

**AUTOMOTIVE TECHNOLOGY  
Needs Assessment**

**Prepared by:**

**Office of Institutional Planning and Analysis  
Oakland Community College**

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# **AUTOMOTIVE TECHNOLOGY NEEDS ASSESSMENT**

## **EXECUTIVE SUMMARY**

- ★ This needs assessment was undertaken in order to evaluate industrial needs and appropriate educational responses for OCC's Automotive Technology program.
- ★ Information for the assessment was obtained from a survey of employers and businesses in the field, a survey of students enrolled in existing courses, a literature search, data from state and federal government sources, information from professional organizations, and a study of programs offered by other higher educational institutions.
- ★ Experts indicate that the short-term outlook for the automotive industry is not positive, but believe in the long-term, national economic recovery, large-scale retirements of mature workers and a plateauing of the downsizing movement should provide opportunities in all segments of the automotive industry.
- ★ The near term employment outlook for the students in automotive technology programs is unfavorable based on the data we have obtained. Only 26.2 percent of employers surveyed indicate that they are hiring at all (See Table 2). Many of those employers who are hiring are only posting internally. Some are hiring skilled technicians on a temporary basis.
- ★ Experts in the field indicate that the most optimistic employment opportunities for those seeking automotive sales and marketing careers appear to be with companies who are offering high tech products that are new to the market.
- ★ We have noted in the data and from discussions with experts that dealerships serve as primary feeders to testing and manufacturing operations. Employers in general look favorably upon graduates of co-op programs and/or applicants with dealership experience.
- ★ The automotive industry is increasingly interested in entry level personnel with technical competency and interpersonal skills. Only one third of employers surveyed (33.9%) require entry level personnel to possess an associate degree.
- ★ Industry experts indicate that the present emphasis on the "quality" movement means that employers are seeking automotive technicians with training in SPC and Quality Circles. Over 95 percent of all employers (95.2%) indicate that "teamwork" is a very important personal characteristic for entry level employees.
- ★ Higher education institutions in Michigan are primarily training graduates to enter automotive servicing positions in dealerships or independent service facilities. Colleges that offer cooperative programs through the automobile manufacturers (programs such as ASEP, T-TEN or ASSET) are highly regarded by local employers and are typically quite successful at placing their graduates.

# OAKLAND COMMUNITY COLLEGE AUTOMOTIVE TECHNOLOGY NEEDS ASSESSMENT

## INTRODUCTION

The purpose of this report is to review current industry needs and educational responses related to the field of automotive technology. This report is intended to assist the Department and the College Administration in planning for the future of the Automotive Technology program at Oakland Community College. The review was initiated by Dr. Bill Rose, Dean of Academic Services at Oakland Community College's Auburn Hills Campus. The needs assessment includes a comprehensive literature review, data supplied by the U.S. Department of Labor, Michigan Occupational Information System (MOIS), information compiled from phone conversations with industry analysts, personal interviews with industry experts, an examination of related programs in other higher education institutions, phone surveys of employers in the automotive industry and students who have recently enrolled in Automotive Technology courses at OCC.

## Description of Existing Program

The Automotive Technology program at OCC is designed with two programmatic options: *Engineering* and *Retail*. The *Engineering* option provides students with a strong base of knowledge in basic automotive functions as well as additional coursework in advanced mathematics, manufacturing processes and physics. The *Retail* option allows students to augment their automotive training with courses designed to enhance their skills in business functions, supervision and salesmanship. Students completing the *Engineering* option may choose to pursue careers in research, development and testing of new automobiles or automobile parts, while those completing the *Retail* option may choose to seek careers in service, management, or sales of parts and materials needed in the production of automobiles (Appendix A).

In the fall of 1991, an Automotive Task Force was formed to evaluate the future of the Automotive Technology program. Meeting notes from the Task Force indicate that a number of options are being explored, including the possibility of combining the Automotive Technology program with the Automotive Servicing program (Appendix B). Enrollment in the Automotive Technology program has been diminishing over recent years. As indicated in the Ten Year Enrollment Trends report prepared by the Office of Institutional Planning and Analysis (Appendix C), there was a 74.2 percent decline in student headcount and student credit hours in the Automotive Technology program between 1981 and 1991. Additionally, there has not been an active Advisory Committee for the Automotive Technology program for several years.

## Description of Occupation

The term "automotive technician" is used to identify a variety of job classifications, and the meaning of the term varies widely across employer types. In dealerships, the term typically

refers to those performing service functions on the automobiles, while in testing facilities, the "automotive technician" may provide either service or engineering support. Some of the automobile manufacturers indicated that "automotive technician" functions are performed by junior engineers. The Dictionary of Occupational Titles does not provide a specific definition for "automotive technician."

The Michigan Occupational Information Service (MOIS) offers a description for "mechanical engineering technician," that describes the nature of the occupations for which the OCC Automotive Technology program is geared.

**Mechanical Engineering Technicians**, also known as **Mechanical Technicians**, assist **Mechanical Engineers** with problems related to the use, testing, design, and development of machinery and equipment (or systems) used in producing goods and providing services. . . . **Mechanical Engineering Technicians** may specialize in a single field, such as automotive technology, diesel technology, production technology, quality control, tool design and machine design, or in the type of work performed, such as research and development, planning and testing and technical sales and service. They may also work in technical writing and teaching. (MOIS, 1992)

There is debate in the industry regarding the meaning of the term "automotive technician." Depending on the type and size of the business, the automotive technician may be involved in testing/diagnosis of new automobiles, aftermarket servicing of automobiles, manufacturing or sales of parts/materials for the automotive industry, or may be employed in a service capacity in an independent garage. The Center for Educational Statistics broadly defines Automotive Technology as:

An instructional program that prepares individuals to support an automotive engineer in diagnosing normal or abnormal operation and in maintaining and repairing automotive equipment . . . (Classification of Instructional Programs (CIP), Appendix D)

In light of the varied definitions found within the industry, automotive technicians can expect to obtain positions with a wide range of job titles. Automotive technicians with education and/or experience in business or marketing are qualified to work as sales personnel for original equipment manufacturing operations, materials suppliers or parts stores. Typical job titles for those working in sales include, service consultant, sales representative, or sales service representative. Automotive technicians with engineering skills might seek employment in service, development, testing or manufacturing of automobiles. Such persons may have job titles such as service technician, test technician, fabricator, detailer or mechanic technician. A small percentage of graduates of automotive technology associate degree programs choose to pursue mechanical or electrical engineering degrees at four-year institutions. Employers surveyed as a part of this study listed possible position titles that vary widely both within and across employer groups. A complete list of job titles obtained from local employers appears in Appendix E.

## **METHODOLOGY**

### **Methods of Data Collection**

In order to obtain background information on the automotive industry, a literature search was performed and a variety of professional, industry, public and regulatory bodies were contacted.

A telephone survey of sixty-two (62) employers was conducted between July 15 and August 4, 1992. Employers from four employment categories were included: automobile manufacturing, original equipment manufacturing, automobile research/development/testing organizations, and automobile dealerships (Appendix F). Employers were asked a series of questions regarding hiring practices and potential employment opportunities (Appendix G). Additionally, detailed information was solicited from these employers regarding desired qualifications and specific skill levels for entry level employees. Employers contacted were selected at random from a variety of sources, and included those employers suggested by members of the OCC Automotive Technology program, Automotive News' Annual Market Data Report, Dun's List, and independent consulting firms. Companies representing a variety of sizes and interests were included in order to provide a comprehensive view of employer needs in the local area.

An attempt was made to contact all fourteen (14) students who had taken at least one AUT course during the past academic year. Each contacted student was asked to complete a brief phone survey regarding his/her motivation in taking AUT courses, satisfaction with the program and expectations for using his/her AUT experience/knowledge in the future (Appendix H). Student surveys were completed between July 15 and August 4, 1992.

A review of existing automotive technology programs in higher educational institutions in Michigan was conducted (Appendix I). Comparisons of enrollment and graduation information were made, and an examination of program content was conducted.

### **Methods of Data Analysis**

A total of 62 employers responded to the employer telephone survey (Table 1). Quantitative analysis of the data was conducted by means of frequency distributions. Verbal responses were analyzed for content (Appendix J).

**Table 1**  
**Employers Participating in**  
**AUT Employer Survey by Employer Type**

<u>Employer Type</u>	<u>Number</u>	<u>Percent</u>
Original Equipment Manufacturers .....	20	32.2%
Automobile Manufacturers .....	11	17.7%
Research/Development/Testing Facilities .....	22	35.5%
Automobile Dealerships .....	9	14.5%
 Total .....	 62	 100%

*Source: OCC Employer Survey, July/August 1992*

Nine of the 14 students (64.3%) who enrolled in at least one AUT course during academic year 1991-92 responded to the telephone survey. Because of the small sample size, the student survey data were not statistically analyzed; rather, where appropriate, student responses are quoted within the text of the report. The entire complement of student narrative responses is included in Appendix K.

## ANALYSIS

### Automotive Industry Outlook

David Cole, Director of the Office for the Study of Automotive Transportation (OSAT)/Professor and Research Scientist at the University of Michigan, indicates that for the short term, an abundance of trained people in the work force, combined with poor economic conditions and industry downsizing will likely result in limited opportunities for employment of Automotive Technicians (1992). Cole suggests that this condition may be a temporary one; however, as industry downsizing will eventually plateau and the economy will inevitably improve. Cole also believes that the mature workforce in the automobile manufacturing industry will produce large-scale attrition due to retirements in the next few years, and will open the doors for highly trained personnel at all levels. He stresses that skill development (e.g. design, dynamometer operation) rather than degree attainment should be at the top of the agenda for those educating automotive technicians for the future.

Dr. Byrl Shoemaker (1992), Independent Educational Consultant to the National Institute for Automotive Service Education, reiterates Cole's belief that expected retirements in the automotive

industry in the coming years will establish a positive upturn in employment opportunities. He further affirms that the industry is increasingly interested in the competence of their technical staffs and less interested in specific degree attainment. Shoemaker states that industry employers are demanding a workforce with well developed critical thinking skills and basic competencies. Indeed, in an effort to improve the technical and academic competence of its workforce, the auto industry is itself taking steps to provide supplemental classes. *Automotive News* reports that over 250,000 hourly employees at the Big Three are currently enrolled in basic education and technical skill improvement classes jointly sponsored by the UAW and the automakers. (*Automotive News*, January 27, 1992)

James Jacobs of the Industrial Technology Institute (ITI) believes that "Vocational classes at community colleges should emphasize skills that will be useful for a variety of jobs throughout an industry." (Jacobs, 1989) A Chrysler training coordinator interviewed as a part of the current employer survey confirms that, in the current automobile manufacturing climate, it is crucial for employees to have the ability to "... (t)ie the system together into a big picture. . ."

### Employment Opportunities

The majority of employers contacted (73.8%) are not hiring entry level personnel with automotive technology backgrounds at the present time (Table 2). Nearly one third (31.3%) of those currently hiring new employees indicated expansion as the primary reason for the hiring, while 12.5 percent cited employee turnover, and 56.3 percent gave other reasons. Among the "other" reasons for current hiring were combinations of employee turnover and expansion and program-related changes. Some employers indicated that they are not hiring permanent employees at this time, but do hire temporary contract employees on occasion for specific projects.

Table 2  
 Employers Currently Hiring by  
 Employer Type

<u>Employer Type</u>	<u>Hiring</u>	<u>Not Hiring</u>
Original Equipment Manufacturers .....	35.0%	65.0%
Automobile Manufacturers .....	18.2%	81.8%
Research/Development/Testing Facilities .....	23.8%	76.2%
Dealerships .....	22.2%	77.8%
All Employer Types Combined .....	26.2%	73.8%

Source: O.C.C. AUT Employers Survey, July/August, 1992



The largest percentage of those employers who are currently hiring are original equipment manufacturers (43.8%), followed by research, development and testing firms (31.3%). Automobile manufacturers (12.5%) and dealers (12.5%) show the least promise for entry level employment of automotive technology graduates at the current time. Expansion and product changes are noted to be prominent reasons for employment opportunities within both original equipment manufacturers (OEM's) and research, development or testing facilities (R&D/Testing), with 25.0 percent of OEM's and 60.0 percent of R&D/testing facilities reporting that they are undergoing significant expansion at this time.

MOIS reports that employment of automotive technicians is expected to grow more slowly than the average for all occupations through the year 2000. An average of 140 openings is expected annually in the State of Michigan through the year 2000. MOIS reports that the supply of automotive technicians in Michigan currently exceeds employment openings. MOIS also reports that automotive technicians are expected to face increasing competition from four-year graduates for positions in the "high-tech" firms in the near term. (MOIS, 1992)

Of the employers contacted as a part of the Employer Survey, 62.9 percent indicated no problems in finding well-qualified entry level employees. Those who reported difficulties in locating qualified personnel trained in automotive technology cited a variety of reasons for their difficulty. Specific employer responses included:

"Trying to find qualified persons who have the knowledge, repair and technical abilities to communicate with staff. They need to be able to communicate technically with others."

"Experience is difficult to find. College educated people don't usually apply for this job. People tend to not enter this job after obtaining a college education."

"Nobody comes through with a degree. Most new hires are not interested, not ambitious -  
- We can't attract those with qualifications because we can't start them at the price we'd need to attract them."

"It is very difficult to find someone with the training. We look at the entire education that the person has. They need to be receptive to rapid training . . ."

"Lack of experience. We have people that come in with a lack of experience and tools."

In general, employers felt as though the entry level employees they hire are adequately prepared to perform up to job expectations (Table 3).

**Table 3**  
**Perceived Preparation Levels of Entry Level**  
**Employees in Automotive Technology**  
**by Employer Type**

<b>Employer Type</b>	<b>Usually Prepared</b>	<b>Sometimes Prepared</b>	<b>Usually Not Prepared</b>
Original Equipment Manufacturers . . . . .	45.0%	35.0%	20.0%
Automobile Manufacturers . . . . .	81.8%	18.2%	0%
Research & Development/Testing . . . . .	68.2%	22.7%	9.1%
Dealerships . . . . .	44.4%	33.3%	22.2%
All Employers Combined . . . . .	59.7%	27.4%	12.9%

Source: O.C.C. AUT Employers Survey, July/August, 1992

Several of the employers who noted skill deficits in their entry level employees cited poor basic academic skills (reading, writing, etc.). Other employers expressed concerns about the lack of commitment to the job, employees who lacked understanding of the expectations of the work environment, and the inability of new hires to apply their theoretical knowledge to practical situations:

"Don't know how to put theory to work. Don't create linkage between academics and work. Not able to work in team environment."

"People skills/customer relations. On-going commitment to the work week. Many new college grads don't have the sense of commitment."

"Lack of hands on. They have an abundance of knowledge and no skills."

"Hands on ability not good. Not able to put the information they learned in class to practical use."

Employers were asked to rate the importance of a variety of job-specific skills for their entry level employees. Table 4 displays the percentages of each employer group listing individual skills as "Very Important."

**Table 4**  
**Percentage of Each Employer Group**  
**Indicating Specific Skill Knowledge as "Very Important"**  
**For Entry Level Employees**

<u>Skill Area</u>	<u>OEM</u>	<u>Auto Manuf.</u>	<u>R&amp;D/ Testing</u>	<u>Dealers</u>	<u>All Employers</u>
Electrical/Electronic Systems .	16.7%	63.6%	52.4%	77.8%	47.5%
Diagnostic Testing . . . . .	38.9%	63.6%	38.1%	66.7%	47.5%
Engine Fundamentals . . . . .	26.3%	63.6%	42.9%	66.7%	45.0%
Drafting/Blueprint Reading ..	44.4%	18.2%	42.9%	11.1%	33.9%
Emission Systems . . . . .	5.3%	54.5%	28.6%	66.7%	31.7%
Brake Systems . . . . .	11.1%	18.2%	38.1%	33.3%	25.4%
Transmission/Drive Lines ...	11.1%	45.5%	28.6%	22.2%	25.4%
Computer Aided Design . . . .	27.8%	27.3%	33.3%	0%	25.4%
Body Systems & Welding ...	33.3%	36.4%	19.0%	11.1%	25.4%
Suspension Systems . . . . .	11.1%	27.3%	23.8%	33.3%	22.2%

*Source: O.C.C. AUT Employer Survey, July/August, 1992*

Employers participating in the survey also rated a list of personal qualities and academic skills with regard to perceived importance for entry level employees. Table 5 shows the number of employers who listed those skills as "Very Important."

**Table 5**  
**Percentage of Each Employer Group**  
**Indicating Personal Qualities and Academic Skills**  
**as "Very Important" For Entry Level Employees**

<u>Skill Area</u>	<u>OEM</u>	<u>Auto Manuf.</u>	<u>R&amp;D/ Testing</u>	<u>Dealers</u>	<u>All Employers</u>
Teamwork . . . . .	100.0%	90.9%	95.5%	88.9%	95.2%
Problem Solving Skills . . . . .	90.0%	100.0%	90.9%	77.8%	90.3%
Individual Initiative . . . . .	85.0%	81.8%	81.8%	88.9%	83.9%
Interpersonal Skills . . . . .	75.0%	81.8%	77.3%	77.8%	77.4%
Organizational Skills . . . . .	90.0%	63.6%	63.6%	55.6%	71.0%
Mathematical Skills . . . . .	55.0%	54.5%	72.7%	11.1%	54.8%
Writing Skills . . . . .	35.0%	36.4%	54.5%	22.2%	40.3%
Speaking Skills . . . . .	45.0%	36.4%	31.8%	33.3%	37.1%

Source: O.C.C. AUT Employers Survey, July/August, 1992

**Employment Outlook: Engineering Option**

Experts in the industry have noted that the "theoretical" technician training programs have not been historically supported by automakers.(Shoemaker, 1992) A 1987 report produced by Mercer College in New Jersey suggests that the automakers are interested in employees who have a theoretical knowledge of the workings of automobiles *combined* with strong hands-on skills.

Chrysler representatives have also concluded that generic automotive technology programs such as those traditionally found in vocational schools at the secondary level and at some community colleges, do not meet the needs of Chrysler dealers in terms of providing employees who can understand and repair new automobiles. (Conklin, 1987)

Members of the automobile manufacturing industry have created and continue to support a number of programs designed to train technicians for work in their own dealerships on their specific automobiles. The Ford ASSET program, General Motors' ASEP program, the Chrysler CAP, Nissan's PRO CAP and the Toyota T-TEN (Toyota Technical Education Network) programs currently provide co-op experiences in their dealerships. Participating students in automotive

technology programs spend approximately half of their time working alongside service personnel in dealerships, while the other half of their time is spent in college classrooms and laboratories. The program allows them to not only apply classroom knowledge on state-of-the-art equipment, but also allows them to develop a relationship with an employer prior to their graduation. At least four Michigan community colleges are currently experiencing success working in those cooperative partnerships: Henry Ford Community College (Ford), Delta College (General Motors), Macomb Community College (General Motors, Chrysler, Ford), and Jackson Community College (Toyota, General Motors). In 1989, it was estimated that the Big Three Automakers trained approximately 2,000 new technicians for their dealerships annually through such cooperative programs nationwide. (Steiger & Shoemaker, 1989)

Having held a position as a technician in a dealership may serve to open doors for students who ultimately wish to work at one of the Big Three's proving grounds or other testing facilities. Dennis Buza, Human Resources Director at the Chrysler Proving Grounds in Chelsea indicates that ". . . (t)he proving grounds use the dealerships as feeders for their entry level personnel." Further, he noted that the student who wants to work at a proving ground as a technician would find it very difficult to obtain such a position without first working at a dealership.

