7.3 INSTITUTIONAL DISTINCTIVENESS

CENTRE FOR ADVANCED MANUFACTURING

About Centre

The Centre for Advance Manufacturing has started in the year of 2017. The centre was inaugurated by **Dr.E.Bhaskaran, Deputy Director, Entrepreneurship Development and Innovation Institute, Chennai.** The Centre for Advanced Manufacturing is an initiative of Future Tech RIT and has been established to cater to the upcoming need for Industry 4.0 professionals in the field of 3D Printing Technology. It is a state of art facility with an excellent opportunity to build a strong platform on the field of advanced and additive manufacturing. The primary objective of RIT CAM is to impart holistic education and training to the students as well as professionals from various industries, thereby creating the industry ready engineers on future technology.

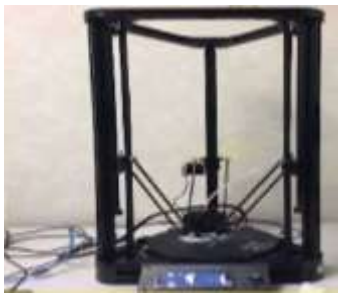
The Centre for Advanced Manufacturing is a state of art facility with an excellent opportunity to build a strong platform in the field of advanced and additive manufacturing. The centre was initiated to promote knowledge of advanced manufacturing technology through innovative research and product development.

The aim of this centre is to spearhead academia and students in conducting academic and professional programmes based on specific industrial needs and applications. It fills the gap between the academic community and industry through smart partnerships.

Labs In Centre for Advanced Manufacturing

- Additive Manufacturing Laboratory
- Robotics Research Laboratory
- CNC Laboratory

Flashforge Finder Ender 3D Delta printer



Objectives of the Centre

- ✓ To spearhead academia and students in conducting academic and professional programmes based on specific industrial needs and applications.
- ✓ To pursue research & development activities related to relevant engineering fields.
- ✓ To forge and strengthen strategic alliances with related industries.
- ✓ To develop and sustain a pool of expertise of high caliber in the multi-facetted areas of manufacturing engineering

Faculty coordinators & Members

S.No	Faculty Name	Designation
1	Dr. S. K. Rajesh Kanna	Professor & Head
2	Mr.N.Sivashanmugam	Assistant Professor (SG)
3	Mr. P. Sethu Ramalingam	Assistant Professor
4	Mr. S. Srinivasan	Assistant Professor

Enrolled Students list

S.No	Roll Number	Student Name	Year	Dept.
1.	201904002	ADITHYA RAAJ G	IV	MECH
2.	201904005	AROKIYA RAJ P	IV	MECH
3.	201904006	ARUNKUMAR G	IV	MECH
4.	201904009	HARIHARAN G	IV	MECH
5.	201904021	NIRANJAN V S	IV	MECH
6.	201904022	PRASANTH L	IV	MECH
7.	201904024	SATHISH M	IV	MECH
8.	201904027	SUNDAR S	IV	MECH
9.	201904028	THAMEEZUDEEN T	IV	MECH
10.	201904030	VIJAYA KUMAR P	IV	MECH
11.	201904031	VINOTH M	IV	MECH
12.	201904032	VISHAL C	IV	MECH
13.	201904033	YADHESH R	IV	MECH
14.	202104002	AISHWARYA P	II	MECH
15.	202104006	BARATH SUNDAR K	II	MECH
16.	202104009	DHANUSH H	II	MECH
17.	202104010	DILLI BABU R	II	MECH
18.	202104014	JAGADEESH R	II	MECH
19.	202104015	JANARTHANAN V	II	MECH
20.	202104016	KALAIMATHI S	II	MECH
21.	202104017	KAMESWARI BH	II	MECH
22.	202104020	KARTHIKEYAN S	II	MECH
23.	202104021	MAREESWARAN R	II	MECH
24.	202104024	MOORTHI G	II	MECH
25.	202104025	MUKESHWARAN M	II	MECH
26.	202104026	MUKILAN M	II	MECH
27.	202104027	NAVEEN S	II	MECH
28.	202104028	NISHANTH M	II	MECH
29.	202104029	NITHISH J	II	MECH
30.	202104030	PRAGATHEESHWARAN A	II	MECH
31.	202104032	RAGUL B	II	MECH
32.	202104033	RAJKUMAR S	II	MECH
33.	202104034	SANJAI S	II	MECH
34.	202104035	SANTHOSA PRIYAN S	II	MECH
35.	202104036	SARAVANAN D	II	MECH
36.	202104037	SENTHUR KANNAN T	II	MECH
37.	202104038	SESHA KUMAR A	II	MECH
38.	202104039	SHARATHCHANDRAN J B	II	MECH
39.	202104042	SWAMINATHAN K S	II	MECH

40.	202104044	THARIKA S	II	MECH
41.	202104050	YAZHINI R K	II	MECH

Publications

Published papers in Scopus : 52

Scopus papers in 2021-2022 : 22

S. No.	Name of the author/s	Title of paper	Name of Journal
1	Dr.S.K.Rajesh Kanna	Development of Deer Hunting linked Earthworm Optimization Algorithm for Solving large scale Traveling Salesman Problem	Knowledge-Based Systems
2	Dr.S.K.Rajesh Kanna	A Maize Crop Yield Optimization and Healthcare Monitoring Framework Using Firefly Algorithm through IoT	Artificial Intelligence and Data Mining Approaches in Security Frameworks
3	Dr.S.K.Rajesh Kanna	Intelligent Robot for Automatic Detection of Defects in Pre-Stressed Multi-Strand Wires and Medical Gas Pipe Line System Using ANN and IoT	Artificial Intelligence and Data Mining Approaches in Security Frameworks
4	Dr.S.K.Rajesh Kanna	Experimentation of multi directional fan blade model using fused deposition modeling process	AIP Conference Proceedings
5	Dr.S.K.Rajesh Kanna	A hybrid multi-objective optimization of 3D printing process parameters using genetic algorithm	AIP Conference Proceedings
6	Dr.S.K.Rajesh Kanna	Automatic detection of defects in pre-stressed multi strand wires using hall effect sensor	Journal of Physics: Conference Series
7	Dr.S.K.Rajesh Kanna	Catalytic Degradation of Used Plastics oil as Liquid Fuel for IC Engines	Journal of Physics: Conference Series

8	Dr.S.K.Rajesh Kanna	Consensus for the clinical utility of brivaracetam in Indian patients-survey results of the include collaborative group	Journal of the Neurological Sciences
9	Dr.S.K.Rajesh Kanna	A study on mechanical and morphological analysis of banana/sisal fiber reinforced IPN composites	Fibers and Polymers
10	Dr.S.K.Rajesh Kanna	Experimental Investigation and Optimization of Process Parameters in EDM of Aluminum Metal Matrix Composites Using Selective Breeding Algorithm	Advances in Design and Thermal Systems
11	Dr.S.K.Rajesh Kanna	Experimental and theoretical optimization of an inclined type solar still using PV sustainable recirculation technique	Materials Today: Proceedings
12	Dr.S.K.Rajesh Kanna	An experimental investigation of tool wear rate in end mill HSS-AL with nickel coated tool	Materials Today: Proceedings
13	Dr.S.K.Rajesh Kanna	Wear Characterization of AlTiCrN and TiCN Coatings on SG Cast Iron	Advances in Materials Research
14	Dr.S.K.Rajesh Kanna	Optimization of Process Parameters on the Electrical Discharge Machining of Al6061-SiC MMC Through Evolutionary Approach	Advances in Materials Research
15	Mr.S.Srinivasan	Experimental Investigation of unused heat recovery using ORC cycle in a passenger car	Journal of Physics: Conference Series
16	Mr.P.Sethu Ramalingam	A hybrid multi-objective optimization of 3D printing process parameters using genetic algorithm	AIP Conference Proceedings

17	Mr.P.Sethu Ramalingam	Automatic detection of defects in pre-stressed multi strand wires using hall effect sensor	Journal of Physics: Conference Series
18	Mr.P.Sethu Ramalingam	An exclusive hand protection device made of fused deposition modelling process using poly (lactic acid) polymer	Materials Today proceeding
19	Mr.P.Sethu Ramalingam	A critical review of an additive manufacturing role in Covid-19 epidemic	Materials Today proceeding
20	Mr.N.Sivashanmugam	Prediction of optimal process parameters for precision parts of phosphor bronze in high speed milling	AIP Conference Proceedings
21	Mr.N.Sivashanmugam	Corrosion behaviour of friction stir welded rare earth magnesium alloy ZE41 under salt spray test	AIP Conference Proceedings
22	Mr.N.Sivashanmugam	Influence of plasma electrolytic oxidation coating on corrosion characteristics of friction stir welded ZE41 rare earth magnesium alloy	Surface Topography: Metrology and Properties

Patents Details

S.No	**Title**	**Details**
1.	Smart irrigation System with Solar Powered System	App. No. : 202041005568
2.	A seed and fertilizer embedded food beverage container for spreading seeds.	Aoo. No. 201741018513
3.	Automatic Insulin Injection Device for Diabetes Patients	App no. : 201941027295

4.	Automatic Brake Failure Predication and Emergency Stopping System for Automobiles	App no. : 201941027296
5.	Breathing Bricks	On progress
6.	Fat Burning Gaming System for Physically Challenged Persons	On progress
7.	Multi Functional U Turn Indicator for automobiles	On progress
8.	Crab shell helmet	On progress
9.	Recyclable sewage collector tank for train bio toilets	On progress
10.	360 degree portable fan	On progress
11.	Smart Hand Safety Device	On progress

Description of the Major Projects Carried out

- ✓ AN EXPERIMENTAL INVESTIGATION OF 3D PRINTED SPECIMEN
  Inability to quickly make a decision on what kind of material and how much infill to be used in 3D printed models by FDM process. To identity tensile and compressible strengths in order to quickly derive a decision on what kind of material and how much infills to be used. Zero wastage in producing additive manufactured products ensured Zero wastage in producing additive manufactured products ensured Ensuring maximum utility value and economic feasibility in a non economic process like 3D printing. A large amount of materials are usually wasted in order of trial and error method, thus that can be avoided reducing the money spend. Prioritising materials like PLA and other natural composites in manufacturing can reduce a huge amount of burden to environment.

- ✓ ANTI SMOG FERTILIZER SPRAYING MACHINE (TNCST FUNDED PROJECT)
  Some of these compounds enter the atmosphere as a potent greenhouse gas that's now at its highest concentration in the last 800,000 years, helping fuel climate problems like the flooding that upended farmers' lives last spring. Other fertilizer byproducts contaminate water wells, especially in agricultural areas, where the U.S. Geological Survey says one in five has levels exceeding federal health limits. These contaminants also wash into streams, rivers, and lakes, where they become what the

U.S. Environmental Protection Agency calls “one of America’s most widespread, costly and challenging environmental problems.

Ongoing Projects

1. Filament Extruded:

Preparing our own material for the production saves cost in material finance. We are building our own filament extruder with customization facility.

2. 3D printer:

Manufacturing our own 3D printing machine with several features to produce more efficient, elegant and effective designs.

Funded Projects

- ✓ CAM received research funds from many agencies like AICTE, IEI, etc.
- ✓ A fund of Rs.16,80,000has been received under the MODROBS scheme – in which the CNC machines were brought.
- ✓ Fund has been received for developing a auto rotating solar panel for vehicle from the Institute of Engineers India
- ✓ Fund has been received for the design and development of driver assistant intelligent head lamp system from the Institute of Engineers India
- ✓ Fund has been received for testing the titanium coating on gas turbine blades from the Institute of Engineers India.
- ✓ Fund has been received for conducting STTP from AICT – 14 days national level programme.

Details of Industry Mentors

- ✓ Mr. K. Dharmamuni, Manager, R&D, Simson India Pvt ltd, Chennai
- ✓ Mr. M. Manikandan, Director, Amman Press Tools, Chennai

Consultancy

- Centre for Advanced Manufacturing (CAM) has signed Non-Disclosure Agreement with Power Automobiles, Chennai for carrying out consultancy project titled

"Reverse Engineering of Three Wheeler Chassis". The value of consultancy is Rs.75000.

MOU DETAILS

1. MOU Signed with MSME, Agra(Govt. of India Enterprise)
2. MoU Signed with Hexa Training and Consultancy Services. The main objectives of this MoU is to impart specialized skills to students and Faculties in the field of CAE,CAD and Engineering training, Consultancy and Services through Industrial Projects.
3. MoU Signed with EPR Labs Chennai, for setting up Industrial Robotics Research Lab under Centre for Advanced Manufacturing (CAM). The main objectives of this MoU are to impart specialized skills to students and Faculties in the field of Robotics and Artificial Intelligence through training, Workshops, Seminars, Internship and Innovative Product Development.
4. MoU signed with Amman Tools for conducting experimentation in the CNC punching tools.
5. MoU Signed with ACCRO Auto Components Industries to have consultancy work with the 3D printing lab and the CNC machine cutting.

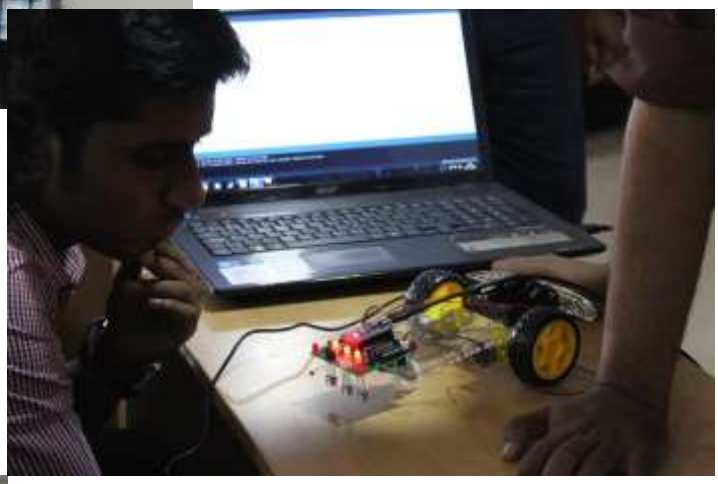
Events conducted by the Centre

- ✓ Seminars and hands on training related to 3D printing and its applications are conducted for college students and faculty members.
- ✓ The courses are conducted for the students at various levels from beginners to advanced level.
- ✓ An orientation programme is conducted for all the students to familiarise them with the significance of the research centre.
- ✓ The faculty members of this centre are encouraged to do research work by proving the internal funds.
- ✓ The 3D printing startup was initiated in the college campus by a team of students from mechanical engineering. The startup named ENTRAN 3D is run under the center and the startup is registered in MSME.
- ✓ AICTE sponsored Short Term Training Program On "3D Printing – Concepts, Methods andApplications" was conducted from 04.11.2019 to 09.11.2019. 46 participants were registered for the National level STTP, out of whom 39 were external participants from various reputed institutions all over the country.

- ✓ We provide classes and training for students on CAD, ANSYS, CATIA, design and development of Robotics and various other software.
- ✓ One Day Workshop on "3D Printing - Hands on Training" was on 02-08-2017 by RIT startup club.

- ✓ One Day Hands on Training on " Making of own robots using 3D printer" was conducted for the Mechanical engineering students on 23-03-2018. The program was organised by CAM, RIT.

- ✓



✓ Training on AUTOCAD 17-09-2018 to 22-09-2018

✓ One day workshop on 3D printing 28-02-2019

- ✓ Centre for Advanced Manufacturing conducted an Open House event on 15th October 2019 to commemorate the birthday anniversary of Dr. A. P. J. Abdul Kalam.

- ✓
- ✓

- ✓ One Day workshop on "Architecture of Quadcopters“ was conducted on 19-12-2019 by Centre for Advanced Manufacturing and STEAM Club of RIT.
- ✓ 
- ✓ 

- ✓ Centre for Advanced Manufacturing (CAM) in association with Department of Mechanical Engineering conducted an one day workshop on ‘Engineering Simulation using COMSOL Multiphysics 5.5’

- ✓ Centre for Advanced Manufacturing along with Department of Mechanical Engineering conducted a one day workshop on "Robot Simulation using CoppeliaSim" on 24/01/2020.

- ✓ Centre for Advanced Manufacturing along with Department of Mechanical Engineering conducted a one day workshop on "Computational Fluid Mechanics using ANSYS Fluent" on 28/01/2020.

- ✓ The second and third year students from VIPRA 3D have contributed in the Robotics Project Demonstration to the students of Chellammal Vidyalaya, Nungambakkam.

✓ 


3D

- ✓ Two days workshop on 'AutoCAD & AutoLISP Programming' 14-02-2019 to 15-02-2019

- ✓ 

- ✓ CAD modelling training Session for students : Two days hands on CATIA modelling Software training provided to III year mechanical students. The course conducted by Mr.R.Deepak Suresh Kumar on 26th and 27th May 2022 at CAD lab. The course covers the sketching module, Modelling module and the Assembly module. As the outcome of the course, students can bale to design and model the desired components and the assembly. Further, assessment will be conducted for the students and certification will be issued.

- ✓ Mr.K.Kanagaraja accompanied I yr Mechanical Engg. Students for One day Industrial visit to "TVS", Housr. on May 28, 2022. 51 students and 2 faculty members visited the industries. As the outcome of the visit, students understand the manufacturing process involved.

- ✓ Department of Mechanical Engineering in association with CAM, CAMR and EVE, organized the online webinar on "Ideation on Non Traditional Machining Technology ". The webinar presented by Dr T R Vijayaram on 23.05.2022.

- ✓ As the outcome of the training program (CAD modelling, slicing software and Printer training) conducted to REC III Yr EEE department students at our CAM centre last week, they participated in the Toyathon competition held in Galgotias University, Delhi and won the first prize and Rs. 25,000 cash award. Our CAM also supported them in printing the customized Elephant toy model.

- ✓ Our CAM center students visited the Defense and Technology Expo organized at the Chennai Trade Center, Nadambakkam on 28-05-2022. Through this expo, they are exposed the various latest technologies and they had interactions with the 3D printer manufacturers and cleared the doubts with the machine parameters controls.

- ✓ We received the funding from TNSCST for the academic year 2021-22 for the final yr project on the topic Design and Fabrication of Fertilizer Sprayer Machine - Tamilnadu Government state council for science and technology sponsored project. The project has completed by our final year students under the Guidance of Mr.K.Kanagaraja and Dr Kavitha. The UC and the project completion report submitted to the sponsoring agency on 31.05.2022.

- ✓ In CAM, in order to explore our capability, that we can manufacture components with the additive technology and also with the subtractive technology. We created the Einstein face through additive manufacturing (3D printed Miniature model) and subtractive manufacturing with the CNC Wood Router machine in the wooden blank.

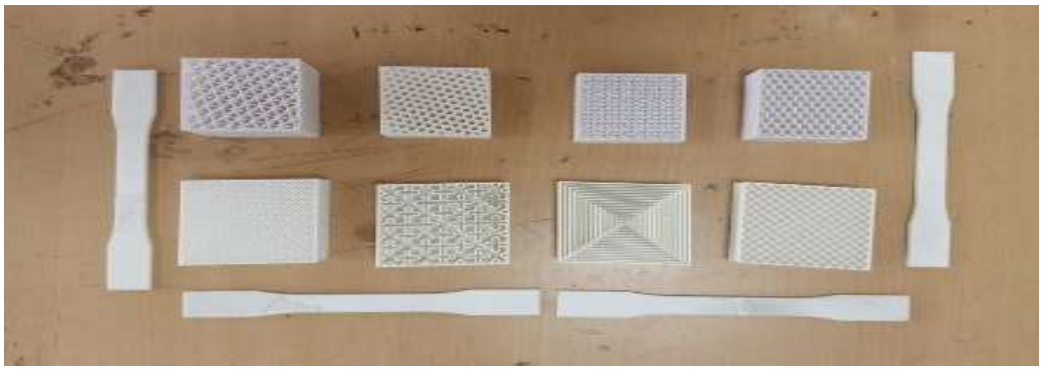
- ✓ Through the CAM, a separate course syllabus for the 3D printing training course has been formulated. This syllabus focused on the beginners or to the school students i.e. "Course for beginners".

