



IGNITE - 2022

A DAILY NEWSLETTER



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OFFICE OF EXAMINATION



Revised Anna University Time Table has been released for

November /December Examination 2021

Examination Time Table link

<https://aucoe.annauniv.edu/timetable.php>

<https://act.edu.in/examination-time-table/>

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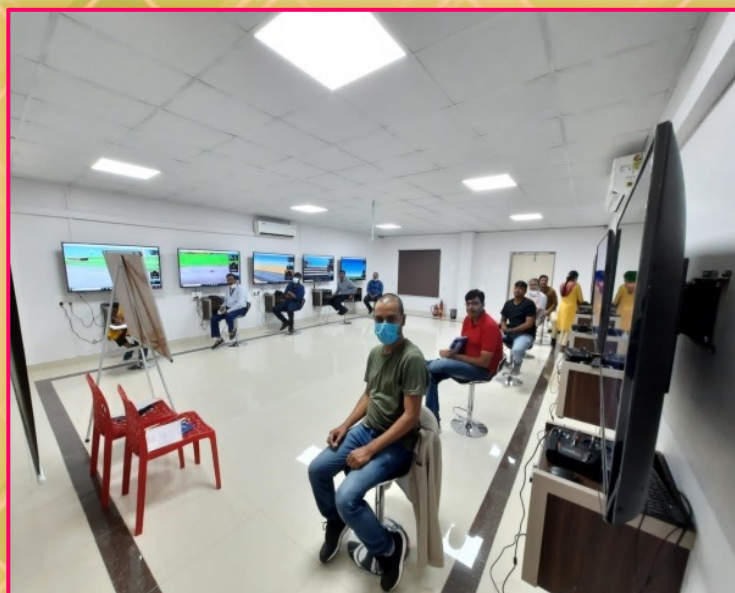


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STUDENT PARTICIPATION



Mr. J. Jayabalan, First year, M.E Mechatronics Engineering has successfully completed a certified course on **“Drone Piloting”** organized by Madras Institute of Technology, Chennai.

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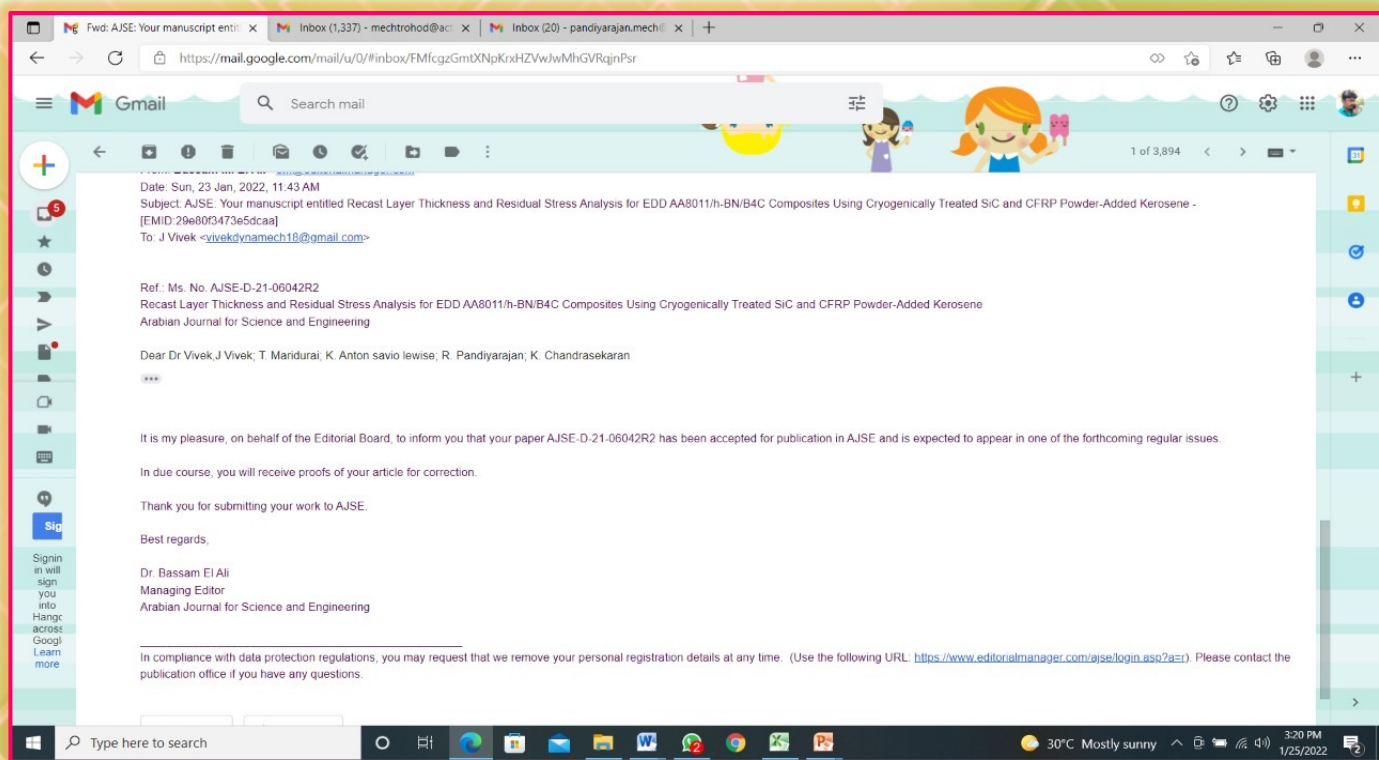
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RESEARCH PAPER ACCEPTANCE

