subjects and also organizing guest lectures of experts for benefit of P G students. Few industrial visits are also organized for the M E (Plastic) students so as to know the industrial environment.

Department till date graduated more than 150 master students in Plastic Engineering. They have been instrumental in helping the plastic manufacturing industries of India and abroad. They occupy key positions of Research and Development, design, production and consultants in major reputed plastic industries of Indian origin and multinationals. Some of our alumni has completed their doctoral degrees and handling R & D departments of the industries successfully. Few graduates of our department have become successful entrepreneurs and doing well in their business. The faculty of the general engineering department has maintained a good rapport with plastic industries. This is helping students to get hands on experience during there internship and helping them to improve their employability.

The department also carries out the equipment and infrastructure maintenance of the whole Institute. With the help of workshop and skilled support staff, department is helping the institute to keep the instruments from various laboratories and other infrastructure in good working condition. Some of the faculty members are working as

Associate Deans and helping Institute to manage its academic programs and Infrastructure developments. Faculty members of the department participate in various National and International Conferences and Seminars. Some of them were resource personal in some Faculty Development Programs.

Faculty members are also involved in research in various interdisciplinary fields. Presently 2 major projects valued about Rs. 4 Crores on "Pilot study and evaluation of production of Green surfactants from Non edible / edible oils and treated oil seed meals" from Rajiv Gandhi Commission for Science and Technology, Government of Maharashtra and Rs. 1.98 Crores project funded by Department of Science and Technology (DST), Government of India on "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". Many research facilities and new structures in the campus are developed with active involvement of faculty members of the department.

FACULTY

PROFESSOR D.D. SARODE

B E (Civil), PGD Const Mgt, M E (Structures), Ph.D. (IIT Bombay)
Professor and Head General Engineering

Subjects taught:

- Structural Mechanics (GET1301) to S Y ChemEngg
- Structural Mechanic Laboratory (GEP 1302)
- Engineering Mechanics and Strength of Materials (GET1116) to S Y B Tech (all Branches)
- Elective: Advance Strength of Materials (GET1303) to S Y C E
- Equipment Design and Drawing - I (GEP1103) to T Y C E
- Advanced Polymer Based Materials in Engineering Applications (GET2106) M E (Plastic)

Research interests :

- Construction Chemicals,
- Recycling of Agricultural and Industrial Waste,
- Low cost housing,
- Formwork for R.C.C, Advance Concrete Technology,
- Anticorrosive coatings and inhibitors,
- Glass and Carbon fiber composites,
- Risk Management.

Research students :

P.D.F.- 01
RA - 01
Ph.D. (Tech.) - 06
M E - 04

Research publications:

International- 12
National- 08
Conference proceeding - 20
Books - 1
Citations : 140

Patents :

Indian – 01 (In Process)

Sponsored projects :

Government - 02

Private - 01

Professional Activities (Membership of important Committees):

- Member of Board of Studies in Civil Engineering in VJTI,

Mumbai 19.
- Member of Board of Studies in Civil Engineering for Dr Babasaheb Ambedkar Technological University, Lonere, Maharashtra.
- Member of Research Progress Committee and P G examiner in VJTI, Mumbai 19
- Fellow of Indian Geotechnical Society
- Member of Indian Society for Technical Education
- Member of Institution of Engineers
- Member of UDCT Alumni Association
- Managing Committee Member and Chief Project Coordinator for VJTI Alumni Association.

Special Awards/Honours:

Chief Guest for Inauguration of National Seminar on Advances in Material Science and Technology at Government Engineering College Keonjhar on 30th March 2019

Major accomplishments :

Actively involved as Twinning activities incharge for Government College of Engineering, Keonjhar, Odisha under TEQIP III. Organised many joint programs, exchange of faculties and students, Inplant training for UG students etc. This helped to get good score under twinning activities in TEQIP III performance audit.

PROF. S.P. DESHMUKH

Ph. D. (Tech.)

