

SWAM 1440 - Engine Repair (5 Credits)

Course Description

The Engine repair course conforms to ASE/NATEF standards. In this course, you will work with both classroom instruction and hands-on lab training. You will evaluate the design and operation of internal combustion engines, diagnosis of engine operation, failure analysis of engine components, and complete engine machining and rebuilding procedures. When you have completed this course, you will be eligible to take the exam for ASE certification.

Course Objectives

- Diagnose internal engine failures.
 - Remove, repair/rebuild, and reinstall modern automobile engines.
 - Apply a working knowledge of modern hybrid drive systems.
-

Course Outline

- Automotive Engines and Rebuilding
 - Theory of Engine Operation and Operating Systems
 - Factors Affecting Engine Performance and Materials
 - Engine Configurations, Intake and Exhaust Systems
 - Cylinder Heads
 - Camshafts, Valvetrains, and Timing Mechanisms
 - Engine Block Construction
 - Pistons, Rings, Connecting Rods, and Bearings
 - Alternative Fuel and Advanced Tech Vehicles
-

Textbook & Reading Materials

Cengage Unlimited (1 Year subscription), Cengage

Classroom Hours

Mo, Tu, W, Th
8:00 AM - 12:00 PM
1:00 PM - 5:00 PM

Friday
8:00 AM - 12:00 PM

For a full list of course hours visit: [Course Schedule](#)

Instructor Contact Information

Cody Dawson — cdawson@stech.edu
Shad Esplin — sesplin@stech.edu
Dallin Robinson — drobinson@stech.edu
McKael Stapel — mstapel@stech.edu

Office Hours: By appointment

Email is the preferred method of communication; you will receive a response within 24 hours during regular business hours.

Canvas Information

Canvas is the where course content, grades, and communication will reside for this course.

- stech.instructure.com
 - For Canvas, Passwords, or any other computer-related technical support contact Student Services.
 - Regular Hours and Weekdays (435) 586 - 2899
 - After Hours & Weekends (435) 865 - 3929 (Leave a message if no response)
-

Course Policies

Class attendance is required, this is not an online course. Work at home can be done on Canvas but attendance is required during your scheduled time. Effective [July 1, 2024], the grading scale for this course will change from Pass/Fail to a standard letter grade system (A, B). This change is due to a change from hours to credit hours. The grading criteria and expectations will remain the same, but the final grade will now be represented by a letter grade rather than a Pass or Fail designation. Please refer to the updated Canvas grading and course policies for more information. If you have any questions or concerns about this change, please do not hesitate to contact the instructor. Cell phones for many have become a distraction. When you are in class or lab we encourage you to keep your cell phones put away in a secure location. If you use ear buds we ask that you only use one so you can still hear the things going on around you. If you are using your phone for things other than school related items, instructors will ask you to put them away. Please follow the direction of your instructors. Those who have been asked to refrain from using your cell phone and fail to do so will be asked to meet with the Director of Transportation and student services will be notified. The program is designed to provide the student with as much hands-on work as possible. In the automotive industry you may be required to lift heavy objects and stand for hours at a time to complete work required. Technicians deal with chemicals and materials which require caution, these will be identified in the Right to Know Agreement provided to you. You will also be required to use computers to track and complete work.

High School Power School Grades: Quarter student grades will be determined by student progress percentage. Faculty will use the higher percentage of either 1) quarter progress, or 2) cumulative progress for the current training plan year. The progress percentage will be used with the grading scale to determine the minimum grade. High School Grade Scale: The following grading scale will be used to determine a letter grade from the progress percentage:

- | | | | |
|--------------|---------------|---------------|---------------|
| • A 94 - 100 | • B 83 - 86% | • C 73 - 76% | • D 63 - 66% |
| • A- 90 - 93 | • B- 80 - 82% | • C- 70 - 72% | • D- 60 - 62% |
| • B+ 87 - 89 | • C+ 77 - 79 | • D+ 67 - 69% | • F 0 - 59% |

Additional Information

InformaCast Statement: Southwest Tech uses InformaCast to ensure the safety and well-being of our students. In times of emergency, such as weather closures and delays, this app allows us to promptly deliver notifications directly to your mobile devices. To stay informed and receive real-time updates, we encourage all students to sign up for notifications. Your safety is our priority, and staying connected ensures a swift response to any unforeseen circumstances. More information and directions for signing up are available at: <https://stech.edu/emergency-notifications/>

Internet Acceptable Use Policy: The student is expected to review and follow the Southwest Technical College Internet Safety Policy at: <https://stech.edu/students/policies/>

Student Code of Conduct Policy: The student is expected to review and follow the Southwest Technical College Student Code of Conduct Policy at: <https://stech.edu/students/policies/>

Accommodations: Students with medical, psychological, learning, or other disabilities desiring accommodations or services under ADA, must contact the Student Services Office. Student Services determines eligibility for and authorizes the provision of these accommodations and services. Students must voluntarily disclose that they have a disability, request an accommodation, and provide documentation of their disability. Students with disabilities may apply for accommodations, based on an eligible disability, through the Student Services office located at 757 W. 800 S., Cedar City, UT 84720, and by phone at (435) 586-2899. No diagnostic services are currently available through Southwest Technical College.

Safety and Building Maintenance: The College has developed and follows a variety of plans to ensure the safe and effective operation of its facilities and programs. The following plans are available online:

1) Facilities Operations and Maintenance Plan; 2) Technical Infrastructure Plan; and 3) Health and Safety Plan.

Withdrawals and Refunds: Please refer to the Southwest Technical College Refund Policy at: <https://stech.edu/students/policies/>

Any high school or adult student, who declares a technical training objective is eligible for admission at Southwest Technical College (Southwest Tech). Program-specific admissions requirements may exist and will be listed on the Southwest Tech website. A high school diploma or equivalent is not required for admission but is mandatory for students seeking Title IV Federal Financial Aid.

Non-Discriminatory Policy: Southwest Technical College affirms its commitment to promote the goals of fairness and equity in all aspects of the educational enterprise, and bases its policies on the idea of global human dignity.

Southwest Tech is committed to a policy of nondiscrimination. No otherwise qualified person may be excluded from participation in or be subjected to discrimination in any course, program or activity because of race, age, color, religion, sex, pregnancy, national origin or disability. Southwest Technical College does not discriminate on the basis of sex in the education programs or activities that it operates, as required by Title IX and 34 CFR part 106. The requirement not to discriminate in education programs or activities extends to admission and employment. Inquiries about Title IX and its regulations to STECH may be referred to the Title IX Coordinator, to the Department of Education, and/or to the Office for Civil rights.

If you believe you have experienced discrimination or harassment on our campus, please contact the Title IX Coordinator, Cory Estes: cestes@stech.edu, (435) 865-3938.

For special accommodations, please contact the ADA Coordinator, Cyndie Tracy: ctracy@stech.edu, (435) 865-3944.

Southwest Technical College

757 West 800 South

Cedar City, UT 84720

info@stech.edu

(435) 586-2899