

B.N.M. Institute of Technology

An Autonomous Institution under VTU

Department of Artificial Intelligence and Machine Learning

COE: Center of Excellence in AR & VR Technology

Company Name: Galore Systems Pvt Ltd

SPOC Name: Kruthi P

Date of Establishment: 17/11/2025

Objectives of COE:

- Aims to establish a specialized platform for innovation, research, skill development, and industry collaboration in Augmented Reality (AR), Virtual Reality (VR), and Extended Reality (XR). Its key purposes are:
- To promote research and development of innovative AR/VR applications across education, healthcare, manufacturing, robotics, gaming, and other domains.
- To provide hands-on learning and practical training in AR, VR, and XR technologies.

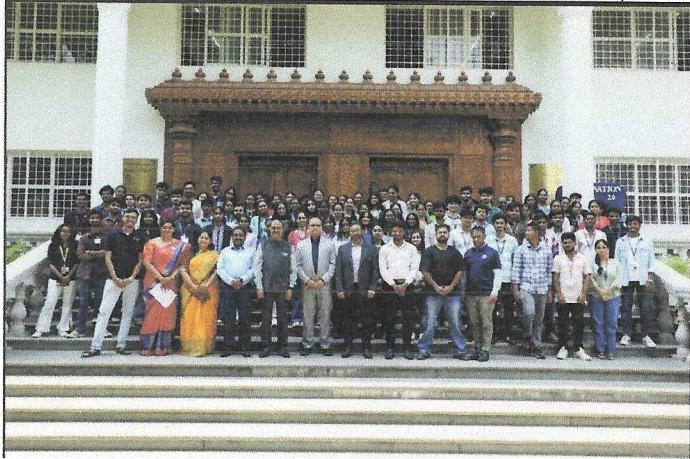
Activities planned and activities executed:

- Industry Visit to Galore Systems Pvt Ltd
- VIRTUOVATION 2.0 AR/VR Hackathon
- Student Outreach program

Outcomes achieved (student internships, projects, training programs, guest lectures, research, placements, etc.)

- The following activities have been done at **Galore Systems Pvt Ltd**

Sl. No.	Academic Year	Category	Number of Participants	Details	Date	Status
1	2025-26	Industry Visit to Galore Systems Pvt Ltd	34	Students Learnt • Virtual Reality (VR) and Augmented Reality (AR) • Robotics and collaborative automation • Motion capture and human movement analysis • AI-based conversational systems • Training simulations for industry and education	09/01/2026	Completed

						
2	2025-26	VIRTUOVATION 2.0 AR/VR Hackathon	Total of 26 Teams 98 students had registered from 19 different colleges	Hackathon was conducted on 3 different domains • Education • HealthCare • Entertainment Prize pool of Rs 105,000/-	23/03/2026 and 24/03/2026	Completed
						
3	2024-25	VIRTUOVATION AR/VR Hackathon	Total of 31 Teams 109 students had participated from 19 different colleges	Hackathon was conducted on 3 different domains • Education • HealthCare • Entertainment For a Prize pool of Rs 75000/-	28/03/2026 and 29/03/2026	Completed
						

4	2024-25	Student Outreach program	123	The Student Outreach Program was a meaningful and interactive event that brought together third-year engineering students and school children from BNM School, ranging from grades 6 to 12. As part of the initiative, third-year students had the opportunity to exhibit our academic projects and present them to the visiting students	31/07/2025	Completed
						

Achievements

Sl.No	Copyrights Filed Title	Date of Filing and Diary Number
1	BioSculpt-3D Web based 3D Visualization of Medical CT Scan with Tumor Quantification	14-3-2026 Diary Number: SW-11580/2026-CO
2	"HeliTwin3D: Real-time Digital twin of a Helicopter Fuel Injection System using Virtual Reality"	14-3-2026 Diary Number: SW-10615/2026-CO
3	"Q-Verse: Virtual Quantum representation using a real-time 3D Visualization System"	14-3-2026 Diary Number: SW-10607/2026-CO

