



RAMCO INSTITUTE OF TECHNOLOGY

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NBA Accredited UG Programs: CSE, EEE, ECE and MECH

Academic Year 2023 – 2024 (Even Semester)
Department of Mechanical Engineering

Sl. No.	Contents	Details
01.	Title of the Programme	Use of Fabrics as a Reinforcing in High Performance Composites
02.	Programme Theme	Research
03.	Programme Type	Online lecture about fabric reinforcement
04.	Details of resource person	Prof, Viviane Muniz Fonseca Professora Associada IV Universidade Federal Do Rio Grande Do Norte Departamento De Engenharia Textil Natal / Rn / Brazil
05.	Mode & Venue / Platform	Google Meet / https://meet.google.com/qwo-vfiz-vcu
06.	Date & Duration	30.11.2023 (Thursday) IST: 06.30 P.M
07.	No. of Student Participants	54
08.	No. of Faculty Participants	15
09.	No. of External Participants	Nil
10.	Expenditure amount (if any)	NA
11.	Social Media URL	Nil
12.	Video URL (if any)	Nil

13. Objective of the Programme:

The primary objective of Prof. Viviane Muniz Fonseca's research is to investigate the efficacy and feasibility of employing various types of fabrics as reinforcing materials in high-performance composites. The study aims to understand the mechanical behavior, durability, and overall performance enhancement achieved through the incorporation of fabrics in composite structures.

14. Detail description of the activity:

Prof. Fonseca's research methodology involves a comprehensive approach that encompasses experimental analysis, numerical simulations, and material characterization techniques. Various types of fabrics, including woven, non-woven, and knitted structures, are evaluated for their suitability in composite applications. The research involves the fabrication of composite samples using different fabric reinforcements, followed by mechanical testing, microstructural analysis, and performance evaluation under different loading conditions.

Mechanical Properties Enhancement: The incorporation of fabrics as reinforcing elements in high-performance composites has shown significant improvements in mechanical properties such as tensile strength, flexural strength, and impact resistance. The type and orientation of fabric reinforcements have a substantial influence on the mechanical behavior of the composites.

Durability and Fatigue Resistance: Prof. Fonseca's research indicates that fabrics can enhance the durability and fatigue resistance of composite materials, leading to prolonged service life and reduced maintenance requirements.

Optimization of Fabric Architecture: Through systematic experimentation and numerical modeling, the research highlights the importance of optimizing fabric architecture, including weave pattern, fiber orientation, and layering sequence, to achieve optimal performance in composite structures.

Hybrid Fabric Composites: Investigation into hybrid fabric composites, combining different types of fabrics or incorporating other reinforcing elements such as fibers or nanoparticles, has shown promising results in further enhancing the mechanical and functional properties of composites.

Implications and Applications: The findings of Prof. Fonseca's research hold significant implications for various industries and applications, including aerospace, automotive, marine, and sporting goods. The development of lightweight, high-strength composite materials using fabric reinforcements can lead to the production of more efficient and sustainable products with improved performance characteristics.

In conclusion, Prof. Viviane Muniz Fonseca's research on the use of fabrics as reinforcing materials in high-performance composites has provided valuable insights into the optimization of composite structures for enhanced mechanical properties, durability, and performance. The findings contribute to the advancement of composite materials technology and have broad applications across diverse industries.

In vote of thanks, Dr.J.Jerold John Britto acknowledged Prof. Viviane Muniz Fonseca and her team for their dedication and contributions to advancing the field of composite materials research.

15. Banner / flyer of the programme:



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 Department of Mechanical Engineering
EXTRAMURAL LECTURE SERIES(ELS) - INT011
USE OF FABRICS AS A REINFORCING IN HIGH PERFORMANCE COMPOSITES

Research Credentials





Prof. Viviane Muniz Fonseca
 Professora Associada IV
 Universidade Federal Do Rio Grande Do Norte
 Departamento De Engenharia Textil
 Campus Central Da UFRN- Lagoa Nova
 Natal/Rn/Brasil