Professor and Associate Dean (Academic)

Subjects taught:

- Engineering Graphics I
- Equipment Design and Drawing I
- CAD/CAM/CAE

Research interests :

- Renewable Energy
- Polymer composites
- Hear transfer

Research students:

Ph.D. (Tech.) -14

Research publications:

International - 35

National- 7

Conference proceeding - 20

h-Index :8

i10

Index : 8

Citations :196

Sponsored projects :

Government- 1

Professional Activities:

- PGPC
- UGPC
- B & W

PROF. V.R. GAVAL

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

Professor and Associate Dean (Infrastructure and Campus Development)

Publications (peer reviewed) so far: 8

Patents: 1 (Filed)

Conference proceedings/papers: 9

Seminars/Lectures/Orations delivered : 10

Masters Awarded as single/ Co-Guide (as Single guide) : 25

Citations: 16

Subjects taught :

- Engineering Graphics 1 ,
- Energy Engineering,
- Equipment design and drawing 2,
- Design of Moulds ,
- Design and fabrication of moulds

Research interests:

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

Research students :

Ph.D. (Tech.) - 8

M.E(Plastic Engg) - 5

Research publications:

International- 1

Conference proceeding - 1

Patents:

Indian – 1 (filed)

Professional Activities:

- All Committees related to ICT Building and Works as Associate Dean (ICD)
- Mumbai University Vice Chancellor nominee in Academic Council of Somaiya College of Engineering , Vidyavihar , Mumbai
- Expert for Minor Research Project Grant for Mechanical Engineering in Mumbai University
- Subject Expert for Mechanical Engineering in Mumbai University Staff Selection committee
- Subject Expert for the post of Principal in Mumbai University Staff Selection committee
- Member of Board of studies in Mechanical Engineering in Mumbai university .
- Ph. D Refree in Pune and Amravati University .

SHREE M.A.K. KERAWALLA

B.E. (Electrical) M.E. (Power Systems)

Associate Professor

Publications (peer reviewed) so far: 10

Seminars/Lectures/Orations delivered : 3

h-Index : 3

Citations : 20

Subjects taught :

- Electrical Engineering and Electronics (GET 1105) SYCE
- Electrical Engineering and Electronics (GEP1106) SYCE
- Basic Electrical Engineering and Electronics (GET 1109) SYBTech (All Branches)
- Basic Electrical Engineering and Electronics (GET 1109) SYBTech (All Branches)

Research interests

- Power Electronics applications
- Power systems analysis

Research publications:

International - 10
National- 6
Peer-reviewed - 15
Conference proceeding-

Professional Activities:

- AMIE
- Member of U.G. Admission Committee

Special Awards/Honours:

Best review paper award for the paper Recent Advancements in Graphene Biosensors for the detection of Pathogens-A Review By Chaudhari A. Jagdale P, Goswami P. and Kerawalla M. A. K., published in Indian drugs, Volume No. 55, Issue No. 08 , page 7-17, 2018

D R. RAI SUJIT NATH SAHAI

Ph.D

Associate Professor

Publications (peer reviewed) so far: 10
Conference proceedings/papers: 2
Seminars/Lectures/Orations delivered : 1
Masters Awarded as single/ Co-Guide : 12
Citations : 9

Subjects taught :

- Engineering Graphics I, FYCE
- Engineering Graphics II, SYCE
- Drawing I, FY B.Tech (All Branches)
- Energy Engineering, SYCE
- Principle of Plastic Machinery M.E. Plastic Engineering
- Design, Advance Polymer Composites, M.E. Plastic Engineering
- Mechanical vibration,
- Energy Engineering

Research interests

- PolymerComposites
- Thermal Engineering

Research students :

Ph.D. (Tech.) - 5
M.E. Plastic Engineering - 3

Research publications:

Conference proceeding- 2

Professional Activities:

Member PG Admissions committee

DR. PRERNA GOSWAMI

Ph.D. (Electrical Engineering)

Associate Professor

Publications (so far) : 27

Peer revied: 15

h-Index : 4

Citations : 31

Subjects taught :

- Electrical Engineering and Electronics (GET 1105) SYCE
- Electrical Engineering and Electronics (GEP1106) SYCE
- Basic Electrical Engineering and Electronics (GET 1109) SYBTech (All Branches)
- Basic Electrical Engineering and Electronics (GET 1109) SYBTech (All Branches)