Sl.No	Patent Applied Title	Status
1	MULTIMODAL VIRTUAL REALITY INTERACTION SYSTEM AND METHOD THEREOF	In Process
2	AI-Driven Virtual Reality Self-Defence Training System Using Pose Estimation and Motion Alignment	In Process

Sl.No	Conference Paper Published	Status
1	Roller Coaster Ride to Adventure Land: Real-Time Emotion Detection and Adaptive Ride Control using Virtual Reality	Paper Accepted and Presentation Done at ICNGSMCA-2026

Future action plan to effectively utilize the COE:

- To provide Project, internships and employment opportunities.
- To conduct Workshop on Cyber Security.
- To conduct Hands on Session on LLM Security

SPOC Signature

HoD-AIML

B.N.M. Institute of Technology

An Autonomous Institution under VTU

Department of Artificial Intelligence and Machine Learning

Report on Five Day FDP in AR & VR and its Applications

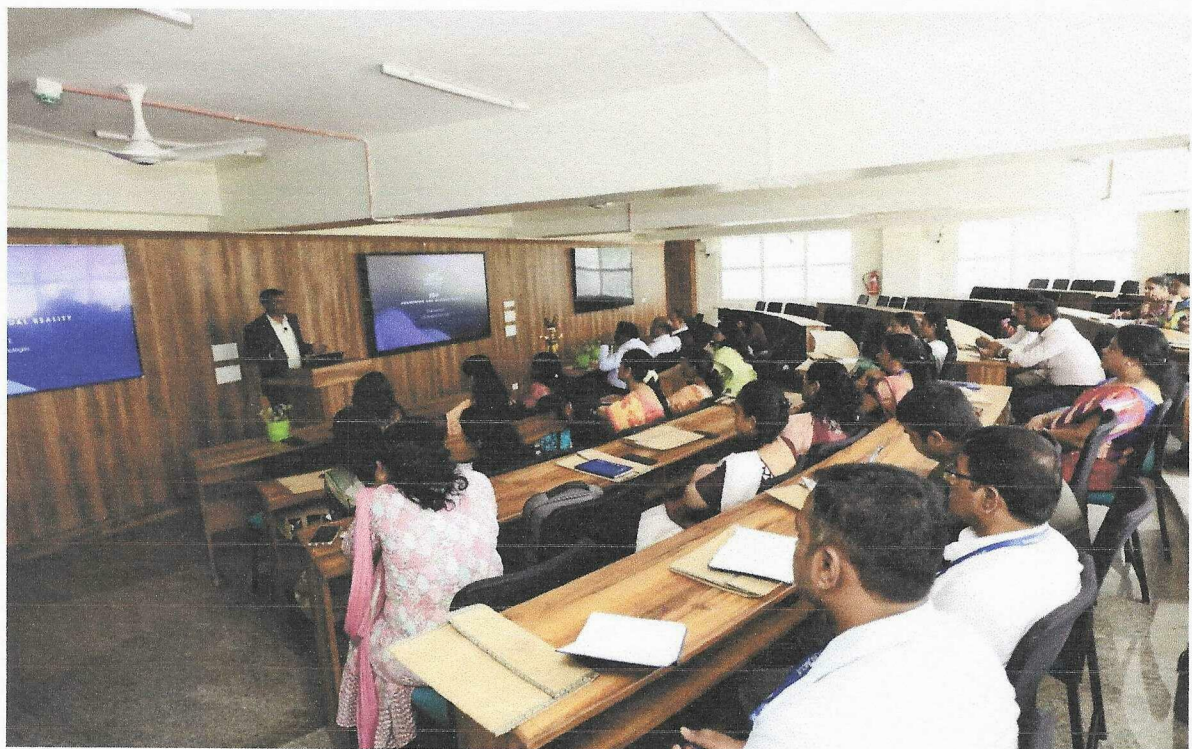
6th – 10th, November 2023

FDP was conducted on AR & VR and its applications in BNMIT, centre of excellence, ARVR technologies from 6th to 10th November 2023. This was a five-day Faculty Development Program where various topics related to designing ARVR models were discussed in detail by eminent resource persons in a beneficial academic environment.

The FDP started on 6th November, 2023 with Lighting the lamp, seeking the blessings of the almighty and welcoming the dignitaries.

