

PROJECT REPORT

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TITLE OF PROJECT:- CSE department sub-branches complete details and guidance

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CSE -B 3rd year

STARTING DATE:-19/11/2025

ENDING DATE:-19/11/2025

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DESCRIPTION :-

1. Artificial Intelligence (AI)

AI focuses on building intelligent machines that can learn, reason, and make decisions.

Guidance: Start with Python, linear algebra, and machine learning basics; build small AI models using libraries like TensorFlow or PyTorch.

2. Machine Learning (ML)

A subset of AI that lets systems learn from data.

Guidance: Work on datasets, learn supervised/unsupervised learning, and participate in Kaggle competitions.

3. Deep Learning (DL)

Uses neural networks to solve complex tasks like image and speech recognition.

Guidance: Learn CNNs, RNNs, Transformers; practice with computer vision or NLP projects.

4. Data Science

Involves analyzing data to make effective decisions using statistics and algorithms.

Guidance: Learn Python, R, SQL, and visualization tools; work on real datasets.

5. Cybersecurity

Protecting systems, networks, and data from cyberattacks.

Guidance: Study network protocols, ethical hacking, cryptography; try Capture-the-Flag (CTF) challenges.

6. Cloud Computing

Managing computing resources over the internet (AWS, Azure, GCP).

Guidance: Learn virtualization, Kubernetes, cloud architecture, and deploy small apps on cloud platforms.

7. Software Engineering

Designing, developing, and maintaining software applications.

Guidance: Master SDLC models, version control (Git), and software design patterns.

8. Web Development

Building websites and web apps (frontend + backend).

Guidance: Learn HTML, CSS, JS, React, Node.js, databases; build portfolio projects.

9. Mobile App Development

Creating apps for Android/iOS using Java, Kotlin, Swift, or Flutter.

Guidance: Start with platform basics and publish small apps on app stores.

10. Internet of Things (IoT)

Connecting physical devices to the internet to collect and share data.

Guidance: Learn Arduino/Raspberry Pi, sensors, networking basics.

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