NIRZER

NEWSLETTER OF MECHANICAL ENGINEERING DEPARTMENT

Volume 13 issue 1 and 2, July 2022-June 2023, Mechanical Engineering Department, GEC

EVENTS & ACTIVITIES

DEPARTMENTAL NEWS

COURSES ATTENDED

Dr. MILIND SAKHARDANDE

- **SELF LEARNING USING ONLINE RESOURCES**, NITTTR EXTN CENTRE, PORVORIM, 4th TO 8th JULY 2022, 01 WEEK
- **WASTE TO ENERGY & BIO FUELS**, 14th TO 25th NOVEMBER 2022, ATAL FDP, 02 WEEK
- **ENERGY FROM WASTE**, NITTTR EXTN CENTRE, PORVORIM, 20th TO 22nd DECEMBER 2022, 03 DAYS
- **RTI & CCS RULES**, NITTTR EXTN CENTRE, 10th TO 12th JANUARY 2023, 03 DAYS
- **EFFECTIVE STRESS MANAGEMENT**, NITTTR EXTN CENTRE , 2nd TO 4th MAY 2023, 03 DAYS

Dr. JAGANNATH HIRKUDE

- **ENERGY FROM WASTE**, NITTTR EXTN CENTRE, PORVORIM, 20th TO 22nd DECEMBER 2022, 03 DAYS
- **SELF-LEARNING USING ONLINE RESOURCES**, NITTTR EXTN CENTRE, PORVORIM, 4th TO 8th JULY 2022, 01 WEEK
- **PROGRAMMABLE LOGIC CONTROLLER**, NITTTR EXTN CENTRE, PORVORIM, 10th TO 12th APRIL 2023, 03 DAYS
- **AIR CONDITIONING FOR ELECTRIC VEHICLES**, NITTTR EXTN CENTRE, PORVORIM, 24th TO 28th APRIL 2023, 01 WEEK

Dr. B.S.MANOHAR SHANKAR

- **WASTE TO ENERGY & BIO FUELS**, ATAL FDP , 14th TO 25th NOVEMBER 2022, 02 WEEK
- **PROGRAMMABLE LOGIC CONTROLLER**, NITTTR EXTN CENTRE, PORVORIM, 10th TO 12th APRIL 2023, 03 DAYS

Dr. RAGHAVENDRA DATTA NAIK

- **WASTE TO ENERGY & BIO FUELS**, ATAL FDP , 14th TO 25th NOVEMBER 2022, 02 WEEK
- **PROGRAMMABLE LOGIC CONTROLLER**, NITTTR EXTN CENTRE, PORVORIM, 10th TO 12th APRIL 2023, 03 DAYS
- **RUBRICS FOR ASSESSMENT OF PROJECT WORK, PROBLEM BASED LEARNING AND INDUSTRIAL TRAINING,** NITTTR EXTN CENTRE, PORVORIM, 12th TO 14th OCTOBER 2022, 03 Days.

- **RECENT TRENDS IN AUTOMOTIVE TECHNOLOGY**, NITTTR EXTN CENTRE, PORVORIM, 26th TO 30th DECEMBER 2022, 01 Week
- **EFFECTIVE STRESS MANAGEMENT**, NITTTR EXTN CENTRE , 2nd TO 4th MAY 2023, 03 DAYS

OTHER DEPARTMENTAL ACTIVITIES/ NEWS

- Dr. Suraj Rane and Dr. Milind Sakhardande : Session Chair at 23rd IBUSH & ICRTETBM, Amity University, Noida, Feb 23.
- Dr. Suraj Rane delivered talk on "Optimization of Tyre Manufacturing process using Green Value Stream Mapping" at 3rd International Conference on Recent Trends in Engineering, Technology and Business Management (ICRTETBM 2024) organized by Amity University, Noida, Feb. 21-23, 2024.
- Dr. Jagannath Hirkude coordinated two week AICTE national Level ATAL Faculty development program on Waste to Energy and Biofuels, 14th – 25th November 2023 at Goa College of Engineering (Rs. 300000/- funding received from AICTE New Delhi)
- RESOURCE PERSON in the AICTE Training And Learning (ATAL) Academy FDP on "Waste to Energy and Biofuels" at Goa College of Engineering 14th – 25th November 2023.
- Dr. B.S.Manohar Shankar was GCET 23 centre representative on 13th – 14th may 2023
- Dr. B.S.Manohar Shankar acquired PLC based electropneumatic trainer for mechatronics lab

INVITED/GUEST LECTURES

Dr. Milind Sakhardande delivered a Lecture on Supply Chain Management - Concepts and Applications to the students of Amity Institute of Information Technology on 23rd February 2023 at Amity University, Noida.

PAPERS PRESENTED/ PUBLISHED/BOOK CHAPTERS

JOURNAL PUBLICATIONS

- Sidhesh Sudarshani & Milind Sakhardande "Rotator cuff treatment ranking using the COPRAS method". International Organization of Research & Development, IORD, www.iord.In, Research and Development, 10(1). Retrieved from https://iord.in/index.php/iord/article/view/114 (July 2022) ISSN: 2348-0831
- Chirag Gaude & Milind Sakhardande. "The Integrity of Reverse Supply Chain using Blockchain Technology". International Organization of Research & Development, IORD, www.iord.In, Research and Development, 10(1). Retrieved from https://iord.in/index.php/iord/article/view/121 (July 2022) ISSN: 2348-0831
- Shruti Khairnar & Milind Sakhardande. "Optimization of Combined Energy Usage: A Case in Healthcare Industry". International Organization of Research & Development, IORD, www.iord.In, Research and Development, 10(1). Retrieved from https://iord.in/index.php/iord/article/view/120 (July 2022) ISSN: 2348-0831
- Dwarkanath Aiwale & Milind Sakhardande. "Optimal Location Selection For a Hazardous Facility Using R Method", Industrial Engineering Journal 15 (11), 29-33, November 2022

CONFERENCE PAPER PUBLICATION

- Prasad Desai & Milind Sakhardande, IoT in Transportation Systems, 23rd IBUSH & ICRTETBM, Amity University, Noida, February 2023
- Archit Borkar , shubham Bene, Mahesha Gonal, B S Manohar Shankar, Impact of materials on performance of vine robot, IOP conf ser., Mater. Sci. Eng., 1291 012031
- Dr. Jagannath Hirkude, "Review paper on Improvement of Heat Transfer Characteristics in AHU system using natural fibers, additives and novel methods" at National Conference

on Multidisciplinary Approach in Engineering, Science and Management at Trinity Academy of Engineering, Pune, 24th – 25th February, 2023.

