



## **Vehicle Maintenance and Repair Technologies, Other CIP Code 47.0699**

### **Introduction – Program of Study**

Vehicle maintenance mechanics repair and service power equipment ranging from jet skis to chainsaws. Mechanics usually specialize in the service and repair of one type of equipment, such as motorcycles, motorboats or outdoor power equipment, although they may work on closely related products.

When a piece of equipment breaks down, mechanics use various techniques to diagnose the source and extent of the problem. The mark of a skilled mechanic is the ability to diagnose mechanical, fuel, and electrical problems and to make repairs quickly. Quick and accurate diagnosis requires problem solving ability and a thorough knowledge of the equipment's operation.

Mechanics usually provide their own hand tools, although employers will furnish expensive power tools, computerized engine analyzers, and other diagnostic equipment. Computerized engine analyzers, compression gauges, ammeters and voltmeters, and other testing devices help mechanics locate faulty parts and tune engines. This equipment provides a systematic performance report of various components to compare against normal ratings. After pinpointing the problem, the mechanic makes the needed adjustments, repairs, or replacements.

Small engines also require periodic service to minimize the chance of breakdowns and to keep them operating at peak performance. During routine maintenance, mechanics follow a checklist that includes the inspection and cleaning of brakes, electrical systems, fuel injection systems, plugs, carburetors, and other parts. Following inspection, mechanics usually repair or adjust parts that do not work properly or replace unfixable parts.

Motorcycle mechanics specialize in the repair and overhaul of motorcycles, motor scooters, mopeds, dirt bikes, and all-terrain vehicles. Besides repairing engines, they may work on transmissions, brakes, and ignition systems and make minor body repairs.

Motorboat mechanics and marine equipment mechanics repair and adjust the electrical and mechanical equipment of inboard and outboard boat engines. Most small boats have portable outboard engines that are removed and brought into the repair shop. Larger craft, such as cabin cruisers and commercial fishing boats, are powered by diesel or gasoline inboard or inboard outboard engines, which are removed only for major overhauls. Most of these repairs, therefore,

are performed at docks or marinas. Motorboat mechanics also may work on propellers, steering mechanisms, marine plumbing, and other boat equipment.

Outdoor power equipment and other small engine mechanics service and repair outdoor power equipment such as lawnmowers, garden tractors, edge trimmers, and chain saws. They also may occasionally work on portable generators and go carts.

## **Assumptions of this Program of Study**

High quality programs should meet the following standards:

1. Promote positive working relationships.
2. Implement a curriculum that fosters all areas of skill development
3. Use appropriate and effective teaching approaches.
4. Provide ongoing assessments of student progress.
5. Employ and support qualified teaching staff.
6. Establish and maintain relationships and use resources of the community.
7. Provide a safe and healthy learning environment.
8. Implement strong program organization and supervision policies that result in high quality teaching and learning.
9. Integrate academic skills and aptitudes necessary for postsecondary education, gainful employment and a foundation of lifelong learning.

## **CIP Code**

### **47.0699 Vehicle Maintenance and Repair Technologies, Other**

This is an instructional program that prepares individuals to apply technical knowledge and skills to repair, service, maintain and diagnose problems on a variety of small internal combustion gasoline engines and related systems used on portable power equipment such as lawn and garden equipment, chain saws, outboard motors, rototillers, snowmobiles, lawn mowers, motorcycles, personal watercraft and pumps and generators. This program includes instruction in the principles of the internal combustion engine and all systems related to the powered unit. Instruction also includes the use of technical and service manuals, state inspection code, care and use of tools and test equipment, engine tune up and maintenance, engine overhaul, troubleshooting and diagnostic techniques, drive lines and propulsion systems, electrical and electronic systems, suspension and steering systems, service operations and parts management.

#### **For more information, contact:**

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