

Southwestern Michigan College

Testing Center

A.C.E. Test Information

Achieved Credit by Exam, or A.C.E., is one way to earn credit for some of our courses. ACE tests are written by Southwestern Michigan College staff and faculty and reflect the content taught in our courses. For this reason, credit achieved in this manner may not be transferable to other institutions. If you are planning to transfer to a four-year college, or another two-year college, you may want to contact that institution and find out if our ACE credits are accepted there.

- ACE tests are similar to a comprehensive final.
- It is necessary to master a greater depth of knowledge than general working knowledge provides.
- ACE exams are not a substitute for classroom courses.

In order to receive credit, you must score:

- **75%** or better on CONS, ELEC, INTE 159, and Welding
- **70%** or better on all other exams.
- Each test can be taken **ONE** time only. There is no retesting for ACE tests.
- Each test has a non-refundable fee of **\$50.00**.

The fee is paid in the Testing Center at the time of testing. We do not accept Credit Cards. Tests may take up to four weeks to be graded.

There is a time limit of **TWO HOURS** for each test with the exception of a **ONE-HOUR** time limit for the Welding exams. Following is a list of ACE tests available at the time of this writing and a short description of each test. The use of a calculator is permitted on specified exams. The Testing Center reserves the right to allow or deny the use of particular types of calculators.

You must have **an application** on file at Southwestern Michigan College.

You must present a valid **picture ID** at the time of testing.

Kristen Lownds, Testing Center Manager
Phone: 269-782-1347

Dowagiac Campus: David C. Briegel Building, Room 1103

Niles Campus: Main Building, Room 141

- AUTO 103** **Intro. To Automotive Technology** 3 Credit hours
 This is an introductory course which gives students an overview of the operating systems of the modern automobile. Students will be introduced to the tools and terminology used in the automotive industry as well as the EPA, CAFÉ, NHTSA regulations that govern our industry. Students will learn to perform basic service and maintenance procedures. Students will also study the how the automotive repair business is structured.
100 questions: multiple choice
- AUTO 116** **Brake Systems** 3 Credit hours
 This is the first of two courses that teaches theory, service and repair of automotive braking systems. The course provides an overview of various hydraulic and mechanical brake systems used on today's automobiles. In the course students will learn the correct usage of brake machining equipment, precise measuring techniques, and proper procedures in a comprehensive hands-on hydraulic brakes lab environment.
100 questions: multiple choice
- AUTO 119** **Electrical I** 3 Credit hours
 This course will build a solid foundation of electrical theory and principles needed for diagnosis and repair of basic automotive systems. Material covered in this course will include Ohm's law, Kirschhoff's law, electron theory, capacitance, resistance, AC/DC voltage, magnetism, electrical test equipment and circuit design and wiring diagram usage. Basic soldering and wiring repair will be covered.
100 questions: multiple choice
- AUTO 122** **Steering and Suspension Systems** 3 Credit hours
 The student will have a good understanding of the theory of operation and service of today's advanced steering and suspension systems upon completion of this course. Topics covered include steering/suspension systems diagnosis and repair, tire, and wheel service, component diagnosis and replacement, and introduction to alignment settings. Noise, vibration and harshness issues are also covered in this course. Alignment theory, operation, and service procedures for passenger car, light duty truck suspension systems. Diagnosis, correction and adjustments of alignment systems are covered.
150 questions: multiple choice & true/false
- AUTO 131** **Manual Transmissions** 3 Credit hours
 Design, theory, diagnostics, testing, and proper repair of the following systems are covered: manual transmission/transaxle assemblies and similar drivetrain components. Students will disassemble, inspect, repair and reassemble the following: manual transmissions, manual transaxles, CV joints, half shafts, transfer cases, axle assemblies, drive-shafts, and clutches. Emphasis will be given to clutch performance concerns.
200 questions: multiple choice
- AUTO 147** **Engines Repair I** 3 Credit hours
 This course presents engine theory and operation and studies the various engine designs utilized today. This course will focus on repair techniques for today's engines. The course will utilize precision measuring tools, specialized tools and equipment, and emphasize following prescribed procedures needed to properly repair today's modern engine.
150 questions; multiple choice

