Outlook

MITS Communication/Report on PDP/IQAC/24.02.2025-01.03.2025.

From Vice Principal Administration <viceprincipaladministration@mits.ac.in>
Date Sat 15-03-2025 12:17

A Report on

Six-day Professional Development Programme (PDP) on

"Augmented Reality & Virtual Reality"

Organized by

Internal Quality Assurance Cell (IQAC)

in association with NITTTR, Chennai

from 24.02.2025 to 01.03.2025

Report Submitted by: Mrs. Prudhivi Anuradha, Assistant Professor, Dept of CSE-Data Science and Document Manager, IQAC.
Resource Person Details:Prof. P. Malliga, Professor & Head, Department of CSE, NITTTR Chennai.
Venue : East Block Scaleup Classroom
Participants: 40 Faculty Members
Timings: 9:30 AM To 4:30 PM
Mode of Conduct: Offline
Report received on 13.03.2025.

Six-Day Professional Development Programme (PDP) on “Augmented Reality & Virtual Reality" for the faculty members was conducted from 24th February 2025 to 1st March 2025 in the East Block Scale-up classroom. Forty faculty members from various departments attended the PDP.

The objectives of this program was to enable participants to:

- Understand the Fundamentals of AR & VR
- Set Up and Utilize Unity and Vuforia for AR/VR Development
- Develop AR Applications Using Vuforia in Unity
- Design, Build, and Deploy AR/VR Projects

The Course Coordinator Prof. P. Malliga , the Resource Persons Mr. Shiva Kumar Reddy M and Er. Prawin Shankar from NITTTR, Chennai handled the sessions. The program commenced with an inauguration session on 24th February 2025. Mrs. P. Anuradha, IQAC Member welcomed the gathering. Dr. P. Ramanathan, Vice Principal (Academics) delivered the presidential address. Dr. K. Sathesh, IQAC Coordinator introduced Prof. P. Malliga and Er. Prawin Shankar LB. Prof. P. Malliga, Professor and Head, Department of CSE from NITTTR, Chennai described the importance of this PDP.

Day 1: 24.02.2025, Monday

Forenoon Session:

The first day of the Professional Development Programme on Augmented Reality & Virtual Reality began with an insightful forenoon session by Prof. P. Malliga, Professor & Head, Department of CSE, NITTTR Chennai. The session covered the fundamentals of AR & VR, including key technologies like Snapchat filters, Google AR Maps, Microsoft HoloLens, and Apple AR Glasses. Prof. P. Malliga explained how Extended Reality (XR) serves as an umbrella for AR, VR and MR, along with research areas in Computer Vision and Graphics. Participants explored various applications, such as Google Arts & Culture, 360o videos, and AR in military and healthcare. The session also delved into the Reality-Virtuality (RV) Continuum, differentiating AR from VR, and introduced development tools like Unity and Unreal Engine. Demonstrations showcased AR applications in military simulations, AR cards, and obstetrics.

Afternoon Session:

The afternoon session was conducted by Er. Prawin Shankar L B, XR Lab Instructor & Production Assistant, focusing on the installation and configuration of Unity for AR and VR development. Participants were guided through the step-by-step process of setting up Unity, understanding its interface, and configuring the necessary tools and plugins for immersive technology development.

Day 2: 25.02.2025, Tuesday

Forenoon Session:

The Forenoon session was conducted by Dr. P. Malliga, covering the AR & VR Hardware and Software Ecosystem. The discussion included various types of AR, the hardware components enabling mobile AR, and the role of sensors in smartphones for AR applications. Participants were introduced to popular AR development tools such as Spark AR and Reality Kit, along with the essential programming skills required, including JavaScript and C#. Demo applications like India Sky Map and Photomath showcased real-world applications of AR technology. Additionally, the session highlighted the significance of Digital Twin technology in AR & VR, enabling immersive simulations and real-time data interaction.