Research interests:

- Sustainable Energy and Environment
- MATLAB Simulations

Research students :

Ph.D. (Tech.) - 12

Research publications:

International- 21
National- 6
Peer-reviewed- 15
Conference proceeding- 1

Professional Activities:

- Member of India Smart Grid Forum
- Member and Co Chair of Committee for Academic activities such as
- Academic Calender
- Academic Time table
- Class room allocation

Special Awards/Honours:

Best review paper award for the paper Recent Advancements in Graphene Biosensors for the detection of Pathogens-A Review By Chaudhari A., Jagdale, P., Goswami P. and Kerawalla

M. A. K., published in Indian drugs, Volume No. 55, Issue No. 08 , page 7-17, 2018

SUPPORT STAFF

MILIND TALATHI
University Engineer

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

S. D. VENGURLEKAR
Lab. Attendant

D. R. TAJANE
Lab. Attendant

S.D. PATEL
Lab Attendant

RUSHIKESH BHOSALE
Lab Attendant

PRAFUL WAGHMARE
Lab Attendant

K.T. GURAV
Watchman

PUBLICATIONS

No	Title and Authors	Journal	Volume	Pages	Year
1	V. G. Arude, S. P. Deshmukh, P.G. Patil, S. K. Shukla, "Optimization of single locking cottonfeeder for Maximizing Ginning Output and Minimizing Specific Energy of Double Roller Gin"	Textile Research Journal		1-12	2018
2	Prerna Goswami, S. P. Deshmukh, " Assessment of Reduction in Carbon Dioxide Emmission with Wave, Solar Hybrid Generation Along with Coastal Karnataka"	Nature Environment & Pollution Technology Jour	17	863-868	2018
3	J B Joshi, Biswas D, Dalvi V, Deshmukh S. p., Panse S V, "Green sSteam Initiative: Thermal Performance of Cost Effective Parabolic Trough Collector System"	Int. Congress on Energy –Core programming area		218-226	Oct 2018
4	VG Arude, SP Deshmukh, PG Patil, S K Shukla, ' Application of RSM to optimize Single Locking Cotton feeder for Enhancing Ginning Efficiency of Double Roller Gin	Indian Journal of Fibre & textile Research	44	16-23	March 2019
5	'Recent Advancements in Graphene Biosensors for the detection of Pathogens-A Review ' By Chaudhari A. Jagdale P, Goswami P. and Kerawalla M. A. K.	Indian Drugs	Volume No. 55| Issue No. 08	7-17	2018
6	Li-Fi-Technology: LED's to Access the Internet! M Hase, P Bhanushali, P Vora, P Goswami, MAK Kerawalla	Invertis Journal of Science & Technology	11 (4),	189-197	2018
7	Wireless Power Transfer in Electric Vehicles by S Das, K Pal, P Goswami, MAK Kerawalla	International Journal of Applied Environmental Sciences	13 (7),	643-659	2018
8	Comparative study of effect of different coupling agent on mechanical properties and water absorption on wheat straw-reinforced polystyrene composites R.S.N.Sahai, R.A.Pardeshi	Journal of Thermoplastic composite materials https://doi.org/10.1177/0892705719843975			2019

BOOK CHAPTERS

No.	Author(s)	Title	Publisher	Place	Year
1	Sagar M Gawande and D D Sarode	Quality Improvement through Soil Stratum in Non Mechanised Treatment system for Waste water	Paper was peer reviewed and selected, Published by Springer as Book Chapter (Pages 21 to 27) in System Reliability, Quality Control, Safety, Maintenance and Management https://doi.org/10.1007/978-981-13-8507-0_4	International Conference on Reliability, Risk Maintenance and Engineering Management" in Pune ICRRM 2019	2019

2	S Raji and D D Sarode	Study on suitability of biomass waste as sustainable fuel	Book Chapter (Pages 562 to 568) in Lecture notes in Civil Engineering Springer, https://doi.org/10.1007/978-3-030-02707-0_64	International Conference on Sustainable Waste Management through Design Guru Nanak Dev Engineering College, Ludhiana, Punjab	Nov 2018
3	Sagar M Gawande and D D Sarode	Reuse of Wastewater to Conserve the Natural Water Resources	Book Chapter (Pages 353-367) in Lecture notes in Civil Engineering, Springer https://doi.org/10.1007/978-3-030-02707-0_41	International Conference on Sustainable Waste Management through Design Guru Nanak Dev Engineering College, Ludhiana, Punjab	Nov 2018

