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Dr. S. Sudhakar, Principal Scientist, CSIR-CECRI, Karaikudi, Tamil Nadu.

### INSTITUTE COMMITTEE

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Prof. R. Mahendran, Assistant Professor/ Mech

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Prof. P. Rajkumar, Assistant Professor, Mechanical

## ABOUT THE INSTITUTION

Jai Shriram Engineering College (JSREC) was endowed by Shenthil Velevar Trust in the year 2009 with a motto of equipping and implanting the seed of higher education approved by All India Council for Technical Education (AICTE), affiliated to Anna University, Chennai and accredited by NAAC. The Institution is functioning with a motive of taking higher education to the rural people at all levels of economic platform. The institution offers B.E., B.Tech, M.E. and M.B.A. programmes. The only Institution managed by global level machine building Industry. It follows student centric teaching learning process that focuses on overall grooming of every student for the dynamic needs of their specialization.

## ABOUT THE DEPARTMENT

The department was started in the year 2009 for the undergraduate program in B.E Mechanical Engineering with an intake of 60 students. The department offers high quality education to the students through very good infrastructure, laboratories, and faculty and by means of exposure to latest technologies. The department has highly qualified and well experienced teaching staff, who take extreme care for the development of the careers of the students. The department is very much oriented towards research and development as well as in consultancy. The department is in the verge of establishing centre of excellence with the sole purpose of conducting high quality research and development activities in the latest areas such as hydraulics, materials (smart and nano), robotics, vibrations and technology and automation

### CONTACT ADDRESS

The Convener,

DEER'2K22

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## Five Day Short Term Training Program (STTP) on

## DESIGN OF EXPERIMENTS FOR ENGINEERS AND RESEARCHERS

# DEER'2K22

17<sup>th</sup> – 21<sup>st</sup> October 2022  
(Virtual Mode)

### Organized by

The Department of Mechanical Engineering



**JAI SHRIRAM**  
ENGINEERING COLLEGE



Dharapuram Road, Avinashipalayam, Tiruppur-638 660

### Jointly with

Barani Group Companies  
Coimbatore, India.



### In Technical Association with



Tishk International University-Erbil,  
Kurdistan Region, Iraq.

## ABOUT THE BARANI GROUP COMPANIES

Barani is a prominent manufacturer, supplier and exporter of hydraulic presses and SPMs to leading brake liner manufacturers, clutch, axles, brakes and steel wheel manufacturers in India. The Coimbatore-based Barani Group Companies has become one of the global leaders in manufacturing custom-built hydraulic presses. The home-grown company has bagged some substantial overseas orders in recent times and is looking to cementing its place as one of the world leaders in the hydraulic press manufacturing field. Now Barani hydraulics is a perfect example for 'Make-in-India' programme, considering the global customer base it has developed in different sectors. The company designs and develops all its machines in-house and delivers outstanding product quality to an extent that they have been approved by the most stringent Japanese and European standards, Thus paving the way for its becoming an increasingly popular and reliable brand for hydraulic presses at the global level.

## ABOUT THE STTP

Design of experiments (DOE) is a systematic, efficient method that enables scientists and engineers to study the relationship between multiple input variables and key output variables. It is a structured approach for collecting data and making discoveries. The application of Design of Experiments (DOE) is ever increasing as the analysis of real time problems with more number of inputs that affect the output of the experiment. To match knowledge with the application and advanced use of DOE for following reasons, (a) An organized approach that connects experiments in a rational manner (b) The influence of and interactions between all factors can be estimated (c) More precise information is acquired in fewer experiments (d) Results are evaluated in the light of variability and (e) Support for decision-making This STTP is designed to improve the fundamental understanding and realizing the need for application.

## PROGRAM CONTENT

- Features of Design of Experiments (DOE's)
- TAGUCHI Analysis
- ANOVA and Regression Analysis
- Response Surface Methodology (RSM)
- 2k Factorial Design
- Grey Relational Analysis (GRA)
- Fuzzy Logic Analysis
- Fuzzy-Grey analysis
- Neural Network
- Genetic Algorithm
- Particle Swarm
- Central Composite Designs
- Three-level Factorials
- Box-Behnken Designs
- Draper-Lin Designs
- Heuristic Algorithm

## IMPORTANT DATES

Last date for registration : 15-10-2022  
Confirmation of registration : 16-10-2022

## GUIDELINES

- The authors are requested to submit the proof of payment to: [deer2k22@gmail.com](mailto:deer2k22@gmail.com)
- 80% of attendance is mandatory for the issue of certificate.
- Participants are asked to register using the following link <https://forms.gle/SetwQxcEbtqrBypN8>



## REGISTRATION FEE

Delegates	Registration Fees
Parent Institution	₹ 200
UG Students / PG Scholars / Research Scholars / Faculty	₹ 250
Industry	₹ 300

The delegate's registration fee covers cost of Workshop sessions and hard copy of the certificate. Registration fee is payable by DD in favor of THE ORGANIZING SECRETARY-CSE JAY SHRIRAM GROUP OF INSTITUTIONS payable at Tirupur or by UPI Money transfer or by cash.