- ✓ In CAM, we did a small consultancy work of “Talking Elephant Model” with PLA filament. This Elephant is a speaking elephant, in which the speaker, battery and the boards inserted into the stomach portion of this elephant model. This consultancy work is for the III yr EEE students of REC as their project work. The stl file editing, slicing and printing done by the CAM students. The order received on 18th May 2022 and completed on 19th May 2022.

- ✓ In CAM, we conducted Two days Master 3D printing - Hands on training program for REC EEE department students, This training includes Modelling using CATIA software, STL file conversion module, Slicing module, printing module. Hands on given on the flash forge and Entran model machines. As they are going for the

Toyathon competition, there they have to model and print the components based on the provided problem.

- ✓ In CAM, Continuous work of previous week we printed the remaining Infill Patterns (8 patterns) in PLA material. The sample specimens for testing also printed with ASTM standard. The Recursive equations for the tested values also formulated for the tension and compression tests. Tensile strength and the Compressive strength for combinations of 39 specimens projected. Tensile strength for rectangle, triangle and square for various infll orientation projected along with NABL certificate. Filament and the time consumption for the various patter also projected.



- ✓ In CAM, Continuous work of previous week, we printed the "Gyro Cubes" in PLA material. 10 mm cube also printed but the issue exists in the functionality. Also the strength of the 10 mm cube is not satisfactory and it is more brittle in nature. So reprinting of the miniature model is on progress.

- ✓ In CAM, we printed the animatronic eyes components with PLA filament. Pending work is the electronic parts and testing. This can be used as the eyes for the humanoid robots which will resembles the human eyes.

- ✓ Project 1 : Infill Patterns
    - NABL test results are the numeric values, it can be projected in graphical forms.
    - Along with volume and time projections, weight also can be measured.
    - Applications : Weight to strength ration applications like Aero modelling, Aero wings, Marine applications, Customized industrial and domestic components, use ad through components, difficult to manufacture components, components without joints to avoid stress concentration, car spoilers, etc.
    -
- ✓ Project 2 : Gyro cube

  Gyro cube / Cube sate model demonstrated with the circuit board to show that the board will always faces downwards i.e. the base station due to gravity, so that the signals will be send to ground station continuously without any interruption. If we are using cameras, the gyro cube make the camera always face downwards irrespective of the gyro orientation.

  10*10 mm mini cube also fabricated,

- ✓ Adhi yogi Invisible Statue is reconstructed, as the pervious model face is elongated due to improper welding and spacing. So to overcome the issue, the model is re-welded.

- ✓ In Techutsav 22 - One Day national level 3D printing workshop “Master in 3D printing” conducted by CAM for the students on 14th May 2022. Totally 76 students from various engineering and arts college have participated. The workshop conducted in 3 modules – 3D printing software, 3D printer assembly and CAD modelling. The participant appreciated the workshop.

- ✓ Mr. N. Sivashanmugam ranked as Topper – Elite grade in the NPTEL exam – Inspection and Quality Control in Manufacturing Subject.

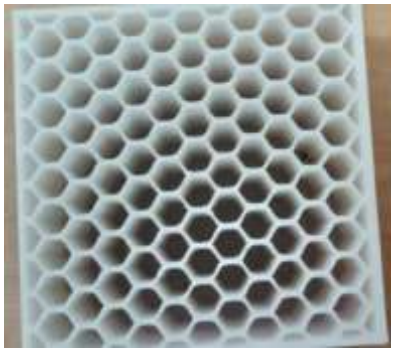
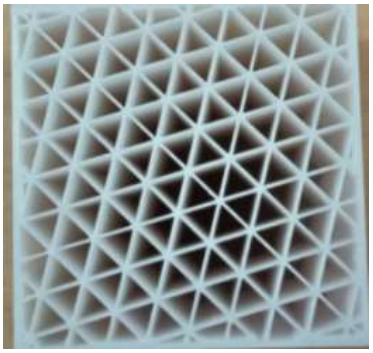
- ✓ 3D Model designed for the REC EEE students (III Yr) for the Toyathon competition going to held at Delhi on 27th May 2022. Training on the software and 3D operation also been planned.

- ✓ Further to enhance the visibility and resolution of the Adhi yogi invisible model, the assembled model is again dismantled and reassembly started with the spacers and continuous run weld.

In CAM, we printed the "Single Print Ball Bearing" with PLA. The bearing is a light weight bearing compared the existing. The entire bearing with the inner and outer races are made in single print along with the balls. The balls are free to rotate and can carry loads. It can be good replacement of existing bearing for the light weight applications. Future Scope : Same can be printed in the self lubricating material, it can be fixed with an applications.

✓ In CAM, we printed the "Self Balancing Object" with PLA. The weight on the both side are balanced by itself and can be used as a fancy object. Similarly we can print the fancy items and the customized objects on need.

- ✓ In CAM, we printed the “Various Infill Patterns” with PLA. Infill are the material filled inside the printed object and based on the structure of the infill pattern, the strength of the object varies. So various possible infill patterns and the strength of those infills are calculated with ASTM standard specimen for the compressive and the tensile loads.

- ✓ Corrugated Honeycomb Triangle pattern

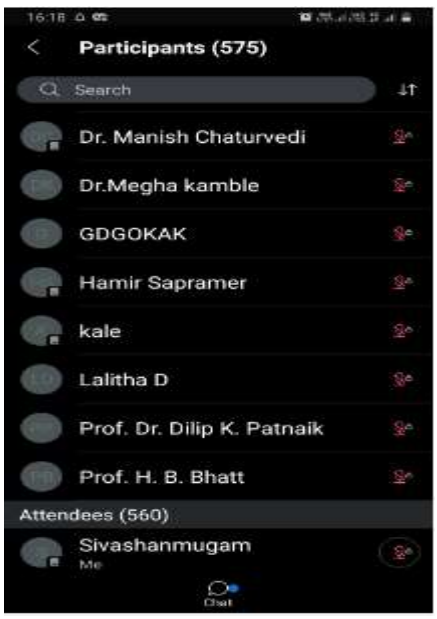
✓ In CAM We printed “360’ Flow Vertical Axis Fan Blade”. Which will give air flow in 360’. It is compact and portable, operated with battery powered. The assembly will be completed in a week time. The entire model is designed in the Solidworks software and printed in 3D printer. Future Scope : Testing for the air flow and enhancement of the efficiency, Pattern.

- ✓ In CAM, we printed “Single Print - Gyro Cube / Cube Sat Structure”. This is self balanced object having 4 independent orbits with rotational degrees of freedom. Each orbit rotates independently. It can be used in the cube sat, in which the developed model always make the sensor/transmitter/camera always facing the base station downwards, whatever the rotational disturbance happens.

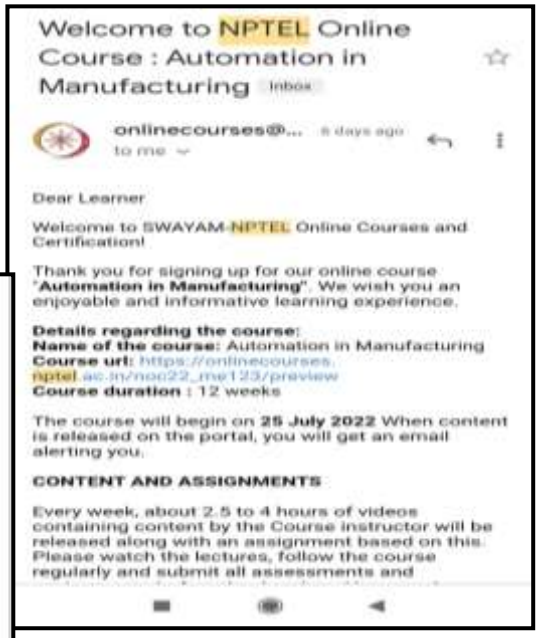
- ✓ Students of CAM exhibited our 3D printing stall in "Vision 2022" held at Anna University Campus, Guindy. Visitors enquired about the facilities and discussed about the 3D Printing process.
- ✓ Mr.S.Srinivasan has submitted a paper in Material Today Proceedings Journal and its accepted for publication.
- ✓ From the CAM Centre, project ideas have submitted and discussed with Director sir for GET Conclave and finalized the titles for display.
- ✓ 3D printing students printed single print real time bearing.
- ✓ Adhiyogi 1 feet proto model in MS – CNC plasma cutting machine
- ✓ Attended one day national Workshop on Recent Advances in Metal 3D printing – Mr. N. Sivashanmugam
- ✓ Funded project- TNSCST – Rs 7500 – Mr. K. Kangaraj – Fertilizer spraying machine.
- ✓ Three Proposals have been submitted to MSME INCUBATION SCHEME – IDEA HACKATHON PROJECT.
- ✓ Proposals :
- ✓ Dr.S.K Rajesh Kanna - U turn Multi Functional Indicator for Automobiles
- ✓ Mr.N.Sivashanmugam - Helmet from Crab Shell and waste carbon
- ✓ Mr.P.Sethu Ramalingam - Design and Fabrication of multi-purpose hand safety device using biodegradable polymer composites by fused deposition modeling technique.
- ✓ 52 School students from Karnataka Sangha Higher Secondary School, have visited centre for Advanced manufacturing - 3D Printing and Robotics Lab in Forenoon session. In this session, demo on the 3D printing were given to students in batches. The working principle were explained to the students and their doubts were cleared.
- ✓ Karnataka Sangha Higher Secondary School visited on 26-03-2022 to AICTE Sponsored Plasma cutting machine & router machine lab in Afternoon session. CAM Incharges explained to the students about the activities being done at the centre. Demo on wood cutting and metal cutting were shown.
- ✓ 15 Students from III year has enrolled to the CAM for Centre learn activity. The special syllabus has framed for Centre learn activity including Hands on training session. 5 session planned for contact hours and 5 session for practical sessions.
- ✓ As planned last week, we tested different materials and different cutting thickness on the plasma cutting machine

- ✓ CAM students visited IITM Research park Incubator Hub on on 04-06-2022 through the RIT Startup club.

- ✓ 3D Printing syllabus formulated for the "Course for beginners". The syllabus discussion and the methodology of teaching had with the students.
- ✓ Discussion had with Mr. Augstin, Markforged, 3D printer supplier with the principal through the IIPC.
- ✓ CAM faculty members (Dr.S.K.Rajesh Kanna, Mr.N.Sivashanmugam & Mr.P.Sethu Ramalingam) attended the Live Webinar on UNLOCKING INTERNSHIP & Industrial experience for your career kick-start to balance Skills vs Experience and prepare for Placements . Held on 16th July, Saturday at 11.30 AM by Crion Versity, Crion Technologies , an IIT Madras based company.



- ✓ The following CAM faculty members has registered the NPTEL Certification course for 12 weeks and the details as follows
  Dr.S.K.Rajesh Kanna - Automation in Manufacturing (Duration 12 Weeks)
  Mr.N.Sivashanmugam - Automation in Manufacturing (Duration 12 Weeks)
  Mr.P.Sethu Ramalingam – Metal Additive Manufacturing Process (Duration 12 Weeks)
  Mr.S.Srinivasan - Automation in Manufacturing (Duration 12 Weeks)


Welcome to NPTEL Online Course : Automation in Manufacturing

onlinecourses@...

Dear Learner

Welcome to SWAYAM-NPTEL Online Courses and Certification!

Thank you for signing up for our online course "**Automation in Manufacturing**". We wish you an enjoyable and informative learning experience.

Details regarding the course:
Name of the course: Automation in Manufacturing
Course url: https://onlinecourses.nptel.ac.in/noc22_me123/preview
Course duration : 12 weeks

The course will begin on **25 July 2022** When content is released on the portal, you will get an email alerting you.

CONTENT AND ASSIGNMENTS

Every week, about 2.5 to 4 hours of videos containing content by the Course instructor will be released along with an assignment based on this. Please watch the lectures, follow the course regularly and submit all assessments and


Welcome to NPTEL Online Course : Metal Additive Manufacturing

Sethuramalingam P <sethuramalingam.p@ritchennai.edu.in>

1 message

onlinecourses@nptel.iitm.ac.in <onlinecourses@nptel.iitm.ac.in> Fri, Jul 15, 2022 at 11:47 AM

Dear Learner

Welcome to SWAYAM-NPTEL Online Courses and Certification!

Thank you for signing up for our online course "**Metal Additive Manufacturing**". We wish you an enjoyable and informative learning experience.

Details regarding the course:
Name of the course: Metal Additive Manufacturing
Course url:
Course duration : 12 weeks

The course will begin on **25 July 2022** When content is released on the portal, you will get an email alerting you.

CONTENT AND ASSIGNMENTS

Every week, about 2.5 to 4 hours of videos containing content by the Course instructor will be released along with an assignment based on this. Please watch the lectures, follow the course regularly and submit all assessments and assignments before the due date. Your regular participation is vital for learning and doing well in the course. This will be done week on week through the duration of the course.
Please do the assignments yourself and even if you take help, kindly try to learn from it. These assignment will help you prepare for the final exams. Plagiarism and violating the Honor code will be taken very seriously if detected during the submission of assignments.

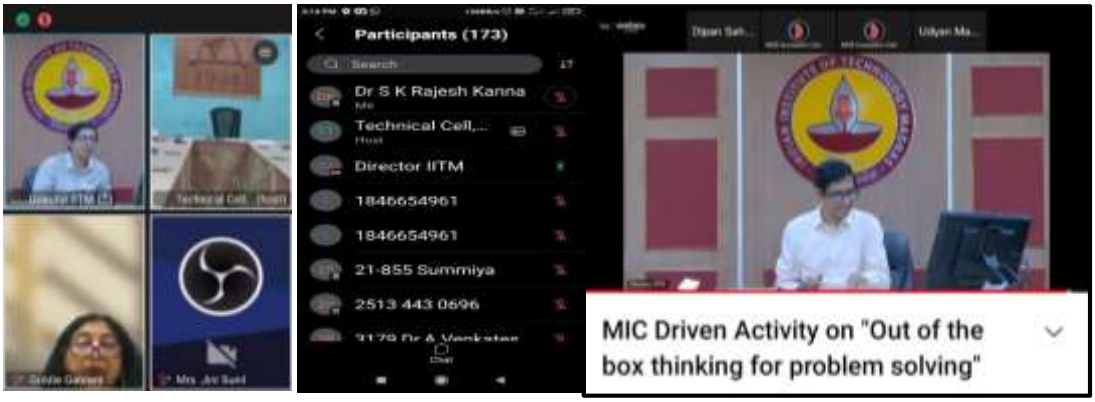
- ✓ In wood router machine, for lettering, Mr. Sivasnamugam and his team tried with the 1 mm and 1.5 mm router cutter and analyzed the finish in wood router lettering operations. It is found that the finish with the 1.5 mm cuter compared to the 6 mm cutter is very high and consumes more time. CAM brought the collet for the 1.5 mm and the tools (default collect given by the manufacturer is 6 mm).
- ✓ CAM faculty members (Dr.S.K.Rajesh Kanna, Mr.N.Sivashanmugam & Mr.P.Sethu Ramalingam) attended the Impact Lectures Series- Webinar on "Innovation and Intellectual Property Rights" conducted by IPR Cell & Institution's Innovation Council (IIC) of Sacred Heart College (Autonomous), Tirupattur, Tamil Nadu, India. Guest Speakers: Dr. A. Jeffry Andrew, School of Excellence in Law, The Tamilnadu Dr. Ambedkar Law University, Chennai, Tamil Nadu. Topic: General Principles of Intellectual Property. On 19-07-2022

- ✓ Consultancy Work

  For the E cycle project, to keep the raspberry pi board and the battery to power the circuit board, We are in need of customized stand. So based on the requirement, a stand with three layers, designed in the Catia software and printed the component in the 3D printer. It is a small internal E Cycle consultancy work done in 3D printing lab. Holes are provided on all the layers to dissipate the heat generated while charging and discharging. Provision given to fit the CPU cooler fan, on need basis to dissipate the excess heat. The melting point of the material is 230'C and it can be used on hot conditions also, even under the mid sun radiations, it will safeguard the board and the battery. Also it is made of PLA material, it is water resistance for the moderate rain. The additional feature is that it is made of single print, so no leakage of water occurs. It is made as a proto model, after installation, based on the requirement, its features can be modified to suit our needs for all the smart E cycles.

- ✓ Dr.S.K.Rajesh Kanna , Mr.P.Sethu Ramalingam and Mr.N.Siva shanmugam has attended "Out of the box thinking for problem solving" webinar conducted by Dr.V.Kamakoti, Director of IIT Madras.

- ✓



- ✓ On 9th July 2022, our cam students Mr. Yadesh, Mr Niranjan presented the consultancy project titled Sprayer for fertilizer for TAFE, Mr Ravindran, TAFE appreciated the progress of our student. Students did the calculations and completed the design aspects. The expert team analyzed the design parameters and suggested for the simulation using software's like fluent, etc. so that the design value can be validated and can go for production process. Also they added that the proto model might not be good, instead real model can be produced once the design parameters get validated.


- ✓ Anna university logo was engraved in the wood using CNC router machine. This was done in two stages, using the flat cutter, entire symbol was engraved and in the second stage, lettering carved using the router cutter for fine finish. It took 4 hrs to finish the model.

- ✓ In CAM, investigation on the various wood materials in the CNC router have also been tried. This experimentation is performed to optimize the machine parameters and to characterize the properties of the wood materials after machining. The different wood materials considered are Nu wood, Compressed wood & plywood. The surface finish, time taken and the scrap produced are recorded for future study. Trying to publish a research paper.
- ✓ Faculty Incharge : Mr. N. Sivashanmugam & Dr S K Rajesh kanna



- ✓ Dr.S.K.Rajesh Kanna has submitted the proposal for 15 days ATAL FDP program titled as "Composite materials" under the Novel Material Domine with the Application Number Application Number: 1650432255 for the Budget of 3 Lakhs.
- ✓ Students of CAM Centre installed 3D printing stall in REC International Conference for two days. During this period, they received an on spot crank shaft printing order and delivered the product on time.
- ✓ CAM Centre students installed Plasma Cutting Machine & CNC Wood router stall in Two days conference held at REC. Visitors enquired about the facilities and discussed the aluminum alloy machining.
- ✓ Centre learn activity third session has been completed on 23.04.2022. In this session the students were trained in CAD design software - CERO.
- ✓ CAM and IIPC completed the Training course on CREO for the ECE students and the certificate distributed.
- ✓ In the Meta mega project, Tesla block modeling completed in CATIA software by the students.
- ✓ In the CNC plasma machine, new material GI, machined and the observation noted.
- ✓ Mr. N. Sivashanmugam completed the NPTEL exam on 23-04-2022.
- ✓ Technical discussion with the Dean and Director had on 19-04-2022 regarding the Adhi Yogi statue and the optimization techniques.
- ✓ CAM students completed the research order of printing the Carbon ASTM specimens of 96 nos and delivered.