MEMBERSHIP IN INHOUSE COMMITTEES

Prof. D D Sarode

- Convener ICT Handbook Committee
- TEQIP Coordinator (G E Department)
- Twinning Incharge under TEQIP for GCE Keonjhar
- Member of HOD Council
- Course coordinator UG and PG Programmes
- Member for committees of
  - Campus Maintenance
  - Campus accommodation
  - Infrastructure

Prof. S P Deshmukh

- Associate Dean Academic
- PG Admissions (Chair person)
- Hand Book (Chair person)
- UG Programmes
- PG Programmes (Chair Person)
- Academic Activities
- Academic Calendar
- Lecture Schedule/ Classroom Allocation
- Visiting Faculty
- Internal Quality Assurance Cell
- NBA/NAAC Accreditation
- Planning and Monitoring
- Building and Works
- Infrastructure

Prof. V R Gaval

- Associate Dean (ICD)
- Building and works committee
  - Maintenance (Chair Person)
  - Beautification (Chair Person)
  - Campus Security
  - Material Procurement
- Chairman of Campus Safety, Disposal and Dead-stock
- Infrastructure Committee
- Chairman of Scrap and waste disposal and dead stock committee.
- Chairman of solid waste Management committee.
- Chairman of canteen and catering committee
- Member of DAE Research centre project committee(Co Chair)

Dr. RSN Sahai

- Member PG Admissions Committee

Dr. Prerna Goswami

Member of Committee of Academic Activities a (Co Chair)

- Academic Calendar
- Lecture Schedule/ Classroom Allocation
- Visiting Faculty

Details of sponsored projects (Government and Private):

Government Agencies:

- Dr D D Sarode 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, Gaothan 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	Dr Lokesh Ramteke
Project Staff	Shri. Amar Utge

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

Prof D D Sarode

- Invited lecture on Modern Formwork Systems in Constructions particularly in High Rise Buildings" at BIT Mesra on 16th April 2019
- Chief Guest for Inauguration of National Conference on "Recent Advances in Material Science and Technology at Government College of Engineering, Keonjhar, Odisha on 30th March 2019.
- Keynote address by D. D. Sarode on "Use of Biotechnology for Improving the properties of Materials" at National Conference on Recent Advances in Material Science and Technology 30th and 31st March 2019 at Government College of Engineering, Keonjhar, Odisha.

Prof. S. P. Deshmukh

- TEQIP-III FDP on "Advanced Pedagogy and Management Capacity Building Training for Engineering Facxulty and Senior Administrators, Engg, Staff College of India, 21-25th June 2018, Hotel Temarind, Gangtok (Sikkim).
- TEQIP-III FDP on "National workshop on NBA and NAAC forTEQIP- III funded Universities and Institutions Engineering FacxultyEngg, Staff College of India, 18-22 July 2018, Lonavala Maharashtra.
- NX- Industrial Design Using NX, CAD CAM Galaxy, 1- 30 August 2018, Siemens PLM software.
- 4th World Summit on Accreditation, 7-9 September 2018, The Ashok Hotel New Delhi, National Board of Accreditation, India.
- Moldex3D R16 Professional Training, April 30th to May 4th 2019, by CoreTech System Co. Ltd, in ICT Mumbai
- Events Organized : Mouldx3D R16 Professional Training at ICT Mumbai

Prof V R Gaval

- Attended one week workshop at IIT ,Gauwhati between 22- 28th October 2018 on Tailoring technologies for Rural sector : Development and dissemination
- Presented paper at NITIE , Mumbai in January 2019 on Importance of PVT data - warpage prediction in Injection moulding process at NITIE Mumbai

