

**Area Career Center of Hammond  
Area District of Career and Technical Education # 2  
Course Syllabus  
Automotive Technology  
School Year 2009-2010**

**Course Title:** Automotive Mechanics

**Meeting Dates:** Monday – Friday  
AM Session: 7:45 – 10:15  
PM Session: 11:45 – 2:15

**Instructors:** Bruce Crossett/ ASE Technician, Certified Emissions Repair Technician

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**Office Hours:** 10:00 to 11:00

**Prerequisites:** Strong Reading Skills, Strong Science Background

**Course Description:**

Automotive Service Technology includes classroom and laboratory experiences that incorporate training in service and repair work on all types of automotive vehicles. Included in the course is training in the use of service and repair information and a variety of hand and power tools. Instructional practice provides opportunities for students to diagnose malfunctions, disassemble units, perform parts inspections, and repair and replace parts. Course content will address NATEF/ASE standards leading to certification in one or more of the following areas: Steering and suspension, Brakes, Engine performance, Manual transmissions and drivelines, Automatic transmissions, Electrical systems, A/C and heating and engine repair.

**Course Intent:**

Students are instructed to maintain professionalism and knowledge to become qualified as an entry-level Automotive Technician

**Assigned Text:**

Modern Automotive Technology  
Written by James E Duffy  
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## **Indiana Professionals Standards Covered:**

### Standard 1

#### **Student Safety**

*Safety issues are considered when designing and implementing career and technical programs.*

- 1.1 Safety is taught as an integral part of the instructional program. (511 IAC 8-2-4(b))

Example: Written training plans identify hazardous equipment and materials used by students in extended labs and workplace training stations.

- 1.2 Safety issues are addressed during all phases of program planning and implementation including selection and maintenance of facilities and equipment as well as management of classroom activities.

Example: All original equipment safety restraints are operational and regularly maintained.

- 1.3 The Occupational Safety and Health Administration (OSHA) and Environmental Protection Agency (EPA) standards guide the implementation and maintenance of environmental health and safety features.

Example: Safety zones in manufacturing labs are clearly marked.

- 1.4 Facilities are accessible to all populations and are appropriate for the instructional program being offered.

Example: Commercial kitchen facilities have been modified so that physically handicapped students can participate in food service programs.

### Standard 2

#### **Advisory Committees**

*A broad-based group with representatives from education, industry, and the community at large actively assists in planning and implementing career and technical programs.*

- 2.1 Advisory committees (general and program area) are organized and meeting as required each school year. (511 IAC 8-2-8)

- 2.2 Advisory committees meet a minimum of twice per year and maintain accurate minutes of each meeting.

- 2.3 Membership includes a balanced representation from business/industry, labor, education, males and females, and advocates for racial and ethnic minorities, and the disabled.

- 2.4 Program advisory committees annually review course standards, curriculum, assessment practices, and resources (including equipment) for appropriateness and effectiveness.

### Standard 3

#### **Teacher Licensing**

*Administrative rules promulgated by the Indiana Professional Standards Board and the State Board of Education are followed when employing teachers for career and technical programs. **Please note that standards 3.2 through 3.14 are career and technical teacher standards taken directly from "Licensing Rules 2002."***

- 3.1 All career and technical education teachers possess a valid teaching license for their teaching assignments under rules adopted by the Indiana Professional Standards Board.
- 3.2 Teachers participate in workshops, conferences, and professional organization activities to remain current in their program area and to meet license renewal requirements.
- 3.3 Teachers demonstrate knowledge of learners in the instructional process.
- 3.4 Teachers demonstrate knowledge of content and instructional resources pertaining to basic skills, the world of work, and the skills and processes of industry.
- 3.5 Teachers create an environment that develops democratic values, risk taking, and a desire for lifelong learning.
- 3.6 Teachers select from a variety of instructional strategies in performance-based learning of subject matter, critical thinking, and problem-solving.
- 3.7 Teachers understand and use a variety of assessment and evaluation strategies to assist learners in their intellectual, social, and physical development.
- 3.8 Teachers reflect on personal practices to improve the effectiveness and quality of learner education.
- 3.9 Teachers foster collaborative relationships with business, industry, and government in order to extend and enrich opportunities for learners.
- 3.10 Teachers work with colleagues and the professional community to improve schools and to advance knowledge in the occupational area.
- 3.11 Teachers foster relationships with families and the local community to achieve common goals for all learners.
- 3.12 Teachers involve the learners in a variety of activities to help them understand the changing workplace as they prepare to enter the workforce.
- 3.13 Teachers prepare learners to meet the competing demands and responsibilities of the workplace.
- 3.14 Teachers assist learners in developing self-awareness and confidence as well as sound personal and social values.

