COURSE TITLE: Automotive Steering & Suspension (AUMT 1416_5A1) Lab

CREDIT

4 Semester Credit Hours (3 hours lecture, 4hour Lab)

MODE OF INSTRUCTION

Face to Face

INSTRUCTOR CONTACT INFORMATION

Instructor:	Bob Hodnett
Email:	rhodnett@lit.edu
Office Phone:	409-257-0065
Office Location:	ATC-#104
Office Hours:	Tuesday/Thursday 10:30a.m.-12:00p.m. pm during semester. By appointment only.

PREREQUISITE/CO-REQUISITE:

(NONE)

COURSE DESCRIPTION:

This course details the operation, construction, service, and repair of everything from tires to four-wheel alignment. This section will make you a better chassis technician, and help you prepare to pass ASE certification test A4, Suspension and Steering.

COURSE OBJECTIVES:

There are various tire, wheel, and hub designs used today on passenger vehicles and light trucks. This course explains how tires and wheels are constructed to give safe and dependable service. It also covers hub and wheel bearing construction for both rear- and front-wheel-drive vehicles. As a result, you will be better prepared when learning more about brakes, suspension systems, and wheel alignment.

REQUIRED TEXTBOOK AND MATERIALS

1. Modern Automotive Technology (Digital Textbook)
   Author: James E. Duffy/Brian Lacroix
   Publisher: Goodheart and Willcox Company, Inc.
   ISBN # 979-8-89118-989-8 11th edition *
2. Modern Automotive Technology (Digital Workbook)
   Author: James E. Duffy/Brian Lacroix
   Publisher: Goodheart and Willcox Company, Inc.
   ISBN # 979-8-89118-989-8 11th edition *
3. Modern Automotive Technology (Digital Shop Manual)
   Author: James E. Duffy/Brian Lacroix
   Publisher: Goodheart and Willcox Company, Inc.
   ISBN # 979-8-89118-989-8 11th edition *
4. Notebook and 8.5" x 11" notebook paper
5. Blue and Black ink pen.
6. Lap top or Tablet with internet capability's

ATTENDANCE POLICY

1. Missing more than 20% of classes will result in an automatic "F" for the course.
2. Absences are counted for unexcused, excused and coming to class late.
3. Missing more than 20% of a class period will count as an absence.
4. Being tardy 3 times equals 1 absence.

DROP POLICY

If you wish to drop a course, you are responsible for initiating and completing the drop process. If you stop coming to class and fail to drop the course, you will earn an "F" in the course.

Course Schedule

Week#	**Topic-Reference**
1/2/3	Course introduction, policies, Tire, wheel, & wheal bearing fundamentals • Lecture/Lab • Chapter: 36 • Quiz
4/5	Tire, wheel, & wheel bearing diagnosis & service • Lecture/ Lab • Chapter: 37 • Quiz
6/7	Suspension system technology • Lecture/Lab • Chapter: 38 • Test
8/9	Suspension system diagnosis & service • Lecture/Lab • Chapter: 39 • Quiz
9/10	Steering system technology • Lecture/Lab • Chapter: 40 • Quiz
11/12/13	Steering system diagnosis & service • Lecture/Lab • Chapter: 41 • Test
14/15	Wheel alignment • Lecture/Lab • Chapters: 42 • Test
16	Finals Week • Test

Calendar dates are subject to change due to unforeseen circumstances.
Check Blackboard for any changes in due dates

COURSE EVALUATION

Final grades will be calculated according to the following criteria:

Daily work, quizzes, and homework assignment.	**40%**
Lab	**30%**
Homework	**10%**
Final Exam	**20%**
Total	***100%***

GRADE SCALE

- 90-100 A
- 80-89.9 B
- 70-79.9 C
- 60-69.9 D
- 0-59.9 F

TECHNICAL REQUIREMENTS

- The latest technical requirements, including hardware, compatible browsers, operating systems, etc. can be found online at https://lit.edu/online-learning/online-learning-minimum-computer-requirements. A functional broadband internet connection, such as DSL, cable, or WiFi is necessary to maximize the use of online technology and resources.

DISABILITIES STATEMENT

The Americans with Disabilities Act of 1990 and Section 504 of the Rehabilitation Act of 1973 are federal anti-discrimination statutes that provide comprehensive civil rights for persons with disabilities. LIT provides reasonable accommodations as defined in the Rehabilitation Act of 1973, Section 504 and the Americans with Disabilities Act of 1990, to students with a diagnosed disability. The Special Populations Office is located in the Eagles' Nest Room 129 and helps foster a supportive and inclusive educational environment by maintaining partnerships with faculty and staff, as well as promoting awareness among all members of the Lamar Institute of Technology community. If you believe you have a disability requiring an accommodation, please contact the Special Populations Coordinator at (409)-951-5708 or email specialpopulations@lit.edu. You may also visit the online resource at Special Populations - Lamar Institute of Technology (lit.edu).

