



SOUTHERN ILLINOIS UNIVERSITY

**AUTOMOTIVE  
TECHNOLOGY**

**Bachelor of Science Degree**

**Program of Study**

**[www.automotive.siu.edu](http://www.automotive.siu.edu)**

**Automotive Technology  
Bachelor of Science Degree  
Southern Illinois University Carbondale**

The Bachelor of Science (B.S.) Degree in Automotive Technology at Southern Illinois University Carbondale (SIUC) is designed to provide an educational environment for students to acquire the professional, research, and technical skills necessary for success in the automotive and related industries. The degree provides theoretical and practical hands-on application of knowledge through a combination of technical courses, industry business/management courses, computing, and communication courses. The flexibility of the curriculum accommodates the needs of both incoming freshmen and transfer students. Students have the option of focusing on multiple areas of emphasis, earning a minor, and possibly earning dual degrees. Students can adjust their focus in areas such as: automotive technical, automotive business operations, automotive management, automotive engineering, automotive technical education, automotive marketing, and automotive management.

**Career Opportunities:**

SIUC's automotive technical and management education is intended to develop future leaders in the industry. Automotive and truck manufacturers, component manufacturers and suppliers, government agencies, insurance organizations, educational institutions, training and curriculum organizations, and service providers are actively seeking SIUC automotive technology graduates.

The number of job titles in the area of automotive technology reflects the nature of a diverse and expanding field. Job titles include field service engineer, technical assistance specialist, serviceability engineer, diagnostic engineer, district parts/service manager, customer support manager, automotive instructor, account manager, fleet manager, service advisor, service manager, technical training specialist, district sales manager, field executive, technical writer, diagnostic tool and procedure developer, dealer development manager, warranty auditor, product manager, and product engineer. These positions typically require a four-year degree with skills in advanced technical knowledge, automotive business and management, communications, and consumer relations. From automotive and heavy truck manufacturers to equipment suppliers, software developers, and aftermarket corporations, the SIUC Automotive Technology degree is in high demand from all sectors of the industry.

**Freshman / Transfer / Major Change Student:**

Students are encouraged to enter the program as freshmen to obtain the maximum benefit of SIUC's specialized training, quality instruction, undergraduate research opportunities, industry connection opportunities, paid industry internships, and specialized industry cooperative education programs. Many of these are only available to students completing all 4-years of training with SIUC.

The SIUC Automotive Technology Program also welcomes students transferring from a regionally accredited college community college or other majors. Students with an Associate in Applied Science (A.A.S.) Degree in Automotive Technology may qualify for the Capstone Option, as discussed in Chapter 3 of the SIUC Undergraduate Catalog. The Capstone Option allows students to complete an abbreviated University Core Curriculum requirement. Individuals with an Associate in Arts (A.A.) Degree or Associate in Science (A.S.) Degree may be admitted, but would be required to follow a slightly different program of study. Students with a partial degree completed are also welcomed to transfer to the Automotive Technology Program with previous course work being evaluated on a course-by-course basis.

### **Internship and Cooperative Education Programs:**

Automotive Technology majors can participate in paid internship and cooperative education experiences and may be able to earn credit toward graduation. Opportunities occur during all semesters (including the summer term), with some programs available for two sequential terms. These programs enrich the student's academic experience and are situated in various locations throughout the United States.

### **Minors, Certificate, Dual Majors:**

Students enrolled in the Automotive Technology Program have the flexibility of focusing their curriculum to assist in minoring in areas such as **Advanced Vehicle Systems and Diagnostics, Automotive, Truck, and Equipment Management, or Workforce Education and Development**. More information regarding these minors is further in this document. Other minors of possible interest include management, marketing, and others.

Opportunities to attain a certificate in **Lean Six Sigma** exist, as well as dual major options with programs such as Mechanical Engineering.

### **Master Degree Options:**

Students enrolled in the Automotive Technology Program have the flexibility of focusing the curriculum to assist in preparing for graduate level degrees in areas such as a Master of Science Degree in Education (M.S.Ed.), a Master of Science (M.S.) Degree in Quality Engineering and Management, or a Master of Business Administration (M.B.A.).

### **Admission and Enrollment Management:**

Those interested in applying to the Automotive Technology program are encouraged to begin the application process approximately one year in advance. Acceptance into the program will be based upon additional admissions criteria, however, there is no separate application needed. In order to be included in the Automotive Technology applicant pool, all applicants must satisfy standard University baccalaureate entrance requirements as well as request Automotive Technology as their primary intended major. Acceptance into the Automotive Technology program will be based upon additional admissions criteria. Student selection from the applicant pool will occur on predetermined dates. Contact the Automotive Technology program for the latest criteria and dates.