- ✓ Review meeting had with the TANCST Sprayer project students and the design finalized.
- ✓ CAM in association with DoME conducting Special class on the courses completed by the students during the pandemic time. Mr. Sivashanmugam handled Manufacturing Technology classes.
- ✓ CAM in association with DoME started the kaizen process from the month of April 2022.
- ✓ Department of Mechanical Engineering in association with CAM, and Institution's Innovation Council (IIC) jointly organized the Two days International workshop on "Impact of Intellectual Property Rights in Engineering Industries" on 12th & 13th April' 2022.
- ✓ Department of Mechanical Engineering in association with CAM, and Institution's Innovation Council (IIC) jointly organized the NIPAM – Govt. of India certification session with the Mr. Madhanraj from Indian Patent office, Chennai. 243 participants were provided with the govt. of India certificate 12th April 2022.
- ✓ Dr.S.K.RajeshKanna acted as a Resource person for the International workshop on "Impact of Intellectual Property Rights in Engineering Industries" organized by Department of Mechanical Engineering in association with CAM and delivered lecture on the topic "Importance of the IPR in Engineering".
- ✓ CAM students has participated the two days International Workshop on "Impact of Intellectual Property Rights in Engineering Industries" organized by Department of Mechanical Engineering in association with CAM. The students interacted very well with the resource persons
- ✓ Students of CAM Centre has put a 3D printing stall in RIT product expo - "VIBEYY MAGASIN", organized by RIT EDC Start-up Cell and YUVA.
- ✓ Students of CAM Centre has put a Designing (Mr. Adthiyaraj) stall in RIT product expo - "VIBEYY MAGASIN", organized by RIT EDC Start-up Cell and YUVA.
- ✓ Students from various schools, have visited Centre for Advanced manufacturing - 3D Printing and Robotics Lab in Forenoon session. In thissession, demo on the 3D printing were given to students in batches. The workingprinciple were explained to the students and their doubts were cleared.
- ✓ School students has visited on 14-04-2022 to AICTE Sponsored Plasma cutting machine & router machine lab in Afternoon session. CAM Incharges explained to the students about the activities being done at the centre. Demo on woodcutting and metal cutting were shown.
- ✓ Mr.P.Sethu Ramalingam has participated in a One day Industrial visit organized at the "Centre of Excellence – 3D & Digital Printing Division' of Redington (India) Ltd, Chennai on April 18, 2022.
- ✓ CAM Centre students has participated in a One-dayIndustrial visit organized at the "Centre of Excellence – 3D & Digital Printing Division' of Redington (India) Ltd,

Chennai on April 18, 2022.Students listened intently to the latest technologies in 3D printing.

- ✓ CAM students completed te printing of the human body parts and delivered the order to the Rajalakshmi Nursing college on 18-04-2022.
- ✓ Received the research order of fabricating the carbon + PLA fiber specimens in ASTM standard for 136 specimens.
- ✓ CAM in association with DoME conducting Special class on the courses completed by the students during the pandemic time.
- ✓ RIT building modelling using the CATIA software is on progress
- ✓ Game module casing for Mr. Ragul Krishna, ECE, RIT completed.
- ✓ Developed software module to check the blooms taxonomy level in the Internal assessment question papers.
- ✓ Mr.N.Sivashanmugam is attending the "Computational Fluid Dynamics" (CFD) FDP program at Loyola ICAM Engineering college.
- ✓ CREO training has completed for 3D printing students by Mr. Deepak.
- ✓ Standard mobile stand was designed and printed by our 3D printing students under the guidance of Mr.P.Sethu Ramalingam.

Certified Courses

1. Computer Aided Design

Course Code	Course Name	Course Duration
RC1101	Auto CAD Basics	One week
RC1102	Creo (Pro-E)	One week
RC1103	Solidworks	One week
RC1104	Catia	One week
RC1105	Unigraphics (NX)	One week

2. Computer Aided Engineering

Course Code	Course Name	Course Duration
RC2101	ANSYS	One week
RC2102	Hypermech	One week
RC2102	Computational Fluid Dynamics (CFD)	One week

3. Additive Manufacturing

Course Code	Course Name	Course Duration
RC3101	Concepts, Techniques and Practices of 3D Printing and Slicing Techniques	One week
RC3102	Concepts, Techniques and Practices of 3D Printing and Reverse Engineering	One week

4. Robotics

Course Code	Course Name	Course Duration
RC4101	Robotics, Machine Learning and Automation	Three Months

5. CNC Training

Course Code	Course Name	Course Duration
RC5101	CNC Lathe programming and training	One Month
RC5102	CNC Milling programming and training	One Month
RC5103	Machine vision for mechanical Applications	One Month
RC5104	Labview Training	One Month

RAJALAKSHMI INSTITUTE OF TECHNOLOGY
BELIEVE IN THE POSSIBILITIES

CENTRE FOR ADVANCED MANUFACTURING

Department of Mechanical Engineering
Centre for Advanced Manufacturing

15th June 2022

Activity Report –June 2022 (08.06.2022 to14.06.2022)

Activity report of the Centre for Advanced Manufacturing June **2022**

The activities of the Week

- For the MODROBS project, utilization certificate preparation and the project closing report preparation is on progress. The bills collection from the Admin office on progress. The MODROBS project status discussed with the Principal, Dean and Director.
- While working at Bell Labs, mathematician George Stibitz experimented with relays at home. He developed a circuit to add binary numbers, which led to a relay-based computer. Similarly CAM students tried to develop the proto showcase model K adder.

Activity for the week

- Modrobs utilization certificate completion.

RAJALAKSHMI INSTITUTE OF TECHNOLOGY
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CENTRE FOR ADVANCED MANUFACTURING

Department of Mechanical Engineering
Centre for Advanced Manufacturing

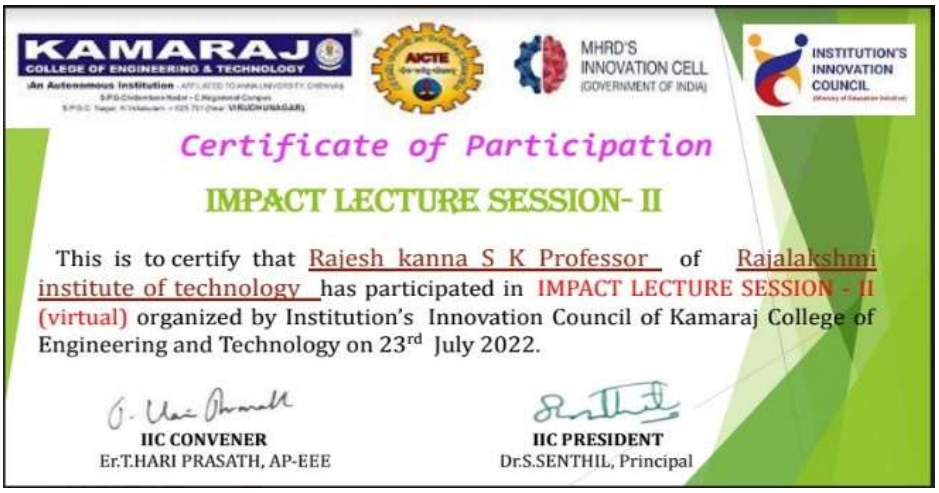
03 rd Aug 2022

Activity Report – August 2022 (27.07.2022 to 02.08.2022)

Activity report of the Centre for Advanced Manufacturing August **2022**

The activities of the Week

- Dr.S.K.Rajesh Kanna has attended the Online lecture session organized by Kamaraj College of Engineering and Technology, Virdudhunagar on 23rd July 2022 on the topic "Impact lecture Session II on Patent filing".


KAMARAJ
COLLEGE OF ENGINEERING & TECHNOLOGY
An Autonomous Institution
AICTE
MHRD'S INNOVATION CELL (GOVERNMENT OF INDIA)
INSTITUTION'S INNOVATION COUNCIL

Certificate of Participation

IMPACT LECTURE SESSION- II

This is to certify that Rajesh kanna S K Professor of Rajalakshmi institute of technology has participated in IMPACT LECTURE SESSION - II (virtual) organized by Institution's Innovation Council of Kamaraj College of Engineering and Technology on 23rd July 2022.

IIC CONVENER
Er.T.HARI PRASATH, AP-EEE

IIC PRESIDENT
Dr.S.SENTHIL, Principal

- Students from CAM has recreated the Official Mascot of 44th Chess Olympiad is 'Thambi'. The word 'Thambi' in Tamil language means - little or younger brother. The model is going to print in copule of days in the 3D printer.

- CAM publication meeting was held on 2nd Aug 2022. The publication status of the faculty members were discussed and motivated for the SCI publications.

S.No.	Name	TOTAL TARGET (2021-2022)	ACCEPTED	PUBLISHED	TOTAL NO OF SCI JOURNALS	HIGHEST (Cite Score)	CUMULATIVE IF
1	Mr. P. Sethu Ramalingam	4	0	4		1	1
2	Mr.N.Sivashanmugam	4	1	3		2.08	2
3	Mr. S. Srinivasan	4	1	1			0
4	Dr. S. K. Rajesh Kanna	4	2	4	1	12	12
5	Mr. K. Kangaraja	4	0	3	0		

- For the E Cycle project, to hold the Raspberry pi board and the other circuits, CAM students accepted for the internal consultancy project. The same has been designed in CATIA software and printed in the 3D printer. The same has been handed over to the ECE department Electric vehicle team incharge.

- Mr.P.Sethu Ramalingam has published his 4th paper titled as " A critical review of an additive manufacturing role in Covid-19 epidemic" in the journal of Materials Today: Proceedings.

Contents lists available at ScienceDirect

Materials Today: Proceedings

journal homepage: www.elsevier.com/locate/matpr

ELSEVIER

A critical review of an additive manufacturing role in Covid-19 epidemic

Jinka Rupesh Kumar [a], K. Mayandi [a], S. Joe Patrick Gnanaraj [b,*], K. Chandrasekar [c], P. Sethu Ramalingam [d]

[a] Department of Mechanical Engineering, Kalasalingam Academy of Research and Education, Krishnankoil, Tamilnadu, India
[b] Department of Mechanical Engineering, G.Madhav Thenua Engineering College, Tamilnadu, India
[c] Department of Mechanical Engineering, PSN College of Engineering and Technology, Tirunelveli, Tamilnadu, India
[d] Department of Mechanical Engineering, Rajalakshmi Institute of Technology, Chennai, India

ARTICLE INFO

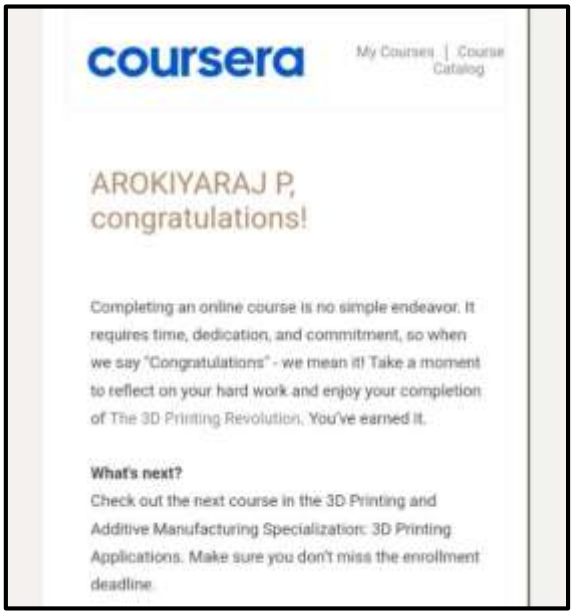
Article history:
Available online xxxx

Keywords:
COVID – 19
3D printing
Epidemic
Additive Manufacturing

ABSTRACT

In 2019, a massive and deadly coronavirus pandemic known as the COVID-19 pandemic has swept through more than 180 nations, causing a massive strain on already overtaxed health systems around the globe. Global demand for medical equipment has put a strain on traditional manufacturing methods, resulting in the need for an efficient, low-cost, and speedy mode of production. Additive manufacturing, or 3D printing, has been used by manufacturers to bridge the gap and enhance the production of medical products. Some designs that had been previously or conventionally fabricated have been revised to meet the 3D printing requirement for combating COVID-19. A variety of designs were created, and they are now in use in hospitals by patients and healthcare professionals. However, because some gadgets must adhere to rigorous standards, it is possible that some items will not meet these requirements. As a result,

- 3D printing students Mr. P.Arokiyaraj has completed the course in Coursera on the topic Additive Manufacturing.



coursera

My Courses | Course Catalog

AROKIYARAJ P,
congratulations!

Completing an online course is no simple endeavor. It requires time, dedication, and commitment, so when we say "Congratulations" - we mean it! Take a moment to reflect on your hard work and enjoy your completion of The 3D Printing Revolution. You've earned it.

What's next?
Check out the next course in the 3D Printing and Additive Manufacturing Specialization: 3D Printing Applications. Make sure you don't miss the enrollment deadline.

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CENTRE FOR ADVANCED MANUFACTURING

Department of Mechanical Engineering
Centre for Advanced Manufacturing

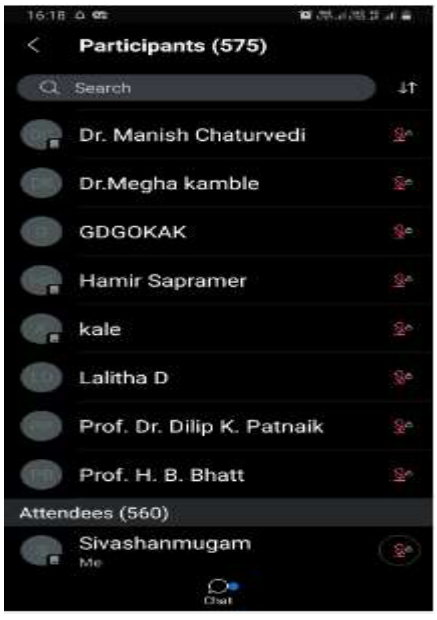
20th July 2022

Activity Report – July 2022 (13.07.2022 to 19.07.2022)

Activity report of the Centre for Advanced- Manufacturing July **2022**

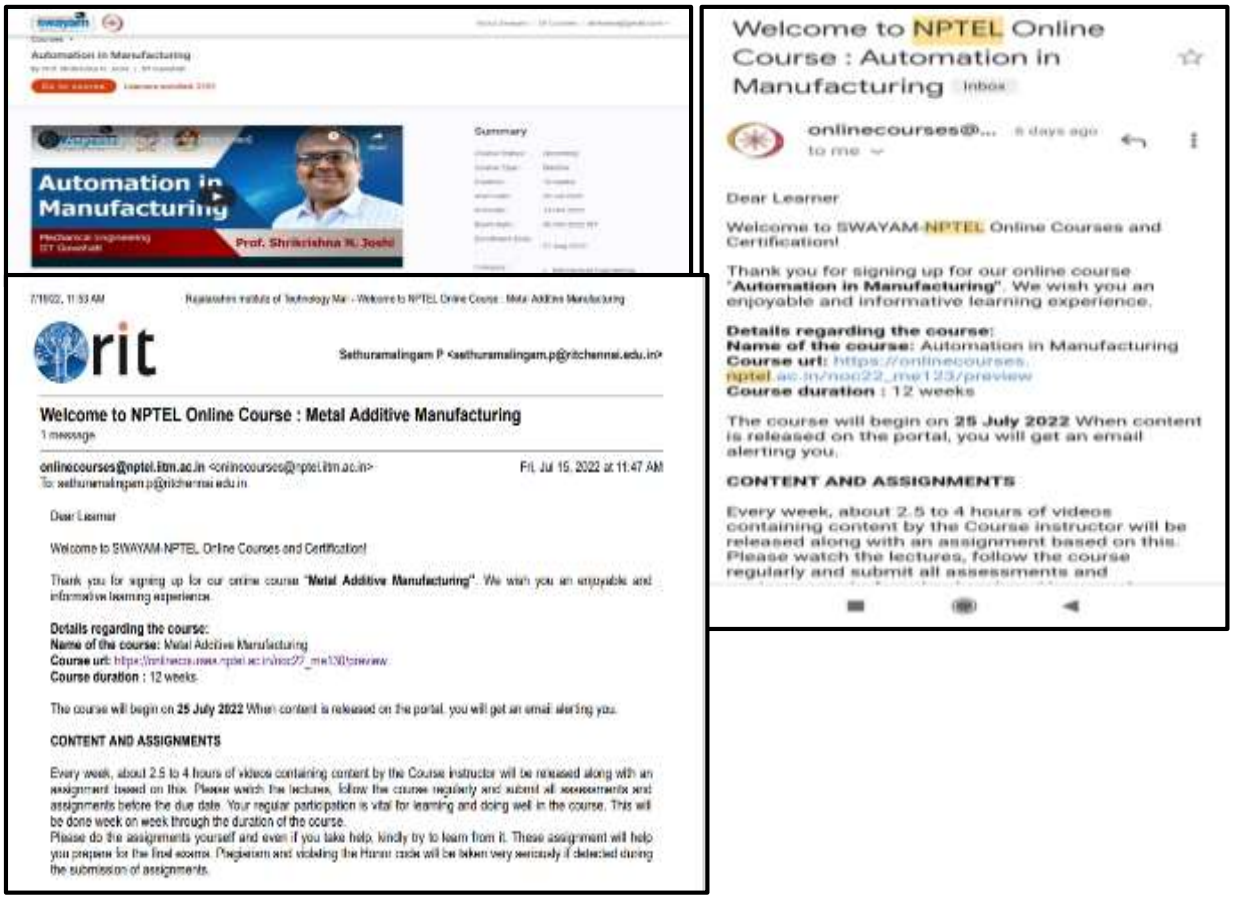
The activities of the Week

- CAM faculty members (Dr.S.K.Rajesh Kanna, Mr.N.Sivashanmugam & Mr.P.Sethu Ramalingam) attended the Live Webinar on UNLOCKING INTERNSHIP & Industrial experience for your career kick-start to balance Skills vs Experience and prepare for Placements . Held on 16th July, Saturday at 11.30 AM by Crion Versity, Crion Technologies , an IIT Madras based company.



- The following CAM faculty members has registered the NPTEL Certification course for 12 weeks and the details as follows

  - Dr.S.K.Rajesh Kanna - Automation in Manufacturing (Duration 12 Weeks)
  - Mr.N.Sivashanmugam - Automation in Manufacturing (Duration 12 Weeks)
  - Mr.P.Sethu Ramalingam – Metal Additive Manufacturing Process (Duration 12 Weeks)
  - Mr.S.Srinivasan - Automation in Manufacturing (Duration 12 Weeks)



- In wood router machine, for lettering, Mr. Sivasnamugam and his team tried with the 1 mm and 1.5 mm router cutter and analyzed the finish in wood router lettering

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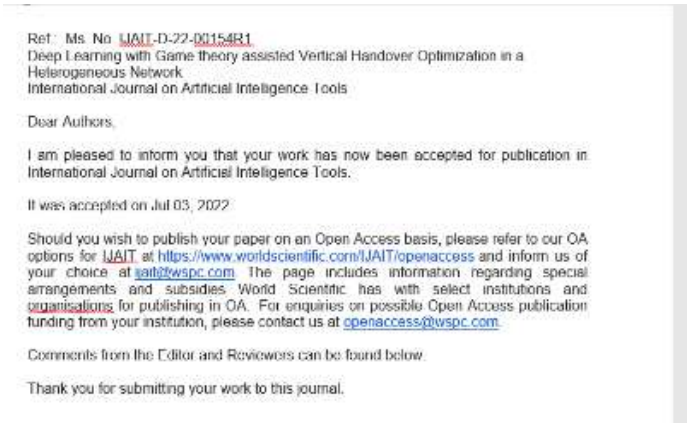
- **Research Publication**
  1. Dr S K Rjesh Kanna's research paper has been accepted for Publication in International Journal on Artificial Intelligence Tools. It is in Scopus and Anna university Annex Journal list. Impact factor is 2.8. The paper titled Deep Learning with Game theory assisted Vertical Handover Optimization in a Heterogeneous Network. In this research, his contribution is on the optimization and development of ANN module for predicting the suitable handover.



Ref: Ms. No. IJAIT-D-22-00154R1
Deep Learning with Game theory assisted Vertical Handover Optimization in a Heterogeneous Network
International Journal on Artificial Intelligence Tools

Dear Authors,

I am pleased to inform you that your work has now been accepted for publication in International Journal on Artificial Intelligence Tools.

