

NATIONAL ENGINEERING COLLEGE, K.R.NAGAR, KOVILPATTI - 628 503
(An Autonomous Institution, Affiliated to Anna University Chennai)
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING & INFORMATION TECHNOLOGY
INNOVATIVE TEACHING METHODOLOGY
(Academic Year:2025-2026)

SUBJECT CODE & SUBJECT NAME	:	23CS55C / 23IT52C & Artificial Intelligence
TOPIC CONDUCTED ON	:	Typical Intelligent Agents and its Characteristics

ACTIVITY NAME:

ACTIVE LEARNING - DRAW AND LEARN USING CURIPOD

ACTIVITY DESCRIPTION:

In this subject, the characteristics of intelligent agents were discussed using Draw and Learn Activity using Curipod. Initially, a lecture was delivered regarding artificial intelligence, its future and design of agents with artificial intelligence. Each student was asked to draw an intelligent agent (that best describes its activity) and voting feedback was asked to rate the best drawing that describes an intelligent agent. The students actively participated in the drawing activity expressing their innovation and creativity and provided rating feedback of other students drawing. The students learnt the characteristics of intelligent agents which is not only mimicking a human activity but also beyond human intelligence.

ABOUT THE ACTIVE LEARNING TOOL:

Curipod is an AI-based educational platform that is used to deliver interactive lessons. It provides features to incorporate various elements such as polls, word clouds, drawings, and feedback into presentations. This makes learning more engaging with gamification to make students learn the lessons quickly and efficiently.

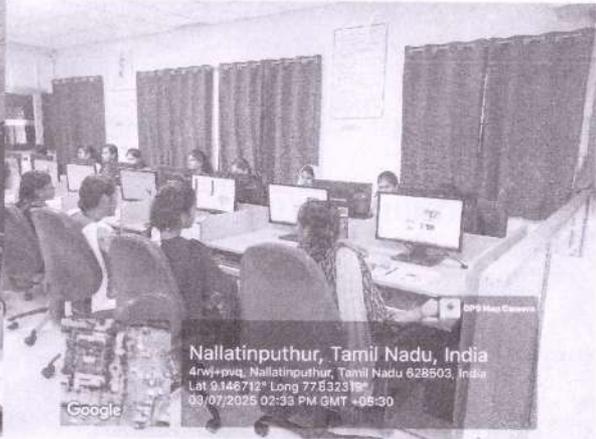
OUTCOMES:

1. Students learnt the characteristics of Intelligent Agent in an active manner
2. The activity helped students to understand the kind/nature of agents to be developed in the future.

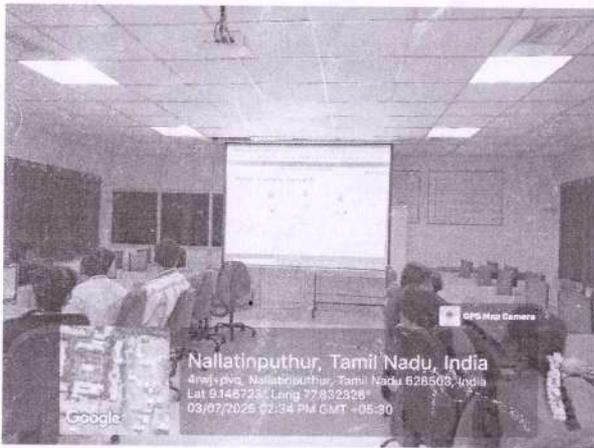
ACTIVITY SNAPSHOTS:



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 Lat 9.146735° Long 77.83228°
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Content Available At:

<https://curipod.com/bbc29f5e-28e9-413d-aa8e-7f1abb1fcca5/reports/4077cb83-abae-47bd-9332-bb58963d0ef3?tab=summary>

Course Instructors :- Dr. V. Gomathi, Prof & Head / CSE *v.l*
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 Ms. A. Lincy, AP/CSE *Lincy*
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SUBJECT CODE & SUBJECT NAME	:	23CS55C / 23IT52C & Artificial Intelligence
TOPIC CONDUCTED ON	:	AI based tools to automate tasks

ACTIVITY NAME: Industrial Capstone Micro Project

ACTIVITY DESCRIPTION:

The Industrial Capstone Micro Project activity enables students to apply Artificial Intelligence concepts to solve real-world industry-based problems. Each student team identifies a practical issue faced in domains such as environmental sustainability, healthcare monitoring, smart systems, automation, or data analytics provided by TCS. Based on the identified problem, teams design and develop AI-driven solutions using modern tools, frameworks, and platforms.

Students work collaboratively to define the problem statement, gather or simulate datasets, build AI models or intelligent agents, evaluate system performance, and present the final solution. The activity bridges theoretical learning with practical implementation, helping students gain hands-on experience aligned with real industrial expectations.

