

About the Institute:

Annamalai University, a NAAC 'A' graded institute, is one of India's largest public residential universities with 10 Faculties and 49 departments of study. The university spreads around 1000 acres with several innovative teaching programmes carried over the years. The university lies within an appreciable rank band under each specializations. Among the 49 departments 10 departments have attained the status of UGC-SAP and DST-FIST sponsored department.

About the Department:

The Department of Manufacturing Engineering was established in the year 1984. Department has a team of 40 qualified research supervisors having specialization in various areas such as Materials Joining, Surface Engineering, Materials Processing, Manufacturing Management and Newer Materials. At present the department is offering following programs: B.E. Mechanical Engineering (Manufacturing), M.E. (Manufacturing Engineering), M.E. (Welding Engineering) and Ph.D in Manufacturing (Full Time & Part Time). The department is the only department to attain the status of DST-FIST-Level-2 and UGC-SAP-DRS-Phase-2 in the Faculty of Engineering & Technology.

About the Centre:

The Center for Materials Joining and Research (CEMAJOR) was established in 2008 utilizing the financial assistance of All India Council for Technical Education (AICTE) under National Facilities in Engineering and Technology Institution with Industry Contribution (NFETIC) scheme. The prime objective is to provide advanced knowledge and know how to industry in Materials Joining and Surface Engineering area through short term training /continuing education program. The Centre has so far completed 40 R&D projects worth of Rs. 10 Crores. The Centre has produced 40 Ph.D scholars and published more than 400 research papers in SCOPUS indexed Journals. The Centre has many "state of the art facilities" to carryout research on Materials Joining and Surface Engineering field.



Chairman

Prof. Dr. A. MURUGAPPAN,
Dean,
Faculty of Engineering & Technology (FEAT),
Annamalai University

Convener

Prof. Dr. V. BALASUBRAMANIAN,
Director, CEMAJOR &
Head, Department of Manufacturing
Engineering, Annamalai University

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Dr. S.Malarvizhi, M.E., Ph.D.
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Dr. K. Srinivasan, M.E., Ph.D.
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Associate Professor, CEMAJOR



**AICTE Training
and Learning
(ATAL) Academy**



**Sponsored
ONLINE**

**Faculty Development Program (FDP) on
Simulation of Welds and
Optimization Techniques**

**(SWOT' 21)
12th - 16th July, 2021**

Coordinator

Dr. S. RAJAKUMAR, M.E., Ph.D
Associate Professor

Organized by



**Centre for Materials Joining and Research
(CEMAJOR)**

**Department of Manufacturing Engineering
(DST-FIST-Level-2 & UGC-SAP-DRS-Phase-2 Dept.)**

**Faculty of Engineering & Technology
ANNAMALAI UNIVERSITY
(Accredited with "A" Grade by NAAC)**

**Annamalai Nagar – (P.O)
Chidambaram - 608002
Cuddalore (Dist)
Tamilnadu (State)**

About ATAL

The Government of India in association with All India Council for Technical Education (AICTE) launched the AICTE Training and Learning (ATAL) academy with a vision to empower faculty to achieve goals of higher Education such as access, equity and quality. ATAL Academy have started unique Faculty Development Programs in various thrust areas of modern technology. More than 1100 such programs have already been conducted in various AICTE approved institutions benefitting the faculty, Research Scholars and PG Students around the nation.

About the Faculty Development Program:

WELDING, the fusing of the surfaces of two work pieces to form a precise, reliable, cost-effective, and “high-tech” method for joining materials. Welding today is applied to a wide variety of materials and products, using such advanced technologies as lasers and plasma arcs. The improvement in field of joining pioneer materials has a great outreach; the research activities carried forward to join materials by institutes prefer techniques to reduce the number of experiments, minimal consumption of material.

In this regard, optimization acts as a better tool by reducing the experimental runs and has a better work area within a selected interval. Similarly modeling of the welding processes can aid us with a predetermined result for experiments that are to be conducted and helps us to enhance the structural features of the joint. The application of these tools can improve the productivity in fields of aerospace applications, energy and automotive sectors. Embraced with these tools welding of novel materials in aforementioned industries can enhance the process and power utilized to maximum.

