

## REPORT OF THE ONE-DAY SEMINAR

ORGANISED BY PONDICHERRY STATE CENTRE, PUDUCHERRY

Name of Centre/Overseas Chapter:	Pondicherry State Centre, Puducherry		
Title of Activity:	<i>One Day Seminar on “Artificial Intelligence (AI) and Machine Learning (ML) applications in Mechanical Engineering”</i>		
Activity under Divisional Board	Mechanical Engineering Division Board , IEI		
Date	01.08.2025	Venue	Seminar Hall, Mechanical Engineering Dept., Puducherry Technological University

# INVITATION



**The Institution of Engineers (India)**  
Puducherry State Centre  
*in association with*  
**PUDUCHERRY TECHNOLOGICAL UNIVERSITY**  
**DEPARTMENT OF MECHANICAL ENGINEERING**

*invite for the One-day Seminar*  
*on*  
**“ ARTIFICIAL INTELLIGENCE (AI) AND MACHINE LEARNING (ML) APPLICATIONS IN MECHANICAL ENGINEERING “**

Under the Aegis of Mechanical Engineering Division Board  
**on Friday, 01<sup>st</sup> August 2025 at 09:30 a.m.**  
**Venue:** Seminar Hall, Department of Mechanical Engineering, PTU

**Prof. S. Mohan**  
VICE-CHANCELLOR, PTU  
*will preside over the function*

**Er. K. Soundararajan, FIE**  
HONORARY SECRETARY  
The Institution of Engineers (India)  
Puducherry State Centre, Puducherry

**Dr. S.Thirougnaname, FIE**  
CHAIRMAN  
The Institution of Engineers (India)  
Puducherry State Centre, Puducherry

*will be the Guests of Honor and offer the felicitation address*

**Dr. M. Pugazhvadivu**  
Professor and Head  
Department of Mechanical Engineering, PTU  
*will welcome the gathering*

*All are Invited...*

# Program Schedule

 <p><b>The Institution of Engineers (India)</b> Puducherry State Centre</p> <p><i>in association with</i></p> <p><b>PUDUCHERRY TECHNOLOGICAL UNIVERSITY</b> <b>DEPARTMENT OF MECHANICAL ENGINEERING</b></p> <p><i>One-day Seminar</i></p> <p><b>"ARTIFICIAL INTELLIGENCE (AI) AND MACHINE LEARNING (ML) APPLICATIONS IN MECHANICAL ENGINEERING"</b></p> <p><i>on</i></p> <p><b>on Friday, 01<sup>st</sup> August 2025 at 09:30 a.m.</b></p> <p><b>Venue:</b> Seminar Hall, Department of Mechanical Engineering, PTU</p> <p><b><u>PROGRAMME SCHEDULE</u></b></p>	
<b>Inaugural Session</b>	
9.30 a.m.	Invocation
9.35 a.m.	Lighting Kuthuvilaku
9.40 a.m. to 9.45 a.m.	Welcome address: Dr. M. Pugazhvadivu, HoD, MED, PTU
9.45 a.m. to 9.50 a.m.	Honoring Chief Guest
9.50 a.m. to 10.10 a.m.	Felicitatation address: Er. K. Soundararajan, FIE, Honorary Secretatry, IE(I), PSC Dr. S. Thirougnaname, FIE, Chairman, IE(I), PSC
10.10 a.m. to 10.25 a.m.	Presidential Address: Prof. S. Mohan, Vice-Chancellor, PTU
10.25 a.m. to 10.30 a.m.	Word of thanks: Dr. B. Prabu, Prof., MED, PTU
10.30 a.m. to 10.45 a.m.	Tea Break

