



KUMARAGURU
COLLEGE OF TECHNOLOGY



Department of Mechanical Engineering

Newsletter

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DEPARTMENTAL ACTIVITIES

PROGRAMMES PARTICIPATED



- Dr. S. Sivakumar, AP (III), Mr. S. Ramanathan, AP (II), Mr. S. Rajesh, AP, Mr. P. Pradeep, AP participated in the AICTE sponsored One Week National Level STTP conducted in the department of Mechanical Engineering at Hindustan institute of Technology between 2nd and 7th March 2020 under the title of 'Present & Future Role of Renewable Energy Sources in Sustainable Rural and Tribal Development'.
- Dr. V. Manivel Muralidharan, AP – II, Mr. K. Manikanda Prasath, AP, participated in Executive Education Programme on “Case Study Approach to Statistical Analysis using R Programming” held during 5th – 7th March 2020, organized by Coimbatore Institute of Technology, Coimbatore.
- Mr. P. R. Ayyappan, AP (III) acted as External Examiner for the Project VIVA VOCE at Karpagam College of Engineering on 11.03.2020.



- Mr. B. N. Sreeharan, AP (II) participated in the MHRD Sponsored Five day Hands on Training on Project Management Software (MS Project) organized by Coimbatore Institute of Technology from 07.03.2020 to 11.03.2020.

CONSULTANCY OFFERED

- Consultancy from the department was offered to Mr. Arun Kumar, Assistant Professor, Department of Mechanical Engineering, Sri Ramakrishna College of Engineering on “Modal Analysis”, Mr. P. D. Devan coordinated the consultancy.
- Another consultancy was offered to Mr. Manikandan. S, Manikandan I, IV Mech A, RVS Technical campus, Coimbatore on Property testing. Mr. S. Suresh, AP coordinated the consultancy.

DEPARTMENTAL ACTIVITIES

RESEARCH ACTIVITIES



- Doctoral Research Committee Meeting was conducted on 11.03.2020. Dr. A. Rajadurai, Professor, Department of Mechanical Engineering, Anna University Chennai. Dr. T. Kannan, Professor and Principal, SVS College of Engineering, Coimbatore conducted the meeting and discussed about the research activities conducted by Mr. T. Karuppusamy. Dr. C. Velmurugan, Professor / HoD coordinated the meeting.

ONLINE COURSES COMPLETION

- Dr. V. Muthukumar, Professor, completed a course on "Digital Manufacturing and Design" on Coursera.
- Mr. Ramesh Kumar M, AP completed a certification course on Project Management from Project Management institute (PMI) during 28.3.2020 & 29.03.2020 and from 04.03.2020 to 05.03.2020.

- Mr. P. D. Devan, AP completed NPTEL Certification course on "Introduction to Operations Research and NBA Accreditation and Teaching Learning in Engineering"
- Mr. B. N. Sreeharan, AP (II) completed a 12 weeks NPTEL Certification on "Engineering Metrology" and awarded Silver medal and recognized for being among top 5% nationwide.

A-Z "MS EXCEL" Shortcuts

Control +

o A – Select All	o B – Bold
o C – Copy	o D – Fill down
o E – Flash Fill	o F – Find
o G – Goto	o H – Replace
o I – Italic	o J – Not assigned
o K – Hyperlink	o L – Convert to table
o M – Not assigned	o N – New workbook
o O – Open workbook	o P – Print
o Q – Quick Analysis	o R – Right fill
o S – Save	o T – Table
o U – Underline	o V – Paste
o W – Close the workbook	o X – Cut
o Y – Redo	o Z – Undo

- Sreeharan B N, AP (II)

STUDENTS' ACTIVITIES

MECHBEE INSTA QUIZ CONTEST

Mechanical Engineering Association (MEA) has organized an event named MECHBEE INSTA QUIZ CONTEST from 23rd to 29th March, to check the knowledge level of students. Two questions have been posted daily on MEA official Instagram page around 6:30 to 7 daily.

Participants should attend both the question. Participants should answer the questions regularly. If a participant is skipping a day then he is disqualified from the contest. Participants have been shortlisted based on the following criteria, Answering both the question, total number of correct answers at the end of day six. At the end of day 6, 269 participants participated and answered actively. Winner: hari.prasad_ (INSTA ID) and Runner: whitebeast10 (INSTA ID). This event was conducted by Mr. Mouli Krishnan, Ms. Nandhini, Mr. Praveen under the guidance of Mr. Rajesh.

CADD CHALLENGE

CADD challenge is an event conducted by MEA on 27th March 2020, to test the modelling as well as the designing standards of the students. This event was conducted with 2 rounds. 1st round comprises of general CADD questions and Basic Engineering Graphics Modeling.

8 students from round 1 were selected for round 2. In round 2, a Gib and Cotter Joint model was given to the participants for which the students must provide the solid works model online.