Major Contents:

- An outline of statistical tools.
- Statistical tools: Response Surface Methodology, Regression Models
- Softwares and Algorithms used in optimization.
- Wire arc additive manufacturing modelling
- Modelling of heat transfer problems in welds
- Thermo-mechanical modeling of welds.
- Hands on Training.

Speakers:

The resource persons for the program shall include faculty members of the host institute, renowned researchers from top institutes like IIT Madras, IIT Bombay, NIT and Post-doctoral fellows. The forum paves way for budding researchers to pass through innovative techniques.

Eligibility of Participants:

The faculty members of the AICTE approved institutions, research scholars, PG scholars, participants from Government, Industry (Bureaucrats/ Technicians/ Participants from Industry etc.) and staffs of host institutions are eligible to attend the program. Participants interested to attend this program need to make compulsory online registration. Last date of online registration is 05/07/2021. Shortlisted candidates will be informed through their email within 2-3 days of registration.

Registration Procedure:

There is no registration fee to attend this program. Participants willing to attend this online FDP should have the provision of laptop/desktop with good quality internet connections and other audiovisual facilities, as required for online training. Registration has to be done only through AICTE-ATAL academy. Please visit

<https://www.aicte-india.org/atal>

Online Platform

The details of the online platform and the program link will be sent to the registered participants by email and WhatsApp.

Certificate

E-Certificate will be provided by ATAL Academy website after successful completion of FDP. Minimum 80% attendance and 60% marks in assessment conducted at the end of the program are required to earn the certificate



Contact:

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More details about CEMAJOR, please visit
https://annamalaiuniversity.ac.in/cemajor_index.php



**CENTER FOR MATERIALS JOINING AND RESEARCH
DEPARTMENT OF MANUFACTURING ENGINEERING
ANNAMALAI UNIVERSITY**



Simulation of Welds and Optimization Techniques

AICTE-ATAL Sponsored FDP, July 12- July 16, 2021

Date	Name of the Resource Person (FN) / Topic to be covered (9:30 am to 11: 00 am)	Break (11.00 am to 11.30 am)	Name of the Resource Person (FN) / Topic to be covered (11:30 am to 1.00 pm)	Break (1.00 pm to 02.00 pm)	Name of the Resource Person (AN) /Topic to be covered (2:00 pm to 3.30 pm)
12.07.21 (Monday)	Dr. V. Balasubramanian Director and Head, CEMAJOR Annamalai University “Introduction to Advanced Welding Processes: Need for Simulation and Optimization”		Dr. Pankaj Biswas Professor IIT Guwahati “ Thermo-Mechanical FE Analysis of Fusion Welding Process ”		Dr. RM.Nachiyappan Associate Professor Govt. College of Engineering “Statistics and Analysis”
13.07.21 (Tuesday)	Dr. N. Siva shanmugam Professor NIT-Trichy “Finite Element Analysis (FEA) on Welding ”		Dr. G.Vimalan Senior Engineer, Welding Research Institute (WRI) BHEL-Trichy “R&D Studies using Gleebal Thermomechanical Simulator”		Dr. S. Sree Sabari Post-Doctoral Fellow University of Coimbra, Portugal “Modelling of Heat Sources in Solid State Welding”
14.07.21 (Wednesday)	YOGA SESSION Dr.K. Venkatachalapathy Director, Yoga Center Annamalai University		Dr. Viswanath R R S R Chinthapenta Professor IIT Hyderabad “Numerical Modelling of Wire Arc Additive Manufacturing (WAAM)”		Dr. S. Kavitha Assistant Professor Annamalai University “Hands on Training using MATLAB”
15.07.21 (Thursday)	Dr. K. Devakumaran Deputy Manager BHEL-Trichy “Modelling of Heat Flow in Welding”		Dr. R.Karthikeyan Professor BITS-Dubai Campus “Some Case Studies on welding optimization using MATLAB”		Dr. S. Rajakumar Associate Professor Annamalai University “Regression and Desirability based Multi-Objective Optimization ”
16.07.21 (Friday)	Dr. J. Sasikala Associate Professor Annamalai University “Swarm Intelligence based Optimization for Engineering Problems”		Dr. A.K.Lakshminarayanan Associate Professor SSN College of Engineering, Chennai “Modelling of Weld Microstructure”		FEEDBACK SESSION / TEST (2:00 pm to 4:00 pm)