ROBOSTAG

e-The News Bulletin

Sakeshwar Gramin Vikas Seva Sanstha's

Adsul's Technical Campus,

Ahmednagar

Department of Mechanical Engineering

Shri Aniruddha Adsul

Chairman

Dr. P.M .Patil

Principal

Mr. Jawarc A. R.

Head of Department

Vision of Institute

To be a most preferred Rural Technical Campus in the region by creating competent multifaceted Engineers and Professionals ready to serve the industry and society at large.

Mission of Institute

To establish state-of-the-art facilities and create a conducive environment for transforming the rural minds into competent, skilled, professional, researchers, technically sound, innovative aptitude, and ethics through value-based education to develop the nation for global competitiveness.

Objectives of Institute

- To provide quality education with futuristic trends in engineering and technology
- To ensure continual improvement in quality management system
- To impart innovative teaching and learning

Vision of Department

To be a premier department in Mechanical engineering to serve the need of industry and society

Mission of Department

M1: To provide state-of-the-art facilities to impart quality education.

M2: To undertake various value-added and add-on courses to make students technically sound and thorough professionals.

M3: To collaborate with the industries and strive to instil the research and problem-solving attitude amongst students and faculty.

M4: To inculcate high moral, ethical values, and spirit of national pride amongst students and faculty.

Silent feature of Department

- **Supportive learning for placement:** Placement learning is immersive and iterative. Support in the form of formative tasks and activities are crucial for student success, whilst being mindful of the need to ensure parity of student workload between modules of the same credit weighting. Placement assistance can offer students professional guidance and support to help them build successful careers. Students who might feel overburdened by the job search process might greatly benefit from placement assistance services.
- **Value added courses:** Value Added courses are career and market oriented, skill-enhancing courses that empower the students beyond their domain of study. The certificate programmers enable them to enrich their capability and enhance their employability. Value added courses are conducted for one week during the semester breaks by department faculty and external trainers.
- **Career oriented Add-On Courses:** Job-oriented courses are training and academic courses that prepare professionals for a particular career field or role. A traditional academic course may provide an overview of a certain topic or area, but a job-oriented course focuses on the knowledge and skills required for a particular job.
- **Teacher as Mentor:** The role of the Mentor Teacher is a complex blend of modeling, coaching, instructing, collaborating, and encouraging as candidates build competency in program standards. Mentor Teachers are expected to support candidates in developing the skills and knowledge to meet these standards.
- **Report writing and Paper Presentation:** A report is a specific form of writing, written concisely and clearly and typically organized around identifying and examining issues, events, or findings from a research investigation. Reports often involve investigating and analyzing a problem and coming up with a solution.
- **Professional Development for Industrial Engagement:** There are three types of employee engagement: **cognitive**, **emotional**, and **physical**. When employees are cognitively engaged, they're committed to their job, when they're physically engaged, they're invested in their work, and when they're emotionally engaged, they have an emotional connection to their work.
- **Personality Development and Soft Skill Training:** Personality Development teaches us how to communicate and display ourselves as having caring skills. It also emphasizes personal management, grooming, health, and nutrition, as well as soft skills. This course educates students on the numerous aspects of self-development. Soft skills comprise pleasant and appealing personality traits as self-confidence, positive attitude, emotional intelligence, social grace, flexibility, friendliness and effective communication skills. INTENDED AUDIENCE: Students, Teachers, Professionals, Trainers, Leaders, and Employers.

Program Educational Objectives (PEOs)

PEO1: To prepare Mechanical engineering graduate with standing knowledge of Mathematics, Science, Engineering, Technology, Management, Humanities and various other interdisciplinary subjects for successful career.
PEO2: To equip students with modern tools, technology and advance soft wares for deliberating Engineering solutions.
PEO3: To equip students with broad based knowledge to support the service industry, economic development and to address social and engineering challenges of nation.
PEO4: To inculcate student with leadership skill with high level of integrity and ethical value for team building and team work.

Program Outcomes (POs)

PO-1: Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering Programs.
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 and 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 life-long learning in the broadest context of technological change.

Program Specific Outcomes (PSOs)

PSO1: An ability to design solution for thermal, hydraulic systems, design components and production processes that meet the specified needs with team work and management skill for safety, societal and environmental aspects through lifelong learning..

