

Automotive

(A Division of the Mechanical Engineering Department)



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<http://www.byui.edu/Automotive-technology>

The Automotive Department prepares students for a wide range of exciting careers in a fast-growing, rapidly-changing industry.

The demand for skilled, educated, and honest professionals continues to intensify as the complexity of the modern automobile increases. As a result, our graduates are highly sought after and well-compensated. Since every household and business in the world is affected by the transportation industry, career opportunities are plentiful.

The Automotive Department offers the following degrees, minors, and clusters:

- **B.S. in Automotive Technology (#412-144)**

This degree allows students to choose a minor or two clusters from areas such as engineering, fabrication, welding, computer science, education, writing, and much more. Graduates of this degree are prepared for diverse careers in the automotive industry such as developing and testing new vehicles, engines, transmissions, and electronic components. Others, depending on their minors and interests, may choose to write or edit for automotive publications, to instruct in or administer automotive technology programs in high schools, colleges, and vocational schools, or to work in a myriad of other automotive-related professions.

- **B.S. in Automotive Technology, with an emphasis in Business Management (#412-143)**

This degree prepares graduates for career opportunities in managing the operations of automotive-related businesses including manufacturers, aftermarket producers, dealerships, and other technology-oriented companies. It is also a great preparation for becoming a business owner or entrepreneur.

- **A.A.S. in Automotive Technology (#346)**

This degree prepares students for a challenging and rewarding career as an automotive technician in a dealership or independent repair company.

- **Minor in Automotive Technology**

- **Cluster in Automotive Technology**

Automotive courses: These classes are “hands-on” and interactive. Much of the required course time is spent in labs, working on vehicles with real problems. In these courses students will become familiar with modern automotive technology. BYU-Idaho’s automotive facility is well equipped with state-of-the-art equipment where students can experience the latest technology and leave prepared to begin a successful career.

Internships: Internships are required for automotive technology majors which allow students to gain industry experience as part of their training. Here, students will have the opportunity to apply and to reinforce the knowledge and skills learned in the classroom. Internships also serve to open doors for future careers.

Elective Courses: The Automotive Department also offers elective courses that are open to all university students, regardless of previous experience or knowledge. These classes are designed to teach car owners how to purchase, care for, and perform basic maintenance on their vehicles.

Special Requirements: Students in all automotive courses (except Auto 100 and Auto 125) are expected to have at least a basic set of tools. A list of the required tools can be found at <http://www.byui.edu/automotive-technology/student-resource/tool-list/> and these tools can be purchased through the school during the first week of the semester for a discounted price.

GPA requirements: In order to qualify for graduation with an automotive degree, students must earn at least a ‘C-’ grade in each core curriculum class.

AAS in Automotive Technology (346)

Take required Foundations courses (17 credits)

Major Requirements

No Double Counting of Major Courses - No Grade Less Than C-

Core Courses <i>Take these courses:</i>	<i>cont. from previous column</i>	Supplemental Courses <i>Take 1 course:</i>	<i>Program Notes:</i>
AUTO 125 1	AUTO 231 3	ME 231 3	
AUTO 126 1	AUTO 232 3	WELD 101 <u>3</u>	
AUTO 131 3	AUTO 298 1		
AUTO 132 3	AUTO 340 3		
AUTO 155 4	AUTO 350 6		
AUTO 201 4	AUTO 365 6	Optional Course:	
AUTO 221 3	AUTO 381 3	AUTO 291 <u>0.5</u>	
AUTO 221 3	AUTO 382 3		
<i>cont. in next column</i>	<u>47</u>	<u>0.5</u>	

Total Major Credits=50

This major is available on the following tracks:

Fall-Winter---- YES Winter-Spring---- YES Spring-Fall---- NO

BS in Automotive Technology (412-143)

Business Management Emphasis

Take required Foundations courses (40 credits)