 <p><b>The Institution of Engineers (India)</b> Puducherry State Centre</p> <p><i>in association with</i></p> <p><b>PUDUCHERRY TECHNOLOGICAL UNIVERSITY</b> <b>DEPARTMENT OF MECHANICAL ENGINEERING</b></p> <p><i>One-day Seminar</i></p> <p><b>"ARTIFICIAL INTELLIGENCE (AI) AND MACHINE LEARNING (ML) APPLICATIONS IN MECHANICAL ENGINEERING"</b></p> <p><b><u>PROGRAMME SCHEDULE</u></b></p>	
<b>Session 1</b>	
10.45 a.m. to 12.00 p.m.	Topic : Introduction to Machine Learning Models Speaker : Dr. G Muthukumar, Project Director, IMECONSYS PRIVATE LIMITED, Puducherry.
12.00 p.m. to 01.15 p.m.	Topic : Physics Informed Neural Network Speaker : Dr. Pugazhenthil Thananjayan, Senior Design Engineer, IMECONSYS PRIVATE LIMITED, Puducherry.
01.15 p.m. to 02.00 p.m.	Lunch Break
<b>Session 2</b>	
02.00 p.m. to 03.00 p.m.	Topic : Interpretable Self-organising Map: An ANN-inspired visualisation technique Speaker : Dr. Deepanshu, Senior Project Officer, Dept. of Engineering Design, IIT Madras.
03.00 p.m. to 04.00 p.m.	Topic : Machine Learning Gaming (MLG): A Hands-on Session Speaker : Dr. S.Muthukumar, Professor & Head, Dept. of Metallurgical and Material's engineering, NIT, Trichy.
<b>Valedictory Function</b>	
Welcome address : Dr. M. Pugazhvadivu, HoD, MED, PTU	
Felicitatation address : Er. K. Soundararajan, FIE, Honorary Secretatry, IE(I), PSC Dr. S. Thirougnaname, FIE, Chairman, IE(I), PSC	
04.00 p.m. to 04.30 p.m.	
Feedback from audience	
Certificate Distribution	
Word of thanks : Dr. B. Prabu, Prof., MED, PTU	
****National Anthem****	



**Photo of Inaugural Session with Dr. S. Thirougnaname, Chairman, IEI, PSC,  
&  
Er. K. Soundararajan, Honorary Secretary, IEI, PSC**



Presidential address by Honorable Vice chancellor Dr S.Mohan, Puducherry Technological University and Dr. S. Thirougnaname, Chairman, IEIPSC and Er. K. Soundararajan, Hon. Secretary, IEIPSC are also present.

**Photo of Inaugural Session with banner of IEI**



**Photo of Participants**

**Photo of Technical Session**

**Photos of Technical Session**



**Session 1: Dr G Muthukumar**, Project Director, Imeconsys Private limited, Puducherry presented introduction to different Machine Learning Models with its practical applications.



**Session 2: Dr Pugazhenth**i Thananjayan, Senior Design Engineer, Imeconsys Private limited, Puducherry, discussed about Physics Informed Neural Network.



**Session 3: Dr Deepanshu**, Senior Project Officer, Dept. of Engineering Design, IIT Madras discussed about the An ANN-inspired visualization technique.



**Session 3: Dr S. Muthukumar**, Professor & Head, Dept. of Metallurgical and Materials engineering, NIT, Trichy contacting hands on experience session to participants about Machine Learning through gaming.

## Report of One-Day Seminar/Workshop

### Brief Details about the Programme:

A One Day Seminar on “*Artificial Intelligence (AI) and Machine Learning (ML) applications in Mechanical Engineering*” was organized by the **IE(I) Puducherry State Centre**, Puducherry under the aegis of **Mechanical Engineering Division Board**, was held on 01.08.2025 at the seminar hall of Mechanical Engineering Dept, Puducherry technological University, Puducherry show-casing a blend of academic insight and industrial expertise about the application of AI/ML in the Mechanical Engineering field. An inaugural session, followed by four expert lectures, was conducted. The seminar was planned in such a way that the forenoon session consisted of two expert lectures, and the afternoon session comprised two additional sessions.

