

Amritsar College of Engineering & Technology, Amritsar

Approved by AICTE, New Delhi and Affiliated to
I.K. Gujral Punjab Technical University, Kapurthala, Punjab

PROGRAM REPORT

Title of the Programme: Scheme for Promoting Interests, Creativity & Ethics among Students
(SPICES)

Grant-in-aid Sanctioned by AICTE, New Delhi: Rs.1,00,000/-

SUMMARY OF THE SPICES SCHEME

AICTE is an important entity to promote innovative, educational and research schemes among the technical education community. Out of many schemes under AICTE, this SPICES is a significant scheme for the student community. SPICES stands for Scheme for Promoting Interests, Creativity and Ethics among Students. AICTE offers SPICES scheme to provide financial support to institutions, for developing students club, for well-rounded development of students, by promoting their interests, creativity and ethics. This club should serve as a model for other clubs in the institution.

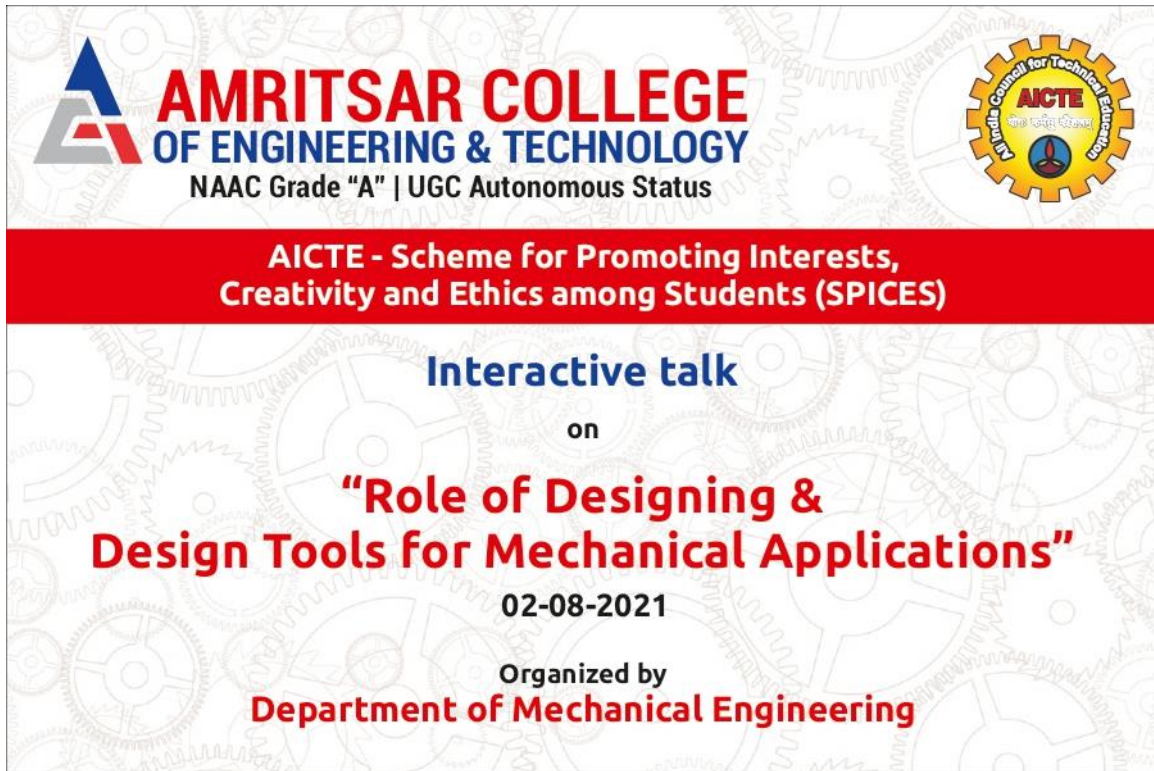
The main objective this scheme is to energize student's club/ Chapters/ Societies as facilitating entity for pursuit of individual interests, creative work, showcasing talent, networking and teamwork opportunities, social experience; organization and management skills and exposure to professional skills. One lakh Rupees had been released by AICTE, to conduct various events under AICTE-SPICES sponsored Automobile club for the Academic Year 2021-22.

The purpose of Automobile Club is to facilitate entity for pursuit of individual interests, creative work, showcasing talent, teamwork opportunities, social experience and management skills, exposure to professional environment under one roof.

