Department of
Mechanical Engineering

AJAY BINAY INSTITUTE OF TECHNOLOGY

Achievements

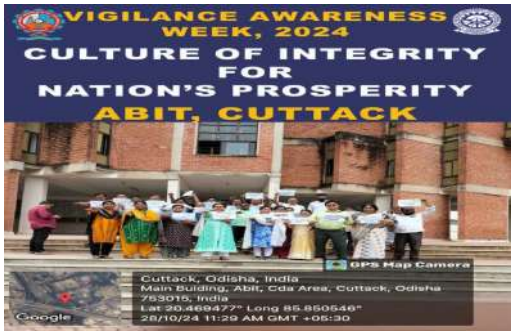
- Campus cleaning activity
- Vigilance awareness week Programme
- BPUT Tech Carnival Programme

MECH-a-BIT

~Newsletter of Mechanical Engineering Department~

Volume-5,Issue-3 January-2025

First year mechanical student NSS (national service scheme) campus cleaning activity



During Vigilance Awareness week 2024, Mechanical Dept. dedicated teachers and students came together on 20.10.2024 to take the integrity pledge, reinforcing their shared commitment to transparency, ethical conduct and fostering a culture of integrity in education.

FINAL YEAR STUDENTS CONDUCT BPUT TECH CARNIVL NOVEMBER 2024

The teams were evaluated by a panel of eminent jury members, ensuring a high standard of assessment in mechanical Department

Steampunk Repin Vertical steam engine

Faculty Achievements

- Satya Ranjan patnaik, Associate Professor, has Published a paper title "sustainable composite materials :Areview of Waste Reduction Strategy in Manufacturing" in Graduate Journal of Interdisciplinary Research, Report and Review (Google Scholar) 2025
- Satya Ranjan patnaik, Associate Professor, has Published a paper title "Mechanical act of usual fiber reinforced composites considering fly-ash customized moulds" in Futuristics Trends in Mechanical Engineering (UGC CARE), 2024
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- Narasingh Deep, Associate Professor, has Review a paper title "A Comprehensive review on innovative building materials" in Shaping Identity:Unveilling the powerof design identity (UGC CARE), 2024)
- Pabak Mohapatra, Assistant Professor, has published a paper titled "*Experimental studies on corrosion performance of Reheated AZ31 Magnesium Alloy"* in Journal of Lecture notes in mechanical engineering in SCOPUS 2023.
- Biswaranjan Rout has published a paper titled "Optimized posture prediction for task specificduring stacking process using humanupper body movements "2022

"Once you stop learning, you start dying."

~ Albert Einstein ~

Final Year Project Works of the Students (2015–2019 Batch)

Students (2015–2019 Batch)

- A solar powered three wheeler is developed which can run upto 50 kilometres without charging.
- A Waste Composting Machine is fabricated to utilise the various domestic organic wastes.

Final Year Project Works of the

Vertical Axis Wind Turbine

A 3D printer is made by the final year students where a LASER head is mounted in place of printer head. The setup can cut sheets of paper, leather, cotton and plastic as per the given pattern. A small sized milling cutter can also be fitted in that place to cut on the surface of metal pieces as per the requirement. This prototype will be further developed by the next batch of students.

Departmental Initiatives

The department has started NSDC-AICTE sponsored skill development programme on Manual Metal Arc Welding/Shielded Metal Arc Welding Welder in which twenty five participants have joined. Initiative has been taken to establish a student chapter of The Indian Institute of Welding (IIW) in the college this year. This chapter will act as a platform for industry –institute interaction facilitating effective integration of budding engineers into the mainstream engineering field.

Robotic Welding

Club Activities

ROBOTICS CLUB	3D PRINTING CLUB	DESIGN CLUB
Around twenty five students of third year have joined as members of this club which operates every week on Wednesday last period onwards. It provides tutorial, guidance, and assembly of different types of robotic systems. The members have participated in various competition and have won awards.	This club is recently started. The students can develop an idea into digital drawing using either AutoCAD or Sketch up software. There after using the 3D printer, one can produce a prototype for further action. The department has fabricated one 3D printer to demonstrate the concept of additive manufacturing.	This is a new initiative of our department. The students will develop proof of concept model or test model or mock-up or prototype based on some real life problem (either industrial or social). This experiential learning activities will strengthen the mission of our department.

