OAKLAND
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Memo

VBT Needs Assessment

DATE: October 16, 1996

TO: Joe Burdzinski
Linda Casenhiser
Rick Driscoll
Dave Doidge
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Thx

FROM: Carlos L. Olivarez
Dean, Academic and Student Services

SUBJECT: VEHICLE BODY TECHNOLOGY ADVISORY COMMITTEE MEETING

There will be a meeting of the Vehicle Body Technology Advisory Committee on Tuesday, October 29, in room T6. Dinner will be served at 4:30 p.m., and the meeting will take place from 5:00 to 7:00.

Please call Ruth Springer (extension 6525) or e-mail her (RASPRING) to let her know whether you will be able to attend.

The following items are attached for your review in preparation for the meeting:

Meeting Agenda
Program Requirements and Course Descriptions
Advisory Committee Membership List
Vehicle Body Needs Assessment
OCC Mission and Purposes.

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VEHICLE BODY TECHNOLOGY

ADVISORY COMMITTEE MEETING

October 29, 1996

4:30-7:00 p.m.

Room T-6

AGENDA

1. Dinner
2. Welcome and Introductions
3. Tour of Vehicle Body Lab
4. Review of Needs Assessment
5. Evaluation of Lab Equipment
6. Validity of Curriculum: learning materials, work, learning experiences, related experience
7. Proposal for Update of Facilities, Curriculum and Equipment
8. OCC Mission and Purposes
9. Assessment of Graduates
10. Job Outlook: pay, promotion, growth, migration
11. Potential for Growth of Profession in Oakland County/Southeast Michigan
12. Student Membership in Professional Organization
13. Open Discussion

Vehicle Body Technology (VEH)

Associate in Applied Science — Auburn Hills

This program leads to an Associate Degree and/or Certificate with a specialty in Vehicle Body Repair. This program provides instruction and laboratory practice on modern equipment using current methods consistent with the needs of industry. This program will include all phases of auto body repair. Special emphasis will be placed on small business management as well as advanced techniques in auto body repair.

Major Requirements			Credits
IND	100	Introductory Seminar in Industrial Sciences	2
VBT	101*	Fundamentals of Auto Body Repair	6
VBT	121*	Vehicle Body Painting and Refinishing	6
VBT	131*	Panel Reconstruction and Repair	6
VBT	201*	Frame Alignment and Correction	6
VBT	221*	Advanced Body Repair Processes	6

Required Supportive Courses			
IND	140.3	Cooperative Internship	3
IND	240.3	Cooperative Internship Advanced	3
ATA	180	Automotive Air Conditioning and Heating	4
ATW	112	Introduction to GAS/ARC/MIG/TIG Welding	3

Students must select, with departmental approval, 6 credits from the following:

BUS	121	Starting and Operating a Small Business	3
BUS	131	Principles of Supervision	3
ATA	120	Front Suspension and Steering Service	4
ATA	130	Automotive Electrical Systems Servicing	4
TEM	101	Basic Mathematics[1]	3
VBT	125	Custom Vehicle Painting	4

General Education Requirements

See graduation requirements for an Associate in Applied Science Degree on pages 47 and 50.

[1] Or higher level course.

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

Students are responsible for all prerequisites and corequisites–see course descriptions.

VEHICLE BODY TECHNOLOGY

COURSE DESCRIPTIONS

ATA 120 Front Suspension and Steering Service 4 Credits
The student will develop the skills required to properly service the front suspension and steering system of current model vehicles. A great portion of class time will be spent in the lab rebuilding or renewing all components of the suspension and steering systems. Wheel alignment measurement and correction will be performed by all students on all major automotive equipment, with an emphasis on safe and proper work habits and procedures.

ATA 130 Automotive Electrical Systems Servicing 4 Credits
The student will develop the skills required to service the battery, cranking system, charging system, and electrical accessories systems of all current major automobile manufacturers' vehicles. Theory of the systems as well as hands-on training will provide job entry level skills for the student. Current manufacturers' specifications as well as safe and proper work habits and procedures will be emphasized.

ATA 180 Automotive Air Conditioning and Heating Service 4 Credits
The student will develop the skills required to service all major automobile manufacturers' current model heating and air conditioning systems. Theory of the systems as well as work experience on licensed vehicles will be included. The student will develop entry level job skills in diagnosing and repairing malfunctions in the systems, with an emphasis on safe and proper work habits and procedures.