There are also a relatively small number of technician positions available at the various proving grounds. Buza indicates that while there are 149 driver/mechanics on site in Chelsea, there are only ten technicians, all of whom were originally hired out of dealerships into driver/mechanic positions. At the Chrysler Proving Grounds, there are no technicians hired from the outside, and those who obtain those positions have typically spent at least eight years as driver/mechanics before obtaining the promotion to technician. Tom Haggert, Supervisor of Employee Relations at the Ford Proving Grounds in Romeo echoes Buza's statements: "(We) haven't hired in over ten years. Opportunities (are offered) to current employees only . . ."

Automobile manufacturers reiterate that service positions in dealerships serve as spring-boards for progression into manufacturing. One employer indicated, "The usual movement within the company is from the dealers' service area to the manufacturing plant." Ed Jeakle, Employee Development and Training Supervisor at Ford Motor Company confirms that entry level automotive technicians at Ford are almost exclusively service personnel.

Keith Green, Advanced Technical Training Supervisor for Chrysler Motors indicated that the bulk of the technicians on staff at Chrysler are skilled tradesmen, most of whom were hired in the early 1980s and have remained in the same positions since that time. Chrysler is not hiring at all right now, and is involved in a serious push to "right-size" the organization. Green suggests that the only positions within Chrysler that may be appropriate for Automotive Technology graduates from OCC would be as training instructors. The opportunities in training positions are limited as well, since Chrysler contracts most of its training to technical training consulting firms.

One such consulting firm, General Physics Corporation (GPC), provides trainers for automakers in the local area. Darlene Van Tiem, Consultant with General Physics Corporation indicates that GPC has on staff a number of persons who were hired immediately upon their lay-off from GM or Chrysler. Those former automotive industry employees continue to work on site at their previous corporations, and the automakers retain the expertise of their former employees as consultants. Van Tiem indicated that trainers hired from outside of the automakers are engineers, former skilled tradesmen or have come from the Navy. General Physics and other technical contractors indicated that they would consider hiring persons with automotive technology associates degrees for training positions, although such community college graduates would face stiff competition for training positions in their companies.

### ***Employment Outlook: Retail Option***

In a recent study of high tech industrial suppliers, Kenneth Traynor, Professor of Marketing at Clarion University of Pennsylvania, noted that 48 percent of sales personnel possess a technical degree. He also found that technically trained sales personnel could expect starting salaries 20 percent higher than those of their counterparts with business or marketing degrees. While the higher salaries may on the surface be encouraging for technically trained individuals, Traynor's research indicates that some cost-minded employers are turning to non-technically trained sales forces in an effort to trim overhead. Significant determinants of whether sales personnel were trained in technical fields vs business/marketing were found to be the size of the organization and the product life cycle (i.e. products that are beyond the research and development stage require less technical expertise in sales). (Traynor and Traynor, 1992) If Traynor's conclusions hold, technically trained sales personnel in the automotive industry may be in demand in some areas due to rapidly changing technology. Lewis Rice, member of the Georgia Board of Technical and Adult Education and Senior Vice President of Genuine Parts Co. indicates that "Five years ago, half the parts we now carry didn't even exist." (*Automotive News*, June 26, 1989)

Employer comments regarding the preparation of their sales forces included:

"An automotive technology background is only needed for our engineers and service technicians. Sales personnel are hired with marketing backgrounds and we train them in the product line."

"Problem: They do a lot of travelling; need to be able to handle travel and thinking on your feet without the customer realizing it."

"Looking for people with a background in sales and marketing as well as automotive technology."

"(Our company's entry level education and experience requirement) varies depending on position: service consultant requires public relations experience and auto technology background . . . "

Mark Santucci, Industry Consultant for Elm International, Inc., believes that the employment outlook for those working in automotive equipment and materials sales is not positive, in large part due to industry-wide cutbacks in the number of suppliers. J. Ignacio Lopez de Arriotua of General Motors is leading the charge in revolutionizing purchasing practices of the automakers, by demanding steep price cuts from material suppliers (*Crain's Detroit Business*, August 24, 1992). Further, the self-employed manufacturers' representative is being eliminated as original equipment manufacturers cut costs by directly interfacing with their clients. Harry Merigan, President of the Michigan Society of Manufacturers' Representatives, believes that manufacturers' representatives who have established connections with those working at the Big Three automakers may do quite well, although the opportunities are not positive for inexperienced sales personnel. Carol Sheid, Managing Director of the Michigan Society of Manufacturers' Representatives, confirms that the most successful independent sales personnel have significant industry experience, and 75-80 percent are engineers.

### ***Retraining Opportunities:***

Of the employers surveyed, 68.9 percent indicated that they provide some type of automotive technology training to their employees. In-house training was most likely to be done by the automotive manufacturers (90.9 percent offer in-house training), and in dealerships (88.9% train on site). Many employers indicated that they are willing to reimburse tuition for employees who seek job-related higher education. Programs such as the Higher Education and Learning Program (H.E.L.P) at Chrysler allow employees to seek bachelors, masters and even doctoral degrees with full reimbursement. Seventy-three percent of the employers indicated that they would consider sending their employees to OCC for automotive technology training, although most employers noted that they would need to be assured that OCC was offering training that was relevant to their needs before making a commitment to utilizing OCC for training.

### **Employee Benefits**

#### ***Wage and Salary***

The employer survey conducted as a part of this study indicates that remuneration for automotive technology graduates varies widely across employer types (Table 6).

**Table 6**  
**Entry Level Hourly Rates**  
**for Personnel in Automotive Technology**

<b>Type of Employer</b>	<b>Average Low Hourly Rate</b>	<b>Average High Hourly Rate</b>
Original Equipment Manufacturers . . . . .	\$9.48	\$10.54
Automobile Manufacturers . . . . .	\$11.99	\$12.39
Research, Development & Testing Facilities	\$8.57	\$10.69
Dealerships . . . . .	\$8.83	\$9.79
All Employers Combined . . . . .	\$9.31	\$10.59

*Source: O.C.C. AUT Employer Survey, July/August, 1992*

MOIS data indicate that nationally, salaries for automotive technicians range from \$9.74 to \$18.35 per hour. MOIS further reports that most automotive technicians can expect to receive paid vacation and holidays; life, accident, disability, and hospitalization insurance; retirement plans; and sick pay. (1992)

***Advancement Opportunities***

Employers noted that advancement opportunities for automotive technology graduates is typically from "junior" level to "senior" level technician positions, depending on their skills, interests or motivation. Others may progress into supervisory or management level positions. One automobile manufacturer indicated that ". . . There is such a reduction in middle management that the opportunities are limited--greater competition for those few slots. They would need to be stars to progress." Other employers indicated that one needs a bachelor's degree in order to advance into management. Automotive technicians may find that their advancement opportunities are also limited if they do not choose to pursue an engineering degree or other type of specialized training.



### ***Opportunities for Minorities and Women***

Those involved in training of automotive technicians note that the field suffers from a lingering image problem. One expert claims "This is a profession. The person is a technician, not the grease monkey of old . . . our students are being trained in the use of sophisticated equipment to become diagnostic experts." (R. D. Henriksen, quoted in King, 1985). However, an employer in the automobile manufacturing business indicated that the nature of the automotive work environment continues to limit manufacturers' ability to attract highly trained employees: "People are not interested in getting their hands dirty in diesel. Good quality or above average people are not entering the field. . . ." The work environment for automotive technicians may vary widely. Some technicians work in climate controlled high tech facilities, while others may be exposed to fumes, noise, dust and extreme conditions. (MOIS, 1992) The public perception of the work environment of automotive technicians may be primarily that of the latter, contributing to the poor image for the field.

Employers surveyed indicate that identifying qualified women and minority candidates to fill available positions in automotive technology has been difficult. The greatest challenge seems to be that of attracting women to the field. The Michigan Department of Education's Enrollment Data Profile indicates that only 5.6 percent of enrollees in the automotive technology programs statewide are women (Appendix L). One employer indicated that "Male bonding, macho stuff is prevalent" in the work environments for automotive technicians, and that there continues to be a limited number of women who choose to enter the field as a result.

### **Occupation**

#### ***Level of Training Needed***

Employers responding to the OCC survey were asked to indicate the minimum levels of education, experience or other credentials required for entry level employment (Table 7).

Table 7  
 Employer Education and Experience Requirements  
 for Entry Level Positions in Automotive Technology

<u>Entry Level Requirements</u>	<u>OEM</u>	<u>Auto Manuf.</u>	<u>R&amp;D/ Testing</u>	<u>Dealers</u>	<u>All Employers</u>
No prior work experience or education required . . . . .	0%	0%	9.1%	0%	3.3%
Prior related work experience . . . . .	35.0%	0%	54.5%	33.3%	35.5%
Work experience in automotive technology . . . . .	30.0%	18.2%	27.3%	11.1%	24.2%
Certificate . . . . .	15.0%	9.1%	13.6%	33.3%	16.1%
AAS in automotive technology . . . . .	45.0%	45.5%	27.3%	11.1%	33.9%
BS in automotive technology . . . . .	5.0%	0%	0%	0%	1.6%
BS in engineering . . . . .	10.0%	0%	4.5%	0%	4.8%
Other type of education or experience not listed . . . . .	35.0%	54.5%	31.8%	77.8%	43.5%

Source: O.C.C. AUT Employers Survey, July/August, 1992

As shown in Table 7, approximately one third (33.9%) of all employers require entry level employees to have an associates degree in automotive technology. Employer responses to this question must be interpreted with caution due to the fact that few employers indicated a familiarity with OCC's Automotive Technology program. Nearly all the automotive technology programs in the State (with which the employers may be familiar) are geared toward training students to work in servicing positions (Appendix I). Employers frequently mentioned knowledge of the co-op programs offered jointly by the automobile manufacturers and higher educational institutions. The co-op programs are exclusively designed to train students for servicing positions in dealerships and their focus is therefore not comparable to that which is offered in the AUT program at OCC.

Notably, 43.5 percent of all employers cited "other" types of education and/or experience as being required for their entry level employees. Several of the employers indicated that their entry level employees must have a high school education or GED certificate. Of those employers requiring more than a high school education, many hire only automotive technicians with a background that includes either a co-op or automotive servicing experience:

"Two years in garage or dealership . . ."

"Varies depending on position: service consultant requires public relations experience and auto technology background; technician requires Michigan certification and experience at another dealership."

"The best way to enter is through the company ranks either through Chrysler dealers or training."

"Have a co-op program with Oakland University."

"We hire only person(s) with dealership experience from GM, Ford or Chrysler."

"Associate degree in a related field. Mechanic backgrounds."

"Associates in auto mechanics. In order to become a technician you first need eight years experience with the company. . . ."

Employer responses regarding entry level automotive technician requirements were contrasted with the narrative responses from recent OCC Automotive Technology students. The students were asked how their automotive technology coursework relates to their ultimate career objectives. Most of the students responding indicate a desire to work with the major automobile manufacturers or at their testing facilities:

"To get employed by one of the Big Three."

". . . specifically to get an associate's (degree) and then transfer to a four-year college and get a degree in engineering."

"I am waiting for a job doing time studies and diagnostics."

"Hopefully getting an engineering job with the Big Three. I would like to get a job in testing - the proving ground."

"I have 14 years experience. I needed pieces of paper (associate's degree)."

"For employment with the Big Three. People in GM tell me with an associate's degree they could get me in."

Our data show that employers are seeking potential employees with servicing experience in dealerships. We have found that in automotive testing facilities, there is virtually no possibility of obtaining a technician's position without first spending time working in an affiliated dealership.

Employer data suggests that OCC's AUT graduates would do well to seek entry level positions in dealerships as stepping stones to their ultimate goal of working in testing or manufacturing. Unfortunately, the short-term employment outlook does not appear bright for automotive technicians who aspire to enter automobile manufacturing or testing, as only 22.2 percent of dealerships contacted are currently hiring automotive technology graduates, and the hourly pay is the lowest of all employer types (high average is \$9.79/hour).

When asked whether they perceived a need for a two year program in automotive technology, one proving ground employer noted that for their needs, a certificate program is more appropriate, as the required prerequisites and extraneous coursework required for an associate degree program "get in the way of what we need in terms of specific skills." Another employer noted that "technical skills can be taught; however, the other skills, such as group oriented, working together, goal oriented, teambuilding are very important but difficult to teach." Several employers noted a need for their entry level technicians to be trained in SPC and Quality Circles in order for them to work effectively in today's automotive work environments.

#### *Adequacy of Currently Available Training*

There are a large number of automotive programs in four-year and community colleges statewide. While many of the programs are listed as "automotive technology" programs, only a handful of the programs indicate a focus on the theoretical aspects of automotive training. Additionally, there are a number of proprietary schools, such as MoTech in Livonia, who provide automotive technology training, although the cost of attending a proprietary school is extremely high. The bulk of the state's programs are geared toward training students to become employed in dealerships or independent automotive repair operations upon their graduation.

Data obtained via the OCC Student Survey indicate that students involved in the AUT program at OCC are primarily interested in employment in auto manufacturing and testing. The students surveyed are generally pleased with the instruction, facilities and overall quality of education they are receiving through OCC's Automotive Technology program.

The programs with the healthiest enrollments are those with strong connections to the automakers, particularly through co-op programs (such as ASEP, T-TEN, or ASSET). These co-op programs receive the support of the automakers in terms of equipment, automobiles and faculty training, allowing the programs to remain in tune with technological advances with a minimum cost to the institution. Co-op programs allow institutions to teach automotive technology using state-of-the-art equipment and knowledge with minimum cost. Advantages for co-op students are academic and financial. Participating students learn to operate the most technically advanced equipment and are paid a wage for the time they spend working in the sponsoring dealerships. Dean

Dana Anderson at Macomb Community College notes that participating Chrysler dealers even pay half of the student's tuition in exchange for a two-year commitment from the student. He further notes that some students actually make enough money working in the dealerships to pay their tuition bills. Perhaps the most valuable feature of the co-op is that the student is given the opportunity to get a foot in the door of a dealership before graduating.

Eighteen state-supported Michigan colleges and one proprietary institution were contacted regarding automotive technology.

**Delta College:** Delta College maintains a strong cooperative partnership with General Motors through their Automotive Service Education Program (ASEP). ASEP is designed to give students a co-op experience in a General Motors dealership while they are getting their associate's degrees in automotive technology. Students typically attend class for 8-9 weeks, then work for a few weeks in their sponsoring dealership. The College attempts to help students in obtaining sponsors, although it is ultimately up to the individual student to arrange that sponsorship. It is considered a solid two-year program, and there is no flexibility to drop in and out of the program. The program enrolls about 20 students each year. There are three full time faculty in ASEP, and about 18 faculty overall in the Delta College Automotive Technology program. Tim Weiss, Coordinator of ASEP at Delta, reports that over the past ten years about 35 percent of Delta's ASEP graduates have remained at their original sponsoring dealerships.

**Ferris State University:** Ferris State University is the only baccalaureate degree granting institution offering Automotive Technology associate degrees. Ferris' automotive program consists of six separate options, including associate degrees in Automotive Service Technology, Automotive Body, Automotive Machine Technology, Heavy Equipment Service Technology, and Heavy Duty Engine as well as a bachelor's degree program in Automotive/Heavy Equipment Management. The program in Automotive Service Technology has averaged approximately 64 graduates each year since 1987 and currently employs 13 full time faculty members. Some of those faculty members are themselves graduates of the Ferris program, and some have come from industry.

**Gogebic Community College:** The Gogebic program is intended to train personnel to work in the local dealerships and other service positions. Dean Steve Wesselhoft indicates that Gogebic has recently begun an intense recruitment process in an effort to boost sagging enrollments. The campaign has been deemed a success to date, with about 15 students in the Automotive Technology program in 1991-92. The program employs two full time faculty. The curriculum for Automotive Technology requires students to take math and accounting classes as a way to help students become more proficient in general education skills. Wesselhoft indicates that more rigorous general education requirements are hoped to make their students more qualified for advancement to managerial positions in dealerships.

**Henry Ford Community College:** The Ford Motor Company maintains a close relationship with Henry Ford Community College's Automotive Technology program through Ford ASSET (Automotive Student Service Educational Training) program. Dr. JoAnn Terry, Dean of Corporate Training describes the ASSET program as a cooperative program which allows students to spend half of their time working as service personnel in dealerships and the other half of their time in the classroom. When the students graduate from the program they are already hired by the Ford Motor Corporation. Les Golings, lead faculty member in the Automotive Department indicated that students involved in the ASSET program are required to find their own sponsoring dealership prior to admission. Ford supports the program with equipment and personnel but does not pay for the student to attend. The program is extremely valuable, per Golings, as it gives students an opportunity to learn to use specific electronic equipment employed in Ford dealerships by allowing them to visit various Ford sites for classes. Golings indicated that there are also some Automotive Technology students at Henry Ford Community College who are not involved in the ASSET program. Those graduates hope to work with the major car manufacturers as technicians, building prototypes or operating such equipment as emission testing devices and dynamometers.

**Jackson Community College:** The Jackson Automotive Technology program is quite small, with a total of seven graduates over the past five years. The Toyota T-TEN program and the General Motors Aftermarket Network program help to support the Jackson program. Students in the program are employed by a sponsoring dealership as interns prior to starting the Automotive Technology program. The students then maintain a working relationship with that dealership throughout their program. Dr. Mike Walraven, Dean of Instruction indicates that graduates of the program typically go into service positions and become driveability specialists, diagnosticians, or become counter people in parts stores. The Jackson program is currently being informally reviewed due to declining enrollments and sluggish graduation rates. They currently employ two full-time and one part-time faculty.

**Kellogg Community College:** The Kellogg Community College Automotive Technology program is designed to train students for eventual work in automobile dealerships and independent auto repair operations. Dean John Cooper indicates that due to declining enrollment, the Automotive Technology program at Kellogg is currently under review. The job opportunities for graduates in the local area are limited and Kellogg is interested in evaluating the college's role in relation to the local vocational center. Dean Cooper believes that the retraining of the local work force may be the most positive student pool for the near future. John Spindler, Registrar, indicates that there were a total of eight graduates of the Automotive Technology program in the past five years.

**Kirtland Community College:** Automotive Division Chairman, Robert Shingledecker indicates that the Kirtland Automotive Technology department is a "small but steady" department. The Kirtland Automotive Technology program has graduated 15 students in the past five years. The primary focus of the program is to provide automotive servicing training to students in the local community. The

department currently employs 1 1/2 to 1 3/4 instructors and augments its program by offering automotive courses in the local high school vocational training program. Shingledecker believes the future is positive, particularly for "Tech Prep," a new state-wide program that starts students at the junior and senior high school levels. He anticipates that there will be significant ties between junior and secondary schools and community colleges as a result of this program.

**Lansing Community College:** Automotive Technology Department Chair, Walter Hayward, indicates that the Lansing Community College program is geared exclusively to preparing students to enter careers in service positions in dealerships or independent service garages and fleet maintenance. Hayward believes that fleet maintenance has potential for being a good source of employment opportunities for the Automotive Technology graduates in Lansing. Ferris State has also hired some of the Lansing Automotive Technology graduates to teach courses there. The program currently employs two full-time instructors and 14 part-time instructors. There are usually about ten full-time instructors, but due to a hiring freeze there has been no flexibility in hiring as of late.

**Lawrence Technological University:** Mr. Robert Chute, Chair of the Technology Department, indicates that there are no offerings of degrees or certificates in Automotive Technology. Lawrence offers a few courses that give students basic knowledge of automotive technology, and some of those automotive courses are required for non-automotive degrees. There is a possibility that Lawrence will eventually offer a "master" of automotive engineering degree (2 year program). A proposal for such a program is currently being developed, and may be reviewed within the next year. There are no enrollment figures available for the automotive courses because they are offered very infrequently.