The admission process can begin on-line at [www.admissions.siu.edu](http://www.admissions.siu.edu). Applicants must request Automotive Technology as their primary intended major to be included in the Automotive Technology applicant pool.

### **Capstone Option for Transfer Students:**

The Capstone Option is for the student who has earned or will soon earn an Associate in Applied Science (A.A.S.) degree or equivalent certification. The Capstone Option advantage allows students to complete an abbreviated University Core Curriculum requirement.

All transfer students intending to pursue the Capstone Option into the Automotive Technology program are strongly encouraged to contact the Automotive Technology Academic Advisor early in their associate degree program to help facilitate acceptance into the Capstone Option. Further requirements, procedures and additional information about the Capstone Option are discussed in the SIUC Undergraduate Catalog.

<http://registrar.siu.edu/catalog/undergraduatecatalog.html>

## Accreditation:

The Automotive Technology program at SIUC has attained Master level certification by the Automotive Service Excellence (ASE) Education Foundation.  
1503 Edwards Ferry Rd., NE, Suite 401  
Leesburg, VA 20176



Education Foundation

### Automotive Advisors

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### Undergraduate Admissions

Phone: 618-453-4405  
[www.admissions.siu.edu](http://www.admissions.siu.edu)

### Department Chair

Michael B. Behrmann, Chair  
SIUC - Automotive Technology Department  
Mail Code 6895  
Carbondale, IL 62901  
Phone: 618-453-4024  
Email: [mbehr@siu.edu](mailto:mbehr@siu.edu)

### Financial Aid

Phone: 618-453-4334  
[www.fao.siu.edu](http://www.fao.siu.edu)

## Automotive Technology B.S. Degree Requirements and Student Responsibilities:

1. *University Hour Requirement, Residence Requirement, and Average Requirement:* These and other University requirements are explained in the SIUC Undergraduate Catalog.
2. *Course Requirements.* Each student must meet the University requirements and the requirements of the academic unit, the major, and the minor, if required.
3. *Tool Requirements:* The Automotive Technology should expect to spend about \$1500 to \$2000 for a required automotive tool kit consisting of metric tools and a digital multimeter. The required tool list is available on the Automotive Technology website: [www.automotive.siu.edu](http://www.automotive.siu.edu)
4. *Student Responsibility:* Students are responsible for meeting and complying with all University requirements, policies and deadlines, including those for applying for graduation. Further information regarding requirements, policies and deadlines can be found on the University website and in the SIUC Undergraduate Catalog.
5. *Student Responsibility:* Students are to actively seek the assistance of the Automotive Technology Academic Advisor each semester to ensure progress towards graduation and compliance with these and other regulations.

## Curriculum Requirements:

The Bachelor of Science Degree in Automotive Technology is composed of five instructional categories and consists of a minimum of 120 credit hours.

Category I	University Core Curriculum Requirements	30-39 Credit Hours	Page 5 & 6
Category II	Lower Level Automotive Technology Courses	36 Credit Hours	Page 7
Category III	Upper Level Automotive Technology Courses	15 Credit Hours	Page 7
Category IV	Business/Management Courses	15 Credit Hours	Page 8
Category V	Support Courses	15 Credit Hours	Page 9
<b>Degree requires: 42 hours at the 300 or 400 level</b>		<b>120 Credit hours minimum</b>	

## CATEGORY I – University Core Curriculum (39 Hours)

Sample of recommended courses below. Consult SIUC Undergraduate Catalog for more options.

### FOUNDATION SKILLS

#### ENGLISH COMP (6 Hours)

ENGL 101 (Min. grade C)  
ENGL 102 (Min. grade C)

#### University College (1 Hour)

UNIV 101 Required for students with fewer than 26 hours

#### SPEECH (3 Hours)

CMST 101

#### MATHEMATICS (3 Hours) SIUC Math placement to be taken

MATH 101 or above except 107, 114, 120, and 300i  
MATH 108 suggested  
MATH 139 if minor in MGMT

