STEM LABS CURRICULUM
Section 4: Master Engineering (Grades 8 & 9)

1. Blinking LED
Learning Objective: Understand advanced electronics basics.

Activity: Program LED with variations.

Real-World Link: Embedded systems.

2. Automatic Street Light
Learning Objective: Understand sensor automation.

Activity: Design smart lighting system.

Real-World Link: Smart cities.

3. Dancing Robot
Learning Objective: Understand motor control.

Activity: Build programmable robot.

Real-World Link: Robotics.

4. Smart Dustbin
Learning Objective: Understand automation with sensors.

Activity: Build auto dustbin.

Real-World Link: Waste management.

5. Soil Moisture Detection
Learning Objective: Understand environmental sensing.

Activity: Monitor soil moisture.

Real-World Link: Agriculture tech.

6. Spectacles Model

Learning Objective: Understand ergonomic design.

Activity: Create wearable design.

Real-World Link: Product engineering.

7. Glow Meter

Learning Objective: Understand light measurement.

Activity: Measure intensity.

Real-World Link: Lighting systems.

8. Music Piano

Learning Objective: Understand sound circuits.

Activity: Build piano.

Real-World Link: Audio tech.

9. Hanger Hub

Learning Objective: Understand structural systems.

Activity: Design hanger.

Real-World Link: Utility engineering.

10. Smart Parking System

Learning Objective: Understand vehicle systems.

Activity: Build parking model.

Real-World Link: Smart city tech.

11. Blind Man Stick

Learning Objective: Understand assistive tech.

Activity: Build smart stick.

Real-World Link: Healthcare devices.

12. Swift Roller

Learning Objective: Understand motion.

Activity: Build roller system.

Real-World Link: Transport engineering.

13. Smoke Detection

Learning Objective: Understand safety sensors.

Activity: Build smoke detector.

Real-World Link: Fire safety.

14. Theft Alarm

Learning Objective: Understand security systems.

Activity: Build alarm.

Real-World Link: Security tech.

15. Fork Lift

Learning Objective: Understand lifting mechanisms.

Activity: Build forklift.

Real-World Link: Industrial systems.

16. Panic Alert System

Learning Objective: Understand emergency systems.

Activity: Create alert device.

Real-World Link: Safety systems.

17. Automatic Hand Wash System
Learning Objective: Understand hygiene automation.

Activity: Build touchless system.

Real-World Link: Public health.

18. Giant Wheel
Learning Objective: Understand rotation.

Activity: Build model.

Real-World Link: Mechanical engineering.

19. Obstacle Avoidance Car
Learning Objective: Understand autonomous systems.

Activity: Build smart car.

Real-World Link: AI & robotics.

20. Radar System
Learning Objective: Understand detection.

Activity: Build radar.

Real-World Link: Defense tech.

21. Windmill
Learning Objective: Understand power generation.

Activity: Build windmill.

Real-World Link: Renewable energy.

22. Snake Game using Dot Matrix
Learning Objective: Understand coding & display.

Activity: Program game.

Real-World Link: Game dev.

23. Smart Irrigation System
Learning Objective: Understand automation.

Activity: Build irrigation system.

Real-World Link: Agriculture tech.

24. Gear It Ups
Learning Objective: Understand gear systems.

Activity: Design advanced gears.

Real-World Link: Mechanical systems.

25. 3D Printer
Learning Objective: Understand additive manufacturing.

Activity: Create 3D objects.

Real-World Link: Modern industry.

26. Drone
Learning Objective: Understand aerial systems.

Activity: Build drone basics.

Real-World Link: Aviation tech.

27. 3D Pen
Learning Objective: Understand 3D design.

Activity: Create models.

Real-World Link: Creative engineering.