**Macomb Community College:** Associate Dean Dana Anderson indicates that the Macomb Automotive Technology program enjoys healthy enrollments and state-of-the-art equipment in great part because of cooperative agreements with General Motors, Ford and Chrysler. While each of the Big Three automakers has a separate agreement with Macomb, all three provide co-op experiences for Macomb students while they complete their associate degrees. Macomb students expect to become employed either as service personnel in local dealerships or may become employed in the manufacturing realm doing such things as developing prototypes for the automakers. Students select four of five major skills as the core of their academic programs in Automotive Technology: Brakes and Front End, Driveline Area, Engines, Electrical/Electronic/AC Systems, and Driveability. Macomb has noted a decline in the number of credits delivered over the past few years. Anderson suggests that growth seems to be shifting to non-credit areas, after market training, and in-plant training. Macomb has enjoyed relatively strong enrollment and graduation rates over the past 5 years, averaging over 35 Automotive Technology graduates each year.

**MoTech:** Formerly a Chrysler Motors training center, MoTech was purchased by OE Learning about 7 years ago. The school now operates as an independent proprietary school, serving the needs of all domestic automakers. MoTech offers degree programs in three areas: Auto Body, Automotive

Technology, and Industrial Electronic Controls. The only requirement for entrance into the MoTech program is a high school degree or GED Certificate. Tuition is \$7,328 for the 9 month program, and students must purchase their own tools at \$995. MoTech boasts a 95 percent placement rate for its automotive technology graduates. The bulk of MoTech graduates find employment in independent repair/maintenance operations, or in dealerships.

**Muskegon Community College:** Muskegon Community College's Automotive Technology program was originally designed to be a two year technician training program. Dean Frank Marczak indicated that the program has undergone extensive changes over the past 20 years, and is currently training students to become automotive service technicians. The program has an active advisory committee made up of local employers and former students. Marczak expressed concern that the field is rapidly changing and that higher education is failing to keep up with the technological advances. "We're too generic in what we teach. We try diligently to keep up with the technology, but there are such specialized needs in the automotive field that the employers themselves are the only ones that are able to keep up with the technological advances. Expense is prohibitive."

**Schoolcraft College:** Denise Sigworth, Director of Grants and Institutional Research, indicates that the Automotive Technology program at Schoolcraft was discontinued about three years ago because of seriously declining enrollments. At that time, Schoolcraft determined that the expense of bringing their equipment up to the state-of-the art was prohibitively expensive. Automotive laboratories were converted to classrooms, faculty in the department either took early retirement or retrained to teach in alternative fields.

**St. Clair Community College:** Anita Gliniecki, Dean of Applied Arts and Sciences, indicates that the St. Clair Automotive program was abolished about three years ago, under Dean Nancy Coleman. A formal needs assessment was completed prior to the decision to close the program, and discussions with local dealerships regarding potential co-op experiences for students yielded overwhelmingly negative responses. According to Gliniecki, the local dealerships indicated that they felt they were better served by hiring high school graduates and training them themselves. St. Clair is currently in the process of liquidating their automotive equipment.

**Washtenaw Community College:** There are two distinct parts to the Washtenaw program, Automotive Servicing Technology and the Emeritus program. The Servicing program has maintained a graduation rate of between four and eight graduates per year over the past 5 years. The Emeritus program is a program whereby senior citizens living in Washtenaw County are able to attend WCC free of charge. Many of the emeritus attendees take occasional courses for personal satisfaction only.

**Wayne County Community College:** Don Olson, Dean of Vocational and Career Education, believes that the Wayne County program should be directing its efforts more toward a theoretical approach to automotive technology. He believes it is no longer a viable option for Wayne County



to attempt to train mechanics, as the vocational high schools in the area are now providing competition for that market. Rather, Olson believes the program should progress under the assumption that the students entering are already mechanics; the program should provide training in such skills as advanced diagnostics and managerial skills for students to use as entree into jobs in manufacturing and dealerships. The Wayne County program does not currently have an active advisory committee. There have been 12 graduates from the Wayne County Automotive Technology program over the past 5 years.

**Western Michigan University:** Jerry Hamelink, Chair of the Mechanical Engineering Department reports that the program in Automotive Engineering at Western is geared exclusively for prospective engineers, and is a four year program. There are no automotive associate degrees offered, although Western has graduated 37 Automotive Engineers in the past 5 years.

## SUMMARY

Industry experts note that the short-term employment outlook in the automotive industry is unfavorable, although plateauing of the downsizing movement and large scale retirements are expected to provide an abundance of positions for automotive workers at all levels in the long-term. Many of those employers who are currently hiring indicated that they prefer entry level technicians with well developed technical skills, basic academic competency, and dealership experience over possession of a degree. Employers value entry level employees who can demonstrate technical skills and who have an ability to work in a "team" setting. Cooperative dealership training programs generally receive positive reviews from employers. Most automotive technology programs in the State of Michigan are geared toward training service personnel. Those programs with strong links with industry typically enjoy strong enrollments, state-of-the-art equipment and more favorable employment prospects for their graduates. Most students enrolled in OCC's Automotive Technology program are ultimately hoping to obtain jobs in automobile manufacturing or testing facilities.<sup>1</sup> Few employers were familiar with OCC's Automotive Technology Program, although many indicated that they would be willing to utilize OCC for automotive training of their workforces if they found that OCC offered courses suited to their specific needs.

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<sup>1</sup> The information contained in this report suggests that there is a discrepancy between current AUT students' career expectations and employers' hiring practices. Employers note that it is advantageous for entry level applicants to have previous dealership experience. It appears that AUT students would be well advised to consider entry level positions in dealerships as stepping stones to their ultimate goals of working in testing or manufacturing.

## BIBLIOGRAPHY

- Alabama State Department of Education, Montgomery, Alabama (1990). *Trade and Industrial Education*, Alabama Course of Study Bulletin, 1990, no. 57. ERIC Document Service Report No. ED326736.
- Allen, Robert (1984, September). The impact of technology on Hawaii's Automotive Mechanics: An analysis with recommendations. Hawaii State Commission on Manpower and Full Employment, Honolulu. ERIC Document Service Report no. ED260209.
- Automotive Technology Objectives and Automotive Technology: Basic Textbooks and Instructional Materials (1980, November). Career Education, Dependents Schools, Washington, D.C. ERIC Document Service Report No. ED209448.
- Burgess, Michael (1980, November-December). Technology Apprenticeship Programs. *American Technical Education Association, Inc. Journal* v.8, n.3, p. 13-15.
- Callahan, Joseph M. (1986, August). Linking colleges to industry. *Automotive Industries* 166:83.
- Carnegie Foundation for the Advancement of Teaching (1990, May/June). Community colleges: A sector with a clear purpose. *Change*, 22:23-6.
- Carnevale, Anthony P. & Schulz, Eric R. (1988, November). Technical training in America: How much and who gets it? *Training and Development Journal*. 42:18-28.
- Cavazos, Lauro F. (1991, Spring). The role of technical education. *Occupational Outlook Quarterly*, 35:23-5. Bureau of Labor Statistics.
- Chappell, Lindsey (1989, June). New Georgia program updates technicians. *Automotive News*.
- Coffman, Cathy (1989, April). This is only a test. *Automotive Industries* 169:164.
- Collum, John M. & Gunter, William H. (1989). A model for technical equipment assessment, Executive Summary. Georgia State Dept. of Technical and Adult Education, Atlanta, GA. ERIC Document Service Report No. ED312386.
- Conklin, David (1987, April). Corporation-community college partnerships: High technology apprentice training. Paper presented at the Annual Conference of the American Association of Community and Junior Colleges, Dallas, Texas. ERIC Document Service Report No. ED306982.

- Davis, Shelley, J. (1990). The 1990-91 job outlook in brief. *Occupational Outlook Quarterly*. 34:1.
- Ferman, Louis A. et al (Eds.) (1991). Joint training programs: A union-management approach to preparing workers for the future. Ithaca, New York: ILR Press.
- GM, junior colleges start program. (1983, June). *Automotive News* 16+.
- Jacobs, James E. (1989, September). Training the workforce of the future. *Technology Review* 92:66-72.
- Johnson, Richard (1985, September). Ford, Oakland U. in statistics co-op. *Automotive News* 69.
- Johnston, David L. (1989, November). The need to retool vocational education. *The Education Digest*, 55:38-9.
- Kenkel, John (1986, July). A community college program for the training of technicians. *Journal of Chemical Education* 63:614-15.
- King, Jenny L. (1985, August). Chrysler MoTech notes changes (MoTech Automotive Education Center). *Automotive News* 40.
- Komacek, Stanley A. & Anderson, Christopher (1992, January). Teaching transportation technology: Model programs in automotive/transportation technology will benefit students, schools and industry. *School Shop: Tech Directions*, v. 51, n. 6, p. 15-20.
- Kutscher, Ronald E. (1990, Spring). Outlook 2000: The major trends. *Occupational Outlook Quarterly* 34:2-7.
- McCartney, H.E. (1984, April). Automotive Educational-Industry Partnerships at Northern Virginia Community College. Paper presented at the Annual Convention of the American Association of Community and Junior Colleges. ERIC Document Service Report No. ED 243558.
- Model program for surveying employers of automotive technology graduates (1978, June). Chemeketa Community College, Salem, Oregon. ERIC Document Service Report No. ED136888.
- Rivard, Jerry (1992, May). The engineer's obligation. *Automotive Industries* 172:53.

- Rudney, Shirley (1978, Summer). Automobile mechanic apprenticeship program. *Occupational Outlook Quarterly*, v.22, n.2, p. 20-21.
- Serafin, Raymond (1992, August). GM's ad agencies uneasy as Lopez eyes marketing. *Crain's Detroit Business*, August 24, 1992.
- Seamans, Melvin et al (1972). An evaluative study of auto mechanics and automotive technology programs and curricula. Final Report. Wisconsin State Board of Vocational, Technical and Adult Education, Madison, Wisconsin. ERIC Document Service Report No. ED079469.
- Segal, Howard P. (1988, Summer). The several ironies of technological literacy. *Michigan Quarterly Review*. 27:448-53.
- Steiger, Jim & Shoemaker, Byrl (1989, October). Auto repair gets technical. *Vocational Education Journal* v.64 n.7, p. 32-33.
- Sveom, R. Dirk (1990, September). Strategies to facilitate change in higher education. Example: Physics in the Automotive Curriculum. Paper presented at the Joint Soviet-American Symposium, Anapa, USSR. Modern Teaching/Learning Technologies in Professional Education. ERIC Document Service Report No. ED325624.
- Tise, Stephen (1990, Fall). High-earning workers who don't have a 4-year college degree. *Occupational Outlook Quarterly* 34:34-7.
- Traynor, Kenneth & Traynor, Susan (1992, May). Educational backgrounds of hi-tech salespeople. *Industrial Marketing Management* 21:77-83.
- U.S. News and World Report* (1988, April 25). Cover Story: Special section. Best jobs for the future. 104:60-3.
- Van Tine, Bill; Newenhouse, Tom; Levy, Marty. (1992, March). The electronics industry: One perspective. *Automotive Engineering* 100:25-7.
- Zemke, Ron (1986, July). What is technical training anyway? *Training* (Minneapolis, Minnesota) 23:18-21.

## SUPPLEMENTAL REFERENCES

- Anderson, Dana. Associate Dean, Macomb Community College. Phone conversation.
- Chute, Robert. Chair, Technology Department, Lawrence Technological University.
- Cole, David. Director of the Office for the Study of Automotive Transportation (OSAT)/Professor and Research Scientist at the University of Michigan. Discussion of industry trends. Phone Conversation.
- Cooper, John. Dean, Kellogg Community College. Phone Conversation.
- Gliniecki, Anita. Dean of Applied Arts and Sciences, St. Clair Community College. Phone Conversation.
- Golings, Les. Lead Faculty Member, Automotive Technology Department, Henry Ford Community College. Phone Conversation.
- Green, Keith. Supervisor, Advanced Technical Training, Chrysler Corporation, 2301 Featherstone, Auburn Hills, Michigan. Personal interview.
- Hamelink, Jerry. Chair, Mechanical Engineering Department, Western Michigan University. Phone Conversation.
- Hayward, Walter. Chair, Automotive Technology Department, Lansing Community College. Phone Conversation.
- Jeakle, Ed, Employee Development and Training Supervisor, Ford Motor Company. Phone Conversation.
- Krnacik, John, Jr., Director, Department of Research and Evaluation, Macomb Community College. Phone Conversation.
- Marczak, Frank. Dean, Muskegon Community College. Phone Conversation.
- Merrigan, Harry. President, Society of Manufacturers' Representatives. Phone Conversation.
- Monroe, James. Director of Membership Development. Michigan Manufacturing Association. Phone conversation.

- Olson, Don. Dean of Vocational and Career Education, Wayne County Community College. Phone Conversation.
- Santucci, Mark. Industry Consultant, Elm International, Inc., P.O. Box 1740, East Lansing, MI 48826 (Publishers of Auto Suppliers' Guides). Phone conversation.
- Sheid, Carol. Managing Director, Society of Manufacturers' Representatives. Phone Conversation.
- Shingledecker, Robert. Automotive Division Chairman, Kirtland Community College. Phone Conversation.
- Shoemaker, Byrl. Independent Educational Consultant to the National Institute for Automotive Service Education. Phone conversation.
- Sigworth, Denise. Director of Grants and Institutional Research, Schoolcraft College. Phone Conversation.
- Spindler, John. Registrar, Kellogg Community College. Phone Conversation.
- Terry, JoAnn. Dean of Corporate Training, Henry Ford Community College. Phone Conversation.
- Traynor, Kenneth, Professor of Marketing, Clarion University of Pennsylvania. Phone Conversation.
- Van Tiem, Darlene. Technical Training Consultant, General Physics Corporation. Phone Conversation
- Walraven, Mike. Dean of Instruction, Jackson Community College. Phone Conversation.
- Weaver, Bruce. Research Analyst, MESC. Discussion of supplementary data and commentary, Phone Conversation.
- Weiss, Tim. Coordinator of Automotive Service Education Program (ASEP), Delta College. Phone Conversation.
- Wesselhoft, Steve. Dean of Students and Registrar, Gogebic College. Phone Conversation.

**APPENDIX A**

**Oakland Community College**

**Automotive Technology Program Description**

# Automotive Technology

## Engineering Option

### Auburn Hills

The Automotive Technology program offerings allow students to select individual courses of interest, earn a Certificate, or graduate with an Associate Degree in Applied Science. Students may pursue the retailing program option consisting of applied courses concentrating on skill development that allow the graduate to enter an occupation in automotive service, management, or sales. Another option in engineering technology prepares individuals for employment in the research, development, and testing of new automotive products. It includes a concentration in mathematics, science, and engineering related studies.

#### Major Requirements

		Credits
AUT 112*	Automotive Electrical and Chassis .....	4
AUT 113*	Automotive Diagnosis and Tune-Up .....	4
AUT 211*	Engine Mechanical Systems .....	4
AUT 212*	Automotive Fuel and Emission Systems .....	4
AUT 213*	Transmission and Drive Systems .....	4
AUT 230*	Computerized Automotive Systems .....	4

#### Required Supportive Courses

BUS 131	Principles of Supervision .....	3
DRT 111	Introduction to Technical Drawing .....	3
ENG 151★	Composition I .....	3
ENG 211★	Technical Writing .....	3
MAT 115★	Intermediate Algebra .....	4
MAT 156★	Trigonometry .....	3
MEC 101	Introduction to Manufacturing Processes .....	3
MEC 102	Manufacturing and Fabrication Processes .....	3
MEC 201	Engineering Mechanics .....	3
MEC 206	Fluid Power .....	3
PHY 161★	College Physics I .....	4

#### General Education Requirements

See graduation requirements for an Associate in Applied Science Degree on Pages 33, 35 and 36.



# Automotive Technology

Retail Option (Service,  
Sales, Management)

Auburn Hills

Major Requirements		Credits
AUT 112*	Automotive Electrical and Chassis .....	4
AUT 113*	Automotive Diagnosis and Tune-Up .....	4
AUT 211*	Engine Mechanical Systems .....	4
AUT 212*	Automotive Fuel and Emission Systems .....	4
AUT 213*	Transmissions and Drive Systems .....	4
AUT 230*	Computerized Automotive Systems .....	4

### Required Supportive Courses

ACC 111	Fundamental Accounting .....	3
ACC 217	Business Taxation .....	3
BUS 101*	Principles and Practices of Business .....	3
BUS 131	Principles of Supervision .....	3
CIS 105	Computer Applications .....	4
ENG 151*★ <sup>1</sup>	Composition I .....	3
ENG 221★	Business Writing .....	3
MAT 101*	Business Mathematics .....	3
MKT 102	Salesmanship .....	3
MKT 201	Advertising .....	3

### General Education Requirements

See graduation requirements for an Associate in Applied Science Degree on Pages 33, 35 and 36.

The Automotive Technology program offerings allow students to select individual courses of interest, earn a Certificate, or graduate with an Associate Degree in Applied Science. Students may pursue the retailing program option consisting of applied courses concentrating on skill development that allow the graduate to enter an occupation in automotive service, management, or sales. Another option in engineering technology prepares individuals for employment in the research, development, and testing of new automotive products. It includes a concentration in mathematics, science, and engineering related studies.

<sup>1</sup>Certificate students may substitute ENG 135.

★ General Education courses listed as Required Supportive may be used to meet requirements of the General Education component.

\*When all courses marked with an asterisk are completed, the student may apply for a Certificate.

**(AUT)**  
**Automotive Technology**

**AUT 111 .....4 Credits**  
**Automotive Fundamentals**  
The student will identify major automotive systems, components, and tools. He will discuss automotive systems, components and tools using a standard automotive technical terminology. Development of the ability to efficiently use standard automotive tools and equipment will be emphasized during performance of basic automotive servicing procedures. Students will participate in a discussion of various automotive employment opportunities and analyze the job entry requirements for each. Course fee.

**AUT 112 .....4 Credits**  
**Auto Electricity and Chassis**  
The student will identify the automotive components, tools, and basic servicing procedures required for service of automotive electrical and chassis components. He will study and discuss the operation of the starting, charging, accessory, and body electrical circuits, as well as, chassis suspension and steering systems. He will be expected to perform standard servicing procedures in electrical and chassis systems that diagnose or correct malfunctions. Course fee.

**AUT 113 .....4 Credits**  
**Auto Diagnosis and Tune-Up**  
Prerequisite: AUT 112 or consent of instructor.  
The student will diagnose engine performance, with emphasis on the ignition system, and perform standard corrective servicing procedures. He will discuss ignition system operation and use standard terminology in explaining various trouble-shooting procedures. Performance of a standard motor tune-up will require

student use of sophisticated engine analysis equipment. The student will be able to perform corrective servicing that will cause engine performance to conform with state and federal regulations. Analysis of engine performance will utilize the chassis dynamometer to simulate typical road operating conditions. Course fee.

**AUT 211 .....4 Credits**  
**Engine Mechanical Systems**  
The student will identify and describe the operation of the various engine components that are contained in or attached to the cylinder block and cylinder head. He will clean, inspect, and recondition cylinder heads, as well as, engine block components. Servicing operations will require use of precision measuring devices and service parts. Analysis of engine operation will utilize the engine dynamometer to demonstrate various typical operating conditions. Course fee.

**AUT 212 .....4 Credits**  
**Auto Fuel and Emission Systems**  
The student will identify and describe the operation of both fuel and mission system components. He will disassemble, clean, inspect, assemble and adjust carburetors. He will perform tests of vehicle emissions and service components as required. The student will recommend and perform servicing procedures that improve vehicle emission system performance or meet Government emission system standards. Course fee.