### DISCIPLINARY STUDIES

#### SCIENCE (6 Hours)

##### Select One Course From Each Group

##### GROUP I:

PHYS 101

##### GROUP II:

ANTH 240A  
PLB 115, 117, 301i  
ZOO 115

#### SOCIAL SCIENCE (6 Hours)

##### Select two courses in different disciplines

ANTH 104  
ECON 113, 114, 302i  
EDUC 314  
FIN 200  
GEOG 100, 103, 300i  
HIST 110, 112, 301  
MCMA 200  
POLS 114, 314i, 332i, 372  
PSYC 102  
SOC 108, 306i  
ZOO 312i

#### HUMANITIES (6 Hours)

CLAS 230, 270, 271, 315i  
ENGL 121,204  
GEOL 329i  
HIST 101a, b, 358i  
LING 200  
PHIL 102, 104, 105

#### FINE ARTS (3 Hours)

AD 100a, 100b, 101  
ARC 314i  
CP 101, 354i  
FL 200 a, b, c  
HIST 201  
MUS 103  
THEA 101

#### HUMAN HEALTH (3 Hours)

BIOL 202  
PH 101  
HND 101  
KIN 101

### INTEGRATIVE STUDIES

#### MULTICULTURAL: DIVERSITY IN THE U.S. (3 Hours)

AFR 215, 227, 303i  
ANTH 202, 204,298  
CCJ 203  
CMST 201, 301i  
EDUC 211  
ENGR 304i  
HIST 202, 300  
KIN 210  
LING 201,298,320i  
MCMA 204  
MUS 203  
PHIL 210, 211, 308i  
POLS 215  
PSYC 223, 233  
SOC 215, 223, 298, 304i  
WGSS 298

### **Capstone Option (30 Hours)**

The Capstone Option is for the student who has earned or will soon earn an Associate in Applied Science (A.A.S.) degree or equivalent certification. All transfer students intending to pursue the Capstone Option into the Automotive Technology program are strongly encouraged to contact the Automotive Technology Academic Advisor early in their associate degree program to help facilitate acceptance into the Capstone Option. Further requirements, procedures and additional information about the Capstone Option are discussed in the SIUC Undergraduate Catalog. Consult the SIUC Transfer Course Equivalency Guides for Core Curriculum substitutes at: <http://enrollmentapps.siu.edu/articulation/>

English - 3 hours  
Math - 3 hours  
Speech - 3 hours

Science - 6 hours  
Social Science - 6 hours

Humanities - 3 hours  
Multicultural - 3 hours  
Fine Arts - 3 hours

**CATEGORY II – 100 and 200 Lower Level Automotive Technology Courses (36 Hours)**  
(Automotive toolkit required in automotive technical courses)

Course No.	Hours	Course Name	Prerequisite
AUT 120	3 hr.	Automotive Electrical Principles	
AUT 150	6 hr.	Internal Combustion Engine Principles	
AUT 170	6 hr.	Automotive Powertrain Electronics	Pass AUT 120 or consent
AUT 180	3 hr.	Manual Drivetrains	
AUT 215	3 hr.	Automotive Braking Systems	
AUT 216	3 hr.	Automotive Suspension and Steering Systems	
AUT 240	6 hr.	Introduction to Engine Controls	AUT 150 & 170
AUT 250	3 hr.	On Board Diagnostics and Emissions	Pass AUT 240 or consent
AUT 280	3 hr.	Automotive Air Conditioning Systems	AUT 170
<b>TOTAL</b>	<b>36 hr.</b>	<b>Lower level automotive technical courses</b>	

Note: If AUT 100 Automotive Laboratory Practices is taken, it is counted toward degree in Category V.

**CATEGORY III – 300 and 400 Upper Level Automotive Technology Courses (15 Hours)**  
(Automotive toolkit required in automotive technical courses)

Course No.	Hours	Course Name	Prerequisite
AUT 330	3 hr.	Vehicle Stability and NVH	Special approval from advisor
AUT 340	6 hr.	Drivability and Emission Diagnostics	Special approval from advisor
AUT 355	6 hr.	Lighting, Convenience, and Safety Systems	Special approval from advisor
AUT 360	6 hr.	Automatic Transmissions and Transaxles	Special approval from advisor
AUT 370	3 hr.	Automotive Introductory Welding and Fabrication	Special approval from advisor
AUT 390	3 hr.	Network Systems and Vehicle Electronics	Special approval from advisor
AUT 410*	3 hr.	Diagnostics and Problem Solving	Special approval from advisor
AUT 440	6 hr.	Diesel Engine Performance and Emissions	Special approval from advisor
AUT 445	3 hr.	Medium/Heavy Duty Commercial Vehicle Systems	Special approval from advisor
AUT 450	3 hr.	Hybrid and Electric Vehicle Technology	AUT 250 or consent, and special approval from advisor
AUT 470	3 hr.	Autonomous and Intelligent Mobility System Technology	AUT 335, 340 or 440, or consent, and special approval from advisor
AUT 480	3 hr.	Alternative Fueled Vehicles	Special approval from advisor
AUT 490*	6 hr.	Comprehensive Vehicle Diagnostics	AUT 340, 440, or consent, and special approval from advisor

\*Credit toward degree is either AUT 410 or AUT 490. Not both.

