

# Skyline College

## Automotive Technology

### Program Review

### Executive Summary



### Short Summary of Findings

The NATEF certification process is a detailed process that far exceeds the standard program review. Being nationally certified by NATEF requires the automotive staff to constantly evaluate and update the program. NATEF is structured such that no stone is left unturned. The certification process requires input from advisory boards, members from the local business community, current employers, and former students. Program review enhances this process which is reflected in the productivity, enrollment, and ethnicity statistics provided by the Planning and Research office.

### Three Strengths of the Program

- The automotive staff is dedicated to providing the highest quality of automotive training. At the same time, they pride themselves at being aware of each student's needs and career objectives. Automotive faculty are making extensive use of technology and multi-media resources in their instruction in order to address a diverse student population and different types of student learning styles.
- A strong relationship with industry partners that includes major automotive manufacturers, independently owned repair facilities, mass merchandisers, trade organizations, and community college automotive programs, assures the program will remain a leader in the field of automotive training.
- An excellent working relationship between the automotive department, Business Division, Skyline College administration, district personnel, and the Board of Trustees.

### Three Suggestions for Improvement

- A building that will provide ten additional service bays along with a transmission classroom, teardown lab area, tool room, office, bathrooms, student lockers, and adequate storage.
- Funding to improve and update tooling, electronic test equipment, service equipment, machinery, and the computer network used by automotive staff and students. Future funding should allow the department to replace all faculty and staff lost to retirement over the next few years.
- Marketing support from the college and district to further expand our student population.

#### Faculty Signatures

*Richard T. Escalambre*  
Rick Escalambre

*Jerry Ciruolo*  
Jerry Ciruolo

*Kevin Sullivan*  
Kevin Sullivan

*Paul A. Spokowski*  
Paul Spokowski

*Thomas G. Broxholm*  
Thomas G. Broxholm

*Daniel Ming*  
Dan Ming

Date Submitted: October 2007

Division Dean:

*Margery Meadows*

# SKYLINE COLLEGE PROGRAM REVIEW SELF STUDY

## PART A: Overview of Program

### *1. State the goals/ focus of this program and how the program contributes to the mission and priorities of the College and District.*

The program provides open access to all students and it remains at the leading edge of technology because of its innovative instructional staff. Skyline College Automotive Technology programs offer students a well-equipped, modern facility, a large fleet of late model vehicles, and extensive hands-on training. Domestic and import car manufacturers provide substantial support of the programs offered by Skyline. A generic automotive technology training program as well as a Japanese program, sponsored by Toyota Motor Sales, U.S.A., Inc., are available for entry-level students. In addition, the College offers numerous classes to update knowledge and training for practicing service technicians.

Career opportunities include new car dealerships, independent general repair shops, mass merchandisers, city and county government agencies, gas and electric energy companies, parts counter person, service writer, and teaching automotive technology. The outlook for employment is outstanding because the industry never lacks for quality technicians. In addition, the automotive industry is facing a mass exodus of the baby boomers who are retiring. Employment opportunities in the automotive field are not limited to our local area; students can move their tools to almost anywhere in the world and find employment within a reasonable period of time.

The department provides appropriate professional development opportunities for faculty to improve the relevance and quality of instruction which contributes to program pertinence and cost effectiveness.

### *2. Discuss how this program coordinates, impacts, and/or interacts with other programs in the College.*

- The Automotive Technology Department regularly interacts with other departments at Skyline College. Faculty members serve on a number of college committees that allow for interaction between departments.
- We have a very good working relationship with the Financial Aid Office because they assist our students by helping them purchase their required tools. We also work with DSPS to accommodate individual student's needs.
- The Auto Tech Club a part of the campus by doing "live" work on faculty and student vehicles in order to gain valuable hands-on experience.
- Because the Automotive Technology program offers an AS Degree we need to interact with academic departments and the counseling office to assure we are meeting the needs of our students.

### *3. If the program utilizes advisory boards and/or professional organizations, describe their roles.*

The program conducts four advisory board meeting per year; two meetings each are held for the Toyota Technical Education Network (T-TEN) and Generic Programs. The department has cooperative

agreements with Toyota, Foundation for California Community Colleges, and Machinist Local 1414 Joint Apprenticeship Counsel (JAC). We also work closely with the Automotive Service Councils of California (ASCCA). Input from each of these organizations is integrated into the program as needed.

The Advisory Board assists the program in forecasting future trends in the field as well as evaluating present trends. They make recommendations on recruitment efforts, employment trends, equipment, etc. The Skyline Automotive board is very active and continues to provide information and guidance in the growth and success of the program.