- Dr. Jagannath Hirkude, "Energy and cost assessment of central air-conditioning plant with thermal storage at commercial complex" in India at 2nd International conference Advances in Mechanical Engineering (ICAME -2022) organized by Mechanical Engineering Department of College of Engineering, Pune, 23rd – 25th June, 2022.
- Dr. Jagannath Hirkude, "Review of Evaporative cooling characteristics for pottery indigenous materials" in International Conference on Advances and Creations in

FIELD VISIT TO NETZSCH TECHNOLOGIES PVT. LTD. VERNA

Mechanical Engineering 2022 (ICACME 2022) organized by Technology Research and Innovation Centre, India and hosted by the Department of Mechanical Engineering and Department of Automation and Robotics, Pravara Rural Engineering College, Loni, India, 20th – 22nd December, 2022.

An industrial visit was planned to M/s. Netzsch Technologies Pvt. Ltd. Verna, Goa on 27th May, 2023 for T.E. Mechanical students. The visit was planned and organised by the Head of Mechanical Engg. Dept., Dr. Suraj Rane. 24 students were accompanied by Dr. Harischandra Chandekar, Assistant Professor in Mechanical Engineering Department.

M/s. Netzsch Technologies Pvt. Ltd., a pumping equipment supplier has been developing, producing and distributing positive displacement pumps worldwide for more than 70 years. The field visit began with a brief company introduction right from the inception to the recent times by the HR manager Mrs. Raileen Rego. Company produces positive displacement pumps viz. progression cavity, rotary lobe, multi-screw pumps, etc. The introduction session ended with the safety instructions to be followed in the factory premises.

The students were divided in two batches and were taken around the shop floor by the senior production engineers, Shri Somnath Sulakar and Shri Malappa Pujari. Firstly, the raw material loading area was shown where acceptance sampling is done. Next, the section where the Stainless Steel (SS) rods are cut to the required dimension was shown. Then, a 3-axis CNC machine was shown, which is used for operations like turning, and facing the SS rotors of the pump called roughton. Further, a 4-axis CNC machine was showed, which is used for production of rotor that has a hole drilled perpendicular to

rotor axis. After machining, the roughton is made into a helical shape on a special purpose machine in whirling operation. The machine is mainly used for large rotors; for small rotors a manual machine is used.

In the storage section, the pump parts are stored in serial numbers tagged bins for hassle free sorting and tracking of parts during the assembly process and also to keep track of the stock.

In the welding section, two types of welding processes, TIG and MIG were in use. The MIG welds are used for base frames of the pumps while TIG is used to weld pump body parts where good finish is required. The different types of pumps were shown and their uses were explained. The Company's most popular product is 'Progression Cavity Pump', which used in most industries for viscous fluids like slurry. The main components of it are a rotor and a stator. The other types of pumps were rotary lobe pumps and multi-screw pumps. In the pump testing section, the performance testing of pump is undertaken to test their product to meet customer specifications of flow and delivery pressure. At the painting station the pumps are painted and dried in an oven cubicle. After the product is manufactured, the process of packing their products was shown. They also fulfil their customers customized requirements as per the needs.

The key learning experience from the field trip was witnessing the entire manufacturing process of Netzsch® progression cavity pump right from the raw stock to finished product including the testing of the pump.

FIELD VISIT TO MACBROUT ENGINEERING PRIVATE LIMITED

On May 27th, 2023, a group of 21 students from the Mechanical Engineering Department of Goa Engineering College accompanied by Dr. B. S. Manohar Shankar and Mr Caitano

Periera visited Macbrout Engineering Private Limited, an aviation and aerospace company located in Margao, Goa, India.

The purpose of the visit was to provide the students with practical exposure to the industry and enhance their understanding of aviation and aerospace manufacturing processes.

The visit commenced at 10:15 A.M., and the group was received by Mr. Gilroy Coutinho, who gave a bried information about the company and and showed a mission statement video.

Mr. Coutinho's introduction provided valuable insights into the company's background, emphasizing its focus on aviation and aerospace components manufacturing. He highlighted the use of materials such as titanium, stainless steel (SS), Inconel, and aluminum in their manufacturing processes. Additionally, he mentioned the company's major products, which include compressor blades and nozzle rings for turbochargers.

The students were particularly interested to learn that Macbrout Engineering Private Limited serves renowned customers like Pratt and Whitney & Cummins.

Following the introduction, the group was given a comprehensive tour of the shop floor by Earl Alemao, the project coordinator. Earl Alemao explained the various machines and equipment used in the manufacturing process, providing valuable insights into the company's operations.The students observed several notable machines during the tour, which included:

1. HASS MULTIGRIND: This versatile machine showcased the grinding and shaping capabilities required for manufacturing components in the aviation and aerospace industry.

2. HAMUEL – HSTM 150: It played a significant role in the production of specialized parts.

3. Coordinate Measuring Machines (CMM): The students had the opportunity to observe CMM machines from Wenzel and Hexagon, which are commonly used for precise measurements and inspections in precision engineering.

Furthermore, the students noticed an automated process in the nozzle ring section, where a robotic arm manufactured by Fanuc was employed. This demonstration of automation provided the students with insights into the use of advanced technologies in manufacturing, enhancing efficiency and precision.

During the tour, the company also showcased various tools used in CNC (Computer Numerical Control) machining. The students were introduced to tools such as flat end, bull cutter, and ball end, gaining an understanding of their specific applications in the manufacturing of components.

As part of the visit, the students were shown demo pieces of different components, including impellers, compressor stage blades, nozzle rings, and various tools. These demonstrations allowed the students to observe and appreciate the intricate details involved in the manufacturing process and the level of craftsmanship required. It is worth noting that the shop floor maintained a temperature of 22 degrees celsius, providing an optimal environment for precision engineering.

Overall, the visit to Macbrout Engineering Private Limited was an enriching experience for the 21 students from Goa Engineering College. The tour of the well-maintained shop floor, exposure to advanced machinery, and interaction with industry professionals provided valuable insights into aviation and aerospace manufacturing processes. The visit served as a platform for students to bridge the gap between theory and practice, fostering a deeper understanding of the industry and its operations.

Report prepared by Mr. Bens S Abraham, TE Mech

SPORTS DATA 2022-2023

Name of student	Event	Class	Result
PRATHAMESH NARVEKAR	Table Tennis	B.E.	3rd Round
CHAUDHARI JANYA	Chess	B.E.	9th Place
TOSHITH AROLKAR	Taekwondo	B.E.	Winner
GAURAVI S. GAWADE	Football	T.E.	3rd Round
MOHAK BHANDARI	Swimming	T.E.	Winner
SWAPNIL P. SAWAL	Powerlifting	T.E.	1st Round
DASHRATH MANGELKAR	Badminton	T.E.	Winner
CALEB J. ALVARES	Football	T.E.	2nd Round
NOOR UL SAMAD KHAN	Football	T.E.	2nd Round
OMKAR GAUDE	Football	T.E.	2nd Round
DHRUV V. PATIL	Football	S.E.	2nd Round