"The best brains of the nation may be found on the last benches of the classroom."

~ A P J Abdul Kalam ~

Social Activities

The department has conducted various social service activities like Cyclone Fani relief works at different places. We have conducted one plantation drive after cyclone to aware people about afforestation.

Autonomous Vehicle

Department of Mechanical Engineering

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AJAY BINAY INSTITUTE OF TECHNOLOGY

Recent Advances in Mechanical Engineering

Artificial Intelligence (AI) and Machine Learning (ML) Integration*

What is AI and ML?

AI(Artificial Intelligence)

AI encompasses the board field of creating systems that can perform tasks that typically require human intelligence, such as learning, problem– solving and decision– making.

ML(Machine Learning)

ML is a subset of AI that focuses on enabling systems to learn from data without explicit programming, allowing them to improve their performance over time.

Why Integrate AI and ML?

Enhanced Effciency and Automation;

AI and ML can automate repetitive tasks and processes,freeing up human resources for more strategic work.

Improved Decision Making;

ML algorithms can analyze vast amounts of data to identify patterns and insights, enabling data driven decision making.

Cost Optimization:

AI and ML can helpoptimize resource allocation and reduce costs by identifying areas for improvement.

Advantages of Artificial Intelligence (AI) and Machine Learning (ML) Integration

The advantages range from streamlining, saving time, eliminating biases and automating repetitive tasks

Application Across Industries

Manufactring,Healthcare, Finance, Retail, Transportation, Education

Department of
Mechanical Engineering

AJAY BINAY INSTITUTE OF TECHNOLOGY

Achievements

- MOU With SVNIRT&RC
- Placement Drive Programme

MECH-a-BIT

~Newsletter of Mechanical Engineering Department~

Volume-5,Issue-1 July-2024

MOU WITH SWAMI VIVEKANANDA NATIONAL INSTITUTE OF REHABILITATION TRAINING AND RESEARCH CENTER

Through this MOU, we envision a future where prosthetic limbs and orthotic devices are not just tools but seamless extensions of the human body, saty tuned as we embark on this transformative journey together, pushing the boundaries of innovation and making meaningful strides towards a more inclusive and empowerd society by help-s of mechanical engineering.

PLACEMENT DRIVE IN MECHANICAL DEPARTMENT

Our students of B. Tech (2020-24) Batch for getting through Various Companies Such **Rialto Enterprises** (Chitta ranjan Das, Abhisek Nayak, & Prem k. karmakar), **Central KIA** 4 Students(Biswaranjan, Ashutosh, Ashis, Anuraj), **Zenus Group** (Ananta k. Paul), **Rexnord Electronics** (Prem k. Karmakar)

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Recent Advances in Mechanical Engineering

Sustainable and Renewable Energy Technologies*

Green Mterials:Biodegradable polymers and recycled composites are replacing traditional materials to reduce environmental impact .

Renewable Energy System:Advances in wind turbine design (e.g., bladeless turbines) and solar panel efficiency (perovskite photo-

What is Sustainable and renewable energy?

Sustainable and renewable energy technologies encompass various methods to harness natures resources for electricity, heat and transportation, minimizing environmental impact and promoting long term energy security.

The five major renewable energy sources include:

1.Solar energy from the sun.

2.Geothermal energy from heat inside the erath.

3.Wind energy from uneven heating from the sun.

4.Biomass from plants.

5.Hydropower from flowing water.

Advantages of sustainable and Renewable energy:

Sutainable energy offers numerous benefits, including environmental protection through reduced emissions, economic advantages like job creation and cost savings and improved public health by reducing pollution.

FUTURE SCOPE:

The future scope of sustainable energy is promising with renewable sourcs like solar and wind expected to play a crucial role in decarbonizing the energy sector and creating new jobs, while also addressing climate change and promoting energy security.