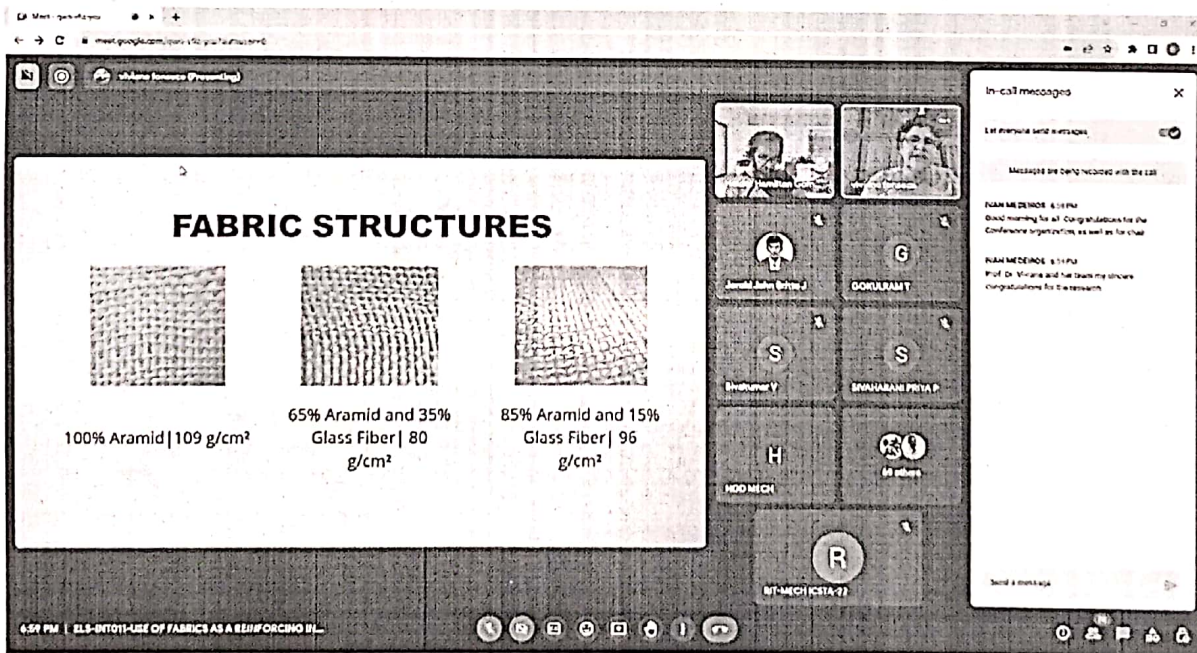
Date :November 30, 2023
 (Thursday)
 IST:
 06:30 pm to 07:20 pm
 Brazil Time:
 10:00 am to 10:50 am

COORDINATOR
DR.V. SIVA KUMAR, ASSOC. PROF./MECH
DR.J.JEROLD JOHN BRITTO,ASST. PROF. (SC)/MECH

PATRON
Dr.S.RAJAKARUNAKARAN
 VICE PRINCIPAL & HEAD /MECH

CHIEF PATRON
Dr.L.GANESAN
 PRINCIPAL

16. Programme Photographs:



FABRIC STRUCTURES

Sample	Composition	Weight
100% Aramid	109 g/cm ²	
65% Aramid and 35% Glass Fiber	80 g/cm ²	
85% Aramid and 15% Glass Fiber	96 g/cm ²	

Participants: Dr. V. Siva Kumar, Dr. J. Jerold John Britto, Dr. S. Rajakarunakaran, Dr. L. Ganesan, Prof. Viviane Muniz Fonseca, and others.

Prepared by

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Extramural Lecture Series - INT011 on "USE OF FABRICS AS A REINFORCING IN HIGH PERFORMANCE COMPOSITES", November 30, 2023 (Thursday) IST: 06.30 P.M. | Brazil Time: 10.00 A.M.