**AUT 213 .....4 Credits**  
**Transmission and Drive Systems**  
The student will identify and describe the operation of all drive line components between the engine and rear wheels. This will include the clutch, manual transmission, automatic transmission, drive shaft, and axle

assemblies. He will perform standard diagnosis and repair of common malfunctioning components. Course fee.

**AUT 230 .....4 Credits**  
**Computerized Automotive Systems**  
Prerequisite: AUT 112 and AUT 212 or ATA 130 and ATA 150 or consent of instructor.  
The student will develop job entry skills in diagnosis and repair of vehicle electronic systems. Current computerized fuel injection, turbocharging, ignition, and other electronic systems will be featured. Work experience in removal. Replacement and adjustment of components will be provided by assignment of malfunctioning vehicles to students. Course fee.

**(AVM)**  
**Audiovisual Technology**

**AVM 101 .....3 Credits**  
**Introduction to Audiovisual Materials and Equipment**  
The student will identify the characteristics of different types of AV materials including films, tapes, slides, photographs and transparencies, and equipment as they are used in instructional situations in education and industry. He will operate competently 16mm projectors, 8mm projectors, 35mm slide and film-strip projectors, opaque and overhead projectors, tape recorders, video recorders, video cameras, phonographs, special purpose equipment such as viewers and repetitive projection and audio equipment and both front and rear projection screens. He will perform simple maintenance functions, including lubrication, cleaning of parts, changing of lamps and belts and make minor mechanical and structural adjustments necessary for optimum

**APPENDIX B**

**Oakland Community College**

**Automotive Task Force**

**Minutes, 1991-1992**



AUBURN HILLS CAMPUS

Auto Task Force  
Meeting

Minutes

March 30, 1992  
4:00 p.m.  
B222

Present:

Larry Bennett  
Joe Burdzinski  
Tony Hildebrandt  
Larry Pennefather  
Bill Rose

Larry Bennett submitted a revised plan for the merger of the AUT and ATA courses. Lengthy discussion followed, but the plan was not fully supported by Tony Hildebrandt. The concensus was that the two automotive faculty not coming to a full agreement left us with only two options: (1) continue plans to phase out the AUT Program or (2) submit Larry Bennett's merger plan, which would receive full support from Tony.

It was agreed to discontinue the AUT Program and provide partial load in the Auto Servicing Program for Larry Bennett. Larry thought that he should receive at least one credit hour of pay for all his developmental efforts during the past few months.

Larry Bennett's load for the 1992-93 School Year will include inload sections in ATA and ELT 101, with sections in CIS 105 on an overload basis. Larry has forwarded his schedule to Larry Pennefather. Larry Bennett also agreed to write a letter to the students who have designated AUT as their curriculum and advise them into ATA courses or assist them in this transition.

Bill Rose assured the group that a formal process will be maintained and guidelines followed in discontinuing the AUT Program. It was mentioned that other automotive training options will be explored with Ford, Chrysler and others as a means to improve and expand the automotive offerings.

Other issues:

An advisory committee has been identified and will be scheduled to meet in May or June, 1992.

Larry is still considering a retraining option; he is not sure in this case, but thought counseling would be a possibility. He will

notify Administration of his decision.

Larry Bennett was very concerned about (1) the continued dirty condition in the Auto Servicing Lab, (2) the lack of organization of equipment, and (3) the "eyesore" storage now in the Diesel area. He felt this presents a poor image of our automotive programs. Bill Rose will work with the appropriate staff to develop a plan for cleaning and organization--to be presented to the group no later than the end of April.

Attendance of the paraprofessional was also cited as a vital disturbance to the auto programs and contributed to the lack of organization and low morale of staff. It was suggested that a schedule of the paraprofessional's time be made available to the automotive teaching staff as well as be posted in the Lab.

The next meeting will be scheduled on May 11, 1992, from 4:00 to 5:00 p.m. to review the following:

- (1) Program adjustments
- (2) Annual Schedule
  - Larry Bennett
  - Tony Hildebrandt
- (3) Plan for facility improvements
  - Cleaning
  - Organization
- (4) Training opportunities with Ford and Chrysler
- (5) Other

BJR/jah

c: D. Buchan  
C. Gram

(K:AutoTask.min)



- AUBURN HILLS CAMPUS

AUTOMOTIVE SERVICE ADVISORY COMMITTEE  
MEETING MINUTES

DATE: Thursday, February 15, 1979  
TIME: 2:30 p.m.  
PLACE: Auburn Hills Campus  
Building "B", Room 217 Conference Room

PRESENT: Joseph Burdzinski, Ex-Officio  
Ronald Dillingham  
Eric Dolin  
Harvey Eschenburg, Ex-Officio  
Thomas Harris  
Kenneth Hausauer  
Arthur Hursh  
✓ Vonne Nielsen, Ex-Officio  
Lawrence Pennefather, Ex-Officio  
David Rhodes  
Bill Rose, Ex-Officio  
Marion Rice, Ex-Officio

1. The general consensus was that it seems that most automotive classes are geared toward the teaching of the theoretical aspects of the operation and maintenance of engines with limited emphasis on servicing. This area, as far as major engine repairs are concerned, is not a highly marketable one. Engine repair classes should only be directed toward those things that are actually needed in the field such as brakes, transmissions, front ends, repair and tune-ups. There is a definite need for an Engineering Technician Program that would require highly investigative-type teaching as is now done in the Oakland Community College Automotive Engineering Program.

It was brought up that the engine area also includes a fuel system, ignition system, and cooling system at the very least. This area should be dealt with mainly with a theoretical approach as opposed to a practical approach.

2. The need for an Automotive Servicing Program would provide a "hands-on" training in a structured situation. Eric Dolin, an Oakland Community College automotive student, expressed the complaint that the TEA 111 Automotives I course that he had been enrolled in had included too much lab work with no specific structure or guidance. It was agreed that the theoretical aspect of training is very important, but a service person may know all the theory and still not be able to handle the actual work.

Repetition was stressed as the most effective way to approach the instruction of practical experience. The other situation that was apparent was that some students are very familiar with the actual service or repair procedure, but are unable to diagnose and determine when the work should be performed.

Some theoretical background is necessary, especially due to the now mandatory certification tests. Some of the best mechanics in the field were never formally educated and though they have the practical experience and knowledge, they are unable to pass a written examination.

3. To gain practical experience (hands-on), in diagnosing and troubleshooting of transmissions, test stands may be used. The student must, however, also be familiar with the removal and replacement operations. Automatic transmission students must be able to remove and replace the unit, but minor repair operations must be emphasized since these are the marketable skills.
4. It was suggested that Basic Refrigeration should be a pre-requisite to Automotive Air Conditioning.
5. It was mentioned that some automotive servicing courses may be offered before the program was fully approved. In response to this, the concept of permissible cross-working in certain certifiable areas was brought up. With this in mind, the three most beneficial courses to start with would be:
  - a) Brakes
  - b) Front End & Steering
  - c) Engine Tune-Up & Emissions
6. With regard to the trouble-shooting and diagnosis problem the service write-up form was presented. The student must decide what is wrong with the vehicle and go through the whole write-up procedure including estimates, parts, etc.
7. Mr. Ronald Dillingham said that Sears has a co-op program with high schools and would be interested in using college students also on a part-time work/part-time school basis. They are especially in need of tune-up and front end workers. They would work with a certified mechanic unless and until they were certified themselves.
8. Regarding certification testing, Mr. Eschenburg mentioned that if 20 or more students were interested, the Nationals Institute would set up a testing center on campus.
9. Mr. Eschenburg also stressed the need for support information from active automotive service-related people, either in writing or by personal appearances before the necessary committees and the Board of Trustees.
10. Members of the committee recommended that the target for the implementation of this program should be September of 1979. The committee was appraised that they would be involved in the development, implementation and evaluation of the program.

11. Another item of interest to the committee was the facility in which these courses would be implemented. Dr. Rose indicated that the facility is being up-dated to accommodate some phases of the Automotive Servicing Program as well as other on-going programs. The building changes would be shared with committee members at the next meeting.
  
12. The committee re-emphasized the need of Oakland Community College developing and implementing a practical Automotive Servicing Program. Members indicated that these courses should be taught in such a manner that graduating students will have marketable skills in the automotive servicing area. For example, a brake course should include a number of practical experiences of actually repairing brake problems on a number of automobiles. As was stated earlier, repetition is necessary if a person is to become skillful in repairing brakes. Each phase of service repair should be treated in this manner. Mr. Harvey Eschenburg indicated that the Automotive Servicing Program is being developed with this concept in mind. We will have a service of specific servicing-type courses that will prepare individuals in specific skills that are marketable.
  
13. It was decided that the next meeting would probably be held toward the end of March, 1979.

/djf





## AUTOMOTIVE TASK FORCE

December 11, 1991

Present: Larry Bennett, Larry Pennefather, Bill Rose

Larry Bennett presented a proposed Automotive program consolidation, including three options for an associate degree and four options for a one-year certificate. (See attachment) He also included a proposed course schedule for Fall 1992 through Winter 1994.

Larry Pennefather suggested that PHY 161 be inserted into the curriculum in place of MAT 160. Larry Bennett felt it could be added without deleting MAT 160.

Dr. Rose raised the question of why the proposed course alterations were designated as AUT rather than ATA. Larry Bennett replied that he had talked with Tony Hildebrandt about this issue and felt that AUT would be a more appropriate course code than ATA, even though the ATA program has a good enrollment history as compared with AUT. The AUT designation is used by most other colleges and universities and would provide greater ease for students in transferring credits. The group agreed to tentatively consider the change until a more thorough development has been presented.

Dr. Rose stated that, if the AUT course codes are developed, there should be a specific course description for each of the Automotive Specialization courses (AUT 191, AUT 192, AUT 193). Larry Bennett expressed the view that this is not possible, since the student will be specializing in one of the eight functional areas of his/her choice. The student will be required to submit a plan of work before enrolling in the class.

After careful consideration and discussion, the group decided that we should consider the consolidation of the current ATA courses with the AUT program for the following reasons:

1. To avoid duplication
2. To enhance enrollment by allowing for a 6:00 p.m. starting time for night classes
3. To provide recognizable transferability to other colleges and universities by keeping the OCC course code consistent with the AUT designation used by most other schools
4. To provide for better scheduling of labs
5. To provide a better marketing piece for business and industry

An advisory committee must be identified immediately, in order to set up a meeting in January at, which time this proposed program consolidation can be presented to that group for their review. The advisory committee membership should be representative of the various specialty options included in the program. Larry Bennett will give his suggestions for advisory committee members to Ruth Springer as soon as possible.

Larry Bennett will write a narrative explaining how current ATA students will benefit from the consolidation of the ATA courses into the AUT program.

Submitted Ruth Springer  
Ruth Springer

**AUTOMOTIVE PROGRAM CONSOLIDATION TO AUTOMOTIVE TECHNOLOGY (AUT)**

Filename: New\_AUT3.F92 Rev.: 12-06-91

<b>OLD COURSE</b>	<b>REVISED COURSE DESIGNATIONS</b>
AUT111 Automotive Fundamentals	AUT101 Automotive and Service Fundamentals (Includes mandatory Safety Test)
ATA110 Brake System Service	AUT110 Brake Service
ATA120 Front Suspension and Steering Service	AUT120 Suspension and Steering Service
AUT112 Automotive Electricity and Chassis	AUT130 Electrical Systems Service
AUT211 Engine Mechanical Systems	AUT140 Internal Engine Service
AUT212 Fuel and Emission Systems	AUT150 Engine Performance and Emission Control Service
AUT213 Transmission and Drive Systems	AUT160 Automatic Transmission Service
ATA170 Manual Transmissions and Rear Axle Servicing	AUT170 Manual Transmission and Rear Axle Service
ATA180 Automotive Air Cond. and Heating Service	AUT180 Climate Systems Service
AUT113 Auto Diagnosis & Tune-Up	AUT191 Automotive Specialization I
None	AUT192 Automotive Specialization II
None	AUT193 Automotive Specialization III

**Note:** Initial AUT191, AUT192 and AUT193 to be scheduled for variable enrollment and may piggyback with other AUT classes. Course schedule will initially be designated "by arrangement" until course and facility limitations allow a normal class size.

**CORE AUTOMOTIVE COURSE FOR ALL AUTOMOTIVE STUDENTS:**

**AUT101 Automotive and Service Fundamentals**

**Note:** Can be bypassed with 90% Score on 100 Question Automotive Fundamentals and Safety computer administrated Test. Credit by Exam will be offered for AUT101 registered students.

**AUTOMOTIVE TECHNOLOGY PROGRAM OPTIONS:**

**ASSOCIATE in APPLIED SCIENCE DEGREE (2 Year Programs)**

1. Automotive Technician
2. Automotive Engineering Technician
3. Automotive Business Operations

**AUTOMOTIVE CERTIFICATE (1 Year Options)**

4. Automotive Service
5. Chassis Specialist
6. Electrical/Engine Performance Specialist
7. Engine/Transmission Specialist

**COURSE LEGEND: E = Elective; NA = Not Applicable; R = Required**

	1	2	3	4	5	6	7	R
AUT101 Automotive and Service Fundamentals	R	R	R	R	R	R	R	7/7
AUT110 Brake Service	E	E	E	E	R	E	NA	1/7
AUT120 Suspension and Steering Service	E	E	E	E	R	E	NA	1/7
AUT130 Electrical Systems Service	R	R	E	E	R	R	R	5/7
AUT140 Internal Engine Service	R	R	E	E	NA	R	R	4/7
AUT150 Engine Performance and Emission Control Service	R	R	E	E	NA	R	R	4/7
AUT160 Automatic Trans. Service	E	E	E	E	NA	NA	R	1/7
AUT170 Manual Transmission and Rear Axle Service	E	E	E	E	NA	NA	R	1/7
AUT180 Climate Systems Service	R	E	E	E	E	E	NA	1/7
AUT191 Directed Specialization I	E	R	E	E	R	R	R	4/7
AUT192 Directed Specialization II	E	E	E	E	E	E	E	0/7
AUT193 Directed Specialization III	E	E	E	E	E	E	E	0/7
Credit Hour Totals .....	32	24	20	24	24	24	24	24

**REQUIRED SUPPORTIVE COURSES FOR OPTIONS:**

- 1 ..... TEM101 & TEW110 ->APP815 ->APP816
- 2 ..... MAT110 & BUS101 & CIS105 ->MAT115 & ENG135 & ELT101  
->MAT154 & EEC102 ->MAT156 & EEC104 ->MAT160 & EEC135
- 3 ..... MAT101 & CIS105 & BUS101 -> MAT110 & CIS104 & ENG135  
->ENG211 & ECO261 & ELT101 ->MKT252
- 4 - 7 ... TEW110 ->TEM101



AUTOMOTIVE TASK FORCE

December 4, 1991

Present: Larry Bennett  
Joe Burdzinski  
Larry Pennefather  
Bill Rose

Larry Bennett distributed a working copy of proposed new course equivalents for current Automotive Servicing and Automotive Technology course titles (see attachment). This would form a basis for a consolidation of the two Automotive programs. The new consolidated program would be called Automotive Technology (AUT). Larry explained the reasoning behind the course equivalents he has designated and stated that this is only a beginning. The work of arranging the courses into groupings according to specialty areas has not yet been done. The target date for the new consolidated curriculum would be Fall 1992.

Dr. Rose pointed out that this new arrangement still includes a large number of courses and wondered whether we would have enough enrollment to fill all these classes. He suggested that it may be necessary to further consolidate to eliminate any classes which would not be able to sustain an adequate enrollment.

The members will meet again next Wednesday, December 11, 1991. At that time, they will put these courses into groupings.

Larry Bennett mentioned that copies of the Utah State Automotive program, including performance objectives and other valuable information, are available for purchase. The group decided that a copy should be obtained to use as a model. Joe Burdzinski will order it to be delivered as soon as possible, so that it will be available for next week's meeting.

There is also a need to identify an advisory committee for the new consolidated program. Larry Bennett and Tony Hildebrandt should each identify three members of their choice.

Submitted

  
Ruth Springer

**AUTOMOTIVE PROGRAM CONSOLIDATION TO AUTOMOTIVE TECHNOLOGY (AUT)**  
Filename: New\_AUT.F92 Rev.: 12-04-91

**OLD COURSE DESIGNATORS**

**NEW COURSE EQUIVELENTS**

ATA110 Brake System Service	AUT110 Brake Service
ATA120 Front Suspension and Steering Service	AUT120 Suspension and Steering Service
ATA130 Automotive Electrical Systems Servicing	AUT130 Electrical Systems Service
ATA140 Engine Support Systems Servicing	AUT140 Engine Service I
ATA150 Engine Tune Up and Emissions Service	AUT150 Engine Performance Service
ATA160 Automatic Transmission Minor Servicing	AUT160 Automatic Transmission Service
ATA170 Manual Transmissions and Rear Axle Servicing	AUT170 Manual Transmission and Rear Axle Service
ATA180 Automotive Air Conditioning and Heating Service	AUT180 Climate Systems Service
AUT111 Automotive Fundamentals	AUT011 Automotive Fundamentals and Applied Electricity
AUT112 Automotive Electricity and Chassis	AUT012 Vehicle Computer Diagnostic Procedures
AUT113 Automotive Diagnosis and Tune-up	AUT152 Engine Performance Fault Correction
AUT211 Engine Mechanical Systems	AUT141 Engine Service II
AUT212 Auto Fuel and Emission Systems	AUT151 Emission Control Systems
AUT213 Transmission and Drive Systems	AUT171 Electronic and Four Wheel Drive Systems
AUT230 Computerized Automotive Systems	None

**CORE AUTOMOTIVE COURSES FOR CERTIFICATE AND DEGREE STUDENTS:**

AUT011 Automotive Fundamentals and  
Applied Electricity  
AUT012 Vehicle Computer Diagnostic Procedures



## AUTOMOTIVE TASK FORCE

November 20, 1991

Present: Larry Bennett  
Joe Burdzinski  
Larry Pennefather  
Bill Rose

Unfortunately, Tony Hildebrandt was not present for this meeting, even though the time had been discussed by the group and selected to fit in with his schedule.

The group discussed the disposition of the Automotive programs and the lack of enrollment in the Automotive Technology (AUT) program. Due to the lack of enrollment, it will be necessary to discontinue this program in its present form. It was proposed that a letter be developed and sent to all designated AUT students informing them that the program is being discontinued and suggesting that they come in for counseling and adjustment into a consolidated program to be developed and/or existing Automotive Servicing (ATA) courses. It is assumed that the AUT program in its present form will not be in existence or in the catalog as of 1992.

Larry Bennett pointed out the importance of retaining the AUT course code, since that is the designation used by other schools. Otherwise, students will have difficulty transferring their credits to other schools. The possibility was suggested of changing the course code of current ATA courses to AUT. This would require that a curriculum change be put through by the department.

In view of the impending discontinuance of the AUT program, Dr. Rose suggested possible options for the future:

1. The ATA program could be retained in its present form, since it does have enough enrollment to support its continuing existence.
2. The AUT and ATA programs could be merged, with the cooperation of faculty members Tony Hildebrandt and Larry Bennett, who would develop a consolidated curriculum and take it through the college curriculum process.
3. A retraining model could be built for Larry Bennett within the provisions of the faculty contract.
4. Larry Bennett could develop, within the existing ATA program, an engineering option which would attract the necessary student enrollment.