With these facilities in the campus, more students were encouraged to take up creative work, get training on creative thinking, problem solving, collaboration etc. With same objective of AICTE, we have successfully conducted the various events under Automobile Club and cheered the students to come out with their own business idea, creative interest, management skills and team spirit. Hereby we summarize the event with a short report under AICTE-SPICES Scheme.

Amritsar College of Engineering & Technology, Amritsar

Interactive talk on ‘Role of Designing & design tools for Mechanical Applications’



The poster features the Amritsar College of Engineering & Technology logo on the left, which includes a stylized 'A' and the college name. To the right is the AICTE logo, a yellow gear with the text 'All India Council for Technical Education' and 'AICTE The Future Starts Here'. Below the college name, it states 'NAAC Grade "A" | UGC Autonomous Status'. A red horizontal band contains the text 'AICTE - Scheme for Promoting Interests, Creativity and Ethics among Students (SPICES)'. The main title 'Interactive talk on "Role of Designing & Design Tools for Mechanical Applications"' is centered in blue and red. Below the title, the date '02-08-2021' and the organizing department 'Department of Mechanical Engineering' are listed. The background is a light gray pattern of various gears.

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**AICTE - Scheme for Promoting Interests,
Creativity and Ethics among Students (SPICES)**

Interactive talk
on
**"Role of Designing &
Design Tools for Mechanical Applications"**
02-08-2021
Organized by
Department of Mechanical Engineering





An interactive talk on Role of Designing & Design tools for Mechanical Applications has been conducted on by the Automobile Club of Department of Mechanical Engineering on 2.8.2021 to get the idea of Design tools and to make the participants well aware of how to do simulation modeling for predicting dimensions of part components.

The inaugural session of the talk was held at the start of talk. In the Inaugural function, Coordinator provided a detailed introduction of the talk and welcome the dignitaries, participants, and resource persons. Then, HOD, Department of Mechanical Engineering delivered a welcome address in the inaugural session. Then the talk was started by the Eminent Speakers of the programme.

Mechanical engineering is all about designing and developing machines that solve complex problems faced by society. Therefore, design plays a crucial role in mechanical engineering, as it is the foundation on which every machine is built. In addition, it is the process of turning abstract concepts and ideas into reality. The design combines diverse science, art, and engineering elements to create practical solutions.

Design in mechanical engineering refers to creating and building new machines, components, products, and systems that improve efficiency and functionality. Mechanical engineers/ engineering students use mathematics, physics, and other subjects to develop functional concepts and manage manufacturing processes.

Design is essential to various industries, including manufacturing industry. The mechanical design process aims to create the most efficient, reliable, and cost-effective mechanical system.

It involves using specialized software and tools to design and simulate components before they are manufactured. In short, design plays a critical role in mechanical engineering, essential for creating innovative and sustainable solutions for the future.

Design plays a crucial role in mechanical engineering as it involves creating and developing machines, structures, and other devices. Mechanical engineering design encompasses various stages, including conceptualization, preliminary design, detailed design, prototyping, and testing. Some of the specific roles of design in mechanical engineering include

1. Developing Product Concepts and Specifications
2. Creating Detailed Designs and Models
3. Analyzing and Optimizing Designs
4. Creating Prototypes and Testing

Design is integral to mechanical engineering and offers various benefits to developed products. Some of the key benefits of design in mechanical engineering include the following:

1. Optimization: Design enables engineers to optimize the performance of mechanical systems by selecting the best materials, configurations, and dimensions.
2. Efficiency: Well-designed mechanical systems can operate more efficiently, with less energy and resources required to achieve the same results.
3. Reliability: A well-designed mechanical system is more reliable, with fewer breakdowns and failures, increasing safety, productivity, and reduced maintenance costs.
4. Safety: Design helps ensure that mechanical systems operate safely, protecting operators and the environment from potential harm.
5. Innovation: The design allows for creative thinking and innovation, leading to the development of new technologies and solutions that can enhance the performance of mechanical systems.
6. Cost-Effectiveness: Design can help engineers reduce the cost of manufacturing and operation, leading to more cost-effective solutions.
7. Sustainability: Design can also contribute to the sustainability of mechanical systems by reducing their environmental impact and improving their energy efficiency.



Amritsar College of Engineering & Technology, Amritsar

Workshop on hands on practice for two-wheeler Repair & Service

Mechanical Engineering department arranged a workshop on hands on Practice for Two-Wheeler Repair and Service to train the students of the Automobile Club with Hands on practice on latest single cylinder CVT engines with latest tools of Honda.