ATW 112 Introduction to Gas/Arc/MIG/TIG Welding 3 Credits
The student will be introduced to the four basic welding processes: gas (oxyacetylene), arc (shielded metal arc welding), MIG (gas metal arc), and TIG (gas tungsten arc) welding. The student will learn proper set up and operating procedures through classroom demonstrations. Special emphasis is placed on safety principles.

BUS 121 Starting and Operating a Small Business 3 Credits
This course examines the role of small businesses in the economy. It covers the factors necessary to start a small business, such as the preparation and methods needed to begin, and the management functions needed to keep it operating on a sound basis. That will include management, sales promotion, purchasing, pricing, personnel management, credit, insurance, inventory control, regulations and taxes, and a simplified record system. This course is basically designed for the occupational student.

BUS 131 Principles of Supervision 3 Credits
Prerequisite: BUS 101 or consent of instructor.
The student will apply the principles of supervision such as induction, training, disciplining, absenteeism, safety, waste control, equipment layout, grievance control, production control and time study, via role playing and analysis of case studies.

IND 100 Introductory Seminar in Industrial Sciences **2 Credits**

The student will elect real or simulated experiences that characterize the functions and operations within the industrial sciences cluster. Further, the student will investigate career concerns within the industrial cluster such as occupational opportunities, wages, advancement, employee-employer relations and unionism, as well as environmental effect. This course is designed to be taken as part of the student's first 16 credit hours.

IND 140.3 Cooperative Internship **3 Credits**

The student will be employed within his trade area in a supervised situation under the guidance of a coordinator. The student will identify and describe, through reports and position papers, technical problems encountered on the job.

IND 240.3 Advanced Cooperative Internship **3 Credits**

The advanced internship student will continue their employment within their trade area. Students will prepare research projects on special methods and processes and new technical equipment developed in their specific trade area.

TEM 101 Basic Mathematics **3 Credits**

Addition, subtraction, multiplication, division of whole numbers, fractions and decimals, percent, square root, area and volume of geometric figures, measurements, metric system and algebra of simple formulas will be covered.

VBT 101 Fundamentals of Auto Body Repair **6 Credits**

Prerequisite: ATW 112.

This is an introduction to the theory of basic metal finishing and metal forming by shrinking, stretching, filling, contouring and leading as it relates to the restoration of damaged auto bodies. Demonstrations and practice with various hand and power tools and equipment precedes the actual work experience on cars, which includes repair of minor damage as well as removal and restoration of fenders and panels. Basic hammer and dolly techniques are emphasized. Great emphasis will be given to safe work practices.

VBT 121 Vehicle Body Painting and Refinishing **6 Credits**

Prerequisite: VBT 101 or consent of instructor.

Demonstration and practice on jobs gives the student training in proper spray techniques supported with a thorough working knowledge of spray equipment, its design, construction, care and maintenance. Tinting and matching are emphasized in the study of paint application. The advantages of spot repair and overall refinishing are studied with attention given to the proper use of enamels, acrylics and lacquer.

VBT 125 Custom Vehicle Painting **4 Credits**

Prerequisite: Consent of instructor.

The student will develop skills and abilities in advanced and custom spray painting techniques. The student will also use the air brush to obtain desired effects as well as the tapered brush to perform hand pin striping. Many new and exotic paint materials will be introduced.

VBT 131 Panel Reconstruction and Repair **6 Credits**

Prerequisite: VBT 101 or consent of instructor.

Actual work experience on auto body components is continued with emphasis placed on the completion of minor damage repair and refinishing. Beginning phases of major panel repair, replacement and alignment are included. Safe and proper work habits and procedures are greatly emphasized.

VBT 201 Frame Alignment and Correction **6 Credits**

Prerequisite: Consent of the instructor.

This course presents a background in alignment procedures to enable the student to make estimates and repairs on front suspensions of damaged automobiles. Portable frame tools are used to familiarize the student with methods of straightening frames and unitized bodies. The use of power operated frame straightening equipment is introduced.

VBT 221 Advanced Body Repair Processes **6 Credits**

Prerequisite: Consent of the instructor.

Wheel alignment as well as all phases of body repair are covered on a time-job completion basis. Estimating, customer relations and the securing of work from insurance companies and automobile owners is emphasized. The business aspects of body shop operation are studied with attention given to planning and equipping a shop.

