Data/contents for Jan – March 2022 for Newsletter by Dr. Vishal Shukla

1. Compliance to FER of Patents published at RCOEM-TATA-CIIIT:

RCOEM-TATA-CIIIT Faculty In-Charge, Dr. Vishal Shukla and team of faculty & students, had applied for examination of 3 previously published patents. F.E.R. for these patents were received from patent office. The basic questions about inventions, advantages, providing solution to technical problems and advancements compared to cited documents are answered for the following 3 patents.

1. A Pneumatic Sand Rammer with Vibration Isolator (202121022980)
2. A Device for Making Flower Garland (202121022981)
3. A Device for Generating Profile on Pipes, (202121022976)

Also, a research paper on ' FEA of contact between scleral buckle and human eye tissues' contributed by Dr. V. V. Shukla and Pooja Shende is published in scopus indexed Asia-Pacific Journal of Science & Technology, vol 27, issue 1

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2. Two weeks' Internship/Trainings for students:

Two weeks' software Internship on FEA/CAE software started from 10 Jan to 21 Jan. In coordination with experts from Tata Technologies Ltd. Mr. Girish, Mr. Harish & Mr. Santosh have delivered the contents online, from morning 9 to 11 am and evening 4 to 6 pm. There were 25 registrations, 4 from other colleges like Anjuman CET, KDK College of Engg., Nagpur Institute of Technologies and 21 from RCOEM. As per Covid protocols and guidelines from Government authorities, 2 batches of 13 & 12 students were made and they attended separately in morning & evening batches. Rs 29,000 is received towards registration fees in TBI Accounts.

3. Certificate distribution of 8 numbers of Two days workshops (16 days) :

Certificates for 8 numbers of CIIIT training awareness workshops, held by CIIIT for RCOEM students during 5-24 Dec. 2021, were distributed at the hands of Principal Dr. R. S. Pande & HoD Mech. Engg. Dr. K N Agrawal on 8 Jan 2022. Mr Harsh Sharma of Final year Mech. Engg., was also felicitated for his contribution in recent consultancy project completed by CIIIT.

4. Completion of Two weeks' Internship 10-21 Jan on FEA/CAE software FEAST, Patran & Nastran.

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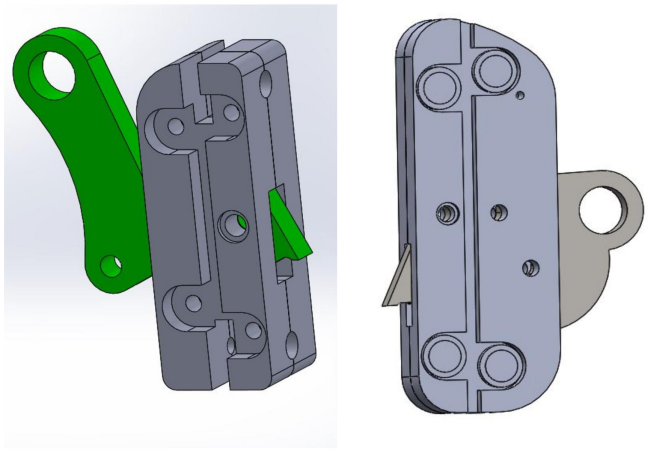
5. Ongoing Internships and Project updates

A. Wind-mill fall arrester

Two students of Mechanical Engineering sem-VIII have joined for Six months internships at CIIIT. Ojas Maywade & Devesh Taori, are carrying out extension of previously funded RGSTC-TIFAC project (for Rs. 2.81 Lakh) titled “Design & Development of Fall arrester for Tall Ladders” and Bhavesh Verma is doing work of manufacturing of resin-based bamboo boards

Climbing is a dangerous task for technicians in various areas like construction activities, maintenance of electric poles etc. Safety of the technicians in maintenance of machines has gained importance. Over the decades, falls from a height have caused the most deaths in the construction business, and these incidents are increasing at a faster rate than the number of workers in the industry. It is therefore important that the safety of the workers employed by the wind energy sector for service and maintenance of the windmills is prioritized. The windmill ladders use a guided rail type fall arrester that enables a maintenance worker to safely work at any height on the windmill shaft, or any other building.