It has noted that due to non-availability of skilled technicians in the locale, a large number of motorcycle owners face difficulties for the service and repair of their motorcycles after the expiry of warrantee period and in the process, they face several problems due to inept handling of their vehicles. Therefore, to mitigate this problem, it was felt necessary that students of the club be provided structured training in motorcycle service and repair to enhance their skills in tune with the changing techniques and technologies.

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Creativity and Ethics among Students (SPICES)**

Workshop
on
**Hands on Practice for
Two Wheeler Repair & Service**
02-09-2021
Organized by
Department of Mechanical Engineering



The Programme was coordinated by Mr. Dharminder Singh, Asst. Prof., Department of Mechanical Engineering & Mr. Rajbir Singh, Asst. Prof., Department of Mechanical Engineering.

After Inauguration, the session was handled by Eminent Speaker in which power point presentation will be given on how to do service in schedule, how to maintain the vehicle and also described about the durability of the parts in two wheelers.

The post lunch session was Hands-on training handled by the Expert team about the description of parts in two-wheeler by Showing a Pulsar 150 bike followed by the session on how to do Adjustments in Chains, Brakes, Idling tuning, Clutch, Accelerator, Disc Brake and Engine oil change in the above said two-wheeler was done. The preventive maintenance of Air filter and carburetor was described.

Also Mr. Rajbir Singh, Department of Mechanical Engineering, described the difference between two stroke engine and four stroke engine using cut section Model and described the Functions of Engines lab.

Finally, the students were sent to Mechanical department to view the lab facilities, there Mr. Amandeep Singh, Asst. Prof., Department of Mechanical Engineering, gave brief introduction about the Laboratories in the department.

The participants' Certificate was distributed by Mr. Rajbir Singh, Assistant Prof., Department of Mechanical Engineering, followed by valedictory address.

After completion of workshop, the participants of the workshop are:

- able to understand the history of Automobile Industry and major two-wheeler manufactures in India
- provided knowledge on various types of two wheelers
- able to know the principles, general concepts, material used, type of Two-wheeler chassis
- able understand the function and classification of two / four stroke engine and their components
- enabled to explain the function of clutch and gear box
- able to explain the need for suspension, brakes and their types
- able understand the function and classification of wheels and tires
- enabled to Identify the parts of Fuel Injection System and check the trouble shooting in FIS
- enabled to trouble shoot the sensors by using FI Diagnostic Tool