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After completion of registration process, kindly join in our whatsapp group for further communications.



Please log on to our website for more details.





# JAI SHRIRAM ENGINEERING COLLEGE







(Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai, Accredited by NAAC)  
Dharapuram Road, Avinashipalayam, Tirupur – 638 660

## Department of Mechanical Engineering



### Short Term Training Program (STTP) on “Design of Experiments for Engineers and Researchers”

**(DEER’2k22)**



**Program Schedule - (17<sup>th</sup> – 21<sup>st</sup> October, 2022)**

<b>Day 1 (17/10/2022)</b>			
<b>Resource Persons</b>		<b>Topics</b>	<b>Timings</b>
<b>Inauguration</b>			<b>09:30–10:00 AM</b>
	<b>Dr. V. Jai Ganesh</b> Professor, Dept of Mechanical Engineering, Bharath Institute of Higher Education and Research, Chennai.	Features of DoE an Experimental approach	10:00-11:30 AM
	<b>Dr. N. Senthilkumar,</b> Professor, Dept. of Mechanical Engineering, Saveetha School of Engineering, Saveetha Institute of Medical and Technical Sciences, Chennai.	Fuzzy Logic Analysis & Neural Network	02:30-04:00 PM
<b>Day 2 (18/10/2022)</b>			
<b>Resource Persons</b>		<b>Topics</b>	<b>Timings</b>
	<b>Dr. R. Parameshwaran</b> Professor, Department of Mechatronics Engineering, Kongu Engineering College, Perundurai.	Taguchi’s DOE Orthogonal Arrays	10:00-11:30 AM
	<b>Dr. Prakash Sekar</b> Assistant Professor, Dept. of Mechanical Engineering, Aarupadai Veedu Institute of Technology, Chennai.	Significance of optimization tools for validating research problems	02:30-04:00 PM


**Day 3 (19/10/2022)**

Resource Persons	Topics	Timings
 <p><b>Dr. M.R. Thansekhar</b> Professor, Department of Mechanical Engineering, KLN College of Engineering, Sivagangai.</p>	Regression Analysis	10:00-11:30 AM
 <p><b>Dr. M. Saravanan</b> Associate Professor, Department of Mechanical Engineering, Annamalai University, Chidambaram.</p>	Optimization of Heat pipe parameters in flat plate solar collector/simulator using RSM	02:00-03:30 PM

**Day 4 (20/10/2022)**

Resource Persons	Topics	Timings
 <p><b>Dr. M. Sivakumar</b> Dean – Freshmen Engineering Vel Tech Rangarajan Dr. Sagunthala R&amp;D Institute of Science and Technology, Chennai.</p>	ANOVA, Formation of Regression Equations, 2K Factorial Design, 3 level Factorial Design, Central Composite Design, Box–Behnken design using Minitab	10:00-11:30 AM
 <p><b>Dr. M. Sivakumar</b> Dean – Freshmen Engineering Vel Tech Rangarajan Dr. Sagunthala R&amp;D Institute of Science and Technology, Chennai</p>	Taguchi, Grey Analysis using Excel and Genetic Algorithm using MatLab	11:45-1:00 PM

**Day 5 (21/10/2022)**

Resource Persons	Topics	Timings
 <p><b>Dr. M.K. Marichelvam</b> Associate Professor, Dept. of Mechanical Engineering, Mepco Schlenk Engineering College, Sivakasi.</p>	Particle Swarm Optimization Algorithm for Optimization Problems.	10:00-11:30 AM
 <p><b>Dr. N. Rajeswari</b> Professor and Head, Dept. of Mechanical Engineering St. Peter's Institute of Higher Education and Research, Chennai.</p>	Heuristic algorithm for solving small- and large- scale engineering optimization problems.	02:00-03:30 PM
<b>Valediction</b>		<b>03:45-04:15 PM</b>