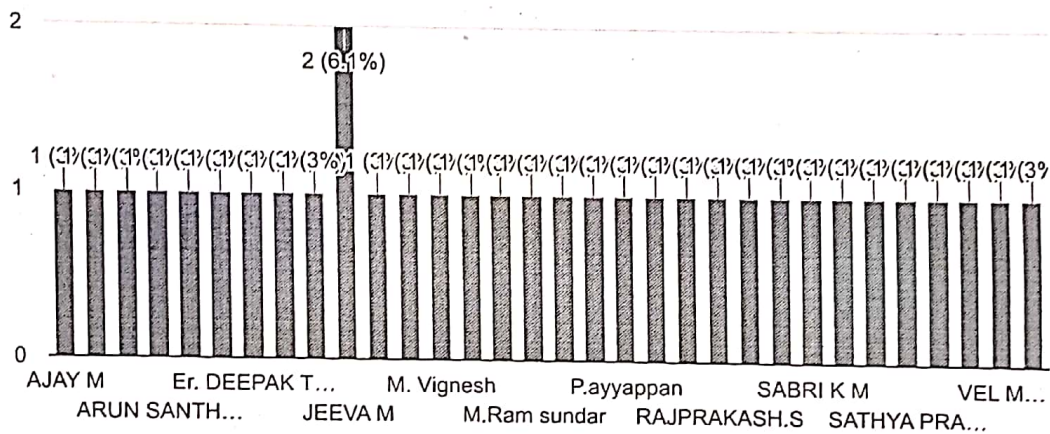
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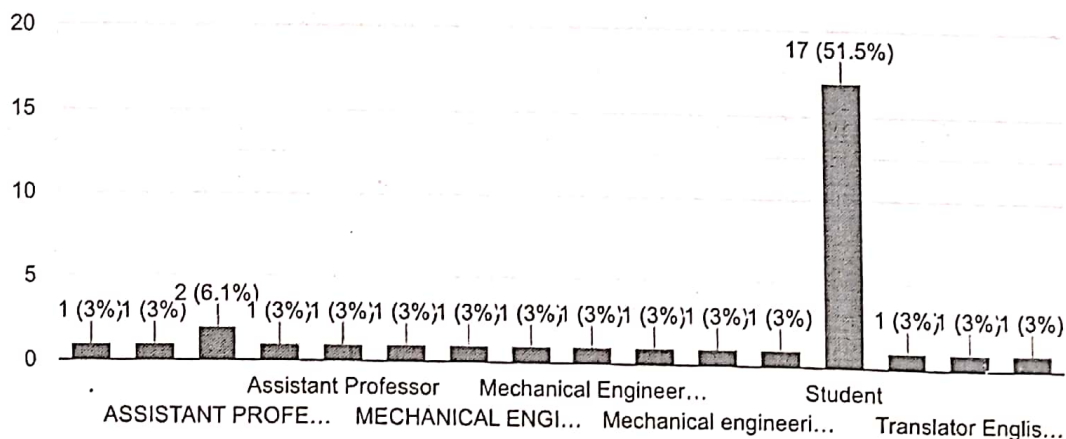
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Designation

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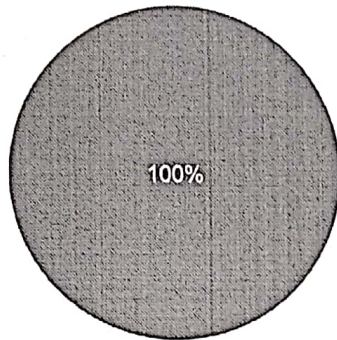
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Institution/ Organisation name

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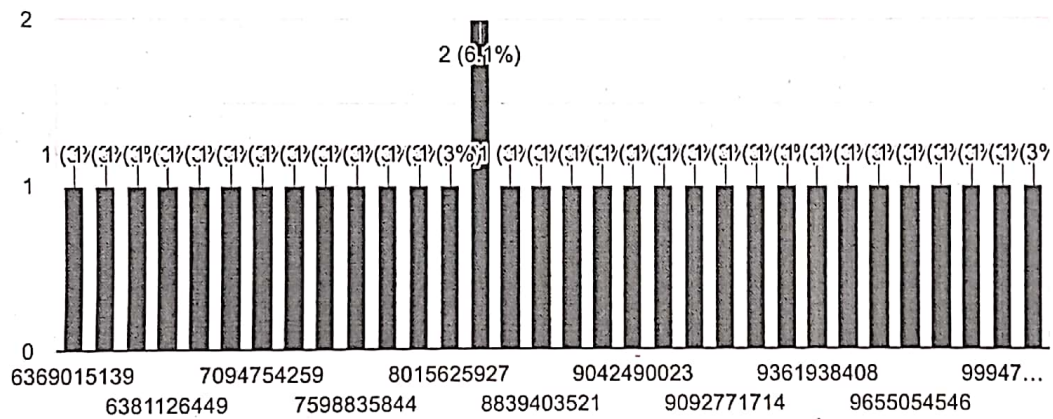