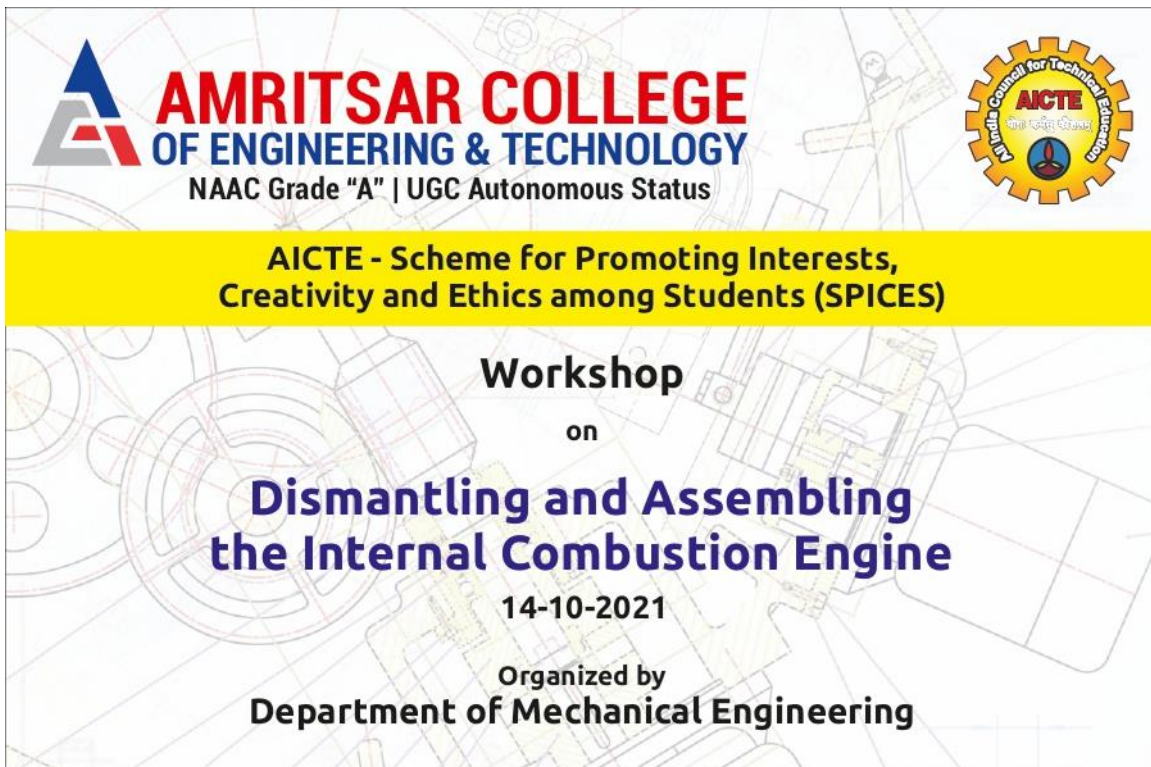


Amritsar College of Engineering & Technology, Amritsar

Workshop on Dismantling and assembling the Internal Combustion engine

Internal Combustion or IC Engines have had a great impact on human life. These engines produce immense power in contrast to their size and weight. Today, these engines power almost all air and land vehicles.

In this workshop students get firsthand experience of the working principles for IC Engine Design. By dismantling a real IC Engine into components, participants can explore the engineering involved in an automotive engine system.



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**AICTE - Scheme for Promoting Interests,
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Workshop
on
**Dismantling and Assembling
the Internal Combustion Engine**
14-10-2021
Organized by
Department of Mechanical Engineering



Overview of the Event:

Session 1:

- Types of engines
- Understanding of Cylinder head
- Function and working of cam shaft
- Types of spark plug
- Working of spark plug
- Working of valve
- Understanding of Cylinder & Piston
- Function of Piston rings
- Understanding of CC and compression ratio
- Function and working of Alternator:

Session 2:

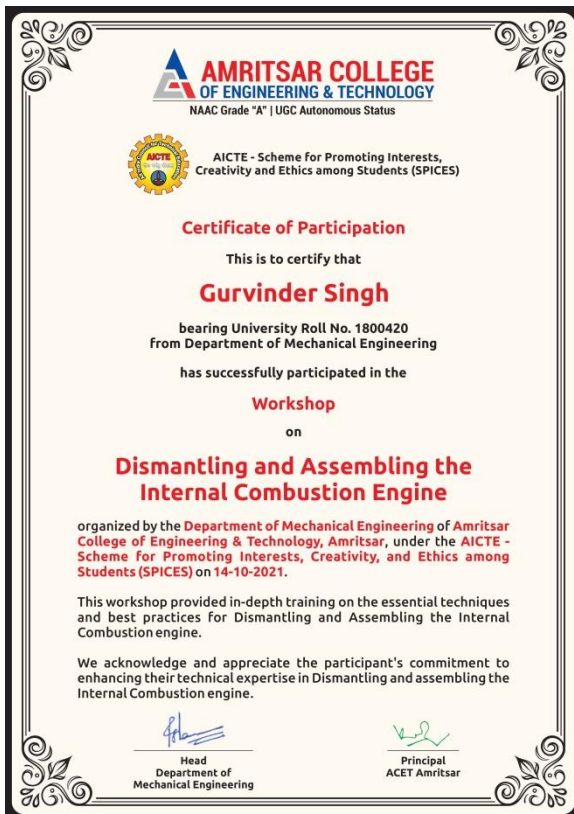
- Types of Gearbox
- Types of Clutch
- Function and working of Clutch
- Function and working of Flywheel

Session 3:

- Understanding of Power, Torque and Speed
- Working of Gearbox
- Working of Gear-shifter
- Working of kick start
- Function and working of oil pump
- Engine oil gallery
- Assemble of engine

Session 4:


- Types of carburettor
- Function and working of carburettor
- Air-fuel ratio
- Function and working of ASV
- Electric circuit for battery charging and vehicle starting
- Interaction with students about real life engine




Amritsar College of Engineering & Technology, Amritsar

Off road Automobile (ATV) designing & manufacturing by students of Automobile collegiate Club

The vehicle is required to have a combination frame and roll cage consisting of steel members. As weight is critical in a vehicle powered by a small engine, a balance must be found between the strength and weight of the design. To best optimize this balance the use of solid modeling and finite element analysis (FEA) software is extremely useful in addition to conventional analysis. There are many ATV's in the market, but they are not manufactured in India. These ATV's are assembled here. So objective is to develop a cost effective design of an All Terrain Vehicle Frame. Since the chassis is the main part of an automotive, it should be strong and light weight. Thus, the chassis design becomes very important. Typical capabilities on basis of which these vehicles are judged are hill climbing, pulling, acceleration and maneuverability on land as well as shallow waters. This is aimed to design the frame of an ATV which is of minimum possible weight and show that the design is safe, rugged and easy to operate.

