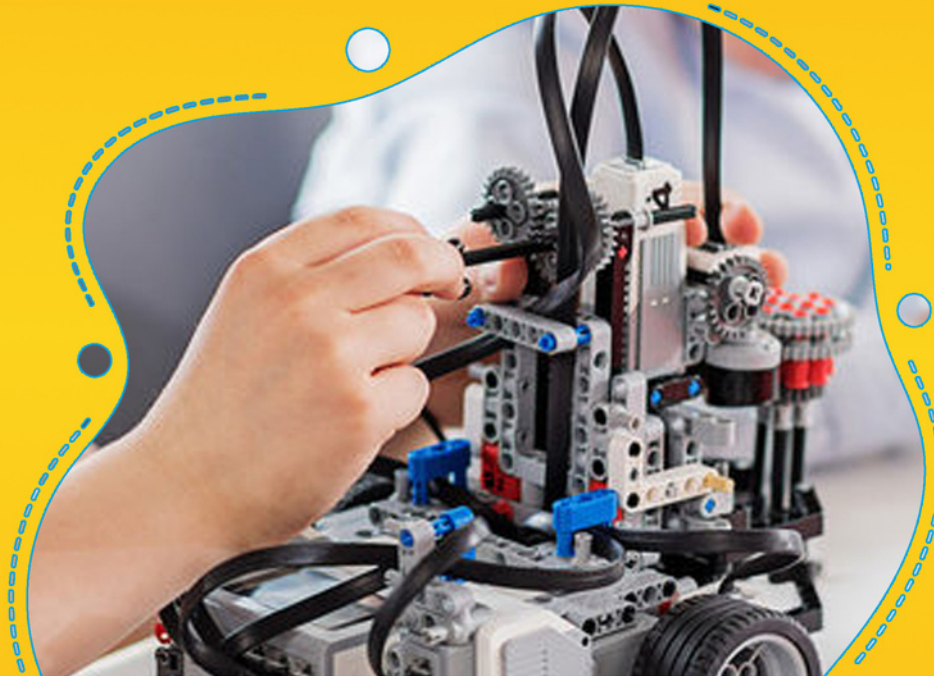




RoboSmart Labs

REDEFINING ROBOTICS EDUCATION



80 Hours Course - Master

(Standard 11-12)

Course code: RSLILANM14



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



INTRODUCTION TO ROBOTICS

Learning Outcome & Projects

Revision of Robot Electronics , Mechanics & Coding – Robust level, Revision of Drones , 3D printing & modelling , VR & Humanoid – Robust level, Revision of Computer Science Coding – Robust

ROBOT- ELECTRONICS

Learning Outcome & Projects

Robot arm connections – Circuitry, Robot arm connections Calibration of servos, Automated Pick and Place Robotic Arm – Connections, Humanoid bipedal robot – connections, Humanoid bipedal robot – circuit designing, Understanding latent heat using data logger, Smart Fingerprint Attendance System, Smart Hand band for blind, Ultrasonic RADAR system, Intrusion Detection System

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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

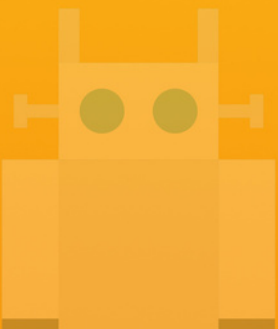
ROBOT - MECHANICS

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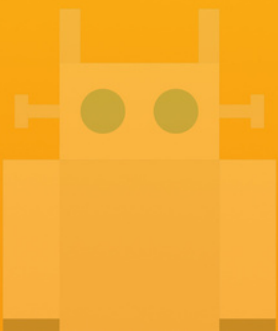
Drones, Future Applications Of Drones, FORCES OF FLIGHT IN DRONES, Controls Of An Airplane, Controls Of A Drone, BUILDING THE DRONE – PLUTO, TEST FLIGHT, Drone Piloting Observation, Drawing shapes, Farming Drone, Step farming, Delivery drone, Snake drone, Space drone, Treasure hunt drone, Racing drone,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

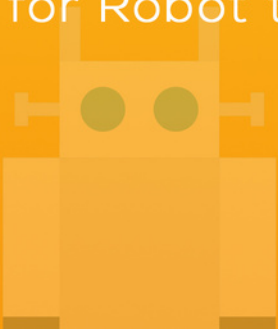
HUMANOID

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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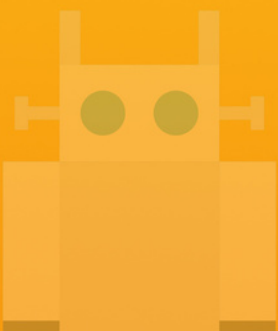
VIRTUAL REALITY / AR - EXPERIENCE & CREATIONS

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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CODING - COMPUTER SCIENCE / TECHNOLOGY

Learning Outcome & Projects

HTML CODING

Introduction, Tools of the Trade, Basics of HTML, Basic Structure of a HTML Page, Doc type, Start and End Tags, The Head and Body Element Adding Content to the Page, Elements within the Head and body Element, Elements for Formatting Text, Adding JavaScript Code to Website, Conjunction with CSS, Elements for Defining Sections of a Webpage, Comments & Character Entities, Creating HTML files & Opening a .HTML File, Designing a Basic web page, Underlining, Monospace, and Other Text Changes, Specifying Font Sizes, Colours, and Faces , Applying Logical Styles

BASIC - PYTHON PROGRAMMING (GAME DEV)

What is coding?, Installing Python, Using IDLE, Variables, Making decisions, Loopy loops, Animal Quiz, Functions, Fixing bugs, Modules, Password Picker, Nine Lives, TURTLE GRAPHICS, Robot Builder, Kalie do-spiral, Starry Night, Mutant Rainbow, PLAYFUL APPS, Countdown Calendar, Ask the Expert, Secret Messages, Screen Pet, Egg Catcher

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