Afternoon Session:

The Afternoon Session, led by Dr. P. Malliga, focused on the Vuforia SDK for AR applications, covering image recognition, object tracking, and integration with Unity. Participants learned about marker-based and markerless AR and its applications in education, healthcare, and industry. The session also included a hands-on demo, where participants wore AR glasses and experienced a VR headset, allowing them to explore immersive environments and understand the differences between AR and VR. This practical exposure helped them grasp the real-world potential of these technologies.

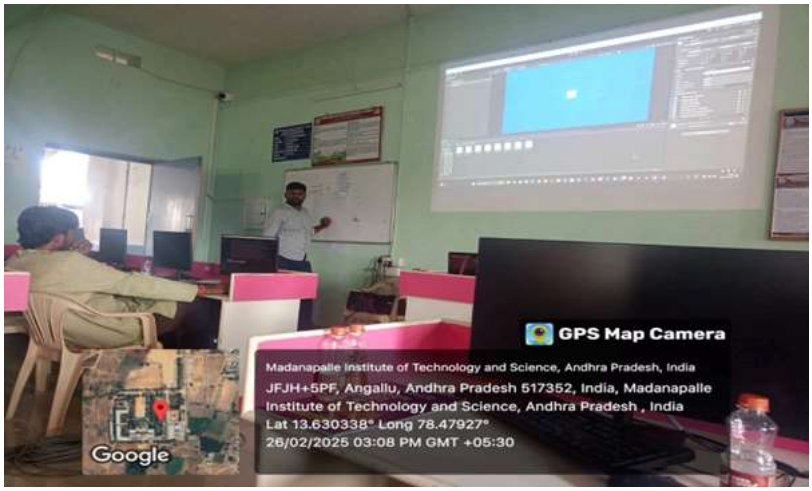
Day 3: 26.02.2025, Wednesday

Forenoon Session:

The forenoon session was led by Mr. Shivakumar Reddy M, Game Developer, covering the Basics of Unity, including its interface, tools, and key features. Participants explored 2D project development in Unity, focusing on scene setup, object manipulation, and scripting. The session provided hands-on experience in game development and interactive content creation. Practical demonstrations helped them understand Unity's capabilities, while discussions covered physics, animations, and UI design. Engaging in real-world applications, participants gained valuable insights.

Afternoon Session:

The afternoon session was led by Mr. Shivakumar Reddy M, Game Developer, focusing on working on a 3D project in Unity. Participants explored 3D scene setup, object manipulation, lighting, materials, and physics interactions, gaining hands-on experience in creating immersive 3D environments and animations. Practical demonstrations covered camera controls, terrain building, and character movement, enhancing their understanding of Unity's 3D capabilities. The session also introduced useful resources like Mixamo (www.mixamo.com) for character animations and the Unity Asset Store (assetstore.com) for ready-to-use assets, along with best practices for optimizing 3D projects.



Day 4: 27.02.2025, Thursday

Forenoon Session:

The Forenoon Session was handled by Mr. Shivakumar Reddy M, Game Developer, focusing on Marker-Based Augmented Reality (AR). Participants learned about how AR applications recognize and track images or objects using markers. The session covered the role of image targets, tracking algorithms, and integration with Unity. Practical demonstrations helped participants understand how to create and implement marker-based AR experiences. The resource person also discussed real-world applications in education, retail, and interactive media.

Afternoon Session:

The Afternoon Session was led by Mr. Shivakumar Reddy M, focusing on creating markerless AR experiences, UI design in Unity, and object tracking using Vuforia. Participants learned how markerless AR allows virtual objects to be placed in real-world environments without predefined markers. The session covered UI development in Unity, including buttons, panels, and user interactions. Additionally, the resource person explained object tracking using Vuforia, showcasing how AR applications recognize and interact with real-world objects. Hands-on demonstrations helped participants gain practical experience in developing immersive AR applications.