PROPOSAL:
CURRICULUM CHANGES AND IMPROVEMENTS TO THE OCC AUTO BODY REPAIR PROGRAM

SUBMITTED BY:
Rick Driscoll
Auto Body Vehicle Specialist

I have prepared this proposal partly in response to concerns from the previous advisory committee meeting, and partly because this is my first opportunity to voice my opinion as to how I think we can improve this program.

My hope is that together we can outline the positive changes necessary, and look at this as an opportunity to build improvements into a much needed training program. There is universal agreement among industry leaders that finding qualified, skilled, and competent technicians to replace the aging current workforce, is one of the challenges to the industry in the next 5-10 years. Our own needs assessment personnel found employers begging for qualified repair technicians. The necessity for this program at OCC is apparent. It is up to us to create a training environment that employers in the community use as a hiring and retraining source and can confidently look to for future employees.

I have been employed by Oakland Community College for 18 years as an Auto Body Vehicle Specialist. During this time I have been closely involved in the daily activities of lab instruction, always striving to place the students' needs first.

While I have taken pride in the many fine student projects that have been completed over the years, the fundamental purpose of the Auto Body program is to educate and train students to be certified and employable Auto Body Repair technicians. This purpose has been largely overlooked in the past, and I would like to be involved in making this training program recognized as one of the finest in the state. While certainly no easy task, the steps necessary to attain this goal are clearly marked:

I. **NATEF Certification for the program**
II. **Update the curriculum to reflect ASE/NATEF national standards**
III. **Update the facility**
IV. **Update the tools and equipment**
V. **Actively involve a successful and knowledgeable advisory committee**
VI. **Articulation agreements with area vocational schools redefined**
VII. **Articulation agreements with baccalaureate degree auto body programs**
VIII. **Staff the program with qualified and skilled professionals**

I. <u>NATEF Certification</u>

First and foremost on this list is NATEF (National Automotive Technicians Education Foundation, Inc.) certification. NATEF is a national foundation charged with setting standards

for auto body technician instructional programs and evaluating the institutions' compliance with those standards. The actual certification is granted by the National Institute for Automotive Excellence (ASE), the national standard by which competency in auto body repair is evaluated and certified.

The ASE/NATEF certification process is quite involved, requiring the applicant institution to prove adherence to the standards for certification in ten areas. These program area standards are:

1. Clearly stated program goals
2. Positive administrative support
3. Learning resources and technical information
4. Student services including job placement and follow-up
5. Instructional plan using task lists and performance objectives with criterion referenced evaluations that must be used.
6. Equipment and tools must be of the type and quality found in the repair industry.
7. Physical facilities must meet program goals
8. Instructional staff must be ASE certified and technically competent.
9. Written Cooperative agreements and apprentice training programs
10. Adequate funding to meet program goals

ASE/NATEF certification should be the first on the list of improvements to be made. Many of the areas OCC is currently deficient in are the same areas that need to be addressed in order to certify the program. An updated curriculum, additional funding, repair and replacement of existing tools, purchase of new technology, cooperative articulation agreements, restated program goals, and improvement of the physical facilities, are all areas that OCC needs to improve upon. Compliance with these ASE/NATEF standards is a logical starting point in order to modernize and standardize all auto body repair educational programs, starting with our own.

II. Updated Curriculum

The performance objective guidelines that a NATEF based curriculum requires, is a solid starting point for any program. The requirements call for including 95% of the Performance Objectives listed in the task area of the certification manual, and 90% of the group and lecture activities in every auto body curriculum. While this minimum Objectives list would comprise a good basic overview of the necessary material, a more comprehensive exploration into the material covered may be included at the instructor's discretion.

For a successful associate degree program, an informative technical curriculum based on ASE educational standards and supplemented by specialized training programs such as I-CAR Advance Tech, would be worthwhile additions to the basic program requirements for NATEF certification. The textbook recently required for all students (a first for this program) is *I-CAR Professional Automotive Collision Repair* by James E. Duffy. The advisory committee may wish to look over this textbook for content, relevance to current repair practices, or other comments

and opinions.

In addition to conventional training methods, we try to incorporate as much participation as possible from manufacturers' representatives, sponsor industry seminars open to the public, and maximize the opportunity for non-traditional education methods. These programs should be encouraged and expanded in the future.

These technical education methods, of course, must be balanced by a 50% (or greater) hands-on technical training. This training should ideally be performed on late model collision damaged vehicles. As always, in the area of auto body repair training, there is no substitute for the time spent in hands-on learning experiences.

The NATEF requirements for certification of an Auto Body Repair program mandate a specific number of hours to be taught in each of the following areas. These hours are a combination of lecture or classroom activities, and individual (performance objective based) hands-on activities.