#### Standard 4

##### **Curriculum**

*Course content standards clearly define what students should know and be able to do. Locally developed curriculum meets all rules specified in the Indiana Administrative Code for career and technical education.*

- 4.1 State content standards are used as the foundation for local curriculum development and input from the community is considered during the development process.

Example: Local curriculum includes written goals, objectives, and activities that meet state program and content standards.

- 4.2 Curriculum activities help students apply appropriate English/language arts, mathematics, science, and social studies standards in work-related situations.

Example: Senior projects based on individual career interests are used to demonstrate research, communication, and presentation skills.

- 4.3 Local curriculum emphasizes the technical, academic, and employability skills needed for success.

Example: Students work in teams to complete assignments based on real-world problems.

- 4.4 Curriculum is consistent with available state and national industry certification standards.

Example: Classroom activities prepare students for assessments connected to certifications recognized by business and industry.

4.5 Curriculum is aligned with existing postsecondary programs.

Example: Students graduate from high school with college credits leading to technical certificates and associate and baccalaureate degrees.

4.6 Curriculum is connected to available apprenticeship training programs.

Example: Students are prepared to enter apprenticeship programs that extend existing skills and provide on-the-job training.

4.7 A variety of assessment strategies is used to document student achievement.

Example: Students' work products are organized into portfolios to provide evidence that concepts have been learned.

4.8 Each course or program has the resources necessary to implement state standards and local curriculum and to adapt to needs of students.

Example: Facilities and equipment are continuously updated and maintained to model current industry and community conditions.

4.9 Career and Technical Student Organization (CTSO) activities enhance the instructional program.

Example: CTSO activities are used to develop student technical and leadership skills.

4.10 Career pathways are used to identify a sequence of courses that includes a rigorous technical core and academic preparation.

Example: Students' four-year career plans connect elective choices to stated career goals.

4.11 Guidance activities are used to help students affirm or adjust career goals.

Example: Students research postsecondary opportunities for additional training in their career areas.

4.12 Sequenced career and technical courses meet the directed elective requirements of the Core 40 curriculum.

Example: Students earn six or more credits from a related technical area.

4.13 Student data is collected to meet state and federal accountability requirements.

Example: Graduates are contacted to determine placement in further education, advanced training, employment, or military service. [IAC 511 8-2-3 (A)]

## **Learning Objectives:**

To gain a thorough understanding of the Automotive Industry and obtain skills required to become an entry-level Automotive Technician.

## **Instructional Strategies/Methods**

1. Internship Discussion/Questioning
2. Problem Solving
3. Discovery
4. Shop/Lab Work
5. Job Shadowing
6. Lecture

7. "Live" repair work
8. Group work

### **Diversity:**

It is the policy of the Area Career Center not to discriminate on the basis of race, color, religion, sex, national origin, age or handicap in its programs as required by the Indiana Civil Rights Act (I.C. 22-9.1), Title VI and VII (Civil Rights Act of 1964, Title IX (Educational Amend-ments), and Section 504 (Rehabilitation Act of 1973).

### **Special Needs Learners:**

If you need course adaptations or accommodations because of a disability, if you have an emergency medical condition to share with me, or if you need special arrangements in case the building must be evacuated, please make an appointment with me as soon as possible.

### **Assignments:**

Students will be required to complete fully and turn in all given assignments by due date. All students will be expected to Job Shadow 3 times per year (once per trimester). Students that are working in the automotive field are exempt from shadowing

### **Grading:**

40% SHOP GRADE - JOBS GIVEN IN SHOP, JOB SHEETS, SHOP MAINTENANCE AND CLEAN-UP. QUALITY OF WORK AND ATTENTION TO DETAIL ARE VERY IMPORTANT.

20% TESTS - HANDS ON OR WRITTEN

10% QUIZZES

10% WORK ETHICS, ALSO PART OF YOUR DAILY GRADE. DEDUCTIONS WILL BE MADE FOR BEHAVIOR, LACK OF MATERIALS, (PAPER, PEN) ETC.

10% WORKSHEETS, WORKBOOK PAGES

10% CHAPTER ASSIGNMENTS and VOCABULARY

5 points will be deducted daily if an assignment is not submitted by the due date.

### **Student Expectations:**

1. Attend all class meetings. Be prepared to start class on time.
2. Submit all assignments by date due.
3. Read and be prepared to discuss and evaluate all required materials.
4. Participate in all class discussions and activities.
5. Demonstrate knowledge expected as a professional in your area.

