

AUTOMOTIVE SERVICE TECHNOLOGY

MASTER PLAN OF INSTRUCTION 2020 - 2021

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MISSION

The mission of Fort Myers Technical College is to provide high quality career and technical training, in order to prepare students for current and emerging industries, delivered by a professional and caring staff in a positive learning environment.

The School District of Lee County does not discriminate on the basis of gender, race, color, age, religion, sex, sexual orientation, national or ethnic origin, marital status, or disability in the provision of educational programs, activities or employment policies as required by Title IX, Title VI, Title VII, Age Discrimination Act of 1967 and Section 504 of the Rehabilitation Act of 1973, 1992, Americans with Disabilities Act, the Florida Educational Equity Act of 1984 and the Boy Scouts of America Equal Access Act. Questions, complaints, or requests for additional information regarding discrimination or harassment may be sent to: Equity Coordinator, Fort Myers Technical College, 3800 Michigan Ave., Fort Myers, FL 33916, (239) 334-4544.

Lack of English language skills will not be a barrier to admission and participation. The district may assess each student's ability to benefit from specific programs through placement tests and counseling, and, if necessary, will provide services or referrals to better prepare students for successful participation.



Fort Myers Technical College
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AUTOMOTIVE SERVICE TECHNOLOGY

INTRODUCTION

The Automotive Service Technology program is an 1,800-hour program. It is a comprehensive training program for individuals with an entry-level status in the automotive industry. The program covers a wide range of instruction that will be found in the outline of this plan. The program teaches practical automotive theory as well as direct hands-on learning.

The program uses live work and real-world automotive repair scenarios to help the students gain the knowledge and skills needed for today's automotive technician. The systems in today's automobiles are rapidly changing; it is very important to know why a procedure is done as well as the proper way to do the repair. Understanding how every system functions has an important role to play in modern automotive repair.

Each student must successfully complete written tests on theory and related topics as well as successfully demonstrate the practical application in a laboratory environment, both individually and in a group setting.

Prerequisites for this program include a solid background in math and general science with emphasis on basic math, formulas, percentiles, fraction and decimal conversions, and the use of precision measuring equipment. These areas are taught as part of the program of study, but it would be beneficial to have these skills in advance.

Competencies in each area are earned after both written and performance testing are completed.

PROGRAM MISSION

The mission of the Automotive Service Technology program is to prepare students for employment in the automotive service technology field. It is also designed to assist those students who wish to update present skills and cross-train in other automotive areas.

PROGRAM PHILOSOPHY

- We believe in education and work.
- We believe in careful assessment of abilities and interests so that all students, including those with special needs, may formulate realistic occupational goals.
- We believe in equal access to training programs and in providing comprehensive support services.
- We believe in providing an active learning environment that develops technical skills, academic skills, and effective work habits.
- We believe in continuous program and curriculum revision based on input from employers, advisory committee members, concerned citizens, students, and school personnel.
- We believe in innovative teaching methods that prepare students to meet industry standards.
- We believe in lifelong learning, responsible citizenship, and promoting individual self-worth to help our students become productive citizens in today's global society.

PROGRAM CONTENT

- Introduction to Automotive Mechanics & Safety
- Hydraulic Brake System
- Suspension and Front End Alignment
- Automotive Electrical Systems
- Engine Repair
- Employability Skills
- Entrepreneurship

ESSENTIAL TRAINING TASKS

Physical Requirements

Ability to:

- Maintain a high degree of manual dexterity
- Stoop
- Kneel
- Lift at least 50 pounds and walk with it
- Use voice, hearing, and sight effectively to perform jobs in the automotive field
- Crouch or bend
- High degree of finger dexterity
- Crawl
- Differentiate colors
- Handle and physically manipulate supplies
- Use depth perception
- Work in an atmosphere of loud noise
- Work in an atmosphere of changes in temperature
- Perform repetitive tasks
- Measure accurately
- Work without close, direct supervision
- Work on multiple tasks and priorities
- Perform and complete tasks of relative complexity

Cognitive Requirements

Ability to:

- Handle confrontation and frustration and assist in problem resolution
- Interpret a variety of instructions furnished in written, oral, and diagrammatic form
- Collaborate with others
- Cope with high levels of stress
- Perform mathematical computations at a level of tenth grade or higher
- Make fast decisions under pressure
- Demonstrate a high degree of patience
- Read and understand computer and related equipment
- Work in close or crowded areas

ACCOMMODATIONS

Federal and state legislation requires the provision of accommodations for students with disabilities as identified on the secondary student's IEP or 504 plan or post-secondary student's accommodations plan to meet individual needs to ensure equal access. Post-secondary students with disabilities must self-identify, present documentation, required accommodations if needed, and develop a plan with their post-secondary service provider. Accommodations received in post-secondary education may differ from those received in secondary education. Accommodations change the way the student is instructed. Students with disabilities may need accommodations in such areas as instructional methods and materials, assignments and assessments, time demands and schedules, learning environment, assistive technology, and special communication systems. Documentation of the accommodations requested and services provided are maintained in a confidential file.

TUITION

Tuition is charged for adult students at a reasonable rate that may vary slightly from year to year and is due prior to the first day of each semester. Current fee information is available from Student Services. Tuition is waived for eligible high school dual-enrolled students. Failure to pay all fees due at the time class begins will result in the student not being able to attend class and/or clinical.

CLASS SCHEDULE

Daytime certificated classes meet Monday through Friday from 8:00 A.M. until 2:30 P.M. This amounts to 30 hours of classroom instruction per week. Lunch breaks are 30 minutes in length.

ATTENDANCE POLICY

In an effort to develop appropriate employability skills, FMTC students are expected to attend all class sessions. As is expected in the workplace, when it is necessary to be absent due to illness or emergency situations, all students are to notify the instructor on or before the date of absences. The student attendance policy for each program is consistent with industry standards.

Campus attendance is kept via a computerized system. It is the responsibility of the student to **log in and out** in order to receive credit for class time. This allows the school to keep accurate attendance records for the actual number of hours and minutes attended.

All adult students are expected to be in attendance at least 90% of their scheduled hours during each semester. Adult students failing to maintain the 90% attendance standard may not be permitted to continue in their program and may be required to sit out one full semester, unless administration approves to waive the 90% standard based on special circumstances.

Absences

A student who is absent for six (6) consecutive class sessions, without prior approval and without contact with the instructor, will be withdrawn from enrollment in his/her program. A student withdrawn for absenteeism must petition administration to return. Students exhibiting a pattern of consecutive absences of four days may be subject to dismissal as determined by a School Intervention Team. School Intervention Team meetings will be held as necessary to attempt to alleviate issues resulting in excessive absences and to counsel the student of possible alternatives and consequences.

Students, who are late for class, including returning late from lunch, must clock in. Students who leave school early must notify their instructor and clock out. This time out of class is recorded as time absent and is counted against the required 90% attendance. Excessive tardies or early departures will be reported to the Security Specialist and will result in a meeting with the School Intervention Team.

Adult students who know they will be out of school for an extended period of time (4 days or longer) may apply for a Leave of Absence from their program. A Leave of Absence will be granted only once during a twelve-month period. STUDENTS WHO EXERCISE A LEAVE OF ABSENCE MAY HAVE TO EXTEND THEIR TIME IN THEIR PROGRAM AND PAY ADDITIONAL FEES.

Leaving Campus During School Hours

Students should notify their instructor when leaving campus early. This is for the safety of students, to accurately track time, and to allow the instructor to best utilize instructional resources.

PLAN OF INSTRUCTIONAL PRACTICES

Teaching Methods

Lecture, demonstration, discussion, group interaction, verbal and written quizzes, skill practice, individualized instruction, computerized tutorials, interactive learning, web-based learning, and online courses are among the teaching methods utilized.

Textbooks, workbooks, projects, journals, reports, simulations, hands-on computer experience, collaborative learning, video-taped instructions, audio tapes, transparencies, guest speakers, board examples, field trips, customer service projects, program job shadowing, cooperative on-the-job training, computerized tutorials, computerized assessment, interactive learning, web-based learning, and online courses are used for instruction.

