



**SREE NARAYANA GURU COLLEGE OF  
ENGINEERING AND TECHNOLOGY, PAYYANUR**

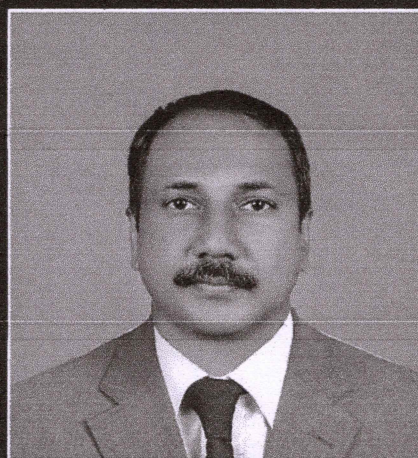
Korom, Chalakkode P.O., Payyanur, Kannur - 670307  
Managed by Sree Bhakthi Samvardhini Yogam, Talap, Kannur  
Affiliated to APJ Abdul Kalam Technological University and Approved by AICTE



**DEPARTMENT OF MECHANICAL  
ENGINEERING**

Presents

**WEBINAR ON  
DESIGN OF EXPERIMENTS**



Speaker

**Dr. Shyn CS**

Lecturer in Mechanical Engineering  
Govt. Polytechnic College Chelakkara

Coordinators

Soubhagya PS : 9995425905

JishnuVN : 8075864754



21/11/2023



7:00 PM

INSTITUTION CODE

**SNC**

Website : [www.sngcet.ac.in](http://www.sngcet.ac.in)

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**SREE NARAYANA GURU COLLEGE OF ENGINEERING  
& TECHNOLOGY**

**EVENT PROPOSAL FORM**

**Submitted by the department of Mechanical Engineering**

**I. TO BE FILLED BY THE EVENT COORDINATOR(S)**

1	Event type	Webinar
2	Event name	Design Of Experiments
3	Whether the event is inter departmental? If yes, mention the other department(s) associated with	No
4	Mode of conduct [online / offline]	Online
5	Date and time	21/11/2023 7.00PM
6	Venue	Google Meet
7	Whether any professional body is associated with the event? If yes, name the body	No
8	Participants / Target Audience	Students of Mechanical Dept
9	Whether the event is conducted for bridging the gap in syllabus? If Yes, name the course with code and the semester and year it the subject is handled	No
10	Objectives of the event	To understand various techniques used in Design of experiments
11	Expected Outcomes	To gain knowledge in Design
12	Connected PO / PSO	PO1: ENGINEERING KNOWLEDGE PO2: LIFELONG LEARNING PO2: PROBLEM ANALYSIS PO3: DESIGN OF SOLUTION
13	Justification for PO / PSO [may use separate sheet if necessary]	
14	Name of the resource person(s)	Dr.Shyn CS
15	Designation of the resource person (may attach	Lecturer in Mechanical Engineering

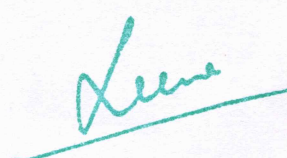
*Keena*  
PAGE 1 OF 2



## **JUSTIFICATION OF PO/PSO**

1. **PO 1: Engineering Knowledge:** This PO is essential because it ensures that graduates have a solid foundation in the core principles and theories of their respective engineering discipline. Engineering knowledge forms the basis for problem-solving, design, and innovation in engineering practice.
2. **PO 2: Problem Analysis:** Justification: Problem analysis is a critical skill for engineers as they encounter complex challenges that require systematic investigation and understanding. By emphasizing this PO, graduates are equipped with the ability to break down complex problems into manageable components, identify relevant factors, and apply appropriate analytical techniques to arrive at effective solutions.
3. **PO 3: Design/Development of Solutions:** Justification: Design and development are at the core of engineering practice, where engineers conceptualize and create solutions to address specific needs or challenges. This PO ensures that graduates are capable of translating theoretical knowledge into practical applications by designing innovative solutions that meet desired objectives.
4. **PO 12: Lifelong Learning:** Justification: Lifelong learning is vital in engineering due to the rapid pace of technological advancement and evolving industry trends. Engineers must continuously update their skills, stay abreast of new developments, and adapt to changing requirements throughout their careers.