Sh. MAK Kerawalla

- TEQIP-III FDP on "National workshop on NBA and NAAC forTEQIP- III funded Universities and Institutions Engineering FacxultyEngg, Staff College of India, 18-22 July 2018, Lonavala Maharashtra.
- Delivered lecture on Electrical Power and fundamentals at Government College of Engineering, Keonjhar in February 2019

Dr. R S N Sahai

- Delivered Guest lecture at National Conference "AME-2019"at Government College of Engineering, Keonjhar

Dr. Prerna Goswami

- Delivered lecture on Renewable Energy and Smart Grids at Government College of Engineering, Keonjhar in February 2019

Post graduate students' seminars/projects :

Seminars

No.	Name of the Student	Topic
1	Raut Avinash A	Asphalt Design using Recycled Plastic Waste for Sustainable Pavement Construction
2	Rahul Deoulkar	Studies on Electrical properties of Mica and Flyash filled PPO Composites.
3	Sawarkar Rameshwari	Enhancing the mechanical properties of epoxy composite using natural silk reinforcement

Research Projects Ph.D. (Tech)

No.	Research Scholar	Previous Institution	Project	Supervisor
1	Deshmukh Manoj	S. P. C. E.	Development of Fibre reinforced cement composite with industrial waste.	Dr D D Sarode
2	S. Raji	I I T Bombay	Value addition to Biomass waste as Alternate fuel	Dr D D Sarode
3	Oak Rohan S	I I T Bombay	Optimization Of Water Demand By Use Of Biochar For Agriculture Production	Dr D D Sarode
4	Phirke Avinash	M G M C O E, Navi Mumbai	Industrial Wastes materials for Development of Cement Composites for Low Cost Housing	Dr D D Sarode
5	Parulekar Guruprasand Dattatray	J J Magdum COE Shivaji University	Not yet decided	Dr D D Sarode
6	Patil Sagar Sunil	J J Magdum COE Shivaji University	Not yet decided	Dr D D Sarode

Abstract of research work of Ph D students

Name of Student : Manoj Deshmukh
Guide : Dr D D Sarode
Project Title : Development of Fibre reinforced cement composite with industrial waste.

Abstract: Red mud (Bauxite residue) is an industrial waste product obtained in production of alumina during Bayer's process. An inventory of over 3 Billion tons of high alkaline fine powdered red mud is awaiting in stock-pilling yards for its bulk utilization at global level. Annual generation of 120 MTPA of red mud is putting an additional burden on the storage yards and demands more land area for storage of red mud. Concrete is the largest consumable on the earth, next to water. Consumption of concrete has already crossed the mark of 20 Billion tons per annum, globally. Aggregates comprise 60% to 80% of concrete composite volume. The available sources of natural aggregates and sand are getting exhausted. Hence there is an urgent need to explore a substitute material for fine aggregates in concrete. An attempt is made here to replace crushed fine aggregate in concrete partially with raw red mud in control mix and in varying proportions. Various end products such as checker tiles, Interlocking paver blocks, Cement mortar and concrete were manufactured. Concrete of different grades were formulated by varying percentages of red mud as one of the ingredient. Reduction in consumption of cement content in the mix due to use of large quantities of fly-ash and red mud in concrete helps in achieving sustainable development of construction industry. Effect of Incorporation of various steel fibres with different aspect ratio will be also studied.

Name of Student : S. Raji
Guide : Dr D D Sarode
Project Title : Value addition to Biomass waste as Alternate fuel

Abstract : Day by day there is increase in Agriculture waste as its utilisaiton by rural population decreased due to availability of LPG easily. Burning them in fields cause lot of pollution, hence proper utilization for value added applications is the present need. This research work involves study the pattern of variation of forest /garden waste, agriculture waste. India is the 7th largest producer of banana in the world. There is a huge accumulation of banana tree waste. Waste from banana plant blended with other agricultural/crop residue through lab tests and measurements. The ultimate aim of the study is to reuse the banana plant waste. It is found that the properties of waste materials followed similar trend in variation with respect to their bulk density. From different combination of waste, pellets are prepared. The pellet quality was good. Therefore further experiments were designed to do for different percentages of banana plant waste along with other biomass waste which increases the calorific value. Pellets were made with various percentages of banana plant waste blended with various biomass available. The study intended to find an alternate means to dispose banana plant waste and to find an alternate method to utilize it for the purpose of energy recovery. The goal of this study is also to increase the energy content of pellets of banana plant waste by pelletizing with dry leaves (garden waste), coconut leaves, saw dust and wood shaving and to find out an optimal feedstock composition delivering a high quality pellet.