It was accepted on Jul 03, 2022

Should you wish to publish your paper on an Open Access basis, please refer to our OA options for IJAIT at https://www.worldscientific.com/IJAIT/openaccess and inform us of your choice at ijait@wspc.com. The page includes information regarding special arrangements and subsidies World Scientific has with select institutions and organisations for publishing in OA. For enquiries on possible Open Access publication funding from your institution, please contact us at openaccess@wspc.com.

Comments from the Editor and Reviewers can be found below.

Thank you for submitting your work to this journal.

  2. Mr.P.Sethu Ramalingam has published a paper **"An exclusive hand protection device made of fused deposition modelling process using poly (lactic acid) polymer"** in the journal of Materials Today: Proceedings.

Contents lists available at ScienceDirect

Materials Today: Proceedings

journal homepage: www.elsevier.com/locate/matpr

An exclusive hand protection device made of fused deposition modelling process using poly (lactic acid) polymer

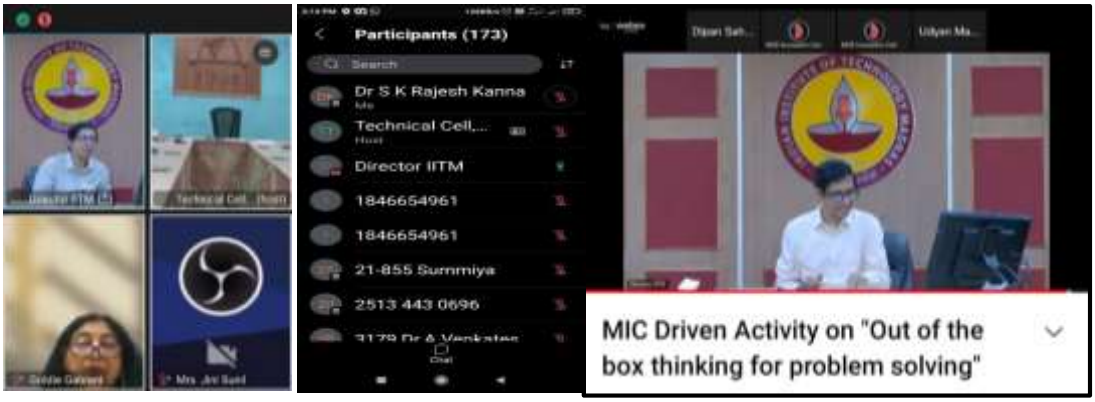
S. Thamizh Selvan [a,*], M. Mohandass [b], Dinesh Kumar vairavel [c], P. Sethu Ramalingam [d], K. Mayandi [e], S. Joe Patrick Gnanaraj [c], M. Appadurai [f]

[a] Department of Mechanical Engineering, Panimalar Engineering College, Chennai, India
[b] Department of Mechanical Engineering, Sri Venkateswara College of Engineering, Chennai, India
[c] Department of Mechanical Engineering, Kalasalingam Academy of Research and Education, Krishnankoil, Tamilnadu, India
[d] Department of Mechanical Engineering, Rajalakshmi Institute of Technology, Chennai, India
[e] Department of Mechanical Engineering, St. Mother Theresa Engineering College, Thoothukudi, Tamil Nadu, India
[f] Department of Mechanical Engineering, Dr. Sivanthi Aditanar College of Engineering, Tiruchendur, Tamil Nadu, India

- **Expert Visit**
  Dr M Pradeep Kumar, Professor, Anna University and his team (Autonomous Inspection Committee) visited the 3D printing lab on 04-07-2022. The team discussed the research activities and appreciated the MSME registration and student's activities carried out in the lab. Also the professor agreed to have a visit by our students to the Anna university AUFRG lab. He also added that the current research in AUFRG is on tiatinium coated 3D printed parts. *(Note : In 2018-19 - RIT got funding from IEI for the tiatinum coated gas turbin bladed - but we fabricated using sintering technique).* The team also visited the CNC lab and appreciated the Invisible Adhi yogi model and AU logo wood engraved model.

- **MODROBS**
  The project completion report and the utilization certificate for the MODROBS submitted to AICTE.

- Dr.S.K.Rajesh Kanna , Mr.P.Sethu Ramalingam and Mr.N.Siva shanmugam has attended "Out of the box thinking for problem solving" webinar conducted by Dr.V.Kamakoti, Director of IIT Madras.



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Plan for Next Week

Based on the request made by TAFE team, and by the direction of the principal, it is decided to have 2 more batches for doing TAFE consultancy on design analysis and fabrication of fertilizer sprayer with unique blower for each nozzles and compressor for through of fertilizer. so in this week students team will be finalized. the same project may be allotted as their final year project.

RAJALAKSHMI INSTITUTE OF TECHNOLOGY
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CENTRE FOR ADVANCED MANUFACTURING

Department of Mechanical Engineering
Centre for Advanced Manufacturing

06 th July 2022

Activity Report – July 2022 (30.06.2022 to 05.07.2022)

Activity report of the Centre for Advanced Manufacturing July **2022**

The activities of the Week

- Anna university logo was engraved in the wood using CNC router machine. This was done in two stages, using the flat cutter, entire symbol was engraved and in the second stage, lettering carved using the router cutter for fine finish. It took 4 hrs to finish the model.
  Faculty Incharge : Mr. N. Sivashanmugam

- In CAM, investigation on the various wood materials in the CNC router have also been tried. This experimentation is performed to optimize the machine parameters and to characterize the properties of the wood materials after machining. The different wood materials considered are Nu wood, Compressed wood & plywood. The surface finish, time taken and the scrap produced are recorded for future study. Trying to publish a research paper.
  Faculty Incharge : Mr. N. Sivashanmugam & Dr S K Rajesh kanna



- Mr.K.Kanagaraja has published a paper **"Experimental investigation of material properties of Al-Sic-fly ash composite"** in the journal of International Review of Applied Sciences and Engineering. It is his fourth research paper for the academic year.

AKADÉMIAI KIADÓ

UNIVERSITY OF DEBRECEN

International Review of Applied Sciences and Engineering

DOI: 10.1556/1848.2021.00379
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Experimental investigation of material properties of Al-Sic-fly ash composite

B. Kirubadurai[1]*, K. Kanagaraja[2], G. Jegadeeswari[3] and R. Sundharesan[4]

[1] Department of Aeronautical Engineering, Vel Tech Dr. Rangarajan Dr. Sagunthala R&D Institute of Science & Technology, Chennai, India
[2] Department of Mechanical Engineering, Rajalakshmi Institute of Technology, Chennai, India
[3] Department of Electrical and Electronics Engineering, AMET Deemed to be University, Chennai, India
[4] Department of Mechanical Engineering, Jaya Polytechnic College, Chennai, India

Received: September 10, 2021 • Accepted: December 2, 2021

- 3D printing students completed the designing part of the internal consultancy work obtained CEVE for battery and Raspberry pi stand for E Smart Cycles. The actual model will be printed in the week time.


RAJALAKSHMI INSTITUTE OF TECHNOLOGY
BELIEVE IN THE POSSIBILITIES

CENTRE FOR ADVANCED MANUFACTURING

Department of Mechanical Engineering
Centre for Advanced Manufacturing

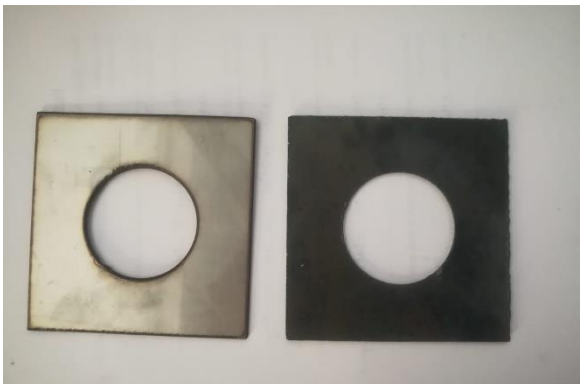
15th June 2022

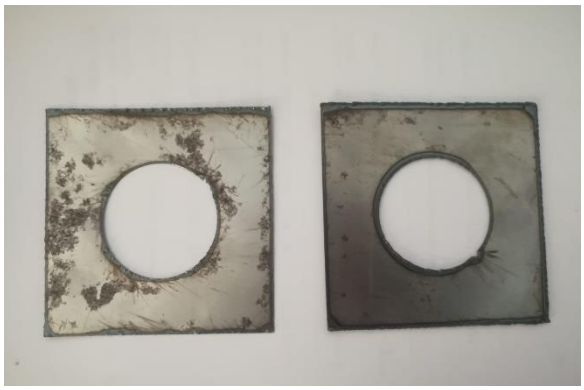
Activity Report –June 2022 (08.06.2022 to14.06.2022)

Activity report of the Centre for Advanced Manufacturing June **2022**

The activities of the Week

As planned last week, we tested different materials and different cutting thickness on the plasma cutting machine





The Activity Planned for the Next Week

1. Plasma cutting – testing with different materials

RAJALAKSHMI INSTITUTE OF TECHNOLOGY
BELIEVE IN THE POSSIBILITIES

CENTRE FOR ADVANCED MANUFACTURING

Department of Mechanical Engineering
Centre for Advanced Manufacturing

08th June 2022

Activity Report –June 2022 (01.06.2022 to 07.06.2022)

Activity report of the Centre for Advanced Manufacturing June **2022**

The activities of the Week

- GET conclave Review meeting had with Principal, RIT on 04-06-2022 at 10.00 am.
- GET conclave Review meeting had with the Advisor sir on 06-06-2022.
- Lithophone box model printing on progress – consultancy order for 10 customized pieces.
- CAM students visited IITM Research park Incubator Hub on on 04-06-2022 through the RIT Startup club.

- 3D Printing syllabus formulated for the "Course for beginners". The syllabus discussion and the methodology of teaching had with the students.
- Discussion had with Mr. Augstin, Markforged, 3D printer supplier with the principal through the IIPC.

The Activity Planned for the Next Week

1. Plasma cutting – testing with different materials

RAJALAKSHMI INSTITUTE OF TECHNOLOGY

BELIEVE IN THE POSSIBILITIES

CENTRE FOR ADVANCED MANUFACTURING

Department of Mechanical Engineering
Centre for Advanced Manufacturing

31st May 2022

Activity Report – May 2022 (25.05.2022 to 31.05.2022)

Activity report of the Centre for Advanced Manufacturing **May 2022**

The activities of the Week

- CAD modelling training Session for students : Two days hands on CATIA modelling Software training provided to III year mechanical students. The course conducted by Mr.R.Deepak Suresh Kumar on 26th and 27th May 2022 at CAD lab. The course covers the sketching module, Modelling module and the Assembly module. As the outcome of the course, students can bale to design and model the desired components and the assembly. Further, assessment will be conducted for the students and certification will be issued.

- Mr.K.Kanagaraja accompanied I yr Mechanical Engg. Students for One day Industrial visit to "TVS", Housr. on May 28, 2022. 51 students and 2 faculty members visited the industries. As the outcome of the visit, students understand the manufacturing process involved.

RAJALAKSHMI INSTITUTE OF TECHNOLOGY
BELIEVE IN THE POSSIBILITIES

CENTRE FOR ADVANCED MANUFACTURING

Department of Mechanical Engineering
Centre for Advanced Manufacturing

- Department of Mechanical Engineering in association with CAM, CAMR and EVE, organized the online webinar on “Ideation on Non Traditional Machining Technology “. The webinar presented by Dr T R Vijayaram on 23.05.2022.

RAJALAKSHMI INSTITUTE OF TECHNOLOGY

BELIEVE IN THE POSSIBILITIES

CENTRE FOR ADVANCED MANUFACTURING

Department of Mechanical Engineering
Centre for Advanced Manufacturing

- As the outcome of the training program (CAD modelling, slicing software and Printer training) conducted to REC III Yr EEE department students at our CAM centre last week, they participated in the Toyathon competition held in Galgotias University, Delhi and won the first prize and Rs. 25,000 cash award. Our CAM also supported them in printing the customized Elephant toy model.

- Our CAM center students visited the Defense and Technology Expo organized at the Chennai Trade Center, Nadambakkam on 28-05-2022. Through this expo, they are exposed the various latest technologies and they had interactions with the 3D printer manufacturers and cleared the doubts with the machine parameters controls.

Department of Mechanical Engineering
Centre for Advanced Manufacturing

- We received the funding from TNSCST for the academic year 2021-22 for the final yr project on the topic Design and Fabrication of Fertilizer Sprayer Machine - Tamilnadu Government state council for science and technology sponsored project. The project has completed by our final year students under the Guidance of Mr.K.Kanagaraja and Dr Kavitha. The UC and the project completion report submitted to the sponsoring agency on 31.05.2022.

- In CAM, in order to explore our capability, that we can manufacture components with the additive technology and also with the subtractive technology. We created the Einstein face through additive manufacturing (3D printed Miniature model) and subtractive manufacturing with the CNC Wood Router machine in the wooden blank.

RAJALAKSHMI INSTITUTE OF TECHNOLOGY

BELIEVE IN THE POSSIBILITIES

CENTRE FOR ADVANCED MANUFACTURING

Department of Mechanical Engineering
Centre for Advanced Manufacturing

25 th May 2022

Activity Report – May 2022 (18.05.2022 to 24.05.2022)

Activity report of the Centre for Advanced Manufacturing **May 2022**

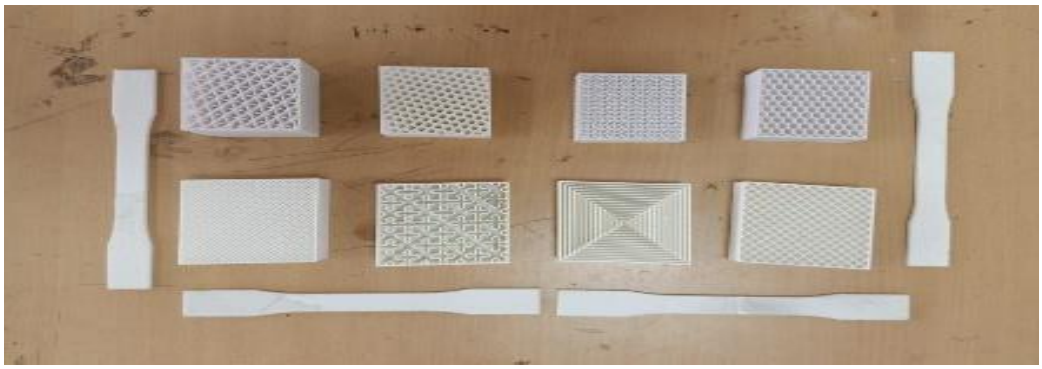
The activity of the Week

- In CAM, we did a small consultancy work of "Talking Elephant Model" with PLA filament. This Elephant is a speaking elephant, in which the speaker, battery and the boards inserted into the stomach portion of this elephant model. This consultancy work is for the III yr EEE students of REC as their project work. The stl file editing, slicing and printing done by the CAM students. The order received on 18th May 2022 and completed on 19th May 2022.

- In CAM, we conducted Two days Master 3D printing - Hands on training program for REC EEE department students, This training includes Modelling using CATIA software, STL file conversion module, Slicing module, printing module. Hands on given on the flash forge and Entran model machines. As they are going for the Toyathon competition, there they have to model and print the components based on the provided problem.

Department of Mechanical Engineering
Centre for Advanced Manufacturing

- In CAM, Continuous work of previous week we printed the remaining Infill Patterns (8 patterns) in PLA material. The sample specimens for testing also printed with ASTM standard. The Recursive equations for the tested values also formulated for the tension and compression tests. Tensile strength and the Compressive strength for combinations of 39 specimens projected. Tensile strength for rectangle, triangle and square for various infll orientation projected along with NABL certificate. Filament and the time consumption for the various patter also projected.



- In CAM, Continuous work of previous week, we printed the “Gyro Cubes” in PLA material. 10 mm cube also printed but the issue exists in the functionality. Also the strength of the 10 mm cube is not satisfactory and it is more brittle in nature. So reprinting of the miniature model is on progress.

- In CAM, we printed the animatronic eyes components with PLA filament. Pending work is the electronic parts and testing. This can be used as the eyes for the humanoid robots which will resembles the human eyes.

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BELIEVE IN THE POSSIBILITIES

CENTRE FOR ADVANCED MANUFACTURING

Department of Mechanical Engineering
Centre for Advanced Manufacturing

- From the CAM Centre, Project review was done by the Director sir for GET Conclave. The major points discussed are as follows

  Project 1 : Infill Patterns

  - NABL test results are the numeric values, it can be projected in graphical forms.
  - Along with volume and time projections, weight also can be measured.
  - Applications : Weight to strength ration applications like Aero modelling, Aero wings, Marine applications, Customized industrial and domestic components, use ad through components, difficult to manufacture components, components without joints to avoid stress concentration, car spoilers, etc.

  Project 2 : Gyro cube

  1. Gyro cube / Cube sate model demonstrated with the circuit board to show that the board will always faces downwards i.e. the base station due to gravity, so that the signals will be send to ground station continuously without any interruption. If we are using cameras, the gyro cube make the camera always face downwards irrespective of the gyro orientation.
  2. 10*10 mm mini cube also fabricated, but is in non-functional condition.
  3. Discussed the motorized gyro and discussed the difficulty in the automated motorized system.

  Suggestions provided:

  - Application parts will be discussed later
  - If it is open model instead of closed model, it may be good to demonstrate. But it is good for the demonstration process.

- Adhi yogi Invisible Statue is reconstructed, as the pervious model face is elongated due to improper welding and spacing. So to overcome the issue, the model is re-welded.

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Department of Mechanical Engineering
Centre for Advanced Manufacturing

The Activity Planned for the Next Week

1. Einstein Model with both Subtractive Manufacturing (Wood router) and Additive Manufacturing (3Dprnting).
2. Animatronic Eyes project completion.
3. 360 degree portable Fan and generator on progress.
4. 3D Tesla Block model development in CAD software.
5. Plasma cutting – testing with different materials

RAJALAKSHMI INSTITUTE OF TECHNOLOGY

BELIEVE IN THE POSSIBILITIES

CENTRE FOR ADVANCED MANUFACTURING

Department of Mechanical Engineering
Centre for Advanced Manufacturing

18th May 2022

Activity Report – May 2022 (11.05.2022 to 17.05.2022)

Activity report of the Centre for Advanced Manufacturing **May 2022**

The activity of the Week

- In **Techutsav 22** - One Day national level 3D printing workshop **"Master in 3D printing"** conducted by CAM for the students on 14th May 2022. Totally 76 students from various engineering and arts college have participated. The workshop conducted in 3 modules – 3D printing software, 3D printer assembly and CAD modelling. The participant appreciated the workshop.

- Mr. N. Sivashanmugam ranked as **Topper – Elite grade** in the NPTEL exam – Inspection and Quality Control in Manufacturing Subject.

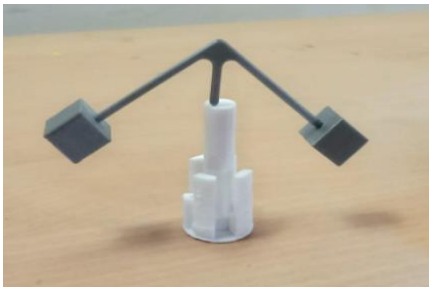
- 3D Model designed for the REC EEE students (III Yr) for the Toyathon competition going to held at Delhi on 27th May 2022. Training on the software and 3D operation also been planned.

- Further to enhance the visibility and resolution of the Adhi yogi invisible model, the assembled model is again dismantled and reassembly started with the spacers and continuous run weld.