The seminar commenced at 09.30 a.m. with a brief invocation, setting a respectful tone for the day, followed by a welcome address by Dr.M.Pughazvadivu, HoD/Mechanical Engineering, outlining the seminar objectives and the importance of AI/ML tools applications in mechanical engineering, and introducing the guest speakers to the audience. The event was followed by a felicitation address of **Dr. S. Thirougnaname**, Chairman, IEI, PSC, and **Er. K. Soundararajan**, Hon. Secretary, IEI, PSC. In their felicitation address, they highlighted the significance of technological innovation and leadership that an engineer should possess in their career. The importance of conducting this seminar and its relevance were addressed.

The presidential message was given by **Dr. S.Mohan, Vice Chancellor, PTU**, emphasizing the necessity of bridging theoretical research with practical applications.

In the first session, the expert lecture was delivered by **Dr G. Muthukumaran**, Project Director, IMECONSYS Private Limited, Puducherry, with a doctorate from IIT Madras, introducing the audience to different types of Machine Learning Models and their applications in Mechanical Engineering.

The second expert lecture was presented by **Dr Pugazhenthii Thananjayan**, Senior Design Engineer, IMECONSYS Private Limited, Puducherry, who provided insights into algorithms of machine learning and explained its application with Python coding, demonstrated with simple problems.

In the third session, **Dr Deepanshu**, Senior Project Officer, Dept. of Engineering Design, IIT Madras, presented the expert lecture about the modification of ANN for self-organizing itself as a learning tool, and it can be adopted to solve any mechanical engineering problems.

Then the final expert lecture was given by **Dr. S.Muthukumaran**, Professor & Head, Dept. of Metallurgical and Materials Engineering, NIT, Trichy. In his presentation, he demonstrated, practically, the development of an ML tool through gaming in a simple and elegant way.

The seminar was concluded with certificate distribution and a vote of thanks by Honorary Secretary **Er. K. Soundararajan**, followed by the National Anthem, leaving the participants inspired and equipped with new knowledge to drive future innovations.

At the end of this one-day seminar on AI/ML applications in Mechanical Engineering, students gained a comprehensive understanding of the critical role these innovative technologies play in future industries in India. The seminar covered the fundamentals of AI / ML tool, as well as the practical applications and their limitations. Through real-world case studies and interactive discussions, participants explored the practical applications of these tools in various industrial and academic sectors, learning how these technologies are integrated into existing infrastructure to support the futuristic economic development.

A key outcome of the seminar was that students were exposed to the latest advancements, future trends, and tools that are increasingly being applied across many domains of mechanical engineering, transforming how systems are designed, analysed, monitored, and optimized. The rapid evolution of Artificial Intelligence (AI) and Machine Learning (ML) is revolutionizing traditional mechanical engineering practices by introducing data-driven approaches to design, analysis, and decision-making. These technologies enable engineers to develop intelligent systems that learn from data, adapt to changing conditions, and optimize performance in real time.

### Details of the Sessions:

<b>Day-1(Forenoon)</b> <b>Inaugural Session</b> <b>Inaugural programme</b> <b>Technical Session I</b> <b>Two invited lectures</b>	<ol style="list-style-type: none"><li>1. <b>Lecture by: Dr G Muthukumaran,</b> Project Director, Imeconsys Private limited, Puducherry. <b>Topic :</b> Introduction to Machine Learning Models</li><li>2. <b>Lecture by: Dr Pugazhenthii Thananjayan,</b> Senior Design Engineer Imeconsys Private limited, Puducherry. <b>Topic :</b> Physics Informed Neural Network</li></ol>
<b>Day-1(Afternoon)</b> <b>Technical Session II</b> <b>Three invited lectures</b>	<ol style="list-style-type: none"><li>3. <b>Lecture by : Dr Deepanshu,</b> Senior Project Officer, Dept. of Engineering Design, IIT Madras. <b>Topic:</b> Interpretable Self-organising Map: An ANN-inspired visualization technique</li><li>4. <b>Lecture by : Dr. S.Muthukumaran,</b> Professor &amp; Head, Dept. of Metallurgical and Material's engineering, NIT, Trichy. <b>Topic:</b> Machine Learning Gaming (MLG): A Hands-on Session</li></ol>