Major Requirements

No Double Counting of Major Courses - No Grade Less Than C-

Core Courses <i>Take these courses during your first 2 semesters:</i>	Supplemental Courses <i>Take 1 courses:</i>	Business Courses <i>Apply to and take IBC Group courses. (These courses may not be taken as stand alone courses. They must be taken as the 12 credit IBC course).</i>	<i>Program Notes:</i>
AUTO 125 1	B 212 4	B 302 3	
AUTO 131 3	ME 142 3	B 322 3	
AUTO 132 3	ME 172 3	B 342 3	
AUTO 155 <u>4</u>	ME 231 3	B 362 <u>3</u>	
<u>11</u>	WELD 101 <u>3</u>	<u>12</u>	
Take these courses:	Emphasis Courses <i>Take these courses:</i>	Optional Course:	
AUTO 201 4	ACCTG 180 3	AUTO 291 <u>0.5</u>	
AUTO 221 3	CIT 110 3	<u>0.5</u>	
AUTO 231 3	ECON 150 3		
AUTO 232 3	MATH 221A <u>3</u>		
AUTO 298 1	<u>12</u>		
AUTO 300 3	<i>Take 1 course:</i>		
AUTO 340 3	B 220 3		
AUTO 350 6	B 275 3		
AUTO 365 6	B 283 <u>3</u>		
AUTO 381 3	<u>3</u>		
AUTO 382 3			
AUTO 398 <u>1</u>			
<u>39</u>			

Total Major Credits=80

This major is available on the following tracks:

Fall-Winter---- YES Winter-Spring---- YES Spring-Fall---- NO

BS in Automotive Technology (412-144) General Automotive Emphasis

Take required Foundations courses (40 credits)

Major Requirements

No Double Counting of Major Courses - No Grade Less Than C-

Core Courses <i>Take these courses during your first 2 semesters:</i> AUTO 125 1 AUTO 126 1 AUTO 131 3 AUTO 132 3 AUTO 155 4 <hr style="width: 50%; margin-left: 0;"/> 12 <i>Take these courses:</i> AUTO 201 4 AUTO 221 3 AUTO 231 3 AUTO 232 3 AUTO 298 1 AUTO 300 3 AUTO 340 3 AUTO 350 6 AUTO 365 6 AUTO 381 3 <i>Cont. next column</i>	<i>Cont. from previous column</i> AUTO 382 3 AUTO 398 1 <hr style="width: 50%; margin-left: 0;"/> 39 Supplemental Courses <i>Take 3 credits:</i> B 212 4 CIT 110 3 ME 142 3 ME 172 3 ME 231 3 ME 331 3 ME 332 3 WELD 101 3 WELD 120 3 WELD 123 3 <hr style="width: 50%; margin-left: 0;"/> 3	Program Notes: REQUIRED MINOR OR CLUSTERS <i>Students choosing to major in Automotive Technology with a General Automotive Emphasis need to choose either a minor or two clusters that align with their career goals. As a general rule, minors and clusters in the areas listed below are acceptable. Other minors or clusters must be approved by the automotive program coordinator.</i> <i>Suggested areas for minors or clusters:</i> Agribusiness, Accounting, Administrative Assistant, Advertising, Business, Chemistry, Communications, Computer Information Technology, Computer Science, Economics, Education, Electrical Engineering, English, Finance, Engineering, Entrepreneurship, Human Resources Management, Manufacturing, News/Journalism, Physics, Professional Presentations, Professional Writing and Editing, Public Relations, and Welding and Fabrication.
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Total Major Credits=54

Additional Elective Credits Required for Graduation=26

This major is available on the following tracks:

Fall-Winter---- YES

Winter-Spring---- YES

Spring-Fall---- NO

Minor in Automotive Technology (210)

