SNS COLLEGE OF ENGINEERING

Kurumbapalayam (Po), Coimbatore – 641 107

An Autonomous Institution

Accredited by NBA – AICTE and Accredited by NAAC – UGC with 'A' Grade
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai

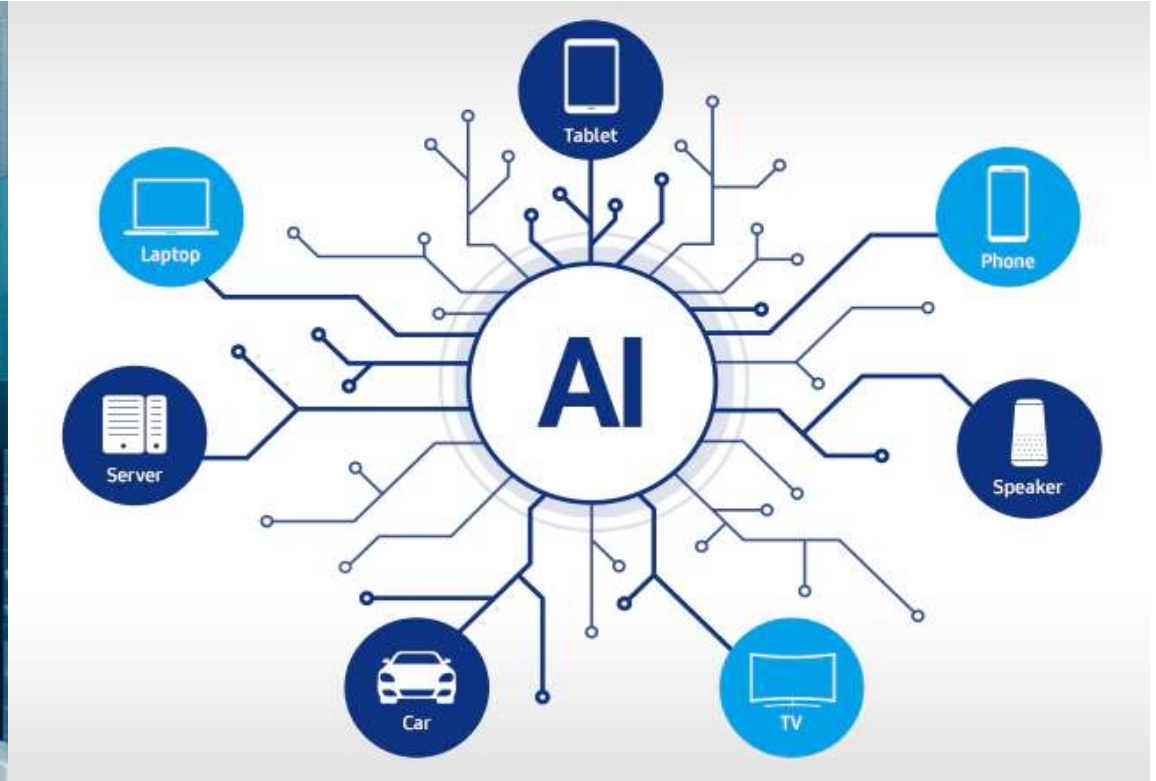## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING-IOT Including CS&BCT

COURSE NAME : **19SB601 ARTIFICIAL INTELLIGENCE AND NATURAL LANGUAGE PROCESSING**

III YEAR / VI SEMESTER

Unit I-INTRODUCTION TO ARTIFICIAL INTELLIGENCE& INTELLIGENT SYSTEMS

Topic : Programming Without and with AI/AI Technique

15-03-2023

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ARTIFICIAL INTELLIGENT

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Programming Without and With AI

Programming Without AI	Programming With AI
A computer program without AI can answer the **specific** questions it is meant to solve.	A computer program with AI can answer the **generic** questions it is meant to solve.
Modification in the program leads to change in its structure.	AI programs can absorb new modifications by putting highly independent pieces of information together. Hence you can modify even a minute piece of information of program without affecting its structure.
Modification is not quick and easy. It may lead to affecting the program adversely.	Quick and Easy program modification.