PSO2: Utilize modern computational tools, software tools & hardware required with the proper understanding of all basic technical skills, soft skills in industry

PSO3: The ability to employ modern computer languages, environments, and platforms in creating innovative career paths. creating innovative career paths

SWACHH BHARAT ABHIYAN

Swachh Bharat Abhiyan is organized by Mechanical Department under MESA Activty on 24th December 2022 at 11.00 am in Chas village. A Swachh Bharat was one of Gandhi's dearest dreams. This campaign was started on 2nd October 2014 on the occasion of Gandhi Jayanti. The Swachh Bharat Abhiyan is a cleanliness mission run by the Government of India. The motive of this campaign is to clean the streets, buildings, public places and villages of India. The Adsul's Technical Campus organized a Bharat Swachh Abhiyan in Chas village. The objective of this event was to teach students, how we can clean our nation. This was a great initiative to make our atmosphere neat and clean. The staffs and students were collected in Chas village and start to clean the village.In the end, the principal addressed and thanked the chief guest (Chas Village), Dean (Student Activity of ATC Chas) as well as teachers and students for coming and participating in that helpful activity, giving their precious time. Overall, this was an excellent and glorious event for all. I felt inner peace by doing something good for my nation.

टिपुगडे, मानद सचिव अरुण कुलकर्णी अमस्टरडमच्या डच लायब्ररीला भेट दिली बाटेर सिस्ट

आडसूळ टेक्निकल कॅम्पसतर्फे चास गावात स्वच्छता अभियानात सहभागी झालेल्या विद्यार्थिनी.

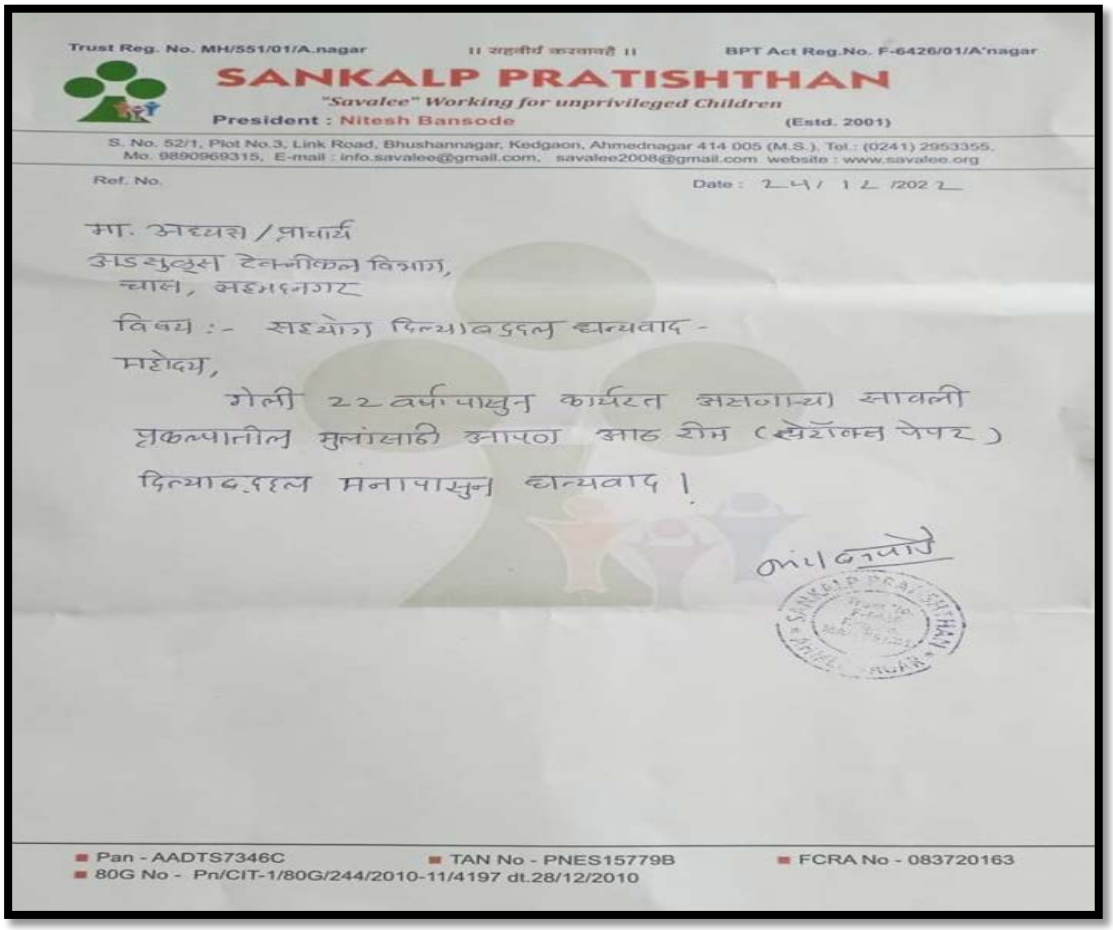
आडसूळ टेक्निकल कॅम्पसतर्फे चास गावात स्वच्छता अभियान