These Program Outcomes collectively ensure that graduates are well-prepared to excel in their chosen engineering fields, equipped with the knowledge, skills, and mindset necessary for success in both their professional careers and ongoing personal development.

  
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	separate sheet to indicate the profile)	
16	Resource requirements	
17	Any fund from external source will be received? If yes, mention it.	
18	Whether budget for the event is attached? (use separate sheet to indicate the estimated budget)	
19	Any other relevant information	
20	Name of the event coordinator(s)	Mrs. Soubhagya PS, Mr. Jishnu VN
21	Dated signature of the coordinator(s)	<i>[Signature]</i> 17/11/23 <i>[Signature]</i> 17/11/23

**II. TO BE FILLED BY THE DEPARTMENT HOD** (any one of the HoD, in case if the event is jointly conducted by various department(s))

1	Comments on the relevance of the event	
2	Recommendation [Put a tick ✓ on whichever is applicable]	Recommended <input checked="" type="checkbox"/> Not Recommended
3	Name	Dr. Sudhin Chandran
4	Dated Signature	<i>[Signature]</i> 17/11/23

**COMMENTS FROM PRINCIPAL**

*[Signature]*  
30/11/23

**APPROVED / NOT APPROVED**

**DATED SIGNATURE OF THE PRINCIPAL:**

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# **SREE NARAYANA GURU COLLEGE OF ENGINEERING TECHNOLOGY,**

## **DEPARTMENT OF MECHANICAL ENGINEERING**

### **Report of the Session on WEBINAR ON DESIGN OF EXPERIMENTS**

The Department of Mechanical Engineering (ME) organized the "Webinar on design of experiments" on November 21, 2023, at 7.00PM through google meet. The primary objective of the event was to understand various techniques used in Design of experiments. This section started with a welcoming address from Ms Soubhagya P S, Assistant Professor of ME. Following that, the webinar, led by Dr. Shyn CS Lecturer in Mechanical department, Govt. Polytechnic college-Chelakkara. This section was aimed to gain the knowledge in design for the students, especially for final year students. The presentation covered the topics, how to approach the project, conducting and analyzing the experiments etc. Presentation included a dedicated time for question and answer section.

To conclude the event, Mr. Sudhin Chandran, Head of Department ME, delivered the vote of thanks. He expressed gratitude to the guest, participants, faculty, and students, as well as the management.

The "Webinar on design of experiments" session proved highly successful, providing students a platform to ask their doubts regarding the project and receive valuable feedback. This section mainly discussed the various steps in design thinking, that is about designing the problem, identifying factors and levels, select experimental design, randomization, replication, experiment conducts, data collection, data analysis, conclusion, optimization and documentation. Slides of Various steps in Design of Experiments is given below

## **Steps in Design of Experiments**

### **Define the Problem:**

- Clearly state the problem or objective of the experiment.

### **Identify Factors and Levels:**

- List the factors that may influence the response variable and define their levels.

### **Select Experimental Design:**

- Choose an appropriate experimental design based on factors such as the number of factors, available resources, and the nature of the problem. Common designs include:
  - **Factorial Design:** Examines the effects of multiple factors and their interactions.
  - **Fractional Factorial Design:** Investigates a fraction of the full factorial design to reduce the number of experimental runs.
  - **Response Surface Design:** Optimizes response variables in a continuous space.
  - **Randomized Complete Block Design:** Controls for variability by grouping experimental units into blocks.

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**Randomization:**

- Randomly assign experimental units to different treatment groups to minimize the impact of confounding variables.

**Replication:**

- Replicate each combination of factor levels to enhance the reliability of the results and assess variability.

**Conduct Experiments:**

- Implement the experimental plan, ensuring that all conditions are met and data are collected accurately.

**Collect Data:**

- Record the responses for each combination of factor levels.

**Data Analysis:**

- Use statistical methods to analyze the data, identify significant factors, and understand their effects on the response variable.