STUDENT CODE OF CONDUCT STATEMENT

It is the responsibility of all registered Lamar Institute of Technology students to access, read, understand and abide by all published policies, regulations, and procedures listed in the *LIT Catalog and Student Handbook*. The *LIT Catalog and Student Handbook* may be accessed at

www.lit.edu. Please note that the online version of the *LIT Catalog and Student Handbook* supersedes all other versions of the same document.

ARTIFICIAL INTELLIGENCE STATEMENT

Lamar Institute of Technology (LIT) recognizes the recent advances in Artificial Intelligence (AI), such as ChatGPT, have changed the landscape of many career disciplines and will impact many students in and out of the classroom. To prepare students for their selected careers, LIT desires to guide students in the ethical use of these technologies and incorporate AI into classroom instruction and assignments appropriately. Appropriate use of these technologies is at the discretion of the instructor. Students are reminded that all submitted work must be their own original work unless otherwise specified. Students should contact their instructor with any questions as to the acceptable use of AI/ChatGPT in their courses

STARFISH

LIT utilizes an early alert system called Starfish. Throughout the semester, you may receive emails from Starfish regarding your course grades, attendance, or academic performance. Faculty members record student attendance, raise flags and kudos to express concern or give praise, and you can make an appointment with faculty and staff all through the Starfish home page. You can also login to Blackboard or MyLIT and click on the Starfish link to view academic alerts and detailed information. It is the responsibility of the student to pay attention to these emails and information in Starfish and consider taking the recommended actions. Starfish is used to help you be a successful student at LIT.

ADDITIONAL COURSE POLICIES/INFORMATION

- **No Cell Phone** or **Electronic Devices** allowed in class, unless it is known to the instructor, for a special reasoning.

  All cell phones must be turned off and put away. Text messaging during class time will not be tolerated. Text messaging during an exam will be considered academic dishonesty. The exam will be considered over and the student will receive a zero for the exam.

- **No** smoking or use of any **tobacco** products allowed including VAPES.
- Do not bring any **food** or **drinks** in class
- No visitor allowed in class including children
- **Do not disturb lecture for any reason. If you must leave class or come in late, do so without disturbing class.**
- **DRESS CODE: Proper work attire only, NO *Open shoes, Short pants, low riding, or sleeveless shirts,* will be allowed in any program classrooms.**
- **No** grades will be **dropped**, No homework or assignments can be made up or accepted after instructor has taken up for grading.
- **Homework** must be done **in proper outline form, neat and legible**, prepared on **loose leaf (8.5" X 11") note book paper**, written only on **one** side.
- Assignment must be turn in at the beginning of class
- Any student caught cheating will be dropped from class and given an F for the semester grade.

- Students are required to be present for all examinations and lectures.
- There is NO MAKE-UP for missing any quizzes or major test or exams
- Learning activities will be subjectively graded by the instructor. Students assigned to a group must be present at all times when the project is being worked on.
- Instructor will reply to students email in a reasonable time or within 3 working days. Not available on Friday, Saturday, Sundays, Holidays or days the campus is closed.

NOTE:

Students who violate any of these policies will be asked to leave class and given an absent for the class period. Students who are continually disturbing classes will be suspended from class for the remainder of the semester and given an grade of F.

Students may vary in their competency levels on these abilities. You can expect to acquire these abilities only if you honor all course policies, attend classes regularly, complete all assigned work in good faith and on time, and meet all other course expectations of you as a student.

Course Outline:

Tire, Wheel, and Wheel Bearing Fundamentals

Tires

Tire Markings

Special Tires and Tire Features

Tire Pressure Monitoring Systems

Wheels

Hub and Wheel Bearing Assemblies

Wheel, and Wheel Bearing Diagnosis and Service

Tire, Wheel, and Wheel Bearing Diagnosis

Wheel Cover and Cap Service

Tire Maintenance

Measuring Tire and Wheel Runout

Wheel Balance

Mounting and Dismounting Tires

Tire Puncture Repair

Tire Pressure Monitoring System Service

Wheel Bearing Service

Suspension System Technology

Functions of a Suspension System

Simple Suspension System

Independent and Non-Independent Suspension Systems

Vehicle Handling Conditions Affected by the Suspension System

Suspension System Components

Suspension System Types

Suspension Leveling Systems

Electronic Suspension System

Active Suspension System

Suspension System Diagnosis and Service

Suspension System Diagnosis

Shock Absorber Service

Suspension Spring Service

Ball Joint Service

Suspension Bushing Service

MacPherson Strut Service

Wheel Alignment Is Needed

Computerized Suspension Diagnosis

Steering System Technology

Functions of a Steering System

Basic Steering Systems

Steering Column Assembly

Steering Gear Principles

Parallelogram Steering Linkage System

Rack-and-Pinion Steering

Power Steering Systems

Lane-Keeping Assistance Systems

Four-Wheel Steering Systems

Steering System Diagnosis and Service

Steering System Problem Diagnosis

Steering System Maintenance

Steering Column Service

Steering Linkage Service

Rack-and-Pinion Service

Power Steering System Service

Wheel Alignment

Wheel Alignment Principles

Caster

Camber

Toe

Thrust Angle

Pre-alignment Inspection

Adjusting Wheel Alignment

Wheel Alignment Machines and Equipment

Road Test After Alignment