Day 1 started with registration and inauguration by the dignitaries and chief guest. The session started with introduction to the concepts in Augmented Reality and Virtual Reality by Mr. Chakravarthy Elumalai. We were educated about the keywords of ARVR, the requirement to design augmented reality and virtual reality models and how these concepts could help educational institutions and faculties to provide effective learning to the students. Post lunch the session was conducted in the Center of Excellence, ARVR Technologies. In the lab, the resource persons introduced us to the ARVR devices. Through the devices like headset, controllers, all the participants could experience playing a game and travelling to a tourist spot standing in one place and selecting their desired options through the consoles. Each of us experienced how realistic we could design a scenario or a model that would help in lots of applications.

Day 2 started off with a brief introduction to the life cycle of designing an application in ARVR followed by a video showing the amount of imagination and modelling required to design a model in 3 dimensions. In the later sessions of the day participants were introduced to a software called as blender. In blender designing a chair as a 3D model was demonstrated and later participants also tried to design models like a chair, table, glass or a bottle. This hands-on session made us understand how to imagine the model from all dimensions and create it as it is with all specifications.



B.N.M. Institute of Technology

An Autonomous Institution under VTU

Department of Artificial Intelligence and Machine Learning

Report on Five Day FDP in AR & VR and its Applications

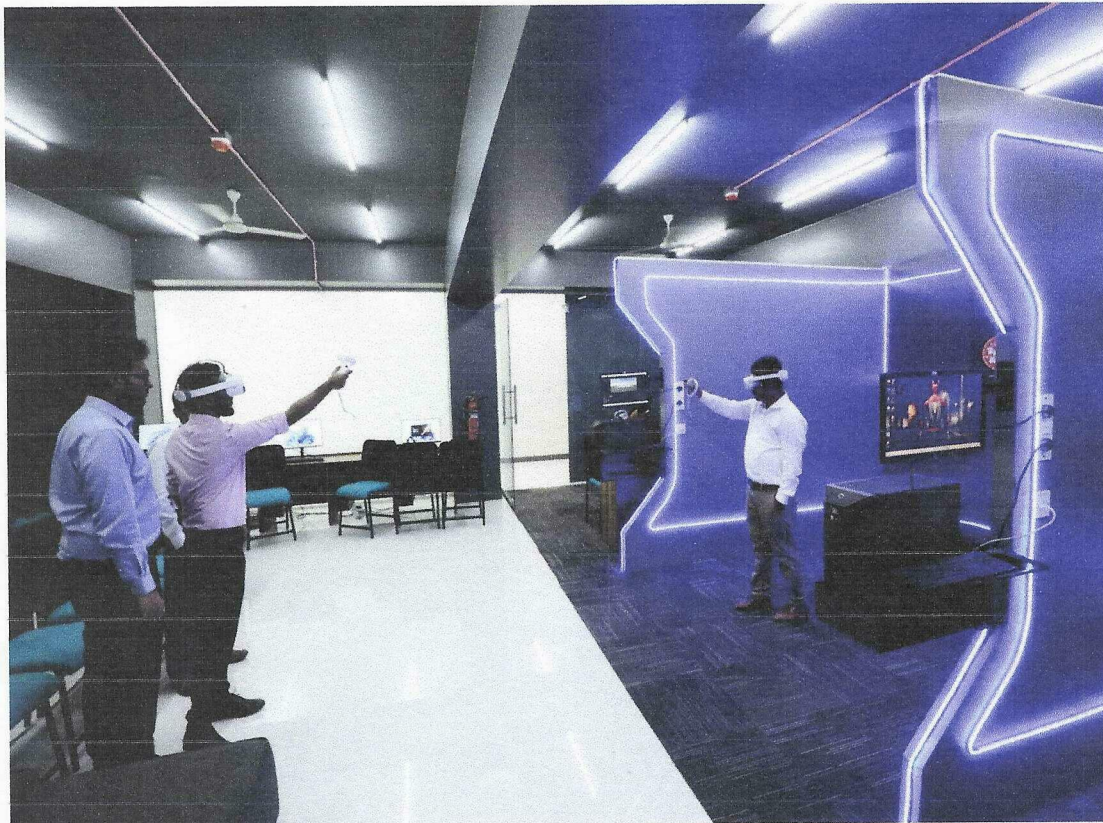
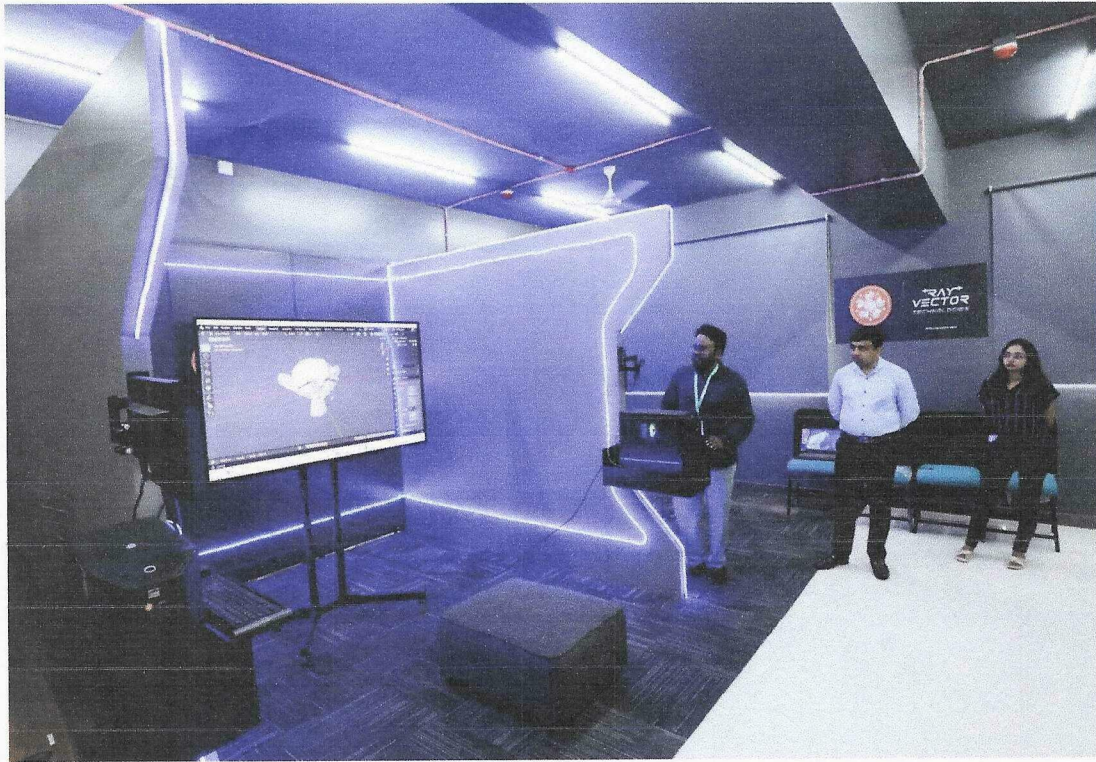
6th – 10th, November 2023