Dr. R. Pandiyarajan, Head, Department of Mechatronics got acceptance from the journal **Arabian Journal for Science and Engineering- springer Publication (SCI indexed)** for the per **Recast Layer Thickness and Residual Stress Analysis for EDD AA8011/h-BN/B4C Composites using Cryogenically Treated SiC and CFRP Powder-Added Kerosene**, for publication.

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NAAC PRE-PREPARATION



Dr. Arul Kulandaivel and the members of NAAC Criteria- 1 checked the Academic Calendar and the Internal Assessment files. Dr. Arul suggested to the members some of the inputs to be included for improvement of the files.

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FACULTY ACHIEVEMENT

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

Multiple response optimization of machining parameters in turning nimonic C263 using TOPSIS approach

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ABSTRACT

In this article, TOPSIS (Techniques for order preference by similarity to ideal solution method) is incorporated to solve multi objective optimization in dry turning of super alloy Nimonic C263. Three input parameters, cutting speed, feed rate and depth of cut (DOC) are chosen. The experimental trials are conducted based on L27 orthogonal array. After performing the experiments, the surface roughness and temperature at insert edge are measured. The analysis of variance (ANOVA) is performed to evaluate the impact of the machining factors on the output. The results indicate that TOPSIS technique is best to solve multi-criteria optimization of machining parameters. Results indicated that: 125 m/min, feed: 0.055 mm/rev and DOC: 0.75 mm are the optimum parameters to get minimum of surface roughness and temperature generation at insert edge.
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1. Introduction

Turning process is a fundamental machining process and Multi-criteria optimization of machining parameters is very much required to obtain best combination of parameters for optimum responses. Nimonic C263 alloy is used in aero engines to make engine parts. As this alloy is subjected to high temperature environment, this alloy need to machine at most care to get improved integrity to improve its creep and fatigue properties. However, the selection optimum combination of machining factors to optimize the multi response is challenging one. TOPSIS is the multi-objective optimization tool. It has been widely used in many works to take right decision for multi-criteria optimization [1,2,3]. Turning operation is commonly used machining processes and also turning of difficult to cut materials as it involves undesirable characteristics like tool wear, surface integrity, chip morphology etc. [4–5] Multi wall carbon Nano tubes coated EDM electrode is used in machining mild steel by varying pulse on time, discharge current, duty cycle, and gap voltage. TOPSIS tool was used to optimize the machining parameters [6]. Mangapathi rao et al. [8] optimized the EDM parameters in machining AISI D2 steel using TOPSIS and they have stated that TOPSIS is a multi-criteria decision analytic tool and it has been widely used to determine ideal machining parameters. The wettability can be increased by nano fluid in turning of difficult to cut materials than dry turning environment. Al₂O₃ nanoparticles were added with conventional cutting fluid and used as cutting fluid in turning Monel K500 super alloy. This study showed that the force, surface roughness, and wear were reduced [7]. Rahul Nadda et al. [8] investigated the impact of machining factors during EDM process on MRR, TWR and SR. Further, the optimum factors were identified by hybrid AHP-TOPSIS approach and this hybrid methodology were compared with other MCDM tools. Shalendra Pawan et al. [9] used TOPSIS to optimize the factors cutting speed, feed and DOC in turning process. The TOPSIS approach was compared with Gray Relational Analysis (GRA). Both tools gave different optimum factors, therefore confirmation experiments were found to be necessary to confirm the optimum values of the factors.