-

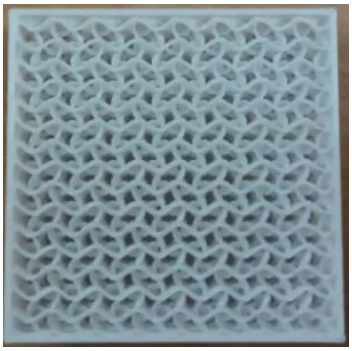
Department of Mechanical Engineering
Centre for Advanced Manufacturing

- In CAM, we printed the "**Single Print Ball Bearing**" with PLA. The bearing is a light weight bearing compared the existing. The entire bearing with the inner and outer races are made in single print along with the balls. The balls are free to rotate and can carry loads. It can be good replacement of existing bearing for the light weight applications. Future Scope : Same can be printed in the self lubricating material, it can be fixed with an applications.

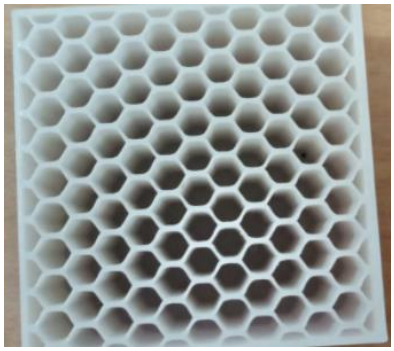


- In CAM, we printed the "**Self Balancing Object**" with PLA. The weight on the both side are balanced by itself and can be used as a fancy object. Similarly we can print the fancy items and the customized objects on need.

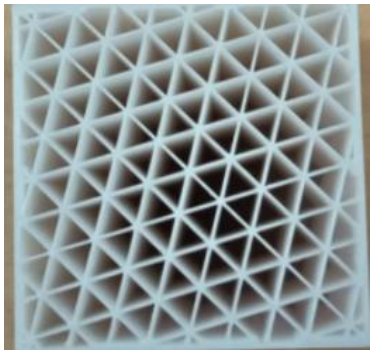
- In CAM, we printed the "**Various Infill Patterns**" with PLA. Infill are the material filled inside the printed object and based on the structure of the infill pattern, the strength of the object varies. So various possible infill patterns and the strength of those infills are calculated with ASTM standard specimen for the compressive and the tensile loads.



Corrugated



Honeycomb



Triangle pattern

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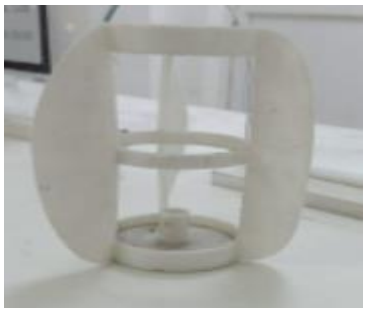

- In CAM We printed **"360' Flow Vertical Axis Fan Blade".** Which will give air flow in 360'. It is compact and portable, operated with battery powered. The assembly will be completed in a week time. The entire model is designed in the Solidworks software and printed in 3D printer. Future Scope : Testing for the air flow and enhancement of the efficiency, Pattern.

- In CAM, we printed **"Single Print - Gyro Cube / Cube Sat Structure"**. This is self balanced object having 4 independent orbits with rotational degrees of freedom. Each orbit rotates independently. It can be used in the cube sat, in which the developed model always make the sensor/transmitter/camera always facing the base station downwards, whatever the rotational disturbance happens.

The Activity Planned for the Next Week

1. Cube sat with minimal dimension for the space applications.
2. 360' Compact portable Fan model.
3. Training to REC students on 3D printing.
4. Adhi Yogi statue reinforcement.
5. 3D Tesla Block model development in CAD software.
6. Plasma cutting – testing with different materials and variable thickness

RAJALAKSHMI INSTITUTE OF TECHNOLOGY
BELIEVE IN THE POSSIBILITIES

CENTRE FOR ADVANCED MANUFACTURING

Department of Mechanical Engineering
Centre for Advanced Manufacturing

10 th Aug 2022

Activity Report – August 2022 (03.08.2022 to 09.08.2022)

Activity report of the Centre for Advanced Manufacturing August **2022**

The activities of the Week

1. Dr.S.K Rajesh Kanna has attended the IIC regional meet at PSNA Engineering college Dindigal on 08.08.2022.

2. Mr.N.Sivashanmugam is attending the "Computational Fluid Dynamics" (CFD) FDP program at Loyola ICAM Engineering college.
3. CREO training has completed for 3D printing students by Mr. Deepak.
4. Standard mobile stand was designed and printed by our 3D printing students under the guidance of Mr.P.Sethu Ramalingam.

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Department of Mechanical Engineering
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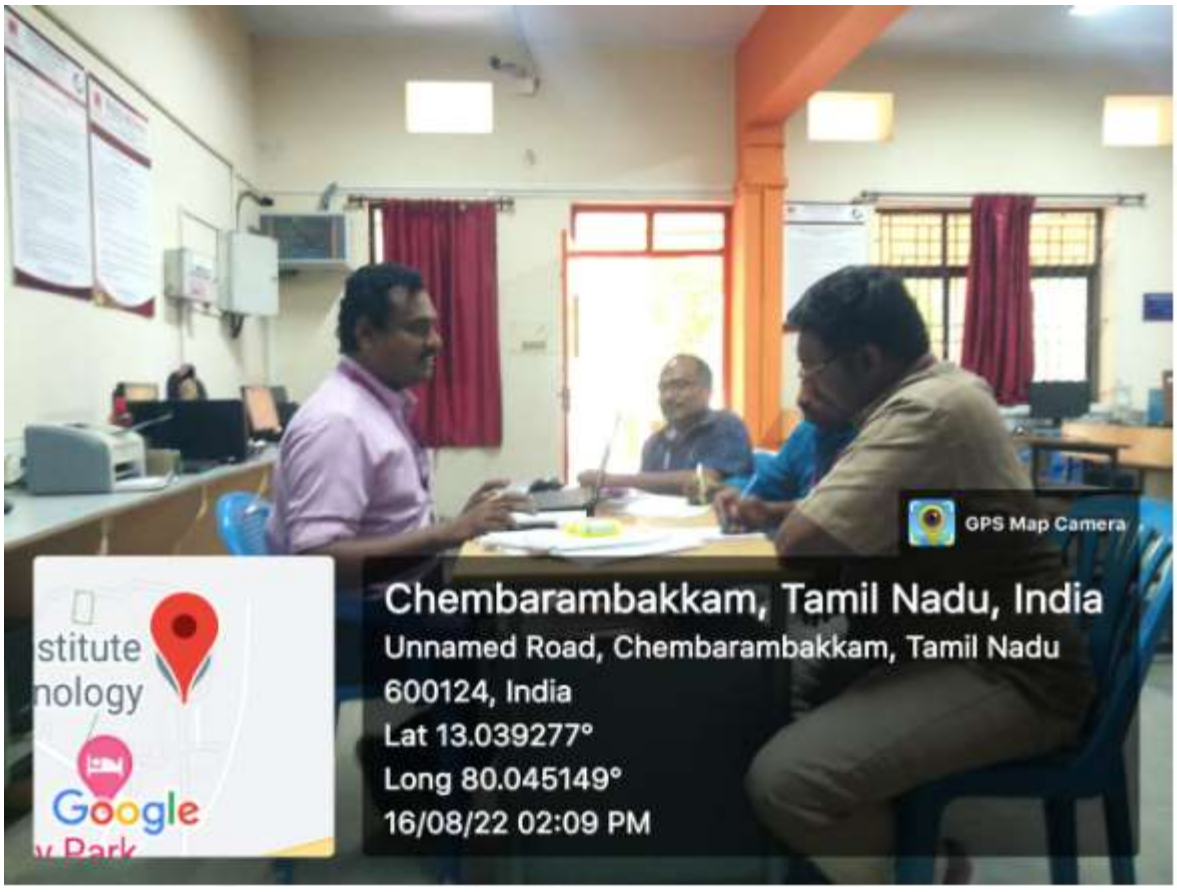
17 th Aug 2022

Activity Report – August 2022 (10.08.2022 to 16.08.2022)

Activity report of the Centre for Advanced Manufacturing August **2022**

The activities of the Week

- The first Research review meeting for the CAM held on 16-08-2022 at Mechatronics lab at 2.00 to 3.00 pm. In this meeting various activities of the past year and the planned activities for the current year discussed. Also discussed the research activities.



- Based on the review meeting, the research specialization finalized for the members of CAM. Minutes of Meeting Attached in Annexure*

- Mr.N.Sivashanmugam has completed the "Computational Fluid Dynamics" (CFD) FDP program at Loyola ICAM Engineering college from 8th Aug 2022 to 11th Aug 2022.


LOYOLA-ICAM
COLLEGE OF ENGINEERING AND TECHNOLOGY (LICET)
ISHRAE
DEPARTMENT OF MECHANICAL ENGINEERING
CERTIFICATE OF PARTICIPATION
"Three Day Faculty Development Programme on Computational Fluid Dynamics"

- PLM training (Refresher Course)for IV year mechanical engineering students was given by Mr.R.Deepak Suresh Kumar from 13.08.2022 to 16.08.2022 at Steve Job Computer Centre.

- Mr. S. Srinivasan had visited and invited the school students for the SII Project Expo going to held at RIT.
- Mr. N. Sivashanmugam had visited and invited the school students for the SII Project Expo going to held at RIT.

- Discussion on the 3D Working model with the CAM students for SII project expo had on 12th Aug 2022. Some of the models are Lithophone – outer, inner, globe, cone, cylinder model; 360 degree fan blade, human body parts, scaffold for dental, bone and disc samples, Mechanical Clock, Different types of bolts and nuts, RIT building models, Drawbots, IC engine cut section model, Jet engine model, Aero engine model, Quad copter, RC air plane, Die for vinayagar statue, ornamental ring and doller, 3D twisted components, 4 bar mechanism and applications, 3 bar mechanism and applications, quick return mechanism, rotary engine, Intensifier, Geneva wheel mechanism, ratchet and pawl mechanism, hooks joint,
- Mr.N.Sivashanmugam is going to give a keynote speech at the FDP held at SMK FOBRA College

- The discussed research activities are given in the Table below

Name	Category	Arear of Research	Research Topic	Activity of the Week (17-08-2022 to 23-08-2022)
Mr. P. Sethu Ramalingam	Paper	3D printing	Experimental Investigation of 3D printed Hybrid Composite	Problem Statement identified
	Patent	Automobile	Multi Signaling Indicator for Automobiles	Problem Statement identified
	Proposal	3D printing	Investigation of 3D printed Hybrid Composite Onyx Fiber chacterization - Dual Exturder for sandwhich model	-
	Working Models	3D printing	Investigation of various types of Infill Patterns	-
	Event Participated/organized	3D printing	1 Week FDP on Manufacturing 1 NPTEL Course	NPTEL - Metal Additive Manufacturing Registered and completed 4 weeks.
Mr.N.Sivashanmugam	Paper	Welding - FSW	Investigation of corrosion properties of Magnesium Alloy	Problem Statement identified
	Patent	Welding - FSW	Crab shell Helmet	Problem Statement identified
	Proposal	Welding - FSW	Experimental Investigation on 3D printed Dental Scaffold using bio materials	Problem Statement identified
	Working Models	Welding - FSW	Development of Automatic Cleaning Mechanism for CNC Router Machine	Problem Statement identified
	Event Participated/organized	Welding - FSW	1NPTEL Course 1 FDP on Design	1 NPTEL - Automation in Manufacturing 1 - FDP on CFD completed
Mr. S. Srinivasan	Paper	CNC Machine Parameter Optimization	CNC Machine Parameter Optimization	SII Activity
	Patent	CNC Machine Parameter Optimization	Portable Insulin Injection Machine	SII Activity
	Proposal	CNC Machine Parameter Optimization	CNC Machine Parameter Optimization	SII Activity

	Working Models	CNC Machine Parameter Optimization	CNC plasma and Router components	SII Activity
	Event Participated/organized	CNC Machine Parameter Optimization	1 FDP 1 NPTEL Course	SII Activity
Dr. S. K. Rajesh Kanna	Paper	Optimization	Optimization in a Heterogeneous Mobile handover Network using ANN	Problem Statement identified
	Patent	Optimization	Multi Signaling Indicator for Automobiles	Problem Statement identified
	Proposal	Optimization	Experimental Investigation on 3D printed Dental Scaffold using bio materials	Problem Statement identified
	Working Models	Optimization	360 degree Portable Fan	Proto model developed and the problems identified.
	Event Participated/organized	Optimization	1 NPTEL Course	1 NPTEL - Automation in Manufacturing Registered

- Mr. N. Sivashanmugam delivered the expert talk in the FDP held at SMK FOBRA College on 17.08.2022 – Assimilating Modern Trends in Teaching Methodology.

- Discussion on the 3D Working model with the CAM students for SII project expo going to held on 26th Aug 2022. Some of the models are Lithophone – outer, inner, globe, cone, cylinder model; 360 degree fan blade, human body parts, scaffold for dental, bone and disc samples, Mechanical Clock, Different types of bolts and nuts, RIT building models, Drawbots, IC engine cut section model, Jet engine model, Aero engine model, Quad copter, RC air plane, Die for vinayagar statue, ornamental ring and doller, 3D twisted components, 4 bar mechanism and applications, 3 bar mechanism and applications, quick return mechanism, rotary engine, Intensifier, Geneva wheel mechanism, ratchet and pawl mechanism, hooks joint, etc

- In the CAM 3D printing lab, Completed the composite component for the Drone Fabrication. In the drone application the need for the light weight high strength components are needed. So we printed the carbon composite component for the drone as the consultancy project.

ENTRAR 3D

Entrar3D
Green Building 2nd floor,
Rajalakshmi Institute of Technology,
Kuthambakkam Post,
Chennai 600124.

Date: 17/08/2022
Place: Chennai
Ph.no: 8015041502, 7558166292
Mail Id: entrar3d@gmail.com

To
Mr. Deepak,
Rajalakshmi Institute of Technology,
Kuthambakkam Post,
Chennai 600124.

DETAILS:

S.No	Product	Quantity	Printing Hours	Filament used (in grams)	Amount(Rs)
1.	Drone Part	1	20hrs	106	1590

- The CAM students designed and printed the inline engine model. It is having the Eight cylinder and the crank is eccentrically placed to have different strokes. These types of engines are used in the Aircrafts for the higher torque.

- The centre for Advanced manufacturing gave the orientation session for the first year 2022 batch students. The CAM team cleared all the doubts raised by the participants.

RAJALAKSHMI INSTITUTE OF TECHNOLOGY
BELIEVE IN THE POSSIBILITIES

CENTRE FOR ADVANCED MANUFACTURING

Department of Mechanical Engineering
Centre for Advanced Manufacturing

31st Aug 2022

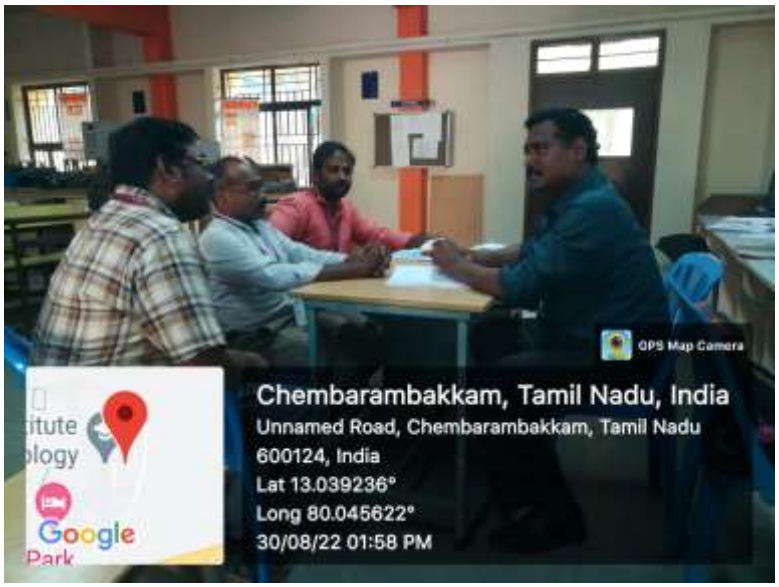
Activity Report – August 2022 (24.08.2022 to 30.08.2022)

Activity report of the Centre for Advanced Manufacturing August **2022**

The activities of the Week

1. RESEARCH MEETING

The Third Research review meeting for the CAM held on 30-08-2022 at Mechatronics lab from 1.30 pm to 3.00 pm. In this meeting various activities of the past week and the planned activities for the current year have been discussed. Also the research paper and the consultancy status have been discussed.



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BELIEVE IN THE POSSIBILITIES

CENTRE FOR ADVANCED MANUFACTURING

Department of Mechanical Engineering
Centre for Advanced Manufacturing

12th Apr 2022

Activity Report – April 2022 (05.04.2022 to 12.04.2022)

Activity report of the Centre for Advanced Manufacturing II Week of **APRIL 2022**

The activity of the Week

24. MSME proposal review meeting was held on 08.04.2022 (Friday) through online mode.
    1) Mr. Ramachandran Senthilkumar, Deputy General Manager R & D, Greaves cotton
    2) Dr.R. ShankarAsst General Manager-Electrical Vehicle Operations. Ashok Leyland.
    The above industrial persons are acted as reviewers and they shared the valuable comments regarding the proposal.
25. CAM Centre students has completed the Human body parts in 3D printing for Rajalakshmi Nursing College

    Human body parts name:

    Fetal skull
    Fetal circulation
    Human brain
    Female pelvis

26. Students of CAM had meeting with VC sir and our VC sir appreciated the students for their work.
27. Students of CAM Centre in association with CADD Centre, has given the Guest lecture (Introduction to Additive Manufacturing) to Air force school, Avadi and Aalim Muhammed Salegh College of Engineering, Avadi on 11.04.2022 (Monday) – made Spur gear model as demo piece.
28. Students of CAM Centre provided the hands on session Aalim Muhammed Salegh polytechnique students, Avadi on 11.04.2022 (Monday). We go the order for Glass fiber + PLA filament.
29. IIPC in association with CAM has conducted a special guest lecture for III & IV Year students.Dr.R. Shankar, Asst General Manager-Electrical Vehicle Operations. Ashok Leyland, was invited as a resource person and he delivered a lecture on “Introduction to Electric Vehicles”
30. Department of Mechanical Engineering in association with CAM, and Institution’s Innovation Council (IIC) has Organized an International Online Webinar on "Research and Advanced Manufacturing Technologies and Materials for Space Exploration". A resource person Dr. Jayaprakash Venkatesan, CEO, Valles Marineris International (Aerospace Company), India.
31. Centre learn activity second session has been completed on 09.04.2022. In this session the students were trained to operate the CNC wood Router machine.

RAJALAKSHMI INSTITUTE OF TECHNOLOGY

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CENTRE FOR ADVANCED MANUFACTURING

Department of Mechanical Engineering
Centre for Advanced Manufacturing

29th Mar 2022

Activity Report – March 2022 (23.03.2022 to 29.03.2022)

Activity report of the Centre for Advanced Manufacturing **March 2022 – Third Week**

The activity of the Week

1. Three Proposals have been submitted to MSME INCUBATION SCHEME – IDEA HACKATHON PROJECT.

Proposals :

1) Dr.S.K Rajesh Kanna - U turn Multi Functional Indicator for Automobiles

2) Mr.N.Sivashanmugam - Helmet from Crab Shell and waste carbon

3) Mr.P.Sethu Ramalingam - Design and Fabrication of multi-purpose hand safety device using biodegradable polymer composites by fused deposition modeling technique.

2. 52 School students from Karnataka Sangha Higher Secondary School, have visited centre for Advanced manufacturing - 3D Printing and Robotics Lab in Forenoon session. In this session, demo on the 3D printing were given to students in batches. The working principle were explained to the students and their doubts were cleared.

Incharge :

1) Dr.S.K Rajesh Kanna

2) Mr.N.Sivashanmugam

3. Karnataka Sangha Higher Secondary School visited on 26-03-2022 to AICTE Sponsored Plasma cutting machine & router machine lab in Afternoon session. CAM Incharges explained to the students about the activities being done at the centre. Demo on wood cutting and metal cutting were shown.