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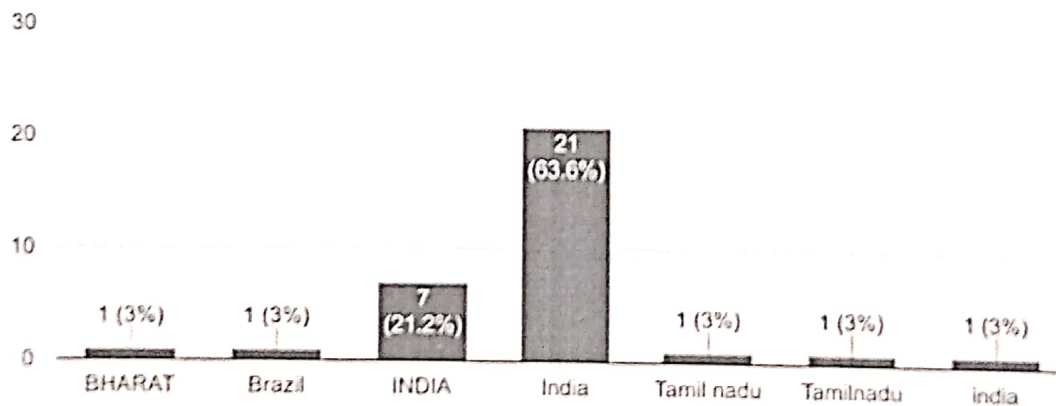
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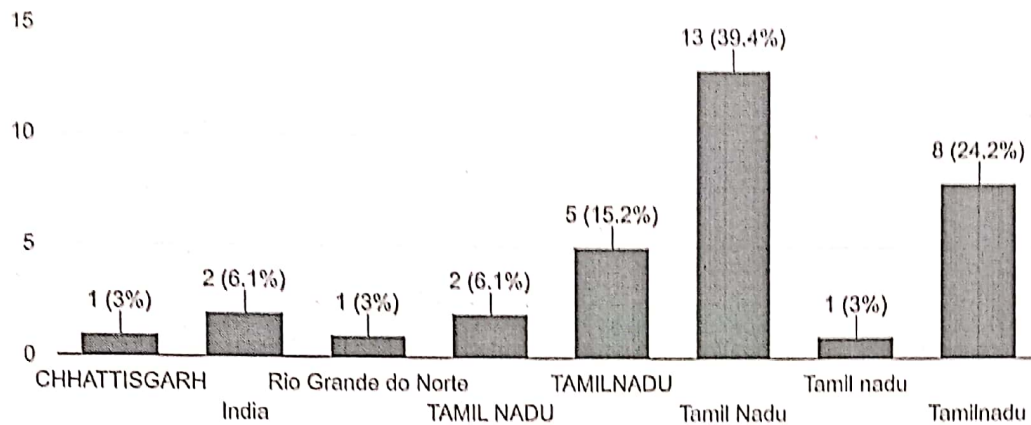
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State

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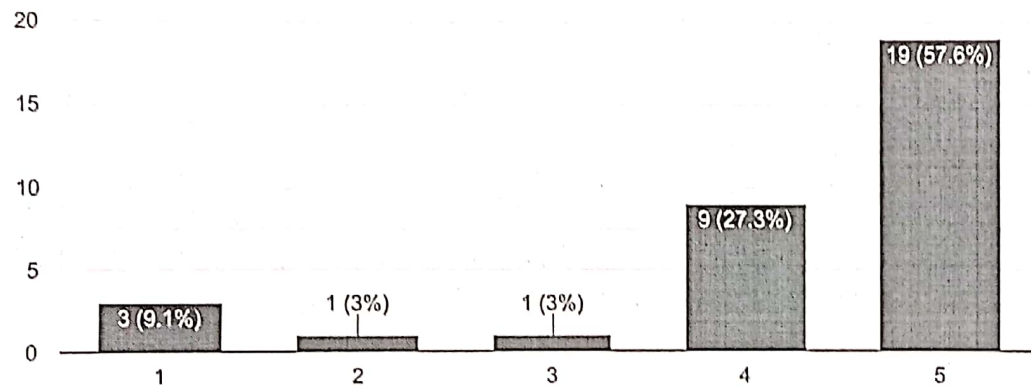
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The webinar Provided me with valuable information regarding the theme