DEEPANSHU P. CHIMULKAR	**Cricket**	**B.E.**	**2nd Round**
NAIK KAMLAKAR S.	**Cricket**	**B.E.**	**2nd Round**
GANDHAR S. THAKUR	**Cricket**	**B.E.**	**2nd Round**
OM FADTE	**Cricket**	**T.E.**	**2nd Round**
SARAS S. KUDALKAR	**Cricket**	**T.E.**	**2nd Round**
ANUJ S. NAIK	**Cricket**	**T.E.**	**2nd Round**
AJINKYA A. CHARI	**Cricket**	**T.E.**	**2nd Round**
TUSHAR S. GHATWAL	**Cricket**	**F.E.**	**2nd Round**
RAJAT N. DALAL	**Cricket**	**F.E.**	**2nd Round**
GAURAVI GAWADE	**Cricket**	**T.E.**	**2nd Round**
PRANAV GANIPISETTY	**Basketball**	**B.E.**	**Semi Final**
ROHIT DA COSTA	**Basketball**	**B.E.**	**Semi Final**
PRATHAMESH NARVEKAR	**Basketball**	**B.E.**	**Semi Final**

Toshith Arolkar from BE Mechanical won 1st place at the University Level Taekwondo Championship 2022. He competed in the men's 68 Kg weight category and won a total of 3 matches before winning the title

ATAL FDP on " WASTE TO ENERGY AND BIOFUELS"

The two week ATAL Faculty Development Programme FDP on "Waste to energy and biofuels" was organized by Mechanical Engineering Department of Goa College of Engineering from 14/11/2022 to 25/11/2022. The delivery of all the sessions were technically well organised. This was attended by faculty members from various technical and non – technical institutions from the country along with representatives from industry and research scholars. The resource persons were eminent persons from academic institutions/industries of repute from India.

Schedule of AICTE – TEACHING AND LEARNING ACADEMY (ATAL) FDP on "WASTE TO ENERGY AND BIOFUELS" (14th November – 19th November 2022) Online / (21st November – 25th November 2022) Offline

Day	Time	Session	Name/Title	Resource Person
1	7:00 pm – 8:45 pm (Online Mode)	1	Biofuels – Prospectus and Challenges	Dr. Jagannath Hirkude, Professor, Goa College of Engineering.
	9.00 pm – 9.30 pm		Session 1 Interaction	
2	7:00 pm – 8:45 pm (Online Mode)	2	Biogas generation by anaerobic digestion: method to increase the production	Dr. Dinesha P, Manipal Institute of Technology, Karnataka
	9.00 pm – 9.30 pm		Session 2 Interaction	
3	7:00 pm – 9:30 pm (Online Mode)	3	Bio-CNG as alternate fuel for Indian Railways	Dr. Kumar G N, National Institute of Technology Karnataka, Surathkal
	9.00 pm – 9.30 pm		Session 3 Interaction	
4	7:00 pm – 9:30 pm (Online Mode)	4	Energy Auditing and Conservation	Mr. T. Sankaranarayanan, Accredited Energy Auditor, BEE, India
	9.00 pm – 9.30 pm		Session 4 Interaction	
5	7:00 pm – 9:30 pm (Online Mode)	5	Bioethanol from Agricultural Waste	Dr. Sachin Kumar, Scientist, National Institute of Bio-Energy, Kapurthala, Punjab
	9.00 pm – 9.30		Week 1 MCQs	Coordinator
6	7:00 pm – 8:45 pm (Online Mode)	6	National Education Policy Implementation	Dr. Rajesh B. Lohani Goa College of Engineering
	9.00 pm – 9.30 pm		Session 6 Interaction	
	9.30 am to 11.00 am	7	Alternate material for Green Buildings	Dr. Purnanand Savoikar, Professor, Goa College of Engineering

7	11.30 am to 1.00 pm		Article 1 Review	
	2.00 pm to 4.00 pm	8	Energy Conservation in Power & Process Industries using Novel Finned Cyclone Separators	Dr. Ranjit S. Patil, Birla Institute of Technology & Science (BITS) Pilani - K K Birla Goa Campus
8	9.30 am to 11.00 am	9	Combustion and emissions in the context of waste to energy	Dr. Anirudha Ambekar, IIT Goa
	11.30 am to 1.00 pm		Article 2 Review	
	2.00 pm to 4.00 pm	10	Waste water Treatment	Dr. Ulhas Sawaiker, Professor, Goa College of Engineering.
9	9.30 am to 11.00 am	11	Biodiesel from Waste Fried Oil	Dr. Jagannath Hirkude, Professor, Goa College of Engineering.
	11.00am to 1.00 pm		Visit to NIO Goa	
	2.00 pm to 5.30 pm		Visit to Solid Waste Management Plant, Saligao, Goa	
10	9.30 am to 11.00 am	12	Bio-gasification	Dr. Suresh Mane, Principal, D Y Patil College of Engineering, SN, Kolhapur
	11.15 am to 1.00 pm	13	Research Methodology	Dr. Rajesh Lohani, Principal, Goa College of Engineering.
	2.00 pm to 3.00 pm		Reflection Journal	Coordinator
	3.00 pm to 4.30 pm		Laboratory Session	
11	9.30 pm to 12.00 pm	14	Solid Waste Management System in Goa	Shri. Abhinav Apte, Director, Track Change LLP
	2.00 pm to 5.00 pm		MCQ Test/ Feedback/Valedictory Session	Coordinator

Inauguration Ceremony
21/11/2022

Inuguration

DETAILS OF RESOURCE PERSONS

1. DR. RAJESH BASANT LOHANI, Principal and Professor, Goa College of Engineering

B.E and M.E in Electronics Engineering. PH.D from IIT BHU in the year 1998. Currently working as Professor in the Electronics and Telecommunication Department of Goa College of Engineering. Teaching experience of more than 30 years. Area of Interest : Optical Devices, Electronic Devices & Circuits, Process Control Instrumentation. Subjects Taught: Optical Devices, Electronic Devices & Circuits, Process Control Instrumentation, Bio-medical Engineering. 30-papers (Conference, National and International Journals), 20– Master Degree Students, 3-Ph.D Students

2. SANKARANARAYANAN THIRUGNANA SAMBANDAN, Accredited Energy Auditor

Post Graduate professional training in Energy Management from Ambedkar Institute of Productivity (AIP) National Productivity Council's Training Institute, Chennai. BE (Electrical & Electronics) from University of Chennai. •BEE certified Energy Auditor - 689 - EA 1576. BEE accredited Energy Auditor – AEA 0107, 5 day course on ISO 50001 by SGS. Completed training programme on M & V protocol. Completed Training programme on Food safety. Four weeks special training on Power Plant Operation and Maintenance at Power Engineers Training Society (PETS), Neyveli, Chennai. Energy Management training course (with special reference to new and energy efficient technologies) at Tokyo, Japan organised by Asian Productivity Organisation (1995)

