MAKE Labs
POWERING PROGRESS

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M.E / M.Tech - Professional Electivev

COURSE TITLE: ARTIFICIAL INTELLIGENCE, COMPUTER VISION, AR/VR AND IOT

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UNIT I – COMPUTER VISION AND DEEP VISION MODELS

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Introduction to Computer Vision – Digital Image Representation – Image Preprocessing – Edge Detection – Feature Extraction – OpenCV using Python – Convolutional Neural Networks –
Pre-trained Models: VGG16 and VGG19 – Transfer Learning – Implementation using TensorFlow – Model Training, Validation and Testing – Applications in Medicine Discovery (Snake Bite Identification and Toxic Pattern Analysis) – Case Studies in Biomedical Engineering.

UNIT II – DEEP LEARNING AND VLSI APPLICATIONS

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Artificial Neural Networks – Backpropagation – Convolution and Pooling Layers – Fully Connected Layers – Activation Functions – Optimization Techniques – Model Evaluation Metrics – AI for VLSI Design Automation – Power Optimization using AI – Fault Detection and Performance Enhancement in Semiconductor Systems.

UNIT III – AR/VR, UNITY, UNREAL ENGINE AND IoT INTEGRATION

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Introduction to Augmented Reality and Virtual Reality – Unity Environment Development – Unreal Engine Basics – 3D Environment Design and Simulation – AR/VR Application Development – IoT Architecture – Sensors and Cloud Integration – AIoT Systems – Smart Industrial Applications.

COURSE OUTCOMES:

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- DESIGN
- DEVELOP
- DELIVER

SAMPLE

Fruits	Vegetables
Apple	Carrot
Orange	Beetroot