Motorcycle Maintenance Technician MTRCL

Associate in Science Degree
Certificate of Achievement

Division of Advanced Technology
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Technology 106
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Career Opportunities
This Motorcycle Maintenance Technician Associate in Science Degree prepares students to enter the motorcycle maintenance field with all of the necessary skills to perform entry-level work as well as to have a thorough understanding of theory so they can participate in advanced training at the dealer or manufacturer.

Required Program	**Units**
MTRCL 100 Introduction to Motorcycles, Motorcycle Design, and Maintenance Theory	5
MTRCL 101 Fuel, Lubrication and Cooling	3
MTRCL 102 Motorcycle Electrical Systems	3
MTRCL 104 Motorcycle Electronics	1.5
MTRCL 110 Motorcycle Engine Theory	3
MTRCL 120 Motorcycle Exhaust, Frame, Suspension, Tires, Wheels, and Brakes	3
MTRCL 130 Motorcycle Engine Overhaul	3
MTRCL 140 Motorcycle Tune-Up and General Service	3
MTRCL 141 Motorcycle Dyno Operation and Data Acquisition	1.5
MTRCL 150 Power Transmission Systems	1.5
Total Units Required	**27.5**

Suggested Electives
MTRCL 141; CHEM 330; ET 300, 301; MIT 100; PHYS 310

Associate in Science (A.S.) Degree
The Associate in Science degree may be obtained by completion of the required program, plus general education requirements, plus sufficient electives to reach a 60-unit total. See SCC graduation requirements.

Certificate of Achievement
The Certificate of Achievement may be obtained by completion of the required program with grades of "C" or better.

Motorcycle Maintenance (MTRCL)

MTRCL 100 Introduction to Motorcycles, Motorcycle Design, and Maintenance Theory 5 Units

Prerequisite: None.
Hours: 90 hours LEC
This course is a prerequisite to all the other courses required for the Career Certificate and/or Associate in Science Degree in Motorcycle Maintenance Technology. This course offers a brief view of the history of motorcycles as well as an in-depth discussion of modern machines. Further, it gives the student an overview of the theory of operation, nomenclature, and design principles involved in modern motorcycle systems maintenance.

MTRCL 101 Fuel, Lubrication and Cooling 3 Units

Prerequisite: MTRCL 100 with a grade of "C" or better; or equivalent.
Hours: 36 hours LEC; 54 hours LAB
This course covers the principles, theory of operation, design and function of motorcycle fuel, lubrication, and cooling systems as well as the inspection, disassembly, cleaning, measuring and rebuilding of the components of those systems. Further, the skills of performing preventive maintenance, troubleshooting discrepancies, repairing the faulty system components, and learning how to assist customers in selecting suitable aftermarket parts in both dealer and independent shop settings are taught. Safety glasses, ear protection, and closed-toe leather shoes are required.

MTRCL 102 Motorcycle Electrical Systems 3 Units

Prerequisite: MTRCL 100 with a grade of "C" or better; or equivalent.
Hours: 36 hours LEC; 54 hours LAB
This course covers the principles of basic electricity including terms, circuits, wiring diagrams and symbols, magnetism, and both magnetic and chemical reaction methods of providing electrical energy for motorcycles. Various electrical components of generation, regulation, distribution, control, switching, and methods of testing of motorcycle electrical systems will be discussed. Further, ignition systems and how they relate to the engine components will be covered. Safety glasses, ear protection, and closed-toe leather shoes are required.

MTRCL 104 Motorcycle Electronics 1.5 Units

Prerequisite: MTRCL 100 with a grade of "C" or better
Hours: 18 hours LEC; 27 hours LAB
This course introduces motorcycle electronics and includes a review of basic electrical terms, motorcycle electrical systems, Ohm's law, and schematics. Further, it covers infrared test equipment, Fluke digital multimeters, oscilloscopes, various sensor designs, and transducers.

MTRCL 105 Applied Basic Motorcycle Maintenance 3 Units

Prerequisite: None.
Hours: 45 hours LEC; 27 hours LAB
This course is an introduction to basic motorcycle service and preventative maintenance; it is not part of the Motorcycle Maintenance Technology programs. It gives the students a comprehensive overview of the history of motorcycles from antiques to modern machines. Students will learn motorcycle maintenance safety procedure, basic theory of the principles of operation of modern motorcycle systems, and practical applications of those principles including basic electricity, battery care, and alternator operation. Upon the successful completion of this course, the students should be able to perform routine maintenance items such as selecting the correct fuels, oils and filters, checking wheel alignment, lubrication methods, and making informed modification decisions. The students will be prepared to perform routine daily and weekly service as well as proper seasonal storage preparation. Safety glasses, ear protection, and closed-toe leather shoes are required.