**Draw Conclusions:**

- Draw conclusions based on the analysis, considering the practical significance of the results.

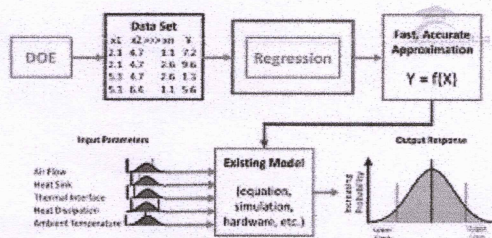
**Optimization:**

- If the goal is to optimize a process, use the information gained to identify the optimal factor levels for the desired response.

**Documentation:**

- Document the experimental design, procedures, and results for future reference and replication.

After the section the resource person explained the whole section again by using some examples. Participants left the session with a renewed sense of inspiration and determination to further refine their ideas, aiming to make a positive impact.



*Leena*

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**POST EVENT ANALYSIS FORM**

**Submitted by the department of: Mechanical Engineering**

**I. TO BE FILLED BY THE EVENT COORDINATOR(S)**

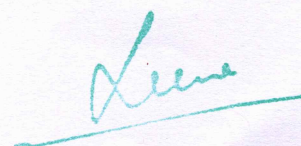
1	Event type conducted	Webinar
2	Event name	Design Of Experiments
3	Date and time of the event conducted	24/11/2023 7.00PM
4	Venue	Google Meet
5	Whether the event was interdepartmental? If yes, mention the department(s) associated with	No
6	Mode of conduct [online \ offline]	Online
7	Is there any deviation from the proposal in the date, time and venue of the event? If yes, mention the reason for change	No
8	Whether any professional body was associated with the event? If yes, name the body	No
9	Any funds received from the professional body? Indicate the amount	No
10	Participants / Target Audience	Students of Mechanical Dept
11	Whether the event is conducted for bridging the gap in syllabus? If Yes, name the course with code and the semester and year it the subject is handled	No
12	Objectives of the event	To understand various techniques used in Design of experiments
13	Expected Outcomes	To gain knowledge in Design
15	Connected PO / PSO	PO1: ENGINEERING KNOWLEDGE, PO3: DESIGN OF SOLUTION PO2: PROBLEM ANALYSIS PO12: LIFELONG LEARNING
16	Justification for PO / PSO	



## **JUSTIFICATION OF PO/PSO**

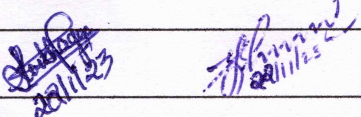
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	[may use separate sheet if necessary]	
17	Whether feedback forms from audience and resource person is collected?	
18	Whether analysis of feedback is done? Use separate sheet to indicate the same	
19	Attainment level of outcomes	
20	Name of the resource person	Dr.Shyn CS
21	Designation of the resource person(s)	Lecturer in Mechanical Engineering
22	Any other relevant information	
23	Name of the event coordinator(s)	Mrs. Soubhagya PS, Mr. Jishnu VN
24	Dated signature of the coordinator(s)	

**II. TO BE FILLED BY THE DEPARTMENT HOD** (any one of the HoD, in case if the event is jointly conducted by various department(s))

**List of enclosures – To be maintained in the file**

Sl No:	ITEM	AVAILABILITY [YES / NO]
1	Posters	
2	Schedule of the event	
3	Registration form sample copy	
4	All registration forms duly filled and signed	
5	Profile of the resource person(s)	
6	Feedback forms filled by participants and resource person	
7	Feedback analysis sheet	
8	CO attainment calculation sheet	
9	Study Materials (if any)	
10	Letters or printouts of e-mail communication relevant to the event	
11	Documents related to professional body associated with the event	



12	Photographs of the event	
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1	Comments about the conduct of the event	
2	Comments about the resource person and impact of the event	
3	Name	Dr. Sathish Chandran
4	Dated Signature	<i>[Signature]</i> 22/4/25

**COMMENTS FROM PRINCIPAL**

*[Signature]*  
30/11/25

**DATED SIGNATURE OF THE PRINCIPAL:**

*[Signature]*  
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