ABOUT THE ACTIVE LEARNING TOOL:

This activity incorporates active learning methodologies through project-based learning (PBL). Students actively engage with AI technologies, explore toolkits like LangChain, LlamaIndex, agent frameworks, vector databases, and build functional prototypes.

The active learning tool encourages:

- **Exploration:** Students experiment with AI models and frameworks.
- **Collaboration:** Team-oriented development of industry-focused solutions.
- **Critical Thinking:** Applying AI techniques to solve practical, measurable problems.
- **Creativity:** Designing innovative solutions using emerging technologies in Generative AI and intelligent agent development.

TOOLS USED:

Tool / Platform	Use / Purpose
LangChain	Builds LLM workflows, RAG pipelines, and agent-based systems.
LlamaIndex	Connects LLMs with data sources; creates indexes for efficient retrieval.
ChromaDB / FAISS	Vector databases for storing embeddings and performing similarity search.
SentenceTransformers	Generates text embeddings for document similarity and retrieval tasks.
Streamlit	Builds interactive web apps and user interfaces for AI applications.
Gradio	Creates quick chatbot and AI model demo interfaces.
Hugging Face	Provides pretrained models and APIs for NLP and embeddings.
Ollama / Mistral / LLaMA Models	Local LLMs used for text generation, summarization, and Q&A.
Python	Core backend development language for logic, processing, and integration.
Pandas	Handles datasets, CSV processing, and data analysis.
PyPDF2 / File Loaders	Extracts text/data from PDF, DOCX, CSV, and TXT files for RAG.
Google Generative AI SDK	Integrates with Google's generative AI models for text tasks.
Cosine Similarity & Text Cleaning Modules	Used for document similarity scoring and text preprocessing.
tqdm	Tracks progress during data processing and embedding generation.
Custom CSS	Enhances the styling and layout of Streamlit applications.

OUTCOMES:

Through this Industrial Micro Project, students gain the ability to apply Artificial Intelligence concepts to real-world problems and develop practical solutions using modern AI tools and frameworks. They enhance their problem-solving, analytical, and technical skills by building intelligent prototypes with platforms like LangChain, LlamaIndex, and Streamlit. The activity also strengthens teamwork, creativity, and professional communication, enabling students to gain hands-on, industry-oriented experience in AI application development.

*parameter
Measurable
outcomes*

ACTIVITY SNAPSHOTS:



Content Available At:

<https://youtu.be/AVpWs1H-rK0>

<https://youtu.be/GvqyAsD17qE>

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<i>Course</i> SUBJECT CODE & SUBJECT NAME	:	23CS55C / 23IT52C & Artificial Intelligence
TOPIC CONDUCTED ON	:	BFS, DFS, A* Algorithm, Local Beam Search etc.

ACTIVITY NAME:

SIMULATION AND ANALYSIS INTEGRATED LEARNING - OPTIMIZATION ALGORITHMS USING VLABS

ACTIVITY DESCRIPTION:

In this subject, the optimization technique Local beam search was taught with the help of Vlabs simulation software. The students were given demonstration with Vlabs simulation, where N-Queens problem was analyzed for better optimization results. The students performed analysis and learnt how the beam size and the initial random position converges faster to the better optimal solution by the simulation.

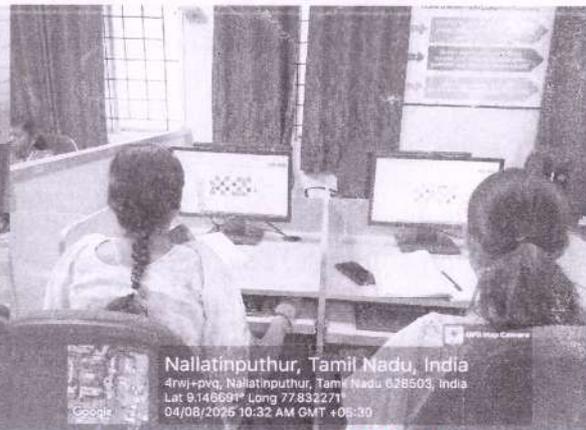
ABOUT THE SIMULATION TOOL:

Vlabs stands for Virtual Labs, an initiative by the Ministry of Education (MoE), Government of India, under the National Mission on Education through ICT (NMEICT). It provides remote access to simulation-based and remote-triggered labs in various disciplines of science and engineering, allowing students to perform experiments anytime, anywhere. They are online platforms that simulate physical laboratory experiments through web interfaces. It helps students perform, observe, and learn from experiments in a virtual environment without the need for physical equipment.

OUTCOMES:

1. Students learnt the working of the Local Beam Search easily by simulating on their own.
2. The activity bridged the gap between theoretical and practical knowledge enabling the students to develop optimized algorithms with consideration of best features.