Name of Student : Rohan Oak
Guide : Dr D D Sarode
Project Title : Optimization of Water Demand by Use of Biochar for Agriculture Production

Abstract : The global food demand is expected to rise by 200 percent by 2050 and securing the food resources has gained enormous importance. Despite the fact that updated agriculture technology has allowed significant improvements in agronomic operations to reach optimum crop yield potential. The average per hectare yield of most of the crops in India is still considerably lower than most of the other nations with comparable resources and economies. The lower and declining fertility of soils, both in terms of nutrient availability or moisture retention capacity, is discussed to be prime reason for lower crop yield. At the same time available resources, especially water, will be detrimental to agriculture productivity. Various attempts are being made to improve productivity and water use efficiency in agriculture. One promising alternative gaining worldwide interest is byusing Biochar as soil amendment.

Biochar is carbonaceous product produced from pyrolysis of biomass. The key properties of biochar to cause improvement in soil fertility and crop yield is its high carbon content, increase in pH and C/N ratio, higher porosity, high cation exchangecapacity, higher water holding capacity, higher carbon retention, low toxicity and low emissions. Various studies have been conducted to test the effect of biochar on crop yield and soil fertility. Field experiments were also conducted on both black soils and weathered lateritic soils for Soyabean and Jawar, that cover major area under cultivation. Our studies conclude that biochar has higher potential for yield improvement in weathered lateritic soils. The yield improvement observed in the studies are in range of 20 to 50 percent compared to unfertilized soils or other conventional soil amendments. Application rate of biochar upto 5 ton per hectare were tested in field studies. Our studies have shown use of vermin compost among organic fertilizers to have beneficial effect on plant growth. Thus we tested biochar co-amended with chemical fertilizers and vermin compost in pot trials. Effect on moisture retention characteristics of the control soil, with conventional chemical and organic fertilizers and with biochar and co-amendments is measured As the water holding capacity of soil improved due to use of Biochar, the net water demand for a crop decreased. This is particularly important in case of crops which are depended on rain water only.

Name of the Student : Sagar Gawande
Guide : Dr D D Sarode
Project Title : Sustainable Model for Waste Management in Small Towns

Abstract : Recently, waste in solid and liquid are the mainly environmental problems in many towns. In addition, the rapid development in industrial, service sectors and others sectors in India, to find the job opportunities the migration rate to cities is also higher in last two to three decades. This leads to the burden on the water supplies and water treatment in urban and semi-urban areas. The existing solid waste and wastewater treatment facilities in cities are functioning mainly due to use of modern techniques, availability of funds in Corporations and Governmental agencies. However in small towns budget of municipal councils is limited. Hence it is observed that in most of the cases untreated waste water is

directly disposed off in the natural water bodies like lake, ponds, rivers, creeks, sea etc. leads to unhealthiness of town and ultimately increases the load on medical expenditure.

On the other hand as freshwater becomes increasingly scarce, it is necessary to shift attention to alternative sources of water, particularly for the rural and semi-urban areas. A few examples of achieving the same is minimization of generation of waste water by reuse and recycling water. The phytoremediation often turns out to be a valuable alternative as decentralize wastewater treatment system, especially for managing large areas with diffuse pollution. Contamination of soil and water with organic or inorganic waste poses major environmental and human health problems. Over the last two decades, plant-based environmental remediation (i.e. Phytoremediation) has been widely pursued as a favorable clean-up technology, and is an area of intensive scientific investigation. As Phytoremediation is dependent on use of plants it is preferred in rural areas where ample land is available for development of wetlands without much requirement of funds for construction of conventional treatment plants which are difficult to maintain and operate.