Take required Foundations courses

Minor Requirements

No Double Counting of Minor Courses - No Grade Less Than C-

Core Courses <i>Take 1 course</i> AUTO 100 1 AUTO 125 1 <hr style="width: 50%; margin-left: 0;"/> 1 <i>Take these courses:</i> AUTO 126 1 AUTO 131 3 AUTO 132 3 AUTO 155 4 AUTO 231 3 AUTO 232 3 <hr style="width: 50%; margin-left: 0;"/> 17	Supplemental Courses <i>Take 1 course:</i> AUTO 221 3 AUTO 340 3 AUTO 350* 6 AUTO 365* 6 AUTO 381 3 AUTO 382 3 <hr style="width: 50%; margin-left: 0;"/> 3 <i>*By instructor authorization only.</i>	Program Notes:
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Total Minor Credits=21

This minor is available on the following tracks:

Fall-Winter---- YES

Winter-Spring---- YES

Spring-Fall---- NO

Automotive Engine Performance Concentration (D 123)

Concentration Requirements

No Double Counting of Concentration Courses - No Grade Less Than C-

Core Courses <i>Take these courses:</i> AUTO 125 1 AUTO 131 3 AUTO 132 3 AUTO 155 4 AUTO 231 3 AUTO 232 3 AUTO 350 6 AUTO 381 3 AUTO 382 3 AUTO 398 1 IDS 398R 1-3 IDS 499 <u>2</u> 33	Supplemental Courses <i>Take 1 course:</i> AUTO 300 3 AUTO 340 <u>3</u> 3	Program Notes:
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Total Concentration Credits=36

This concentration is available on the following tracks:

Fall-Winter---- YES

Winter-Spring---- YES

Spring-Fall---- NO

Automotive Technology and Design and Manufacturing Concentration (D 124)

Concentration Requirements

No Double Counting of Concentration Courses - No Grade Less Than C-

Core Course <i>Take these courses:</i> AUTO 131 3 AUTO 132 3 AUTO 231 3 AUTO 232 3 AUTO 340 3 AUTO 381 3 AUTO 382 3 ME 172 3 ME 231 3 ME 331 3 ME 332 <u>3</u> 33	Interdisciplinary Courses <i>Take these courses:</i> IDS 398R 1-3 IDS 499 <u>2</u> 3	Program Notes:
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Total Concentration Credits=36

This concentration is available on the following tracks:

Fall-Winter---- YES

Winter-Spring---- YES

Spring-Fall---- NO

Automotive Powertrain Concentration (D 125)

Concentration Requirements

No Double Counting of Concentration Courses - No Grade Less Than C-

Core Course <i>Take these courses:</i> AUTO 125 1 AUTO 131 3 AUTO 132 3 AUTO 201 4 AUTO 231 3 AUTO 232 3 AUTO 350 6 AUTO 365 6 AUTO 398 <u>1</u> 30	Take 1 course: AUTO 300 3 AUTO 340 <u>3</u> 3 Interdisciplinary Courses <i>Take these courses:</i> IDS 398R 1-3 IDS 499 <u>2</u> 3	Program Notes:
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Total Concentration Credits=36

This concentration is available on the following tracks:

Fall-Winter---- YES

Winter-Spring---- YES

Spring-Fall---- NO

Automotive Technology Concentration (D 145)

Concentration Requirements

No Double Counting of Concentration Courses - No Grade Less Than C-

Core Course <i>Take these courses:</i> AUTO 125 1 AUTO 126 1 AUTO 131 3 AUTO 132 3 AUTO 231 3 AUTO 232 3 AUTO 298 1 AUTO 300 3 AUTO 381 3 AUTO 382 3 <hr style="width: 50%; margin-left: 0;"/> 24	Take 1 course: AUTO 155 4 AUTO 201 4 AUTO 221 3 <hr style="width: 50%; margin-left: 0;"/> 3 Take 1 course: AUTO 340 3 AUTO 350 6 AUTO 362 3 <hr style="width: 50%; margin-left: 0;"/> 3	Interdisciplinary Courses <i>Take 1 course:</i> AUTO 398 1 IDS 398R 1-3 <hr style="width: 50%; margin-left: 0;"/> 1 Take this course: IDS 499 2 <hr style="width: 50%; margin-left: 0;"/> 2	Program Notes:
Total Concentration Credits=33			
This concentration is available on the following tracks:			
Fall-Winter---- YES	Winter-Spring---- YES	Spring-Fall---- NO	

