



**Department of Science
and Technology Funded
Short Term Training
Program
On**



**Artificial Intelligence, Machine
Learning and Deep Learning
applications in Production and
Manufacturing Systems**

02-15 January, 2020

REGISTRATION FORM

Name:

Designation:

(In BLOCK LETTERS)

Category: Industry/Academic/Student

Education Qualifications with Specialization

.....
Name of the Institution/Employer:.....

Address for Correspondence:

.....
.....

Email (Mandatory):

Tel/Mobile number:

Accommodation required: YES/NO

Registration fee:

DD No &Date:

Bank Name/Branch:

Signature of the Participant

Target audience

The programme is open for all the Faculty, PhD scholars, PG students of Mechanical Engineering and allied disciplines. Industry professionals working in the concerned/allied discipline can also attend.

Registration Fee & Accommodation

Selection will be done based on *first-cum-first-serve basis* and the confirmed candidates will be notified immediately through their personal E-mail Id's. The maximum number of participants will be **50 (Fifty)**. **The first 30 registered participants will be provided FREE registration, TA of maximum INR 2000/- will be paid to the participants. Accommodation will be arranged by the organizing team.** The Registration fee for remaining 20 participants will be INR 2500/-. Accommodation and TA will not be provided.

Important dates

Last date for submission of application: 23/12/2019
Selection-list intimation/display before: 24/12/2019
Duration of Program: 02–15 January, 2020.

How to apply

A filled in form of application in the prescribed format duly signed and sponsored by appropriate authorities (along with demand draft) should reach the coordinator. It is also mandatory to send scanned application form and demand draft through e-mail to manupati.vijay@nitw.ac.in as selection will be intimated only through mail.



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Organized by



**Department of Mechanical Engineering
NIT Warangal, Warangal - 506004**

Preamble

DST has recently launched a new programme “Interdisciplinary Cyber Physical Systems (ICPS)” to foster and promote R&D in this emerging field of research. A Cyber Physical System (CPS) is a mechanism controlled or monitored by computer-based algorithms, tightly integrated with internet and its users. It is an engineered system that are built from and depend upon, the seamless integration of computational algorithms and physical components. In general Cyber means computation, communication and control that are discrete and logical. Physical means natural and human-made systems governed by the laws of physics and operating in continuous time. Computing and communication systems bridges with the physical world are referred to as Cyber Physical Systems. CPS are physical and engineered systems whose operations are monitored, coordinated, controlled and integrated by a computing and communication core.

About NIT Warangal

National Institute of Technology (formerly Regional Engineering College), Warangal is the first among 17 RECs setup as joint venture of the Government of India and the state government. Over the years the college has established itself as a premier Institution imparting technical education of a very high standard leading to the B.Tech degrees in various branches of engineering and M.Tech and Ph.D. programs in various specializations.

About the Department of Mechanical Engineering

The Department of Mechanical Engineering offers an UG program, seven PG programs and a Ph.D. program as well. There are 39 qualified and experienced faculty in the department. The department has liaison with reputed industries and R&D organizations like NFTDC, BHEL, DMRL, DRDL, CMTI, etc. Presently the department is handling several R&D projects and consultancy works. **Warangal** is known for its rich historical and

cultural heritage. It is situated at a distance of 140 km from Hyderabad. Warangal is well connected by rail and road. National Institute of Technology campus is 2 km away from Kazipet junction and 12 km away from Warangal station.

Objectives of the Workshop

- To enable the participants to learn Artificial Intelligence and Machine Learning applications in Production and Manufacturing Systems.
- To enable the participants acquire modelling, simulation and optimization of various production and Manufacturing process with hands on experience by using software packages.
- To empower the participants with the knowledge and skills of several tools, techniques, and methods of AI, ML approaches in Production and Manufacturing systems also prepare them to each these courses at their respective institutions.

Topics to be covered

- Overview of Manufacturing systems and Industry 4.0
- Artificial Intelligence and Machine Learning introduction.
- Implementation of Artificial Intelligence techniques in Manufacturing and Production systems.
- Overview of Machine learning Tools and Techniques.
- Application of AI and ML in Production and manufacturing systems with cases.
- Simulation and modeling of manufacturing systems.
- Hands on session with MATLAB simulation and Optimization Tool box
- Simulation and Optimization in Production Systems using different Cases.
- Simulation Lab ARENA, FLEXSIM, etc.
- Overview of Big data and Data ware Housing.
- Big data and Data ware Housing in Manufacturing and Production System.
- Soft computing Techniques overview.

- Applications of Soft computing with AI and ML Techniques.
- Case studies with Soft computing, AI and ML Techniques.
- Hands on session with Soft computing Techniques.
- Over view of Data warehousing, Data cleaning and Data mining.
- Brief overview of Clustering and Different types of neural networks.
- Cases on Data warehousing, cleaning and mining in Manufacturing and Production Applications.
- Clustering and Neural Network applications in Manufacturing and Production.

Course Material and Reference book

- Course material/lecture notes and handouts will be provided to the participants of the course.

Resource Persons

- Faculty members from IITs, NITs, IIITs, and Industry experts with expertise in the domain.

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Coordinators

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