Day 5: 28.02.2025, Friday
Forenoon Session:

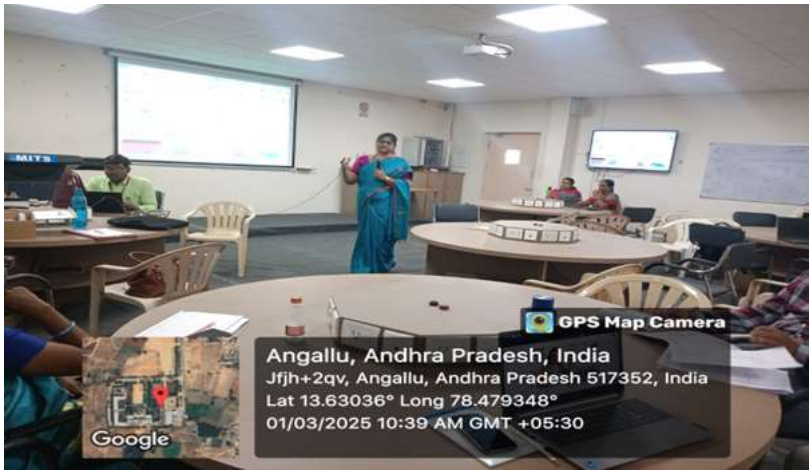
The Forenoon Session, conducted by Dr. P. Malliga, focused on the fundamentals of VR development. The session covered key concepts of Virtual Reality, its applications, and essential components such as headsets, controllers, and sensors. Participants explored VR environments, interaction techniques, and development tools like Unity and Unreal Engine. Dr. Malliga emphasized user-friendly VR design and its real-world applications in education, healthcare, and industry.

Afternoon Session:

The Afternoon Session led by Dr. P. Malliga, focused on creating virtual tours. The session covered the fundamentals of designing interactive and immersive virtual experiences using 360-degree images and videos. Participants explored various tools and techniques to develop engaging virtual environments for applications in education, tourism, and real estate. Dr. Malliga provided hands-on demonstrations, guiding participants through the process of building customized virtual tours. The session concluded with discussions on best practices and future possibilities in virtual tour development.

Day 6: 01.03.2025, Saturday
Forenoon Session:

The Forenoon Session, conducted by Dr. P. Malliga, focused on the integration of AR, VR, and AI tools in the teaching-learning process. The session highlighted how immersive technologies can enhance education by providing interactive and engaging experiences. Participants were introduced to various tools, including Thinglink, CoSpaces.io, Google Earth VR, Google Tour Creator, and Metaverse Studio (https://studio.gometa.io). Hands-on demonstrations helped participants understand the applications of these tools in creating virtual classrooms, interactive lessons, and immersive learning experiences.



Afternoon Session:

The Afternoon Session marked the conclusion of the 6-day Professional Development Programme (PDP) with a Course Assessment and Valedictory Session. The valedictory session began with Dr. C. Yuvaraj, Principal of MITS, delivering the felicitation address, acknowledging the efforts of the organizing committee and the active participation of faculty members. Faculty members shared their experiences, highlighting the knowledge gained and the impact of the sessions. Resource persons also reflected on their engagement with the participants, sharing valuable insights. The event concluded with Dr. P. Ramanathan, Vice Principal (Academics), delivering the Vote of Thanks, expressing gratitude to the Management, Principal, Resource Persons, and participants for their contributions to the success of the PDP.

Outcomes of the Program:

The 6-day Professional Development Programme (PDP) enhanced participants understanding of AR and VR, provided hands-on experience with tools like Unity, Unreal Engine, Vuforia, Spark AR, and Thinglink. Faculty members explored AR/VR applications, virtual tours and

interactive content creation, gaining insights into integrating these technologies into the Teaching-Learning rocess. The program encouraged innovation, research, and collaboration, equipping participants with skills to develop immersive learning experiences.

With regards,

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