**4. *Explain how this program meets the needs of our diverse community.***

The program is constantly evaluating course offerings and course content to assure they meet the needs of the automotive community. The program offers entry level training, in-service training, specialized training related to the State of California Smog Check Program, and consumer “do-it-yourself” courses. Classes are available in the mornings, afternoons, evenings, and weekends in order to meet the needs of our automotive students and industry.

Students today are also much more visual and therefore the staff has modified their teaching techniques to include PowerPoint, video taping of lectures and on-car demonstrations, and more web based assignments. The hands-on labs are an important component because they allow the students to apply what they are learning and instructors can more effectively evaluate each student’s level of learning.

**5. *If the program has completed a previous self-study, evaluate the progress made toward previous goals.***

Since 1989, the Automotive Technology Department has used a Certification Program which is under the Board of Trustees of the National Automotive Technicians Education Foundation (NATEF). Every five years the Automotive Technology program must comply with the evaluation procedure, meet established standards, and adhere to the policies in the NATEF document. The most recent certification process was completed December 2005 and it will remain in place until December 2010. Each certification team consists of an Evaluation Team Leader (ETL) and three ASE Master Certified Technicians. The process takes approximately two days to complete and is done on site.

## **PART B: Curriculum**

**1. *Describe how the courses offered in the program meet the needs of the discipline(s) and the students.***

The Automotive Technology Program serves the needs of our students and the community by offering:

- a full-time three-year “Generic” program,
- a full-time two-year Toyota Technical Education Network (T-TEN) program,
- an evening in-service/apprenticeship program,
- a specialized Smog Check training program which has trained over 5,000 technicians on weekends during the last eight years,
- a consumer-oriented program for the do-it-yourselfers,
- an automotive fundamentals course for individuals wanting to explore the operation of the automobile, the automotive industry, and employment opportunities.

The most important factor for the staff is the success and well being of the automotive student. Training is job oriented, current, and appropriate for the diverse group in the Automotive Technology programs.

The curriculum is complete and nationally certified by NATEF. The program utilizes up-to-date materials, state-of-the-art facility and equipment, and a large fleet of training vehicles that evokes enthusiasm, interest, and pride in the program.

**2. *State how the program has remained current in the discipline(s).***

The Automotive staff, with the assistance of our Advisories Boards, monitor trends in the automotive field and constantly review course content and make revisions as changes occur.

NATEF requires that instructors hold current ASE certification in the automobile areas they teach and which are being evaluated for program certification. Faculty members review a variety of technical materials required to maintain their competency. NATEF requires instructors to attend a minimum of 20 hours of automotive technical update training each year.

**3. *If the student population has changed, state how the program is addressing these changes.***

What has changed is the level of automotive knowledge of students entering the program. Students now entering the program have a lower mechanical aptitude and less knowledge of the automobile. Students today are more visual--this means they need to see it and touch it. Therefore the staff has modified their teaching techniques to include PowerPoint, video taping of lectures and on-car demonstrations, and more web based assignments. The faculty has reduced the depth of the course content to allow for additional hands-on training which allows specific tasks to be repeated multiple times by each student.

Enrollment by gender is addressed each year when the department hosts a TECH PREP high school visitation and barbeque. Each high school is encouraged to bring both male and female students. The department constantly encourages women to enroll in the program and this semester we have hired our first female instructor.

Enrollment by ethnicity is reflective of the trend in the automotive industry. In the bay area, the repair industry is comprised of a large Asian and Hispanic population. In contrast and in line with our enrollment by ethnicity the automotive repair industry has a very low population of African American workers. To date, we have not identified a reason for this trend. We will continue to provide access and encourage all interested students, regardless of ethnicity, to enroll in the Automotive Technology program.

**4. *All courses in this program should be reviewed and, if appropriate, modified every six years. If this has not occurred, please list the courses and explain.***

The general outline of course topics does not change, what changes is the content under each topic. This is driven by the rapidly changing technology and complexity of the automotive industry. The automotive staff is constantly reviewing and analyzing course content to assure that it meets the needs of our student body and that it addresses NATEF standards. This is an ongoing process.

**5. *If external accreditation or certification is required, please state the certifying agency and status of the program.***

Since 1989, the Automotive Technology Department has used a Certification Program which is under the Board of Trustees of the National Automotive Technicians Education Foundation (NATEF). The Board of the National Institute for Automotive Service Excellence (ASE) is the body responsible for the Automobile Technician Training Certification Program. ASE grants certification to programs that comply with the evaluation procedure, meet established standards, and adhere to the policies in this document. The most recent certification process was completed December 2005 and it will remain in place until December 2010.

**6. *Discuss plans for future review and program modification.***

The most recent NATEF certification process was completed December 2005 and will remain in place until December 2010. At that time, the process will be repeated and modified to meet the most current NATEF standards ([www.natef.org](http://www.natef.org)).