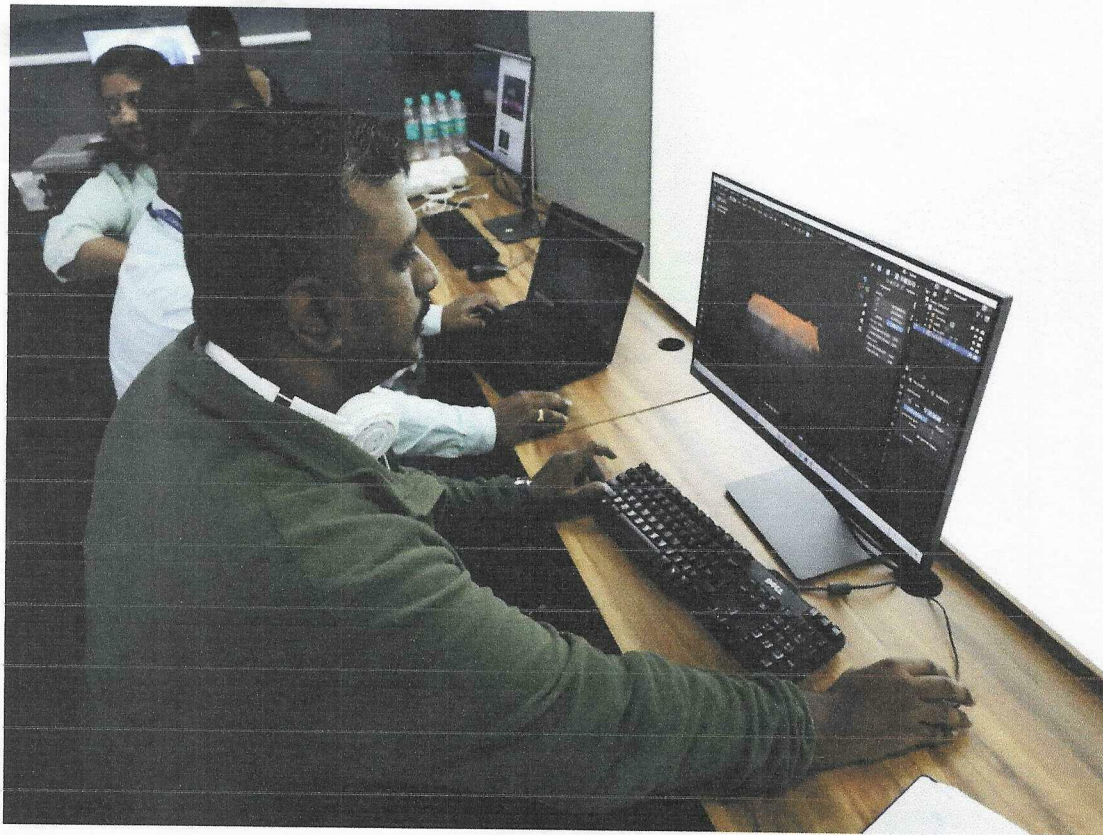
FDP was conducted on AR & VR and its applications in BNMIT, centre of excellence, ARVR technologies from 6th to 10th November 2023. This was a five-day Faculty Development Program where various topics related to designing ARVR models were discussed in detail by eminent resource persons in a beneficial academic environment.

The FDP started on 6th November, 2023 with Lighting the lamp, seeking the blessings of the almighty and welcoming the dignitaries.

Day 1 started with registration and inauguration by the dignitaries and chief guest. The session started with introduction to the concepts in Augmented Reality and Virtual Reality by Mr. Chakravarthy Elumalai. We were educated about the keywords of ARVR, the requirement to design augmented reality and virtual reality models and how these concepts could help educational institutions and faculties to provide effective learning to the students. Post lunch the session was conducted in the Center of Excellence, ARVR Technologies. In the lab, the resource persons introduced us to the ARVR devices. Through the devices like headset, controllers, all the participants could experience playing a game and travelling to a tourist spot standing in one place and selecting their desired options through the consoles. Each of us experienced how realistic we could design a scenario or a model that would help in lots of applications.

Day 2 started off with a brief introduction to the life cycle of designing an application in ARVR followed by a video showing the amount of imagination and modelling required to design a model in 3 dimensions. In the later sessions of the day participants were introduced to a software called as blender. In blender designing a chair as a 3D model was demonstrated and later participants also tried to design models like a chair, table, glass or a bottle. This hands-on session made us understand how to imagine the model from all dimensions and create it as it is with all specifications.