Name of the Student : Avinash Phirke
Guide : Dr D D Sarode
Project title : Industrial waste for Development of Cement Composites for Low Cost Housing.
Abstract : Accumulation of industrial solid waste especially in developing countries has resulted in an increased environmental concern. Recycling of such wastes to make a sustainable construction material appears to be viable solution not only to reduce the problem of solid waste disposal, pollution problem but also an economical option to design and Construction of green buildings to overcome the shortage of housing. In view of utilization of fly ash, Blast Furnace Slag, Red mud from Bauxite industries, phospogypsum from fertilizer industries are used for developing sustainable construction material. Presently these waste materials in different compositions are used to develop Cement or its Composites. cement composite using industrial solid waste is useful to provide a potential sustainable solution. A novel technology of fly ash, bottom ash, silica fume, phospogypsum, red mud made cement composites is proposed to be developed to overcome limitations in existing technologies of concrete and bricks. In this project various low cost housing materials and techniques will be studied. Binary or tertiary mix of industrial waste will be used for development of suitable materials for construction of low cost housing material. The material developed should satisfy the strength requirement and its suitability under various climatic conditions.

Name of the Student : Rahul Deoulkar

Guide : Prof V R Gaval

Project title : Studies on Electrical properties of Mica and Flyash filled PPO Composites

Abstract : Polyphenylene oxide (PPO) is an engineering amorphous polymer having good dimension stability and widely used in the automotive and electrical industry. Application of PPO is very restricted because its cost is high as compared to the other thermoplastic polymer. Mica and Fly ash both are inorganic natural filler and are widely used as filler materials in polymer composite, since they are cheaper filler and easily available and save the final cost of the composite. Mica and fly ash enhances the mechanical properties and electrical properties like tensile strength, impact strength, and flexural strength, break down voltage, volume and surface resistivity, arc resistance and other properties like heat resistance capacity, heat deflection temperature and insulating properties concluded by the many researchers. Improvement in mechanical properties and thermal stability of the composite has achieved by use of inorganic filler in the polymer composite. In the present research work, Mica and Fly ash filled PPO composite of different concentration loading of filler which is 5% to 25%, were prepared by using untreated and surface treated of mica and fly ash with silane coupling agent. Mica and fly ash filled PPO composite with silane coupling agent and without coupling agent was compounded in single screw extrusion. For various compositions and test, samples were prepared from the compression molded sheet and these samples were tested for mechanical and electrical properties. The result shows enhancement in the Melt flow index, impact strength, tensile strength, arc resistance break down voltage surface and volume resistivity, improvement in the mechanical properties as well as electrical properties are seen when Mica and fly ash are treated with 3-aminopropyl tri ethoxysilane as compared to untreated Mica and fly ash filled PPO composite.

Project topics under Dr D D Sarode for Structural Mechanics Laboratory course to SYCE class

17CHE101	Junaid Gul Naikoo	A1	Glass Fiber polymer composites
17CHE102	Abdul Basit Abdul Salam Qureshi		
17CHE103	Abhigyan Ray		
17CHE104	Abhishek Kundu		
17CHE105	Abhishek - Bhardwaj		
17CHE106	Aditya Hemant Jain		
17CHE107	Aishwarya S Khandekar	A2	Use of Waste from Thermal power plant for low cost housing.
17CHE108	Akshaykumar D. Bhangari		
17CHE109	Alankrita Shreekant Patil		
17CHE110	Amitkumar H Chauhan		
17CHE111	Aniket Rajay Surwade	A3	Advance Testing of Materials
17CHE112	Ankit Balkrishna Kolpe		
17CHE113	Anosh M. Dumasia		
17CHE114	Apurva Ajay Pawar		
17CHE115	Arya Kirti Pavani	A4	Use of Red Mud for construction of Low cost Housing.
17CHE116	Ashlesha Girish Tiple		
17CHE117	Ashutosh Arvind Kulkarni		
17CHE118	Atharva V Suryavanshi		
17CHE119	Burhanuddin Husain	A5	Use of waste from Steel Industries.
17CHE120	Burhanuddin E Samiwala		
17CHE121	Chinmay P Deshpande		
17CHE122	Chinmayee P Sarode		
17CHE123	Chirag Mandar Mule		
17CHE124	Chirag Sanjay Jain	A6	Use of Natural Fiber Composites
17CHE125	Dev Pramod Malu		
17CHE126	Gautam Manoj Borkar		
17CHE127	Harsh Prakash Solanki		
17CHE128	Himanshu Prashant Sail		
17CHE129	Hrishikesh Girish Mane	B1	Use of Phospogypsum for construction of low cost housing.
17CHE130	Hritik Rakesh Jain		
17CHE131	Jay Dinesh Sankhe		
17CHE132	Joel Biju		
17CHE133	Kshitija Dipak Waikar		
17CHE134	Kunal Pralhad Magare	B2	Blended cement, its manufacturing and testing.
17CHE135	Lakshay - Vashist		
17CHE136	Madhur R Khadke		
17CHE137	Mahesh Subhash Patil		
17CHE138	Makarand R Jagtap	B3	Corrosion and its monitoring.
17CHE139	Mayur S Pimpalkar		
17CHE140	Merul Ritesh Shah		
17CHE142	Neha R Gadekar		
17CHE143	Niraj Devdas Bhavar		