Automotive Pre-approved Clusters

Automotive Technology	6100
<i>Take 1 course:</i>	
AUTO 100 Automotive Maintenance 1	1
AUTO 125 Automotive Major Essentials	1
<i>Take these courses:</i>	
AUTO 126 Technical Skills	1
AUTO 131 Automotive Electrical Systems 1	3
AUTO 132 Automotive Engine Performance 1	3
<i>Take 4 credits:</i>	
AUTO 155 Steering, Suspension and Brakes	4
AUTO 221 Air Conditioning & Heating	3
AUTO 231 Automotive Electrical Systems 2	3
AUTO 232 Automotive Engine Performance 2	3
Total Credits	12

Course Descriptions

Credits*

- AUTO 100 Auto Maintenance I** (1:1:0)
 This class is a basic consumer-awareness and career exploration course. It is designed to teach students how their automobiles work and how to maintain them. They will also be introduced to career opportunities in the automotive field. Some of the course time will be spent in the classroom, while some will be working in the lab with small groups.
 (Winter, Spring, Fall)
- AUTO 125 Automotive Major Essentials** (1:0:0)
 This is an online course required for all automotive majors, but open to students of other majors. It is designed to introduce students to some of the foundational principles and knowledge required to be successful in other automotive courses.
 (Winter, Spring, Fall)
- AUTO 126 Technical Skills** (1:0:2)
 Course Fees: \$10.00
 Prerequisites: AUTO 100 or AUTO 125
 Auto 126 is a hands-on class in which students will learn and practice foundational automotive service engineering skills. They will experience lab safety, electrical testing, diagnostic processes, use of service information, fasteners, precision measuring, engine operation and testing, and more. This class will prepare students for future automotive courses and internships.
 (Winter, Spring, Fall)
- AUTO 131 Automotive Electrical Systems 1** (3:2:4)
 Course Fees: \$20.00
 An introduction to basic electrical principles and exploration of various automotive electrical systems. Includes a lab in which students will practice testing, diagnosing, and repairing automotive electrical faulty on live vehicles.
 (Spring, Fall)

- AUTO 132 Automotive Engine Performance 1** (3:2:4)
 Course Fees: \$15.00
 Prerequisite: AUTO 131
 This class is the second of a 4 part series. A focus on how ignition systems and computer electronics affect drivability and exhaust emissions will be emphasized. Lab experience will focus on diagnosing vehicles and repairing the cause of engine performance issues. Learning to interpret scan tool data and lab scopes will be important for success. Students may supply their own tools. Please refer to the list of required tools on the automotive department website. Other requirements are specified by the instructor.
 (Spring, Fall)
- AUTO 155 Steering, Suspension and Brakes** (4:2:7)
 Course Fees: \$30.00
 A class oriented towards automotive majors that teaches service and repair procedures on the steering, suspension, and brake systems that are found on today's cars and light trucks.
 (Spring, Fall)
- AUTO 201 Automotive Drive Trains** (4:2:7)
 Course Fees: \$30.00
 This is a course that focuses on theories of operation, diagnosis, and maintenance, pertaining to the drive train system. The lab experience will include the diagnosis, repair, and/or overhaul of manual transmission/transaxle, clutch assemblies, differential axles, drive shafts/u-joints, four wheel drive, and all wheel drive systems.
 (Winter)
- AUTO 221 Heat and Air Conditioning** (3:2:3)
 Course Fees: \$15.00
 Prerequisites: AUTO 131 and AUTO 132
 Wiring diagrams, vacuum circuits, climate control systems, air conditioning theory, and their computer controls diagnosis and repair of all related systems.
 (Spring, Fall)