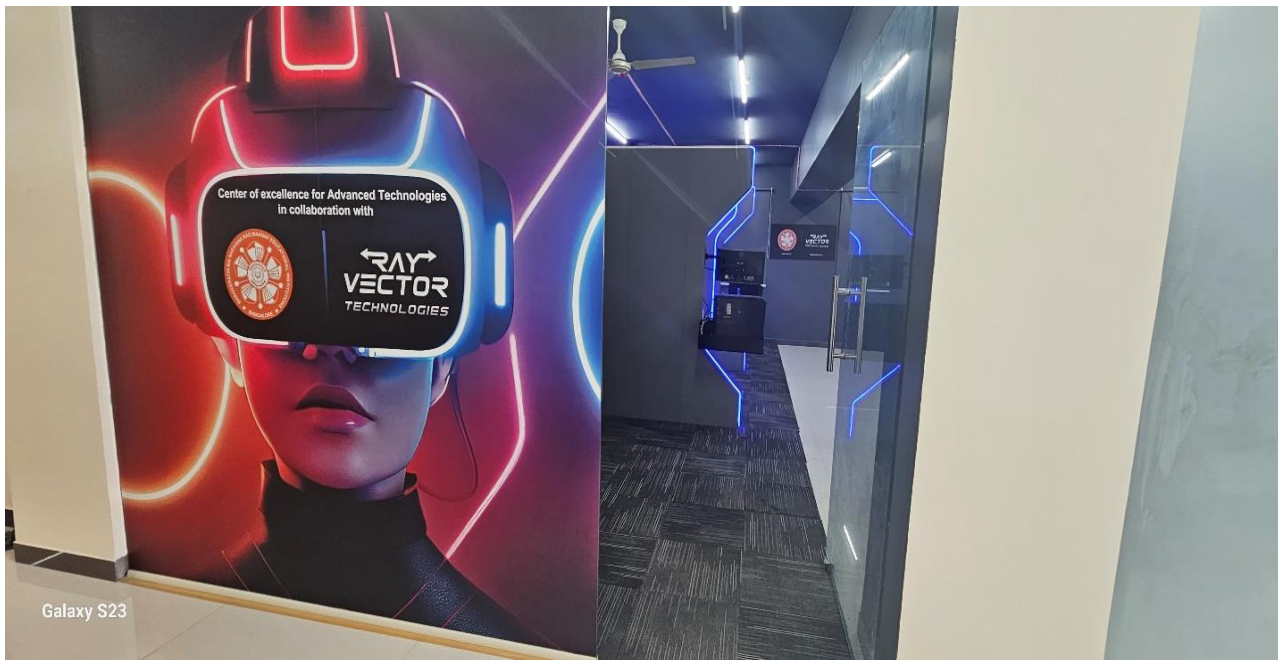
Deep

Sheela

B.N.M. Institute of Technology
An Autonomous Institution under VTU, Approved by AICTE

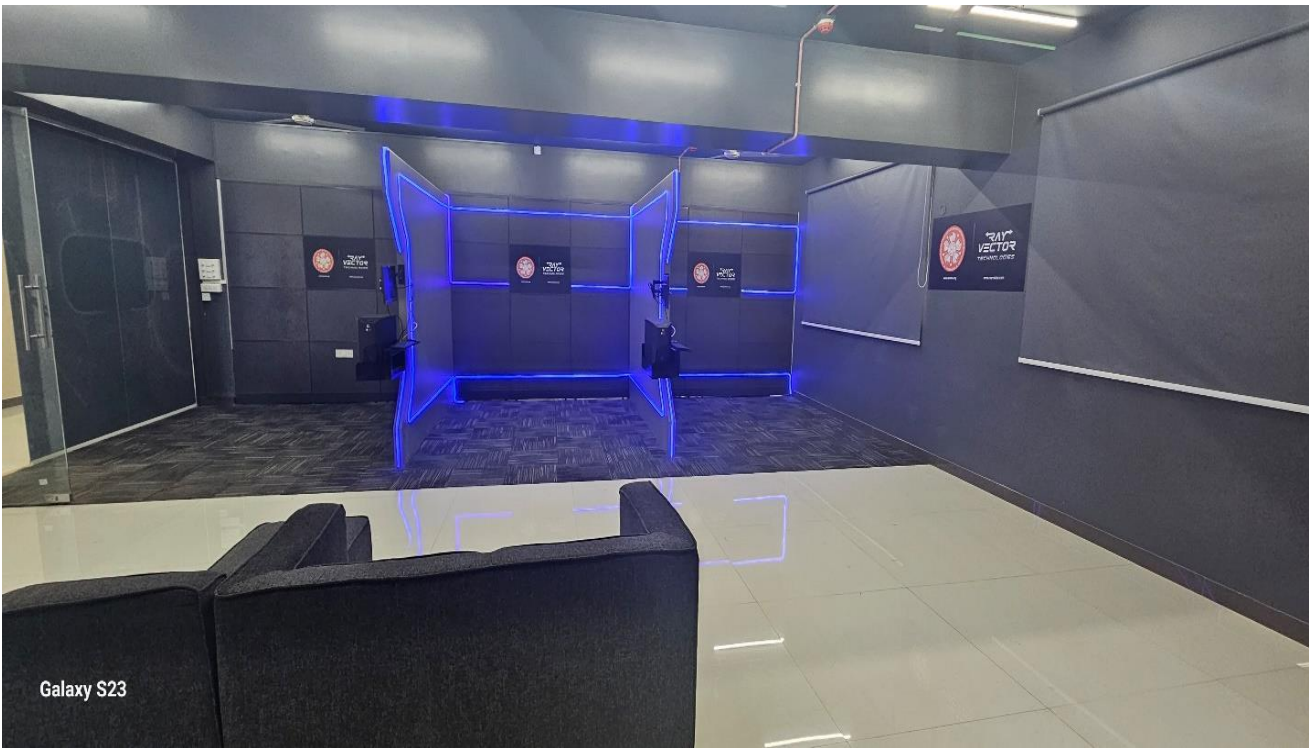
Augment Reality/Virtual Reality - Center of Excellence