MTRCL 110 Motorcycle Engine Theory 3 Units

Prerequisite: MTRCL 100 with a grade of "C" or better; or equivalent.
Hours: 36 hours LEC; 54 hours LAB
This course offers a comprehensive view of how four-stroke motorcycle engines work through careful discussion of the theory of operation, technical principles, and engine components involved in converting fuel to motion. This course is also excellent for technical as well as non-technical students who are interested in understanding any modern internal combustion engine. Safety glasses, ear protection, and closed-toe leather shoes are required.

MTRCL 120 Motorcycle Exhaust, Frame, Suspension, Tires, Wheels, and Brakes 3 Units

Prerequisite: MTRCL 100 with a grade of "C" or better; or equivalent.
Hours: 36 hours LEC; 54 hours LAB
This course covers the theory, design, and function of motorcycle exhaust systems; various frame and suspension designs; tires; cast and spoked wheels; and both disk and drum brakes. A student will learn how to perform preventive maintenance, troubleshoot discrepancies, repair the systems, and assist customers in selecting suitable aftermarket parts in both a dealer and independent shop setting. Safety glasses, ear protection, and closed-toe leather shoes are required.

MTRCL 121 New Motorcycle Inspection, Assembly, Service, and Detail 3 Units

Prerequisite: None.
Hours: 36 hours LEC; 54 hours LAB
This course is designed to provide the students with the knowledge and skills necessary to prepare new motorcycles to be showroom ready. This course is not part of the Motorcycle Certificate Program.

MTRCL 130 Motorcycle Engine Overhaul 3 Units

Prerequisite: MTRCL 100 with a grade of "C" or better; or equivalent.
Hours: 36 hours LEC; 54 hours LAB
This course offers a comprehensive view of the parameters determining the need for overhaul of modern motorcycle engines, the methods and techniques involved and the adjustments and operations check afterwards. Further, it covers the use of overhaul and parts manuals and the logic employed in them. Further, the student should be able to provide advice to the customer about sensible performance modifications. Safety glasses, ear protection, and closed-toe leather shoes are required.

MTRCL 140 Motorcycle Tune-up and General Service 3 Units

Prerequisite: MTRCL 100 with a grade of "C" or better; or equivalent.
Hours: 36 hours LEC; 54 hours LAB
This course covers motorcycle tune-up, general service, ignition and valve adjustment, lubrication, and oil and filter changes as well as the special tools required. Further, it covers service and parts books, micro-fiche and computerized manuals, and the logic employed in them. Students will learn to perform virtually all aspects of scheduled maintenance such as tune-ups, valve adjustment, oil changes, and lubrication service as well as troubleshoot and repair common maintenance discrepancies. Safety glasses, ear protection, and closed-toe leather shoes are required.

MTRCL 141 Motorcycle Dyno Operation and Data Acquisition 1.5 Units

Prerequisite: MTRCL 100 with a grade of "C" or better; or equivalent.
Hours: 18 hours LEC; 27 hours LAB
This is an in-depth course covering motorcycle engine and component theory and function as related to dynamometer operation. Further, it covers using a dyno for data acquisition for successful maintenance discrepancy diagnosis and solution. Various motorcycles will be run on the SCC dyno so students can use the data to trouble-shoot maintenance problems. After the repairs or adjustments, the motorcycles will be run again to measure the results. Safety glasses, ear protection, and closed-toe leather shoes are required. This course may be taken three times for credit providing the make and model of the motorcycle being tested changes.

MTRCL 150 Power Transmission Systems 1.5 Units

Prerequisite: MTRCL 100 with a grade of "C" or better or equivalent.
Hours: 18 hours LEC; 27 hours LAB
This course covers motorcycle power transmission systems from the engine crankshaft through the clutch and transmission and through the final drive system to the rear wheel. Theory of operation including lubrication requirements, gear ratios, design and function of the primary drive, the clutch, the transmission, and the final drive will be covered. Clutches, transmissions, and drive systems will be removed, disassembled, cleaned, inspected, measured, rebuilt, reinstalled, and checked for proper operation. Safety glasses, ear protection, and closed-toe leather shoes are required.

MTRCL 295 Independent Studies in Motorcycle Maintenance Technician 1-3 Units

Prerequisite: None
Hours: 54 hours LEC
See Independent Studies

MTRCL 299 Experimental Offering in Motorcycle Maintenance Technician .5-4 Units

Prerequisite: None
Hours: 36 hours LEC; 54 hours LAB
See Experimental Offerings