Among the provisions made to allow for individual differences are pre-testing to determine entry level, workbooks and study guides for progress at individual rate, progress grading, individualized instruction, individual project assignments, and referral for basic skills remediation. Curriculum may be adapted to meet the individual needs and individual goals of students.

Safety

A basic outline of safety standards and practices is covered the first week of class along with a continuous implementation of safety principles.

Evaluation

Class performance, quizzes, tests, attendance, portfolio assessments, completion of project assignments, decision-making, work habits, achievement of entry-level competencies, and other methods are used for evaluation.

Work-Based Activities

Work-based learning activities play an integral part of the curriculum of FMTC's career-technical training programs. These activities are planned with two objectives in mind. First, the activity provides students with opportunity to develop and apply 'real world' experience using the knowledge and skills attained in the program. Second, the activity provides the instructor with objective input from potential employers or customers of program graduates. Each work-based activity has a written instructional plan outlining objectives, experiences, competencies, and evaluation required during the activity.

Work-based activities are program specific and may include:

- Unpaid in-school shop activities to provide customer service opportunities under the direct supervision of the program instructor.
- Unpaid job shadowing experiences that may include in-school or off-campus employer-based experiences under the supervision of a qualified employer representative who is working closely with the program instructor.
- Paid or unpaid cooperative training experiences conducted at the employer's work location under the supervision of a qualified employer representative and under the direction of the program instructor.

Cooperative Education

Cooperative training is available for students and coordinated by the instructor and career specialist. Cooperative training is for students who have shown competence in program training that indicates readiness for placement in an on-the-job program. High school students participating in the cooperative job placement program must be in the 12th grade. To be eligible for a cooperative education experience, students must have completed one-half of the required program hours and requirements.

Students may be returned to the program for additional training if they do not function satisfactorily on the job or when the cooperative agreement is terminated at the request of the student, parent, employer, or program instructor. Veterans will be accepted into the program in accordance with the Department of Veterans Affairs approved program.

Additional information regarding cooperative opportunities may be obtained from the program instructor or career specialist.

Job Shadowing

Job shadowing experiences, or volunteer experiences, are available to students as part of their program training. These experiences are designed to give the student actual hands-on experiences doing a variety of related tasks. Length and type of experiences will vary. The program instructor determines appropriateness of the experience. Additional information regarding job-shadowing experiences may be obtained from the program instructor or career specialist.

GRADING PROCEDURE

The four marking periods of nine weeks each, will be used to formulate the final grade for most programs. The grades will have the following values:

A = 90-100 percent	Test Scores	25%
B = 80-89 percent	Homework	25%
C = 70-79 percent	Shop	25%
D = 60-69 percent	Employability skills, attendance, dress code	25%
F = 0-59 percent		
I = Incomplete		

Grades are determined as follows:

- Completion of competencies for units of instruction
- Written test scores
- Performance test scores
- Classroom/laboratory behavior and attitude
- Attendance
- Employability skills
- Class related employer evaluations

Fort Myers Technical College is a post-secondary institute designed to provide trained individuals to industry. The approval post-secondary program grading requirements must be met if the student is to receive a certificate.

Program Progress

Students are required to complete the program of training within the hours allotted by the state of Florida for completion. Progress must be at a rate that will allow completion of the program with the number of membership hours stated in the Curriculum Frameworks.

Failure to progress at this rate will require the student to meet with the program instructor, career specialist, and an administrator in order to identify an appropriate completion point or to assist the student in selecting a more appropriate training program.

Work Habits

Effective work habits are the cornerstone to successful employment. Students are expected to demonstrate productive work habits during all phases of enrollment. Instructors will work with students who need assistance in this area to improve the overall possibility for successful employment.

Attendance: Attends class, arrives/leaves on time; begins and ends work as expected.

Character: Displays loyalty, honesty, trustworthiness, dependability, reliability, initiative, self-discipline, and self-responsibility; displays a high level of effort and commitment to performing and completing work.

Teamwork: Respects the right of others; respects confidentiality; is cooperative; is assertive; displays a customer service attitude; seeks opportunities for continuous learning; demonstrates mannerly behavior; encourages and facilitates cooperation, pride, trust, and group identity; fosters commitment and team spirit.

