

Car Mechanic & Electric Works Course Outline

This course outline provides a framework for learning the fundamentals of car mechanics and electrical systems. Adapt this outline to your specific needs and interests.

Target Audience: Individuals with no prior knowledge or experience in car mechanics or electrical systems.

Course Duration: Can be adapted to fit various timeframes, from a few weeks to several months.

Learning Objectives:

- Understand the basic principles of car mechanics and electrical systems.
- Identify and diagnose common car problems.
- Perform basic maintenance and repairs on a car.
- Use safe practices while working on cars.

Modules:

Module 1: Introduction to Car Mechanics

- **Topics:**
 - Basic car components and their functions (engine, transmission, brakes, etc.)
 - Shop safety procedures and tools
 - Routine maintenance schedules and procedures (oil changes, tire rotations, etc.)
 - Fluids and lubricants (types, functions, and changing procedures)

Module 2: Engine Fundamentals

- **Topics:**
 - Internal combustion engine principles (4-stroke cycle)
 - Engine components and their functions (pistons, valves, etc.)
 - Troubleshooting common engine problems (starting issues, misfires, etc.)
 - Basic engine service procedures (valve adjustments, spark plug replacement, etc.)

Module 3: Electrical Systems

- **Topics:**
 - Basic electrical concepts (voltage, current, resistance)
 - Car battery operation and maintenance
 - Starting and charging systems
 - Lighting systems
 - Wiring diagrams and troubleshooting electrical problems

Module 4: Brakes and Suspension

- **Topics:**
 - Different types of brakes (disc, drum) and their operation
 - Brake components and maintenance
 - Troubleshooting common brake problems
 - Suspension systems (springs, shocks, struts) and their functions
 - Wheel alignment and tire balancing

Module 5: Additional Topics (Optional)

- **Fuel systems**
 - Fuel injection systems
 - Troubleshooting common fuel system problems
- **Cooling systems**
 - Radiator operation and maintenance
 - Troubleshooting common cooling system problems
- **Drive train**
 - Manual and automatic transmissions
 - Differentials and axles
- **Advanced electrical systems**
 - Computerized engine controls
 - Car audio systems and other accessories

Assessment:

- **Hands-on projects:** Students will complete various practical exercises throughout the course to apply their learned skills.
- **Written quizzes and exams:** Assess theoretical knowledge gained in each module.
- **Final project:** Students may complete a comprehensive project demonstrating their ability to diagnose and repair a specific car problem.

Additional Resources:

- Repair manuals specific to different car models
- Online forums and communities for car enthusiasts
- Automotive training videos and tutorials