



LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING
(AUTONOMOUS)
Accredited by NAAC & NBA (CSE, IT, ECE, EEE & ME)
Approved by AICTE, New Delhi and Affiliated to JNTUK, Kakinada
L.B.Reddy Nagar, Mylavaram-521230, Krishna Dist, Andhra Pradesh, India

Department of Mechanical Engineering Organised a 3 Day online Student workshp on “**Design and Fabrication of All Terrain Vehicle Model**” under ISTE Student chapter on 12th Aug 2020 to 14th Aug 2020.

<p>About the Institute & Department The Lakireddy Bali Reddy College of Engineering (LBRCCE) was established in the year 1998 by Er. Lakireddy Bali Reddy gara. The institute is established with the sole aim of providing high quality educational opportunities in the field of science, engineering, technology and management. It is approved by AICTE, affiliated to JNTUK, Kakinada and attained autonomous status in the year 2010. It attained NAAC accreditation. The institute is listed in 201 to 250 rank band by NIRF India Rankings 2020 and also certified by ISO: 9001:2015. The Department of Mechanical Engineering was started in the year 1998. The Department is accredited by NBA (Tier-II) and also recognized as a Research centre by JNTUK Kakinada.</p> <p>About the Workshop The three day online student workshop is designed to ignite young students to know the design and drafting procedures of work, preparation of frames, pipes and metal cutting stages, Drilling and Grinding Operations involved in model vehicle preparation, Welding Operations required to prepare the model, Lathe work operations involved in preparing the model, engine starting and mounting operations, transmission system fittings, steering system fabrication, Types of suspension system required to model the vehicle, Tyres fitting , Overall assembling of components and safety check-ups required to model the vehicle.</p> <p>Registration and Fee Particulars: There is no registration fee All the sessions are conducted online through Microsoft Teams App. E-certificate will be given to the students who satisfy the criteria set by the organizing committee</p> <p>Joining Link: https://tinyurl.com/workshopautomobileclub</p>	<p>COMMITTEE MEMBERS</p> <p>Chief Patrons:</p> <ol style="list-style-type: none"> 1. Er. Lakireddy Bali Reddy, Chairman 2. Sri L. Jaya Prakash Reddy, Co-Chairman 3. Sri L.R.K. Prasad Reddy, Vice-Chairman <p>Patrons:</p> <ol style="list-style-type: none"> 1. Sri G. Srinivasa Reddy, President 2. Er. K. Thimma Reddy, Director Infra 3. Dr. K. Appa Rao, Professor & Principal 4. Dr. K. Haranatha Reddy, Prof. & Vice-Principal <p>Convener: Dr. S.Pichi Reddy, Professor & HOD, ME</p> <p>Coordinators:</p> <ol style="list-style-type: none"> 1. Dr. P. Ravindra Kumar, Professor, ME E-mail: raamistirk@gmail.com 9490381201 2. Mr. J.Subba Reddy, Associate Professor, ME E-mail: jsubba@lbrcce.edu.in 9985100936 3. Mr. K.Lakshmi Prasad, Assistant Professor, ME E-mail: klorasad1108@gmail.com 9885827526 <p>Student Speakers:</p> <p>S.K.KARIMULLA, Mechanical Final year, Sec-c R.No.16761A0303, Ph.No.989852972 Email ID: kavimulathakir054@gmail.com</p> <p>R.SUCHITH SAMUEL, Mechanical Final year, Sec-c R.No.16761A0305, Ph.No.9866688818 Email ID: suchith049@gmail.com</p> <p>V.V.PRITHVI RAJ, Mechanical Final year, Sec-c R.No.16761A0311, Ph.No.9919208277 Email ID: vprithvi99@gmail.com</p> <p>K.KARTIK Mechanical Final year, Sec-c R.No.16761A0319, Ph.No.7032670657 Email ID: kavikkommanan@gmail.com</p> <p>R.SHOBITH Mechanical Final year, Sec-c R.No.16761A0309, Ph.No.9898503299 Email ID: rohithrauri99@gmail.com</p> <p>L.NAVEEN KUMAR, Mechanical Final year, Sec-c R.No.17765A0330 Ph.No.9866035860 Email ID: naveen57@gmail.com</p>	<p style="text-align: center;">THREE DAY ONLINE STUDENT WORKSHOP</p> <p style="text-align: center;">ON DESIGN AND FABRICATION OF ALL TERRAIN VEHICLE MODEL (12th -14th August, 2020) @10.00 AM to 12.00 PM</p>   <p style="text-align: center;">Organized By:</p> <p style="text-align: center;">DEPARTMENT OF MECHANICAL ENGINEERING LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING (A) (Accredited by NAAC & NBA (CSE, IT, ECE, EEE, MECH), ISO 9001:2015 Certified Institution) Approved by AICTE, New Delhi and Affiliated to JNTUK, Kakinada L.B. REDDY NAGAR, MYLAVARAM, KRISHNA DIST., A.P-521 230.</p>
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Objectives of the Workshop

The three day online student workshop is designed to ignite young students to know the design and drafting procedures of work, preparation of frames, pipes and metal cutting stages, Drilling and Grinding Operations involved in model vehicle preparation, Welding Operations required to prepare the model, Lathe work operations involved in preparing the model, engine starting and mounting operations, transmission system fittings, steering system fabrication, Types of suspension system required to model the vehicle, Tyres fitting , Overall assembling of components and safety check-ups required to model the vehicle.