Automotive Task Force

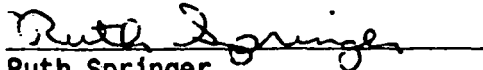
November 20, 1991

Page 2

It was decided that this last option would be pursued. Larry Bennett and Larry Pennefather will work together on this project. They will develop, by the end of January, a position paper describing the ingredients of this option and the people it will attract. This position paper will be circulated for departmental approval. Dr. Rose will meet with Larry Bennett and Larry Pennefather to discuss this proposal.

The group will meet again on Wednesday, December 4, 1991, at 4:00 p.m.

Submitted

  
Ruth Springer





## AUTOMOTIVE TASK FORCE

October 23, 1991

Present: Larry Bennett  
Joe Burdzinski  
Tony Hildebrandt  
Larry Pennefather  
Bill Rose

Dr. Rose began the meeting by speaking of the necessity of consolidating the ATA and AUT programs, due to the lack of enrollment in most of the AUT courses. However, it was pointed out by Tony Hildebrandt that we need to consider the use of AUT terminology in our course titles and descriptions, since that is the only type of program which is accepted for transfer by four-year colleges.

Dr. Rose pointed out that the AUT program will be discontinued in its present form by the Fall of 1992 and, hopefully, will be consolidated with ATA courses. The intent is that the consolidation will provide a program that will maintain an adequate enrollment. This program may include business partnerships, tech prep option, dealership training and other business and industrial training options.

Dr. Rose stated that what is needed is a plan of action outlining what needs to be done by phases. Then special contracts can be written for the work that needs to be done in each phase. He stated that an advisory committee needs to be put together, and an effort needs to be made to develop industrial partnerships, such as with dealerships.

Larry Pennefather mentioned the meeting to be held October 25, 1991, between the OCC Technology Department and the Engineering Department of Oakland University. He expressed the importance of Tony Hildebrandt and Larry Bennett attending this meeting to explore possible 2+2 opportunities with OU in the Automotive area, and/or the possibility of providing a few elective classes to be taken by their engineering people who may need exposure to the practical aspects of automotive mechanics.

Larry Bennett stated that there is a need to reduce the list of classes, which means it must be determined which classes are really necessary. He has prepared a list of the AUT courses and what is covered in each. He provided a copy to each group member. He suggested that if Tony could provide similar course descriptions for the ATA courses, they could determine areas of overlap and how consolidation might be possible. It was agreed that a course such as AUT 111 is needed as a foundation for both programs.

Dr. Rose requested that for the next meeting an attempt be made to identify two advisory committees. However, Larry Bennett expressed the view that this cannot realistically be done without knowing in what direction the programs are moving.

Dr. Rose reported that Macomb County Community College has contacted us about the possibility of working with us in the automotive area. Their current enrollment is 300 students.

The group agreed that the greatest need in the automotive area is for students to be able to take one or two semesters of classes and then be able to get an entry-level job.

It was agreed that there are problems that need to be worked on in the area of staff and equipment. There is also a need to create interest among high school students in the area. It was mentioned that Orchard Ridge has a career night to which it invites high school students and their parents. As a part of its marketing plan, this group could recommend that the Auburn Hills Campus hold a similar career night in order to market all our programs, including the Automotive programs.

Dr. Rose requested that this group meet every two weeks for one hour and that the members work between meetings on developing a plan. He requested that, before the next meeting, Tony Hildebrandt and Larry Bennett meet together to come up with a plan which will include the programs' direction and courses to be offered. Then each of them can be given a special contract to develop a piece of the plan. He stated that if things continue as they are now, with the low enrollment in AUT, we will lose one program. In order to prevent this, we need to document the fact that we are making a serious effort to keep the programs current by revising and updating as needed.

The next meeting of this group will be at 4:00 p.m. November 6, 1991, in room B-215.

Submitted

  
Ruth Springer



AUTOMOTIVE SERVICING TECHNOLOGY  
ADVISORY COMMITTEE MEETING  
MINUTES

DATE: Monday, October 12, 1981  
TIME: 1:00 p.m.  
LOCATION: Auburn Hills Campus  
Conference Room, B-217

- 1) The new members of the committee were introduced. Carl Melinat will be replacing Kenneth Hausauer from GMC Truck & Coach Division. Mr. Melinat is a supervisor in the dynamometer department at GMC Truck & Coach as well as a part time instructor in the Diesel Truck and Heavy Equipment Technology program at Oakland Community College. Tony Hildebrandt is the full time faculty member responsible for the Automotive Servicing Program.
  
- 2) Booklets outlining the program were distributed to committee members. This booklet is sent to high schools and includes the performance objectives for the automotive servicing specialty courses. Students are not required to take the entire program. They may elect only to specialize in certain specific areas. In order to facilitate expansion of knowledge in specialty areas, there are some revisions being proposed to the program. These will be in the form of new specialty courses. In addition, there is a possibility of offering non-credit short courses with emphasis on specifics for any current model year. One additional suggestion made was to include a course covering the parts portion of automotive servicing. It was also recommended that a parts store representative should be included on the advisory committee. There is also a need for a course pertaining to electrical trucks. Mr. Harris stated that he would like to assist in the development of such a course and may be able to locate some parts and components to be utilized in the instruction of such a course.

Enrollment in this program is doing extremely well. There is some concern about the availability of jobs for graduates of the program. It appears that this particular geographic area is presently saturated with mechanics. Some graduates have left the state and have been successful in finding employment elsewhere. The current trend in this area appears to be a swing from specialist to generalist shops. Specialists, of course, may be used in such a shop, but greater marketability is achieved with a wider background of skills.

The difficulty with placing students is found even with the IND 140.3 and IND 240.3 - Cooperative and Advanced Cooperative Internship courses. In some cases, the students are placed in the Auto Servicing garage to take incoming vehicles needing service. Though not an actual commercial garage, this does provide the student with a wide variety of servicing problems. Diagnosis of problems is covered in all courses throughout the session, with special emphasis placed on this aspect near the end of the course, after the fundamentals have been covered.

- 3) Since the institution of the program, the facilities and equipment have been renovated and upgraded. This process will continue as necessary and feasible. It is desired that workbenches be added to the classroom facilities to allow for additional workspace and to avoid having this available space standing idle.

There is some concern about the tools that are broken to the point of being dangerous. Some tools are also missing. Due to the large volume of students at any one time in the labs and the disproportionate number of tool crib attendants, some shortage could be anticipated. The breakage is due in part to improper usage of the tools and also to the fact that the tools purchased initially were not of the best quality. It was pointed out that, since theft is not a major problem, it would probably be better in the long-run to invest in the highest quality tools that can be repaired and not just replaced.

- 4) When finalized, a copy of the Winter term schedule offerings will be sent to the advisory committee members. It is planned to offer both day and evening sections of all courses plus an extra Brake Systems Servicing and Engine Tune-up and Emission Servicing class. It was brought up that classes of 25 to 27 students are too large to effectively cover all the material that is intended to be covered in these courses. Twenty-two students was suggested as the maximum number that should be handled.

With the large demand for these courses, there is a need for part-time staff to cover the courses. At the present time the most difficult courses to staff are Automatic Transmission Minor Servicing and Automotive Air Conditioning and Heating Service. Also, day sections are tougher to staff than evening sections. Any assistance that the advisory committee could provide with this situation would be greatly appreciated. Any recommendations should be made to Mr. Hildebrandt as early as possible to facilitate an orientation process.

- 5) Some concerns about the operation of the program as it now exists were mentioned. These include a need for more help in the laboratory situations. Currently student aides supplement the use of a paraprofessional in each lab. Also, storage and final placement of equipment must be done. Specifically the diesel caging equipment has not yet been installed. There will be follow-up on these concerns.
- 6) The next meeting will be April 12, 1982 at 1:00 p.m. at the Auburn Hills Campus.

OAKLAND COMMUNITY COLLEGE  
 ENROLLMENT AND CREDIT HOURS BY DISCIPLINE\*  
 (1981-82 through 1990-91)

Code	Discipline	1981-82		1982-83		1983-84		1984-85		1985-87		1987-88		1988-89		1989-90		1990-91		Percent Change 1989-90 to 1990-91		Percent Change 1981-82 to 1990-91	
		Students	SCH	Students	SCH	Students	SCH	Students	SCH	Students	SCH	Students	SCH	Students	SCH	Students	SCH	Students	SCH	Students	SCH	Students	SCH
<b>AUTOMOTIVE TECHNOLOGIES</b>																							
ADT	Automobile Drafting	DNR		DNR		DNR		DNR		19	38.0	DNR		19	57.0	151	453.0	38	114.0	-74.8%	-74.8%		
APD	Apprentice Drafting	628	1,878.0	292	876.0	283	849.0	297	891.0	340	1,020.0	354	1,052.0	283	849.0	305	915.0	16	738.0	-19.3%	-19.3%	-80.7%	-80.7%
APM	Apprentice Mathemat	412	1,193.0	234	702.0	251	739.0	357	1,043.0	245	705.0	218	627.0	152	435.0	122	366.0	12	327.0	-8.2%	-8.1%	-72.8%	-72.8%
APP	Apprentice Physics	187	374.0	183	366.0	189	366.0	220	440.0	229	458.0	168	336.0	141	282.0	88	136.0	30	180.0	32.4%	32.4%	-51.8%	-51.8%
APS	Apprentice Shop	88	288.0	57	171.0	48	135.0	55	165.0	63	189.0	42	126.0	18	48.0	29	87.0	9	27.0	-89.0%	-89.0%	-89.8%	-89.8%
APT	Apprentice Technical	612	1,831.0	243	637.0	254	700.0	288	868.0	273	804.0	186	413.0	119	327.0	67	151.0	51	154.0	-9.0%	8.6%	-90.0%	-90.0%
ATA	Automobile Servicing	938	3,752.0	909	3,636.0	908	3,632.0	599	2,356.0	438	1,752.0	490	1,860.0	486	1,844.0	447	1,788.0	478	1,912.0	6.9%	6.9%	-49.0%	-49.0%
ATF	Fluid Power Tech	110	330.0	934	2,802.0	775	2,325.0	548	1,644.0	335	1,005.0	221	663.0	119	357.0	135	405.0	149	447.0	10.4%	10.4%	35.5%	35.5%
ATM	Machine Tool Tech	DNR		85	195.0	115	345.0	141	423.0	653	1,959.0	316	948.0	351	1,053.0	285	855.0	327	1,117.0	28.8%	30.8%		
ATW	Welding/Fabrication T	434	1,272.0	535	1,605.0	303	909.0	222	666.0	182	486.0	192	576.0	132	396.0	143	429.0	75	225.0	-47.6%	-47.6%	-82.3%	-82.3%
AUT	Automotive Tech	190	780.0	128	502.0	154	618.0	95	384.0	99	398.0	44	176.0	29	116.0	35	140.0	49	198.0	40.0%	40.0%	-74.2%	-74.2%
CAD	Computer Aided Desig	DNR		0	0.0	928	2,778.0	678	2,034.0	1,057	3,171.0	1,081	3,243.0	1,199	3,627.0	1,342	4,071.0	1,488	4,489.0	9.4%	10.3%		
CIM	Computer Integratd M	DNR		DNR		DNR		DNR		210	840.0	173	692.0	102	408.0	118	472.0	174	696.0	47.5%	47.5%		
DHE	Class/Heavy Equipm	169	927.0	183	930.0	161	644.0	134	562.0	85	340.0	108	424.0	71	282.0	37	184.0	2	8.0	-94.6%	-95.1%	-98.8%	-99.1%
DRT	Drafting	620	1,860.0	627	1,881.0	1,021	3,063.0	915	2,745.0	1,068	3,204.0	978	2,928.0	991	2,973.0	1,125	3,375.0	1,171	3,513.0	4.1%	4.1%	88.9%	88.9%
ETT	Electrical Trades Tech	1,028	2,904.0	1,497	4,208.0	1,500	4,158.0	1,290	3,584.0	1,047	2,988.0	927	2,813.0	693	1,944.0	620	1,759.0	448	1,271.0	-28.1%	-27.7%	-55.6%	-55.2%
IND	Industrial Sciences	164	387.0	210	530.0	198	503.0	780	1,672.0	109	368.0	101	328.0	125	363.0	89	254.0	132	323.0	48.3%	27.2%	-19.5%	-18.5%
OAT	Quality Assurance Tec	13	39.0	60	207.0	37	111.0	32	96.0	52	166.0	59	177.0	125	375.0	184	581.0	178	536.0	-3.3%	-7.7%	1269.2%	1274.4%
ROB	Robotics Tech	DNR		1,725	6,900.0	1,225	4,812.0	1,081	4,210.0	1,804	6,002.0	659	2,234.0	327	1,292.0	372	1,482.0	328	1,304.0	-12.4%	-12.0%		
TEA	Apprentice Automotive	22	88.0	8	18.0	14	42.0	184	492.0	8	18.0	DNR		6	18.0	3	9.0	0	0.0	-100.0%	-100.0%	-100.0%	-100.0%
TED	Pre-Apprentice Draftn	254	792.0	406	1,218.0	427	1,281.0	392	1,176.0	318	954.0	200	600.0	172	516.0	211	633.0	153	459.0	-27.5%	-27.5%	-42.0%	-42.0%
TEM	Pre-Apprentice Mathe	529	1,580.0	414	1,242.0	321	963.0	367	1,101.0	188	504.0	220	660.0	110	330.0	155	465.0	99	297.0	-36.1%	-36.1%	-81.1%	-81.1%
TEO	Operating Engineer	59	177.0	44	132.0	105	315.0	83	249.0	82	186.0	42	126.0	26	78.0	30	90.0	20	60.0	-33.3%	-33.3%	-88.1%	-88.1%
TET	Pre-Apprentice Phys.	49	128.0	0	0.0	0	0.0	40	120.0	21	63.0	DNR		DNR		DNR		0	0.0			-100.0%	-100.0%
TEW	Pre-Apprentice Weldin	122	366.0	69	207.0	67	201.0	33	99.0	25	75.0	93	279.0	45	135.0	22	66.0	45	135.0	104.5%	104.5%	-63.1%	-63.1%
VBT	Vehicle Body	291	1,746.0	344	1,656.0	288	1,658.0	178	1,034.0	151	904.0	241	1,424.0	204	1,212.0	214	1,256.0	185	1,094.0	-13.6%	-12.9%	-36.4%	-37.3%
Automotive Technologies Tot		6,897	22,410.0	9,136	30,873.0	9,571	31,145.0	8,960	27,862.0	8,733	28,447.0	6,987	22,613.0	6,043	19,427.0	6,309	20,392.0	6,073	19,832.0	-3.7%	-3.7%	-11.9%	-12.4%

**APPENDIX D**

**Center for Education Statistics:**

**A Classification of Instructional Programs (CIP)**

**Center for Education Statistics:  
A Classification of Instructional Programs (CIP)**

**08.1203 Automotive Vehicles and Accessories Marketing**

An instructional program that prepares individuals to engage in the marketing of new and used cars, vans, trucks and related parts.

**15.0803 Automotive Technology.**

An instructional program that prepares individuals to support an automotive engineer in diagnosing normal or abnormal operation and in maintaining and repairing automotive equipment. Includes instruction in the installation, maintenance, operation, repair, adjustment, or modification of automobiles, trucks, buses, and light industrial or farm equipment powered by gasoline, diesel, or turbine engines and equipped with electrical, hydraulic, pneumatic, or mechanical controls. Also includes instruction in the use and calibration of diagnostic and testing instruments and equipment.

**47.0604 Automotive Mechanics**

An instructional program that prepares individuals to engage in the servicing and maintenance of all types of automobiles. Includes instruction in the diagnosis of malfunctions in and repair of engines; fuel, electrical, cooling, and brake systems; and drive train and suspension systems. Also instruction is given in the adjustment and repair of individual components and systems such as radiators, transmissions, and carburetors.

**APPENDIX E**

**Entry Level Job Titles**

**Suggested by Employers Surveyed**



**Entry Level Job Titles  
Suggested by Employers Surveyed**

**Original Equipment  
Manufacturers:**

General Maintenance  
 General Line Tech I  
 General Line Tech II  
 Layout Inspector  
 Technician  
 Assistant Engineer (Maintenance)  
 Sales Representative  
 (Auto Refinish)  
 CAD Operator  
 Technician  
 Junior Project Technician  
 Engineer  
 Sales (Engineers)  
 Service Technicians  
 Mechanical Engineers  
 Electrical Engineers  
 Process Engineers  
 Mold Technician  
 Engineering  
 Research  
 Technician  
 Dynamometer Engine Tech  
 Quality Control  
 Engineering Design  
 Sales  
 Sales Service Representative  
 Quality Technician  
 Engineering Technician  
 Mechanic Technician  
 Test Technician  
 Machinist Technician

**Automobile  
Manufacturing:**

Driver Mechanic  
 Engineering Assistant  
 Mechanic  
 Trainee  
 Customer Relations Rep.  
 Technician  
 Service Technician  
 Operation Technician  
 (Assembly Line)  
 Draftsman  
 Designer  
 Skilled Tradesman  
 Entry Level Technician  
 Sales Operations

**Dealerships:**

Lubeman  
 Porter  
 Technician  
 Service helper  
 Parts/Service Manager  
 Technician  
 Technician  
 Service Consultant  
 Technician  
 Service Advisor  
 Mechanic  
 Service Advisor  
 Management  
 Trainee  
 Technician  
 Lubeman

**Research/Development  
Testing Facilities:**

Technician  
 CAD Technician  
 Test Technician  
 Support Technician  
 Technician  
 Fabricator  
 Engineer  
 Test Area Personnel  
 Lab Technician  
 Development Technician  
 Emission Technician  
 Auto Service Worker  
 Technician  
 Auto Mechanic  
 Technician  
 Test Technician  
 Mechanic  
 Detailer  
 Apprentice  
 Garage Mechanic  
 Mechanic  
 Technician  
 CAD Designer  
 Technician  
 Detailer

**APPENDIX F**

**EMPLOYERS SURVEYED**

## EMPLOYERS SURVEYED

### Original Equipment Manufacturers:

Advanced Friction Materials Co.  
44600 Merrill  
Sterling Heights, MI 48314

Airflow Research & Mfg. Corp.  
7565 Haggerty Road  
Belleville, MI 48111

ASC Inc.  
One Sunroof Center  
Southgate, MI 48195

BASF  
2855 Coolidge, Ste. 300  
Troy, MI 48084

Dura Convertible Systems  
26261 Evergreen  
Southfield, MI 48037

GKN Automotive, Inc.  
3300 University Drive  
Auburn Hills, MI 48326

Grant Industries  
33415 Groesbeck Hwy.  
Fraser, MI 48026

Bendix Corporation  
7000 19 Mile  
Sterling Heights, MI 48314

Nachi Robotics Systems, Inc.  
27150 Hills Tech Court  
Farmington Hills, MI 48331

ITT Automotive  
3000 University Drive  
Auburn Hills, MI 48321

Advanced Thermoforming Inc.  
6210 Product Drive  
Sterling Heights, MI 48314

Allied Signal, Inc.  
Bendix Plate Product Line  
Southfield, MI 48086

Augat Inc.  
22800 Hall Rd.  
Mt. Clemens, MI 48043

Champion Spark Plug  
900 Upton Ave.  
Toledo, Ohio 43607

Durakon Industries  
2101 N. Lapeer Road  
Lapeer, MI 48446

Goodyear Tire and Rubber  
100 Galleria Office Center  
Southfield, MI 48034

HB Fuller Automotive Co.  
13650 E. 10 Mile  
Warren, MI 48089

Coltec  
1748 Northwood Dr.  
Troy, MI 48084

Horizon Enterprises  
Taylor, MI

New Venture Gear, Inc.  
1650 Research Drive  
Troy, MI 48083

Continued on following page.