17CHE144	Nirmit Shantilal Solanki	B4	Study of properties of fly ash ,pond ash and bottom ash.
17CHE145	Nitin R Karande		
17CHE146	Omkar Narayan Korke		
17CHE147	Palkita V Shahdadpuri		
17CHE148	Pranav Vinayak Mhatre	B5	Use of Agricultural waste for low cost housing.
17CHE149	Prasanna Prasad Khare		
17CHE150	Prateek S Badgujar		
17CHE151	Priyanka S Humane		
17CHE152	Purva H Paranjape		
17CHE153	R Ramya Raghunathan	B6	Bacterial concrete.
17CHE154	Rajarshi - Samajdar		
17CHE155	Rasik G Wathare		
17CHE156	Rushikesh G Rathod		
17CHE158	Sanil Govind Yadav	C1	Different techniques for low cost housing.
17CHE159	Sanket Bhojraj Dadmal		
17CHE160	Saurabh S Bagal		
17CHE161	Shantanu S Shembade		
17CHE162	Shrushti A Chaudhari		
17CHE163	Shruti Unnikannan	C2	Use of various polymers composite in Engineering applications.
17CHE164	Shubham G Wanje		
17CHE165	Srushti S Sindagi		
17CHE166	Siddhant Sanjay Mehta		
17CHE167	Siddhi Santosh Kotnis	C3	Use of different fibres in concrete
17CHE168	Sriram P Tendulkar		
17CHE169	Sukhada S Gharat		
17CHE170	Sumant Y Salphale		
17CHE171	Tanmay N Salvi	C4	Asphalt/ Bitumen and its composites.
17CHE172	Tushar P Chaudhari		
17CHE173	Uma G Kulkarni		
17CHE174	Vedant K Wankhede		
17CHE175	Vipul M Karekar	C5	Use of ferroconcrete for various applications
17CHE176	Yash G Barhate		
17CHE177	Yashraj S Jagtap		
17CHE178	Siddharth G Vaishnav		
17CHE179	Samiksha J Asawa	C6	Use of materials used for water ponds in farms,
17CHE180	Riddhesh N Kumtakar		
17CHE181	Meenal Shyam Rathi		
17CHE182	Sarvesh S Pandey		

Left to Right: Dr Lokesh Ramteke, Sagar Patil, Guruprasad Parulekar, S Raji, Prof D D Sarode, Avinash Phirke, Sagar Gawande

R O plant of 5000 lits/hr capacity set up near the lake at Ausa under DST project

Prof S P Deshmukh Research Groups

Dr. Prerna Goswami Research Groups

Left to Right: Mr. Bhushan Save, Mrs. Priyanka Sharma, Dr. Prerna Goswami, Mrs. Sangeeta Kotecha Jain

More Photographs for various activities

Visit of Collector of Latur, Tahsildar and Chief officer to Project

Visit of Industry personal and faculty of ICT to BIT Mesra under TEQIP III

Visit of Industry Personal to BITS Mesra under TEQIP III

Participation of facutly of ICT and M E/Ph D students in National Conference at GCE Keonjhar

Participation of faculty and ME/ PhD students of the department in National Conference at Govt Engg College, Keonjhar