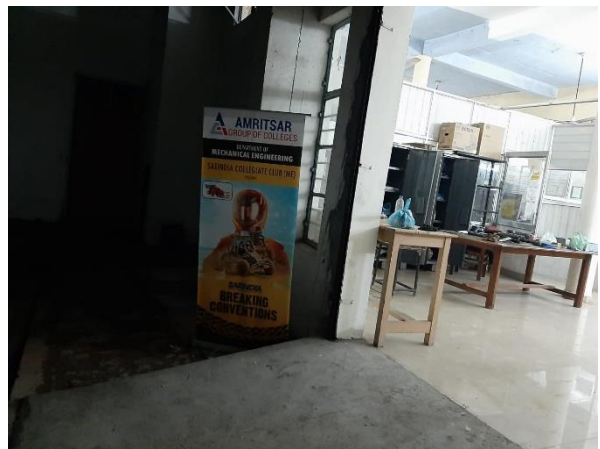


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**AICTE - Scheme for Promoting Interests,
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**Off Road Automobile
(ATV) Designing & Manufacturing**
**by Students of
Automobile Collegiate Club**
28-10-2021
**Organized by
Department of Mechanical Engineering**

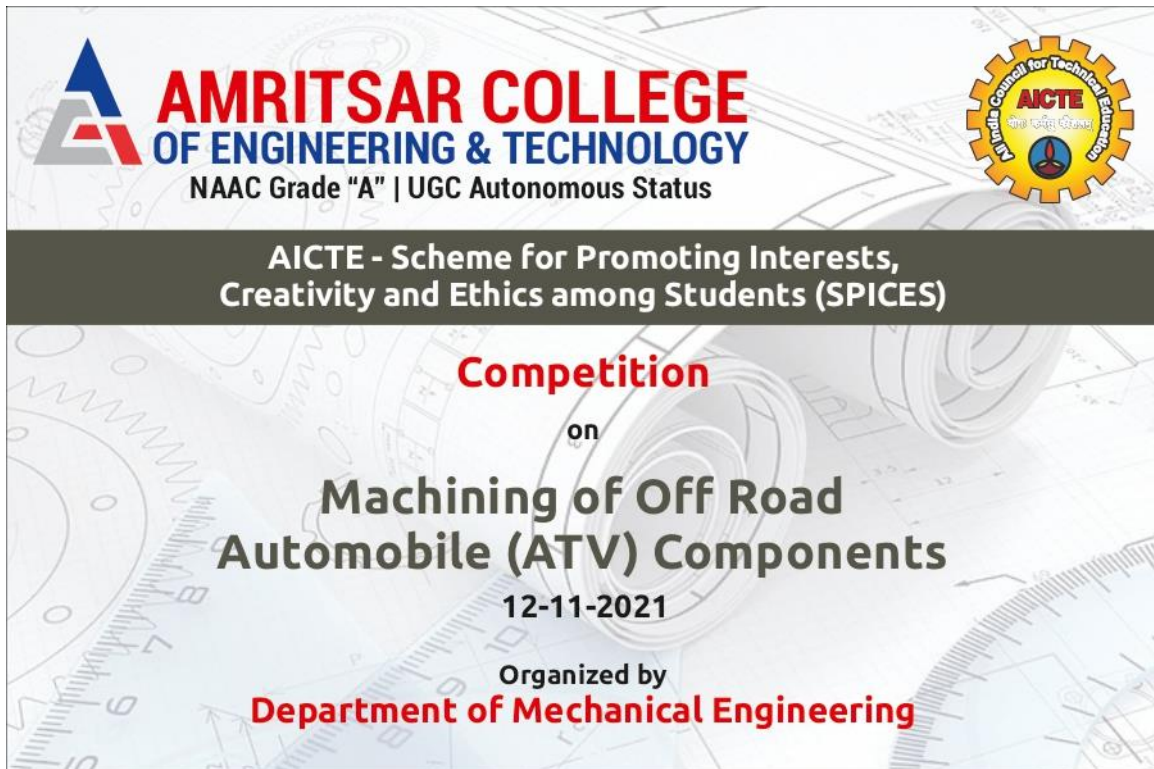




Amritsar College of Engineering & Technology, Amritsar

Competition on Machining of ATV Components

The objective of the competition is to develop the roll cage and other components for All - Terrain Vehicle. Material for the roll cage and other components is need to be selected based on strength, cost and availability. The components of roll cage is to be machined to incorporate all the automotive sub-systems. A software model is initially prepared in Solid works software. Later the design is tested against all modes of failure by conducting various simulations and stress analysis with the aid of Ansys Software. Based on the result obtained from these tests the design is modified accordingly. After successfully designing the roll cage, it is ready to be machined and fabricated.