MECH_MASTER

Mech Master has always been the showcase event of Mechanical Engineering department. MEA aims in preparing the technical aspirants of the department to face GATE, IES and more. For that an event called "Mech Master" was introduced by the association.

For the 1st time this event was conducted for the 1st year students during the Quarantine Days on 28th March, 2020. Active 1st years showed their interest for this event.

In this event, the technical aspirants were tested their technical standard in Manufacturing Technology. Manufacturing technology has been their Core subject till now.

This event consists of general Manufacturing Technology Quizzes along with aptitude questions. 25 questions were given out of which Participants securing higher score are recognized as winners and runners.

Mr. Kissan won the 1st Place, Mr. Padrinarayanan won the 2nd Place.

This event was conducted by Mr. Arun This event was coordinated by 1st years for the 1st time by Mr. Vijay, Mr. Vivien Wilfred under the guidance of Dr. V.R. Muruganantham

STUDENT ARTICLE

PISTON CYLINDER ASSEMBLY



Joshua Peter – 18BME084
2nd Year Mechanical – B

A piston-cylinder assembly wherein in the cylinder housing there is provided a cylinder chamber extending in axial direction, in which cylinder chamber a piston is movably guided in axial direction. Both the piston and also the cylinder chamber have a cross section which is different from a circular shape. A permanent-magnet piece is arranged fixedly in the area of the outer circumference of the piston. A switch arranged in the area of the linear path of movement of the permanent-magnet piece is provided on the outside on the cylinder housing, which switch can be operated without contact by the magnetic field of the permanent-magnet piece. The invention relates to a piston-cylinder assembly comprising a cylinder housing having an inner cylinder chamber extending in axial direction, in which cylinder chamber is provided a piston which is movable in axial direction and is guided by a guide surface defined by the interior side wall surface of the cylinder chamber in the region of the outer periphery of which piston there is arranged a permanent magnet which is moved with the movement of the piston.

Such piston-cylinder assemblies are used in order to release, dependent on one or more sliding positions of the piston, further sequences of operation. These can refer to both the piston-cylinder assembly itself, for example to the reversing of the direction of movement of the piston, or to further structural parts or machines. Moreover, this assembly facilitates an interrogation or indication without any problems from individual piston positions. It is thereby of importance for effecting a smooth sequence of operation that the switch, usually arranged in the outer periphery, is operated with precision. To accomplish this precision, it is decisive that the magnetic field of the permanent magnet, during the individual movements of the piston, operates the switch reproducibly always in the same piston position. Up to now attempts have been made to solve this problem by constructing the permanent magnet annularly and by arranging same coaxially with respect to the piston which is circular in cross section. The switching operations could thus be released safely even during nonpreventable rotations of the piston about its longitudinal axis. However, the complicated and expensive manufacture of the piston-magnet unit is thereby disadvantageous, because on the one hand the annular magnet is expensive to manufacture and on the other hand regular two-part pistons or diverse fastening parts are needed in order to be able to secure the magnetic ring as best as possible on the piston.

The basic purpose of the invention is therefore to provide a piston-cylinder assembly according to the abovementioned type, which can be manufactured with a high degree of switching precision, with few parts, simply and inexpensively.



KUMARAGURU college of technology

COIMBATORE – 641 049

Department of Mechanical Engineering

INSTITUTE VISION:

The vision of the college is to become a technical university of International Standards through continuous improvement.

INSTITUTE MISSION:

Kumaraguru College of Technology (KCT) is committed to providing quality Education and Training in Engineering and Technology to prepare students for life and work equipping them to contribute to the technological, economic and social development of India. The College pursues excellence in providing training to develop a sense of professional responsibility, social and cultural awareness and set students on the path to leadership.

DEPARTMENT VISION:

To emerge as a centre, that imparts quality higher education through the programme in the field of Mechanical Engineering and to meet the changing needs of the society.

DEPARTMENT VISION:

The department involves in sustained curricular and co-curricular activities with competent faculty through teaching and research that generates technically capable Mechanical Engineering professionals to serve the society with delight and gratification.

PROGRAM OUTCOMES (PO's):

1. **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
2. **Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
3. **Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
4. **Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

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7. **Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
8. **Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
9. **Individual and teamwork:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
10. **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
11. **Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
12. **Life-long learning:** Recognize the need for and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAM EDUCATIONAL OUTCOMES (PEO's):

- PEO 1** : Graduates will take up career in manufacturing and design related disciplines.
- PEO 2** : Graduates will be involved in the execution of Mechanical Engineering projects.
- PEO 3** : Graduates will take up educational programme in mastering Mechanical sciences and management studies.

PROGRAM SPECIFIC OUTCOMES (PSO's):

1. Apply the fundamentals of science and mathematics to solve complex problems in the field of design and thermal sciences.
2. Apply the concepts of production planning and industrial engineering techniques in the field of manufacturing engineering.