Department of Artificial Intelligence and Machine learning, B N M institute of Technology has developed AR/VR Emerging Technology Center and Center of Excellence in association with RayVector Technologies PVT LTD, Bangalore. This promotes students to explore the research opportunities and real- world experience. This collaborative program provides students with the opportunity to shape the development of tech innovations and they get firsthand look at the process gaining valuable knowledge and experience that employers seek in future employees. This helps to equip our students with real-world skills in AI, AR/VR/XR data science, blockchain, design thinking, and other emerging tools and practices. This strategic relation shall help to improve the quality of curriculum, increase resources to students, and allow students to acquire both hard and soft skills that are highly sought after in the corporate world. Internship, research, student challenges, invited talks, and seminars are the most common examples for creating engagement from students to faculties. AR/VR course is added to our curriculum and the experience will be explored through this Center of Excellence.



The two projects done in collaboration with AR/VR Center of Excellence are:

- Fire Drill Procedure Simulator
- Plant Growth Simulator



MEMORANDUM OF UNDERSTANDING

This Memorandum of Understanding (hereinafter called as the 'MOU') is entered into on this the 23rd DAY of February.....Two Thousand and Twenty Two by and between

BNM INSTITUTE OF TECHNOLOGY, Post Box no. 7087, 12th Main, 27th Cross, BSK II Stage, Bangalore 560070, **THE FIRST PARTY** represented herein by its Name of Competent Authority / Representative

AND

RAYVECTOR TECHNOLOGIES PVT LTD, No. Address 18/1, 4th floor, Bull Temple road, Basavanagudi, Bangalore, Karnataka 560011, **THE SECOND PARTY** represented herein by its Name of Competent Authority / Representative

PURPOSE OF MOU

In particular, this MOU is intended to

1. **Promote BNMIT students explore the research opportunities and real-world experience.**
The collaborative program provides students with the opportunity to shape the development of tech innovations and they get a first-hand look at the process, gaining valuable knowledge and experience that employers seek in future employees.
2. **Develop emerging Technology Center and Center of Excellence (COE) at BNMIT to advance technology capabilities and equip students with real-world skills in AI, AR/VR/XR data science, blockchain, design thinking and other emerging tools and practices.**
3. **Develop strategic relationships that shall help to improve the quality of curriculum, increase resources to students, and allow students to acquire both hard and soft skills that are highly sought after in the corporate world. This can be through AR/VR labs, Experience centers, Creating VR/AR learning for complex contents.**
4. **Create engagement from graduate to post-graduate to faculty, and through all available mechanisms. Internships, research, student challenges, invited talks, symposia, continuing education, and seminars are the most common examples.**
5. **Develop collaborative research projects seminars, invited talks and training. Projects are chosen to have a strong alignment with long-term business objectives that have a clear path to value creation, as well as a clear technical hypothesis and scope of work that is well-suited for university research.**
6. **Enhance entrepreneurial mindsets among the students, organize various workshops on Entrepreneurship Development, and assist in startup ideas and placements.**