6. Students will be in class on time with work uniform on.

**Class Schedule:**

<b>Date</b>	<b>Topic</b>	<b>Reading</b>	<b>Assignment</b>
1 <sup>st</sup> . YEAR PROGRAM			
Week 1	Online Safety	Sp2	Sp2
Week 2	Shop Safety	Chap. 5	Workbook
Week 3	The Auto, Careers	Chaps. 1&2	Workbook
Week 4	Hand & Power tools	Chaps. 3&4	Workbook
Week 5	Math & Measure	Chap. 6	Workbook & sheets
Week 6	Service info & Fasteners	Chaps. 7&9	Workbook
Week 7	Basic Electrical	Chap. 8	Workbook
Week 8	Vehicle Maintenance	Chap. 10	Workbook & lab
Week 9	Batteries	Chap. 29	Workbook & lab
Week 10	Battery Testing	Chap. 30	Workbook & lab
Week 11	Starting Basics	Chap.31	Workbook
Week 12	Starting Basics	Chap. 31	Workbook
Week 13	Starter Testing	Chap. 32	Workbook & lab
Week 14	Starter Repair	Chap. 32	Workbook & lab
Week 15	Charging Basics	Chap. 33	Workbook
Week 16	Charging Basics	Chap. 33	Workbook
Week 17	Charging Testing	Chap. 34	Workbook & lab
Week 18	Charging Repair	Chap. 34	Workbook & lab
Week 19	Ignition Basics	Chap. 35	Workbook
Week 20	Ignition basics	Chap. 35	Work book
Week 21	Ignition problems	Chap. 36	Workbook
Week 22	Ignition testing	Chap. 36	Workbook & lab
Week 23	Ignition Repair	Chap. 36	Workbook & lab
Week 24	Horn, light,etc. operation	Chap. 37	Workbook
Week 25	Horn, light, etc. service	Chap. 37	Workbook & lab
Week 26	Sound systems, etc.	Chap. 38	Workbook
Week 27	Sound systems, etc.	Chap. 38	Workbook & lab
Week 28	Tire, wheel basics	Chap. 65	Workbook
Week 29	Tire, wheel service	Chap. 66	Workbook & lab
Week 30	Brake basics	Chap.71	Workbook
Week 31	Brake basics	Chap. 71	Workbook & lab
Week 32	Brake diagnosis	Chap. 72	Workbook & lab
Week 33	Brake repair	Chap. 72	Workbook & lab
Week 34	Brake repair	Chap. 72	Workbook & lab
Week 35	ABS & TCS	Chap. 73	Workbook & lab
Week 36	ABS service	Chap. 73	Workbook & lab

<b>2nd. YEAR PROGRAM</b>			
Week 1	Safety	Chap. 5 & SP2	Workbook & online
Week 2	Safety	Chap. 5 & SP2	Workbook & online
Week 3	Math & measure	Chap. 6	Workbook & sheets
Week 4	Basic electric	Chap. 8	Workbook
Week 5	Computer basics	Chap.17	Workbook
Week 6	Computer basics	Chap. 17	Workbook
Week 7	Scan Tools	Chap. 18	Workbook
Week 8	Computer service	Chap. 19	Workbook
Week 9	Computer service	Chap. 19	Workbook & lab
Week 10	Fuel basics	Chap. 20	Workbook
Week 11	Fuel pumps, filters	Chap. 21	Workbook
Week 12	Gas Injection basics	Chap. 22	Workbook
Week 13	Gas Injection basics	Chap.22	Workbook
Week 14	Gas Injection diagnosis	Chap. 23	Workbook & lab
Week 15	Gas Injection repair	Chap. 23	Workbook & lab
Week 16	Turbo & superchargers	Chap. 28	Workbook
Week 17	Turbo & superchargers	Chap. 28	Workbook & labs
Week 18	Emission basics	Chap. 43	Workbook
Week 19	Emissions	Chap. 43	Workbook
Week 20	Emission testing	Chap. 44	Workbook & lab
Week 21	Emission repair	Chap. 44	Workbook & lab
Week 22	Engine performance	Chap. 45	Workbook
Week 23	Engine performance	Chap. 45	Workbook & lab
Week 24	Advanced diagnostics	Chap. 46	Workbook
Week 25	Advanced diagnostics	Chap. 46	Workbook & lab
Week 26	Tune up	Chap. 47	Workbook & lab
Week 27	Tire & wheel basics	Chap. 65	Workbook
Week 28	Tire & wheel service	Chap. 66	Workbook & lab
Week 29	Suspension basics	Chap. 67	Workbook
Week 30	Suspension diagnosis	Chap.68	Workbook & lab
Week 31	Suspension repair	Chap. 68	Workbook & lab
Week 32	Steering basics	Chap. 69	Workbook
Week 33	Steering basics	Chap. 69	Workbook
Week 34	Steering diagnosis	Chap. 70	Workbook & lab
Week 35	Steering repair	Chap. 70	Workbook & lab
Week 36	Alignment	Chap. 74	Workbook & lab