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Competition
on
**Machining of Off Road
Automobile (ATV) Components**
12-11-2021
Organized by
Department of Mechanical Engineering





OBJECTIVES OF THE COMPETITION:

The purpose of the completion is to understand the fundamentals of part programming and Operation on lathe and milling machines.

1. To bridge the gap between academic fundamentals and actual machining know how as far as the manufacturing of ATC components are concerned.
2. To explore manufacturing and machining fundamentals.
3. To describe the fundamentals of operations on lathe and milling machines related to machining with applications and implications.
4. To make the participants aware about the concept, machining of components, Part manufacturing on lathe and milling machines.
5. To provide experience to the students making the machining fundamentals more clear.

SAFETY PRECAUTIONS DURING COMPETITION:

1. All competitors must use safety glasses when using any hand, power or machine tools or equipment likely to cause or create chips or fragments that may injure the eyes
2. Club Experts will use the appropriate personal safety equipment when inspecting, checking or working with a Competitor's project
3. The documentation 'Safety and Fairness' will be prepared by the Club
4. The Competitor must comply with the machine manufacturer's safety instructions

Benefits of Competition in the Club:

1. Contributes to the professional development of participants
2. Makes manufacturing knowledge accessible to new entrants into club

3. Supplements current education to those enrolled in the club


COMPETITION PLAN SCHEDULE

Time	Session	Location
9:30 to 10:00 am	Registration & Breakfast + Tea	Ground floor – Workshop Building
10:00 to 10:30am	Inaugural	Workshop Seminar Hall
10:30 to 12:00 pm	Introduction to Machine Set-up	Workshop Seminar Hall
12:00 to 1:00 pm	Lunch	Ground floor – Workshop Building
1:00 to 3:0 pm	Machining on Lathe Machine Set up	Machine Shop
3:00 to 3:15pm	Tea Break	Ground floor – Workshop Building
3:15 to 4:30pm	Machining on Milling Machine Set up	Machine Shop
4:30 to 5:00 pm	Valedictory	Workshop Seminar Hall




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Competition on Computer Aided Designing of Off road Automobile (ATV) components



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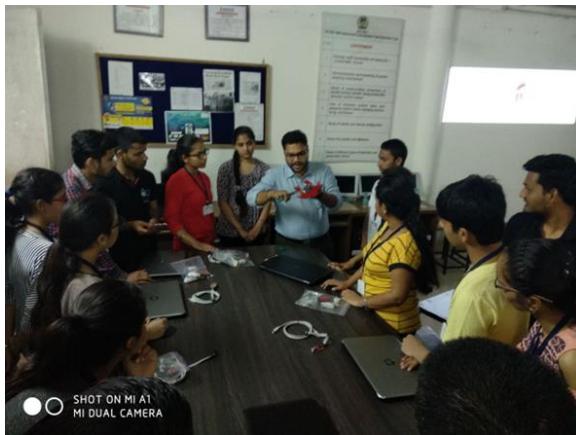


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Competition
on
**Computer Aided Designing of
Off Road Automobile (ATV) Components**
03-12-2021
Organized by
Department of Mechanical Engineering





Automotive Design comprises of industry specific CAD software that are used by Automotive Designer for accomplishing preliminary tasks like designing, manufacturing and operating automobiles.

CAD software is used to aid in the designing, developing and testing vehicles or vehicle components from the perception stage to production stage.

The competition was focused on following objectives:

- To create and modify simple and complex 3D solids and surfaces
- To create 3D geometry from 2D drawings
- Setting up a rendering with materials and lights

The competition provides a thorough grounding in the fundamentals of 3D and explores the main features of the advanced 3D Modelling workspace in the AutoCAD software.

Initially the day starts by the resource person titled as “latest trends in computer Aided Designing of Automobiles. The resource person has kindled the curiosity of the entire student participants on their innovative thinking and idea formulation. The session mainly focused on Problem Identification, Idea Generation and Innovative Thinking. In the beginning the Resource Person gave the introduction on Latest Trends in Engineering Design and its various applications in the today’s world. Later he explained the different software used for 3D modeling available in the automobile industries. He explained the free hand sketch of part modeling diagram of prototype car. Then he created a prototype model of car by using software. Then he explained the drawing procedure of aircraft structure by using software.