Incharge :

1) Dr.S.K Rajesh Kanna

2) Mr.N.Sivashanmugam

4. 15 Students from III year has enrolled to the CAM for Centre learn activity. The special syllabus has framed for Centre learn activity including Hands on training session. 5 session planned for contact hours and 5 session for practical sessions.

Incharge:

1) Dr.S.K Rajesh Kanna

2) Mr.P.Sethu Ramalingam

5. The first session on centre learn activity has been successfully completed to the enrolled students on 26.03.2022.
Incharge:
1) Dr.S.K Rajesh Kanna
2) Mr.P.Sethu Ramalingam

6. As planned last week, GI sheet trial was completed in CNC plasma cutting machine for the test profile.

7. The UPS has been installed for PAM controller with 1KVA capacity.

8. 3D printing:
Enhanced Casing design and printing for the Gaming module-developed by Mr. Ragul Krishna, ECE – on progress.
Incharge: Mr. S. Srinivasan

9. *Mr.P.Sethu Ramalingam participated in Lean Six Sigma Yellow Belt Session in 27 March 2022.*

RAJALAKSHMI INSTITUTE OF TECHNOLOGY

BELIEVE IN THE POSSIBILITIES

CENTRE FOR ADVANCED MANUFACTURING

Department of Mechanical Engineering
Centre for Advanced Manufacturing

25 th May 2022

Activity Report – May 2022 (18.05.2022 to 24.05.2022)

Activity report of the Centre for Advanced Manufacturing **May 2022**

The activity of the Week

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Department of Mechanical Engineering
Centre for Advanced Manufacturing

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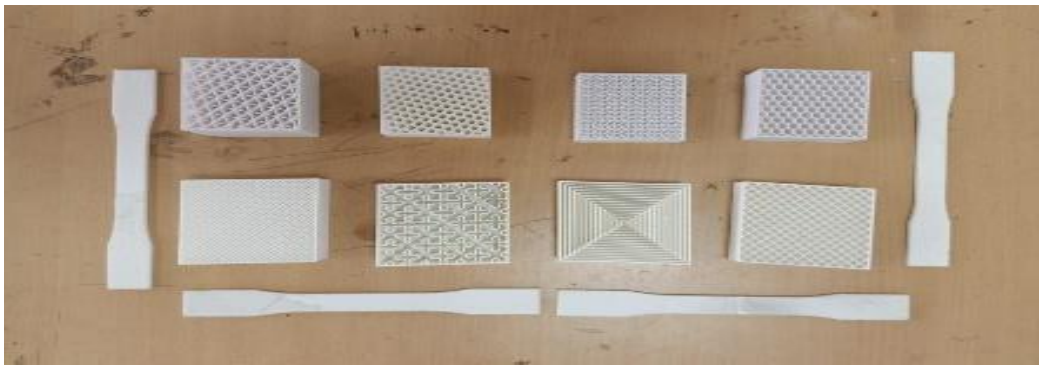

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BELIEVE IN THE POSSIBILITIES

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Department of Mechanical Engineering
Centre for Advanced Manufacturing

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  Project 1 : Infill Patterns

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  - Along with volume and time projections, weight also can be measured.
  - Applications : Weight to strength ration applications like Aero modelling, Aero wings, Marine applications, Customized industrial and domestic components, use ad through components, difficult to manufacture components, components without joints to avoid stress concentration, car spoilers, etc.

  Project 2 : Gyro cube

  1. Gyro cube / Cube sate model demonstrated with the circuit board to show that the board will always faces downwards i.e. the base station due to gravity, so that the signals will be send to ground station continuously without any interruption. If we are using cameras, the gyro cube make the camera always face downwards irrespective of the gyro orientation.
  2. 10*10 mm mini cube also fabricated, but is in non-functional condition.
  3. Discussed the motorized gyro and discussed the difficulty in the automated motorized system.

  Suggestions provided:

  - Application parts will be discussed later
  - If it is open model instead of closed model, it may be good to demonstrate. But it is good for the demonstration process.

- Adhi yogi Invisible Statue is reconstructed, as the pervious model face is elongated due to improper welding and spacing. So to overcome the issue, the model is re-welded.

RAJALAKSHMI INSTITUTE OF TECHNOLOGY

BELIEVE IN THE POSSIBILITIES

CENTRE FOR ADVANCED MANUFACTURING

Department of Mechanical Engineering
Centre for Advanced Manufacturing

The Activity Planned for the Next Week

1. Einstein Model with both Subtractive Manufacturing (Wood router) and Additive Manufacturing (3Dprnting).
2. Animatronic Eyes project completion.
3. 360 degree portable Fan and generator on progress.
4. 3D Tesla Block model development in CAD software.
5. Plasma cutting – testing with different materials

RAJALAKSHMI INSTITUTE OF TECHNOLOGY
BELIEVE IN THE POSSIBILITIES

CENTRE FOR ADVANCED MANUFACTURING

Department of Mechanical Engineering
Centre for Advanced Manufacturing

13 th July 2022

Activity Report – July 2022 (06.07.2022 to 12.07.2022)

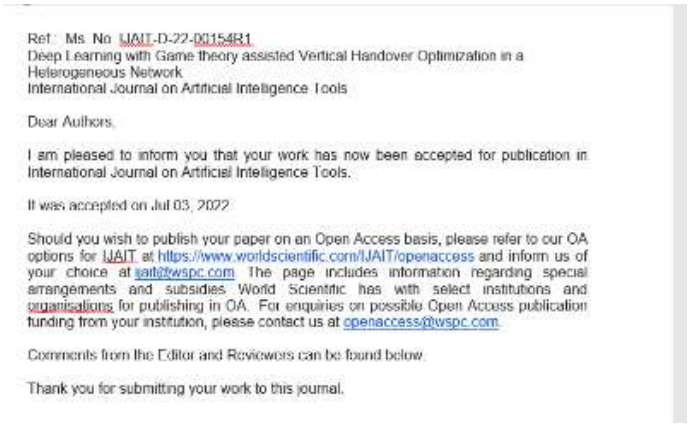
Activity report of the Centre for Advanced Manufacturing July **2022**

The activities of the Week

- **Consultancy Work - Internal**

  For the E cycle project, to keep the raspberry pi board and the battery to power the circuit board, We are in need of customized stand. So based on the requirement, a stand with three layers, designed in the Catia software and printed the component in the 3D printer. It is a small internal E Cycle consultancy work done in 3D printing lab. Holes are provided on all the layers to dissipate the heat generated while charging and discharging. Provision given to fit the CPU cooler fan, on need basis to dissipate the excess heat. The melting point of the material is 230'C and it can be used on hot conditions also, even under the mid sun radiations, it will safeguard the board and the battery. Also it is made of PLA material, it is water resistance for the moderate rain. The additional feature is that it is made of single print, so no leakage of water occurs. It is made as a proto model, after installation, based on the requirement, its features can be modified to suit our needs for all the smart E cycles.

- **Research Publication**
  1. Dr S K Rjesh Kanna's research paper has been accepted for Publication in International Journal on Artificial Intelligence Tools. It is in Scopus and Anna university Annex Journal list. Impact factor is 2.8. The paper titled Deep Learning with Game theory assisted Vertical Handover Optimization in a Heterogeneous Network. In this research, his contribution is on the optimization and development of ANN module for predicting the suitable handover.



Ref: Ms. No. IJAIT-D-22-00154R1
Deep Learning with Game theory assisted Vertical Handover Optimization in a Heterogeneous Network
International Journal on Artificial Intelligence Tools

Dear Authors,

I am pleased to inform you that your work has now been accepted for publication in International Journal on Artificial Intelligence Tools.

It was accepted on Jul 03, 2022

Should you wish to publish your paper on an Open Access basis, please refer to our OA options for IJAIT at https://www.worldscientific.com/IJAIT/openaccess and inform us of your choice at ijait@wspc.com. The page includes information regarding special arrangements and subsidies World Scientific has with select institutions and organisations for publishing in OA. For enquiries on possible Open Access publication funding from your institution, please contact us at openaccess@wspc.com.

Comments from the Editor and Reviewers can be found below.

Thank you for submitting your work to this journal.

  2. Mr.P.Sethu Ramalingam has published a paper **"An exclusive hand protection device made of fused deposition modelling process using poly (lactic acid) polymer"** in the journal of Materials Today: Proceedings.

Contents lists available at ScienceDirect

Materials Today: Proceedings

journal homepage: www.elsevier.com/locate/matpr

An exclusive hand protection device made of fused deposition modelling process using poly (lactic acid) polymer

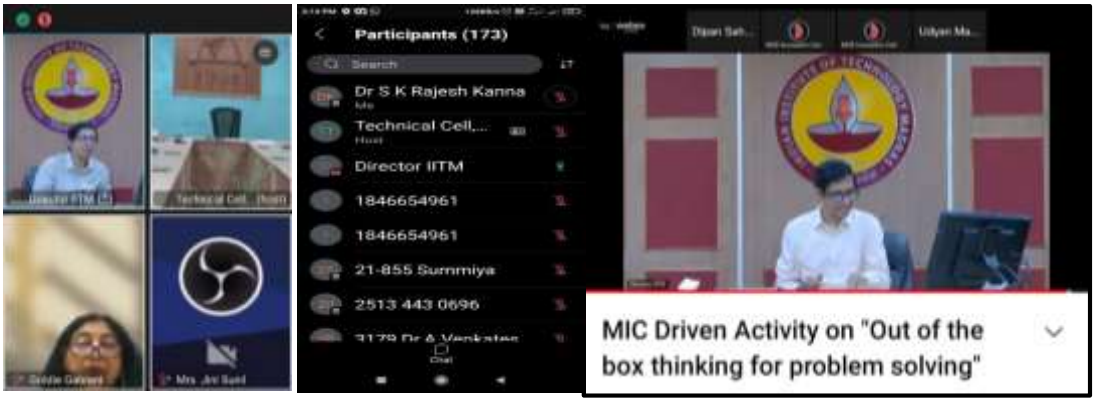
S. Thamizh Selvan [a,*], M. Mohandass [b], Dinesh Kumar vairavel [c], P. Sethu Ramalingam [d], K. Mayandi [e], S. Joe Patrick Gnanaraj [c], M. Appadurai [f]

[a] Department of Mechanical Engineering, Panimalar Engineering College, Chennai, India
[b] Department of Mechanical Engineering, Sri Venkateswara College of Engineering, Chennai, India
[c] Department of Mechanical Engineering, Kalasalingam Academy of Research and Education, Krishnankoil, Tamilnadu, India
[d] Department of Mechanical Engineering, Rajalakshmi Institute of Technology, Chennai, India
[e] Department of Mechanical Engineering, St. Mother Theresa Engineering College, Thoothukudi, Tamil Nadu, India
[f] Department of Mechanical Engineering, Dr. Sivanthi Aditanar College of Engineering, Tiruchendur, Tamil Nadu, India

- **Expert Visit**
  Dr M Pradeep Kumar, Professor, Anna University and his team (Autonomous Inspection Committee) visited the 3D printing lab on 04-07-2022. The team discussed the research activities and appreciated the MSME registration and student's activities carried out in the lab. Also the professor agreed to have a visit by our students to the Anna university AUFRG lab. He also added that the current research in AUFRG is on tiatinium coated 3D printed parts. *(Note : In 2018-19 - RIT got funding from IEI for the tiatinum coated gas turbin bladed - but we fabricated using sintering technique).* The team also visited the CNC lab and appreciated the Invisible Adhi yogi model and AU logo wood engraved model.

- **MODROBS**
  The project completion report and the utilization certificate for the MODROBS submitted to AICTE.

- Dr.S.K.Rajesh Kanna , Mr.P.Sethu Ramalingam and Mr.N.Siva shanmugam has attended "Out of the box thinking for problem solving" webinar conducted by Dr.V.Kamakoti, Director of IIT Madras.



- On 9th July 2022, our cam students Mr. Yadesh, Mr Niranjan presented the consultancy project titled Sprayer for fertilizer for TAFE, Mr Ravindran, TAFE appreciated the progress of our student. Students did the calculations and completed the design aspects. The expert team analyzed the design parameters and suggested for the simulation using software's like fluent, etc. so that the design value can be validated and can go for production process. Also they added that the proto model might not be good, instead real model can be produced once the design parameters get validated.

Plan for Next Week

Based on the request made by TAFE team, and by the direction of the principal, it is decided to have 2 more batches for doing TAFE consultancy on design analysis and fabrication of fertilizer sprayer with unique blower for each nozzles and compressor for through of fertilizer. so in this week students team will be finalized. the same project may be allotted as their final year project.

RAJALAKSHMI INSTITUTE OF TECHNOLOGY
BELIEVE IN THE POSSIBILITIES

CENTRE FOR ADVANCED MANUFACTURING

Department of Mechanical Engineering
Centre for Advanced Manufacturing

08th June 2022

Activity Report –June 2022 (01.06.2022 to 07.06.2022)

Activity report of the Centre for Advanced Manufacturing June **2022**

The activities of the Week

- GET conclave Review meeting had with Principal, RIT on 04-06-2022 at 10.00 am.
- GET conclave Review meeting had with the Advisor sir on 06-06-2022.
- Lithophone box model printing on progress – consultancy order for 10 customized pieces.
- CAM students visited IITM Research park Incubator Hub on on 04-06-2022 through the RIT Startup club.

- 3D Printing syllabus formulated for the "Course for beginners". The syllabus discussion and the methodology of teaching had with the students.
- Discussion had with Mr. Augstin, Markforged, 3D printer supplier with the principal through the IIPC.

The Activity Planned for the Next Week

1. Plasma cutting – testing with different materials

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Department of Mechanical Engineering
Centre for Advanced Manufacturing

9th Sep 2022

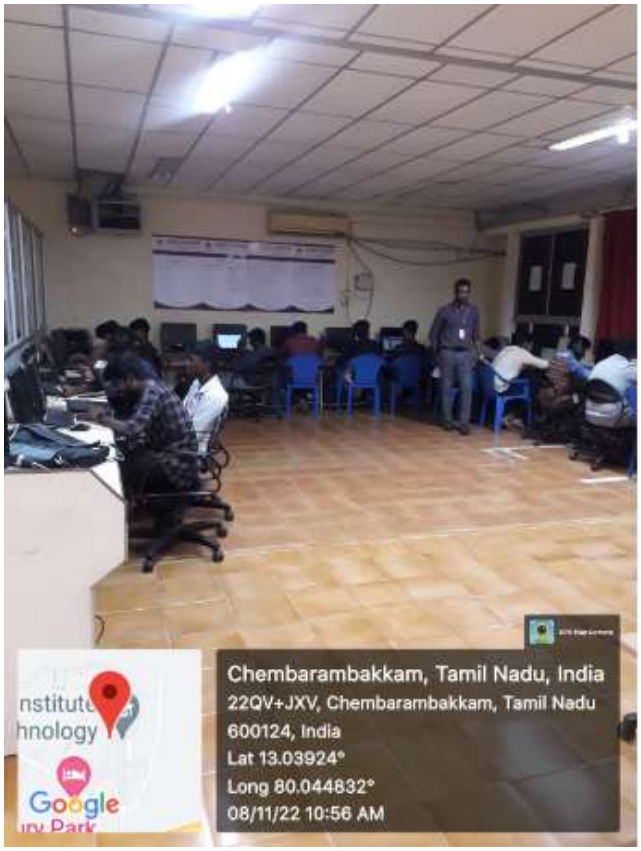
Activity Report – November 2022 (01.11.2022 to 09.11.2022)

Activity report of the Centre for Advanced Manufacturing October **2022**

The activities of the Week

- The Final year students of the CAM, completed the Nan Mudhulvan course on the topics Robotics, Industry 4.0, etc. Thorugh these courses, the students got the additional knowledge on the real time scenrio of the induastries. Also they learned the basics of IOT and the control, which will be useful for them in the industrial automations.

- II yr CAM students are doing the Nan Mudhulval Course on the Professional Development – MS office for the period of 14 days from 07-11-2022 to 18-11-2022. The objective of this scheme is to identify potential training providers, to impart various skill trainings based on current industry gaps.
  Through this flagship program the students will be able to get trained and ensure they get jobs according to their skill sets. We will also offer career and academic guidance to students in state educational institutions.



- After completing the consultancy for a medical college – Block name cutting in CNC, we received another consultancy project from a college canteen. refurbishing of the canteen kitchen utinsiles. In this project, with the guidance of the CAM staffs, Mr. Vijayakumar, CAM centre Techinesian refurbished the cantten equipments and deloivered to the concern. The supplier appriciated the work of the CAM centre.






- Mr. Prasanth L (201904022) acted as the Expert trainer in Karate in the in the 70th chennai Japan Expo – a -mega event to explore the culture of the janpan at FIRMS Botique hall, Q block, Anna Nagar, chenni on 5th Nov 2022. The event was telecasted in the TV channels.

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CENTRE FOR ADVANCED MANUFACTURING

Department of Mechanical Engineering
Centre for Advanced Manufacturing

15th Sep 2022

Activity Report – November 2022 (10.11.2022 to 15.11.2022)

The activities of the Week

- Dr S K Rajesh Kanna from the CAM centre addressed the 2022 batch students on 10-11-2022 from 1.30 pm to 3.00 pm at Green Building 4th Floor Auditorium. In this presentation the major points dissiminated are about the centre, its functionalities, starup activites, and research. He also invited the students to take part in the centre and found that many students shown interest in the 3D printing technology.

- The Department of Mechanical Engineering in association with CAMR, CAM & CEV has planned to conduct one week (HYBRID MODE) Faculty Development Program on “Recent Advances in Materials Science and its Applications" during 07.12.2022 to 14.12.2022. the approval letter submitted to the management for Approval.

- The CAM decided to conduct the workshop for the students on the CNC machine and the 3D printing machines.

RAJALAKSHMI INSTITUTE OF TECHNOLOGY
BELIEVE IN THE POSSIBILITIES

CENTRE FOR ADVANCED MANUFACTURING

Department of Mechanical Engineering
Centre for Advanced Manufacturing

21st Nov 2022

Activity Report – November 2022 (16.11.2022 to 21.11.2022)

The activities of the Week

- India's first private rocket Vikram-S built by Skyroot Aerospace lifts off from a launch pad in Sriharikota, on November 18. It was a historic moment when Vikram-S, India's first privately-developed rocket, lifted off precisely at 11.30 AM on November 18, 2022 from Indian Space Research Organisation's (ISRO) launchpad in Sriharikota. Developed by Hyderabad-based startup Skyroot Aerospace Private Limited, the 6-metre tall vehicle hit a peak altitude of 89.5 kilometers and then splashed into the Bay of Bengal about five minutes after the launch. This mission was titled Prarambh. It is the largest funded private space start up in India with ₹526 crore raised as capital till date.

In this Rocket, The Rajalakshmi Institute of Technology also participated by sending the board to detect the environmental weather conditions.

The CAM students participated in the launching session event broadcasted in the Green Building, 4th Floor auditorium and get motivated to achieve sometihing in their life.

- S. K. Rajesh Kanna published a paper titled Artificial Intelligence Investigation on (Al-Si-Fe) Alloy Reinforced with Nanoceramic Particles by RSM in the Hindawi - Journal of Nanomaterials, Volume 2022, Article ID 2892738, 9 pages , https://doi.org/10.1155/2022/2892738.

  It is a SCI paper with Impact factor of 2.68 and cite score 4.7.