3. Dr. ULHAS SAWAIKER, Head, Mining Dept. Goa College of Engineering

He has pursued his B.E. in Civil Engineering from Goa College of Engineering, Goa University in the year 1992. He has completed his M.Tech. in Environmental Engineering in 2002 from KLE Belgaum under VTU. He did his PhD in Environmental Science and Engineering from IIT Bombay. He is currently working as Professor in Civil and Mechanical Engineering Department of Goa College of Engineering. He is having 25 years of teaching experience. Area of Interest: Environmental Engineering, Solid waste management, Industrial waste treatment, Air Pollution, Building Planning and Design

4. Dr. PURNANANDSAVOIKAR, Professor, Goa College of Engineering

Dr. Purnanand P Savoikar is working as Professor in Civil Engineering in Goa Engineering College since August 2014. He earned his Ph D in Geotechnical Earthquake Engineering from IIT Bombay in 2009. He is having industry experience of 04 years and teaching experience of 24 years. He has served as Secretary (Board of Technical Education) Goa and Deputy Director (Technical Education) Goa and was member of Goa State Expert Appraisal Committee from 2010- 2016. He has published 16 International Journal papers, 110 International Conference papers and 47 National Conference papers. He is reviewer of several International Journals and conferences. He is the co-author of book "Textbook of Concrete Technology" published Creative Books, New Delhi in 2021. He is also co-author of book "Geotechnical Characteristics of Soils and Rocks in India" published by Taylor and Francis, UK.

5. Dr. SURESH MANE, Principal, D. Y. Patil Prathisthan College of Engineering, Kolhapur

Prof Suresh D. Mane Graduated in Mechanical Engineering from Karnataka University and joined Indian Railways immediately. After serving Railways for 15 years he went on to complete his masters (M.Tech) in Energy Systems Engg from BVB College of Engineering Hubli in Karnataka and secured first class with distinction and third rank in the university in 2007. He has presented papers in IITs, IISc Bangalore and other institutions of international repute. He is certified Energy Manager and Certified Energy Auditor, BEE, bearing No 8061.

6. Dr. KUMAR G. N. Associate Professor, NITK , Surthakal, Karnataka

Dr. Kuman G. N., has PhD in Mechanical Engineering from IIT Delhi (2011) and MTECH in Heat and Power from KREC from Surthkal (1999). He did his B. E. in Mechanical Engineering from Bangalore University (1996). His area of research is Alternative fuels for IC engines, Simulation of IC engines,and Heat Transfer.

7. Dr. DINESHA P., Associate Professor, Manipal Institute of Technology

Prof. Dinesha P, has BE, MTech, PhD, and works as Associate Professor in Department of Mechanical and Manufacturing Engineering, MIT. He is department coordinator - IET - Industrial and Production Engineering. Department coordinator - Faculty research activities. He is department coordinator - UG/PG/PhD research. His area of interest is Biomass Waste Management; Bioenergy Management; Alternative Fuels; Renewable Energy Technology.

8. Dr. SACHIN KUMAR, Scientist, National Institute of Bio Energy, Kapurthala , Punjab

Dr. Sachin Kumar is a Deputy Director in the Biochemical Conversion Division at the Sardar Swaran Singh National Institute of Bio-Energy, Kapurthala, India. He was as a Visiting Professor in the Department of Chemical and Biological Engineering at South Dakota School of Mines and Technology, Rapid City, USA for a year. He obtained his Ph.D. in Chemical Engineering from Indian Institute of Technology, Roorkee, India and has more than seventeen years of research experience in Biochemical Conversion of Biomass to Biofuels including lignocellulosic ethanol, biogas, biohydrogen, etc. He has completed eight research projects and one consultancy project and actively engaged in on-going research projects. Dr. Sachin has published more than 60 papers in peer reviewed journals, book chapters and papers in conference proceedings and 7 edited books. He has one granted US patent and one filed Indian patent.

9. Dr. JAGANNATH HIRKUDE, Professor, Goa College of Engineering, Goa

Completed his graduation from PVPIT Sangli in Mechanical Engineering in 1995, MTech in Energy Systems Engineering from IIT Bombay and PhD in Mechanical Engineering from University of Pune. He is also certified Energy Auditor by Bureau of Energy Efficiency. He is having 25 years of teaching experience with 2 years of Industrial Experience. He is presently working as Professor in Mechanical Engineering Department at Goa College of Engineering, Government of Goa. He has published more than 30 papers in different International conferences and International Journals. His published work is published in reputed referred Elsevier Journals like Applied Energy, Fuel, Fuel Processing Technology, Energy Procedia etc. He is also in Editorial member and reviewer of different International Journals. He is areas of Interests are Thermal Engineering, Energy Systems Engineering, Alternate fuels and Energy Management

10. Dr. RANJIT S. PATIL , Associate Professor, BITS Pilani - Goa Campus

Dr. Ranjit S Patil did PhD (Energy) at IIT Guwahati and worked on Circulating Fluidized Bed Heat Exchangers. Further he worked as Post Doctoral fellow researcher at ENEA Nuclear Research Centre, Italy. He did research in the area of Energy & Process Heat Transfer in Two Phase Flow domain of Microtubes at ENEA. He did ME in Mechanical Engineering (Government College of Engineering Karad, affiliated to Shivaji University) with specialization in Heat & Power Engineering. During the tenure of research work related to ENEA Italy, he has visited to France (Paris), Austria, Hungary, Switzerland. Last twenty one years he is working in the field of Fluid and Thermal Engineering for research and teaching. He has published papers in well known - reputed International conferences held at IITs, IISc Bangalore, attended conferences held at abroad - at Imperial College London UK, Bangkok Thiland, Krakow Poland, USA, Seoul South Korea, Dubai - UAE etc.

11. Dr. ANIRUDHA AMBEKAR, Assistant Professor, Mechanical Engineering, IIT, Goa

Dr. Anirudha Ambekar received his doctoral degree and Master's degree from IIT Bombay in 2015 and 2007 respectively. His doctoral research was on the topic of combustion characteristics of liquid monopropellants. He was a Post-doctoral Research Fellow at Seoul National University from 2015 to 2018 where he worked on various solid composite energetic materials. He has been working as an Assistant Professor in the School of Mechanical Sciences at IIT Goa since May 2018. He typically works on application-oriented projects involving experimental combustion diagnostics. His research interests include experimental combustion, propellant characterization, chemical kinetics and aging of energetic materials, pollution reduction and optimization of energy conversion systems, alternative fuels, and sustainable combustion.

12. Mr. ABHINAV APTE, Director (Track Change)

A Mechanical Engineer, MBA and Certified Energy Auditor, Abhinav has 13 years of Industrial experience out of which more than 5 years are in the field of Environment. As a General Manager of Lila Environmental Solutions, his vision is for the organization to become a leader in sustainable solutions with a core focus on "Water". Lila, a company based in Panaji, offers solutions in Rainwater Harvesting, Sewage and Effluent Treatment, Efficient Plumbing Solutions and Micro Irrigation (drip and sprinkler) Solutions. The company has executed key projects in these areas for both Government & Corporate clients in Goa.