Appearance: Displays appropriate dress, grooming, hygiene, and etiquette; wears full regulation uniform.

Attitude: Displays a willingness to cooperate and accept constructive criticism; sets realistic expectations; approaches assignments with interest.

Productivity: Is prepared for class by reading assignments and completing homework; contributes to class discussions; and involvement in lab activities (in other words, no sleeping or daydreaming). Follows safety practices; conserves and maintains equipment and supplies; keeps work area neat and clean; follows directions and procedures; makes up assignments and tests punctually; notifies proper authorities of situations presenting potential safety hazards; does not use or knowingly permits others to use tools and equipment improperly; stays on task and utilizes time constructively.

Organization: Manifests skill in prioritizing and management of time and stress; demonstrates flexibility in adapting to changes.

Communication: Communicates accurate information to others in a professional and courteous manner; displays appropriate nonverbal (eye contact, body language) and oral (listening, telephone etiquette, grammar) skills; asks pertinent questions; listens attentively to others, notifies instructor in advance of absences or tardies.

SATISFACTORY ACADEMIC PROGRESS

In order to receive and continue to receive financial assistance of any type, a student must maintain satisfactory academic progress. The Financial Aid Advisor will require a progress report to be completed by the student's instructor and submitted to the Financial Aid Office prior to each disbursement.

Students are considered to be making Satisfactory Academic Progress (SAP) if they successfully complete their scheduled clock hours, achieve a specific cumulative grade evaluation or grade point average (GPA), and do not exceed the maximum time limits to complete their course of study. Each Student Academic Progress will be checked at 450 clock hours and prior to subsequent disbursements for students enrolled in programs one academic year or greater. Progress will be checked at the half-way point for programs less than one academic year. No SAP is required prior to the first disbursement.

REQUIREMENTS FOR A CERTIFICATE

All competencies specified in the Florida Department of Education Curriculum Frameworks for the program must be successfully completed. Successful completion is at least a 75% average in the areas of skills, knowledge, and work habits.

Proficiency in the competency standards listed in the Master Plan of Instruction must be demonstrated.

Students must meet minimum T.A.B.E. skill requirements (or qualify for an exemption) prior to graduation.

In addition to the requirements above, the recommendation of the instructor for certification includes: consideration of personal appearance, employability skills, willingness to learn and to work, punctuality, cooperative attitude, and appropriate work habits.

STUDENT DRESS CODE

Students who attend FMTC shall dress in a manner appropriate for the job in which they are receiving training, including any special protective gear and professional uniforms. All clothing must be neither distracting nor offensive and be clean, neat, modest, in good repair, and appropriately sized.

Administration has the final authority for determining whether or not a student's apparel conforms to the dress code. When it is determined that it does not, students will be required to change into clothing which will conform to this code or leave campus. Students may return to campus when they have changed into appropriate clothing.

Program designated uniform: collared dark blue shirts (tucked into pants at waist), dark blue work pants (no jeans), and work shoes.

JOB DESCRIPTIONS

OCP A Automobile Services Assistor (300 Hours)

Lube tech, basic customer service.

OCP B Engine Repair Technician (150 Hours)

Engine repair/engine overhaul technician.

OCP C Automatic Transmission and Transaxle Technician (150 Hours)

Automatic transmission servicer/installer/rebuilder.

OCP D Manual Drivetrain and Axle Technician (150 Hours)

Manual transmission, clutch installer and axle rebuilding technician.

OCP E Automobile Suspension and Steering Technician (150 Hours)

Front end problem diagnostic and component replacement.

OCP F Automotive Brake System Technician (150 Hours)

Brake problem diagnostic and replacement technician.

OCP G Automotive Electrical/Electronic System Technician (300 Hours)

Automotive Electrical/Electronic System Technician

OCP H Automotive Heating and Air Conditioning Technician (150 Hours)

Automotive HVAC, air-conditioning, heating, and powertrain cooling system diagnostic and component replacement technician.

OCP I Automotive Engine Performance Technician (300 Hours)

Drivability technician responsible for powertrain problem diagnostic/repair/replacement.

TEXTBOOKS

For the most recent book list for the Automotive Service Technology program, visit FMTC's online bookstore - www.fmtcshop.com.