Hindawi
Journal of Nanomaterials
Volume 2022, Article ID 2892738, 9 pages
https://doi.org/10.1155/2022/2892738

Research Article

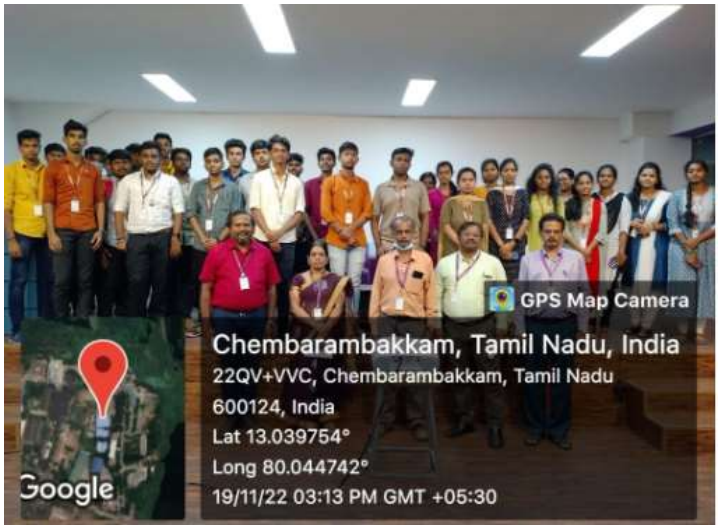
Artificial Intelligence Investigation on (Al-Si-Fe) Alloy Reinforced with Nanoceramic Particles by RSM

S. K. Rajesh Kanna,[1] G. Naveen Sundar,[2] R. Ganesan,[3] Naresh Mallireddy,[4]

- In CAM, Mr. Vijayakumar, Lab Instructor did a Kaizen Activity.
  Before kaizen : The house keeping staffs are used to have the tea in paper cups and throw them infront of the Mechanical Workshop. (As the canteen in inforn of the mechanical Lab). Also the mouth of the dust bin kept near the lab is of normal size, so when they throw the cups, it may fall out of the dust bin. Cleaning of the tea cups became a fatigue task and the lab enterance with tea cups didn't looks good.
  Kaizen : Fabricated a small dust bin with broder width mouth, with the thrown away wooden plywood and kept near the lab.
  After kaizen : All the tea cups properly put either in the existing dust bin or in the fabricated dust bin.

- The CAM students, attended the event Kridayanthrik 2022 conducted by Rajalakshmi Engineering College on 19-11-2022. In this event the students earned many scientific princples based on games. In this event students are given with games and explored the principles and law hbehind the games. 15 students from II yr Mechanical Engineering presented papers on various titles in the event.

- The students from the CAM participated in the Yukthi(NIR) - Ideation Competition on 19.11.2022 at 1.30 PM, at the Venue : Steve Jobs Future Tech Centres. Saturday, 19 Nov 2022 from 1.30 PM – 3.00 pm. In this the students participated and presented their ideas on the carbon zero theme. Around 21 teams participated in the event and the final shortlisted batches presented the ideas in the event.



RAJALAKSHMI INSTITUTE OF TECHNOLOGY
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CENTRE FOR ADVANCED MANUFACTURING

Department of Mechanical Engineering
Centre for Advanced Manufacturing

19 th Oct 2022

Activity Report – October 2022 (12.10.2022 to 18.10.2022)

Activity report of the Centre for Advanced Manufacturing October **2022**

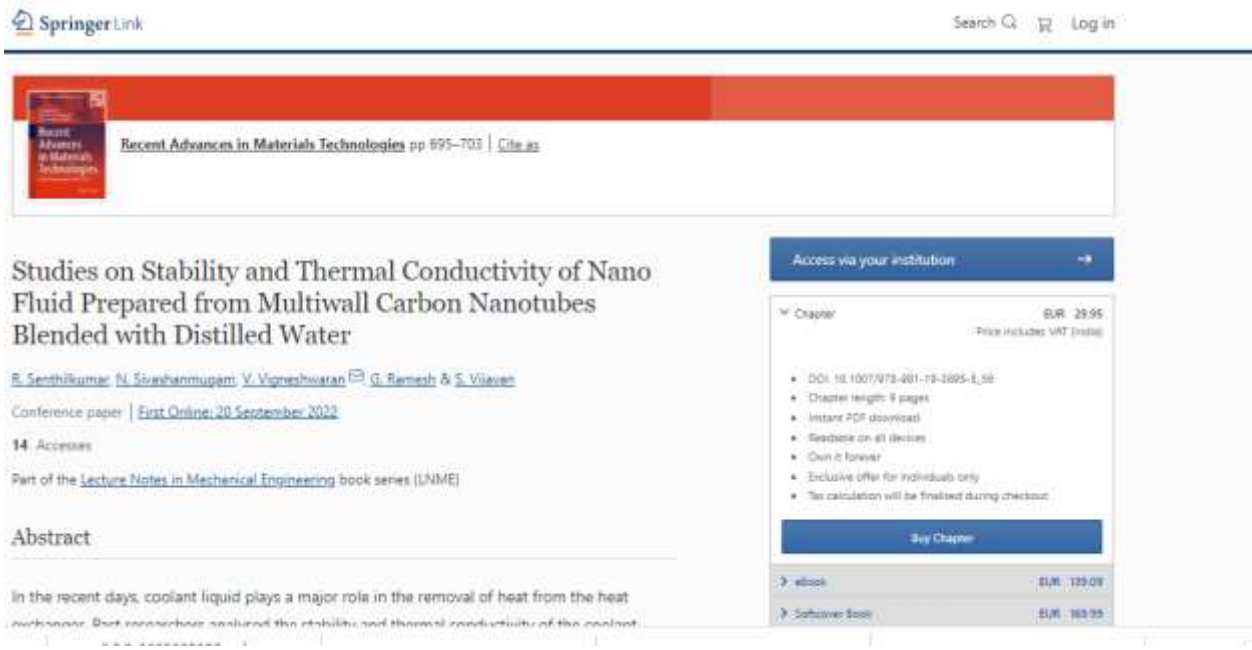
The activities of the Week

- In the CAM lab, CNC wood router, for the consultancy purpose, an attempt have been made to engrave the letters. The consultancy is to engrave the name boards for the Hospital and medical college blocks in wood engraving. So various fonts of letteres had been tried and provided to the customer.

- The student softhe CAM centre visited the Managing Director of Infinitus Engineers regarding the enterpernurship development. They are ready to have MoU with CAM centre and they also assured to have our team for the 3D printing training for the school students.

- Happy to inform that Mr. Sivashanmugam have published a paper in Scopus Journal

  Senthilkumar, R., Sivashanmugam, N., Vigneshwaran, V., Ramesh, G., Vijayan, S. (2023). Studies on Stability and Thermal Conductivity of Nano Fluid Prepared from Multiwall Carbon Nanotubes Blended with Distilled Water. In: Rajkumar, K., Jayamani, E., Ramkumar, P. (eds) Recent Advances in Materials Technologies. Lecture Notes in Mechanical Engineering. Springer, Singapore. https://doi.org/10.1007/978-981-19-3895-5_56



https://link.springer.com/chapter/10.1007/978-981-19-3895-5_56

Publication followup

Code	Dept	Name	Publication Group	Total Target (21-22)	Submitted (Prepared)	Accepted	Published	SCI Journals	Remarks
ME36	MECH	Dr. S. K. Rajesh Kanna	CAM	4	4	0	**4**	1	Target Achieved
ME44	MECH	Mr. P. Sethu Ramalingam	CAM	4	4	0	**4**	0	Target Achieved
ME60	MECH	Mr. S. Srinivasan	CAM	7	3	0	**1**	0	SII Activity
ME76	MECH	Mr.N.Sivashanmugam	CAM	4	2	2	**3**	1	2 in Accecpted stage
ME91	MECH	Mr.Deepak Suresh Kumar	CAM	2	1	0	**1**	0	Industry Connect Activity

RAJALAKSHMI INSTITUTE OF TECHNOLOGY
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CENTRE FOR ADVANCED MANUFACTURING

Department of Mechanical Engineering
Centre for Advanced Manufacturing

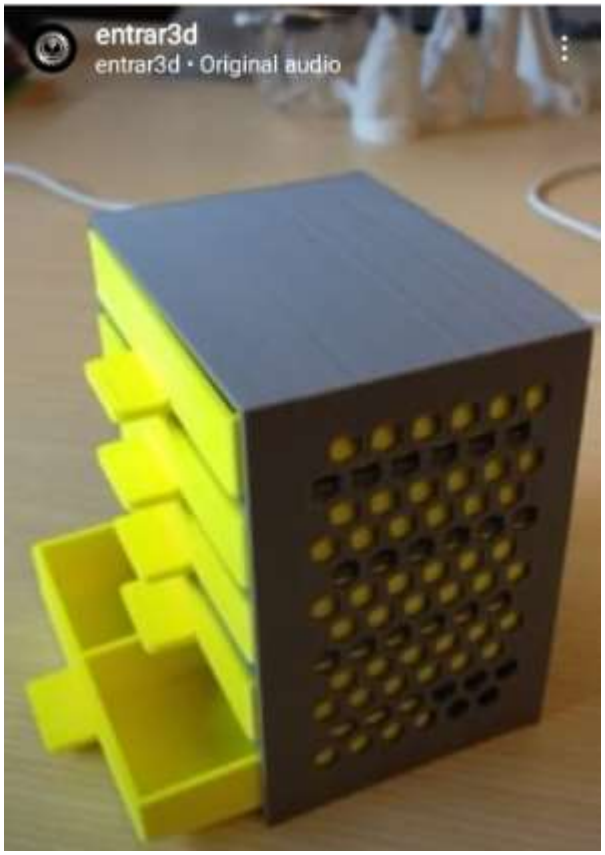
26 th Oct 2022

Activity Report – October 2022 (19.10.2022 to 25.10.2022)

Activity report of the Centre for Advanced Manufacturing October **2022**

The activities of the Week

- In the CAM lab, for the commerliation, Multi purpose stand have been designed and printed in the 3D printer. This stand is having the multiple rackes or trays. For kids, they can use it for keeping their erasers, sharpners, cryons in seperte racks. For childerns, they can keep the id cards, erasers, etc. For engineudents, they can keep the IC chips, resistors, transistors in separate trays. The outer body is made with the design to avoid the slippage, to get more grip and for the erganomics look.



Publication followup

RAJALAKSHMI INSTITUTE OF TECHNOLOGY
BELIEVE IN THE POSSIBILITIES

CENTRE FOR ADVANCED MANUFACTURING

Department of Mechanical Engineering
Centre for Advanced Manufacturing

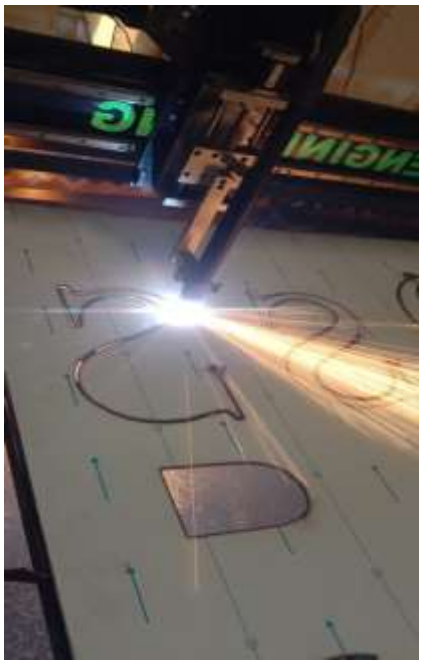
01st Sep 2022

Activity Report – October 2022 (16.10.2022 to 31.10.2022)

Activity report of the Centre for Advanced Manufacturing October **2022**

The activities of the Week

- In the CAM lab, Mr. N. Sivashanmugam got the consultancy work from the Medical college, chennai for cutting the block names in the SS steel. This month we got two consultancy work, one is cutting the block block name "DHANVANTHRI BLOCK" and other is "DOCTORS QUARTERS". This is cut with the CNC plasma machine. The metal used is Stainless Steel of 2 mm thick plate.



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CENTRE FOR ADVANCED MANUFACTURING

Department of Mechanical Engineering
Centre for Advanced Manufacturing

07 th Sep 2022

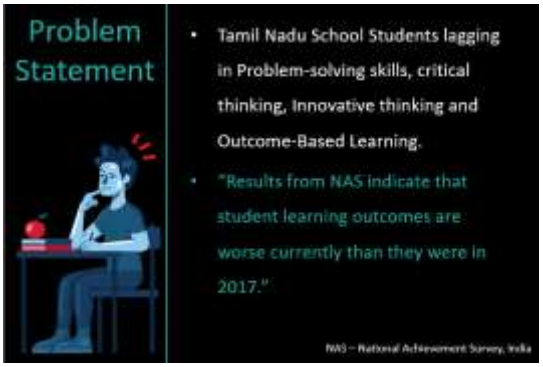
Activity Report – September 2022 (31.08.2022 to 06.09.2022)

Activity report of the Centre for Advanced Manufacturing September **2022**

The activities of the Week

- The Fourth Research review meeting for the CAM held on 07-09-2022 at HoD office at 8.30 am to 9.30 am. In this meeting various activities of the past week and the planned activities for the current year have been discussed.

- The student of CAM applied for the TANSEED4.0. it is the proposal for getting fund from Tamilnadu government for starting the startups. The startup idea is on 3D printing and the student applied with the title Karpi. Through this starup student will get the 3D printers and gave training to the government schools and polytechniques on the additive manufacturing, there creating many entrepreneurs in the new area additive manufacturing. It is the concept of creating enterpernurs in the area of 3d Printing. The proposal given for Rs 10 lakhs.



9/7/22, 10:15 AM TANSIM - TANSEED 4.0 Application Received - Reg

TANSIM - TANSEED 4.0 Application Received - Reg

WE webmaster@startuptn.in
Fri, 26 Aug 2022 2:36:07 PM +0530

To "arokiyaraj" <arokiyaraj@entrar3d.com>, "sundar.s1907" <sundar.s1907@gmail.com>, "niranjanvs05" <niranjanvs05@gmail.com>

Cc "tanseed" <tanseed@startuptn.in>

Dear Arokiya (Entrar 3D),

Greetings from StartupTN!

This is to inform you that we have received your TANSEED 4.0 application. You will receive an email from us if your application is shortlisted further. Herewith attached link to update your response, this will be active till 31st August 11:59PM.

Thank you

StartupTN Team

Url to edit your response:
https://forms.zohopublic.in/startuptn/form/TANSEED40ApplicationForm/publicrecord/Qr99A87_YXBotCniV0BXiZMuFXv1uOMC7KK-Deno3gs

-

- Second year mechanical engineering student Mr. MAREESWARAN R (202104021) has participated in Smart India Hackathon (SIH) along with the CSE students of RIT at Chandigarh University and the team won the first prize.

The Prize worth of Rs. 1 lakh won by the team. The objective of the team is to fit in the app or extension in the AICTE portal, this extension will collect details of the funding and the research activities from the various government and non-government agencies. So that most of the research activities can be disseminated under one roof to the faculty members and students all over India.

The Chairperson of the college and Advisor Dr C.R. Muthukrihnan sir appreciated the students and honored them with certificates. They also added that 25 teams participated in the SIH competition and 6 teams from RIT shortlisted for the grand finals. Among the 6 teams, 2 of our RIT teams won the first prize.

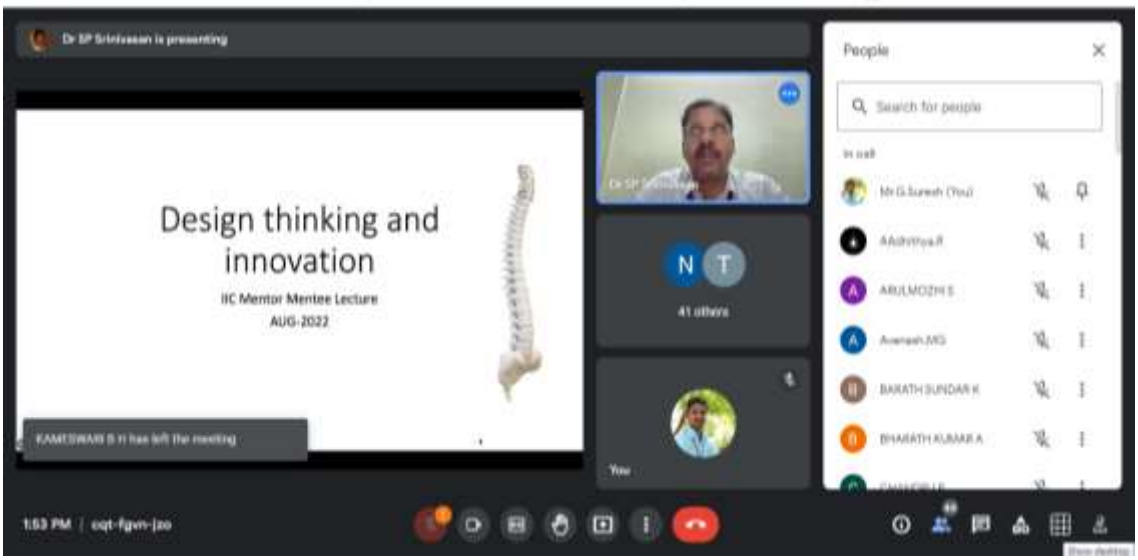
The students are provided with the certificate of appreciation on 06th Sep 2022 at the Wozniak Hall, Steve Job Gallery, RIT.

- The Institute Innovation Council of RIT in association with the Department of Mechanical Engineering and CAM organized a seminar titled "Design Thinking for the Students". The webinar is conducted for the students of RIT to enhance the thinking capability of the students.

The webinar is conducted on 01st Sep 2022 at 1.30 pm to 3.00 pm. The expert speaker for the webinar is Dr S. P. Srinivasan, Director, Mechanical Sciences, Rajalakshmi Engineering College, Chennai.

The Speaker emphasized every topic with the real time examples. Some of the gist of the presentation are as follows, Design thinking is an iterative process in which students have to understand, challenges, assumptions, able to redefine problems and create innovative solutions of their own, which student can prototype and test. The overall goal is to identify alternative strategies and solutions that are not instantly apparent with your initial level of understanding. It opens up an entirely new way to think, and it offers a collection of hands-on methods to help you apply this new mindset.

The students were very interactive and more time spend for the question and answer sessions. The speaker gave the insight with the real time examples happened in the student's life, so the students enthustically cleared their doubts. The CAM faculty members requested the speaker to give another session on the advanced thinking and he also accepted the same.



- CAM Students has visited the MIT Open House Project expo at 05.09.2022. They have learned lot of ideas from the expo. MIT OPEN DAY 2022 held at MIT CAMPUS, ANNA UNIVERSITY, CHROMEPET, CHENNAI – 44 from 10 AM - 5 PM in which they Showcasing MIT's Acadamic, Research and Innovative initiatives and contributions to the general public.

  10 students from CAM visited the open house and learned about the new materials used for the defense applications. It opened a way for the students to do research with the new category of materials in the 3D printing lab. The departments presented a variety of projects from various fields which is very much useful to the students of final year to start their finale project course.

Department of Mechanical Engineering
Centre for Advanced Manufacturing

14th Sep 2022

Activity Report – September 2022 (07.09.2022 to 13.09.2022)
Activity report of the Centre for Advanced Manufacturing September **2022**

The activities of the Week

- The Fifth Research review meeting for the CAM held on 13-09-2022 at HoD office at 1.00 pm to 2.00 pm.