REPORT ON ORIENTATION PROGRAM 2022 FOR FIRST YEAR MECHANICAL ENGINEERING STUDENTS

Duration: 14 to 18 November 2022, Time: 2.00 to 5.00 P.M.

Venue: Seminar Hall of Mechanical Engineering department

DAY/DATE	2.00-2.45 P.M	2.45-3.30 P.M.	3.30-4.15 P.M.	4.15-5.00 P.M.
MONDAY 14-11-2022	NCC/NSS/ Sports Lt. Anand , Prof. Ganesh Manerkar and Prof. Mahesh Caisucar	Interaction with student chapters of Professional Society Prof. Jagannath Hirkude Prof. Mahesh Dhawalikar	Cultural activities, Students Club: Drama Circle/Music club/ Photography Club/ GEC Coders Club/GEC FOSS Club/ Quiz Club/ Astronomy Club etc Prof Milind Sakhardande and Prof. Purti Savordekar	Address by HOD, Introduction of faculty, staff and Self intro by students Mechanical Engineering Department
TUESDAY 15-11-2022	CBCS – AICTE Scheme & Syllabus, NPTEL courses and Credits Prof. Jagannath Hirkude	Exam + University matters+ NPTEL courses Prof. Anant Naik, Mr Ketan Naik, Ms Manisha N. Gaunker	Lecture on Outcome Based Education: Vision, Mission, Program objectives, Program Outcome etc Prof. Suraj Rane	Yoga Mr Sanjay Naik
WEDNESDAY 16-11-2022	Interaction on career planning - Project/ Industry /Research Prof. Akshay Nigalye	Disciplinary Issues & Mentoring Prof. Manohar Shankar Bhatt	Library + hostel Ms. Smita Dessai , Hostel Warden	Lecture on NEP Prof. Mahesh Dhawalikar/ Prof. Vinayak Shet
THURSDAY 17-11-2022	Placement /internship Prof. Teslin Jacob, Prof. Milind Sakhardande	Lecture on Stress Management About Life, Holistic Development, Universal Human Values, Ethics and Human behaviour Dr. Aditi Mahajan		Interaction with Alumni Mr. Sumukh Kamat
FRIDAY 18-11-2022	Interaction with MOU partners/industry Linkage Mr. Kiran Desai	Resource Management – Time, Money, Facilities, Friends Prof. Vivek Belokar	Complaint/Grievance Redressal Mechanism Internal complaint committee, RTI Prof. B.R.Kulkarni, Prof Aisha Fernandes	Department Activities, feedback on orientation programme Prof. Suraj Rane and Prof Shridhar Mhalsekar

An orientation program was organised for First Year Mechanical Engineering students from 14th to 18th November 2022. Head of Mechanical Engineering department Prof. Suraj Rane welcomed the students and presented to them a roadmap to become good Mechanical Engineers. Students were introduced to the faculty members of the department. The program consisted of sessions on various topics by senior faculty members from the Institute and experts from industry and social field. There were sessions to introduce the students to academic matters including Outcome Based Education, AICTE Scheme, Examinations and National Education Policy. Students were given information about student chapters of Professional Societies and various students clubs, NCC, NSS and Sports activities which can help in their all-round development. There were sessions to expose the students to Library and hostel facilities and about Placement and Internship. Program included inputs on career planning, mentoring and disciplinary issues and Yoga. Dr. Aditi Mahajan who is a medical practitioner and Art of Living Teacher delivered a session on Stress Management Holistic Development, Universal Human Values, Ethics and Human behaviour. Mr. Sumukh Kamat who is a proud Alumina of Goa College of Engineering presented his journey from his college days to becoming a successful professional. There was a presentation by our MOU partner Mr. Kiran Desai, Vice President, Deccan Fine Chemicals. Interactions with with Dr. Aditi Desa, Mr. Sumukh Kamat and Mr. Kiran Desai were enriching experiences for the students.

Holistic Development : Dr. Aditi Desai

Interaction with Alumni : Mr. Sumukh Kamat on his life journey

NBA visit July 2022

NBA evaluators' team visited the institute from 1- 3 July 2022. Mechanical Engineering Department was accredited from the Academic Year 2022-23, 2023-24 and 2024-25, i.e., upto 30-06-2025.

BE Farewell 2022

Farwell of Mr. Waman Gaonkar, MTS

Tour to watch FIFA U17 Women's World Cup match

Cleanliness Drive on 2nd October 2022

Seminar on Entrepreneurship Essentials

Mechanical Engineering Students' Association, in association with Wakao Foods, Taleigao-Goa, organised a seminar on "Entrepreneurship Essentials" on 30th March 2023, in the Auditorium of Mechanical Engineering Department, Goa College of Engineering, with an objective to motivate youngsters to do something of their own and to contribute to the national income and wealth. The Speaker for the seminar was Mr. Sairaj Dhond, Founder and CEO of Wakao Foods.

Talk on Block Chain Enabled SCM

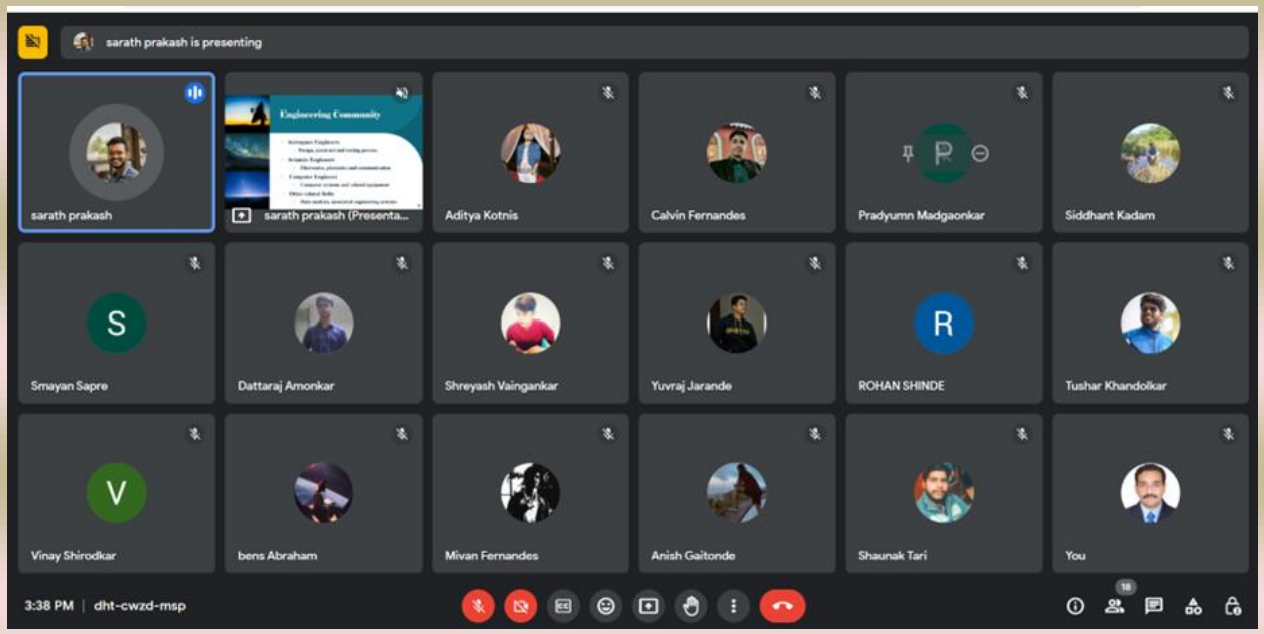
Dr. Santosh B Rane, Faculty and former Dean Academics, Sardar Patel College of Engineering, Mumbai, delivered a talk on Blockchain enabled Supply Chain Management on 12th May 2023.