ACTIVITY SNAPSHOTS:



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FEEDBACK OF STUDENTS

ACTIVE LEARNING - DRAW AND LEARN USING CURIPOD:

[Response collected through LMS Feedback tool]

https://docs.google.com/spreadsheets/d/1Hu3hTtiHx_m8rgt1ksYJYA9R_qcvYpnr/edit?usp=sharing&ouid=104669938196393870455&rtpof=true&sd=true

How did Curipod Learning Tool and Gaming based learning helped you in inferring the subject better?
Activities made the subject much more engaging and interactive. It's features helped me understand concepts faster and retain them longer, as I could see real-time examples and participate actively
It was not only a fun way to learn to effective in understanding the algorithm/ approach as well.
Its engage us to concentrate more on the topics helpful to make listen the class with out boring
It is very interesting because it contains activity to do so I like that . It helps me to understand the concepts very clearly
it is very helpful to understand the concepts
Curipod gave immediate AI feedback on every response, motivating students to engage more deeply. When they received feedback right after putting in effort, students were more eager to review, understand their mistakes, and improve while the writing was still fresh in their minds.
Curipod learning tool and gaming-based learning really helped me to understand the subject better. Since the classes had quizzes, polls, and small games, I was able to actively participate instead of just listening. This made the lessons more interactive and super interesting, so I could remember the concepts more clearly. The activities kept me engaged, and I felt motivated to take part in every session.
Curipod learning tool made the concepts more interactive and easier to understand through visuals and activities. Gaming-based learning kept me engaged and motivated, helping me infer and retain the subject better.
By doing it un my own helped me
Curipod and game-based learning made complex topics more interactive and engaging, helping me understand concepts through visual and hands-on activities. They turned learning into a fun experience, improving my focus and retention of the subject.

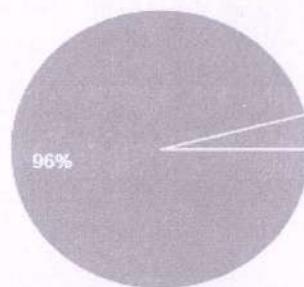
SIMULATION AND ANALYSIS INTEGRATED LEARNING - OPTIMIZATION ALGORITHMS USING VLABS:

[Response collected through Google forms]

<https://docs.google.com/forms/d/1Bzsnikmakw8LBBzLZbGBMHxqUhnFewRuPT8wWpnpsY/edit#responses>

1. How clear and understandable were the instructions provided during the AI virtual lab?

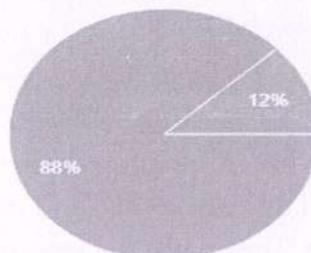
25 responses



- Excellent
- Very Good
- Good
- Satisfactory
- Fair

2. Did the virtual lab help you better understand the AI concepts taught?

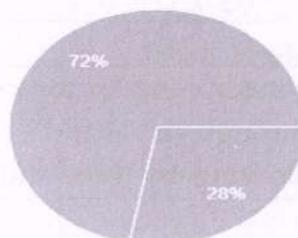
25 responses



- Excellent
- Very Good
- Good
- Satisfactory
- Fair

Did you encounter any technical difficulties while performing the virtual lab? if yes, please specify.

25 responses



- Yes
- No

What did you like most about the AI virtual Lab?

It Helps to Understand the more clear and apply to solve real world problems

It provided a hands-on experience that made AI concepts easier to understand and apply in real-world scenarios.

I liked that the AI Virtual Lab gives practical experience, easy-to-use tools, and helps in understanding AI concepts clearly through real-time simulations and experiments.

Its helps to learn the concept easily

Step by step implementation

It helped me to understand the concepts more effectively and clearly

Practical understanding of concept

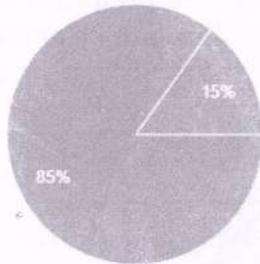
INDUSTRIAL CAPSTONE MICRO PROJECT:

[Response collected through Google forms]

7. The quality of project based work assigned for CO5

20 responses

 Copy chart

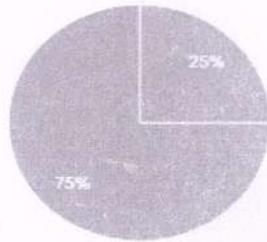


- Excellent
- Very Good
- Good
- Satisfactory

6. For the seminar teams, the quality of blended mode of content delivery for CO5

20 responses

 Copy chart



- Excellent
- Very Good
- Good
- Satisfactory



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