## CATEGORY IV – Business/Management Courses (15 Hours)

**Group 1** – Select **one** course from the following: (Written Communications Group)

Course No.	Hours	Course Name	Prerequisite
AUT 310	3 hr.	Automotive Technical Communications and Documentation	ENGL 101, CMST 101
TRM 316	3 hr.	Applications of Technical Information	ENGL 101

**Group 2** – The following course: (Digital/Data Knowledge Group)

Course No.	Hours	Course Name	Prerequisite
AUT 335	3 hr.	Automotive Data Systems	

**Group 3** – Select **one** course from the following: (Automotive Management Group)

Course No.	Hours	Course Name	Prerequisite
AUT 325	3 hr.	Automotive Fixed Operations Management	ENGL 101, Advisor approval
AUT 350	3 hr.	Automotive Parts Center Management	Special approval from advisor
AUT 435	3 hr.	Automotive Financial Management and Operations	Special approval from advisor
AUT 485	3 hr.	Automotive Warranty Administration and Customer Relations	Special approval from advisor

**Group 4** – Select **two** courses from the following not previously taken: (Management/Business Group)

Course No.	Hours	Course Name	Prerequisite
AUT 325	3 hr.	Automotive Fixed Operations Management	ENGL 101 and special approval from advisor.
AUT 345	3 hr.	Vehicle Computing Solutions, Networking, and Security	AUT 335 and special approval from advisor
AUT 350	3 hr.	Automotive Parts Center Management	Special approval from advisor
AUT 380	3 hr.	Automotive Industry Process Improvement	Special approval from advisor
AUT 435	3 hr.	Automotive Financial Management and Operations	Special approval from advisor
AUT 460	3 hr.	Automotive and Mobility Industry Corporate Leadership	Special approval from advisor
AUT 485	3 hr.	Automotive Warranty Administration and Customer Relations	Special approval from advisor
ACCT 220	3 hr.	Accounting I - Financial	Sophomore standing
FIN 208	3 hr.	Business Data Analysis	MATH 139
FIN 270	3 hr.	Legal & Social Environment of Business	Sophomore standing
FIN 280	3 hr.	Business Law I	
IMAE 307	3 hr.	Applied Calculus for Technology	MATH 108 grade C or better
IMAE 340	3 hr.	Introduction to Supervision	
IMAE 376	3 hr.	Supply Chain Operations and Logistics	MATH 108
IMAE 442	3 hr.	Fundamentals of Leadership	
IMAE 450	3 hr.	Project Management	
IMAE 465	3 hr.	Lean Manufacturing	
IMAE 470A	3 hr.	Six Sigma Green Belt	
IMAE 470B	3 hr.	Six Sigma Green Belt II	IMAE 307 or MATH 140 or 150, and IMAE 470A or consent

IMAE 476	3 hr.	Supply Chain Design and Strategy	IMAE 376 grade C or better
MGMT 304	3 hr.	Introduction to Management	Junior standing, advisor approval
MGMT 350	3 hr.	Small Business Management	Junior standing, advisor approval
MKTG 304	3 hr.	Marketing Management	Junior standing, advisor approval
MKTG 305	3 hr.	Consumer Behavior	Junior standing, advisor approval
MKTG 450	3 hr.	Small Business Marketing	Junior standing, advisor approval
PSYC 323	3 hr.	Organizational Psychology	PSYC 102
TRM 361	3 hr.	Fiscal Aspects of Technical Management	
TRM 362	3 hr.	Legal Aspects of Technical Management	TRM 316
TRM 364	3 hr.	Work Center Management	
TRM 383	3 hr.	Data Interpretation (Same as ISAT 365)	Core MATH

### **CATEGORY V – Support Courses (15 Hours)**

Discipline related and approved by Department

Recommend to take 300/400 level courses to achieve required 42 hours requirement for Degree.