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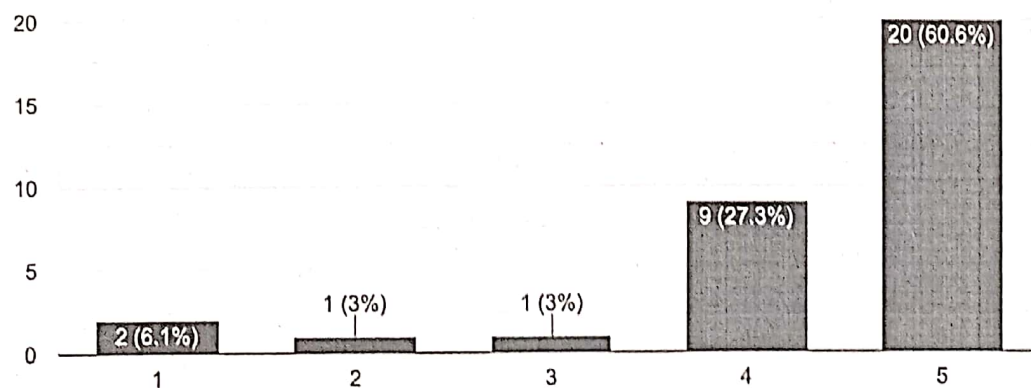
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The content delivered by resource person was useful

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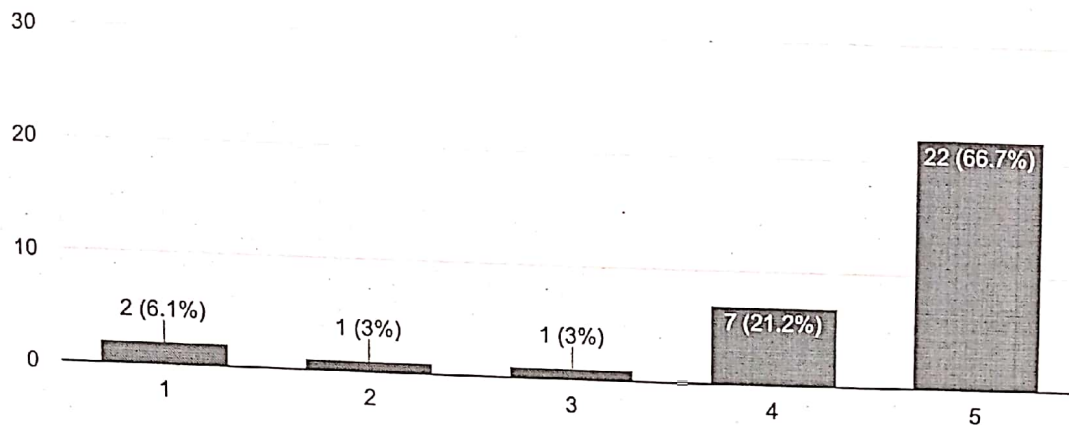
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The technological support was strong enough to execute webinar smoothly