Talk on Career Opportunities in Marine Engineering

A talk on Career Opportunities in Marine Engineering was delivered by Mr. Heston Dias, Lecturer, Institute of Maritime Studies, Vasco, on 18th May 2023.

Webinar on Career Opportunities in Space Science

A webinar on Career Opportunities in Space Science was delivered by Mr. Sarath K. P. Senior Research Fellow, Aerospace Engineering Department, Indian Insitute of Space Science and Technology, Thiruvananthapuram, Kerala on 1st June 2023.



Torque 2023

The annual department technical event TORQUE 2023 was held during 24th to 25th May 2023. The event was inaugurated by Mr. Vinay Chopra, MD of De Nora India, Kundaim, Goa. In 2023, Mechanical Engineering Students' Association completed 30 years, this millestone occasion was also celebrated during this event.

World Environment Week -June 2023

STUDENTS INTERNSHIP: ACADEMIC YEAR 2022-23

INTERNSHIP 2022 DATA			
	MENTOR	**INDUSTRY**	**NAME OF STUDENTS**
1	**Dr. Suraj Rane**	**1.Godrej and Boyce**	1 Dattaraj Deepak Amonkar
			2 Tushar Ganesh Khandolkar
			3 Yuvraj Rajesh Jarande
			4 Satkar Shankar Sarvankar
			5 Rohan Mitraraj Naik
			6 Sohan Dattakumar Naik
			7 Sanmesh Sanjay Shetge
			8 Ramachandra Gawde
			9 Prathamesh S. Narvekar
			10 Ninad K. Khade
			11 Gandhar S. Thakur
			12 Gokul Devidas Sutar
			13 Ishwar D Shirodkar
			1. Saharsh Sail
			2. Vedanth Pagi
			3. Pranav Ganipisetty
			4. Heramb Chari

2	**Dr. Akshay Nigalye**	**Goa Shipyard Ltd.**	5. Manthan Halarnkar
			6. Ankit Kewat
			7. Ashutosh Kumar
			8. Ankit Yadav
			9. Neville Richie Rodrigues
			10. Mevan Faria
			11. Leonel Peter Colaco
			12. Gangesh Krishna Velip
			13. Chetan Kavlekar
			14. Prateek Naik
			15. Kishan Naik
			16. Shriraj Gaude
			17. Siddesh Walawalkar
3	**Dr. Vnay Shirodkar**	**1. Jyoti CNC Automation Ltd-Rajkot Gujrat**	1. Calvin Fernandes 2. Aditya Kotnis
		2. L & T MHI Power Turbine Generators Pvt. Ltd.,Surat-Gujrat	1 Anirudha R. Fal Dessai
4	**Dr. Jagannath Hirkude**	**1. SIEMENS**	1. Tejas Lawande
			2. Ashish Raikar
		2. Syntegon Technology India Pvt. Ltd.	1 Omkar Ajgaonkar
5	**Dr. Milind Sakhardande**	**1. RUTUTEK**	1. Ambar Gaad
			2. Amey Mandrekar
			3. Harsh malik
			4. Deepanshu Chimulkar
		2. Khalil Bahman & Partners	1 Kevin Alex Godinho
6	**Dr. Shridhar Mhalsekar**	**1. Strategic Learning Solutions,Verna**	1 Mohit R. Painginkar
		2. IFB Industries Ltd	1 Anish D.S. Gaitonde
7	**Dr. Mahesh Caisucar**	**1. Pai Kane Group**	1. Amogh N Parab
			2.Hruturaj Nagvekar
			3. Raj Ravindra Parab
			4. Vithal kerkar
		2. 3B Goa Glass Fibre Ltd	1. Varun Pramod Desai
			2. Saichetam Mahesh Chari
8	**Dr. Hari Chandekar**	**1. Zuari Industries Ltd.**	1. Vasudev Vaze
			2. Toshith Arolkar
			3. Sakshi Shet
			4. Yash Malik
			5. Harshad Zangli

		2. DRDO Bengaluru	1 T. Athul
9	**Dr. Raghavendra Naik**	**1. Astra Metal Systems**	1. Soham Sawant
			2. Plizbon Fernandes
			3. Siddhant Kadam
			4. Sanket Haldankar
			5. Vishwesh Pai
		2. Phillips Machine Tool India Pvt. Ltd. Pune	1 Jonathan Christopher Pereira
10	**Prof. Balkrishna Chodankar**	**1. MRF**	1. Shreyash Vaingankar
			2. Vedant Naik Jalmi
			3. Nehal Yoganand Shet Kanekar
			4. Kamlakar Sunil Naik
			5. Abhishek Chari
			6. Jessieto Pereira
			7. Mohit Navelkar
			8. Tanay Talekar
			9. Majid Saifi
			10. Rohan Shinde
		2. Bharat Coking Coal Ltd.Zharkhand	1 Sonal Singh
11	**Dr. Manohar Shankar B. S.**	**1. KINECO**	1 Smayan Santosh Sapre
			2 Vaibhav Shrikant Khavanekar
		2.NESTLE-Usgao	1. Devarsh Borker
			2. Sushant Bhuttewadkar
12	**Dr. Mahesh Dhawalikar**	**1. CG Power and Industrial Solutions Ltd**	1. Akash Gawade
			2.Rashid Ali
			3.Tejas Suresh Fadte
			4. Shaish Kuttikar
			5. Sumeet Dessai
			6. Shreenav Ajit Borker
		2. ACGL	1. Gaurij Gauthankar
			2. Pranal Naik
			3. Paritosh Polle
		3. ALCON HYUNDAI	1. Ismail Khan Karol
13	**Prof. Vivek Belokar**	**1. Turbocam India Pvt. Ltd.,**	1 Rohit Da Costa
		2. MSI Optimal Engineers,Verna Industrial Estate,	1. Shubham Kotharkar
		3. MMC	1. Ojas Kesarkar
			2. Chinmay Naik
			3. Kamlesh Chaudhary