नगर– आडसूळ टेक्निकल कॅम्पसतर्फे चास गावात २४ डिसेंबर रोजी स्वच्छता अभियान राबविण्यात आले. प्राचार्य डॉ. प्रदीप एम. पाटील यांच्या मार्गदर्शनानुसार कॉलेजमधील मेक्कॅनिकल विभागाचे विभाग प्रमुख डॉ. गणेश शिरसाट, प्रा. स्नेहिल गायकवाड, प्रा. निलेश आठवले, संगणक विभागातील प्रा. सचिन भोंडवे व विद्यार्थी सहभागी झाले होते. यावेळी सरपंच अडव्होकेट राजेंद्र गावखरे, उपसरपंच युवराज कारले, चेअरमन भाऊ काळे, उपस्थित होते. याप्रसंगी व्हाईस चेअरमन सुभाष गवळी यांनी कॉलेजमधील प्राध्यापकांचे व विद्यार्थ्यांचे आभार मानले.

या उपक्रमाचे संस्थेचे अध्यक्ष अनिरुद्ध माणिक आडसूळ, उपाध्यक्ष विश्वनाथ माणिक आडसूळ, महाविद्यालयाचे प्राचार्य डॉ. प्रदीप एम पाटील, उप प्राचार्य किशोर जाधव, संगणक विभाग प्रमुख डॉ.हेमंत जाधव, एम.बी.ए विभाग प्रमुख डॉ.विश्वजित कांबळे, इलेक्ट्रिकल विभाग प्रमुख डॉ.दिनेश अडोकर, इलेक्ट्रॉनिक्स अँड टेलिकम्युनिकेशन विभाग प्रमुख प्रा. संकेत शिंदे, मेक्कॅनिकल विभाग प्रमुख डॉ. गणेश शिरसाट, सिव्हिल विभाग प्रमुख प्रा. पूजा साठे, डॉ. धन्यकुमार जैन यांनी कौतुक केले.

Distribution of Stationary To Savalee Anathashram

Adsul technical campus always organized the stationary distribution program in various NGOS. Adsul Technical campus organized stationary distribution program at Savelee Anath Ashram dated on 24/12/22. This program is organized under mechanical department as a part of social activity. This type of activity is helpful to orphan student. It helps to complete his educational needs. Adsul technical campus donates the eight A4 size rim to Savelee NGO. For this program four staffs from Adsuls technical campus are present in Savelee NGO.


Trust Reg. No. MH/551/01/A.nagar ॥ सहनीर्ण करवावहै ॥ BPT Act Reg.No. F-6426/01/A'nagar

SANKALP PRATISHTHAN

"Savalee" Working for unprivileged Children

President : Nitesh Bansode (Estd. 2001)

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Ref. No. Date : 24 / 12 /202 2

मा. अध्यक्ष / प्राचार्य
अडसुल्स टेक्निकल विभाग,
चाल, अहमदनगर

विषय :- सहयोग दिल्याबद्दल धन्यवाद -

महोदय,

गेली २२ वर्षापासुन कार्यरत असलाऱ्या सावली प्रकल्पातील मुलांसाही आपण आठ रीम (ए४ कॉपी पेपर) दिल्याबद्दल मनापासुन धन्यवाद।

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80G No - Pn/CIT-1/80G/244/2010-11/4197 dt.28/12/2010

Student Article

Computer Numerical Control

A **CNC (Computer Numerical Control)** machine is a type of machine tool that uses computer programming to automate the control of machinery. CNC machines are widely used in manufacturing industries for producing precise, complex parts and components. These machines can perform a variety of tasks such as cutting, drilling, milling, turning, and more, all controlled by a computer.