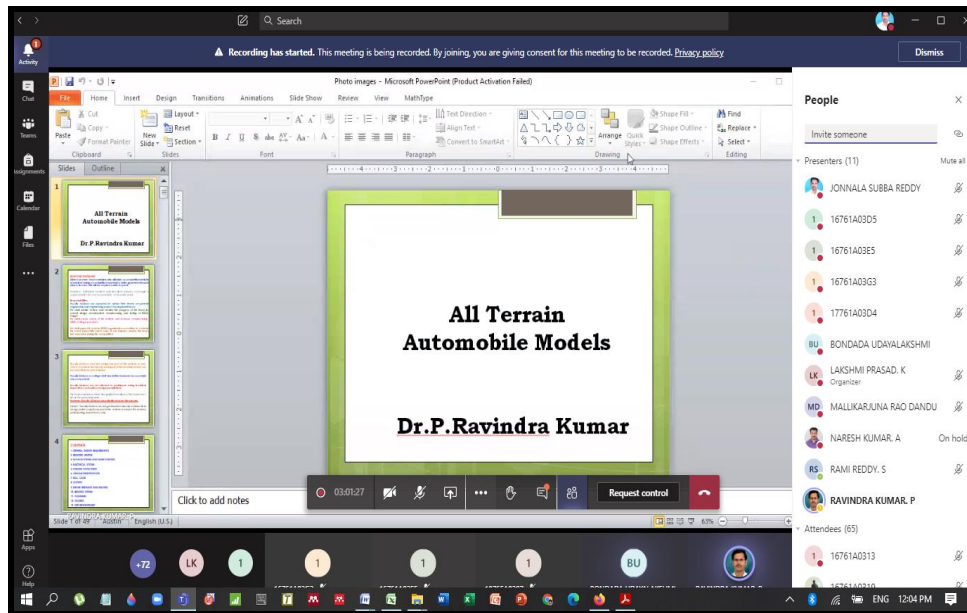


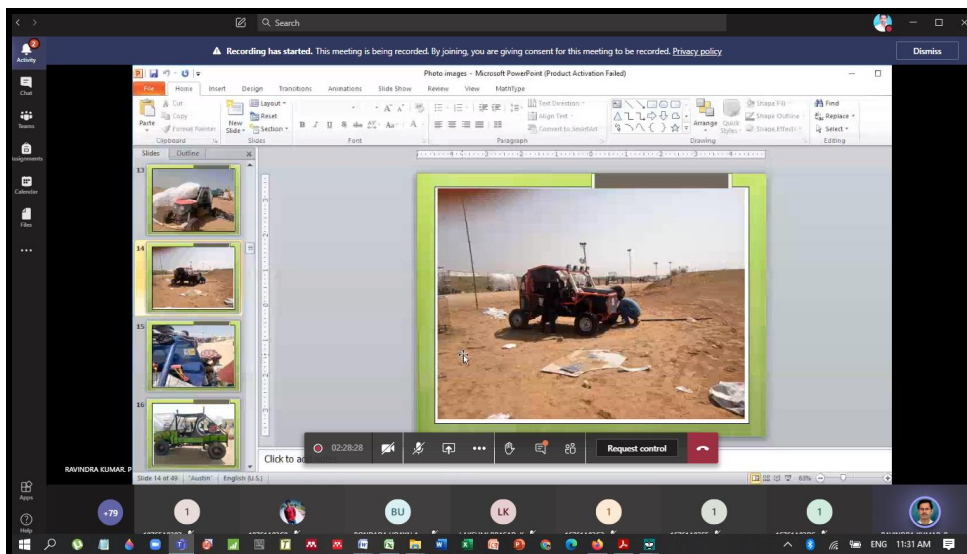
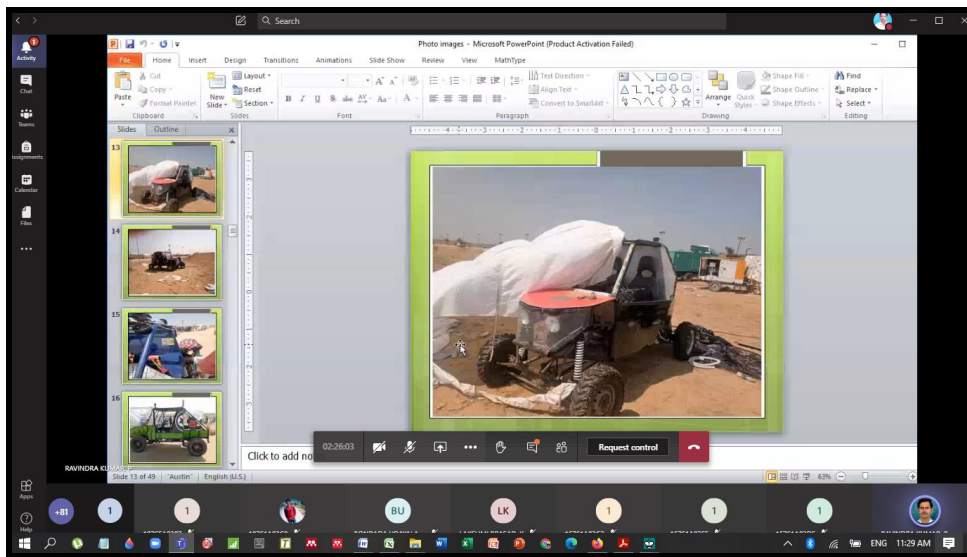
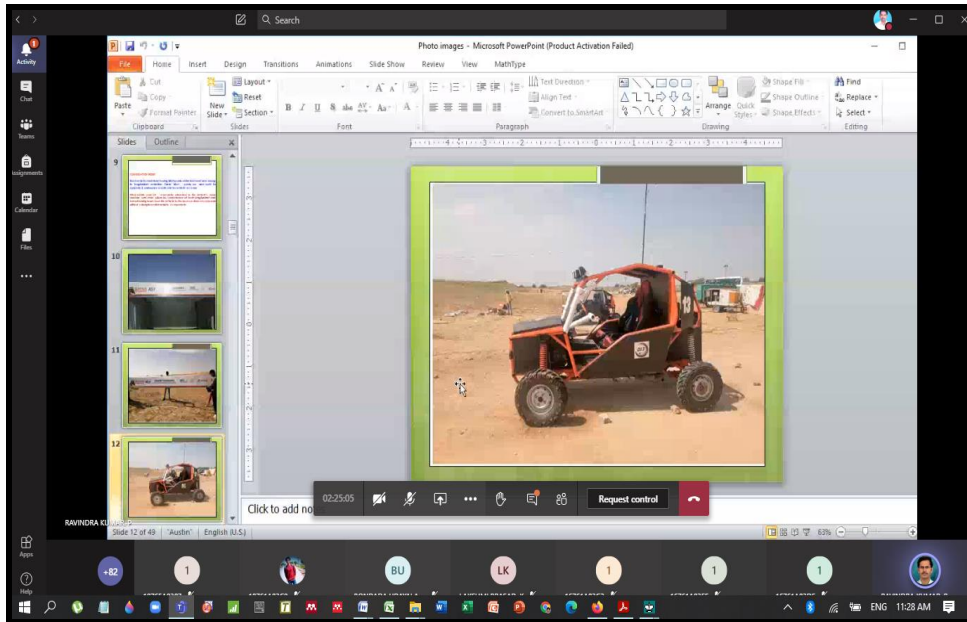
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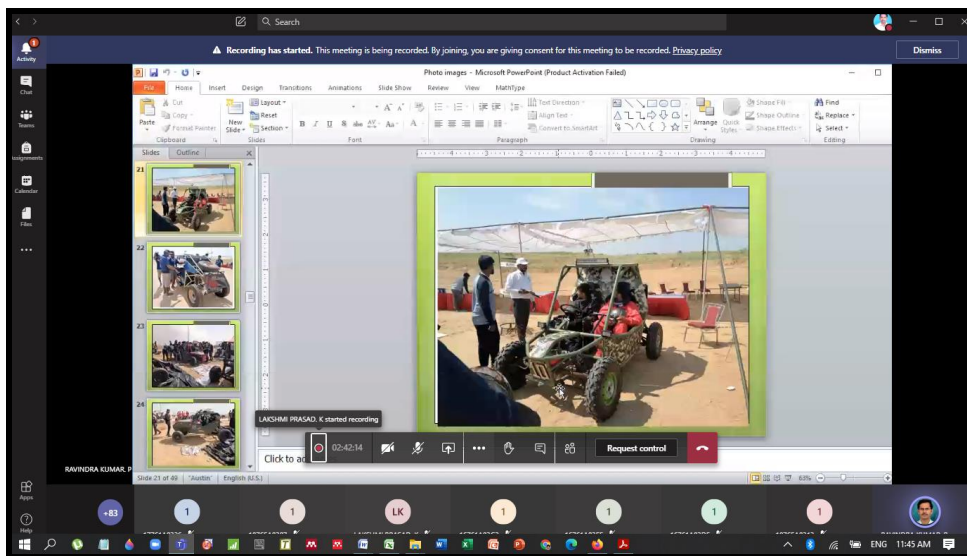
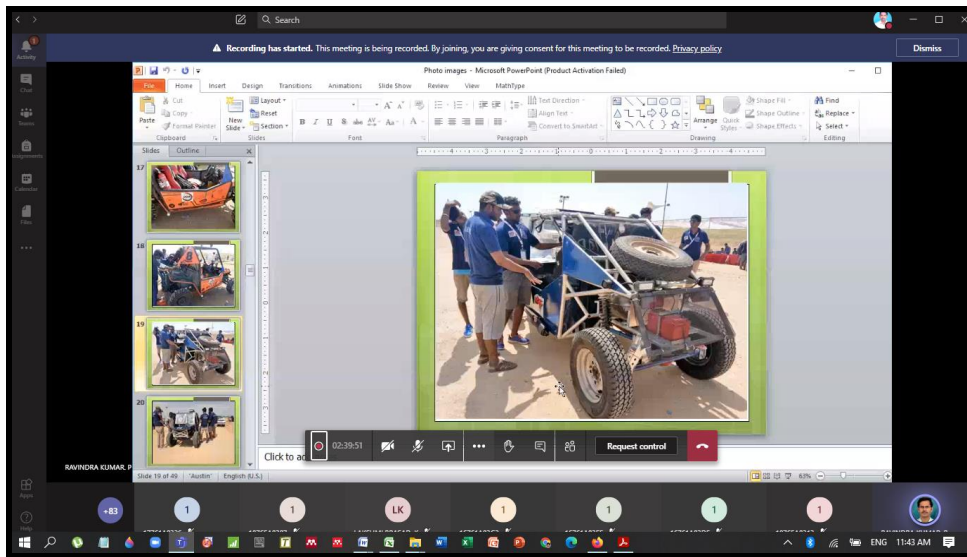
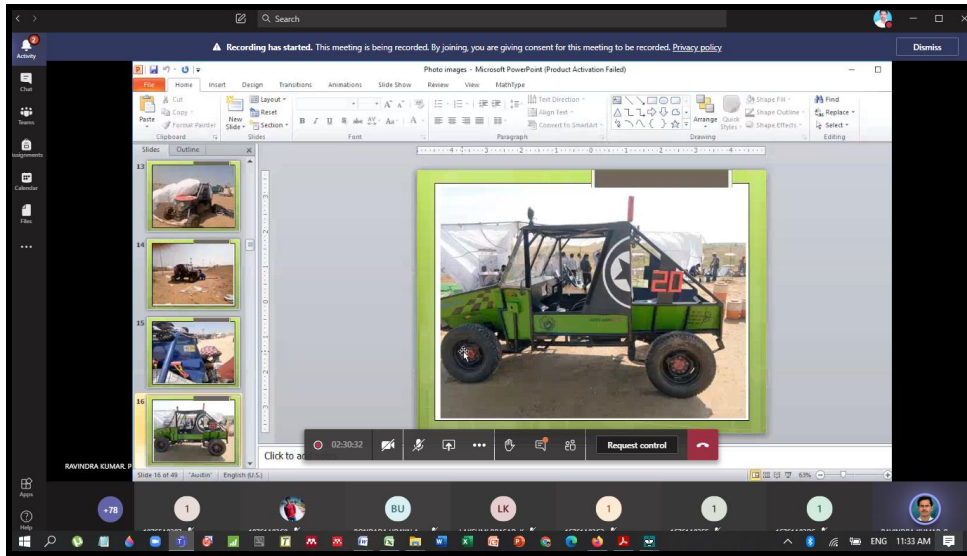
<p>THREE DAY ONLINE STUDENT WORKSHOP ON DESIGN AND FABRICATION OF ALL TERRAIN VEHICLE MODEL</p>		
<p>INDIAN SOCIETY FOR TECHNICAL EDUCATION</p>		
<p>STUDENT CHAPTER</p>		
<p>Student Speakers</p> <p>S.K. Karimulla , R.No.16761A0303 K.Suchith Samuel , R.No.16761A0305 V.Prithvi Raj, R.No.16761A0311 K. Kartik, R.No.16761A0305 R.Rohith, R.No.16761A0309 L. Naveen Kumar , R.No.17765A0333</p>	<p>Coordinators</p> <p>Dr. P.Ravindra Kumar Mr. J.Subba Reddy Mr. K.Lakshmi Prasad</p>	<p>Convener Dr. S.Pichi Reddy</p> <p>Principal Dr. K.Appa Rao</p>
<p>ORGANIZED BY THE AUTOMOBILE CLUB, DEPARTMENT OF MECHANICAL ENGINEERING</p>		

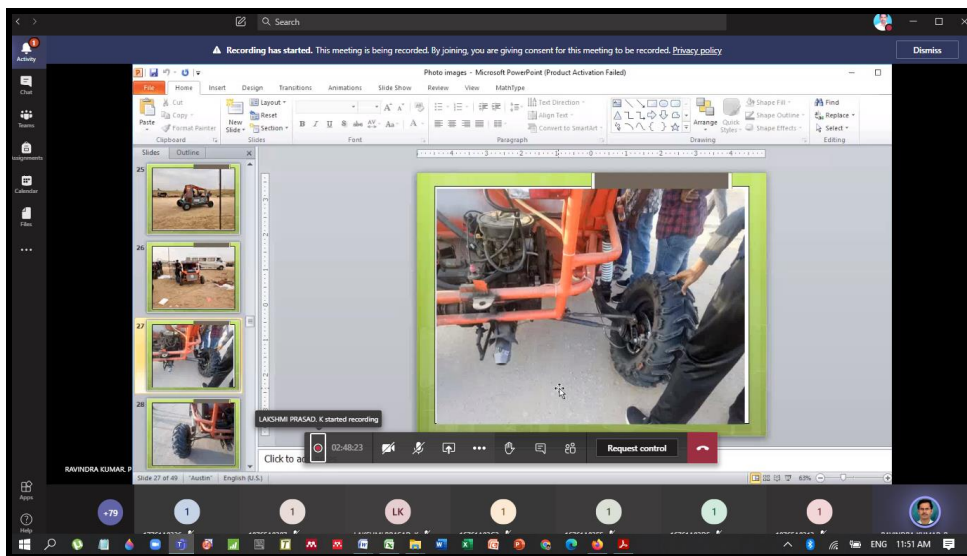
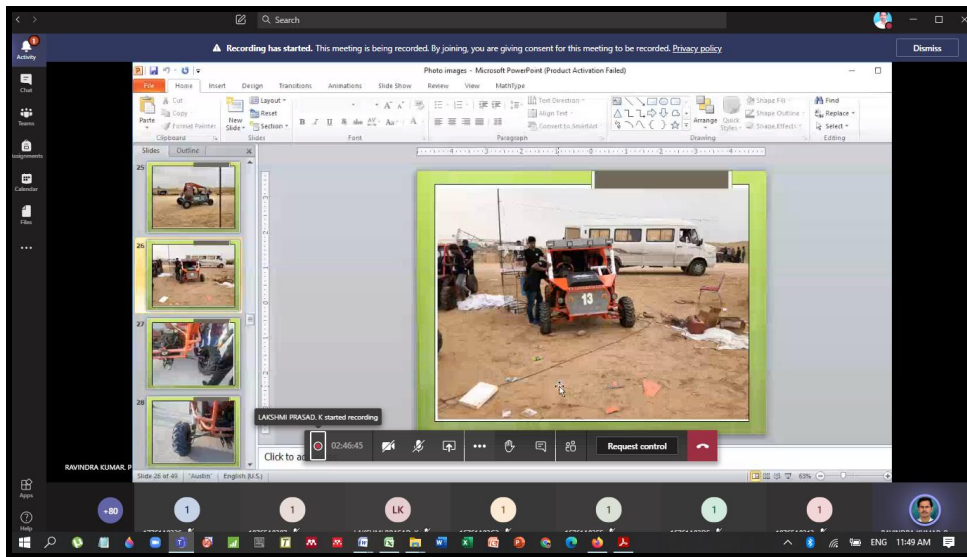
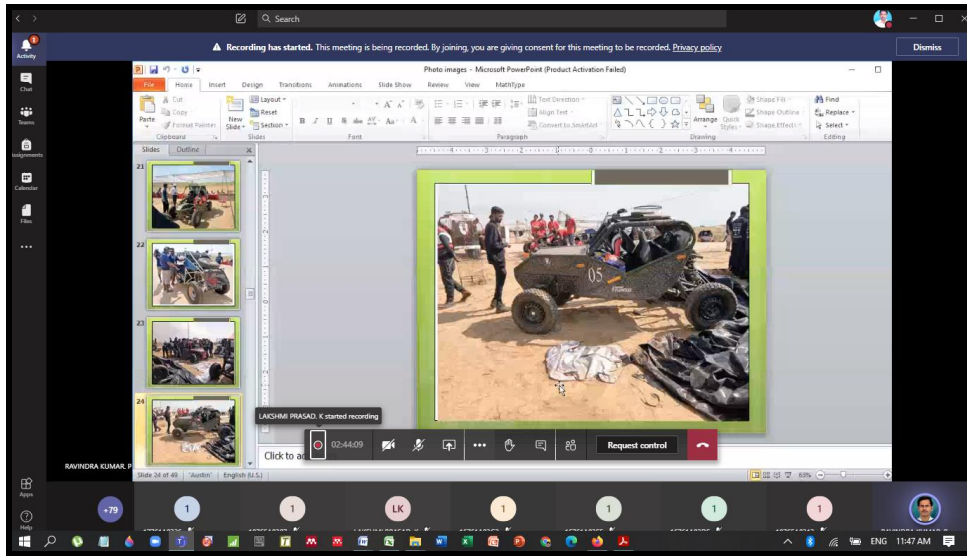
Day1 Speakers:

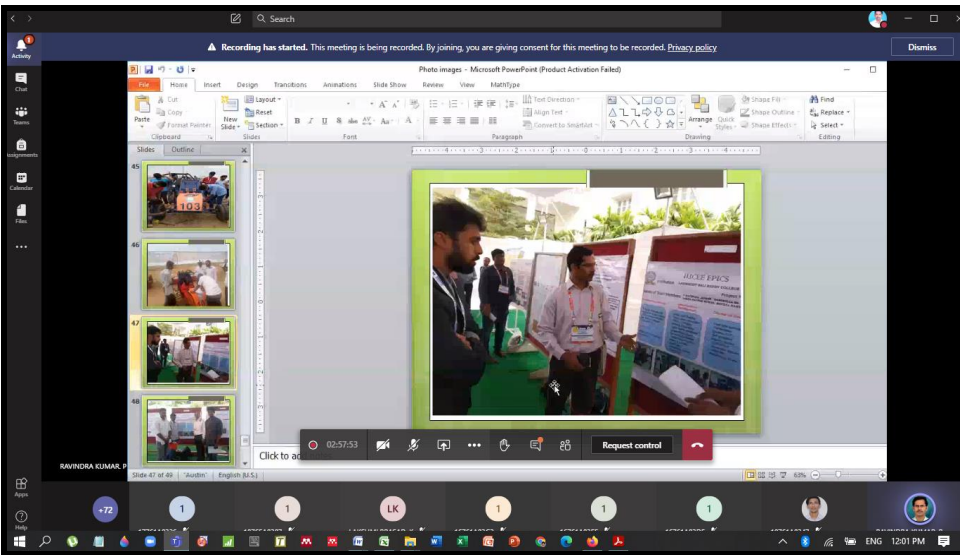
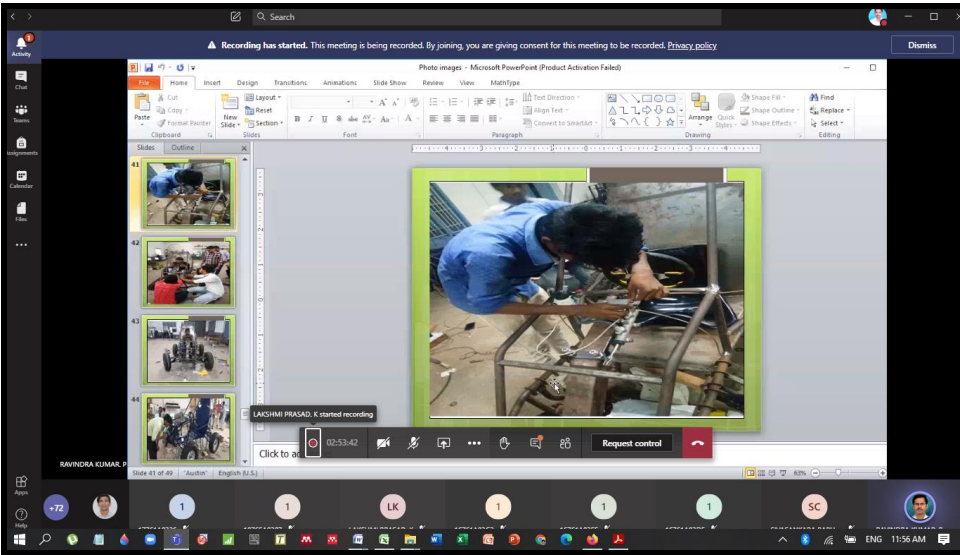
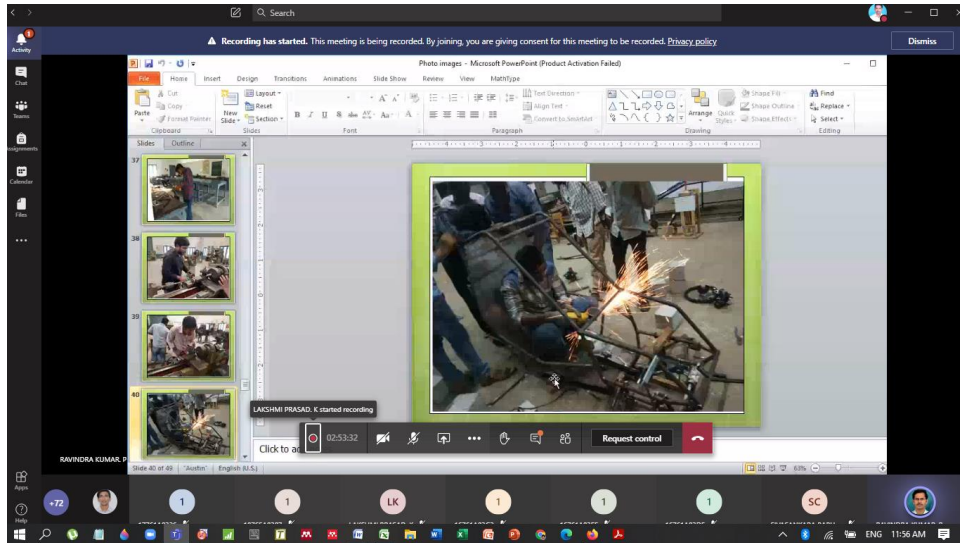
1. Dr.P.Ravindra Kumar, Professor
2. SK.KARIMULLA, Mechanical Final year, R.No.16761A03G3, Ph.No.9398352972
Email ID:karimullashaik5054@gmail.com
3. K.SUCHITH SAMUEL, Mechanical final year, R.No.16761A03E5, Ph.No.9666238818
Email ID:suchith249@gmail.com

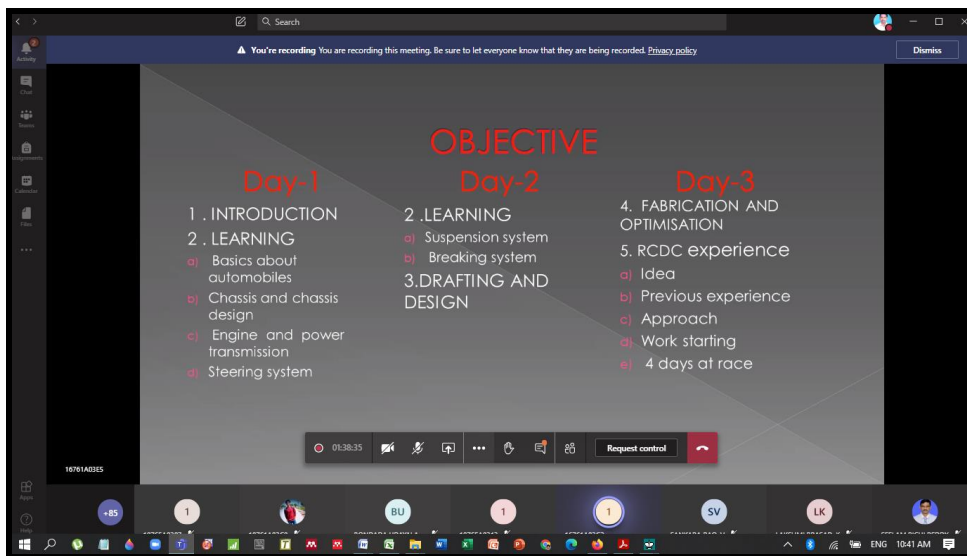
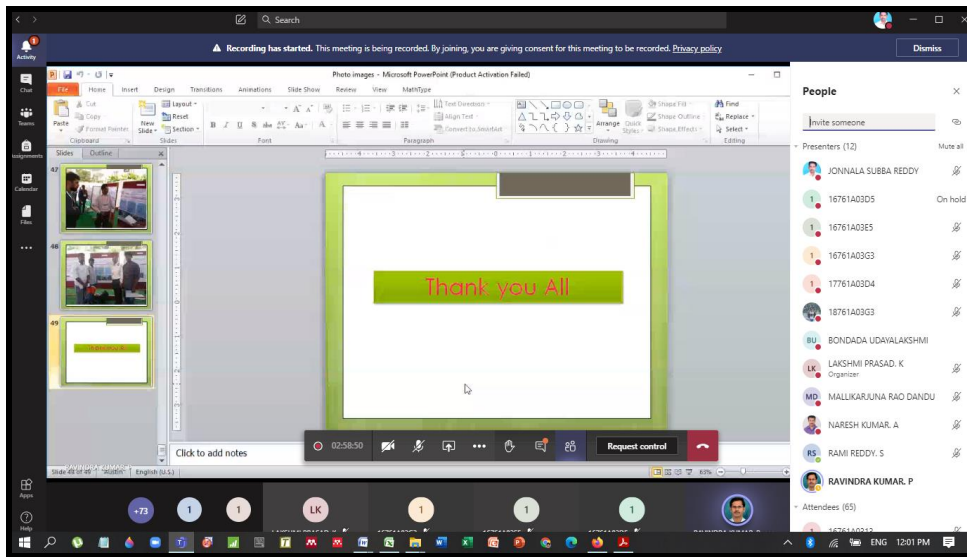
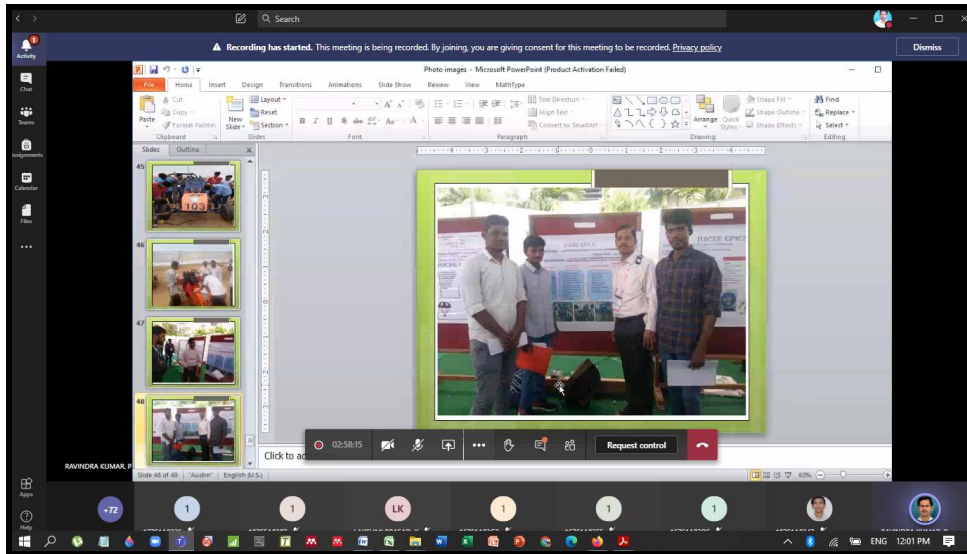












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TEAM MEMBERS

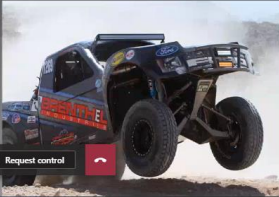
1	SUCHITH SAMUEL KUNDURTHI	9666238818	VICE CAPTAIN	19	K KARTIK	7032670657	POWER TRAIN DESIGN HEAD
2	B.SAI RAM NAYAK	7013059393	TEAM MEMBER	20	LANKA NAVEEN KUMAR	9866035360	TEAM MEMBER
3	A.SUDHEER	7893684788	TEAM MEMBER	21	L.LAKSHMI NARASIMHA	9885399802	TEAM MEMBER
4	S. SANDEEP	9740147723	TEAM MEMBER	22	A. SREE RAM	7013622872	TEAM MEMBER
5	CHITTIMOJUSAI SATYA PRAKASH	9493482199	TEAM MEMBER	23	S. JAMALAH	9010599430	TEAM MEMBER
6	SHAIK AKBAR	7288036439	TEAM MEMBER	24	ROTESWARAO PRATHIPATI	6300527521	CHASSIS DESIGN HEAD
7	KARIMULA SK	9398352972	CAPTAIN	25	MATTHEW RAJEEVAN	9912160878	TEAM MEMBER
8	BHUKYA RAMDAS	8985354647	TEAM MANAGER	26	B. NAVEEN	7997879186	TEAM MEMBER
9	RASURI ROHITH	8019301656	BRAKE DESIGN HEAD	27	TARUN SANXURI	9177090246	TEAM MEMBER
10	AMBATI PUJA SRI HARI KRISHNA	9515646688	TEAM MEMBER	28	MOHAMMAD HAMEED	8185857472	TEAM MEMBER
11	SRIGIRI SRI HARSHA	6303505101	TEAM MEMBER	29	SAI CHAND BANAVATHU	8008264537	TEAM MEMBER
12	PUTTUPUTHARAKA AJAY KUMAR	9676204505	TEAM MEMBER	30	NISHADMOHAMMAD	8247587216	STEERING DESIGN HEAD
13	YANGIPUTHAMRIMALA PRITHVI	8919308377	SUSPENSION DESIGN HEAD	31	O. SAI MAHESH	9491726828	TEAM MEMBER
14	SAI KUMAR B	901096726	TEAM MEMBER	32	KHADARBASHA	7981906678	TEAM MEMBER
15	ASHOK REDDY KOPPOLA	7702649277	TEAM MEMBER				
16	DARELL MICHEL	7731001017	TEAM MEMBER				
17	SREE LAKSHMAN						
18	K.V.S.PAVAN KUMAR						

10761AD3E5

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All Terrain Vehicle

- mountain, deserts, swamp and tundra's where the normal vehicles fail to perform.
- These are also called as off-road vehicles.
- OFF-ROAD VEHICLES Provides great ride quality
- ON-ROAD VEHICLES provide good handling experience



10761AD315

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CHASSIS

CHASSIS:- Fully functional and movable unit except the body consisting of all the systems mounted.

