

EVENING PROGRAM CERTIFICATE IN AUTOMOTIVE MAINTENANCE TECHNOLOGY (ST. LOUIS/RANKEN WEST ONLY)

This curriculum emphasizes the most modern diagnostic equipment in the automotive maintenance field. Upon completion of the instruction and hands-on experience in diagnosing and repairing automotive problems and malfunctions, students are prepared to enter the job market as entry-level technicians.

Successful completion of all four semesters is necessary to qualify for a certificate. These classes meet on Monday and Wednesday or Tuesday and Thursday evenings. For students interested in furthering their education, these courses can be credited toward the Bachelor of Science in Applied Management (BSAM) degree.

The program develops student proficiencies in the following areas:

- Engine repair
- Automatic transmission/transaxle
- Manual drivetrain and axles
- Suspension, steering and brakes
- Electrical/electronic systems
- Heating and air conditioning
- Engine performance

Upon completion of this program, students will be able to:

- Inspect, service and repair vehicle: Basic Engines, Computerized Engine Controls, Manual and Automatic Transmissions, Steering, Suspensions, Brakes, Electrical, Heating and Air Conditioning Systems.
- Adapt to new technologies in the automotive service and repair industry.

| EVENING PROGRAM COURSES | | | HOURS | PREREQUISITES |
|--|---------|---|-------|---------------|
| First Semester | AMT0100 | Maintenance and Light Repair, Brakes, Steering and Suspension | 6 | |
| Second Semester | AMT0110 | Engines and Automotive Electricity | 6 | AMT0100 |
| Third or Fourth Semester | AMT0120 | Computer Controls and HVAC | 6 | AMT0110 |
| Third or Fourth Semester | AMT0240 | Clutches/Manual Transmissions and Automatic Transmissions | 6 | AMT0100 |
| <i>Total Technical Credit Hours for Certificate Completion</i> | | | 24 | |

COURSE DESCRIPTIONS

AMT0100 Maintenance and Light Repair, Brakes, Steering and Suspension

Instruction begins with basic maintenance and light repair by changing oil, rotating tires, and doing multi-point inspections. Students get comprehensive overview of vehicle brake systems. An in-shop emphasis focuses on the hands-on servicing of braking systems, steering systems, suspension systems, and tire and wheel alignment, including two and four wheel adjustments. *Six credit hours*

AMT0110 Engines and Automotive Electricity

Students begin with a detailed study of internal combustion engines, including the theory of operation and basic adjustments. Instruction includes disassembly, component study, component measurement, reassembly and how to make the appropriate mechanical adjustments on an automotive engine. During the second half of the semester, students will focus on electrical foundations and cover the theory of Parallel/Series circuits, Ohm's law, and the testing and servicing of various electrical components. Electrical systems that will be covered include automotive batteries, starters, charging systems, interior/exterior lighting and accessories. *Six credit hours*

AMT0120 Computer Controls and HVAC The semester begins with automotive body electronics, including the theory and operation of automotive accessories and automotive air conditioning systems. Students will practice hands-on diagnosis and repair of R134A refrigerant systems. The second part of the semester covers the principles of operation, diagnosis and service of computer controlled engines and On-board Diagnostic System (OBD) II technology. The hands-on emphasis includes diagnosis of computer circuitry with a digital automotive scope and various types of scan tools. Computer-related drivability troubleshooting is featured during this course. *Six credit hours*

AMT0240 Clutches/Manual and Automatic Transmissions

This course starts with the basic principles of operation for clutches, differentials, manual transmissions and transaxles. The course includes hands-on disassembly, evaluation and reassembly of rear wheel drive differentials, limited slip carriers, transfer cases, rear wheel drive transmissions, transaxles, Constant Velocity (C.V.), driveshafts and clutches. This course finishes up the semester covering automatic transmissions and automatic transaxles commonly used today. Students learn torque converters, planetary gearing, clutches, bands, electronic controls and hydraulic circuitry. The emphasis of this course is the disassembly, evaluation and reassembly of several currently-used transmissions and transaxles. *Six credit hours*