B.E. (MECH) PROJECTS: ACADEMIC YEAR: 2022-23

Project List - B.E. (Mechanical) 2022-23

SR. NO.	PROJECT TITLE	GUIDE	ROLL NO	FULL NAME
1	Design and development of hybrid electric vehicle	Dr. Raghavendra Datta Naik	191102076	Vasudev vaze
			191102025	Harshad Zangli
			191102073	Toshith arolkar
			191102083	Yash malik
2	Implementation lower end sensors in predictive maintenance of mechanical equipment	Dr. Raghavendra Datta Naik	191102062	Shreyash Vaigankar
			191102066	Smayan Sapre
			191102043	Omkar Ajgaokar
			191102053	Rohan Shinde
3	Improvement in Quality of Ultra cartridge sub-assembly using 10-step methodology.	Dr. Suraj Rane	191102017	Dattaraj Deepak Amonkar
			201202010	Tushar Ganesh Khandolkar
			191102061	Satkar Shankar Sarvankar
			201202011	Yuvraj Rajesh Jarande
4	Four wheel steering mechanism with smart controls	Dr. Shirdhar Mhalsekar	191102058	Sakshi Shet
			191102074	Vaibhav Khavanekar
			191102057	Saichetam Chari
			191102075	Varun Dessai
5	Portable Electric Conversion Kit for Bicycle	Dr. Mahesh Caisucar	191102050	Prathamesh Narvekar
			191102041	Ninad Khade
			191102020	Gandhar Thakur
			191102055	Rohit Da'Costa
6	Oil Skimmer R/C Boat for Oil spills	Dr. Shirdhar mhalsekar	191102049	Prateek Naik
			191102065	Siddhant Kadam
			191102046	Plizbon Fernandes
			191102007	Anirudh Fal Dessai
7	Electric two wheeler.	Dr. Akshay Nigalye	191102048	Pranav Ganipishetty
			191102056	Saharsh Sail
			191102077	Vedanth Pagi
8	Fall prevention on bikes	Dr. Akshay Nigalye	191102001	Abishek U. Chari
			191102051	Ramachandra Gawde
			191102030	Kevin Alex Goudinho
			191102060	Sanmesh S Shetge
9	High Performace Electrolyser	Dr. Jagannath Hirkude	201202008	Gokul Devidas Sutar
			191102054	Rohan Mitraraj Naik
			191102067	Sohan Dattakumar Naik
			191102088	Vedant Suresh Naik Jalmi
10		Prof. B R Kulkarni	191102021	Gangesh Velip

	Multi functional agricultural vehicle.		191102032	Leonel Colaco
			191102035	Mevan Faria
			191102040	Neville Rodrigues
11	Ship lifting and transfer system (Industrial Project)	Prof. Vivek Belokar	191102012	Ashutosh Kumar
			191102010	Ankit Yadav
			191102082	Siddesh Walawalkar
			191102015	Kamlesh Chaudhary
12	Design and fabrication of screen printing machine.	Prof. Harichandra Chandekar	191102004	Ambar Gaad
			191102005	Amey S Mandreker
			191102024	Harsh Malik
			191102018	Deepanshhu Chimulkar
13	Design And Development Of Portable Stair Lift	Dr. Mahesh Caisucar	191102011	Ashish Raikar
			191102014	Chaitan Kavlekar
			191102031	Kishan Naik
			191102072	Tejas Lawande
14	Design and Fabrication of Animatronic Arm	Dr. Vinay Shirodkar	191102085	Akash Gawde
			19110247	Pranal Naik
			191102052	Rashid Ali
			191102064	Shubham Kotharkar
15	Inventory Management of Maintenance Department in CG Power	Dr. Mahesh Dhavlikar	201202003	Shaish Kuttikar
			191102087	Shreenav A Borkar
			201202001	Sumeet Dessai
			201202009	Tejas S Fadte
16	Multi Axis Robot	Dr. B S Manohar Shankar	191102003	Aditya Khotnis
			191102008	Anish Sinai Gaitonde
			191102013	Calvin Fernandes
			191102029	Jonathan Pereira
17	Automatic Dough and Roti Maker	Dr. B S Manohar Shankar	191102026	Heramb Chari
			191102034	Manthan Sunil Halarnakar
			201202007	Soham Satchit Sawant
			191102080	Vishwesh Pai
18	Solar Energy Based Smart Grass Cutter	Prof. B R Kulkarni	201202002	Ishwar D. Shirodkar
			191102027	Ismail Khan Karol
			201202005	Mohit R. Painginkar
			201202004	Kamlakar S. Naik
19	Heat Transfer Analysis of double tube heat exchanger with double helix inner tube	Dr. Jagannath Hirkude	191102009	Ankit Kewat
			191102070	T Athul
			191102033	Majid saifi
			191102068	Sonal Singh
20	Design of Packaging station on production Line	Dr. Milind Shakhardande	191102069	Sushant Bhuttewadkar
			191102019	Devarsh Borkar
			191102038	Mohit Navelkar

			191102071	Tanay Talekar
21	Design And Development Of Portable Stair Lift	Dr. Harichandra Chandekar	191102072	Tejas Lawande
			191102011	Ashish Raikar
			191102031	Kishan Naik
			191102014	Chaitan Kavlekar
22	Design and fabricate a stirling engine and assess its performance.	Prof. Vivek Belokar	191102039	Nehal Yoganand Shet Kanekar
			191102042	Ojas Nilesh Kesarkar
			191102016	Chinmay Ramesh Naik
			191102006	Amogh N Parab
23	electromagnetic braking system	Prof. Balkrishna Chodankar	191102023	Gaurij Gauthankar
			191102028	Jessieto Valent Pereira
			191102063	Shriraj Gaude
			191102045	Paritosh Polle

INSTITUTE VISION

A TECHNICAL INSTITUTE WITH A FOCUS ON EXCELLENCE IN ACADEMICS, RESEARCH, INDUSTRY COLLABORATION AND NURTURING HUMAN VALUES IN STUDENTS

INSTITUTE MISSION

- FORMULATE & IMPLEMENT CURRICULUM THAT ENSURES HIGH ACADEMIC STANDARDS
- PROVIDE INFRASTRUCTURE THAT MEETS ACADEMIC AND ADVANCED RESEARCH REQUIREMENTS.
- COLLABORATE WITH NATIONAL, INTERNATIONAL INSTITUTIONS, LABORATORIES AND INDUSTRIES THROUGH STUDENT AND FACULTY EXCHANGE PROGRAMS AND INTERNSHIPS.
- UNDERTAKE CONSULTANCY PROJECTS THAT ARE RELEVANT TO THE STATE & NATION.
- IMPART HUMAN VALUES, AWARENESS OF ENVIRONMENT AND SUSTAINABLE SOLUTIONS IN STUDENTS AND FACULTY.
- NURTURE INNOVATION, ENTREPRENEURSHIP, LEADERSHIP AND RESOURCE MANAGEMENT SKILLS