Employers Surveyed Cont.

**Research & Development and Testing:**

Aero Inspection Services, Inc.  
2125 Riggs  
Warren, MI 48091

Chrysler Corp.  
Vehicle Testing  
Sterling Heights, MI 48312

Dupont Company Auto Products  
950 Stephenson Highway  
Troy, MI 48007-1313

EATON Corp.  
Engine Components Division  
26101 Northwestern Highway  
Southfield, MI 48037

General Motors Proving Grounds  
Milford, MI

Chrysler Proving Grounds  
Chelsea, MI

Greening Testing Lab  
19465 Mount Elliot  
Detroit, MI 48234

Inveno Corporation, Inc.  
5715 13 Mile Rd.  
Warren, MI 48092

Milford Fabricating Co.  
1920 Glendale  
Detroit, MI 48223

Nissan Research & Development  
3995 Research Park Drive  
Ann Arbor, MI 48108

Creative Industries Group  
275 Rex Blvd.  
Auburn Hills, MI 48326

CDI  
2800 Dequindre Rd.  
Warren, MI 48092

Detroit Testing Lab  
7111 E. 11 Mile  
Warren, MI 48092

EG&G Auto Research, Inc.  
2565 Plymouth Rd.  
Ann Arbor, MI 48105

GKN Auto Inc.  
Office of Automotive Testing  
Auburn Hills, MI 48326

Ford Proving Grounds  
Romeo, MI

Vehicle Research & Development  
3863 Van Dyke  
Almont, MI 48003

Handy & Harman Automotive Group  
1900 Opdyke Rd.  
Auburn Hills, MI 48321

Johnson Controls, Inc.  
49200 Halyard Dr.  
Plymouth, MI 48170

Specialized Vehicles, Inc.  
1401 Piedmont  
Troy, MI 48083

Akebono Brake Systems  
Engineering Center  
26850 Haggerty Road  
Farmington Hills, MI 48311

Troy Design Manufacturing  
(TDM) World Conversion  
1020 Doris Rd.  
Auburn Hills, MI 48326

Continued on following page.

**Employers Surveyed Cont.**

**Automobile Manufacturers:**

Audi/Volkswagen of America  
3800 Hamlin  
Auburn Hills, MI 48326

General Motors Tech Center  
30300 Mound Rd.  
Warren, MI 48090-9040

Chrysler Corporation  
12000 Chrysler Drive  
Highland Park, MI 48288

General Motors  
3044 W. Grand Blvd.  
Detroit, MI 48202

Chrysler Jefferson North  
Assembly Plant  
12000 Chrysler Drive  
Highland Park, MI 48288

General Dynamics  
38500 Mound Rd.  
Sterling Heights, MI 48310

Caterpillar, Inc.  
2500 Novi Rd.  
Novi, MI 48377

Ford Motor Company  
Dearborn, MI

Chrysler Corp./Jeep  
1000 Jeep Parkway  
Toledo, Ohio

Lincoln/Mercury  
300 Renaissance Center  
Detroit, MI 48243

Saturn Corporation  
1420 Stephenson Hwy.  
Troy, MI 48007-7025

**Dealers:**

Armstrong Buick, Inc.  
30500 Plymouth Rd.  
Livonia, MI 48150

Bob Saks Olds  
35300 Grand River  
Farmington Hills, MI 48335

Farmington Hills Chrysler  
29301 Grand River  
Farmington, MI 48336

Mel Farr, Inc.  
1951 S. Telegraph  
Bloomfield Hills, MI 48302

Troy Honda  
1835 Maplelawn  
Troy, MI 48084

Al Dittrich Olds  
5825 Highland Rd.  
Plymouth, MI 48321

Bob Sellers Pontiac/GMC  
38000 Grand River  
Farmington Hills, MI 48335

Lou La Riche Chevrolet, Inc.  
40875 Plymouth Road  
Plymouth, MI 48170

Suburban Oldsmobile Cadillac  
1810 Maplelawn  
Troy, MI 48084

**APPENDIX G**  
**EMPLOYER SURVEY**

**Automotive Technology**  
**NEEDS ASSESSMENT**  
**EMPLOYER TELEPHONE SURVEY**

Name of Business: \_\_\_\_\_

Type of Business: \_\_\_\_\_

City and Zip Code: \_\_\_\_\_

Telephone: \_\_\_\_\_

"Hello, this is \_\_\_\_\_. I'm calling from Oakland Community College, Department of Planning and Analysis. May I please speak to the Director of Training or Human Resources?"

*1. If the person answering is the person to whom you wish to speak go to A.*

*2. If the person to whom you wish to speak is not available, try to arrange a convenient callback time or leave your name and number. You may need to explain more about why you are calling. If so, use the following explanation:*

"Oakland Community College is in the process of evaluating our Automotive Technology program. We would like to ask \_\_\_\_\_ (the name of the personnel director) about employment opportunities and training requirements at your company."

*Enter possible callback times below:*

Day: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

Day: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

*If you left name and number -- check here: \_\_\_\_\_*

**A. Once you reach the Director of Training, Personnel or Human Resources be sure to record**

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Phone: \_\_\_\_\_

"Hello, this is \_\_\_\_\_. I'm calling from OCC. We are in the process of reviewing our Automotive Technology program. OCC's program is designed to train automotive technicians in automotive service, management, mathematics and engineering in order to prepare them for technician positions in automotible service, development and testing of new automobiles. Your knowledge and experience in the field would be very helpful to us in our current review. Would you be willing to take just a few minutes to answer some questions about automotive technology ?"

*If "yes", go on to the next page.*

**Survey**

1. Which entry level positions in your company are held by employees with backgrounds or qualifications in automotive technology?

What is the entry level salary range for these positions?

Job Titles	Entry Level Salary Range
a) _____	_____ to _____ per hour
b) _____	_____ to _____ per hour
c) _____	_____ to _____ per hour

2. Are you currently hiring in these areas?

- 1 \_\_\_\_\_ Yes (Go to 3)
- 5 \_\_\_\_\_ No (Skip to 4)

3. What is the primary reason for hiring these employees?

- 1 \_\_\_\_\_ Expansion of the company
- 2 \_\_\_\_\_ Employee turnover
- 3 \_\_\_\_\_ Other reasons. Please specify: \_\_\_\_\_

4. Do you experience any difficulty finding entry level personnel trained in automotive technology?

- 1 \_\_\_\_\_ Yes (Go to 5)
- 5 \_\_\_\_\_ No (Skip to 6)

5. What kind of problems do you encounter?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

6. Do you feel that entry level personnel you hire are:

- Adequately prepared? \_\_\_\_\_ 1 (Skip to 8)
- Sometimes prepared? \_\_\_\_\_ 2 (Skip to 8)
- Usually not prepared? \_\_\_\_\_ 3 (Go to 7)



7. In what ways are entry level personnel unprepared for employment?

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8. What are the minimum qualifications required by your company for entry level personnel? (Check all that apply)

- a) No prior related work experience or education \_\_\_\_\_
- b) Prior related work experience \_\_\_\_\_
- c) Prior work experience in automotive technology \_\_\_\_\_
- d) Certificate in a specialization within automotive technology \_\_\_\_\_
- e) Associate degree in automotive technology \_\_\_\_\_
- f) Bachelors degree in automotive technology \_\_\_\_\_
- g) Bachelors degree in engineering \_\_\_\_\_
- h) Other, please explain: \_\_\_\_\_

9. Please rate how important it is for entry level automotive technicians to have a strong knowledge base regarding the following systems, using the scale: 1=Very Important, 2=Somewhat Important, 3=Not Important.

	<i>Very Important</i>	<i>Somewhat Important</i>	<i>Not Important</i>
a. Engine Fundamentals . . . . .	1	2	3
b. Emissions Systems . . . . .	1	2	3
c. Electrical/Electronic Systems . . . . .	1	2	3
d. Brakes . . . . .	1	2	3
e. Suspension Systems . . . . .	1	2	3
f. Drafting & Blueprint Reading . . . . .	1	2	3
g. Driveline/transmission . . . . .	1	2	3
h. Computer-aided design/engineering . . . . .	1	2	3
i. Diagnostic testing . . . . .	1	2	3
j. Body systems (including plastics, welding) . . . . .	1	2	3

10. Are there any other techniques you would like your entry level automotive technicians to have learned? Please rate their importance according the same scale as above 1=Very Important, 2=Important, 3=Not Important.

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11. Please rate the importance of the following skills for entry level technicians, using the same scale: 1=Very Important, 2=Somewhat Important, 3=Not Important.

.....	<i>Very Important</i>	<i>Somewhat Important</i>	<i>Not Important</i>
a) Ability to work as a team member .....	1	2	3
b) Organizational skill .....	1	2	3
c) Ability to use individual initiative .....	1	2	3
d) Writing skills .....	1	2	3
e) Mathematical skills .....	1	2	3
f) Good speaking skills .....	1	2	3
g) Problem solving skills .....	1	2	3
h) Interpersonal skills .....	1	2	3

12. Are there any other skills you would like your entry level automotive technicians to have? Please explain.

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13. What related advancement opportunities are available for employees with automotive technology skills? Please give examples of job titles.

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14. Does your company provide any formal automotive technology training for employees?

1 \_\_\_\_\_ Yes    *Go to 15*  
5 \_\_\_\_\_ No    *Skip to 16*

15. Would you explain the nature of the training?

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16. Would you consider sending your employees to OCC for training in our Automotive Technology program?

1 \_\_\_\_\_ Yes  
5 \_\_\_\_\_ No  
9 \_\_\_\_\_ Not Applicable (*cite reason*) \_\_\_\_\_

17. Do you perceive a need for a two-year community college automotive technology degree program?

1 \_\_\_\_\_ Yes  
5 \_\_\_\_\_ No

18. Would your company consider offering non-paid internships for OCC students in the automotive technology program at OCC?

1 \_\_\_\_\_ Yes  
5 \_\_\_\_\_ No  
9 \_\_\_\_\_ Uncertain, please explain \_\_\_\_\_

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19. Are there any other comments you would like to make at this time?

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Thank you for your time and assistance. We appreciate your help and believe that your responses will help to influence what happens at OCC in the future. If you have any further questions please contact the Office of Planning and Analysis at (313) 471-7746.

Interviewer: \_\_\_\_\_

Date: \_\_\_\_\_

Time interview began: \_\_\_\_\_

Time interview finished: \_\_\_\_\_

**APPENDIX H**  
**STUDENT SURVEY**

Survey Number \_\_\_\_\_

OAKLAND COMMUNITY COLLEGE

**Automotive Technology**

NEEDS ASSESSMENT STUDENT SURVEY

Name: \_\_\_\_\_

S.S. Number: \_\_\_\_\_

Telephone: \_\_\_\_\_

*Introduction:*

"Hello, this is \_\_\_\_\_. I'm calling from Oakland Community College. May I please speak to \_\_\_\_\_?"

1. *If the person answering is the person you wish to speak to, go to A.*
2. *If the person you wish to speak to is not available try to arrange a convenient callback time.*

*Enter possible callback times below:*

Day: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_  
Day: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

*A. Once you reach the right person:*

"We are in the process of assessing the Automotive Technology program at OCC and our records indicate that you have recently taken an automotive technology course. We would value your assistance in answering a few questions. Would you be willing to take part in a short survey for us?"

*If "yes", go on to the survey.*

**SURVEY**

1. What was your primary reason for taking automotive technology courses at OCC? *(Let the respondent answer and then check all that apply.)*

- To obtain a certificate or a degree.
- To complete courses necessary for transfer to another college.
- To prepare for a new career.
- To improve your knowledge, technical skill or competency for your job.
- To comply with your employer's requirements.
- To increase your chances for a raise and/or promotion.
- For personal development.
- Other. \_\_\_\_\_

2. What is your current employment situation?

- 1  Employed full-time. *(Go to question 3.)*
- 2  Employed part-time. *(Go to question 3.)*
- 3  Unemployed. *Not employed but actively seeking employment (Go to question 5)*
- 4  Not employed and not seeking employment, *because of choice, illness, full time study, retirement, pregnancy or any other reason. (Go to question 5)*

3. What is your current occupation?

\_\_\_\_\_

4. Is your current employment related to the coursework you have taken in automotive technology?

- 1  Yes
- 5  No

5. How do you plan to use the knowledge and skills gained in your automotive technology courses at OCC, in the future?

\_\_\_\_\_  
\_\_\_\_\_

6. Is automotive technology your major field of study at OCC?

1 \_\_\_\_\_ Yes. (Go to Question 8)

5 \_\_\_\_\_ No. (Go to Question 7)

7. What is your major field of study? \_\_\_\_\_

8. Which automotive technology option are you most interested in? (read only the first 2 responses)

1 \_\_\_\_\_ Engineering

2 \_\_\_\_\_ Retail

3 \_\_\_\_\_ Undecided

4 \_\_\_\_\_ I didn't know there were two options in the program.

9. What do you or did you most like about the Automotive Technology course/program?

\_\_\_\_\_  
\_\_\_\_\_

10. What do you or did you most dislike about the Automotive Technology course/program?

\_\_\_\_\_  
\_\_\_\_\_

11. Please rate your level of satisfaction with the following aspects of the Automotive Technology program using the scale, 1=Very satisfied, 2=Satisfied, 3=Neutral, 4=Dissatisfied, 5=Very Dissatisfied.

	<i>Very Satisfied</i>	<i>Satisfied</i>	<i>Neutral</i>	<i>Dissatisfied</i>	<i>Very Dissatisfied</i>
a) The variety of automotive technology courses offered. ....	1	2	3	4	5
b) The content of automotive technology courses .....	1	2	3	4	5
c) The scheduling of automotive technology courses .....	1	2	3	4	5
d) The quality of faculty/instruction in automotive technology .....	1	2	3	4	5
e) The equipment/technology available .....	1	2	3	4	5

12. Is there any other comment you would like to make about the automotive technology course/program at OCC?

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"Thank you very much for your time and assistance. We sincerely appreciate your help."



**APPENDIX I**  
**AUTOMOTIVE TECHNOLOGY ASSOCIATE DEGREE PROGRAMS**  
**STATE OF MICHIGAN**

**Selected Automotive Technology Associate Degree Programs  
In the State of Michigan**

<b>Program Title</b>	<b>Degree</b>	<b>College Name</b>	<b>Program Intent</b>
Automotive Technology	AAS	Delta College	Service/Maintenance
Automotive Service Educational Program (ASEP)	AAS	" "	Service/GM Dealerships
Automotive Service Technology	AAS	Ferris State University	Technician/service/diagnosis/sales
Automotive Machine Technology	AAS	" " "	Service/sales
Heavy Equipment Service Technology	AAS	" " "	Service/sales/management
Automotive Service Technology	AAS	Gogebic Community College	Service/Maintenance
Automotive Technology	AAS	Grand Rapids Community College	
Automotive Technology	AAS	Henry Ford Community College	Service/Maintenance
Automotive Service Technology	AAS	" " " "	Service/Maintenance
Automotive Technology	AAS	Highland Park Community College	
Automotive Technology	AAS	Jackson Community College	Service/Maintenance
Automotive Technology	AAS	Kalamazoo Valley Community College	
Automotive Technology	AAS	Kellogg Community College	Service/Maintenance
Automotive Technology	AAS	Kirtland Community College	Service/Maintenance
Automotive Technology	AAS	Lansing Community College	Dealerships/Fleet Maintenance
Automotive Technology	AAS	Macomb Community College	Service/Maintenance
Automotive Technology--Chrysler Dealer Approved Program	AAS	" " "	Service/Chrysler Dealerships
Automotive Technology--Ford Motor Company ASSET Program	AAS	" " "	Service/Ford Dealerships
Automotive Technology--GM Auto Service Education Program	AAS	" " "	Service/General Motors Dealerships
Automotive Engineering Technology	AAS	Monroe County Community College	Diagnosis/Engineering Support
Automotive Service Technology	AAS	" " " "	Service/Maintenance
Automotive Mechanics Technology	AAS	Montcalm Community College	Service/Maintenance
Automotive Technology	AAS	Mott Community College	Service/Technicians/Sales/technical writers
Automotive Technology	AAS	Muskegon Community College	Technician/Service
Automotive Engineering Technology	AAS	Oakland Community College	Technician/Diagnosis/ Engineering Support/Retail
Automotive Service Technology	AAS	Washtenaw Community College	Service/Maintenance
Automotive Service Technology	AAS	Wayne County Community College	Service/Technician

\*Source: College Catalogs and Academic Deans at Included Institutions.

**APPENDIX J**  
**EMPLOYER NARRATIVE RESPONSES**

**AUT Needs Assessment  
Employer Survey Narrative Responses**

**Key:**        *OEM - Original Equipment Manufacturer*  
              *AUTO - Automobile Manufacturing*  
              *R&D - Research, Development and Testing*  
              *DEAL - Dealerships*

**Question 2: Are you currently hiring (entry level automotive technicians)?**

111 OEM Part-time.

107 OEM Have opening for Machinist Technician.

207 AUTO Specific engineering positions only. Basically not hiring at all.

210 AUTO Have hired temporary people as an emergency pool -- don't have any plans to hire full time technicians.

311 R&D Not in 5 years.

321 R&D By contract, we are hiring temps on occasion -- no permanent. Only as needed for new products.

**Question 3: What the primary reason for hiring these employees?**

100 OEM Program oriented/contractual.

103 OEM Hiring freeze last year. We are now hiring again.

108 OEM Just have one opening for an engineer.

111 OEM Expansion and employee turnover.

208 AUTO Temporary employees, for one year or two.

302 R&D Both of these (Expansion of the company, Employee turnover).

309 R&D Based on programs/out sourcing.

**Question 4: Do you experience any difficulty finding entry level personnel trained in automotive technology?**

107 OEM Machinist Technician.

203 AUTO Most of the time they have had experience and education.

209 AUTO Pretty selective. Advanced engineering activity. Emphasis has been on hiring BS engineers.

311 R&D Have a co-op program.

320 R&D Haven't hired in over 10 years. Opportunities to current employees only - come from a variety of other positions within the company.

321 R&D Glut of trained people for those types of positions.

206 AUTO Yes, with technical experience.

**Question 5: What kind of problems do you encounter?**

100 OEM No education/lacking skills. Communication, reading, English skills are poor.

101 OEM Trying to find qualified persons who have the knowledge, repair and technical abilities to communicate with staff. They need to be able to communicate technically with others.

102 OEM We are a vacuum forming (plastics) company--not a technology that is widely used. Have to run through 10 people to hire one qualified one. Bad experience finding reliable, qualified, entry level employees.

103 OEM Experience manufacturing of sealant and adhesives. Minority and female employee shortage.

106 OEM Specific skills area. Soft trim side of automotive. Clay Models.

107 OEM Only one resume for Machinist Technician. Not getting the response expected.

111 OEM Lack of experience. We have people that come in with lack of experience and tools.

112 OEM Lack of knowledge with Metrology. Would be beneficial to have ASQC training and some knowledge of sample package submission and testing. The I.A.G is being standardized which will be helpful.

115 OEM Experience is difficult to find. College educated persons don't usually apply for this job. People tend to not enter this job after obtaining a college education.

201 AUTO Looking for people with a background in sales and marketing as well as Automotive Technology.

204 AUTO We have people on lay off.

205 AUTO People are not interested in getting their hands dirty in diesel. Good quality or above average people are not entering the field. Writing skills are poor.