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AI Technique

- ➢ Artificial Intelligence refers to machines chiefly computers working like humans.

- ➢ In AI, machines perform tasks like speech recognition, problem-solving and learning, etc.

- ➢ Machines can work and act like a human if they have enough information.

- ➢ Artificial Intelligence can be **divided into different categories** based on the machine's capacity to use past experiences to predict future decisions, memory, and self-awareness.
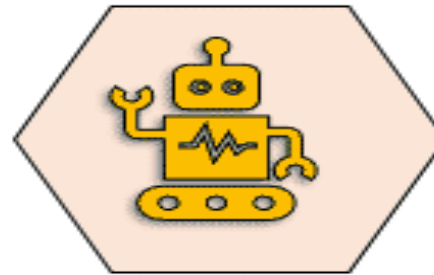
AI Technique

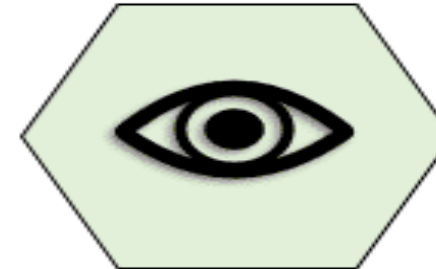Top 4 Techniques of Artificial Intelligence

Machine Learning

NLP

Automation & Robotics

Machine Vision

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AI Technique

1. **Machine Learning**

➢ It is one of the applications of AI where machines are not explicitly programmed to perform certain tasks; rather, they learn and improve from experience automatically.

➢ Deep Learning is a subset of machine learning based on artificial neural networks for predictive analysis.

➢ There are various machine learning algorithms, such as Unsupervised Learning, Supervised Learning, and Reinforcement Learning.

➢ In Unsupervised Learning, the algorithm does not use classified information to act on it without any guidance.

➢ In Supervised Learning, it deduces a function from the training data, which consists of a set of an input object and the desired output.

➢ Reinforcement learning is used by machines to take suitable actions to increase the reward to find the best possibility which should be taken in to account.

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AI Technique

2. NLP (Natural Language Processing)

➢ It is the interactions between computers and human language where the computers are programmed to process natural languages.

➢ Machine Learning is a reliable technology for Natural Language Processing to obtain meaning from human languages.

➢ In NLP, the audio of a human talk is captured by the machine.

➢ Then the audio-to-text conversation occurs, and then the text is processed where the data is converted into audio

➢ Then the machine uses the audio to respond to humans.

➢ Applications of Natural Language Processing can be found in IVR (Interactive Voice Response) applications used in call centers, language translation applications like Google Translate and word processors such as Microsoft Word to check the accuracy of grammar in text.

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AI Technique

3. Automation and Robotics

➢ The purpose of Automation is to get the monotonous and repetitive tasks done by machines which also improve productivity and in receiving cost-effective and more efficient results.

➢ Many organizations use machine learning, **neural networks**, and graphs in automation.

➢ Such automation can prevent fraud issues while financial transactions online by using CAPTCHA technology.

➢ Robotic process automation is programmed to perform high volume repetitive tasks which can adapt to the change in different circumstances.

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AI Technique

4. Machine Vision

➤ Machines can capture visual information and then analyze it.

➤ Here cameras are used to capture the visual information, the analogue to digital conversion is used to convert the image to digital data, and digital signal processing is employed to process the data.

➤ Then the resulting data is fed to a computer. In machine vision, two vital aspects are sensitivity, which is the ability of the machine to perceive impulses that are weak and resolution, the range to which the machine can distinguish the objects.

➤ The usage of machine vision can be found in signature identification, pattern recognition, and medical image analysis, etc.

Any Query????

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Thank you……

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