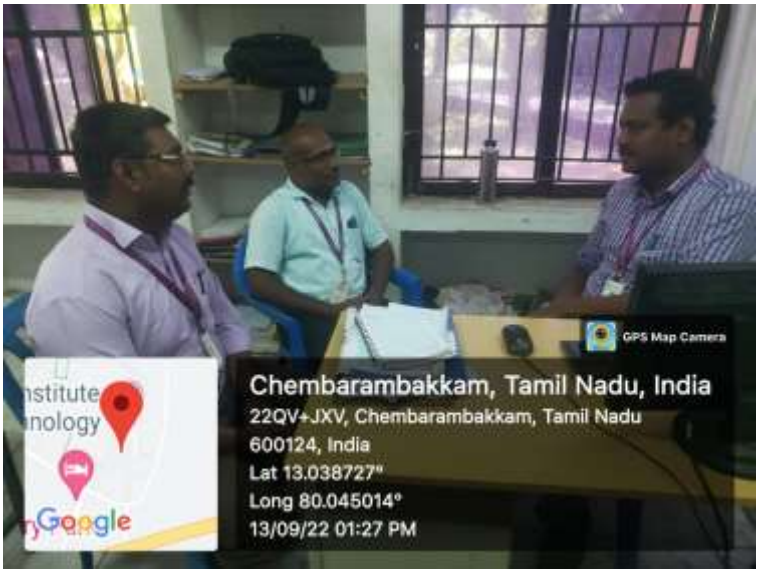
  In this meeting various activities of the past week and the planned activities for the current year have been discussed.

  It is decided to enhance the centre to the next level of EDC. As the students registered for the MSME, need to enhance to the next level.

  Also it is decided to identify the best projects that will get name to the centre.

  Mr. Sethuramalingam informed tat the filament extruder can be given as the project title. Because the filament extruder will support for conducting the research with the new materials.

  Mr. Sivashanmugam also agreed to give the extruder as the project for the final year students. The various activities of the centre for the week are as follows.



- The research activies of the faculty members are as follows

S.No.	Name	Category	Arear of Research	Research Topic	Activity of the Week (07.09.2022 to 13.09.2022)

In the final round, three of the CAM students selected for the internship with the stipend of Rs,. 15000 per month.

The students are Mr. Yadesh R., Mr. Niranjan and Mr. Vijayshankar

Internship Offer Letter

KONE
Elevators Escalators

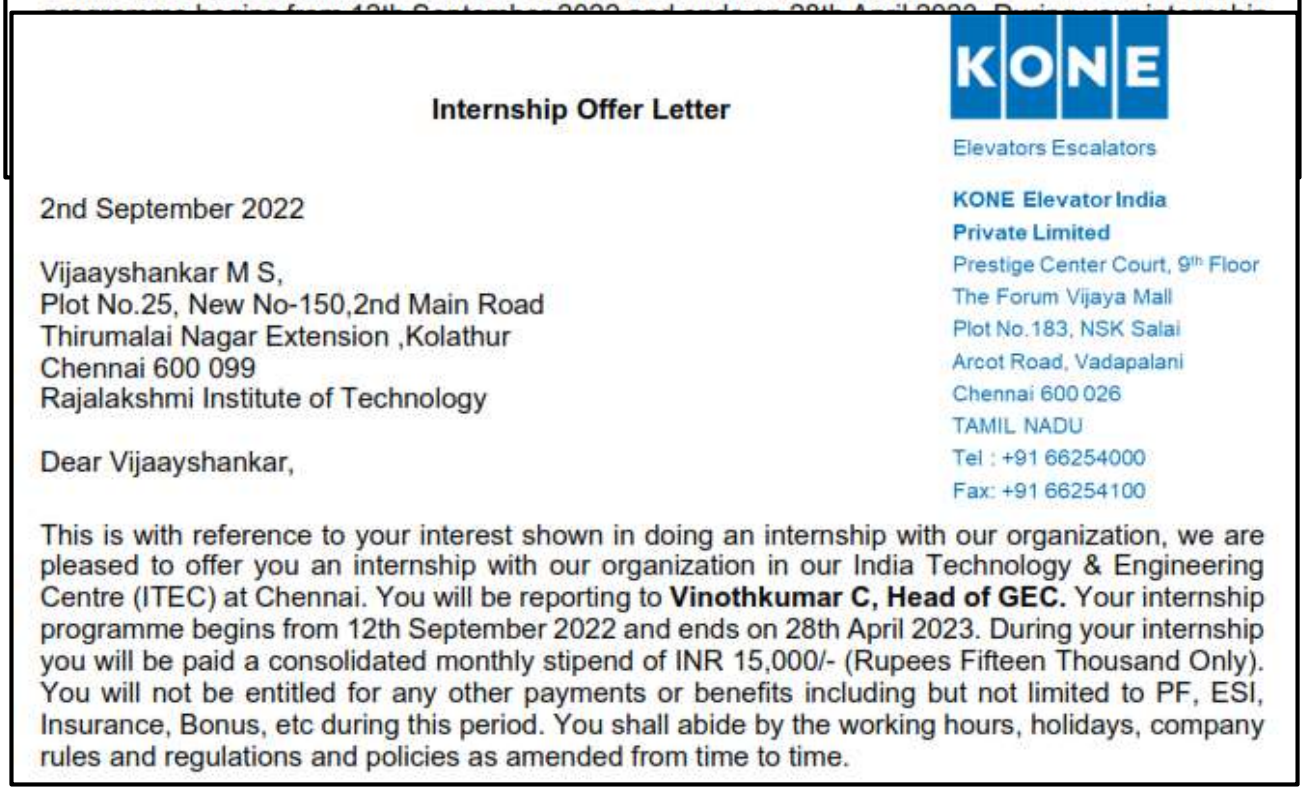
KONE Elevator India Private Limited
Prestige Center Court, 9th Floor
The Forum Vijaya Mall
Plot No.183, NSK Salai
Arcot Road, Vadapalani
Chennai 600 026
TAMIL NADU
Tel : +91 66254000
Fax: +91 66254100

2nd September 2022

Niranjan V S,
No 11/4, Ramanathan Street
Ayanavaram,
Chennai 600 023
Rajalakshmi Institute of Technology

Dear Niranjan V S,

This is with reference to your interest shown in doing an internship with our organization, we are pleased to offer you an internship with our organization in our India Technology & Engineering Centre (ITEC) at Chennai. You will be reporting to **Vinothkumar C, Head of GEC.** Your internship



Internship Offer Letter

KONE
Elevators Escalators

KONE Elevator India Private Limited
Prestige Center Court, 9th Floor
The Forum Vijaya Mall
Plot No.183, NSK Salai
Arcot Road, Vadapalani
Chennai 600 026
TAMIL NADU
Tel : +91 66254000
Fax: +91 66254100

2nd September 2022

Vijaayshankar M S,
Plot No.25, New No-150,2nd Main Road
Thirumalai Nagar Extension ,Kolathur
Chennai 600 099
Rajalakshmi Institute of Technology

Dear Vijaayshankar,

This is with reference to your interest shown in doing an internship with our organization, we are pleased to offer you an internship with our organization in our India Technology & Engineering Centre (ITEC) at Chennai. You will be reporting to **Vinothkumar C, Head of GEC.** Your internship programme begins from 12th September 2022 and ends on 28th April 2023. During your internship you will be paid a consolidated monthly stipend of INR 15,000/- (Rupees Fifteen Thousand Only). You will not be entitled for any other payments or benefits including but not limited to PF, ESI, Insurance, Bonus, etc during this period. You shall abide by the working hours, holidays, company rules and regulations and policies as amended from time to time.

- Mr.S.Srinivasan, Assistant professor has visited Bharathidasanar school, Arakonam.

  In the vist, Mr. Srinivasn awarded the prizes and the certificates to the school student who are all won the competition held at Tech fest 2022 event.

  He also issued the certificates as the token of appreciation for the student participated in the project expo.

- Publication followup

Code	Dept	Name	Publication Group	Total Target (21-22)	Submitted (Prepared)	Accepted	Published	SCI Journals	Remarks
ME36	MECH	Dr. S. K. Rajesh Kanna	CAM	4	4	0	**4**	1	Target Achieved
ME44	MECH	Mr. P. Sethu Ramalingam	CAM	4	4	0	**4**	0	Target Achieved
ME60	MECH	Mr. S. Srinivasan	CAM	7	3	0	**1**	0	SII Activity
ME76	MECH	Mr.N.Sivashanmugam	CAM	4	2	2	**3**	1	2 in Accecpted stage
ME91	MECH	Mr.Deepak Suresh Kumar	CAM	2	1	0	**1**	0	Industry Connect Activity

- Mr. N. Sivashanmugam from CAM has kindly concerned to act as the guest speaker for the National level one day workshop on Fluid Power Circuits Md. Shathak A J Engineering College.

RAJALAKSHMI INSTITUTE OF TECHNOLOGY

BELIEVE IN THE POSSIBILITIES

CENTRE FOR ADVANCED MANUFACTURING

RAJALAKSHMI INSTITUTE OF TECHNOLOGY
BELIEVE IN THE POSSIBILITIES

CENTRE FOR ADVANCED MANUFACTURING

Department of Mechanical Engineering
Centre for Advanced Manufacturing

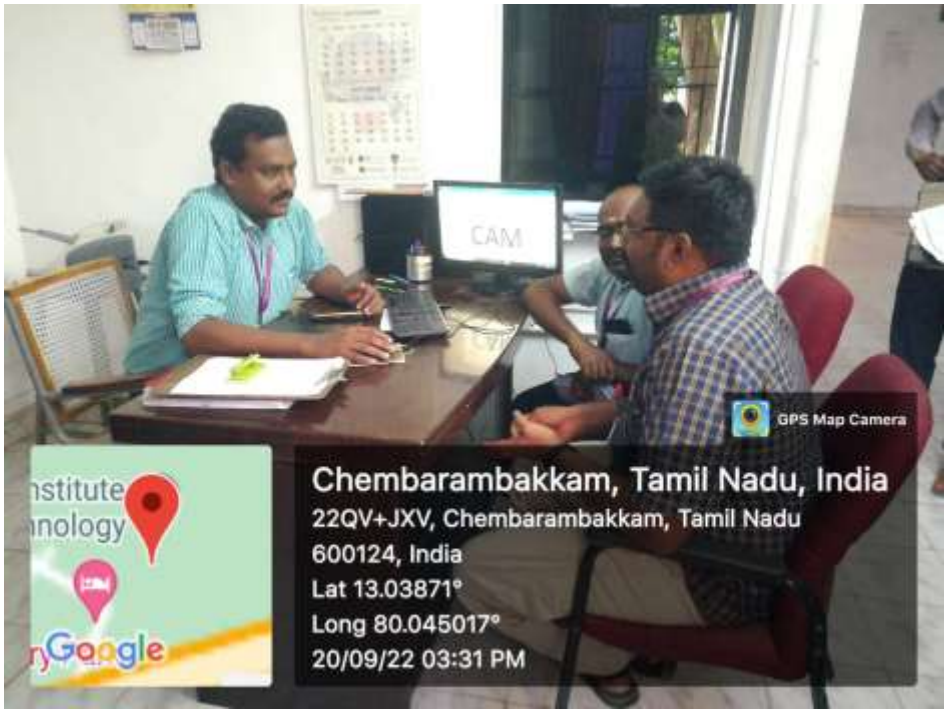
21 st Sep 2022

Activity Report – September 2022 (14.09.2022 to 20.09.2022)

Activity report of the Centre for Advanced Manufacturing September **2022**

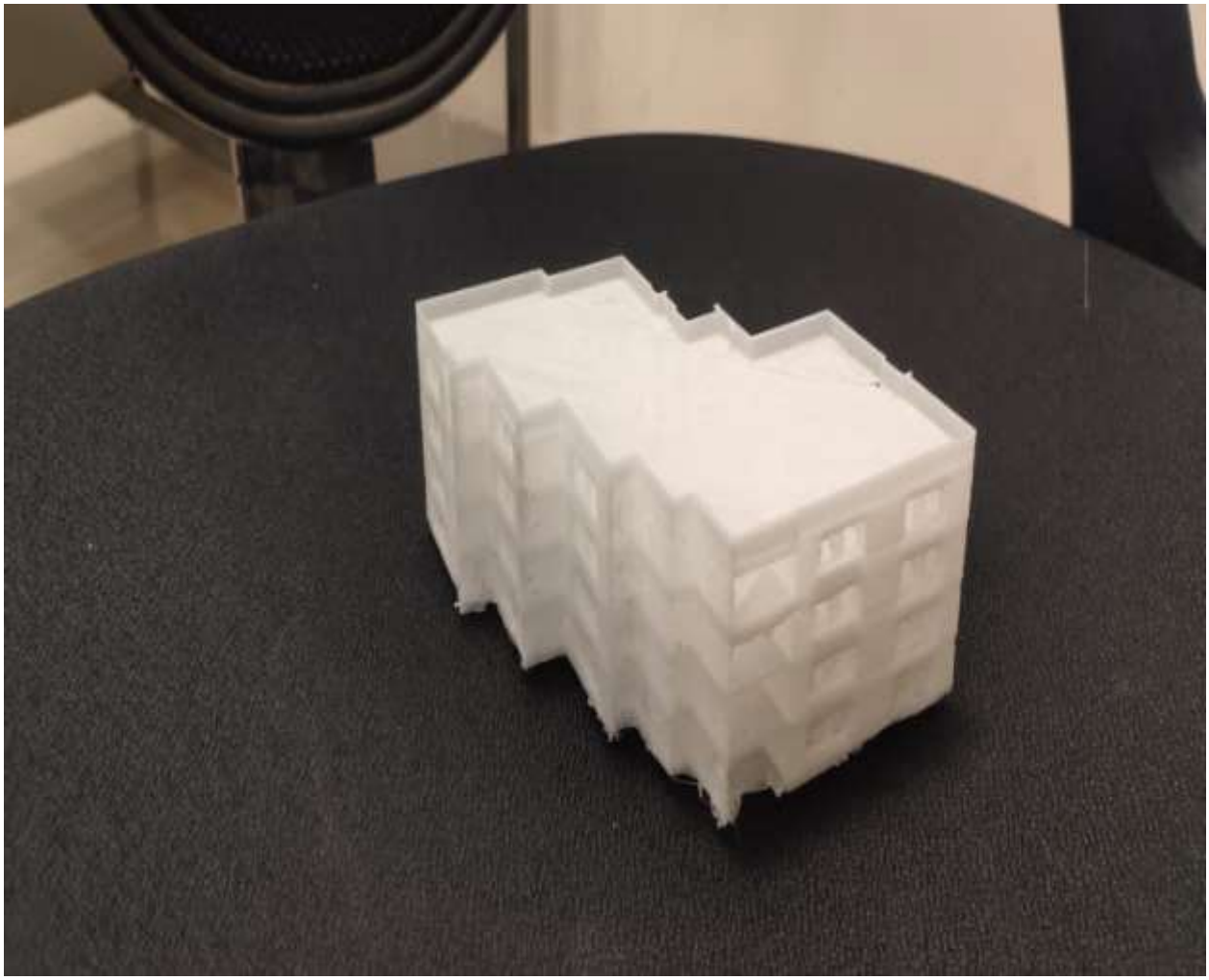
The activities of the Week

- The Sixth Research review meeting for the CAM held on 20-09-2022 at HoD office at 2.30 pm to 3.30 pm. In this meeting various activities of the past week and the planned activities for the current year have been discussed.



- Our 3D printing students went to VIT University (Chennai) on 19-09-2022. It was a full day visit on 3D printign lab.
  In this vist they learned a lot about the various machines and the operational festures.
  VIT 3D printing lab is named as SEDAXIS.
  The VIT team discussed the EDC activites and ready to have a collobration with us in the printing the orders.
  They also assured to give training on various machines for ur students during the vacation period.
  They also ready to give seminar for our students
  They also assured to give orders for the smaller components under EDC activity.

- CAM celebrated **the Engineers Day** by printing architectural building and RIT ALAN Turing block.
  The block is a single print block.
  The block model is modelled in the CATIA software
  The modelled block is sliced into STL file using Flash software
  The sliced model scaled to our size
  Then the model printed in single print model in the flash forge 3D printer.
  The material used is PLA white colour



- Our Centre 2nd year student Swaminathan meet our honurable Governer Shri. R.N. Ravi.

The session is Intraction of the life skill with the students of various colleges by our honourable governer Shri. R.N. Ravi

- Publication followup

RAJALAKSHMI INSTITUTE OF TECHNOLOGY
BELIEVE IN THE POSSIBILITIES

CENTRE FOR ADVANCED MANUFACTURING

Department of Mechanical Engineering
Centre for Advanced Manufacturing

28 th Sep 2022

Activity Report – September 2022 (21.09.2022 to 27.09.2022)

Activity report of the Centre for Advanced Manufacturing September **2022**

The activities of the Week

- The Seventh Research review meeting for the CAM held on 27-09-2022 at HoD office at 2.30 pm to 3.30 pm. In this meeting various activities of the past week and the planned activities for the current year have been discussed.
  The Head CAM informed that the centre have to stat its activities like student training, Industrial visits, etc
  Also it is decided to give best project for the CAM students during their final year.

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- Mr.N. Siva Shanmugam has given a guest lecture to Mohamed Sathak A.J. College of Engineering in the topic of Fluid power circuits on 21st Sep 2022 for their students and teaching faculty members.

  He elobrated the basic symbols of both the hydraulics and pneumatics in details, then he explained th basic circuits and finally he conluded the session with the real time applications of the fluid power circuits.

  The organizers appriciated the presentation given by him.

  The participants asked to give another session on the trubleshooting mechanisms in the fluid power system and he accecpted for te same.

- The Consultancy work on letter cutting in the SS by plasma machine have been completed. The SS cut letters fitted in the block and the outcome is very much satisfactory.
- The height of the letters are approx. 4 feet and the total width is approx. 90 feet. For the cutting operation the entrie design and the prgramming along wth the cutting carriedout in the CAM lab.
- The letters are cut with the Times new Roman format.
- The plate thickness is aprox. 2 mm.
- The given consultancy work completed by a day time and the fitting of the work completed in 2 days.
- Based on the oucome of the work, further order received for making the invisible statue of 6 feet height. The work is on progress.
- Further to optimize the cost of the consutancy work, the cutout materials are used to fit the letters in the building, which is appriciated by the customer.

- As the CAM is having **the Knowlge Round Table** schema, the knowldge round table meeting for the month is carried out with prof. P. S. Rajeswaran, Dean, RIT.
  The meeting was held on 27.09.2022 at 10.00 am at Dirctor, RIT office.
  The CAM members were present in the meeting.
  The main agenda of the KRT, is the "Optimization of the Plasma Cutting Machining parameters" the various points discussed in the KRT are as follows
  - Prof. P.S.Rajeswaran, Dean, appricited the team for the completion of te consultancy work.
  - He discussed the challenges faced to enhance the machining performance.
  - He advised to have the clamp at the lower most edge of the sheet to avoid the lifting of the material and also the material wastage can be reduced.
  - He also advised to have the L plate to start the torch at the lower left corner. So that the plasma tourch will not hit the work table.
  - He also advised to include the add on plate at the start and the end point of the object, later the add on plate can be removed. Thus the the marking due the start and stop of the tourch can be eliminated.
  - He also suggested to have the research work by comaping the width of the tourch for the brass nozzle and the MS nozzle.
  - He advised to use the appriorate nozzles based on the base material. He also added that the object is SS and the nozzle is MS, then both are having same properties. So we have to go for the higher grade material nozzel than the base material. So that the accuracy will be hihger.
  - For the larger objects, the curves are cut as the multi polygonal edges. He said that the problem perist in many of the industrial machines, because the problem depend over the resolution of the machine and the controller.
  - He advised to have the sand blaster, which will run at 14000 rpm, which will easily remove the bur materials from the objects, instead of using the bench grinder.
  - Melting of the sharp corner will not be resolved with the cntroller and can be made by provingn the excess resus and can be cut seperatly after the plasma machining process.
  - He also advised to optimize the letters based on the dimension to save the materials.

- Through 3D printing lab, A two days Workshop has planned for second year all stream students. Approval process going on.

- Dr.S.K.Rajesh Kanna interacted with Professor Sang Won Yoon from University of Binghamton at 27.09.2022, 1:30 pm at Green Building board room.

Publication followup

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