208 AUTO Supply is not over abundant.

- 301 R&D Self-discipline.
- 304 R&D People with non-destructive testing experience. Pay rate is a problem, competitive for level I Technician.
- 308 R&D People have good knowledge of tube but not in the plant (practical experience).
- 309 R&D Quick response: looking for the dollars. Employees need to grow with company. Long term employees.
- 319 R&D Difficulties finding minorities and women well trained.
- 400 DEAL Lacking in electrical skills.
- 402 DEAL Lack of knowledge and experience.
- 403 DEAL Have not found many people with associates degrees in automotive technology.
- 407 DEAL With good dealership skills in this car line.

**Question 6: Do you feel that entry level personnel you hire are (prepared)?**

- 105 OEM We haven't been hiring entry level personnel lately. We have been using a placement service called T.E.C which handles contractors from General Motors.
- 200 AUTO In technical subjects. Basic skills (reading, writing, mathematics) are lacking.
- 321 R&D Because of glut, the dealerships teach troubleshoot real well. We call them R & R guys -- (Remove and Replace).
- 210 AUTO But with this level of the job, we are able to get them up to speed with our own training within 4 week period.
- 107 OEM It is very difficult to find someone with the training. We look at the entire education that the person has. They need to be receptive to rapid training. We just did our first Automotive Technician position this way --the first in 8 years, and it is working out well.

**Question 7: In what ways are entry level personnel unprepared for employment?**

- 101 OEM Not trained in dynamometer.
- 102 OEM Nobody comes through with a degree. Most new hires are not interested, not ambitious -- We can't attract those with qualifications because we can't start them at the price we'd need to attract them.
- 104 OEM Basic skills training: reading and writing, good working background.
- 105 OEM Trying to learn do's and don'ts of the job. Coming straight out of college they are not prepared for the do's and don'ts of the working force.

- 106 OEM Don't know how to put theory to work. Don't create linkage between academics and work. Not able to work in team environment.
- 115 OEM People skills/customer relations. On-going commitment to the work week. Many new college grads don't have the sense of commitment.
- 118 OEM If they have degrees, they are not prepared. Lack of ability to work directly with customers. People don't realize the importance of learning how to learn. Learning doesn't end when you get a job.
- 200 AUTO Basic skills - reading, math, etc.
- 204 AUTO Writing and reading skills at a professional or business level.
- 206 AUTO They are well trained, because they all go through ASEP.
- 210 AUTO Specific to product--no one could train them. It's job specific.
- 303 R&D Educational background.
- 312 R&D Manual drafting. Being able to write and read, basic communications.
- 320 R&D Mott and Macomb help to train those that aren't - tuition assistance.
- 402 DEAL Lack of experience, lack of understanding in technology.
- 404 DEAL Background training on the product line.
- 405 DEAL Lack of hands on. They have an abundance of knowledge and no skills.
- 406 DEAL Hands on ability not good. Not able to put the information they learned in class to practical use.
- 408 DEAL Most entry level personnel know the basics; however, they have limited experience in emissions/wiring.

**Question 8: What are the qualifications required by your company for entry level personnel?**

- 100 OEM Read, write and have good basic education.
- 101 OEM If they are not certified it means they are lazy and we won't look at them. (B.A. in engineering) would be very helpful. Total work experience: 6 year requirement.
- 102 OEM We always need to train in our specialty on site because of the type of business we are in (plastics).
- 103 OEM 4 yrs. may be substituted (for related work experience). BS or BA in anything. Sales aptitude (Sales Representative).

- 106 OEM Co-op usually done with GMI, U of M Dearborn.
- 107 OEM Machinist 3-5 years experience (with) CAD.
- 109 OEM Associates Degree + higher degree + 2 or 3 years experience
- 110 OEM 1 year (related work experience).
- 111 OEM General Line Tech I General Maintenance training position is a non-certified position.
- 112 OEM Basic education. Need Metrology courses and basic quality control courses.
- 113 OEM 2 years mechanic experience required. Prefer specialization.
- 114 OEM (Associates degree in auto tech) or other technical field. Maintenance -- vocational experience and technical training/journeymen.
- 115 OEM AAS is preferred; and they are moving toward this as a minimum requirement.
- 118 OEM Associates Degree in a technical field related to their work assignment. Written test. We put them in a broken robot and let them fix it. We also require them to do role plays with staff posing as customers.
- 200 AUTO For training, we like to bring up in culture of the organization.
- 201 AUTO 4 years college, high skills in both automotive and interpersonal skills.
- 203 AUTO The usual movement within the company is from the dealers' service area to the manufacturing plant.
- 204 AUTO The best way to enter is through the company ranks either through Chrysler dealers or training.
- 205 AUTO Associates degree in heavy equipment or diesel.
- 207 AUTO Associates in design.
- 209 AUTO Work on engines, familiar with diagnostic equipment and computer.
- 210 AUTO High school only -- work experience helps sometimes, but is not required.
- 301 R&D Would not hire anyone with more than an associates degree.
- 303 R&D State Certification required. 2-5 years (work experience) preferred.
- 305 R&D Mechanical (work experience). High school.
- 306 R&D (Prior work experience) helps us to gauge ability.
- 307 R&D Some education/classes are required; AAS or BS are not required.



- 308 R&D High school diploma with a "C" average or better.
- 309 R&D High school.
- 310 R&D Minimum (of AAS) for CAD system.
- 311 R&D 2 year degree or experience.
- 313 R&D Have a co-op program with Oakland University.
- 315 R&D Physical Lab Assessment Test and high school education.
- 316 R&D Technical background and interest in brake systems.
- 317 R&D Tooling and shop tools, reprint and pattern making.
- 318 R&D We hire only person(s) with dealership experience from GM, Ford or Chrysler.
- 319 R&D Associate degree in a related field. Mechanic backgrounds.
- 321 R&D Associates in auto mechanics. In order to become a technician you first need eight years experience within the company. Two years in garage or dealership (MoTech or community college co-op).
- 400 DEAL Depends on the job applying for. To be a Technician you need at least an Associates Degree.
- 401 DEAL High School graduate, 2 years shop in High School.
- 402 DEAL (AAS required for) management positions only. (Certification) would not be required, however pay would increase.
- 403 DEAL Varies depending on position: Service Consultant requires public relations experience and Auto Technology background; Technician requires Michigan Certification and experience at another dealership.
- 404 DEAL High school education (GED) at least. State Certification for mechanics job.
- 406 DEAL Willingness to learn, state and ASE license.
- 407 DEAL State license, high school graduate, clean driving record.
- 408 DEAL They need their own tools.

**Question 9: Please rate how important it is for entry level automotive technicians to have a strong knowledge base regarding engine fundamentals, emission systems, electrical/ electronic systems, brake systems, suspension system, drafting/blueprint reading, transmissions/drivelines, computer aided design, diagnostic testing, body systems/welding.**

- 105 OEM We only deal with transmissions, so any other area is not important.
- 112 OEM Hardness, salt-spray testing.
- 114 OEM Not with automobiles but with machines (electrical/electronic systems).
- 117 OEM Problem solving through testing.
- 204 AUTO Drafting and blueprint reading knowledge -- depends on field.
- 206 AUTO They basics of engine fundamentals are taught through the ASEP program. These skills, (ie. engines, transmissions) are taught as basics. The electrical/electronic systems are more valued now and will be in the future. GM uses the ASC Guidelines, which has 20 repair categories. They should know the tasks.
- 207 AUTO Depends on part of car -- if you are dealing with one part of the car you have no need to be proficient in all other areas.
- 208 AUTO Fasteners very important. Most of industry going to CAD/CAM.
- 318 R&D (Specific areas knowledge is needed only in terms of) how they relate to development and test labs.

**Question 10: Are there any other techniques you would like your entry level automotive technicians to have learned?**

- 100 OEM Hydraulics, geometry, kinematics.
- 101 OEM Recognize and become familiar with electronic test equipment.
- 102 OEM Blue print reading -- assembly instruction taking -- be on wavelength of customer -- great need for community college training in plastics and vacuum forming.
- 103 OEM Production line assembly, spray booth, paint application.
- 106 OEM Think in terms of systems. Holistic view of car. Be able to view entire car as a system not specific parts.
- 107 OEM Drive line test and development experience. Set up and maintenance of machines.
- 110 OEM Mechanical, especially machines.
- 111 OEM Customer satisfaction, customer contact, alignment machines/driveability.
- 112 OEM Problem solving skills. Background in dimming.
- 113 OEM Computer usage (pc skills).

- 114 OEM SPC and quality concepts. Be able to understand and gain knowledge.
- 115 OEM Coatings applications, calibrating equipment.
- 117 OEM Lab equipment (tensile testing, hardness indicator). Inspection techniques.
- 118 OEM Good at schematic reading (blueprints of electrical diagrams). Using meters and oscilloscopes, voltmeters, ammeters.
- 200 AUTO Painting systems, ceramics, computers (on board) -- programming.
- 202 AUTO Familiarity with SPC, particularly in technical areas.
- 204 AUTO How to troubleshoot, how to think.
- 205 AUTO Machine operations (boring mills and grinding).
- 206 AUTO There is a need for diagnostic testing procedures, (ie. CFC testing).
- 207 AUTO Blueprint reading is imperative -- Be familiar with drafting -- it allows them to communicate effectively.
- 208 AUTO Well rounded individual.
- 210 AUTO General idea of the process of how the "build" of the product comes to be. Tie the system together into a big picture -- what is the flow (ie. from sheet metal to paint system, to the assembly to completion.) The order in which we complete a vehicle and why. What is the result of what you do and how does your work fit into the final product.
- 300 R&D Capability of learning quickly
- 302 R&D More on the job experience.
- 304 R&D Background in automotive. Non-destructive testing (education and experience).
- 305 R&D Math, some English skills.
- 306 R&D Communication both verbally and written (take data and follow directions), record keeping, math, problem- solving.
- 307 R&D Unigraphics, Computer Graphic Systems.
- 312 R&D Mechanical drawing, communication skills.
- 315 R&D Computer skills, spray booth (paint knowledge).
- 320 R&D Working knowledge and use of industrial computers. Electronics background. Experience in instrumentation. Be able to set equipment, install and interpret data.

321 R&D Computer literate, Communication skills.

400 DEAL Communication skills.

402 DEAL Communication skills, math.

406 DEAL Electronics is a very important field.

**Question 11: Please rate the importance of (interpersonal and academic skills for your entry level employees in automotive technology.)**

200 AUTO (Organizational Skill is) not their responsibility; that is the responsibility of supervisors and management.

207 AUTO We give our team members more autonomy need to have initiative due to their autonomy

**Question 12: Are there any other skills you would like you entry level automotive technicians to have?**

102 OEM Punctuality, responsibility, life management skills. We even offer a \$10 bonus/week for showing up on time, but typically only give 5 a week for our 20 employees.

103 OEM Professional appearance.

106 OEM Listening.

107 OEM Ability to work on their own (not regulated).

111 OEM Customer contact.

112 OEM Quality control, Statistical Process Control (SPC).

113 OEM Report writing.

119 OEM Problem: They do a lot of travelling; need to be able to handle travel and thinking on your feet without the customer realizing it.

200 AUTO Fundamental planning -- planning and scheduling -- making employees more responsible for their own scheduling -- fundamental administration skills, self-monitoring- Self managed aspects. Right sizing organization. Quality movement: cooperate with colleagues.

203 AUTO Customer responsiveness.

206 AUTO Employability skills. VICA program (55 vocations). Supportive of the VICA program -- the members are on top with the leadership skills.

207 AUTO Enthusiasm, willingness to co-operate. We do consensus decision making: work as a team members.

- 210 AUTO Trend in industry is team concept, looking for people who can work under a new, participatory type of management.
- 302 R&D Positive attitude, willing to learn.
- 305 R&D Communication skills.
- 304 R&D Mechanically inclined.
- 307 R&D Dress codes at interviews, promptness, attendance, neatness in work, and asking questions if unsure.
- 308 R&D Good work attitude, aggressive in a positive sense.
- 311 R&D Computer skills are very important
- 313 R&D I think teaching communication skills is very important.
- 314 R&D Willingness to learn
- 321 R&D Have problem with interpersonal skills, hard on co-workers. Male bonding, macho stuff is prevalent - 5-8% women only. One woman mechanic. Self esteem based on put-downs.
- 400 DEAL Aware that coming in as entry level they are not going to make big bucks right away.
- 402 DEAL Science and metal science to understand the combinations of materials and chemicals.
- 405 DEAL Common sense, field work -- problem solving, teach the people to think problems through.
- 406 DEAL Attitude most important. Willing to work with others.

**Question 13: What related advancement opportunities are available for employees with automotive technology skills? Please give examples of job titles.**

- 101 OEM Automotive Technician to Senior Technician to Assistant Engineer to Engineer to Staff Engineer  
Automotive Technician to Assistant Supervisor to Supervisor of Dynotest.
- 102 OEM As we grow we need more supervisors. We're hoping to find employees that are promotable -- We're on our 2nd production manager in 3 weeks. -- It's difficult to find people who are capable and dedicated to the job.
- 104 OEM Engineering only.
- 105 OEM None, unless they get further education. Bachelor of Science in Mechanical Engineering.
- 106 OEM Wide open. Can move through entire tech center. Company not restrictive. People can move all over.

- 107 OEM Unless you get a four year degree, there are no opportunities for advancement.
- 108 OEM Head engineer, if the person has the ability they can go as high as their skills will take them.
- 109 OEM Varied, wide range of opportunities.
- 110 OEM Mold Technician to Engineering Technician or Supervisor.
- 111 OEM General Maintenance to General Line Technician I to General Line Technician II to Manager to District Manager to General Manager.
- 112 OEM Layout Inspector to Senior Layout Quality Control Manager.
- 113 OEM Technician Level I to Level II to Leadership.
- 115 OEM Sales Representative to Auto Representative to Senior Sales Representative (with B.A).
- 116 OEM Technician I through Technician VII.
- 117 OEM Junior Technician to Associate Technician, to Project Technician, to Senior Project Technician.
- 118 OEM Project Engineers, CAD Design Operators, Engineering Managers, Project Developers
- 119 OEM Can move into management position or can move between departments.
- 202 AUTO Progression is within that particular job classification ie. Engineer and Driver Mechanic.
- 203 AUTO Technician to Warranty Analyst or Product Quality Analyst (Diagnostic).
- 204 AUTO Apprentice to Mechanic to Quality Control or Foreman (prefer a BA with this position).
- 205 AUTO Trainee to Technician to II to III to IV to V to Field Technician to Supervisory/Management.
- 206 AUTO Service Technician has the opportunity to move to an Instructor position, in which they prefer an associates degree.
- 207 AUTO There are levels within Draftsman and Designers -- not a quick process to progress -- could be 10-15 years.
- 208 AUTO Technologists (minimum associate degree) to Junior Engineers. We offer on site degree programs.
- 209 AUTO Laboratory Technician or Engineering Technician to Project or Special Technician to possibly Group Leader (would likely need more management training) to Senior Engineer Technician to Senior Engineer Associate.
- 210 AUTO Technician to a skilled area of maintenance (ladder on production side). There is such a reduction in middle management that the opportunities are limited-greater competition for those few slots. They would need to be stars to progress.

- 300 R&D Technician to Manufacturing Engineer (which requires either experience or a higher degree of education).
- 313 R&D Research and development personnel and design and development personnel.
- 314 R&D Test Technician (with BA) to Test Engineer.
- 315 R&D Service Operator to Technician.
- 316 R&D Technician to Supervisor.
- 317 R&D Fabricators to Engineers (would need another degree).
- 318 R&D Automotive Technician to Technician to Senior Technician to Lead or Principle Technician.
- 319 R&D Laboratory Technician to Project Technician to Senior Engineering Technician to Senior Engineering Associate.
- 320 R&D Limited opportunities for proving grounds, possibilities would be greater in Ford as a whole.
- 321 R&D Driver/Mechanic to Technician. You need an engineering degree to go further than Technician.
- 200 AUTO Can career-track into lower-level Technician positions if they want to get BA's and MA's. Must have advanced training -- Really need BA for advancement. No Management track -- only technical advancement possibilities.
- 201 AUTO Entry Level to Salary to Management. We hire entry level people as potential Managers.
- 301 R&D Mechanic to Lead Mechanic. Auto Service to Mechanic (Auto Service Workers usually don't make this switch, they generally don't have the ambition).
- 302 R&D 80% of positions are filled in-house.
- 303 R&D Mechanic to Instructor
- 304 R&D Trainee to Level I Technician to Level II. Technician to Quality Assurance Technician to Supervisor to Management.
- 305 R&D Technicians' advancement comes with experience. The next step requires a BA/BS.
- 306 R&D Mechanic to Technician to Supervisor of shift or project. Because it is a small company, a variety of tasks fit into each role. There is movement upward through monetary gain.
- 307 R&D Detailer to Illustrator to Senior Layout Designer to Management/Supervisor
- 308 R&D Apprentice to Tool and Die Technician or Technician of some kind, then splits to either Management or Supervision.
- 309 R&D Mechanic to Technician to Senior Technician to Coordinator to Project Manager.

- 310 R&D CAD Designer to Mechanical Engineer with higher education (BS).
- 311 R&D There is a career path for Technicians so they can move all the way up the ladder.
- 312 R&D Detailer to Layout to Designer.
- 400 DEAL Service to Management.
- 401 DEAL Paid, as you advance your salary increases. That is the only type of advancement.
- 402 DEAL Technician to ASE certification through Toyota training to Pro-Technician to Master Technician.
- 403 DEAL Service Manager to Foreman.
- 404 DEAL Service Advisor to Line Technician (if they had mechanical background).
- 405 DEAL 1. Service Advisors to Assistant Manager to Manager 2. Technician
- 406 DEAL Make more money.
- 407 DEAL Technician to Foreman to Service Manager.
- 408 DEAL Lubeman to Prep to Line to Master Mechanic.

**Question 14: Does your company provide any formal automotive technology training for employees?**

- 101 OEM College is supplemented.
- 104 OEM Tuition assistance.
- 106 OEM Co-op student type role.
- 108 OEM Offer tuition reimbursement.
- 113 OEM Only on an as needed basis.
- 119 OEM The better they know the car, the better they can fix it.
- 200 AUTO Fundamentals.
- 202 AUTO Based on tuition reimbursement and joint job assistance training.
- 210 AUTO Absolutely -- the four weeks after they enter the organization are devoted to training.
- 307 R&D Go to OCC or the company will pay for education.
- 308 R&D Train as needed.
- 311 R&D Tuition refunds for an occasional seminar.



- 402 DEAL T-TEN school through Toyota -- through Jackson Community College
- 403 DEAL Send some to the Tech Center (GM) for training.
- 404 DEAL ASEP program at General Motors.
- 405 DEAL Through General Motors.

**Question 15: Would you explain the nature of the training?**

- 100 OEM Two year program and training at location in Adrian
- 101 OEM One year training shoulder to shoulder with Senior Technicians and with Engineers on field study, also experience in drafting and CAM department.
- 103 OEM 6 month probation period with training in product knowledge, hands-on training with Manager, OSHA training (safety).
- 104 OEM Tuition Assistance.
- 109 OEM Continuing educational program constantly learning.
- 111 OEM 17 training centers for specialized and advanced training.
- 112 OEM 20 hours of training per year --attribute, sampling, brain storming, stress management and quality control. May be in-house and outside credit.
- 114 OEM Education advancement.
- 115 OEM Training centers to teach car painting and have experience to teach chemical and research and development.
- 119 OEM Repair, setup and operations of robots that do the welding, painting. We even train secretaries in some robotic functions so they can communicate effectively with customers.
- 200 AUTO For fundamentals: Mo Tech -- 1 year program sponsored by Chrysler.
- 201 AUTO Technical training relevant to Ford power trucks.
- 203 AUTO Technical Courses are offered to employees; with specialization in their product.
- 204 AUTO Chrysler training program.
- 205 AUTO \$300,000 training budget and 2 full-time training staff.
- 206 AUTO ASEP program -- complete training of GM related auto services. On-going education.
- 207 AUTO Courses in both technology and general topics.