Non-Structural Analysis and Damage Repair	200 hours
Structural Analysis and Damage Repair	200 hours
Mechanical and Electrical Related Components	260 hours
Plastics and Adhesives	75 hours
Painting and Refinishing	300 hours
GMAW (MIG) Welding	75 hours
TOTAL HOURS	1,110

The proposed Auto Body Repair (ABR) course offerings (*Not currently in the OCC catalog) would be structured along these same areas of ASE certification. These proposed courses would be offered on a 15 week basis, with the courses meeting one day or night a week for a total of 75 hours per class. Note that the Painting classes, and the Analysis and Repair classes, will also require an additional 25 hours of lab time to allow for hands-on repair activities that would be scheduled during the semester.

• *Non-Structural Analysis and Damage Repair I	ABR 110	100 hours
• *Non-Structural Analysis and Damage Repair II	ABR 120	100 hours
• *Plastics and Adhesives	ABR 130	75 hours
• *Painting and Refinishing I	ABR 140	100 hours
• *Painting and Refinishing II	ABR 150	100 hours
• *Painting and Refinishing III	ABR 160	100 hours
• *Structural Analysis and Damage Repair I	ABR 210	100 hours
• *Structural Analysis and Damage Repair II	ABR 220	100 hours
• *Collision Estimating and Management Practices	ABR 230	75 hours
• Automotive Electrical	ATA 130	75 hours
• Automotive Air Conditioning	ATA 180	75 hours

•	Intro to Arc Gas MIG&TIG Welding	ATW 112	45 hours
•	MIG welding	ATW 812	45 hours
		TOTAL HOURS	1160

The proposed Auto Body Repair (ABR) program (*Not currently in the OCC catalog) would consist of the following credit courses, along with the required general education supportive classes necessary for an earned associates degree.

•	*Non-Structural Analysis and Damage repair I	ABR 110	4 Credit Hrs.
•	*Non-Structural Analysis and Damage repair II	ABR 120	4 Credit Hrs.
•	*Plastics and Adhesives	ABR 130	4 Credit Hrs.
•	*Painting and Refinishing I	ABR 140	4 Credit Hrs.
•	*Painting and Refinishing II	ABR 150	4 Credit Hrs.
•	*Painting and Refinishing III	ABR 160	4 Credit Hrs.
•	*Structural Analysis and Damage repair I	ABR 210	4 Credit Hrs.
•	*Structural Analysis and Damage repair II	ABR 220	4 Credit Hrs.
•	*Collision Estimating and Management Practices	ABR 230	4 Credit Hrs.
•	Alignment, Suspension and Steering	ATA 120	4 Credit Hrs.
•	Automotive Electrical	ATA 130	4 Credit Hrs.
•	Automotive Air Conditioning	ATA 180	4 Credit Hrs.
•	Intro to Arc Gas MIG&TIG welding	ATW 112	3 Credit Hrs.
•	MIG welding	ATW 812	3 Credit Hrs.
		TOTAL REQUIRED COURSE CREDIT HOURS	54 Credit Hrs.

Note that the 36 credit hour total of the proposed ABR classes will match the 36 credit hours of the current VBT requirements. This proposed program will eliminate Arc and Gas welding from the current requirement list, and replace it with two more relevant welding courses: Intro to (Arc Gas MIG&TIG) Welding and MIG Welding. This course list also moves the Automotive Suspension and Automotive Electrical classes from electives (currently) to required support courses in order to fulfill the NATEF requirements.

III. Updated Facility

Based upon input from the advisory committee and budgetary concerns, the existing lab can be improved or another area such as the Diesel Lab could be converted to accommodate the new program. If the existing lab area is to be improved, one aspect that was overlooked at the program's inception was an adjacent classroom dedicated to Auto Body instruction. We currently have to share one of three available classrooms with the Auto Service program. This constraint on available classroom space is a concern.

The lighting in the Auto Body lab is poor. By necessity an Auto Body repair lab must have excellent lighting. Additional lighting fixtures or lowering the existing fixtures should be investigated. Also, the lab should be repainted on a yearly basis in order to maintain a clean, modern appearance. Most modern repair facilities have some type of permanent floor sealer in order to reduce floor dust and clean up time, along with giving a bright, clean appearance to the shop. Suggestions on inexpensive sources to perform this floor sealing would be appreciated. Additional concerns that the advisory committee has over the physical facilities should be noted and corrected if possible.