Basic purpose:- To connect all four wheels with a structure which is rigid in bending and torsion.

It must be capable of supporting all components and occupants and should absorb all kinds of loads fed into it without deflecting unduly.

Can also be thought as Skelton on automobile or vehicle without body


10761AD3E5

TUBULAR SPACE FRAME:

Tubular space frame chassis employs dozens of circular-section tubes (some may use square section tubes for easier connection to the body panels,

though circular section provides the maximum strength), position in different directions to provide mechanical strength against forces from anywhere.

These tubes are welded together and forms a very complex st



10761A03E5

01:52:05


Request control

ULSAB

Ultra Light Steel Auto Body

Basically it has the same structure as a conventional monocoque.

What it differs from its donor is in minor details - the use of "Hydroform" parts, sandwich steel and laser beam welding.



10761A03E5

01:54:33

Request control

Pillars:- anything that supports roof.

Types of pillars:

- 1) Type "A" pillar:- Wind-Shield pillar
- 2) Type "B" pillar:- Pillar b/w two doors
- 3) Type "C" pillar:- Last side door/ support only one door
- 4) Type "D" pillar:- if there is any pillar after c pillar it is called D pillar

Boxes:- cannot cross over from one to second box.

10761A03E5

01:57:00

Request control

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CVT(Continuously Variable Transmission)


Additionally, since a CVT functions similarly to an automatic transmission, no pneumatic clutch is required in this system since it is powered by a torque converter.

CVT's are desirable in this situation because they have a large range of transmission ratios, are lightweight, easy to tune.

There are three types of throttle cables used in combination with the Model 20 engines. The first type is a basic bike cable.

Than basic bike cables, but are less modifiable due to its thickness and complete seal. Lastly, there is a throttle cable which has to be assembled that must be purchased to the correct length.

The drawbacks of this cable system are that it is far more expensive cause issues if a pro found.



10761AD3E5

02:00:15


Request control

+B4 1 1 BU 1 LK 1

ENG 11:03 AM

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The position of the engine and transmission in and CVT on the frame is as represented in the figure i.e. after the RRH frame behind it to reduce the vibrations that reach the driver and to separate the compartment.



10761AD315

02:01:02

Request control

+B3 1 1 BU 1 LK 1

ENG 11:04 AM

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Steering is a collection of components and linkages that allow a vehicle to follow a particular course.

There are several different manual steering gears in current use:

1. worm and sector type;
2. worm and tapered pin steering gear;
3. worm and roller steering gear
4. recirculating ball type where the balls acts as a rolling thread between the wormshaft and the ball nut;
5. rack and pinion type which is the choice of most vehicle manufacturers

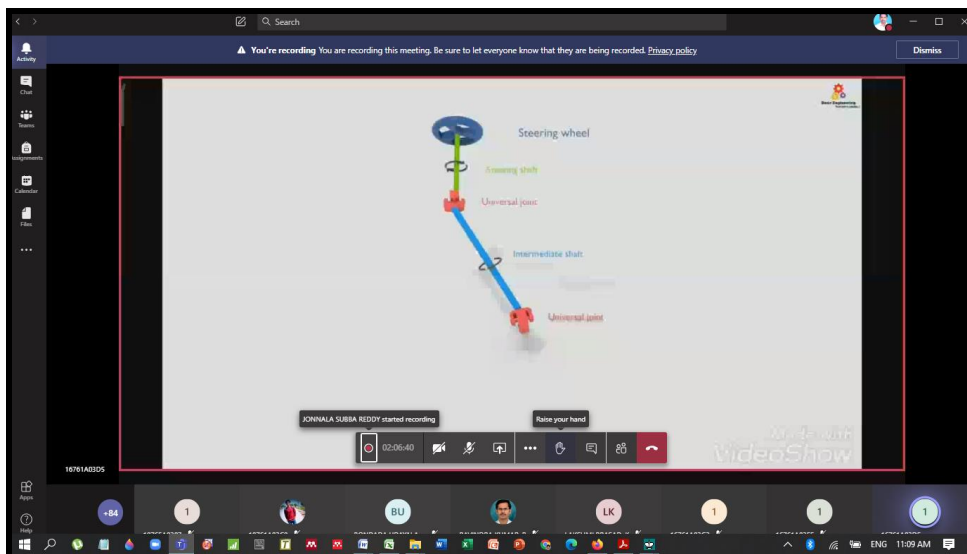
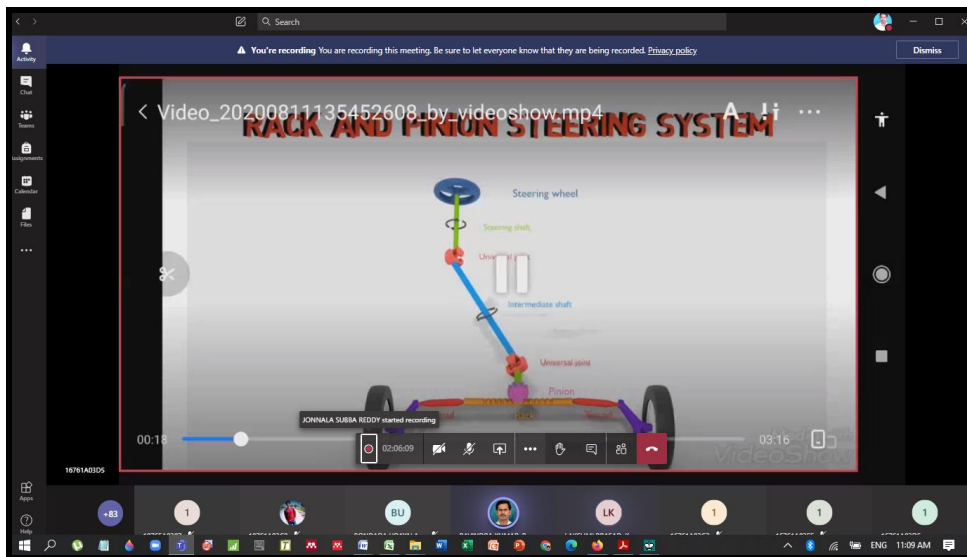
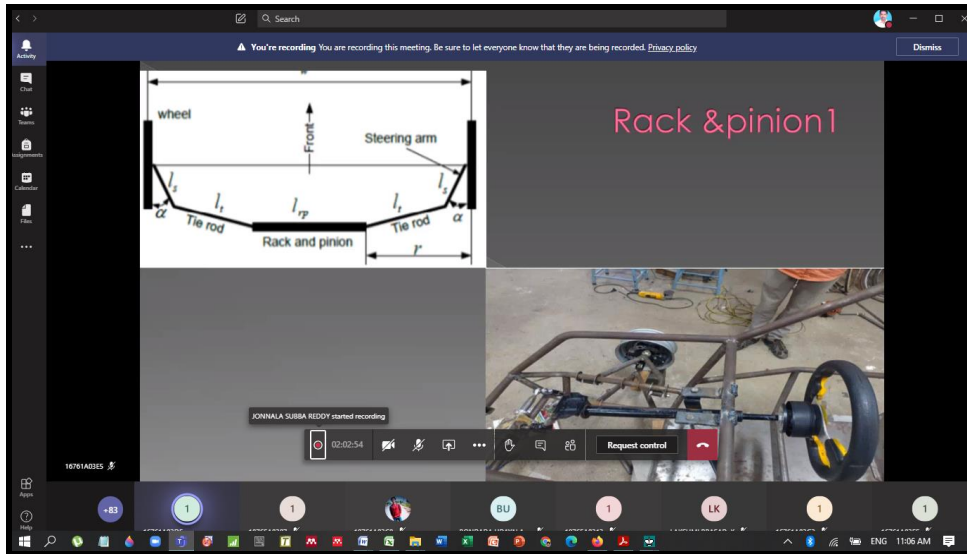
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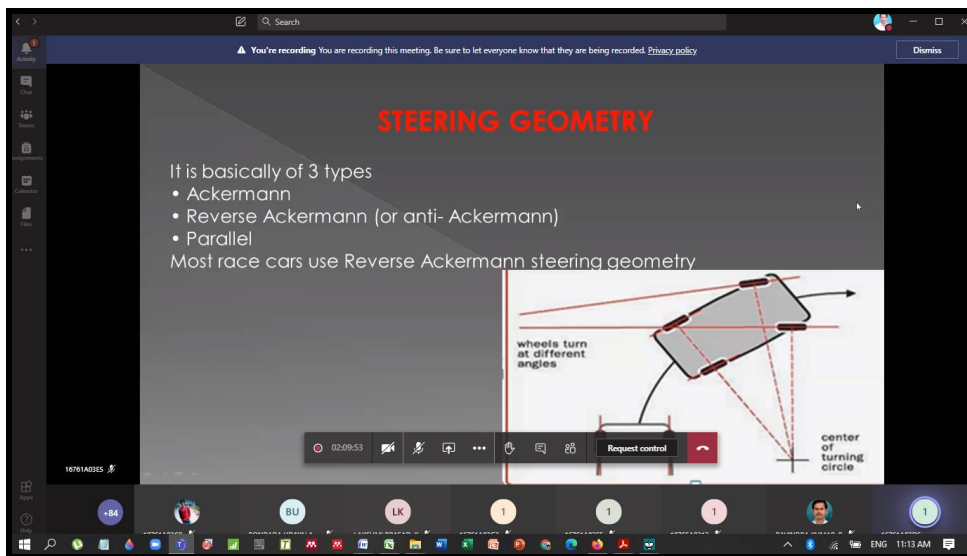
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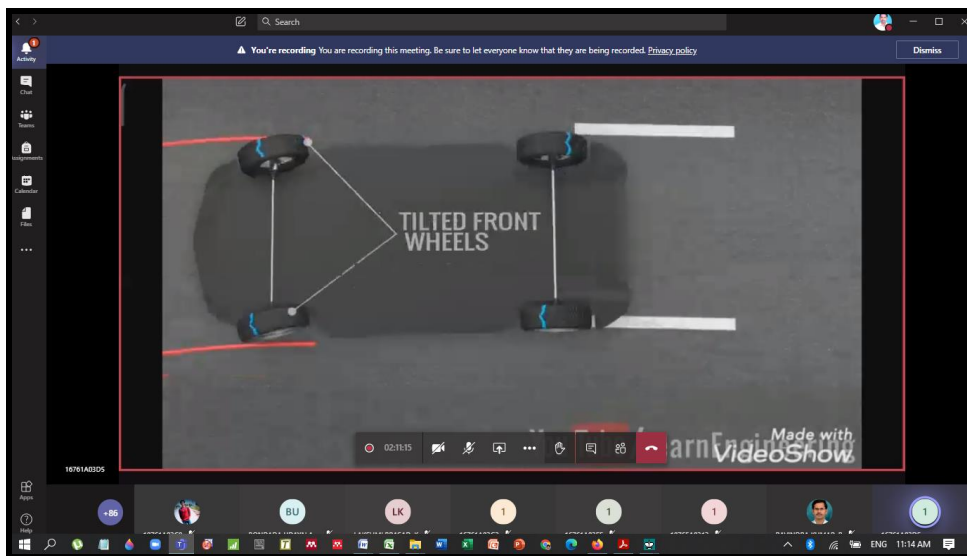
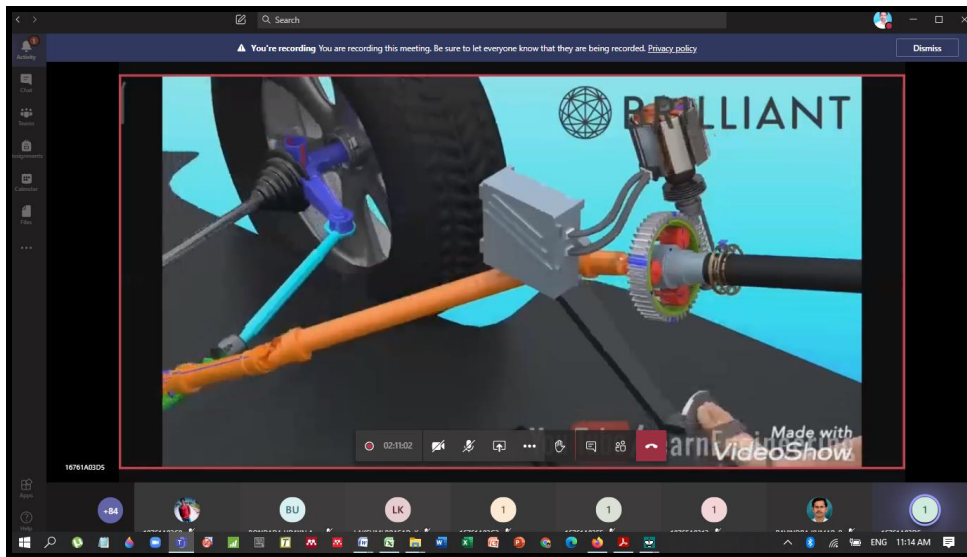
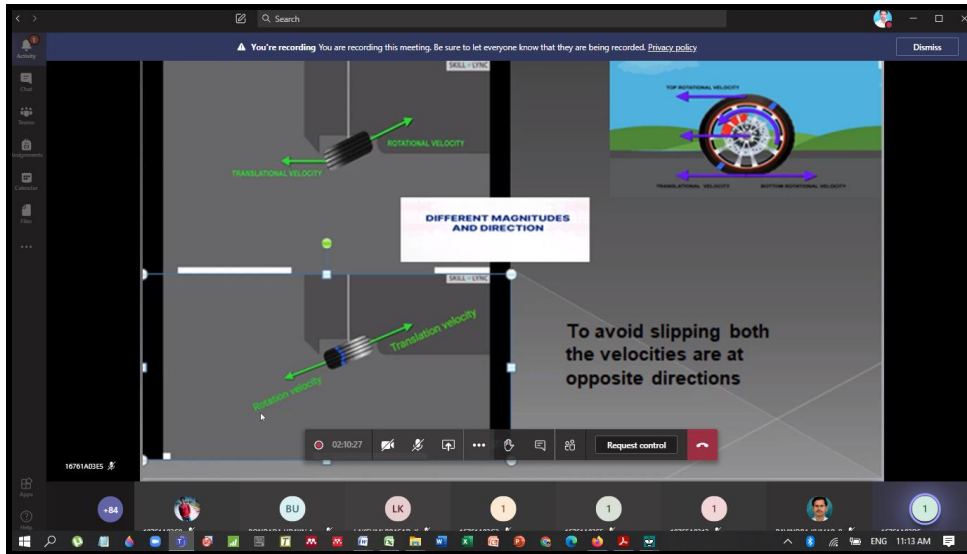
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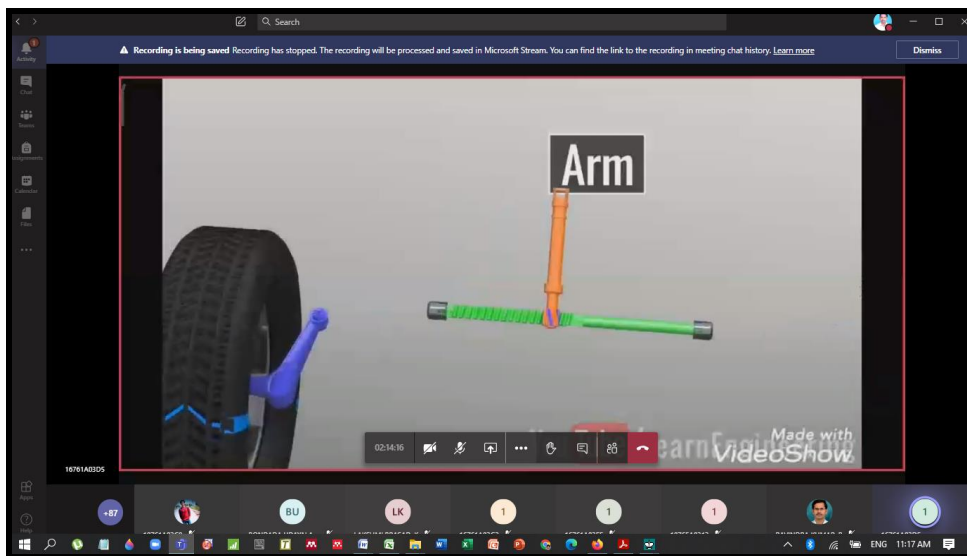
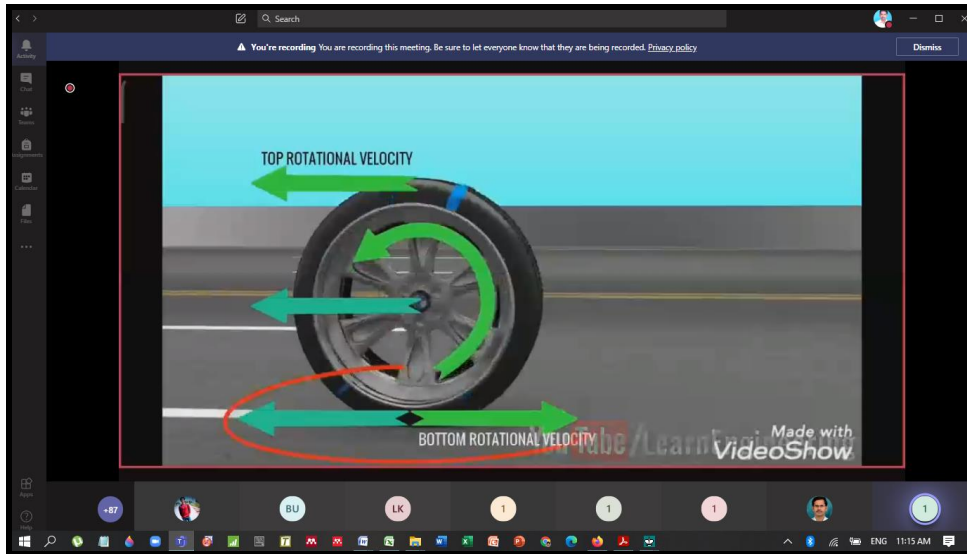
+B5 1 1 BU 1 LK 1

