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Venture of IIT Bombay & VJTI Alumni

3 Times IIT Bombay Robo Competition Winner

Government of India(MSME) Registered &

ISO Certified Organization

Skill India Mission - 2017

कौशल भारत - कुशल भारत

SCHOOL Robotics

Robotics & Artificial Intelligence are the Future of Automation

Let Your Child Understand these Things at School Level so that They Become Future Ready

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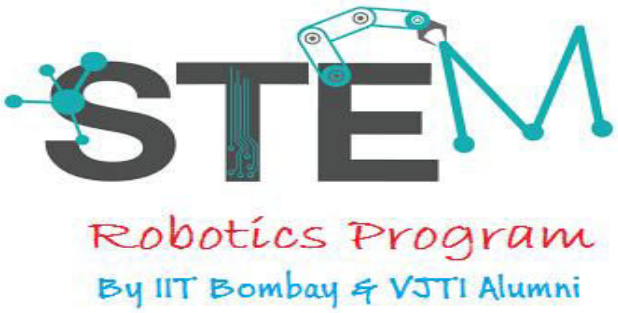
For School Students We Conduct a Program Called

"STEM Robotics"



In A Survey Done by **"World Economic Forum"**,It has Proved that the Combination of Science,Technology,Engineering & Mathematics are Very Important to Improve the **"Analytical Skills"** at School Level

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Apart from Theoretical Studies **"Project Based Learning"** is Very Important which Improves the Technical Intelligence, Innovations, Leadership Qualities, Analytical Skills & Team Management Qualities

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Importance of Robotics Education at School Level

World is changing very fast. Ones upon a time there was a PC revolution, Then Mobile Revolution now in future Robotics will be part of our lives. It is imperative that we give our future generation the knowledge and power to build a better world. India is a fast developing economy, with a large and growing young population (over 220 million children in India between 6-16 years.) . Use of technology in everyday life is far greater than ever before and will increase many

fold in the near future. The global robotics industry is growing rapidly and the trend towards its adoption is increasing in India as students. Robotics will play a major role in the future so it is imperative that we prepare the present generation of students for this transition. Importance of STEM (science, technology, engineering and maths) education, use of technology and hands-on learning in primary, middle and higher education. Students must learn application of core STEM Concepts and acquire essential life skills in order to be successful in their professional lives.

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Benefits of Robotics Education at School Level

- ✓ Create curiosity, excitement and exploration among school children in Science, Mathematics and Technology.
- ✓ Enable children to become motivated and engaged in Science, Mathematics and Technology (SMT) through observation, experimentation, inference, drawing, model, building, rational reasoning, test ability etc.
- ✓ The hardware and software that accompany robotics give students creative liberty and analytical skills to approach any problem with countless solutions and make effective decisions.
- ✓ To improve the analytical skills " Project Based Learning " is very important which can be achieve through Practical Robotics Projects.
- ✓ Whenever students work on any technical projects ,that improves their team activity.
- ✓ They also have an opportunity to showcase their talent to the world through National & International level Robotics Competition.

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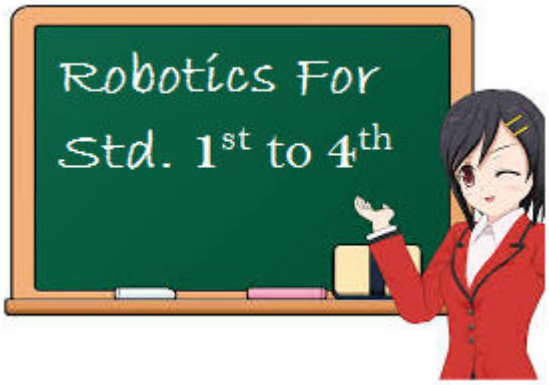
Robotics Training Syllabus



Topics

1. History of Robotics
2. Basic Robotics Components
3. Interconnection of Robotics Components
4. Designing of Wired Robot

Duration	2 Hours / Session	Total Session – 4

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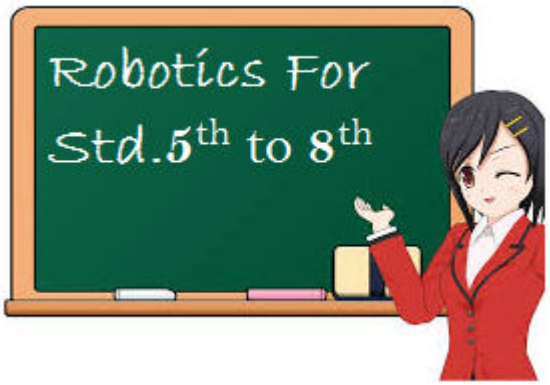