IV. Updated Tools and Equipment

Most of the hand tools have been in use by the Auto Body Department since 1978, and are in need of replacement. While there has been a recent increase (from $0 the last five years to $1200 for 1996-7) in the money available for the repair of tools in the Auto Body budget, thanks to the recent passage of an OCC millage, repair of equipment is a priority in an equipment dependent program. The availability of repair funds in the future is important.

The single most glaring need for our program is a modern unibody repair station, complete with an accurate measuring system capable of documenting the accuracy of the repair. While the cost of investing in a system such as the Chief Classic frame machine and a Genesis II CD- ROM equipped laser measuring system can be considered prohibitive, it is an essential part of any state of the art repair facility.

There are a number of items that would be of benefit to our program, such as Mitchell Ultimate for creating repair estimates. A paint mixing system with a computerized paint mixing and measuring system would also be beneficial to students preparing for a career as a refinish technician. Squeeze type resistance spot welders (STRSW) are becoming popular, and if endorsed by the OEM manufacturers, soon could become the industry standard method to weld outer sheet metal components in the repair industry. If this becomes the norm, OCC should have such welders available for technician training.

Ultimately, OCC must rely upon the advice of the advisory committee to point out our equipment shortcomings (compared to the repair industry standards), and heed those committee recommendations.

V. Actively Involve a Knowledgeable Advisory Committee

The OCC Auto Body program needs the advice and direction of a dedicated advisory committee. We have made a commitment to comprise this committee of an assortment of highly qualified people from various auto body repair related backgrounds, in order to get the greatest possible cross section of industry advice on how to best improve this program.

VI. Articulation Agreements with Area Vocational Schools Defined

In the past, area vocational educators were reluctant to send their students to OCC, mainly because there was a lack of a structured educational environment, in other words: a hobby shop.

Removing the current curriculum, and replacing it with the previously outlined NATEF standardized requirements, would ensure a smooth transition between the OTC curriculum and OCC because of the common course requirements and goals. In fact, articulation agreements are a necessity for NATEF requirements simply because no single secondary technical school can provide the mandated 1100 hours of contact time necessary for completion of the curriculum.

Therefore, it is incumbent upon the post secondary institutions to provide this seamless transition for the students to complete their education necessary for certification. All Auto Body Repair programs must go through this NATEF process, so this is a perfect time to coordinate our programs.

VII. Articulation Agreements with Baccalaureate Programs in Auto Body Repair

Many of the students that are interested in attaining an associates degree from OCC are also interested in furthering their education in either management, business, or education. Toward this end, OCC should explore the possibility of entering into an articulation agreement with an institution such as Ferris State University. Ferris offers a four year Bachelors degree program in Auto Body Repair.

It seems logical that our Auto Body Repair programs should have similar guidelines and curriculum content to allow for a smooth transition from the associate degree level to the baccalaureate level for the benefit of students wishing to continue their education.

VIII. Staff the Program with Qualified and Skilled Professionals

A highly skilled and qualified full time faculty person, a full time vehicle body specialist, and a well staffed tool crib position, are the minimum staffing requirements for a successful program. In addition, qualified adjunct faculty members from both local repair shops and area vocational schools will ensure continuity between day and night courses.

If an auto body repair service program is pursued, an additional staff person should be added to accommodate the increased responsibility of ordering parts, scheduling customers, bookkeeping, and other responsibilities required for this service. A smooth running service program can be difficult to achieve in an educational environment, so an additional staff person would be needed.

This service program is mentioned because, if run correctly, servicing can alleviate many of the economic burdens of running an auto body repair program, while also providing the students with late model collision damaged vehicles for repair. Whether a servicing program should be added, is a topic for discussion the advisory committee should consider.

MISSION
of
OAKLAND COMMUNITY COLLEGE

Oakland Community College provides quality learning opportunities for individuals, communities, and organizations on an accessible, affordable basis.

OAKLAND COMMUNITY COLLEGE PURPOSES

OCC provides quality:

* educational experience that will enable students to transfer to other institutions of higher education.
* occupational and technical learning opportunities that improve students' employability.
* community services, such as cultural, social, and enrichment opportunities for lifelong learning.
* developmental education learning opportunities that prepare students for college-level studies.
* workforce development training and learning opportunities that meet the needs of business and industry.
* general education opportunities that will enable students to learn independently and to develop the skills for personal and career success.

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VEHICLE BODY TECHNOLOGY

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