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 Selection and peer-review under responsibility of the scientific committee of the International Conference Virtual Conference on Technological Advancements in Mechanical Engineering

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Dr. Arul Kulandaivel, ASP, Department of Mechanical Engineering had published a research article on **Multi Response Optimization of Machining Parameters in Turning Nimonic C263 using TOPSIS Approach** in the journal **ELSEVIER**.

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DEPARTMENT MEETING



Meeting was conducted in the Department of Science and Humanities by Dr. Sridhathan, Head on 25th January 2022. The core of the meeting is to create Google classroom for all the sections to make the submission of documents feasible. He also asked the CA's to encourage the students to contest in the "Leelavathi Award".

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ALUMNUS INTERACTION



Mr. K. Mahesh Kumar, AP, Department of Mechanical and Automation Engineering had an interaction with the alumnus Mr. Mugilarasan and urged him to motivate the present batch students to excel in their professional career for the future endurance.

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INSTITUTION INNOVATION COUNCIL



Members of the Agni – IIC have participated in the **IIC 4.0 Orientation Session and Features** organized by Innovation Division, Ministry of Education, Govt. of India, on 24th January 2022.

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Agni PRIDE

Projects, Research, Innovation,
Design & Entrepreneurship

Agni PRIDE



**INSTITUTION'S
INNOVATION
COUNCIL**
(Ministry of HRD Initiative)



Shot on OnePlus
Powered by Triple Camera

Project guidance session was conducted for the students who are participating in the **Hult Prize contest**. – A Nobel Prize contest under the aegis of UN.