REQUIRED MATERIALS

Supplies:

Paper, pencils, and notebook

Tools (included in tuition and fees):

- Pro-Series 3 Dr Cart-Org
- 25' Tape Measure
- ½" Impact Wrench
- ¼" 13pc Deep Metric socket Set
- ¼" 13pc Metric socket Set
- ¼" Dr 72 Tooth Ratchet
- ¼" x 2" Extension
- ¼" x 6" Extension
- 3/8" 13pc metric socket Set
- 3/8" 13pc Deep metric socket Set
- 3/8" Fine Tooth Ratchet
- 3/8" x 6" Extension
- 3/8" x 3" Extension
- ½" 15pc Deep metric socket Set
- 12pc Metric wrench Set
- Tire Tread Depth Gauge
- 10" Chrome Adj. Wrench.
- 13pc SAE Long Hex Key Set
- 16 oz Ball Peen Hammer
- Digital Multi-meter
- CSI Tactical Flashlight
- 8pc Screwdriver Set
- 5pc Multi-Purpose pliers Set
- 10" Straight Jaw Locking Pliers
- Insp. Mirror 2-1/8" x 3-1/2"
- Pocket Magnetic Pickup Tool
- Chuck-Dual Foot
- 20-120 PSI Tire Gauge
- 1-1/4" Scraper
- Clear safety glasses
- Oil Filter Wrench

PROGRAM OBJECTIVES

See the attached Florida Department of Education Curriculum Frameworks for program objectives and competencies.

**Florida Department of Education
Curriculum Framework**

Program Title: Automotive Service Technology
Program Type: Career Preparatory
Career Cluster: Transportation, Distribution and Logistics

PSAV – Career Preparatory	
Program Number	I470608
CIP Number	0647060405
Grade Level	30, 31
Standard Length	1800 hours
Teacher Certification	AUTO IND @7 %7 %G AUTO MECH @7 7G
CTSO	SkillsUSA
SOC Codes (all applicable)	49-3023 – Automotive Service Technicians and Mechanics
CTE Program Resources	http://www.fldoe.org/academics/career-adult-edu/career-tech-edu/program-resources.stml
Basic Skills Level	Mathematics: 10 Language: 9 Reading: 9

Purpose

This program offers a sequence of courses that provides coherent and rigorous content aligned with challenging academic standards and relevant technical knowledge and skills needed to prepare for further education and careers in the Transportation, Distribution and Logistics career cluster; provides technical skill proficiency, and includes competency-based applied learning that contributes to the academic knowledge, higher-order reasoning and problem-solving skills, work attitudes, general employability skills, technical skills, and occupation-specific skills, and knowledge of all aspects of the Transportation, Distribution and Logistics career cluster.

The content includes but is not limited to broad, transferable skills and stresses understanding and demonstration of the following elements of the automotive industry; planning, management, finance, technical and product skills, underlying principles of technology, labor issues, community issues and health, safety, and environmental issues.

Additional Information relevant to this Career and Technical Education (CTE) program is provided at the end of this document.

Program Structure

This program is a planned sequence of instruction consisting of nine occupational completion points.

NOTE: It is recommended that students complete **OCP-A (Automobile Services Assistor)** and/or demonstrate mastery of the outcomes in **OCP-A (Automobile Services Assistor)** prior to enrolling in

additional Automotive Service Technology courses. **The sequence of OCP's, after completing and/or demonstrating mastery of OCP-A (Automobile Services Assistor), is at the discretion of the instructor.**

For institutions using this framework, the National Automotive Technicians Education Foundation (NATEF) highly recommends the Master Automotive Service Technology (MAST) program Certification/Accreditation. Florida Statute (F.S.) 1004.925 – Automotive service technology education programs; certification. – requires all automotive service technology education programs shall be industry certified in accordance with rules adopted by the State Board of Education.

Benchmarks identified with a designation of P-1, P-2, or P-3 are NATEF tasks. NATEF requires that a minimum of 95% of P-1 tasks, 80% of P-2 tasks, and 50% of P-3 tasks are to be accomplished.