NOW THEREFORE, IN CONSIDERATION OF THE MUTUAL PROMISES SET FORTH IN THIS MOU, THE PARTIES HERETO AGREE AS FOLLOWS:

Clause 1

CO-OPERATION

- 1.1 Both parties are united by common interests and objectives, and they shall establish channels of communication and co-operation that will promote and advance their respective operations. The parties shall keep each other informed of potential opportunities and share all information that may be relevant to secure additional opportunities for one another.
- 1.2 The co-operation between First Party and Second Party will facilitate effective utilization of the intellectual capabilities of the Second Party providing significant inputs to them in developing suitable teaching/ training systems, keeping in mind the needs of the First Party.

Clause 2

SCOPE OF THE MOU

- 2.1 Both parties believe that close co-operation between the two would be a major benefit to the student community to enhance their skills and knowledge.
- 2.2 The Second Party will give valuable inputs to the First Party in teaching/ training methodology so that the students fit into the industrial scenario meaningfully.
- 2.3 The interaction between Industry and University will give an insight into the latest developments /requirements of the industries; the Second Party to permit the Faculty and Students of the First Party to visit its group companies and also involve in Industrial Training Programs for the First Party. The industrial training and exposure provided to students through this association will build confidence and prepare the students to have a smooth transition from academic to working career. The Second Party will provide its Labs/ Workshops/ Industrial Sites for the hands-on training of the learners enrolled with the First Party.
- 2.4 The Second Party will train the students of the First Party on the emerging technologies in order to bridge the gap in skill and make them ready for industry.
- 2.5 The Second Party will extend the necessary support to deliver guest lecturers to the students of the First Party on the technology trends and in house requirements.
- 2.6 The Second Party will actively engage to help the delivery of the training and placement of students of the First Party into internships/jobs.

Clause 3

VALIDITY

- 3.1 The validity of the agreement is one year from the date of agreement.
- 3.2 Both Parties may terminate this MOU upon 30 calendar days' notice in writing. In the event of Termination, both parties have to discharge their obligations.
- 3.3 Any dispute will be settled in the Indian Court only where Rayvector Technologies is situated.

AGREED:

For RAYVECTOR TECHNOLOGIES

Mr. Srikanth K Ayadhani
CEO, RayVector

For BNM Institute of Technology

Kishanthy G.
The Principal
BNM Institute of Technology
BNM Institute of Technology
P.B No.7087, 27th Cross, 12th Main
Banashankari II Stage
Bangalore - 560070

RAYVECTOR TECHNOLOGIES PVT LTD.	BNM Institute of Technology
Address : No. Address 18/1, 4th floor, Bull Temple road, Basavanagudi, Bangalore, Karnataka 560011	Address : Post Box no. 7087, 12 th Main, 27 th Cross, BSK II Stage, Bangalore 560070
Contact Details : 91-9845909314	Contact Details : 91-80-26711780
E-mails : srikanth@rayvector.com	E-mails : principal@bnmit.in
Web : www.rayvector.com	Web : www.bnmit.org

Witness 1

Signature : *T.S. Ramu*
Name : *Prof. T. S. Ramu Murthy*
B.E., M.Sc (Engg), M.I.E., M.I.S.T.E., M.I.E.E.E
Designation : Director
BNM Institute of Technology
P.B No.7087, 27th Cross, 12th Main
Affiliation : BSK II stage, Bangalore - 560070, INDIA

Witness 1

Signature : *[Signature]*
Name :
Designation : Additional Director
BNM Institute of Technology
27th Cross, 12th Main, Banashankari II Stage, Bangalore - 560070, INDIA

Witness 2:

Signature : *[Signature]*
Name : CHAKRAVARTHY ELUMALAI
Designation :
Affiliation :

Witness 2:

Signature : *[Signature]*
Name : Payal Sharma
Designation :
Affiliation :