



RoboSmart Labs

REDEFINING ROBOTICS EDUCATION



80 Hours Course - Robust

(Standard 9 - 10)

Course code: RSLILANR13



**HANDS-ON
IN - LAB
COURSE SERIES**



RoboSmart Labs

REDEFINING ROBOTICS EDUCATION

INTRODUCTION TO ROBOTICS

Learning Outcome & Projects

About Robot Smart Labs, What is a Robot?, Robots in Movies?, Robots in Real Life?, Demonstration of all Robots in Lab, Parts of Robots, Mechanical parts working - observation - lab tour, Electronics parts working - observation - lab tour, Programming working - observation - lab tour

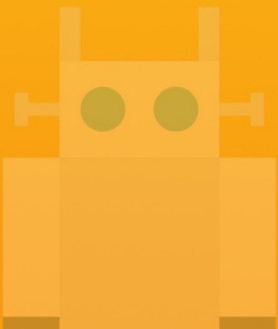
ROBOT- ELECTRONICS

Learning Outcome & Projects

Making your First Circuit, Battery / Power, Light & Buzzer, Dimmer, Switch & push button, Limit switch, Motor & High Speed Motor, Copy , Wire & Connectivity, Sensor base with threshold, Obstacle sensor, Light sensor & Motion sensor, Not gate ,And gate, U-right, Pulse/ Delay, Transmitter & receiver, Submersible water pump, Servo motor, OR & Toggle, PROLOGIC Controller – ARDUINO,

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Voltage, Current, Resistance, Ohm's law and led basics, Series and Parallel Connection, DC motors, Introduction to sensors, Follow Me Robot - Calibrating IR Sensors, Joystick-Controlled Robot - Circuitry, Gesture-Controlled Robot - Sensor, Line-Following Robot - Circuitry

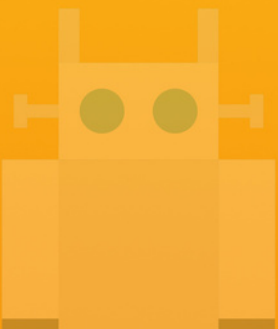
ROBOT - MECHANICS

Learning Outcome & Projects

Smartphone-Controlled Robot - Assembly, Smartphone -Controlled Robot - Circuitry, Joystick-Controlled Robot - Assembly, Obstacle Avoiding Robot - Part 1, Obstacle Avoiding Robot - Part 2, Pick-and-Place Robot - Assembly, Assembling a Gripper

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ROBOT - CODING

Learning Outcome & Projects

Smartphone-Controlled Robot - Programming, Follow Me Robot - Programming, Shy Robot - Programming Challenge, Gesture-Controlled Robot - Programming, Pick-and-Place Robot - Programming, Joystick-Controlled Robot - Programming, Line-Following Robot - Programming, Drip Irrigation System, Automatic Plant Watering System, Introduction to IoT, Voice-Controlled Light Bulb, IoT-Enabled Lighting System, IoT-Enabled Temperature Monitoring System, IoT-Based Weather Reporting System, IoT-Based Air Pollution Monitoring System, IoT-Enabled Home Security System

DRONES

Learning Outcome & Projects

INTRODUCE AEROMODELLING, DYNAMICS OF AN AERIAL SYSTEM, AXES OF ROTATION, Introduction To Drones, History Of Drones, Types Of Drones, Applications Of

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Drones, Future Applications Of Drones, FORCES OF FLIGHT IN DRONES, Controls Of An Airplane, Controls Of A Drone, BUILDING THE DRONE – PLUTO, TEST FLIGHT, Drone Piloting Observation, Drawing shapes, Farming Drone, Step farming, Delivery drone, Snake drone, Space drone, Treasure hunt drone, Racing drone, Autonomous drone

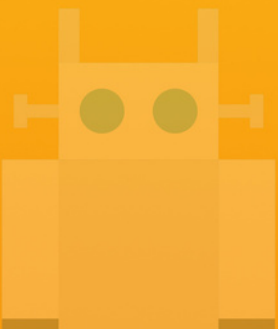
3D – MODELLING

Learning Outcome & Projects

Modelling in a 3D software
Engineering graphics
Tools in software
Modelling activity -1
Modelling activity -2
Modelling activity -3

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3D – PRINTING

Learning Outcome & Projects

What is 3D printing?, History of 3D printing, The use of 3D printing, 3D PRINTING TECHNOLOGIES, Getting a 3D model, Online libraries and 3D hubs, 3D modelling software, Modelling activities Using 3D pen, Safety of 3D printers, Handling a 3D printer, Setting up for printing Emergency handling, Printing activity -1, Printing activity -2, Printing activity -3, Finishing process

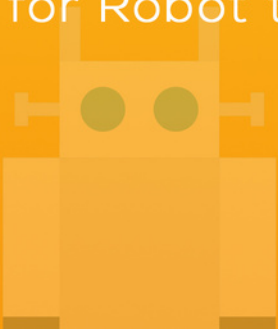
HUMANOID

Learning Outcome & Projects

Introduction to Humanoid Robotics, Safety on Humanoid parts motors, battery care & Charging, Parts of Humanoid, Construction and Assembly of Humanoid, Coding of Humanoid Activities, Changing RGB Animator for JD, Visual Object Recognition, Coding walking Forward, left, right, backward, Multiple Actions coding with Humanoid, Coding to Detect Face and Wave, Coding for Robot to Dance

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VIRTUAL REALITY / AR - EXPERIENCE & CREATIONS

Learning Outcome & Projects

Getting familiar with VR and VR hardware, Safety Regulations, VR (Virtual Reality) mode, AR (Augmented Reality) mode, Register, Create, Explore, Develop 3D creation skills, Working with variables, lists functions, Screen templates and Camera movements, Editor, Navigation, Building, Co locks, Play mode & Gyro mode of VR headset, VR (Virtual Reality) mode & AR (Augmented Reality) mode, 360° tours and Virtual exhibitions, Advance VR environment Creation - 1, Advance VR environment Creation - 2

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