ENG 11:04 AM









DIFFERENT MAGNITUDES AND DIRECTION

To avoid slipping both the velocities are at opposite directions

COMMON POINT

COMMON POINT

WHEEL ALIGNMENT

- Alignment refers to an adjustment of a vehicle suspension, the system that connects a vehicle to its wheel. The key to proper alignment is adjusting the angles of the tires which affects how they make contact with the road.
- reduce tire wear
- straight line stability
- steering wheel returnability
- cornering performance

Wheel angles:-

- chamber
- castor
- toe

CAMBER ANGLE

- This is the inward or outward angle of the tire when viewed from the front of the vehicle. Too much tilt also known as negative and positive chamber.
- Negative chamber improves the cornering of the car.

NEGATIVE CAMBER

NEUTRAL CAMBER

POSITIVE CAMBER

GROUND

CASTOR ANGLE

- Castor angle is the angular displacement of the steering axis from the vertical axis of a steered wheel in a vehicle.
- For perfect steering inner wheel should turn more compare to outer wheel.

POSITIVE CASTER

NEUTRAL CASTER

NEGATIVE CASTER

FRONT OF VEHICLE

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ON
DESIGN AND FABRICATION OF ALL TERRAIN VEHICLE MODEL

SOCIETY FOR TECHNICAL EDUCATION

GUEST CHAPTER

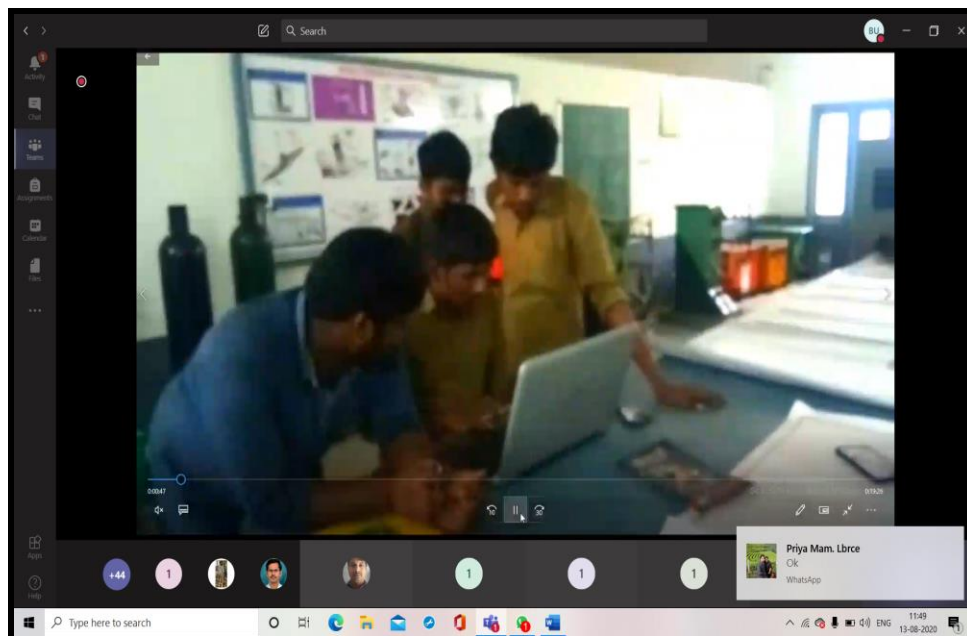
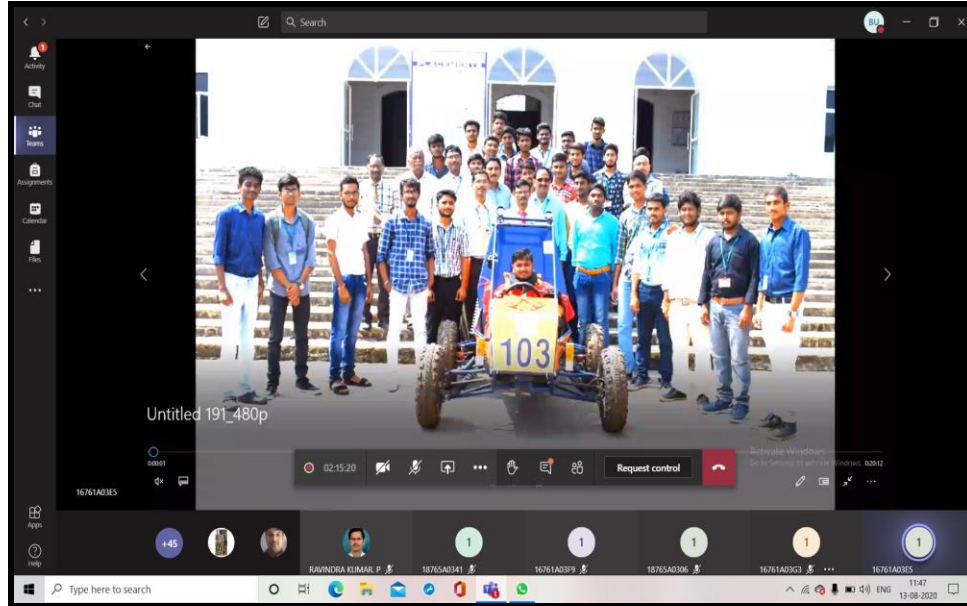
Student Registration
Instructors
Faculty
Principal