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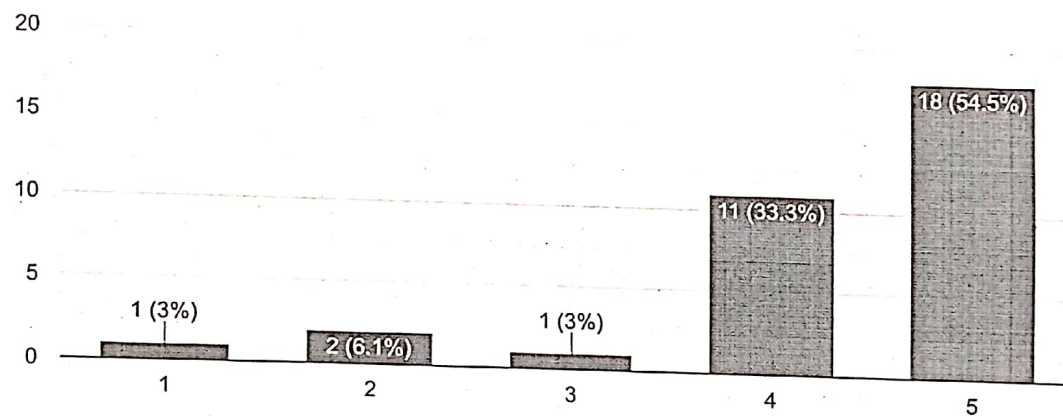
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Rate the duration of webinar

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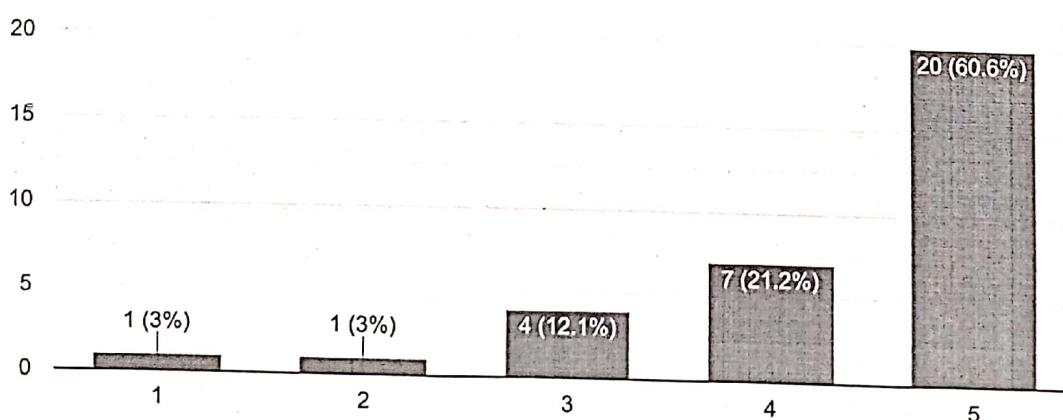
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Interaction / Q&A with the resource person

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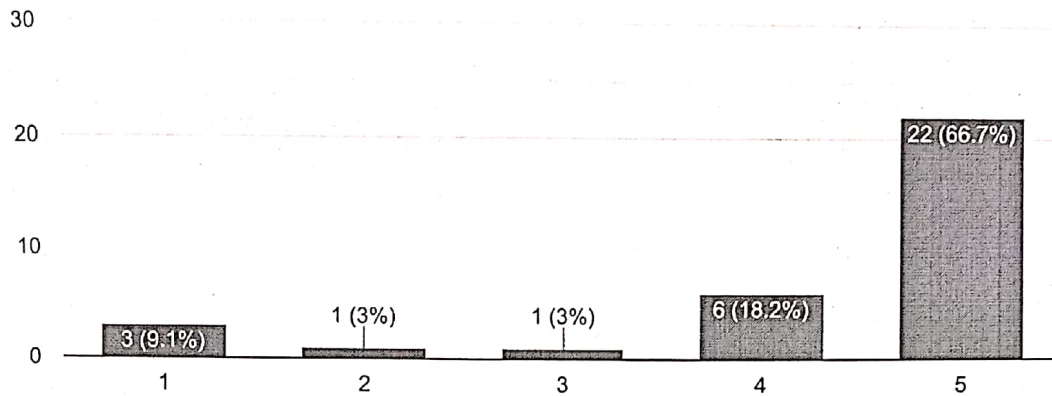
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Webinar Video Quality