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AUTO 231 Automotive Electrical Systems 2 (3:2:4) Course Fees: \$15.00 Prerequisite: AUTO 131 A continuation of basic electrical principles and exploration of various automotive electrical and electronic systems. Includes a lab in which students will practice testing, diagnosing, and repairing automotive electrical and electronic faults on live vehicles. (Winter)	AUTO 381 Automotive Engine Performance 3 (3:2:4) Course Fees: \$15.00 Prerequisites: AUTO 231 and AUTO 232 Auto 381 is the third of a four part automotive engine performance sequence at BYU-Idaho. About 1/3 of the time will be spent in class and demonstrations while the other 2/3 will be spent in lab working on customer vehicles with real problems. Lab projects will relate directly to engine performance issues. Engine performance is a broad topic and is the one area of automotive technology that is challenging due to the fact that many of the changes that occur each year with automobiles are with power-train construction and systems management of the ignition, fuel, and emissions systems. In fact, most every system found on today's vehicles has impact on engine performance since they are networked together. (Spring, Fall)
AUTO 232 Automotive Engine Performance 2 (3:2:4) Course Fees: \$15.00 Prerequisites: AUTO 131 and AUTO 132 This class is the second of a 4 part series. A focus on how ignition systems and computer electronics affect drivability and exhaust emissions will be emphasized. Lab experience will focus on diagnosing vehicles and repairing the cause of engine performance issues. Learning to interpret scan tool data and lab scopes will be important for success. Students must supply their own tools. Please refer to the list of required tools on the automotive department website. Other requirements are specified by the instructor. (Winter)	AUTO 382 Automotive Engine Performance 4 (3:2:4) Course Fees: \$15.00 Prerequisites: AUTO 231 and AUTO 232 Engine management systems with an emphasis in computer controls, multiplexing, late model power train innovations, and on board diagnostics. (Spring, Fall)
AUTO 290 Independent Study (1-3:0:0) Special problems in automotive skills. Credit and schedule arranged with Automotive Department Chair. (Winter, Spring, Fall)	AUTO 398 Auto Professional Internship (1:0:0) A customized internship designed to help automotive students obtain experience in the sector of the automotive industry that they wish to obtain eventual employment in. (Winter, Spring, Fall)
AUTO 291 Certification (0.5:2:0) Repeatable Course: may earn maximum of 2 credits This class covers the basic information and procedures necessary to prepare to take the national ASE certification tests. Students will discuss test methodology, as well as take practice certification tests. (Winter, Fall)	
AUTO 298 Automotive Internship (1:0:0) Twelve consecutive weeks of supervised on-the-job training, totaling at least 200 hours. Required for all automotive majors. Conditions of internship are handled on an individual basis by department intern coordinator. (Winter, Spring, Fall)	
AUTO 300 Automotive Business Management (3:2:2) Course Fees: \$20.00 A study of business management in the automotive industry including human resources, accounting, legal, and management practices in applications that are unique to the automotive industry. Also covers professional networking and career planning. (Winter)	
AUTO 340 Auto Alternate Fuel Systems (3:2:3) Course Fees: \$30.00 Prerequisites: AUTO 155, AUTO 201 and AUTO 232 This course discusses the newest information of today's fuels and alternative power sources. Hybrid systems and alternate fuels such as ethanol, methanol, diesel, bio-fuel, will be the focus of the class. System comparisons, operation of these systems and how they impact the transportation industry will be explored as well. (Winter)	
AUTO 350 Major Engine Repair (6:3:9) Course Fees: \$30.00 Prerequisites: AUTO 201, AUTO 231 and AUTO 232 This course teaches the theory, operation, diagnosis and repair of automotive engines. (Winter)	
AUTO 365 Auto Transmissions/Transaxles (6:3:9) Course Fees: \$30.00 Prerequisites: AUTO 201, AUTO 231 and AUTO 232 Theory of operation, diagnosis and repair of common automatic transmissions used in passenger cars and light trucks. (Winter)	