Theory

1. Introduction to Robotics
2. Robotics Mechanism & Computations
3. Science & Mathematical Principles used in Robot Building
4. Electrical & Mechanical Concepts Involved in Robot Building
5. Introduction to Various Major Components used in Robot Building
6. Schematic & Interconnections of Various Modules
7. Introduction to Power Supply Unit Used in Robotics
8. Physics Concepts of Power Supply
9. Power Supply Designing Concepts

10. Integration of Various Mechanical & Electrical Components to form Basic Robot Unit
11. Introduction to Electronics Passive & Active Components
12. Use of Electronic Meters (Multimeter) to Test Various Active & Passive Electronics Components
13. Understanding of Printed Circuit Board(PCB)
14. PCB Unit Testing
15. Soldering & Component Assembling on PCB
16. Electronic Circuit Testing & Fault Finding
17. Introduction to Arduino
18. Logic Families & its Principles
19. Programming Concepts of Arduino
20. Application Interfacing with Arduino
21. LED Blinking Concepts
22. Radio Frequency(RF) Technology & its Concepts
23. RF Module Interconnections
24. RF Module operations
25. RF Module based Live Project Designing

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Practicals & Project Designing

1. Basic Robot Module Designing
2. RF Based Remote Car
3. Burglar Alarm Designing
4. Smoke Detector Designing
5. Electronic Power Supply Designing
6. Clap Sensor Application Designing
7. Traffic Light Designing
8. Electronics Rain Alarm

Duration	2 Hours / Session	2 Sessions in a Week | Total 6 Weeks
Projects	1 Project / Session	Theory + 8 Projects

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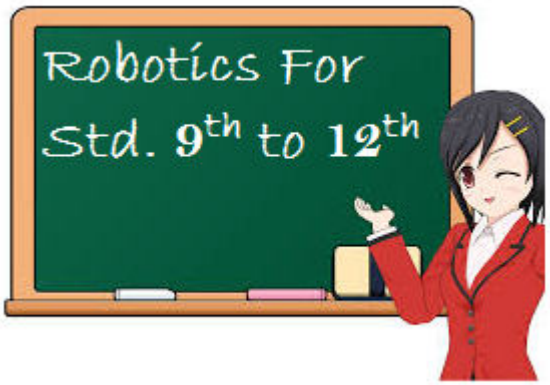

Theory

1. Introduction to Robotics
2. Robotics Mechanism & Computations
3. Science & Mathematical Principles used in Robot Building
4. Electrical & Mechanical Concepts Involved in Robot Building
5. Introduction to Various Major Components used in Robot Building
6. Schematic & Interconnections of Various Modules
7. Basic Robotics Module Designing

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Arduino Platform

8. Introduction to Open Source Platform Arduino
9. Introduction to Arduino IDE

Arduino C Programming

10. Embedded C Programming for Arduino
11. Arduino Libraries & Basic Module Interfacing
12. Logic Families

Wireless Communication Technology

13. Introduction to Wireless Technology
14. Introduction to Wireless domain Advantages & Applications

DTMF Technology

15. Introduction of DTMF mobile technology
16. DTMF technology interfacing in real application
17. DTMF programming

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Radio Frequency Technology (RF)

18. Introduction of RF Communication
19. RF technology interfacing in real application
20. RF module programming

RFID Technology

21. Introduction to RFID communication
22. RFID technology interfacing in real application
23. RFID module programming

Bluetooth Technology

24. Introduction to Bluetooth Communication
25. Bluetooth technology interfacing in real application
26. Bluetooth module programming

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Practicals & Projects Designing

1. Basic Wired Robot Development
2. DTMF Mobile Controlled Wireless Robot
3. RF Remote Control Robot
4. RFID Based Security System
5. Bluetooth & Android Based Robot Designing
6. Wireless Home Automation
7. Traffic Light Designing
8. Burglar Detection using Arduino

Duration	2 Hours / Session	2 Sessions in a Week | Total 6 Weeks
Projects	1 Project / Session	Theory + 8 Projects

Thank You,

IIT Bombay Alumni

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