



# GOVT. COLLEGE OF ENGINEERING, KARAD

(An Autonomous Institute of the Govt. of Maharashtra)

Vidyanagar, Karad -415124 Dist.-Satara

Phone. No. (02164) 272414, 8275706613 Web: <http://gcekarad.ac.in>

Email: [principal@gcekarad.ac.in](mailto:principal@gcekarad.ac.in),

## Centre of Excellence

AUGMENTED REALITY & VIRTUAL REALITY (AR-VR)	
Equipment	Content Covered
Green Screen Backdrop	Introduction to Real-time 3D Content & Game Engines
Backdrop Support System	Unity Game Engine Overview
Lighting Kit	3D Modeling and Animation
Camera	Physics & Interactivity
Tripods	User Interface Design
Microphone Options	Application Scripting
Computer Workstation	Audio & VFX
VR Headset	Augmented Reality & Virtual Reality
Game Engine Software	Real-time 3D Application Development using Unity
GPU	VR Application Development in Unity App
	Fundamentals of Green Screen Studios
	Deployment and Publishing
	Introduction to Unity Game Engine for Virtual Production
IMAGE PROCESSING	
Equipment	Content Covered
Olympus BX53F2, TL/RL trinocular microscope	Fundamentals of Image & Types of Images
Olympus CX23i Microscope	Representation of Image & Operations of Image
ipvHigh resolution camera-GT	Fundamentals of Image Processing
Linkam HotStage with controller.	Image Enhancement In the Spatial & Frequency Domain
Particle Module	Image Restoration
ipvPHot software, Thermal study	Techniques in Particle Size Measurement: Image
Particle Module	Particle Size Analysis in the healthcare medical system and Biomedical Samples
	Microscopic Analysis of Formulated Products, Advanced Topics in Formulation Characterization



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ELECTRIC VEHICLE (EV)	
Equipment	Content Covered
EV test bench & Development Kit	Explain EV Fundamentals
Embedded system and development ki	Develop A BMS for EV
Wiring Harness Practice Board	Test for Battery Life Cycle
EV Two-Wheeler bike with Platform	Demonstrate EV Charging System
EV Charging Station & Testbench Kit	Analyse Powertrain Components
Two-Wheeler Development and Retrofitting	
Complete EV Architecture Model for walkthrough and Components Wiring	
SYSTEMS APPLICTIONS & PRODUCTS (ERP-SAP)	
Equipment	Content Covered
SAP software	Material Management with SAP S/4HANA
Access to SAP Learning Hub	Stock Material Compared with Consumable Material
SAP Global Certification Exam	Sources of Supply and Conditions
SAP Live Server Access	Introduction to Inventory Management:
SAP Consultant Level Training.	Stock Transfers and Transfer Postings
	Goods Issues
ARTIFICIAL INTELLIGENCE, DATA SCIENCE & MACHINE LEARNING (AIDSML)	
Equipment	Content Covered
Intel Core i9, 13th generation, with 12 GB Graphics Card, 64 GB RAM	Foundation of Ai DS ML
	AI in Practice: Design to Deployment
	AI Applications and Emerging Technologies



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ARTIFICIAL INTELLIGENCE OF THINGS (AIOT)	
Equipment	Content Covered
IoT Kit: (IoT gateway), RTC (Real Time Clock),	Internet of Things (IoT)?
Analog & Digital sensors, motor, and Relays	Concept of AI and Artificial Intelligence of Things (AIoT)
Supports protocols such as 12C, Serial, Bluetooth, Wi-Fi,	Cloud-based Industrial Application Development using Artificial Intelligence of Things
SPI, LoRa, Wi - Fi	Connecting Mobile to IoT Gateway
trans-receiver, and 12V power supply.	Sensors and Their Applications
Computational Power: IoT Gateway uses Raspberry Pi 413, which is a	Build IoT & AIoT Applications
powerful single-board small computer with 4 GB RAM, CPU, and GPU	Activity — Smart Traffic Signal System for Colour Blind Individuals
Power Requirement: Input - 12V, 60 W; Output 12V, 5V, 3.3V	Plant Health Analysis
Supported Communication Protocols: Wi-Fi, Bluetooth, UART, 12C, SPI, LoRa	Smart Driver Alert System
	Smart Door Access Control System
	Plant Health Analysis
	Smart Waste Management System
	Energy Saving Smart Lighting (Home)
	Car Parking System