Then he explained the history of modeling software which will be used in the automobile industry. He generated the meshing option for car structure and showed the impact loads by using software. Then he explained the simulation of machining operation by using software. Then he explained the concepts of Reverse Engineering by using aircraft structure model.

Then the competition of students started.

The vote of thanks was given by Mr. Paramjit Singh, Associate Professor & HEAD, Department of Mechanical Engineering. He gave best wishes to all students and faculty members for delightful and successful day. As per the feedback received from the participants it was very good learning experience, the competition helped them in understanding the trends in CAD/ CAM.

Amritsar College of Engineering & Technology, Amritsar

Workshop on Digital Manufacturing & its role in current Automobile Industry



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Workshop
on
**Manufacturing & Its Role
in Current Automobile Industry**
07-01-2022
Organized by
Department of Mechanical Engineering






Amritsar College of Engineering & Technology, Amritsar

Workshop on Emission & Emission Norms of Automobiles



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Workshop
on
**Emission & Emission Norms
of Automobiles**
09-02-2022
Organized by
Department of Mechanical Engineering




Department of Mechanical Engineering
presents

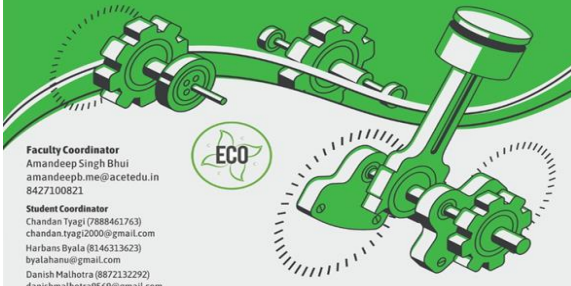
QUIZ

Competition

**Bharat Stage-6
(BS-6)**




Register on: "https://forms.gle/AQZ7gow1niB7Jrod6"
e-Certificates will be given to the participants




Faculty Coordinator
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8427100821

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ECO



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Certificate of Participation

This is to certify that

Saroj Kumar Yadav

bearing University Roll No. 1819273
from Department of Mechanical Engineering

has successfully participated in the

Workshop


on


**Emission & Emission Norms
of Automobiles**


organized by the Department of Mechanical Engineering of Amritsar College of Engineering & Technology, Amritsar, under the AICTE - Scheme for Promoting Interests, Creativity, and Ethics among Students (SPICES) on 09-02-2022.

This workshop provided in-depth training on the essential knowledge of Emission & Emission Norms of Automobiles.


We acknowledge and appreciate the participant's commitment to enhancing their knowledge of Emission & Emission Norms of Automobiles.


 Head
Department of
Mechanical Engineering


 Principal
ACET Amritsar



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AICTE - Scheme for Promoting Interests,
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Certificate of Participation

This is to certify that

Sonu Kumar

bearing University Roll No. 1800459
from Department of Mechanical Engineering

has successfully participated in the

Workshop


on


**Emission & Emission Norms
of Automobiles**

organized by the Department of Mechanical Engineering of Amritsar College of Engineering & Technology, Amritsar, under the AICTE - Scheme for Promoting Interests, Creativity, and Ethics among Students (SPICES) on 09-02-2022.

This workshop provided in-depth training on the essential knowledge of Emission & Emission Norms of Automobiles.

We acknowledge and appreciate the participant's commitment to enhancing their knowledge of Emission & Emission Norms of Automobiles.


 Head
Department of
Mechanical Engineering


 Principal
ACET Amritsar

Amritsar College of Engineering & Technology, Amritsar

Innovations in Designing and Manufacturing of Automotive Vehicles
completion at Ferozpur College of Engineering & Technology, Ferozpur

BACKGROUND:



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AICTE
All India Council for Technical Education

AICTE - Scheme for Promoting Interests,
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**Innovations in Designing and Manufacturing
of Automotive Vehicles Completion**

at
Ferozpur College of Engineering & Technology, Ferozpur
10-04-2022

Organized by
Department of Mechanical Engineering







Amritsar College of Engineering & Technology, Amritsar

Training Camp on Automobile Suspension & breaking system organized by Automobile Collegiate Club in association with GRD technologies group



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AICTE
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**AICTE - Scheme for Promoting Interests,
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Training Camp
on
Automobile Suspension & Breaking System
in association with
GRD Technologies Group
04-05-2022
Organized by
Automobile Collegiate Club







AICTE - Scheme For Promoting Interests,
Creativity and Ethics among Students (SPICES)

Certificate of Participation

This is to certify that

Gurvinder Singh

bearing University Roll No. 1800420
from Department of Mechanical Engineering

has successfully participated in the

Training Camp

on

**Automobile Suspension &
Breaking System**

organized by the **Department of Mechanical Engineering** of
Amritsar College of Engineering & Technology, Amritsar, in
association with GRD Technologies Group under the **AICTE -
Scheme for Promoting Interests, Creativity, and Ethics among
Students (SPICES)** on 04-05-2022.