The key feature of a CNC machine is its ability to follow a set of instructions or commands encoded in a digital format (usually in the form of G-code) to control the machine's movements. This eliminates the need for manual operation and allows for greater precision, repeatability, and efficiency.

Types of CNC Machines

1. **CNC Milling Machines**: These machines use rotary cutters to remove material from a workpiece. They can cut, drill, bore, and machine different shapes and angles. CNC mills are often used to produce complex 3D parts and components.
2. **CNC Lathes**: These machines rotate a workpiece on an axis and use cutting tools to shape it. CNC lathes are commonly used to produce cylindrical parts such as shafts, rods, and bolts.
3. **CNC Routers**: Similar to CNC mills, CNC routers are often used to cut, carve, and engrave wood, plastics, and soft metals. They are typically used in industries like furniture-making and signage.
4. **CNC Laser Cutters**: These machines use laser technology to cut or engrave materials like metal, wood, plastic, and glass. Laser cutters are ideal for cutting intricate designs and details.
5. **CNC EDM (Electrical Discharge Machines)**: These machines use electrical discharges to cut hard metals and create very intricate shapes. They are used for making molds and dies, as well as for precision machining of hard materials.
6. **CNC Plasma Cutters**: Plasma cutters use a high-temperature plasma arc to cut through electrically conductive materials like steel, aluminum, and copper. CNC plasma cutters are used in industries like automotive and construction

- Kadam Shubham

Student Article

Welding

Welding is a manufacturing process used in mechanical engineering to join two or more materials, typically metals or thermoplastics, by applying heat, pressure, or both. It creates a strong, permanent bond between the materials, making it essential in industries like automotive, aerospace, construction, and manufacturing. Welding is widely used to build structures, machinery, pipelines, and many other components

Welding involves melting the base materials at the joint area, allowing them to fuse together. In most cases, a filler material is added to help form a strong bond. Once the molten metal cools and solidifies, the joint becomes as strong as or stronger than the original material. The process can be performed in various environments, such as open air or under controlled atmospheres.

Common Types of Welding:

1. **Arc Welding**: Uses an electric arc to melt the materials, often with a filler rod. This is one of the most common types of welding and is widely used in construction and repair.
2. **MIG Welding (Metal Inert Gas)**: A type of arc welding where a continuous wire electrode is fed into the weld pool. It's known for being easy to use and is ideal for thin to medium thickness materials.
3. **TIG Welding (Tungsten Inert Gas)**: Uses a tungsten electrode to produce the weld, and a filler material is added manually. TIG welding is used for high-precision applications and thin materials.
4. **Stick Welding (Shielded Metal Arc Welding)**: A simple and portable welding method where an electrode is used to create an arc that melts the materials. It's commonly used in outdoor and construction environments.
5. **Oxy-Fuel Welding**: Uses a flame from an oxy-acetylene torch to heat and melt the base materials. It's often used for metal cutting and brazing, as well as welding.

