Background:
Artificial Intelligence (AI) techniques, such as Expert Systems (ESs), Fuzzy Logic (FL), Heuristic optimization and Artificial Neural Networks (ANNs) provide powerful tools for design, simulation, control, estimation, fault diagnostics, and fault-tolerant control in modern smart grid (SG) and renewable energy systems (RESs). SG provides significant new challenges for research in AI, since these technologies will require algorithms and mechanisms that can solve problems involving a large number of highly heterogeneous actors, having to operate within significant levels of uncertainty and dynamism. The growing interest that the SG is attracting and its multidisciplinary nature motivate the need for solutions originating from different fields of knowledge. Due to the complexity, and heterogeneity of the smart grid and the high volume of information to be processed, AI techniques appear to be some of the enabling technologies for its future development and success. Further, the technology will continuously collect and synthesize overwhelming amounts of data from millions of smart sensors to make timely decisions on how to best allocate energy resources.

Objectives of the programme:
- To enable the participants to learn and conceptualize AI techniques for smart grid applications.
- To enhance the learning capabilities of the participants in AI techniques, Optimal PMU placement, DG placement, wide area measurement, protection and storage technologies.
- To empower the participants with usage of MATLAB/Scilab tools for AI in Smart Grid applications.
- To encourage the participants to offer a course in AI for Smart Grid applications.
- To enable the participants to learn new methods and practices in teaching and learning.

Resource Persons:
Eminent faculty of the Electrical Engineering department and Faculty from IITs, other NITs & Industry who have the expertise in these areas will be delivering lectures as core faculty for the workshop.

Topics of the programme:
- Introduction to Smart Grids- Indian perspective
- Introduction to AI & Meta heuristic techniques
- Integration of Generation from Renewable Energy Sources with Grid.
- Distributed generation, optimal sizing & siting using AI
- Power converters for renewable energy systems and their controls.
- Optimal PMU placement
- Demand side management using heuristic optimization
- Forecasting studies using ANNs
- Distribution system reconfiguration with renewable integration using heuristic techniques
- Modern Teaching - learning methods
- Learning AI in Smart Grid technologies through hands on experience
- Learning concepts of AI in Smart Grid through group activities

Registration is open to:
- Faculty members working in engineering institutions.
- Research Scholars at senior level aspiring for faculty positions

How to Apply:
Eligible candidates may apply by submitting the scanned copy of the filled-in registration form (attached with this mail/brochure) by Email to: sailaja_matam@yahoo.com on or before 16th March 2018.

Selection and Intimation:
As the programme is conducted in a workshop mode with hands-on sessions, the number of participants in the workshop is limited to 50. The selection will be on first-cum-first served basis among eligible applicants. The selected applicants will be informed about his/her selection through Email.

Payment of Registration Fee:
After receiving the information about selection, the applicant has to send the required registration fees as per the details shown in Table. The mode of payment of registration fee is given under the heading “Bank Details”

Confirmation of Participation:
On receipt of the proof of payment of registration fee in the form of scanned copy of the DD / Proof of remittance (with transaction number if online transaction), the applicants will be sent confirmation of their participation through Email immediately.
**Accommodation:**
Accommodation for outstation participants will be provided on request in the Institute Visitor’s Block or International Students’ Hostel.

**Registration fee:**

<table>
<thead>
<tr>
<th>Category of Participants</th>
<th>Local participants (with working lunch)</th>
<th>Residential participants (with accommodation, breakfast, lunch &amp; dinner)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty</td>
<td>Rs.600</td>
<td>Rs. 1200</td>
</tr>
<tr>
<td>Students and Research Scholars</td>
<td>Rs.300</td>
<td>Rs. 600</td>
</tr>
</tbody>
</table>

**Note:** Registration fee for Faculty and Students of SC/ST category is half of the amounts mentioned above as applicable.

**Bank Details:**
Registration fee may be sent in the form of a DD or remitted through On-line / NEFT to the Bank Account given below.