B. DEVELOPMENT OF BAMBOO EPOXY COMPOSITE

Research Internship - Bhavesh Verma Project- Himanshu Trivedi, Amisha Karemore

The use of natural fibers in reinforced plastic materials as a composite has had a favorable impact on the development of green composites in our daily lives. One of the most serious issues that has arisen is the deterioration of polymeric composites when exposed to environmental factors such as humidity and temperature. Natural FRP composites are biodegradable, lightweight, and robust. We're testing a bamboo epoxy resin composite with a high resin-to-bamboo-fiber ratio, then comparing the results to man-made fibre composites using various tensile tests.

OBJECTIVES: The main objective is to investigate and analyze the mechanical properties of a composite material using bamboo fiber. To explore the processing feasibility of bamboo fiber composites by different techniques and to study the resulting fiber and composite properties. To carry out a systematic study of the influence of processing parameters on the mechanical properties of bamboo fibers.

6. Providing Technical support and technical facility for In House 3-D Printing Projects:

3-D printed parts as asked by RCOEM faculty/Ph.D. Research scholars/M. Tech. students / Robocon team etc., were given under In-house project work on 3-D printer.

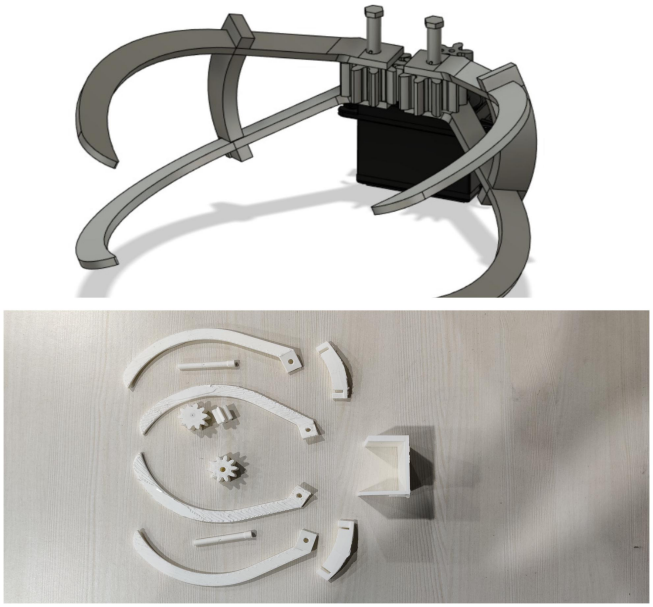
A. ROBOCON-ANGLE SUPPORT

CIIIT supported ROBOCON Team of RCOEM for 3-D printing of Robot parts. Mayank Deshpande & Kunal Singh students from robotics club department guided by prof. A.K. Jha had successfully completed the 3D printing project of angle support for the project of “Robocon 22”. PLA was used as printing material. It took about 24 hours to print 272 grams of 2 PLA parts on Ultimaker 3-D printer.

Angle support for the project of “Robocon 22”.

B. BALL PICKING CLAW (ROBOCON'22)

Kunal Singh, a students of Robotics club guided by prof. A.K. Jha had successfully completed the 3D printing project of claw for testing for the project of "Robocon 22". PLA was used as printing material. It took about 7 hours to print 60 grams for 9 PLA parts on Ultimaker 3-D printer



Claw for testing for the project of **"Robocon 22".**

C.FULLY AUTOMATED 15 PUZZLE SOLVER

Nabeel khan, Nitesh Dani. From CSE department guided by Dr. Ramchand Hablani had successfully completed the 3-D printing of fully automated 15 puzzle solver comprising of 18 parts and weighing 166 gms. It has taken about 17 Hours to print on Ultimaker 3 extended 3-D Printer.

15 puzzle solvers

D.DUAL TURBINE BLADES

CIIIT has provided technical services to 3-D print a couple parts of dual turbine blades, designed by Prof. Ganesh Shetiye, Iindustrial engineering made of ABS, weighing 111 gms

7. NAAC PTV to CIIIT.

The NAAC peer team visited CIIIT on 22nd & 23rd February, 2022. The student committee comprising of Amisha Karemore, Aman Singh, Jinisha Zoting, Raman Mantri, Om Sharma, Aditya Chaudhari, Kunal Singh, Mrunal Mohatkar, Anshuman Prajapati, Shantanu kale, Siddhant Binani, Shubhangi Bokde, Himanshu Trivedi, Rishi Agrawal, Shri Tiwari, Dipali Gokhe and Himanshu Trivedi demonstrated various technical facilities to NAAC Peer Team at CIIIT.