- 208 AUTO Full-range of courses.
- 209 AUTO Through special training - 1/2 to 1 day or 1 week as needed.
- 210 AUTO To meet federal requirements (ie. hazardous waste). Everyone needs to be aware and learn the guidelines.
- 301 R&D Analysis of driveability. We have a program with Washtenaw Community College.
- 302 R&D On the job, tuition reimbursement.
- 303 R&D Training Center (Chrysler) go in-depth on technical systems of Chrysler automobiles.
- 304 R&D Training program includes sending qualified persons to various schools around the country for training in specialized areas. When they return they are certified by Magnachek (company name) to do that work.
- 306 R&D Training is included on the Dynamometers, door stroking, cyclative testing, environmental chamber operation welding and mocking and the service of equipment.
- 307 R&D Start out at the board with the Group Manager learning the background information.
- 308 R&D The apprentice program is a continuing education process.
- 309 R&D Training tapes and reimbursement for continuing related education.
- 310 R&D Demonstrations and technical classes for new projects. Technical seminars.
- 312 R&D Depends on customer. Advanced courses in design, possible engineering, CAD courses.
- 314 R&D Varies with training from big auto companies. Team work building meetings.
- 315 R&D All types in-house and customer-based seminars
- 317 R&D Design and programming.
- 318 R&D On the job training and seminars as needed.
- 320 R&D Do our own, usually 1-2 day or week-long seminars in house.
- 321 R&D DRB II -- Black box diagnostic training, welding, transmission -- teachers in there two days a week.
- 400 DEAL Yes, through General Motors, also do a lot of in-house training.
- 401 DEAL General Motors offers free training.
- 402 DEAL First year basics hands-on with Toyota automobiles.

405 DEAL ASEP program through Macomb and General Motors monthly programs.

406 DEAL Chrysler has training program for employees.

407 DEAL GM Training Center on a monthly basis.

408 DEAL Honda Training.

**Question 16: Would you consider sending your employees to OCC for training in our Automotive Technology program?**

100 OEM Based in Adrian, so Jackson Community college is utilized

101 OEM Proximity would make it difficult

102 OEM (SPC) Statistical Processing Control -- charting attributes -- we're starting to chart our progress total Quality control concepts are being introduced.

104 OEM Possibly, but it might not be beneficial because of the distance.

106 OEM On their time.

108 OEM Depends on your program. Would have to take a closer look at your program.

110 OEM Proximity (closer to Macomb)

111 OEM They have advanced training

116 OEM If they wanted to pursue educations, there would be 100% reimbursement.

117 OEM Yes, we offer tuition reimbursement.

200 AUTO Proximity is a plus.

201 AUTO No, because I am not familiar with your program and because of our program with Henry Ford Community College.

202 AUTO They have sent people here in the past. Proximity is a problem.

204 AUTO Depends on subject matter (specialized).

206 AUTO Is not familiar enough with OCC's program.

207 AUTO If you provide the type of training we need.

208 AUTO Problem is location. Mostly work with Henry Ford.

- 209 AUTO We have relationships with Macomb in Body Design. We would consider sending students to OCC if they if they offered it when we needed it.
- 300 R&D Currently no tuition reimbursement program
- 313 R&D Depends on program. Have a good relationship with Oakland University would have to take a close look at your program.
- 301 R&D Depends on what classes are offered.
- 304 R&D For specific courses if they were offered.
- 308 R&D However distance is not conducive. They have programs with Henry Ford and Macomb
- 320 R&D If they provide what we need.
- 321 R&D Too far away
- 400 DEAL Already have a program through General Motors and another through Delta College.
- 404 DEAL If General Motors approved.
- 405 DEAL Depends on program and technicians.
- 406 DEAL Probably not because of cost.
- 408 DEAL Yes, but only if they are foreign.

**Question 17: Do you perceive a need for a two--year community college automotive technology degree program?**

- 101 OEM Most definitely. The rapid change in technology and environmental controls makes it imperative.
- 106 OEM With work experience.
- 116 OEM Yes, although a 2-year degree will not carry you very far.
- 117 OEM Macomb has one; however, he would like to see testing and lab work focussed upon more.
- 119 OEM Not in our company. Where you get the knowledge is not important. That you have the knowledge is.
- 203 AUTO Good starting point for dealership
- 204 AUTO With 2+2 program 2 years community college to 2 years university level with experience is ideal and is needed.
- 205 AUTO Need for heavy equipment (Ferris State is the only program).

- 208 AUTO Mechanical engineering technologist is equally as useful to us.
- 209 AUTO But our greater emphasis is on degreed Engineers. Two years isn't enough. We are more and more technical than ever before.
- 210 AUTO Even though we don't require one, it would probably help somewhat. Their salary wouldn't be any higher at entry level than the high school grads.
- 301 R&D Not for what we need to do at this company.
- 306 R&D Almost need a bachelor's degree to do anything.
- 307 R&D Training and educational classes are more important.
- 310 R&D Depends on the course offering.
- 313 R&D Only in design area.
- 321 R&D Only a certificate program -- prerequisites get in the way of doing what we need in terms of specific skills.
- 405 DEAL Applied properly.

**Question 18: Would your company consider offering non-paid internship for OCC students in the automotive technology program at OCC?**

- 104 OEM Maybe, I would have to think about it but it sounds like a good idea.
- 106 OEM If college carries liability.
- 112 OEM Union-shop.
- 113 OEM Co-ops with Macomb in the CAD division.
- 117 OEM Hire part-time student currently.
- 119 OEM Possible in service or parts departments only.
- 200 AUTO Bargaining unit problem-- interns would take work away from paid union employees.
- 202 AUTO Currently work with Senior colleges in co-op, mainly engineering.
- 206 AUTO They do offer internships; however, they only do it with Detroit vocational schools at this time.
- 208 AUTO Everyone we bring in takes a fair amount of training, already have too many people in training.
- 301 R&D Might be a real plus.

- 306 R&D Needs to be discussed with the President of the Company.
- 308 R&D Tough to fire someone you are not paying. Difficult to provide training
- 310 R&D Interns with GMI and Cass Tech-- Drafting and CAD. We would not offer unpaid, but would be receptive to paid internships.
- 312 R&D Would be yes, however, mentors are difficult to find. At the administrative level it is more difficult to get initiated.
- 314 R&D This may be possible; they would like further information.
- 318 R&D For engineers -- only if they have had coursework in what we do.
- 320 R&D No, but would offer paid ones-if they are working for us they should be compensated.
- 321 R&D We wouldn't know what to do with them.
- 402 DEAL Would recommend a paid internship program/has had interns from Ferris.
- 404 DEAL No room.

**Question 19: Are there any other comments you would like to make at this time?**

- 101 OEM Pleased there is a formal program on Automotive Technology.
- 102 OEM Community college can pre-screen potential employees hopefully avoid a lot of problems with new hires by screening them.
- 106 OEM Encourage OCC to work with local High Schools in auto training. These is a need for students to start early.
- 107 OEM When applying for a job students should send a good cover letter with their resume.
- 111 OEM Would like to keep communication lines open with colleges.
- 113 OEM We don't have time to train from the beginning. (For that reason) we hire people with 2 years experience and education. We have had a trainee position; however we're not hiring at that level.
- 116 OEM Programming is going to become a necessity. Although the shop's machines are moving toward that.
- 117 OEM New employees need to be self-starters.
- 119 OEM An automotive technology background is only needed for our Engineers and Service Technicians. Sales Personnel are hired with marketing backgrounds and we train them in the product line.

- 201 AUTO Desire for hard work and make a contribution entry level people. Seem to lack a desire for hard work and a desire to make a contribution.
- 203 AUTO More practical applications. Constant need for programs to review the needs of the major manufacturing companies.
- 204 AUTO There are some rapidly growing areas in SPC process, team building concepts, Quality Circle concepts and systems that should be learned.
- 206 AUTO The National Automotive Technicians Education Foundation (NATEF) guidelines are followed by GM. They have a process which the schools can participate in which will allow the school to evaluate their program. The post-secondary and secondary schools compete for recognition. The ASE guidelines are also followed by GM. A student organization, VICA, is a club that teaches some of the skills that are non-technical (ie. leadership).
- 300 R&D Very small company only 2 technician at this time; hopefully in the future they will grow and be able to hire more and participate in the internship program.
- 302 R&D No awareness of your program. Please send me some information for future send me some information for future job openings.
- 303 R&D "Upgrader program" eight years program in skilled trades/journeyman. Apprentice Program has been set up with 2 colleges. This program is requiring an Automotive Technology Associate Degree.
- 306 R&D Communications and working together are very important.
- 307 R&D Megatech (GM program) is providing no reimbursement for education anymore. Their company (Invenio) is being encouraged by GM to only hire people with CGS or unigraphic experience. The company can't afford to pay for the employees to take classes at OCC at \$1500 tuition. They would be the first in line to take advantage of programs in CGS or unigraphics. They can't afford to pay for employees: however, it would be very helpful if this cost could be deferred over a few months. Suggestion: offer practice sessions for a small fee. For the use of the tubes. Practice is very important to maintain skills and knowledge.
- 308 R&D Our Apprentice program is least a 5 year process. The first year is spent in the plant while you take classes on your own time at night. The second through fifth year you will be paid for the time you spend at class. After the 5th year you move to the CAD training and then to two years at SIM's at Oakland University. They have 7-10 people in our program and plan to increase it to 20 - 30 persons. Currently, VoTech in Detroit is providing quality persons for the training process.
- 311 R&D Lacking writing skills (grammar and punctuation) lack computer skills.
- 312 R&D They have a person that sits on the Board at OCC that was just employed by CDI. That person is very interested in starting an internship program.
- 313 R&D Team building skills are very important. They need to be taught.

- 316 R&D Technical skills can be taught; however, the other skills, such as group oriented, working together, goal oriented, team building are very important but difficult to teach.
- 317 R&D On occasion they have a need for automotive technicians; however, the need is sporadic. They work with Don Tremper from OCC with student co-ops in drafting, programming and model building.
- 318 R&D They don't need a service related background/education. They have a need for people trained in testing and development.
- 319 R&D Issue of Automotive Technology degree: Dilemma is that we bring them into Technician positions (usually with BS degree). They aren't engineers...
- 320 R&D Formal education is becoming more important because of technological changes. Technical degrees are becoming more important for all positions, even line workers; not limited to the testing and development positions.
- 321 R&D It appears you are preparing students to work in dealerships - not to work at the big three. The proving grounds uses the dealerships as feeders for their entry level personnel.
- 400 DEAL Get them state and ASE certified quickly. They become more valuable when they are certified. Make sure this is something they want to do for a living. I went to Schoolcraft College for automotive training and found a lot of the students just wanted it as a hobby and not a career.
- 401 DEAL Take on a GM ASEP auto service education program.
- 402 DEAL Open house in the automotive program would be helpful in providing information to area businesses
- 405 DEAL Hands on experience is a little weak.
- 406 DEAL Stay abreast of new systems. Give Chrysler fundamentals, GM fundamentals etc. Give them testing experience on computers. Break up the curriculum in order to have classes teaching fundamentals specific to different brands of cars. For example, have a class dedicated to Chrysler fundamentals.
- 407 DEAL Needs someone with a really strong electrical/ electronic systems background . . . computer training.
- 408 DEAL They are moving toward requiring ASE certification; which is tougher than the State certification.



**APPENDIX K**  
**STUDENT NARRATIVE RESPONSES**

# STUDENT SURVEY RESULTS

N=9

## Primary reason for taking automotive technology courses at OCC

- To prepare for a new career (5)
- To complete a certificate or degree (2)
- For personal development (2)
- To upgrade skills (1)
- To improve chances for raise and/or promotion (1)
- Other, For future employment and possibly to go on to engineering (1)

## Current employment situation

- Employed full time (7)
- GM Phase II (1)
- Unemployed, actively seeking employment (1)

## What is your current occupation (only employed persons)

- Family Store (1)
- Department Manager at Builders Square (1)
- Detailing at Huntington Ford (1)
- Carpenter(1)
- Engineering Technician at GM (1)
- Automotive Technician (1)
- Contract Engineering Test Technician at Ford (1)

## Is your employment related to the coursework you have taken in Automotive Technology?

- No (4)
- Yes (GM phase II) (1)
- Yes (3)

## How do you plan to use the knowledge and skills gained in your automotive technology courses at OCC in the future?

To get employed by one of the Big Three.

For personal gain.

Automotive area specifically to get an associate's and then transfer to a four-year college and get a degree in engineering.

I am waiting for a job doing time studies and diagnostics.

I plan on finishing my degree and get into General Motors or Ford.

Hopefully getting an engineering job with the Big Three. I would like to get a job in testing -- the

proving ground.

I have 14 years experience. I needed pieces of paper (associate's degree).

For employment with the big three. People in GM tell me with an associate's degree they could get me in.

Future education.

**What is your major field of study?**

Automotive Technology (AUT) (8)\* \*\*

Undecided (1)

\*One student indicated a dual major in AUT and Pre-engineering, and another student indicated an ambition to pursue mechanical engineering after completing the AUT degree.

\*\*One student only took one AUT course because he heard they were dropping the program and he didn't want to invest his time in it if it was going to be dropped.

**Which automotive technology option are you most interested in?**

Engineering (8)

Retail (1)\*

\*I already had experience in engineering. Going to St. Mary's College supplementing with BA in Business.

**What did you or do you like most about the Automotive Technology course/program?**

I like everything. The instructors, facilities, and students are all great so far.

Tony Hildebrandt. He can teach anything, and gives you personal attention. He is great!

Hands on experience.

I liked the fact that it was better than the automotive servicing classes. The Automotive Technology courses were more in depth. I learned more about the car.

They had a lot of equipment to learn from.

The whole thing, the instructors and all.

Good assistance at the facilities level, the paraprofessionals and tool cribs.

I only had one course, it was alright, it was stuff I already knew. I expected more.

The theory of why things were the way they were.

**What did you or do you dislike most about the Automotive Technology course/program?**

They kept dropping some of the courses. They didn't let us know ahead of time.

The congested classes. Limited on when you can get a hoist. Also, people park their cars in there who are not working on them.

Classes were five hours. Would like to break it down maybe into two days.

Lack of enrollment. Classes always canceled.

The cancellation of classes.

Going to school straight from work.

They don't prepare people for the job market. I have experience to judge this. Lackadaisical approach as far as staff is concerned, 60-70% of staff. Bennett is a good instructor; heart isn't in it. Larry Bennett was a good instructor but seemed to want to get out of the field. Hildabrandt is very bright but a sham as far as showing up to class and offering the class any substance.

Things they taught were outdated. Mr. Bennett and other instructors said the technology part was being dropped. I am not going to waste my time and money learning only servicing.

Teachers weren't always there. Sometimes they split us up into groups in class and never got around to us.

Dropping classes too much.

**Please rate your level of satisfaction with ...**

*The variety of automotive technology courses offered.*

Very Satisfied (3)

Satisfied (4)

Neutral (1)

Dissatisfied (1)

*The content of automotive technology courses taken.*

Very Satisfied (3)

Satisfied (3)

Neutral (2)

Dissatisfied (1)

*The scheduling of automotive technology courses.*

Satisfied (3)  
Neutral (1)  
Dissatisfied (4)  
Very Dissatisfied (1)

*The quality of faculty/instruction in automotive technology.*

Very Satisfied (4)  
Satisfied (4)  
Satisfied to Neutral (1)

*The equipment/technology available.*

Very Satisfied (2)  
Satisfied (2)  
Neutral (2)  
Dissatisfied (3)

**Narrative Comment:** The equipment should be more up-to-date.

**Is there any other comment you would like to make about the automotive technology course/program at OCC?**

They need some more tools and stuff in the garage. Better parking for students who are working in the garage.

I would like to compliment the instructors Tony Hildebrandt, Jim Slick and Mr. Bennett.

I didn't like when I enrolled in a class and then at the last minute it was canceled. This happened to me a couple of times.

Just that every time I tried to get a class it was canceled.

The cancellation, which I know is due to low enrollment is bad. One of the instructors told us the new Dean wants to eliminate the program. It would be bad for you guys to do that. You have good classes and facilities which should be used.

I hope it still continues in the future.

There is less emphasis put on making that program available. Instructors say school isn't into supporting the program. Teachers are dissatisfied with the Administrators. I don't believe this because this is a job market with much opportunities (eg. automotive technicians). Mazda, Nissan, Toyota, Chrysler Tech Center all in this area.

I thought it was a sorry fact that they were talking about shutting it down. Servicing classes to get an associate's degree in AUT is a joke. It wouldn't prepare me for an automotive technology job. With the new Chrysler Tech Center across the street it's a joke that they would be dropping their AUT

program.

I heard they are considering getting rid of it. They should keep it up. Don't push it into the ATA classes. I went and told the Dean how I feel.

**APPENDIX L**  
**ENROLLMENT STATISTICS**  
**AUTOMOTIVE PROGRAMS IN STATE OF MICHIGAN**

**Automotive Vehicles and Accessories Marketing (081203)  
Automotive Technology (150803)  
Automotive Mechanics (470604)**

*Source: Michigan Department of Education  
Michigan Community and Junior Colleges  
Enrollment Data Profile 1988-89/1989-90*

**Enrollment, July 1988 through June 1989**

	<b>CIP 081203</b>	<b>CIP 150803</b>	<b>CIP 470604</b>
Total Men	4	851	1391
Percent Men	100	88.37	91.82
Total Women	0	56	75
Percent Women	0	5.82	4.95
Unknown Gender	0	56	49
Total Enrollment	4	963	1515
<b>Minority Enrollment</b>			
American Indian	0	13	N/A
Black	2	113	N/A
Asian	0	12	N/A
Hispanic	0	35	N/A
Total Minority	2	173	N/A
Percent Minority	15.38	17.95	N/A

**Enrollment, July 1989 through July 1990**

Total Men	15	821	1346
Percent Men	88.24	93.61	94.92
Total Women	2	56	72
Percent Women	11.76	6.39	5.08
Total Enrollment	17	877	1418
<b>Minority Enrollment</b>			
American Indian	0	12	21
Black	1	49	111
Asian	0	11	13
Hispanic	0	27	22
Total Minority	1	99	167
Percent Minority	5.88	11.14	11.78



**Awards, July 1988 through June 1989**

	<b>CIP 081203</b>	<b>CIP 150803</b>	<b>CIP 470604</b>
<b>Total Men</b>	4	62	145
<b>Percent Men</b>	100.00	95.38	97.32
<b>Total Women</b>	0	3	4
<b>Percent Women</b>	0	4.62	2.68
<b>Minority Awards</b>			
<b>Black</b>	N/A	N/A	11
<b>American Indian</b>	N/A	N/A	1
<b>Asian</b>	N/A	N/A	3
<b>Hispanic</b>	N/A	N/A	1
<b>Total Minority</b>	N/A	N/A	16
<b>Total Awards</b>	4	65	149

**Awards, July 1989 through June 1990**

<b>Total Men</b>	0	51	165
<b>Percent Men</b>	0	92.73	93.75
<b>Total Women</b>	1	4	11
<b>Percent Women</b>	0	7.27	6.25
<b>Minority Awards</b>			
<b>Black</b>	N/A	1	5
<b>American Indian</b>	N/A	1	0
<b>Asian</b>	N/A	0	2
<b>Hispanic</b>	N/A	0	5
<b>Total Minority</b>	N/A	2	12
<b>Percent Minority</b>	N/A	3.64	6.82
<b>Total Awards</b>		55	176