When offered at the postsecondary level, this program is comprised of courses which have been assigned course numbers in the SCNS (Statewide Course Numbering System) in accordance with Section 1007.24 (1), F.S. Career and Technical credit shall be awarded to the student on a transcript in accordance with Section 1001.44 (3)(b), F.S.

The following table illustrates the **PSAV** program structure:

OCP	Course Number	Course Title	Course Length	SOC Code
A	AER0014	Automobile Services Assistor	300 hours	49-3023
B	AER0110	Engine Repair Technician	150 hours	49-3023
C	AER0257	Automatic Transmission and Transaxle Technician	150 hours	49-3023
D	AER0274	Manual Drivetrain and Axle Technician	150 hours	49-3023
E	AER0453	Automobile Suspension and Steering Technician	150 hours	49-3023
F	AER0418	Automotive Brake System Technician	150 hours	49-3023
G	AER0360	Automotive Electrical/Electronic System Technician	300 hours	49-3023
H	AER0172	Automotive Heating and Air Conditioning Technician	150 hours	49-3023
I	AER0503	Automotive Engine Performance Technician	300 hours	49-3023

National Standards

Programs identified as having Industry or National Standards corresponding to the standards and/or benchmarks for the Automotive Service Technology program can be found using the following link: <http://www.natef.org/Achieving-Accreditation/Program-Standards.aspx>

Common Career Technical Core – Career Ready Practices

Career Ready Practices describe the career-ready skills that educators should seek to develop in their students. These practices are not exclusive to a Career Pathway, program of study, discipline or level of education. Career Ready Practices should be taught and reinforced in all career exploration and preparation programs with increasingly higher levels of complexity and expectation as a student advances through a program of study.

1. Act as a responsible and contributing citizen and employee.
2. Apply appropriate academic and technical skills.
3. Attend to personal health and financial well-being.
4. Communicate clearly, effectively and with reason.
5. Consider the environmental, social and economic impacts of decisions.
6. Demonstrate creativity and innovation.
7. Employ valid and reliable research strategies.
8. Utilize critical thinking to make sense of problems and persevere in solving them.
9. Model integrity, ethical leadership and effective management.
10. Plan education and career path aligned to personal goals.
11. Use technology to enhance productivity.
12. Work productively in teams while using cultural/global competence.

Standards

After successfully completing this program, the student will be able to perform the following:

- 01.0 Proficiently explain and apply required shop and personal safety tasks relating to the automotive industry.
- 02.0 Explain and apply required tasks associated with the proper use and handling of tools and equipment relating to the automotive industry.
- 03.0 Demonstrate proficiency in preparing vehicle for routine pre/post maintenance and customer services.
- 04.0 Explain and apply proficiently the diagnosis, service and repair of engines, cylinder heads, valve train, engine block, lubrication and cooling systems.
- 05.0 Explain and apply proficiently the diagnosis, service, repair and overhaul of automatic transmissions/transaxles.
- 06.0 Explain and apply proficiently the diagnosis, service and repair of manual drivetrains, clutches, transmissions/transaxles, drive and half-shaft universals, constant velocity joints, rear axle differential assembly, limited slip, four-wheel drive and all-wheel drive.
- 07.0 Explain and apply proficiently the diagnosis, service and repair of front and rear suspensions systems, wheel alignment, and wheels and tires.
- 08.0 Explain and apply proficiently the diagnosis, service and repair of drum\disc brake, hydraulics, power assist units, electronic brakes, traction control, stability control systems and miscellaneous (wheel bearings, parking brake, electrical, etc.) systems.
- 09.0 Explain and apply proficiently the diagnosis, service and repair of electrical/electronic system components, battery, starting, charging, lighting, gauges, warning devices, driver information, horn, wiper/washer and accessory systems.
- 10.0 Explain and apply proficiently the diagnosis, service and repair of heating and air conditioning, refrigeration, compressors, compressor clutches, evaporators, receiver driers, accumulators, condensers, heating and engine cooling, related control systems, refrigerant recovery, and recycling and handling.
- 11.0 Explain and apply proficiently the diagnosis, service and repair of engines, ignition, fuel, air induction, exhaust, computer engine and emission control systems.