- AUTO 148** **Engines Repair II** 3 Credit hours
 Using comprehensive hands-on lab work, correct usage of engine machining equipment, precise measuring techniques, and diagnostic procedures students will disassemble, inspect, repair, and reassemble an automotive internal combustion engine. Emphasis will be given to performing engine machining procedures required for a proper engine overhaul; from valve resurfacing to cylinder boring and restoration. Additional topics covered include hybrid and alternative fuel technology.
- 160 questions: multiple choice*
- AUTO 228** **Engine Performance II** 3 Credit hours
 The student will expand on the knowledge gained in Auto Engine Performance Systems I course and apply the theories to the more advanced systems found on current vehicles. Systems covered include computer controlled ignition and fuel systems, distributorless ignition, coil-on-plug ignitions, throttle body and port fuel injection, OBD II systems, Mode \$06 and other emissions related component systems. Diagnosis includes using scan tools, digital meters and test equipment.
- 150 questions: multiple choice*
- AUTO 232** **Advanced Braking and Chassis Systems** 3 Credit hours
 This class is an advanced brakes, steering and chassis systems electrical/electronic component class covering ABS (Anti-lock Braking Systems) components, electronic suspension system components including ride control and stability systems, electronic steering assist systems, traction control systems and other modern systems including collision alert and accident avoidance systems. Component operation, diagnosis and testing and replacement will be performed and discussed.
- 200 questions; multiple choice*
- AUTO 234** **Automatic Transmission** 3 Credit hours
 This course guides the student from basic transmission design, through hydraulic operations, including electronic controls as they relate to transmission performance. Theory, construction, diagnosis, and proper repair of automatic transmissions are extensively covered. Students will use transmission test equipment and diagnostic charts to diagnose, disassemble, repair, and reassemble an automatic transmission and a transaxle assembly.
- 200 questions: multiple choice*
- AUTO 246** **Alternative Fuels and Hybrid Electric Vehicles** 3 Credit hours
 This course guides the student from basic carbon-based fuels and alternative fuels, through hybrid vehicle operations, including electronic controls as they relate to hybrid performance. Theory, construction, diagnosis, and proper repair techniques of hybrid vehicle systems are extensively covered. Students will use proper test equipment and diagnostic charts to diagnose and repair a hybrid vehicle.
- 180 questions; multiple choice*
- CADD 101** **Introduction of CAD/Auto CAD** 4 Credit hours
 An introduction to the principles of computer aided design using AutoCAD software. This Course covers the creation and modification of two dimensional geometry, dimensioning, Print creation and drawing management. Three dimensional concepts will be introduced.
- Computer based test for software proficiency*

- CADD 103** **Blueprint Reading/Engineering Graphics I** 4 Credit Hours
 Instruction and practice in methods used by engineers to communicate technical ideas are emphasized, including reading blueprints, sketching multi-view and pictorial illustrations. Instruments are used to make orthographic drawings that accurately describe shape and size. Also included are sectional views, auxiliary views, and fasteners. Students will develop skill in reading and interpreting blueprint drawings.
- Drawing, short answer, matching; approximately 40 questions*
- CONS 114** **Intermediate Construction Practices** 8 Credit Hours
 This course introduces students to the fundamentals of construction including tools & safety, foundations, framing, roofing, insulation, and wall layouts. Students will learn how to lay out a foundation, frame house walls and set engineered trusses. This course will concentrate on Green Building techniques and processes utilized to accomplish these parts of the total construction process.
- 65 questions: multiple choice & true/false*
- CONS 115** **Construction Math** 2 Credit Hours
 This course stresses the use of formulas and mathematics techniques that are used in practical field applications including project set-up, material estimating and ordering, and efficient inventory management and material utilization.
- 32 questions; multiple choice, fill in the blank; standard calculator permitted*
- CONS 117** **Print Reading for Construction Trades** 2 Credit Hours
 Instruction and practice in methods commonly used to communicate technical ideas through the use of construction prints are emphasized. Students will develop skill in reading and interpreting construction print drawings. Instruments are used to make orthographic drawings that accurately describe design and size, including sketching multi-view, sectional views, auxiliary views and detail drawings of residential buildings
- 39 questions; multiple choice*
- ELEC 118** **Fundamentals of Electricity I** 4 Credit Hours
 Students need to know how to electricity is safely generated, distributed, and consumed, and how to safely install and maintain electrical circuits having resistive loads. Students will also understand a series and parallel resistive circuits. Activities will include basic tools, instruments, and calculations needed for on-the-job use. The National Electrical Code will be introduced.
- 61 questions; multiple choice and fill in the blanks*
- ELEC 119** **Fundamentals of Electricity II** 4 Credit Hours
 Students will understand how series and parallel RL, RC, IC and RLC circuits are used and how AC is generated, distributed and consumed. Tools, instruments and calculations will be used to safely install and maintain circuits that have inductive and capacitive reactive loads. The National Electrical Code will be used
- 65 questions; multiple choice*

- INTE 140** **Blueprint Reading** 2 Credit Hours
This course allows for instruction and practice in methods to communicate technical ideas through the use of blueprints being emphasized. Students will develop skill in reading and interpreting blueprint drawings. Instruments are used to make orthographic drawings that accurately describe shape and size, including sketching multi-view, sectional views, auxiliary views and pictorial illustrations.
- 73 questions; multiple choice, fill in the blanks, matching, and true/false*
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- INTE 159** **Hydraulics and Pneumatics** 3 Credit Hours
This course consists of lectures and laboratory work in the basic laws of physics with an emphasis on hydraulic and pneumatic principles in an industrial environment
- 66 questions; multiple choice; scientific calculator permitted*
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- INTE 229** **Industrial Robotics Vision** 2 Credit Hours
This course covers the basic tasks and procedures required to work with a vision system on an industrial robot. Topics include setup, teaching, testing, troubleshooting and modifying vision applications.
- 3 part exam; part 1 -multiple choice questions; part 2- vision camera setup and error proofing; part 3-creating 2D Single View Vision process.
Exam taken at the Niles Campus by appointment only*
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- WELD 159** **Basic Welding** 2 Credit Hours
This course is a survey of the hands on application of the oxy/acetylene and plasma cutting processes; the shielded metal arc, gas metal arc and gas tungsten arc welding processes.
- Two Part Test - 32 true/false – fill in blank question and hands-on practical.
Practical must be scheduled within two weeks after completion of written exam.*