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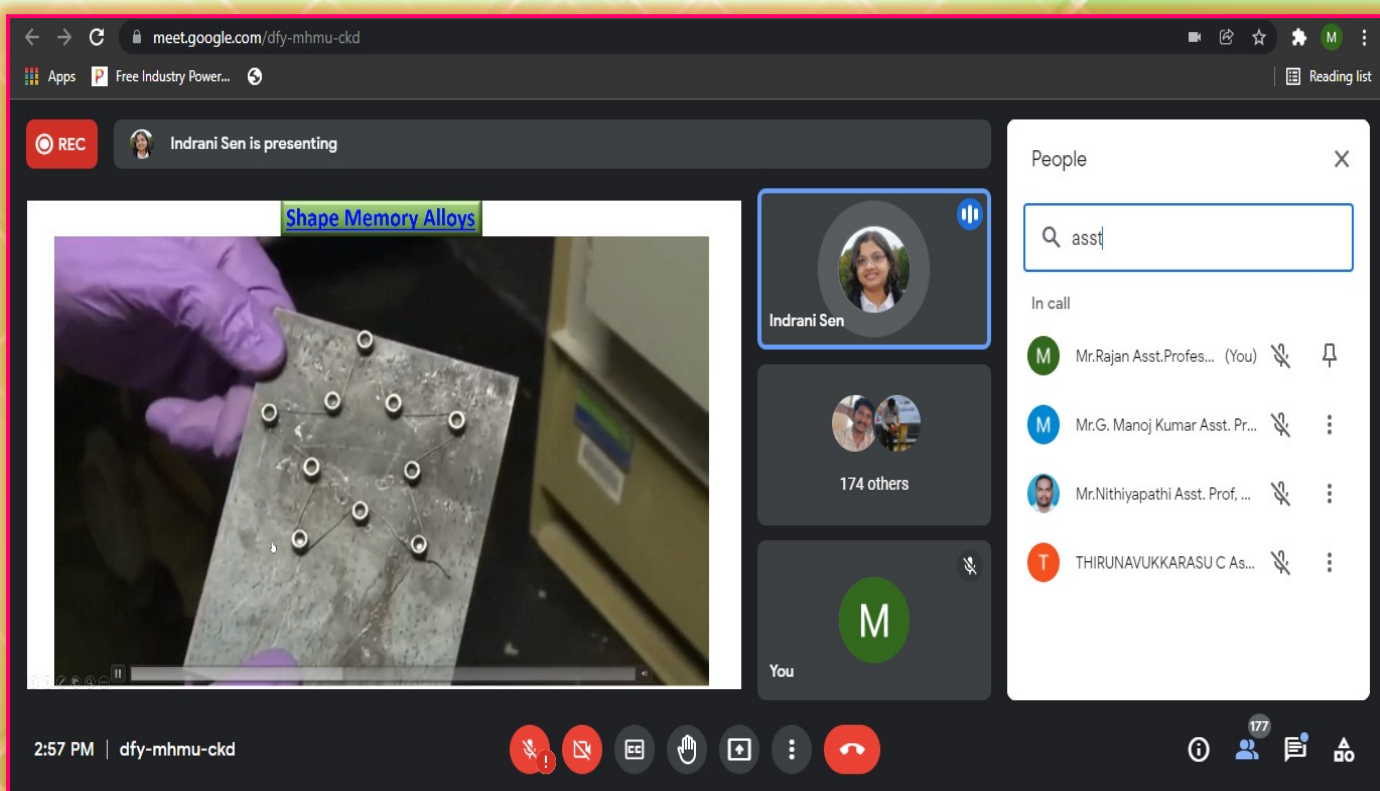


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FACULTY PARTICIPATION



Mr. Manojkumar G, Mr. Rajan P, Mr. Purushothaman P and Mr. Thriunavukkarasu C, Faculty members, Department of Mechanical Engineering are participating in a One week Faculty Development Program [24.01.2022- 28.01.2022] on “Advancements in Aerospace Materials: Manufacturing, Testing and Characterization organized by Hindustan College of Engineering, Chennai.

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FACULTY PARTICIPATION

SubMastery
Growth with Subject Mastery
Learning Community for Professionals

Key Lean Tools

- Gemba**: The place where work is done, the real place
- Kaizen**: Continuous, small, improvements by everyone!
- Hoshin Kanri (Policy Deployment)**: The need to work within a strategic framework
- Robotics (Automation)**: Semi automation of manual processes
- Just in Time**: Low inventory fueled by small, frequent deliveries
- Six big losses**: The 6 key areas to monitor for waste
- TPM: Total Productive Maintenance**: Way of enhance uptime of equipment... medical science of equipment
- Poka-yoke**: Mistake proofing / Error proofing

The Lean 6 Sigma Belt Structure

- WHITE**: Moderates the structure and goals of Lean Six Sigma
- YELLOW**: Understands basic Lean Six Sigma concepts
- GREEN**: Starts as a strength Lean Six Sigma projects
- BLACK**: Can report to a Master Black Belt
- MASTER BLACK**: Works with leaders to identify gaps and lead projects
- CHAMPION**: Controls the leader who defines the initiative

The Seven Wastes (Muda) of Lean

- Defects**: Efforts caused by rework, scrap and incorrect information
- Overproduction**: Production that is more than needed or before it is needed
- Waiting**: Wasted time waiting for the next step in a process
- Non-Utilized Talent**: Underutilizing people's talents, skills & knowledge
- Transportation**: Unnecessary movements of products & materials
- Inventory**: Excess products and materials not being processed
- Motion**: Unnecessary movements by people (ex. walking)
- Extra-Processing**: More work or higher quality than is required by the customer

Mr. Rajan P and Mr. Thriunavukkarasu C, Faculty members, Department of Mechanical Engineering have participated in a Webinar on “Lean Six Sigma” organized by Sub Mastery on 23rd January 2022.

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