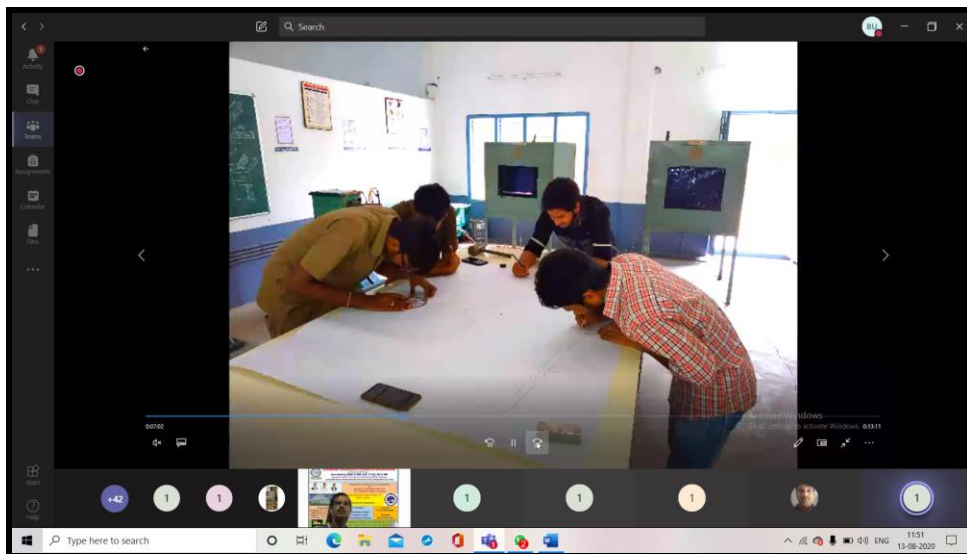
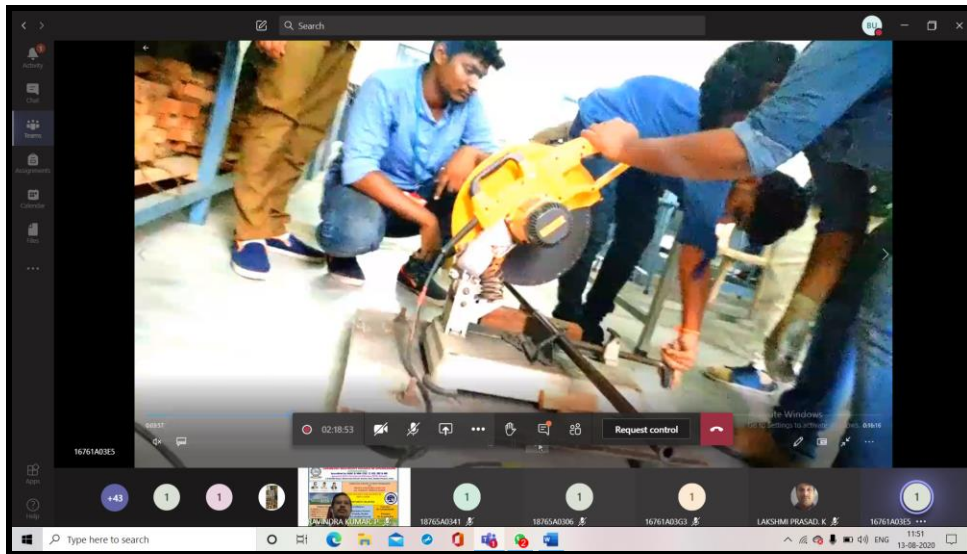
Kip Sir
I have noticed that you are meeting, so I don't remind you mam
WhatsApp

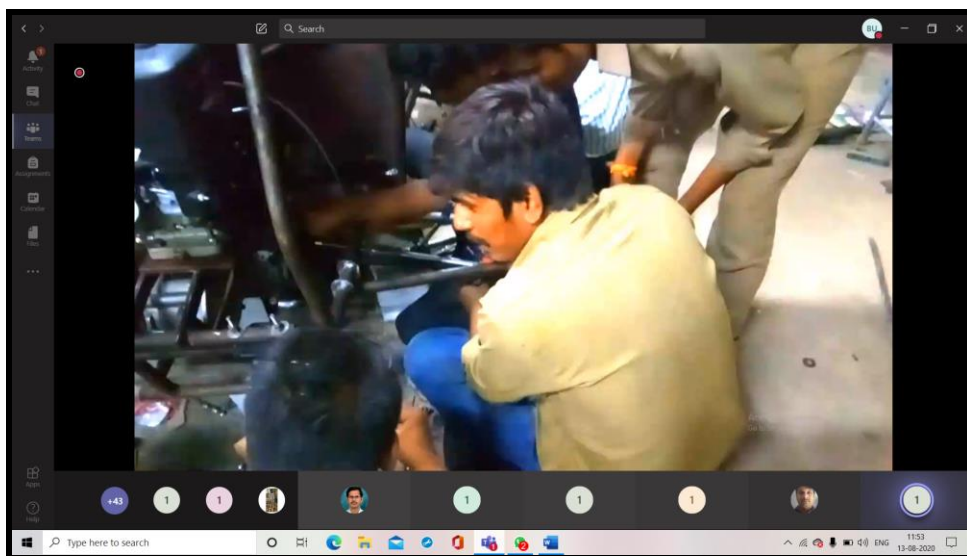
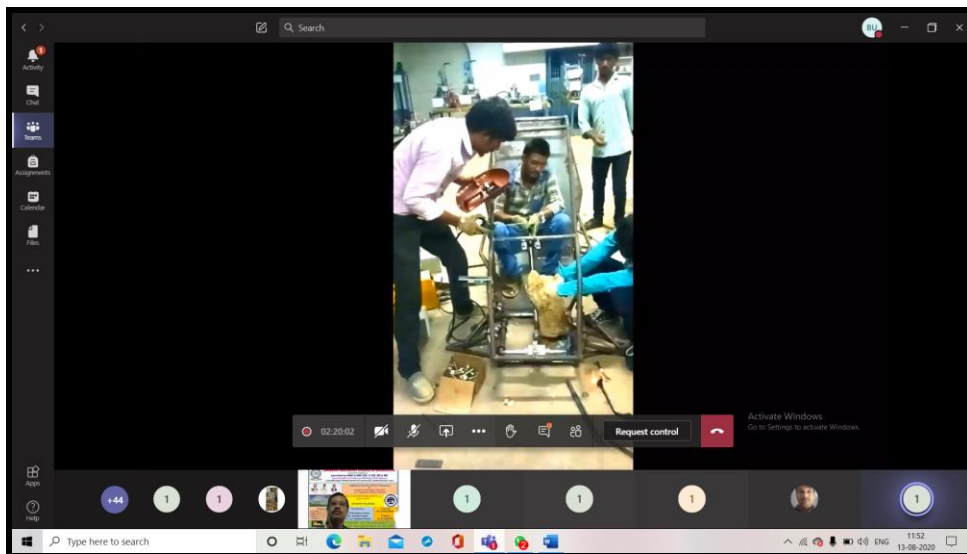
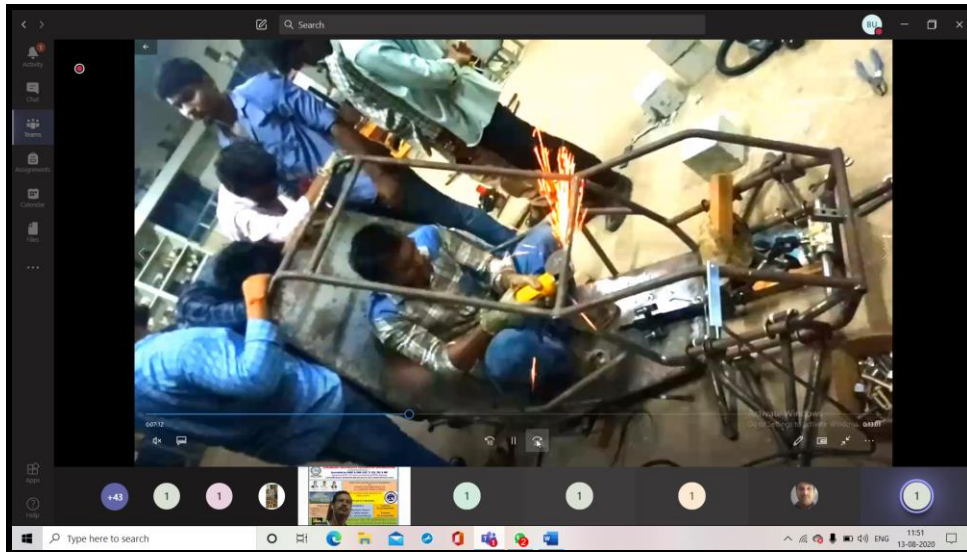
Day1: Number of Students attended: 53

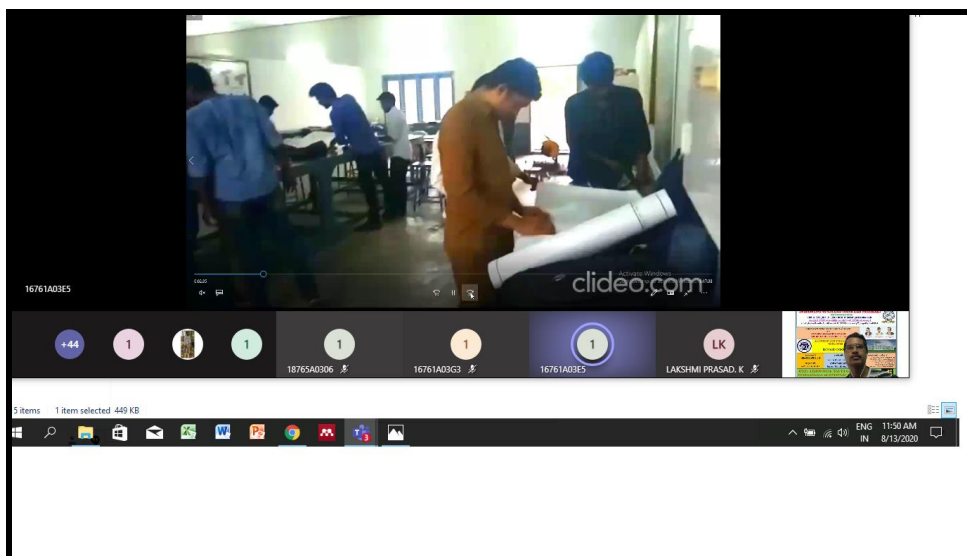
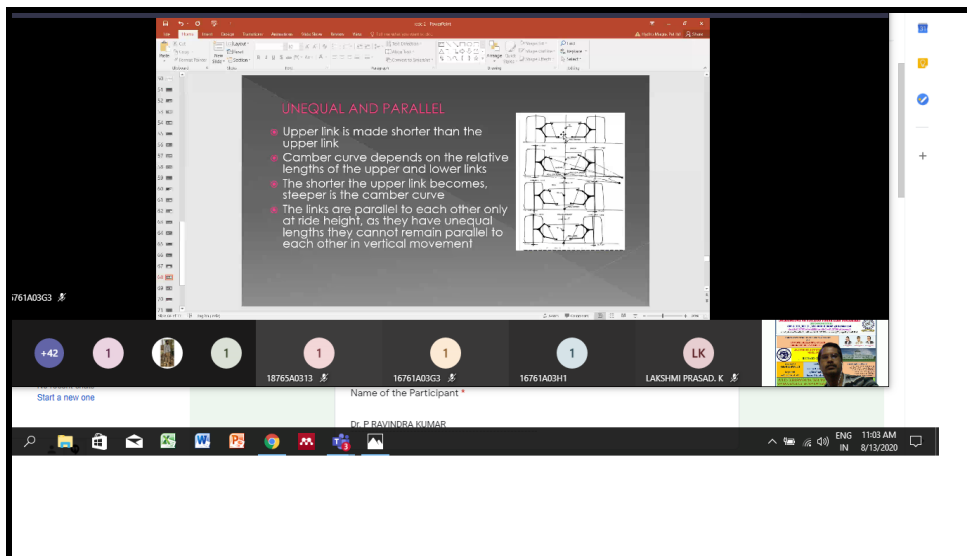
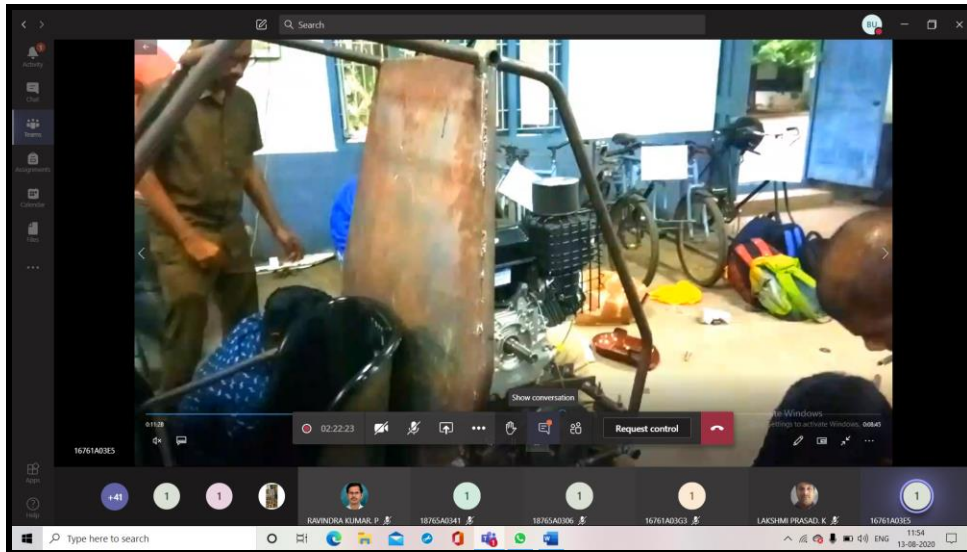
Day2 Speakers:

1. **V.T.PRITHVI RAJ**, Mechanical Final year, R.No.16761A03H1, Ph.No.8919308377, Email ID:vtprithvi@gmail.com
2. **K.KARTHIK**, Mechanical final year, R.No.16761A03D5, Ph.No.7032670657 Email ID:kartikkommana@gmail.com
3. **R.ROHITH**, Mechanical final year, R.No.16761A03F9, Ph.No.9398504289 Email ID:rohithrasuri99@gmail.com









Day2: Number of Students attended 48

Day 3 Speakers:

1. Mr.J.Subba Reddy, Associate Professor
2. Students experiences towards this project work

This screenshot shows a Zoom meeting in progress. The main window displays a PowerPoint slide with the title "Future Trends in Automotive Industry and Challenges". The slide content is mostly obscured by a large grey watermark that reads "JONNALA SUBBA REDDY". The Zoom interface includes a top bar with "Request control" and "Leave" buttons, a right-hand "Participants" panel listing several attendees with their IDs, and a bottom toolbar with icons for chat, mute, and video. The meeting time is 10:19 AM on 8/14/2020.