DEPARTMENT VISION

IMPART HIGH QUALITY KNOWLEDGE & SKILLS TO STUDENTS IN THE FIELD OF MECHANICAL ENGINEERING, ENCOURAGE RESEARCH, INDUSTRY BASED PROJECTS LEADING TO CONSULTANCY & NURTURE HUMAN VALUES AND LIFE SKILLS

DEPARTMENT MISSION

- M1: IMPART KNOWLEDGE AND SKILL BASED TRAINING IN MECHANICAL ENGINEERING AND ALLIED FIELDS
- M2: PROMOTE RESEARCH AND INDUSTRY BASED PROJECTS
- M3: INCULCATE LEADERSHIP QUALITIES, HUMAN VALUES, CONCERN FOR ENVIRONMENT AND SOCIETY
- M4: NURTURE INNOVATION, ENTREPRENEURSHIP AND RESOURCE MANAGEMENT SKILLS

PROGRAM EDUCATIONAL OBJECTIVES

PEO 1 IMPART KNOWLEDGE, PROBLEM SOLVING SKILLS, USAGE OF MODERN TOOLS RELATED TO MECHANICAL ENGINEERING AND ALLIED FIELDS

PEO 2 ENCOURAGE TEAM WORK AMONG STUDENTS IN SOLVING COMPLEX PROBLEMS, DESIGN OF COMPONENTS AND SYSTEMS.

PEO 3 NURTURE HUMAN VALUES, CONCERN FOR ENVIRONMENT AND SOCIETY IN THE STUDENTS

PEO 4 INCULCATE PROJECT MANAGEMENT, COMMUNICATION AND LIFE SKILLS IN THE STUDENTS

PROGRAM OUTCOMES

PO 1: ENGINEERING KNOWLEDGE: APPLY THE KNOWLEDGE OF MATHEMATICS, SCIENCE, ENGINEERING FUNDAMENTALS AND AN ENGINEERING SPECIALIZATION TO THE SOLUTION OF COMPLEX ENGINEERING PROBLEMS.

PO 2: PROBLEM ANALYSIS: IDENTIFY, FORMULATE, REVIEW RESEARCH LITERATURE, AND ANALYZE COMPLEX ENGINEERING PROBLEMS REACHING SUBSTANTIATED CONCLUSIONS USING FIRST PRINCIPLES OF MATHEMATICS, NATURAL SCIENCES AND ENGINEERING SCIENCES.

PO 3: DESIGN/DEVELOPMENT OF SOLUTIONS: DESIGN SOLUTIONS FOR COMPLEX ENGINEERING PROBLEMS AND DESIGN SYSTEM COMPONENTS OR PROCESSES THAT MEET THE SPECIFIED NEEDS WITH APPROPRIATE CONSIDERATION FOR THE PUBLIC HEALTH AND SAFETY, AND THE CULTURAL, SOCIETAL, AND ENVIRONMENTAL CONSIDERATIONS.

PO 4: CONDUCT INVESTIGATIONS OF COMPLEX PROBLEMS: USE RESEARCH-BASED KNOWLEDGE AND RESEARCH METHODS INCLUDING DESIGN OF EXPERIMENTS, ANALYSIS AND INTERPRETATION OF DATA, AND SYNTHESIS OF THE INFORMATION TO PROVIDE VALID CONCLUSIONS.

PO 5: MODERN TOOL USAGE: CREATE, SELECT, AND APPLY APPROPRIATE TECHNIQUES, RESOURCES, AND MODERN ENGINEERING AND IT TOOLS INCLUDING PREDICTION AND

MODELING TO COMPLEX ENGINEERING ACTIVITIES WITH AN UNDERSTANDING OF THE LIMITATIONS.

PO 6: THE ENGINEER AND SOCIETY: APPLY REASONING INFORMED BY THE CONTEXTUAL KNOWLEDGE TO ASSESS SOCIETAL, HEALTH, SAFETY, LEGAL AND CULTURAL ISSUES AND THE CONSEQUENT RESPONSIBILITIES RELEVANT TO THE PROFESSIONAL ENGINEERING PRACTICE.

PO 7: ENVIRONMENT AND SUSTAINABILITY: UNDERSTAND THE IMPACT OF THE PROFESSIONAL ENGINEERING SOLUTIONS IN SOCIETAL AND ENVIRONMENTAL CONTEXTS, AND DEMONSTRATE THE KNOWLEDGE OF, AND NEED FOR SUSTAINABLE DEVELOPMENT.

PO 8: ETHICS: APPLY ETHICAL PRINCIPLES AND COMMIT TO PROFESSIONAL ETHICS AND RESPONSIBILITIES AND NORMS OF THE ENGINEERING PRACTICE.

PO 9: INDIVIDUAL AND TEAM WORK: FUNCTION EFFECTIVELY AS AN INDIVIDUAL AND AS A MEMBER OR LEADER IN DIVERSE TEAMS, AND IN MULTIDISCIPLINARY SETTINGS.

PO 10: COMMUNICATION: COMMUNICATE EFFECTIVELY ON COMPLEX ENGINEERING ACTIVITIES WITH THE ENGINEERING COMMUNITY AND WITH SOCIETY AT LARGE, SUCH AS, BEING ABLE TO COMPREHEND AND WRITE EFFECTIVE REPORTS AND DESIGN DOCUMENTATION, MAKE EFFECTIVE PRESENTATIONS, AND GIVE AND RECEIVE CLEAR INSTRUCTIONS.

PO 11: PROJECT MANAGEMENT AND FINANCE: DEMONSTRATE KNOWLEDGE AND UNDERSTANDING OF THE ENGINEERING MANAGEMENT PRINCIPLES AND APPLY THESE TO ONE'S OWN WORK, AS A MEMBER AND LEADER IN A TEAM, TO MANAGE PROJECTS AND IN MULTIDISCIPLINARY ENVIRONMENTS.

PO 12: LIFE-LONG LEARNING: RECOGNIZE THE NEED FOR AND HAVE THE PREPARATION AND ABILITY TO ENGAGE IN INDEPENDENT AND LIFELONG LEARNING IN THE BROADEST CONTEXT OF TECHNOLOGICAL CHANGE.

PROGRAM SPECIFIC OUTCOMES

PSO 1: STUDENTS MUST BE ABLE TO APPLY PRINCIPLES OF MECHANICAL ENGINEERING, BASIC SCIENCE AND MATHEMATICS TO MODEL, ANALYZE, DESIGN AND REALIZE PHYSICAL SYSTEMS AND PROCESSES.

PSO 2: STUDENTS MUST BE ABLE TO WORK PROFESSIONALLY IN INTERDISCIPLINARY TEAMS, COMMUNICATE EFFECTIVELY, AND DEMONSTRATE TIME & RESOURCE MANAGEMENT SKILLS, WITH KNOWLEDGE OF LEGAL AND ETHICAL PRACTICES.

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