Head
Department of
Mechanical Engineering



Principal
ACET Amritsar



AICTE - Scheme For Promoting Interests,
Creativity and Ethics among Students (SPICES)

Certificate of Participation

This is to certify that

Raj Devkota

bearing University Roll No. 1800443
from Department of Mechanical Engineering

has successfully participated in the

Training Camp

on

**Automobile Suspension &
Breaking System**

organized by the **Department of Mechanical Engineering** of
Amritsar College of Engineering & Technology, Amritsar, in
association with GRD Technologies Group under the **AICTE -
Scheme for Promoting Interests, Creativity, and Ethics among
Students (SPICES)** on 04-05-2022.



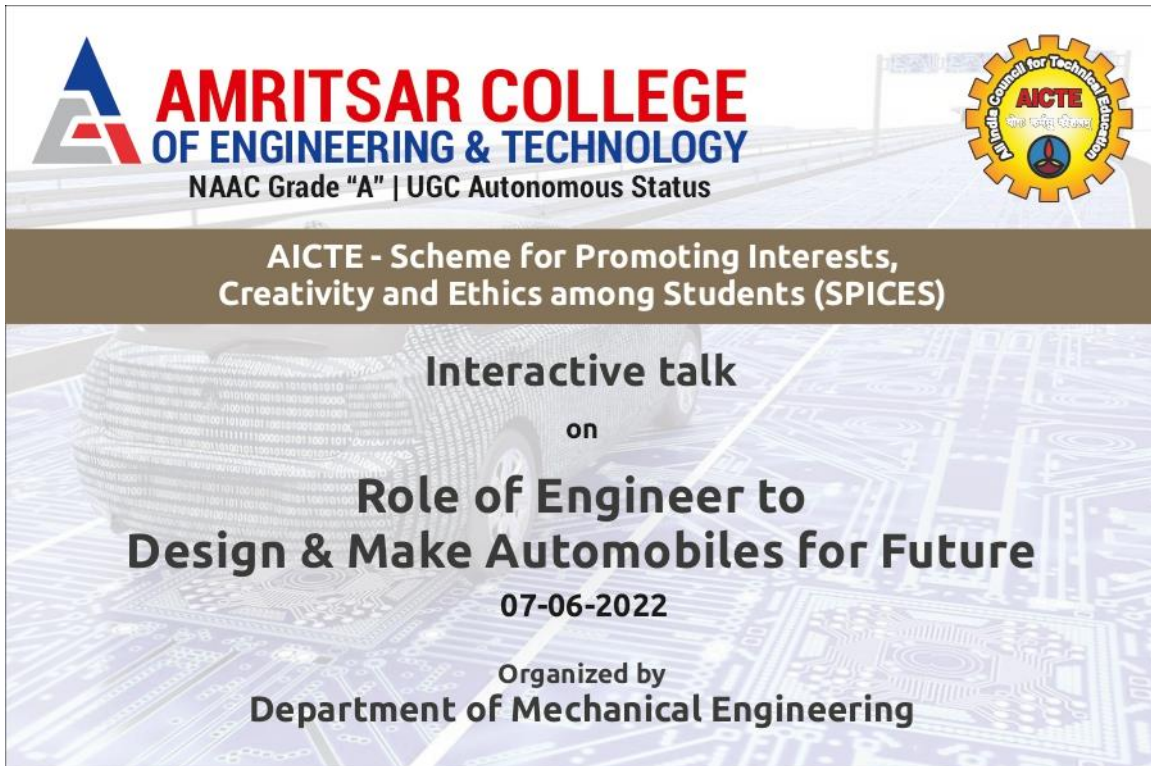
Head
Department of
Mechanical Engineering



Principal
ACET Amritsar

Amritsar College of Engineering & Technology, Amritsar

Interactive talk on 'Role of Engineer to design & make Automobiles for Future'



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Interactive talk
on
Role of Engineer to Design & Make Automobiles for Future
07-06-2022
Organized by
Department of Mechanical Engineering