This screenshot shows a Zoom meeting with a PowerPoint slide titled "MILLENNIAL MINDSET". The slide features a central diagram of the "E Commerce Economy" with various services like Food Delivery, Bike Cab, Groceries, Car Pick & Drop, Resale Price Guarantee, and Furniture on Rent. A yellow banner at the bottom of the slide states: "Customers today are demanding- The Choices to Experience differently!!". The Zoom interface shows a "Participants" panel with 31 attendees, a "Presenters" panel with two names, and a bottom toolbar. The meeting time is 10:39 AM on 8/14/2020.

This screenshot shows a Zoom meeting with a PowerPoint slide titled "INDUSTRY 1.0 TO 4.0". The slide illustrates the evolution of industry stages: Industry 1.0 (Mechanical, steam power, weaving loom), Industry 2.0 (Mass production, assembly line, electrical energy), Industry 3.0 (Automated, computers and electronic), and Industry 4.0 (Cyber Physical Systems, Internet of things, networks). The years 1784, 1870, 1969, and TODAY are marked below the respective stages. The Zoom interface includes a "Meeting chat" panel on the right with a message from Prasad Sir: "Prasad Sir, Can you provide the todays joining link". The bottom toolbar shows 49 participants. The meeting time is 10:42 AM on 8/14/2020.

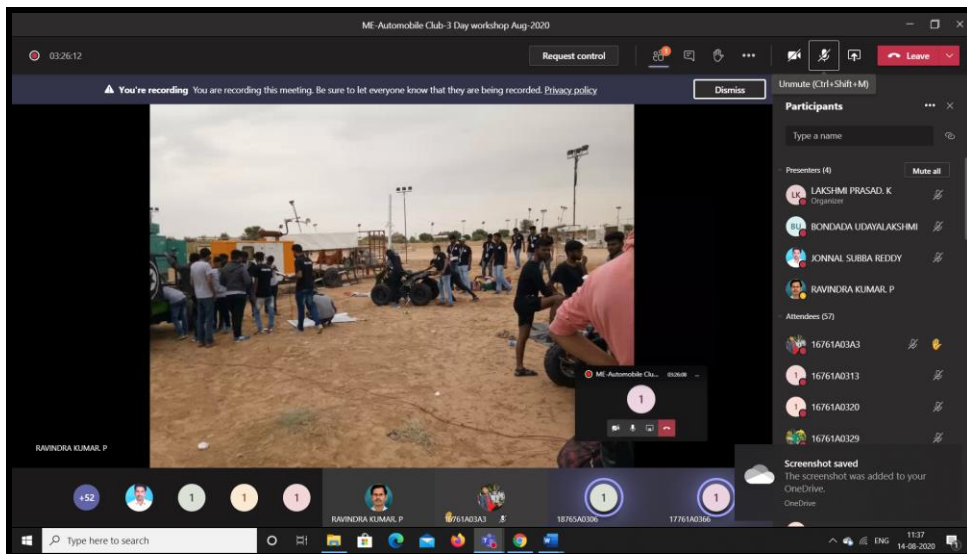
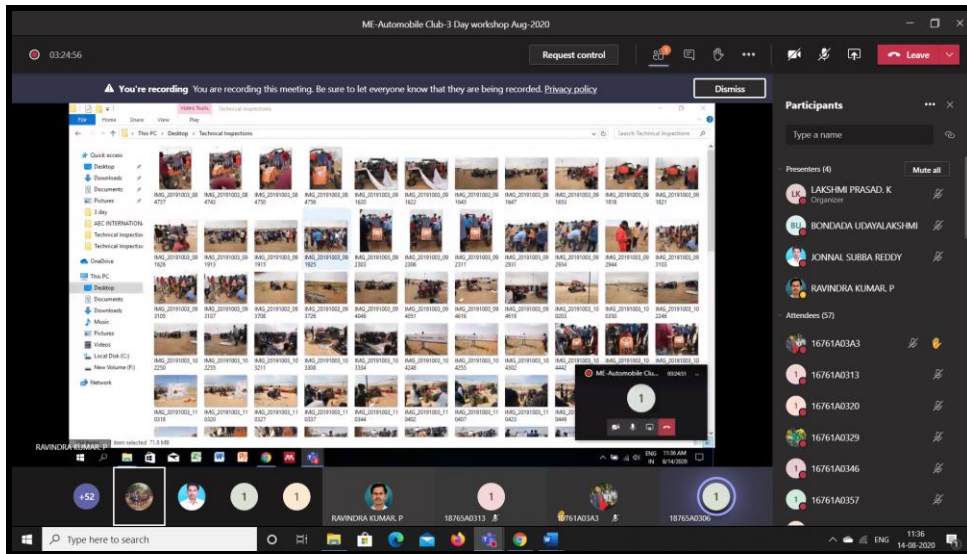
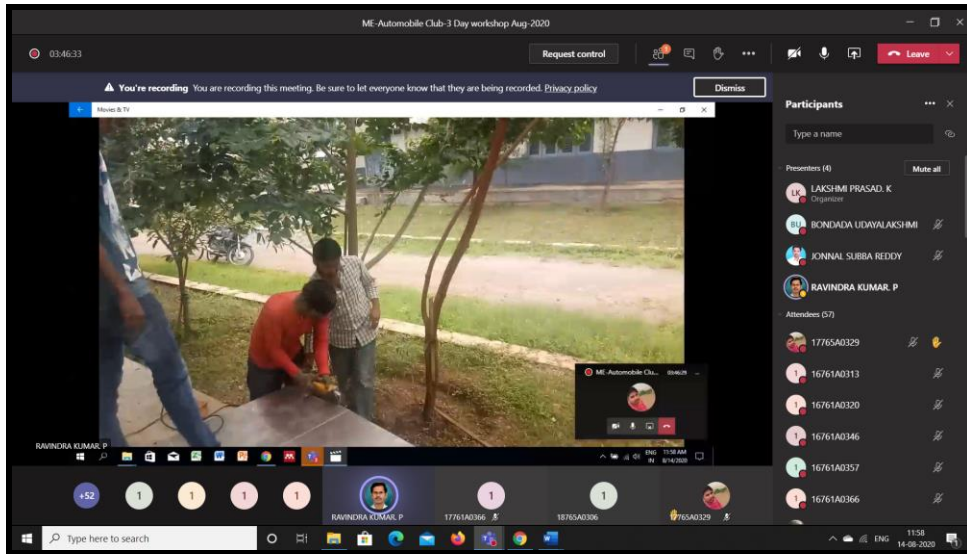
The slide displays a 'GLOBAL FACTORY DESIGN' process flow. It includes sections for 'MANUFACTURING PLANT', 'GLOBAL FACTORY DESIGN', 'CUSTOMER SITE', and 'GLOBAL OPERATIONS'. The manufacturing plant section lists: 'Monitor production line for defects and stop to minimize scrap and rework in volume operations', 'Minimize component variety, using homogeneous material and design, minimize change-over and reduce cost', and 'Tailored production lines based on customer needs to improve quality and reduce change-over cost'. The global factory design section lists: 'Leverage operational innovation to the extent of 3D CAD to 3D printing and automation for cost reduction and efficiency', and 'Leverage digital production to the extent of 3D CAD to 3D printing and automation for cost reduction and efficiency'. The customer site section lists: 'Leverage operational innovation to the extent of 3D CAD to 3D printing and automation for cost reduction and efficiency', and 'Leverage digital production to the extent of 3D CAD to 3D printing and automation for cost reduction and efficiency'. The global operations section lists: 'Leverage operational innovation to the extent of 3D CAD to 3D printing and automation for cost reduction and efficiency', and 'Leverage digital production to the extent of 3D CAD to 3D printing and automation for cost reduction and efficiency'. The slide is presented by JONNALA SUBBA REDDY.

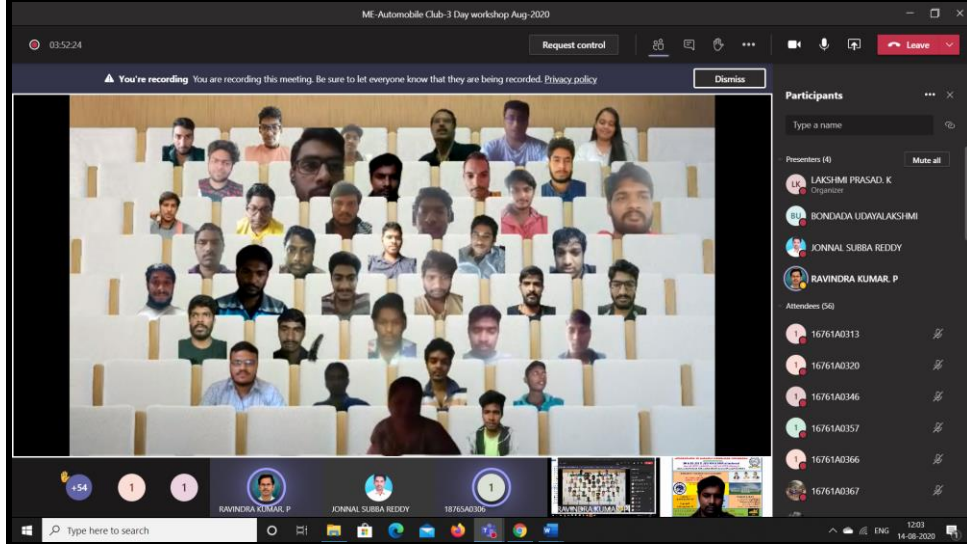
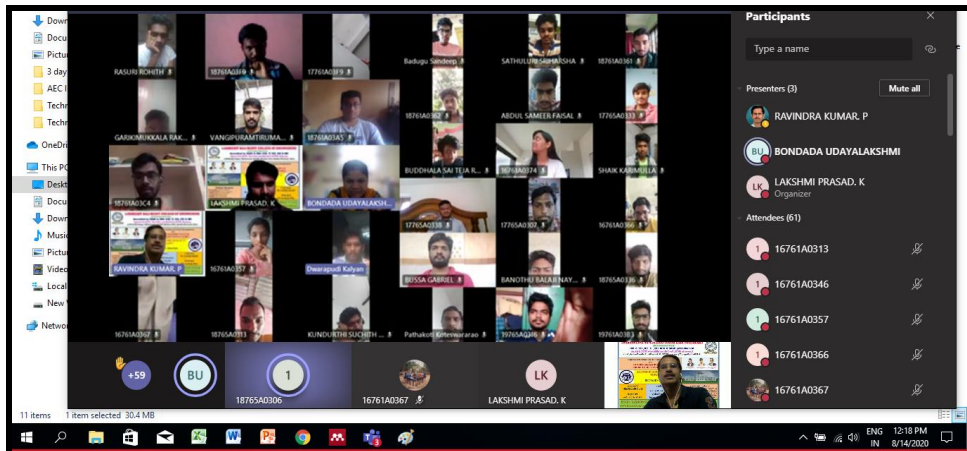
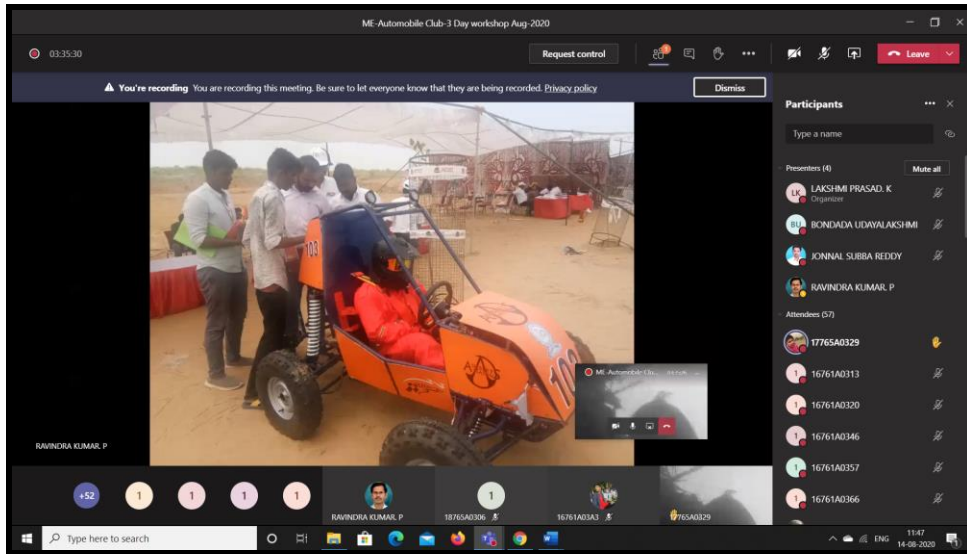
Participants list:
 Presenters (3): RAVINDRA KUMAR, P; JONNALA SUBBA REDDY; LAKSHMI PRASAD, K (Organizer)
 Attendees (55): 16761A0313, 16761A0319, 16761A0346, 16761A0357, 16761A0366