8. Awareness and Branding of CIIIT training courses.

Towards creating awareness about the technical courses being offered by CIIIT, Dr. Vishal Shukla & Dr. G. R Nikhade visited and presented about the available unique skill enhancement programs to the faculty and students of Jhulelal Institute of Technology and Nagpur Institute of Technology. Branding of technical courses available at CIIIT are also being aired through FM channels.

9. Power Back-up and other facilities added to CIIIT infrastructure.

a) CIIIT is now equipped with 30 kVA UPS system
b) Bench grinder & table vice is now available for post processing of VMC jobs

10. Training calendar of CIIIT courses

Training Calendar April-Dec 2022

Month	Date	Training Title
May	03 May 2022	Solid Modeling catia v6
	5 – 7 May 2022	Machine Learning
	9 – 13 May 2022	Solid Modeling catia v6
	9 & 10 May 2022	Manufacturing Execution System
	9 – 14 May 2022	VMC & CNC Programming
June	1 June 2022	Industrial Robotics
	6 – 10 June 2022	Industrial Robotics
	6 – 18 June 2022	FEA/CAE (Softwares covered FEAST, PATRAN-NASTRAN, ANSYS)
	1 – 30 June 2022	3-D Printing & 3D scanning (Reverse Engineering)
	1 – 30 June 2022	Mechatronics & Industrial Automation PLC SCADA
July	4 & 5 July 2022	Internet of Things (IoT)
August	1 – 5 Aug 2022	Solid Modeling catia v6
	1 – 5 Aug 2022	Machine Learning
	22 – 27 Aug 2022	VMC & CNC Programming
September	1 – 30 Sept 2022	FEA/CAE (Software's covered FEAST, PATRAN-NASTRAN, ANSYS)
	12 – 16 Sept 2022	Industrial Robotics
October	3 – 22 Oct 2022	3-D Printing & 3D scanning (Reverse Engineering)
	10 – 15 Oct 2022	VMC & CNC Programming
	11 & 12 Oct 2022	Manufacturing Execution System
	17 – 19 Oct 2022	Internet of Things (IoT)
November	7 – 11 Nov 2022	Solid Modeling catia v6
November & December	1 Nov – 30 Dec 2022	Mechatronics & Industrial Automation PLC SCADA
December	5 – 9 Dec 2022	Industrial Robotics
	12 – 17 Dec 2022	FEA/CAE (Softwares covered FEAST, PATRAN-NASTRAN, ANSYS)
	19 – 31 Dec 2022	3-D Printing & 3D scanning (Reverse Engineering)

11. Training Course coordinators for Technical Courses offered by RCOEM-TATA-CIIIT

Sr. No	Title of the Training course	Name of the course coordinator
1	Machine Learning, Deep Learning	Dr. Ramchand Hablani, Dr Sweta Jain, Dr Madhuri Tayal
2	Internet of Things	Prof Vipul Lande & Ashlesh Jaiswal Prof Sharmik Admane & Prof Rushiesh Deshmukh
3	Multi-Body Dynamics	Dr.Y M Sonkhaskar & Prof. P B Shiwalkar
4	CFD	Dr. S. S. Joshi, Prof. S. S. Deshmuh, Prof. S. A. Patil
5	FEA/CAE	Dr. G. R. Nikhade & Dr. V. V. Shukla
6	Solid Modeling	Dr. A. K. Jha & Prof. B. C. Bissa
7	MES	Dr. P. S. Deole & Prof. N P Gudadhe
8	Industrial Robotics	Dr. A K Jha & Dr G R Nikhade
9	VMC	Dr. A D Urade & Dr. P. S. Deole
10	3-D Printing & Scanning	Dr. V. V. Shukla
11	Mechatronics & Industrial Automation PLC, SCADA	Prof. P. B Shiwalkar & Dr. S. Balpande, Prof Anjankar