Advanced Automotive Data Systems – AUT 345-3

Faculty Information

**Professor:** Ralph F. Tate • rtate@siu.edu • (618) 453-9135 • TEC Room 140F

**Office Hours:** 10:00-11:00 Monday, Wednesday, Friday; 1:30-3:00 Tuesday and Thursday

Course Information

**Classroom/Time:** Transportation Education Center • Room 132 • 11:00-12:15 Tuesday and Thursday

**Course Description:**

Course is an in-depth study of the tools and methods used in the acquisition, analysis, warehousing, and dissemination of automotive data. Emphasis is on advanced spreadsheet and database techniques used in decision-making processes. Other topics include an introduction to automotive data communication technologies and data networks. Prerequisite: AUT 335. Restricted to major.

**Required Textbook:** N/A

This course is taught using project-based learning through hands-on exercises and case studies.

**Materials Required:**

- An active SIU e-mail account.
- Computer access to [https://online.siu.edu](https://online.siu.edu) to access the AUT 345 D2L course.
- Cloud storage or USB memory stick for document and data storage.

End-of-Course Competencies

The student will be able to:

1. Describe and demonstrate an advanced understanding of spreadsheet and database management systems and software as they relate to the automotive industry.
2. Demonstrate competency in data organization, data analysis, and database-structure development and manipulation, in relation to automotive industry needs.
3. Demonstrate analytical and critical reasoning skills for problem solving of automotive case studies.
4. Demonstrate an understanding of microcontroller fundamentals as applied to automotive technology.
5. Demonstrate an understanding of wired and wireless data communications as applied to automotive technology.
Course Policies/Procedures:

- Computer use in the classroom is required but should not be disruptive or distracting to the learning environment. Watching movies, listening to music, posting to Facebook, etc., will result in a request to cease such actions. A second request will result in an absence for that class period.
- Cell phones/smart phones should be silent during classroom sessions. If you need to take an emergency call, please take it out of the classroom before answering or returning the call.
- Cell phones/smart phones will be turned OFF during exam times.
- Quizzes and in-class assignments CANNOT be made up.
- Generally, late work will not be accepted. Exceptions will be considered if the late work is submitted before the end of the course.
- Missed exams can only be made up if arrangements are made prior to exam dates.

Attendance Policy:

The faculty of Southern Illinois University Carbondale, affirm the importance of prompt and regular attendance on the part of all undergraduate students. Quality instruction clearly depends upon active student participation in the classroom or its equivalent learning environment. This concept is further expounded upon in the Southern Illinois University Carbondale Catalog.

Attendance is required and will be recorded. If you have to be absent, please email as soon as possible or call (leave a message if I am not in).

Students who officially register for a session may not withdraw from the University or drop courses merely by discontinuing attendance. Students must go online and officially withdraw themselves from the University or drop any course which they will not attend. Students should notify their academic advisor that they are withdrawing from the University or dropping a course so that the advisor can follow up to ensure the withdrawal/drop was processed correctly. Ultimately it is the student’s responsibility and the process of withdrawing or dropping courses starts with the student. Students who stop attending and do not officially withdraw will be assigned a grade of “WF” (failure) and will be liable for the cost of the course or courses not attended.

Assignment Guidelines and Grading Policies/Procedures

Exercises and Assessments:

- There will be 4 projects/lab exercises assigned during the semester that will require application of advanced database and spreadsheet techniques to solve a given automotive industry data analysis/management problem.
- A midterm exam will be given mid-semester to assess skills and knowledge in advanced uses of Microsoft Excel and PowerPoint.
- Quizzes will be available through the D2L site to assess knowledge of Microsoft Office, microcontrollers, and data communication fundamentals.
- A comprehensive final exam will be given on Thursday, May 14th from 10:15 till 12:15
Grading

Attendance: 4%
Quizzes: 8%
Midterm Exam: 8%
Final Exam: 16%
Projects: 64%

Grading Scale:

A 93 - 100%
B 85 - 92%
C 77 - 84%
D 70 - 76%
F < 70%

Overview:

1. Course Introduction and Overview of Automotive Industry Data Systems

2. Advanced Spreadsheet techniques
   A. Structure and design development review
   B. Advanced data manipulation and investigation features
   C. Analysis, synthesis and evaluation of data techniques
   D. Problem solving of automotive case studies

3. Advanced DBMS techniques
   A. Structure and design development review
   B. Advanced data manipulation and investigation features
   C. Analysis, synthesis and evaluation of data techniques
   D. Problem solving of automotive case studies

4. Advanced Presentation techniques
   A. Structure and design development review
   B. Advanced data presentation features

5. Automotive Industry Data Applications
   A. Proprietary industry data systems
   B. Data manipulation and investigation
   C. Analysis, synthesis and evaluation of data techniques
   D. Problem solving of automotive case studies

6. Automotive Applications of Microcontrollers.
   A. Introduction to microcontrollers
   B. Data acquisition and processing using microcontrollers

7. Automotive Applications of Data Communications
   A. Introduction to wired and wireless network technologies
   B. Data communication protocols in automotive technology