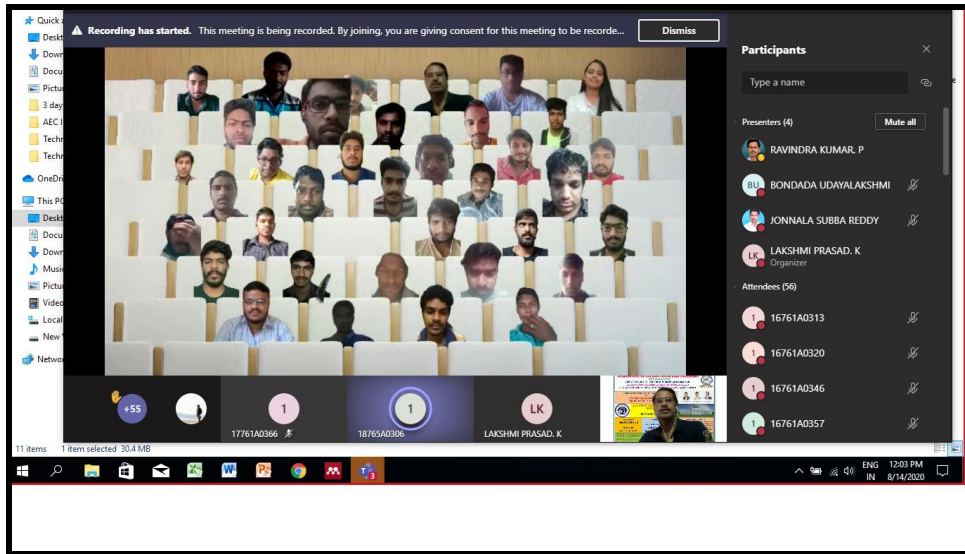
The slide is titled 'Cost and weight innovation' and lists 'Cost of BOP & In-House are reduced by following aspects':
 1. Design optimization: Shape / Structure, Material, PKG, etc...
 2. Production optimization: Automation, Material usage quantity, Machining condition, etc...
 3. Design & Production Innovation: Innovative Structure ex. Ultrasonic integration (Block & Head), Innovative Production ex. Aluminum casting.

Participants list:
 Presenters (3): RAVINDRA KUMAR, P; JONNALA SUBBA REDDY; LAKSHMI PRASAD, K (Organizer)
 Attendees (55): 16761A0313, 16761A0319, 16761A0329, 16761A0346, 16761A0357

Meeting title: ME-Automobile Club-3 Day workshop Aug-2020
 Time: 03:44:44
 Recording notice: You're recording. You are recording this meeting. Be sure to let everyone know that they are being recorded. Privacy policy
 Participants list:
 Presenters (4): LAKSHMI PRASAD, K (Organizer); BONDADA UDAYLAKSHMI; JONNALA SUBBA REDDY; RAVINDRA KUMAR, P
 Attendees (57): 17765A0329, 16761A0313, 16761A0320, 16761A0346, 16761A0357, 16761A0366



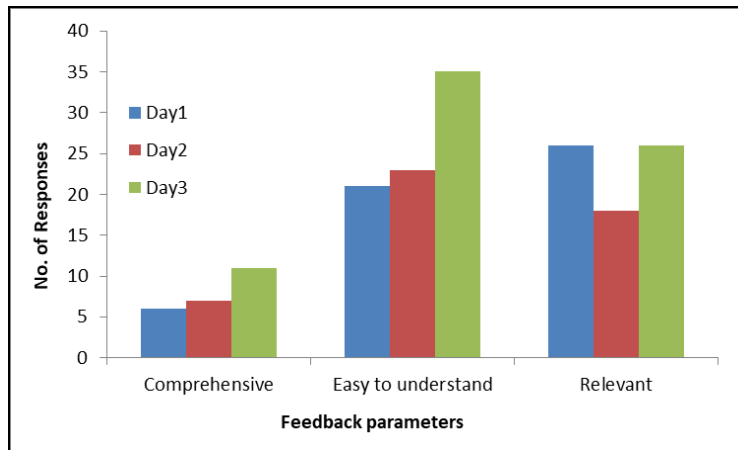




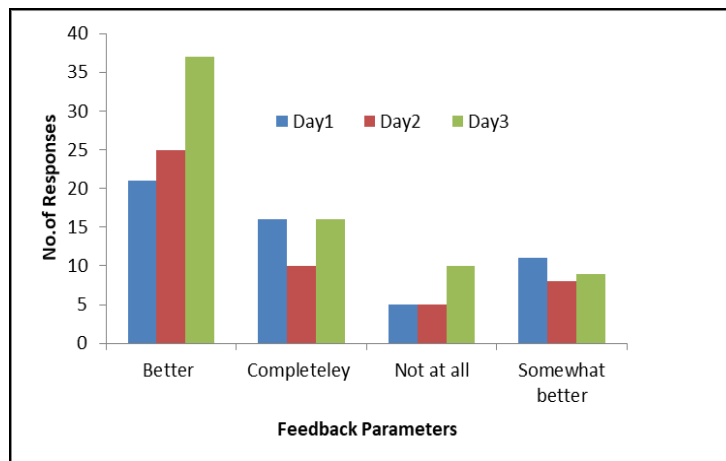
Day3: Number of Students attended 72

Feedback Analysis

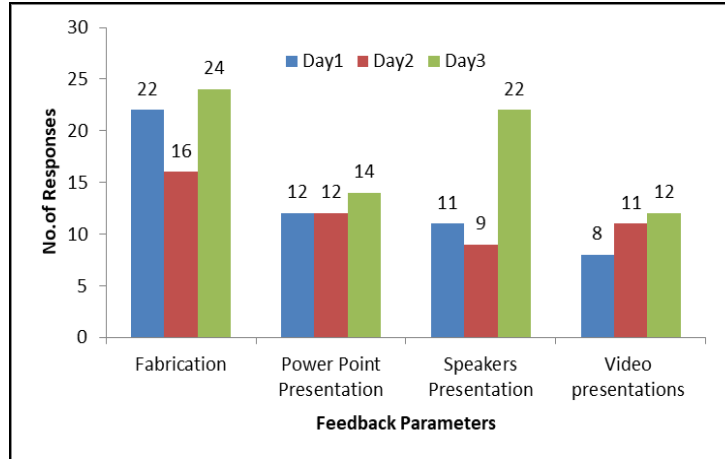
1. The Workshop content was



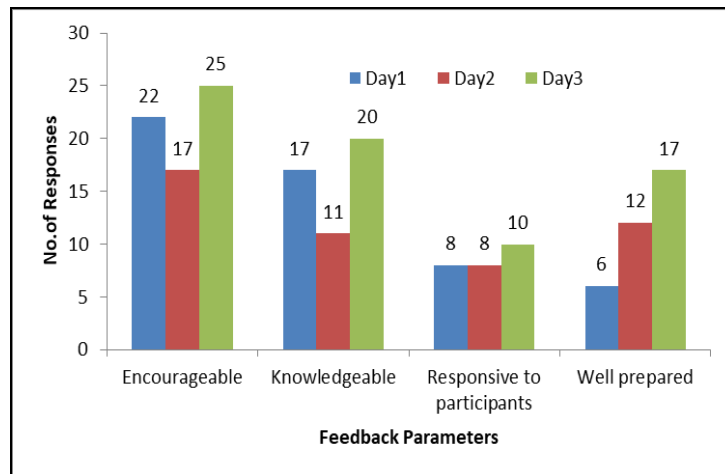
2. To what extent do you feel the workshop met its objectives?



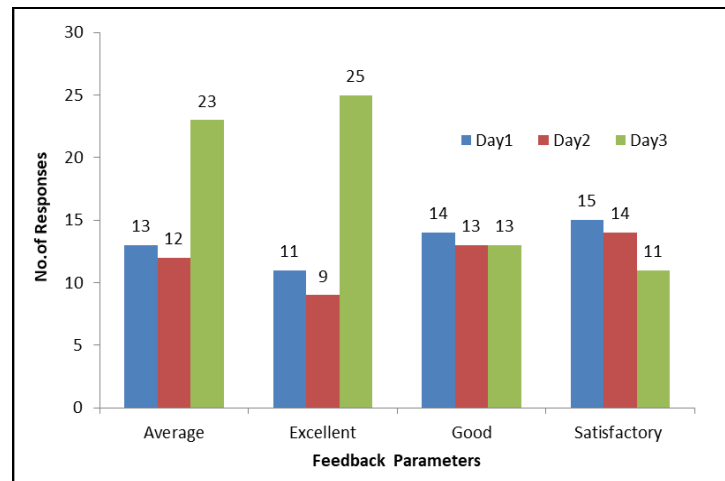
3. What did you like best about the workshop?



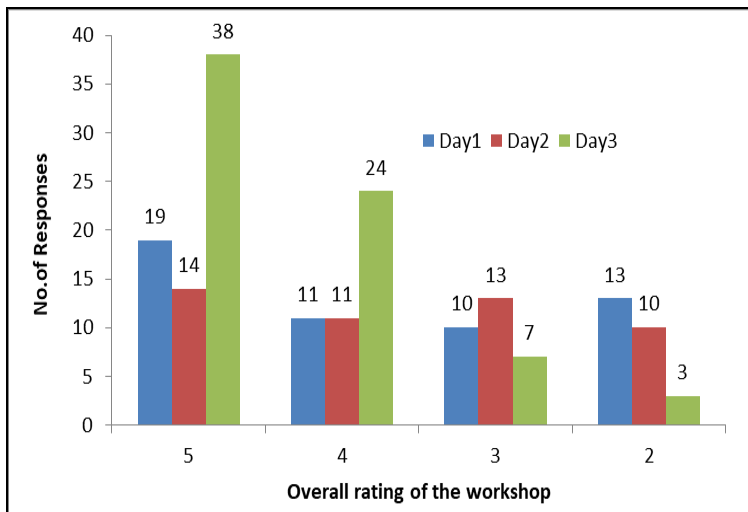
4. Facilitators were



5. How well was the event organized?



6. How would you rate the event overall?



Student Speakers

SK. Karimula , R.No.16761A03G3
K.Suchith Samuel , R.No.16761A03E5
V.Prithvi Raj, R.No.16761A03H1
K. Kartik, R.No.16761A03D5
R.Rohith, R.No.16761A03F9
L. Naveen Kumar , R.No,17765A0333

Coordinators

Dr. P.Ravindra Kumar
Mr. J.Subba Reddy
Mr. K.Lakshmi Prasad

Convener

Dr. S.Pichi Reddy
Principal
Dr. K.Appa Rao