<table>
<thead>
<tr>
<th>Account Name</th>
<th>DIRECTOR, NIT WARANGAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Account Number</td>
<td>52109375198</td>
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<tr>
<td>Bank</td>
<td>State Bank of Hyderabad</td>
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<tr>
<td>Branch</td>
<td>REC Warangal (NIT Campus)</td>
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<td>Branch Code</td>
<td>20149</td>
</tr>
<tr>
<td>IFSC code</td>
<td>SBIN0020149</td>
</tr>
</tbody>
</table>

**Brief profile of the Department of Electrical Engineering:**
The Department of Electrical Engineering was established as one of the major departments of NITW, in the year 1959. The Department is actively engaged in teaching and research in diverse fields of Electrical Engineering. It offers B.Tech in Electrical & Electronics Engineering, M.Tech program in Power Electronics & Drives and Power Systems and Ph.D program. Broad areas of expertise of the department include Design and development of Smart Grid/ Microgrid systems, Control and integration of Renewable Energy Sources, State Estimation and Real Time Control of Power Systems, AI Applications in Power Systems, Power System Deregulation, Power System Transients, Power Quality, Application of Power Electronics to Power Quality Improvement and Industrial Drives, DSP controlled Drives, Simulation of Power Electronic Converters and Drives Systems and Control of Special Machines. The Department has strong Industry interaction and is involved in various Research & Consultancy projects in coordination with industry, Governments of India, Telangana & Andhra Pradesh. The department has an MOU with Central Power Research Institute (CPRI) to carry out collaborative projects.

**About NIT Warangal:**
NIT Warangal, formerly known as Regional Engineering College was established in 1959. Over the years it has developed into a premier institute of higher learning and is ranked among the top technical education institutions in India. There are 14 Departments offering eight undergraduate and 31 post-graduate programmes besides doctoral programmes. About 5000 students across the country and about 500 international students study on the campus. It is a fully residential campus sprawling over 250 acres with excellent infrastructure in the form of state of the art library, seminar halls, guest houses and laboratories.

**Teaching-Learning Centre of NIT Warangal:**
The Teaching-Learning Centre (TLC) is established at NIT Warangal with grants from the MHRD, GOI under the scheme, ‘Pandit Madan Mohan Malaviya National Mission on Teachers and Teaching’ (PMMMNMTT). Many senior and young faculty members across various departments of the Institute are associated with this center as members of the Core-Team.

**About Warangal:**
Warangal is the second largest city of the new state of Telangana. It is situated at a distance of 140 km from the state capital Hyderabad (Nearest Airport). It is well connected by Rail (Kazipet Junction is two km away and Warangal Station is 12 km away) and by Road (NH 202). Warangal is renowned for its rich historical and cultural heritage. It was the seat of erstwhile Kakatiya dynasty. It is a seat of tourist attractions with a number of historical monuments like Thousand Pillars Temple, Warangal Fort, Bhadrakali Temple, Ramappa Temple and Laknavaram Lake located in a radius of 30 kms.

**For any queries regarding this workshop, please contact the Coordinators.**

**Dr. M. Sailaja Kumari,** Associate Professor, Department of Electrical Engineering, National Institute of Technology, Warangal TELANGANA-506001 Email: sailaja_matam@yahoo.com Ph.No.: +91-9849034581, 8332969286

**Prof. A. Ramachandraiah** Coordinator, Teaching Learning Centre (TLC) NIT Warangal, Warangal -506004, Telangana State, India. Phone: 0870-2462866(O) Mobile: 8332969704 Email: mtlc.nitw@nitw.ac.in
A five Days Workshop on
Effective Teaching and Learning of
Artificial Intelligence Techniques for Smart Grid Applications
3rd – 7th April 2018
Organized by
Department of Electrical Engineering, NIT Warangal
in association with Teaching - Learning Centre
Sponsored by MHRD, Govt. of India under PMMMNMTT Scheme

REGISTRATION FORM

Name: ____________________________________________________

Date of Birth: ____________________________________________

Place of Birth: Village/Town/City: _________________________
District ____________________ State: _____________________

Gender (Put a √ Mark):  [ ] Male [ ] Female

Category (Tick as applicable): Open / OBC / SC / ST / PWD

Qualification: ____________________________________________

Designation: ____________________________________________

Organization: ____________________________________________

No. of Years of Teaching Experience: ________________________

Address for Correspondence : ________________________________________________

Mobile(s): __________________________________________________________________

Email(s) __________________________________________________________________

Details of Remitting Registration Fee: (i) Amount in Rs. ____________________________
(ii) Name of the Bank Through which Remitted/DD Taken: _______________________
(iii) On-line Transaction No./ DD No: ____________________ (iv) Date:_____________

Accommodation (Put a √ Mark) :  [ ] Required [ ] Not Required

Declaration by the Applicant
If selected, I agree to abide by the rules and regulations of the workshop/ training programme and shall attend all the sessions.

Date: ____________________________ Signature of the Applicant

Recommended and Forwarded

Office Seal

Signature of the Head of the Department/ Institution