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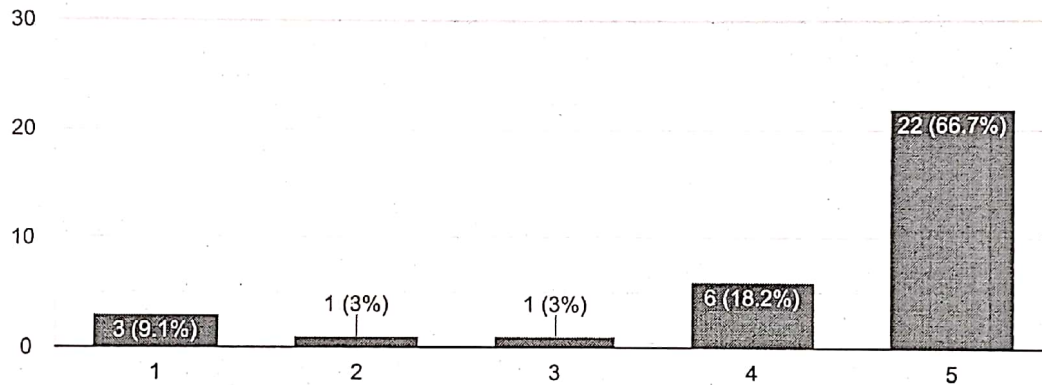
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Continuity in streaming

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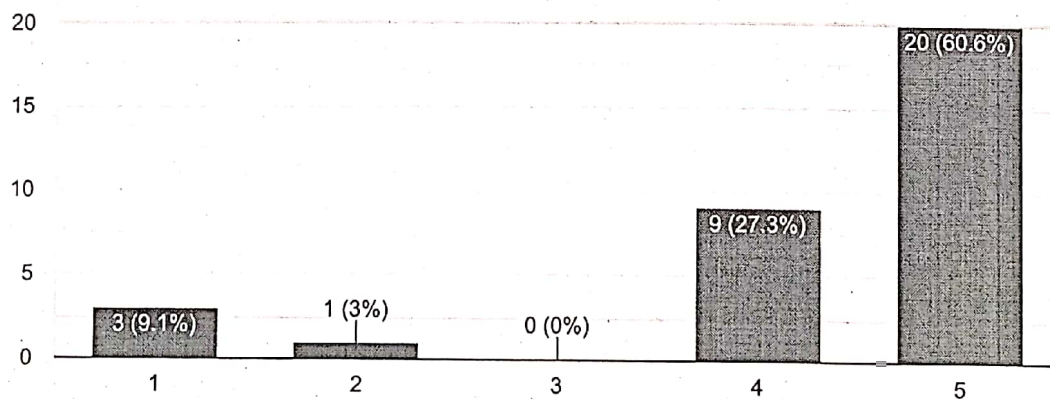
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Rate the timely communication in all aspects of the program

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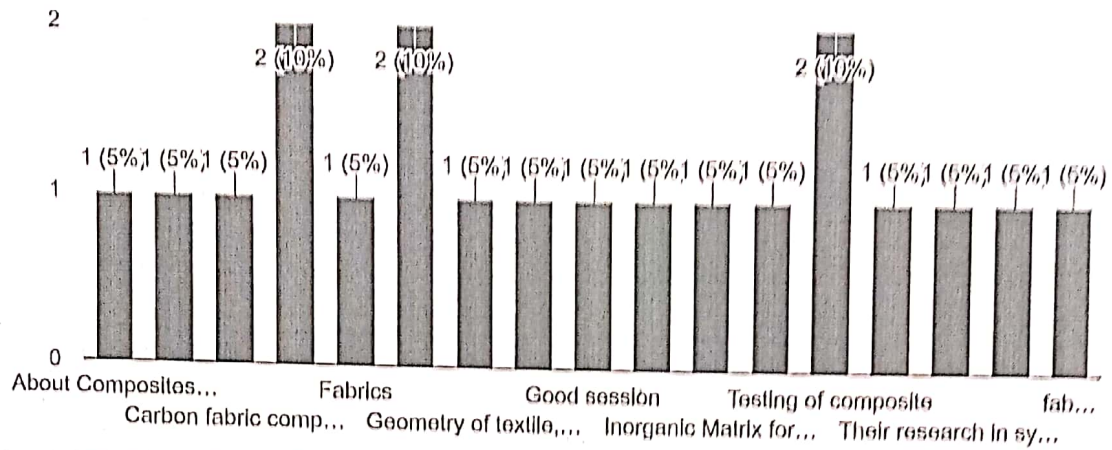
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Any specific topic which you liked very much

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