

YTS+ Learning Tracks & Project Showcase

A two-week immersive summer program by Plaksha University for students of Classes 9–12

Welcome to YTS+

YTS+ is Plaksha University's flagship summer program designed to offer high school students a unique opportunity to **explore technology, innovation, and real-world problem-solving** in a university environment.

At YTS+, learning goes beyond textbooks and classrooms. Students don't just attend lectures, they **build projects, experiment, explore ideas, and work in teams** to solve real challenges. This program helps students discover their interests, develop future-ready skills, and gain early exposure to cutting-edge technology and research.

This document gives you a glimpse into the **three exciting learning tracks** and the **hands-on projects** that students build during the program.

How Learning Happens at YTS+

At YTS+, students follow a simple yet powerful learning journey:

Explore → Learn → Build → Present

- **Explore** real-world problems
- **Learn** core concepts through hands-on sessions
- **Build** projects in teams
- **Present** solutions during the final showcase

Students work closely with experienced faculty and mentors, gaining exposure to **university-style learning, innovation culture, and collaborative problem-solving**.

YTS+ Learning Tracks

Students choose **one learning track** based on their interest. Each track offers **deep exploration, hands-on projects, and real-world applications**.

Track 1: Robotics in Action

Machines that think and act

About the Track

Robotics in Action introduces students to the exciting world of **robotics, intelligent machines, and sustainable engineering systems**. In this track, students learn how machines sense their environment, make decisions, perform actions, and optimize energy and resource use.

Students design, build, test, and improve **real working robotic systems**, gaining practical exposure to engineering concepts, sustainability principles, and creative problem-solving.

Students may learn from areas like:

- Basics of robotics and its applications
- Electronics, sensors, and actuators
- Coding and control systems
- Mechanical design and prototyping
- Environmental sensing and energy systems
- Engineering problem-solving

Previous Year Student Projects

1. Weather Glider

Students designed a reusable, low-cost glider that collects weather data. They worked on glider design, sensor integration, launch mechanisms, and real-time data collection.

2. Strain Sensor Guided Robotic Arm

Students built strain sensors from scratch and used them to control robotic arm movements. They learned sensor calibration, precision control, and real-time response systems.

3. SteadyBot – Self-Balancing Robot

Students build a robot capable of balancing itself using motors, controllers, and feedback mechanisms, learning principles of motion control and stability.

4. EquiliSense – Human Balance Detection System

Students designed systems to study human balance using pressure sensors, electronics, and software tools, conducting multiple real-world experiments.

5. Integrated Weather Station

Students developed a fully functional weather station using sensors, 3D printing, electronics, and a web-based dashboard for data visualization.

6. Teleoperation Rover

Students built systems to remotely control a rover using hand gestures and wireless communication, understanding applications in space exploration and disaster response.

Skills Students Develop

Engineering mindset | Logical and analytical thinking | Design thinking | Hands-on building | Team collaboration | Sustainability awareness

Application Areas: Manufacturing, Automotive, Defense, Space Technology, Smart Devices, Healthcare Robotics, Renewable energy, Green Buildings, Clean Technology

Track 2: Biology Beyond Medicine

Solutions inspired by life itself

About the Track

Biology Beyond Medicine introduces students to how **biology, engineering, and technology combine to solve healthcare and sustainability challenges**. Students explore biological systems, biosensors, and medical instrumentation, and learn how biological signals are captured, analyzed, and used in real-world solutions.

Students may learn from areas like:

- Fundamentals of biological systems
- Biosensing and biophysics
- Medical instrumentation
- Biological signal processing
- Problem-based scientific thinking

Previous Years' Projects

1. Portable ECG Monitoring Device

Students built a portable ECG device to capture heart signals, developed software for signal processing, and created real-time visualization dashboards.

2. Biosensing with Origami Robotics

Students captured muscle signals and used them to control origami robotic hands, simulating real-life hand movements.

3. ECG Biosensor & Smart ICU Solution

Students explored wearable healthcare devices and designed smart ICU monitoring systems using biosensors and AI-based analysis.

4. Wearable Sensor for Parkinson's Patients

Students developed wearable devices to analyze patient movement data, addressing challenges in healthcare diagnostics.

5. Agricultural Robot (AgBOT)

Students built autonomous agricultural robots capable of collecting soil and plant data, supporting smart and sustainable farming.

6. Alg-uel (Poo-Power) – Green Energy System

Students explored sustainable energy solutions and built prototypes related to biodiesel production and energy conversion systems.

Skills Students Develop

Scientific inquiry | Research-based learning | Analytical reasoning | Innovation mindset | Systems thinking

Application Areas: Healthcare, Medical Technology, Biotechnology, Research & Innovation, Sustainability, Agri-Tech

Track 3: Data Science, Economics & Business

Using numbers to shape choices

About the Track

Data Science, Economics & Business track introduces students to the world of **data, economics, business strategy, and artificial intelligence**. Students learn how data-driven decision-making influences businesses, economies, and society.

Students may learn from areas like:

- Machine Learning and Data Science
- Statistics and Finance
- Behavioral Economics and Econometrics
- Business strategy & Leadership skills
- Decision-Making in Real-World Contexts

Previous Year Student Projects

1. Stock Market Trend Predictor

Students analyzed historical stock market data to predict future price trends using statistical and machine learning models.

2. Retail Sales Forecasting

Students developed forecasting models to predict store sales based on past performance data.

3. Currency Exchange Rate Analysis

Students studied currency movements and economic indicators to understand exchange rate fluctuations.

4. Bank Loan Default Risk Analysis

Students built predictive models to assess loan default risks using real financial datasets.

Skills Students Develop

Data literacy | Logical and critical thinking | Business understanding | Problem-solving skills | Computational thinking

Application Areas: Technology, Finance, Consulting, Startups, E-commerce, Policy & Research

What Makes YTS+ Projects Special?

- Real-world inspired problem statements
- Student-driven ideas
- Team-based collaboration
- Expert faculty mentoring
- Final project showcase and presentations

What Students Take Back

- Hands-on project portfolio
- Strong problem-solving mindset
- Exposure to interdisciplinary learning
- Increased confidence
- Early experience of university-style education

YTS+ helps students explore interests, develop future-ready skills, and experience learning beyond classrooms.

Apply now and become a YTS+ Scholar.

Link to Apply: <https://yts.plaksha.edu.in/>

For any queries, feel free to contact 7303580960 or write to us at highschoolprograms@plaksha.edu.in.