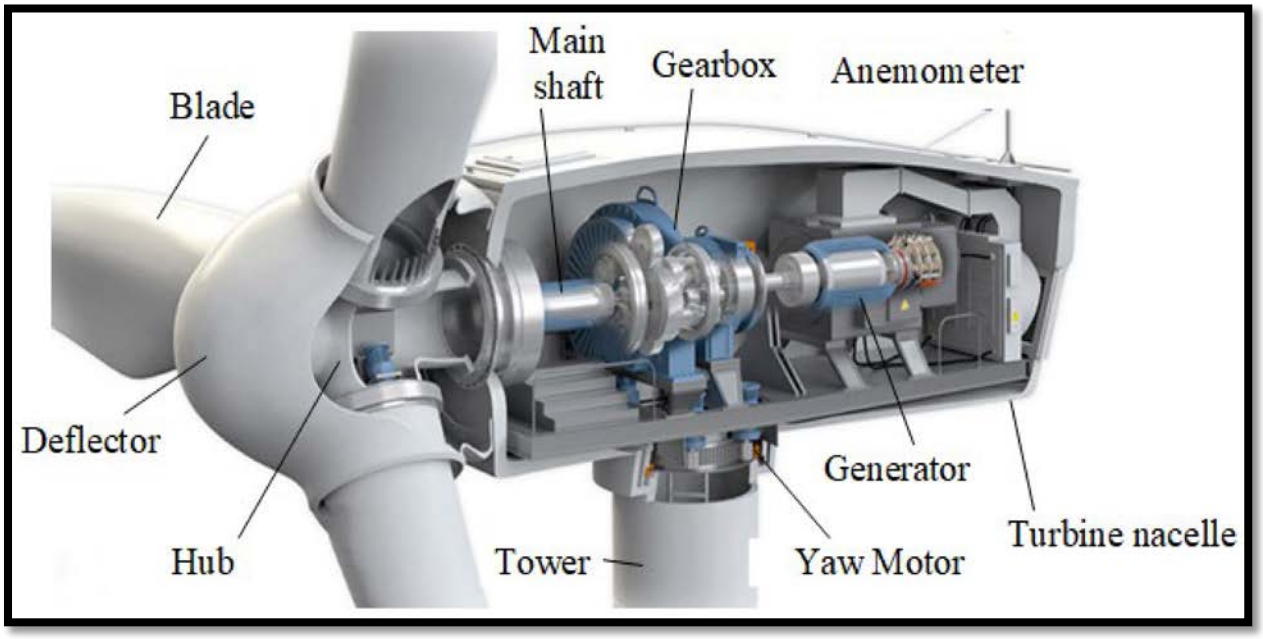
Applications of Welding in Mechanical Engineering:

- **Construction**: Welding is crucial for building frameworks, bridges, and skyscrapers.
- **Automotive Industry**: It is used to fabricate parts like chassis, engines, and exhaust systems.
- **Aerospace**: Welding ensures the structural integrity of aircraft components.
- **Shipbuilding**: Welding is essential for assembling hulls, decks, and other parts of ships.

- Padir Akshay

Student Article

Wind Turbine Gearboxes and Reliability



A modern wind turbine converts the kinetic energy of moving air into electrical energy. The rotor turns at a relatively low speed, while the electrical generator may require a higher rotational speed. In many turbine designs, a gearbox performs this speed increase.

The gearbox contains gears, shafts, bearings, lubrication systems and housing structures. These components operate under variable loads because wind speed changes continuously. Start-stop cycles, turbulence and transient loads can create demanding fatigue conditions.

Gearbox reliability is important because turbines are often located in remote areas. A failure may require specialized lifting equipment and significant downtime. Mechanical engineers therefore pay close attention to lubrication, alignment, bearing condition, gear tooth stresses and vibration.

Condition monitoring can detect developing problems. Vibration sensors can identify changes in gear-mesh frequencies and bearing behaviour. Oil analysis can reveal wear particles or contamination. Temperature monitoring can also indicate abnormal friction or lubrication problems.

Gear design involves balancing strength, contact fatigue life, efficiency, noise and manufacturing cost. Materials and heat-treatment processes are selected to provide adequate surface hardness and core toughness. Bearings must be sized for both steady and transient loads.

Direct-drive turbines eliminate the gearbox by connecting the rotor more directly to a low-speed generator. This can reduce some mechanical complexity but may require a larger generator and different structural arrangements.

Wind-turbine engineering demonstrates how machine design principles are applied under continuously changing environmental conditions. Reliability cannot be considered only at the component level; the entire drivetrain, support structure, control system and maintenance strategy must be considered.

As turbines become larger, mechanical engineers are challenged to design lighter and more reliable drivetrains. Digital monitoring and predictive maintenance are becoming increasingly important in extending service life and reducing maintenance costs.

- Nadgire Shubham

Editorial Committee

We acknowledge the efforts of our editorial team, comprising faculty and students, for their valuable contributions in this publication:

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