Category V provides great flexibility for the student to direct their degree coursework towards their individual interest. Courses approved for Category V include:

- Category III – 300 and 400 Upper Level Automotive Technology Course not previously taken.  
Note: Credit toward degree is either AUT 410 or AUT 490. Not both.
- Category IV – Business/Management – Group 3 or 4 Courses not previously taken.
- Other Automotive Technology courses

Course	Hours	Course Name	Prerequisite
AUT 100	3 cr. hr.	Automotive Laboratory Practices	Special approval from advisor
AUT 301	1 cr. hr.	Automotive and Mobility Industry Ethics	Special approval from advisor
AUT 320	variable	Automotive Internship	Special approval from advisor
AUT 420	variable	Automotive Industry Project	Special approval from advisor
AUT 430	variable	Automotive Investigations	Special approval from advisor and faculty sponsor
AUT 475	variable	Special Projects in Automotive Technology	Special approval from advisor and faculty sponsor

- Related coursework including: Accounting (ACCT), Computer Science (CS), Economics (ECON), Finance (FIN), Industrial Management and Applied Engineering (IMAE), Information Systems Technology (IST or ISAT), Management (MGMT), Marketing (MKTG), Psychology (PSYC), Technical Resource Management (TRM), Workforce Education Development (WED), or a foreign language.



## **Common Minors and Certificate:**

### **Advanced Vehicle Systems and Diagnostics Minor (21 Hours)**

To prepare students seeking to enter the fields of vehicle diagnostic development, serviceability engineering and other technical product support operations with major automotive, truck and equipment manufacturers, parts and component suppliers, service and parts suppliers, or government agencies. Requires 21 hours of coursework from: AUT 330, 340, 355, 360, 390, 440, 450, 470, 490, or approved equivalents. All course prerequisites are required prior to enrolling in each course.

### **Automotive, Truck, and Equipment Management Minor (18 Hours)**

To prepare students seeking to enter the fields of automotive, truck and equipment management, marketing, planning, and support operations with major industry manufacturers, parts and component suppliers, service and parts suppliers, or government agencies. Requires 18 hours of coursework from AUT 310, 325, 335, 435, 485 and either 345 or 350. All course prerequisites are required prior to enrolling in each course.

### **Lean Six Sigma Professional Development Sequence (12 Hours)**

This Professional Development Sequence (PDS) of courses is intended to enhance the training of students who wish to pursue careers in quality management and process improvement. The PDS will require 12 hours by successfully completing: IMAE 450, 465, 470A, and 470B.

### **Workforce Education and Development Minor (20 Hours)**

To prepare students seeking to enter the fields of education, training, and curriculum development in either a corporate or educational setting. A minor in Workforce Education and Development consists of 20 hours of WED courses. Suggested courses include WED 466 and 486.

### **Psychology Minor (15 Hours)**

Requires successful completion of at least 15 semester hours (5 courses) in courses offered by the Dept. of Psychology with the exception of PSYC 393 which may not be included. A maximum of three hours may count towards the minor from PSYC 391, 392 or 394. An average GPA of at least 2.0 for the five PSYC courses completed. No more than two transfer courses can count toward a minor.

### **Environmental Studies Minor (15 Hours)**

The Environmental Studies minor is built around one core course (GEOG 300i), three topic courses (Environment, Society, Skills), and one unifying final course (GEOG 470). This minor helps unify the theme of environmental studies, while creating individual paths for student success.

### **\*Marketing Minor (15 Hours)\***

For non-College of Business majors, a minor in Marketing consists of 15 credit hours. Courses include MKTG 304, 305 and nine (9) credit hours of marketing coursework at the 300 level or above (with the exception of Marketing 390, 493, 495 and 499). Additional requirements include earning at least a "C" in each course for the minor. All course prerequisites are required prior to enrolling in each course.

### **\*Management Minor (21 Hours)\***

For non-College of Business majors, a minor in Management consists of 21 credit hours. Courses include MATH 139 or above, ACCT/FIN/MGMT 208, MGMT 304, 318, 345, and six (6) additional credit hours in Management at the 300 level or above. Additional requirements include earning at least a "C" in each course for the minor. All course prerequisites are required prior to enrolling in each course.

**\*NOTE:** The College of Business assesses a "Minor Program Fee" that is equal to 15% of 15 credit hours of applicable tuition for declared College of Business minors. This fee is billed in the semester the student declares the minor.