Syllabus

Automotive Braking Systems

SIU AUT 215 Section 301 Spring 2016

Southern Illinois University Automotive Technology


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http://www.IATN.NET/ http://brakes.siuc.edu/ Collard’s Site

Instructor’s goal is to provide a safe learning environment without students feeling intimidated; to encourage punctuality and responsibility.

Class Calendar
Meeting Time: 1:00 – 4:50 pm M-T-TR-F
Monday February 22, 2016 - Friday April 1, 2016

Class Location
Laboratory: Automotive Technology SL-3
Classroom: Automotive Technology 174

University Calendar Prerequisite AUT 170
Office Hours 10:00 am-11:30 am

Excused Absence for religious holidays, Students absent from classes because of required observances of major religious holidays will be excused. It is the student’s responsibility to notify in advance the instructor of each class that will be missed. Students must also take the responsibility for making up work missed.

Course Description:
Course covers brake system design, operation and diagnosis. Lectures describe brake system component interrelationships and an introduction to ABS. Special emphasis placed on component diagnosis and maintenance procedures. Laboratory experience provides students the opportunity to

use specialized tools, such as on-the-car lathes, brake bleeding equipment, and brake system diagnostic equipment.

**Course Objectives:** Safety is the first rule of the class

1. The course will provide the student with an opportunity to learn the theory of operation, diagnostic techniques, and related service activities required on current production brakes, systems.
2. The course will provide the student with the opportunity to acquire and develop skills in the service of brake systems.

**Course Schedule/Associated Readings**  See attached Reading Assignment Outline.

**Grading**

It is very important to turn in each assignment and on time.

The total points a student acquires at the end of the class will determine the final class grade. Points accumulated by the student will be the product of their quizzes, tests, exams, presentation, and competency-based laboratory project(s) illustrating the skill level of the student. Student accumulated points are divided by the total number of class points possible to present a percentage score. Deductions for attendance/participation are then taken. This final score is then compared to the grade chart for a class grade.

Students will be notified beforehand, for preparation time, to the scheduling of test and exams. Tests or exams will be administered following unit completion or as needed according to class progress. **Unless prior arrangements have been made with the instructor, any missed test or exam must be made up on the first day following the absence in which you return to class outside of class time.** Makeup work will be penalized a five percent (5%) deduction. Quizzes or given at the instructor’s discretion and cannot be made up. Participation in class discussions and enthusiasm in laboratory work will affect borderline grade situations. Students will be expected to observe all program and shop regulations and participate in maintaining a clean and safe work environment.

**Scholastic standards:**

A = 100-93%
B = 92-85%
C = 84-77%
D = 76-70%
F = 69 and below

**Attendance Policy**

Attendance is required as part of the class grade. **Attendance will be taken at the beginning of each class. To change an absence to a tardy, it is the student’s responsibility to notify the instructor, during break time or after class, that they are present.**
The Automotive Department's attendance policy will be implemented as follows:

- Each absence will result in a 2.5% reduction in the student's grade.
- Being late for class three (3) times will equal one (1) absence.
- Excessive absences may lead the student to a conference with the Chairperson of the Department of Automotive Technology before rejoining his/her class.

**Required Student Materials**

2. A three (3) ring binder.
3. Toolbox with tools as per listed for enrollment into the automotive program. (A list may be obtained at the administration office.)
4. Safety glasses.
5. Shop towels. (School bathroom towels are not to be used in the laboratory.)

Note – **Please notify the instructor as soon as possibly of any disability or medical condition that may require additional assistance.**

**Career Services** - Career Services Specialist

Woody Hall B-204  Phone  453-1040

**Special Dates to Remember:**

Spring Break is the week of March 14, 2016

**Emergency Procedures:**  Southern Illinois University Carbondale is committed to providing a safe and healthy environment for study and work. Because some health and safety circumstances are beyond our control, we ask that you become familiar with the SIUC Emergency Response Plan and Building Emergency Response Team (BERT) program. Emergency response information is available on posters in buildings on campus, available on the BERT’s website at [www.bert.siu.edu](http://www.bert.siu.edu), Department of Public Safety’s website [www.dps.siu.edu](http://www.dps.siu.edu) (disaster drop down) and in the Emergency Response Guidelines pamphlet. Know how to respond to each type of emergency.

Instructors will provide guidance and direction to students in the classroom in the event of an emergency affecting your location. **It is important that you follow these instructions and stay with your instructor during an evacuation or sheltering emergency.** The Building Emergency Response Team will provide assistance to your instructor in evacuating the building or sheltering within the facility.
Week One

SIU Braking Systems Syllabus

Introduction. Assignments, Safety, Emergency numbers

Shop introduction, Locate all safety devices and fire extinguishers, Equipment Care, Wheel lug nut torque, Battery Safety and Care, Charging Precautions, Lifts, Floor Jacks, Compressed Air, Brake Fluid precautions, Automotive Exhaust and Asbestos Concerns and Disposal.

Brake fluid back flushing hazards, DOT 3, 4, & 5 brake fluid, Effects of moisture. Review brake service concerns: Pump pedal before moving, Do not push pedal to floor, Be sure disc sliders move easily and pads are tight in caliper. Brake Bias, minimize rear wheel lock up.

**Week Two**


Brake systems, Evolution of brakes systems, Drum Brakes, Disc Brakes, Combination System, Types of drum brakes, duo servo and non servo

**Week Three**

Disc Brakes, floating and fixed, Diagnose brake drag (restricted hose or caliper). Purpose of M/C rubber diaphragm. Checking brake fluid level on High pressure accumulator. Master cylinder operation, components, Quick take-up valve

**Week Four**

Hydraulic formulas for

Pascal’s Law. Hydraulic valves, Combination valve, Metering valve,

Pressure Differential valve (self centering and non-self centering), Proportioning valve (height sensing, adjustable), Residual pressure

**Week Five**

Bleeding the brake system, Do not back flush. Power Brake booster operation, Vacuum, Hydro-boost, Electric / Hydraulic. Anti-Lock Brake introduction: Speed Sensors