The Advisory Board assists the program in forecasting future trends in the field as well as evaluating present trends. They make recommendations on recruitment efforts, etc. The Skyline Automotive Board is very active and continues to provide information and guidance in the growth and success of the program.

Our program is working to develop a Service Orientation program that allows students to develop the basic skills necessary to gain entry level employment in the automotive industry without enrolling in one of our full-time programs. The Service Orientation program has opened the door for a new partnership with PeninsulaWorks ([www.peninsulaworks.org](http://www.peninsulaworks.org)). It will provide the basic training and employment opportunities for San Mateo county residents looking to enter the automotive workforce. This program should begin by the spring or summer of 2008. It will hopefully be another rung of the career ladder and will encourage students to return to Skyline College to enhance their career opportunities.

## **PART C: Faculty and Staff**

**1. *List major development activities completed by faculty and staff in this program in the last six years and state what development is needed or proposed by faculty in this program.***

The Skyline College Automotive Faculty:

- author automotive textbooks related to their field of expertise,
- present workshops for instructors in the United States and Canada,
- conduct specialized workshops for technicians from across the country,
- volunteer to be on an advisory board for the State of California,
- develop nationally recognized Websites for instructors and technicians,
- attend a variety of automotive related conferences,
- worked with the North American Council of Automotive Teachers (NACAT) to host a national conference,
- host conferences for the California Automotive Teachers,
- work with the Automotive Service Councils of California (ASCC) by hosting periodic meetings,

- work with automotive equipment companies to beta test new equipment,
  - work with tool vendors to design a tool purchasing program for our students at a considerable discount.
2. *Describe the orientation process for new faculty and staff (include student workers such as tutors and aides).*

The automotive program is fortunate to have an overall program coordinator, an evening in-service coordinator, and a Toyota (T-TEN) coordinator. With a support staff of this nature new instructors are given the support needed to begin teaching in our program. In addition, the automotive staff has many years of teaching experience and is always willing to help a new instructor. Due to budget constraints and the fact that the department has three instructional aides, the department has not had a student worker in many years.

3. *If recruitment of new and/or diverse faculty is needed, suggest recruitment techniques.*

The automotive department is constantly “identifying and grooming” potential instructors. In a number of cases, part-time and full time instructors are graduates of our program. For the fall 2007 semester the program has hired a recent graduate, and mother of two children, to teach an automotive fundamentals course and to work on curriculum development through a VTEA grant.

## **PART D: Facilities, Equipment, Materials and Maintenance**

1. *Discuss the effectiveness of the facilities, equipment, equipment maintenance, and materials for the program to meet its goals and focus. Include if they impact success and if they are accessible to all students.*

The program is one of the finest equipped in the State of California. The facility is operated near maximum capacity. The limitations of the current facility are:

- lack of inside lab space,
- a very crowded working environment in Building 8 when the transmission, engine performance, and electrical classes are in need of lab space at the same time,
- availability of properly equipped work stalls, and
- lack of adequate dry and secure storage.

2. *List projected needs.*

Our most pressing need is currently being addressed with the design of a new transmission building. The program will gain ten additional service bays, a transmission classroom and an adjoining lab. This will enhance the program’s ability to offer more work spaces that are equipped with hoists, efficient lighting, and located in a dry, safe and comfortable environment. The new building will provide much needed lab space that will be available to all classes. It is being designed to meet our storage needs and at the same time will allow us to remove the shipping containers that are not esthetically pleasing and taking up valuable outside space.

**3. Describe the use of technology in the program and discuss if technology is current and comparable to other college and business or industry.**

The program tries to remain at the leading edge of technology. This is because the program offers a state-of-the-art facility with the latest equipment, a large fleet of training vehicles, a student computer/resource library, and up-to-date classrooms with the latest presentation equipment. Skyline College's program is well ahead of most community college automotive programs and many industry businesses. It is a known fact in the automotive training community that Skyline College has one of the top three programs in the State of California.

**4. If appropriate, describe the support the program receives from industry. If the support is not adequate, what is necessary to improve that support?**

Industry support of the program is more than adequate. The major support the program receives are late model vehicles, specialized tooling, books and manuals, and test specialized equipment. Support also comes from industry in the form of vehicle components and technical training classes. The Automotive Technology program could benefit substantially from college-supported marketing efforts about the programs and services we offer to the community. The Automotive staff would be interested in working with the Public Relations Office to promote our programs and increase our visibility.

## **PART E: Budget Request**

**1. What resources (staff, facilities, equipment and/or supplies) will be needed in the next six years?**

- The program will experience at the end of the 2008/09 school year, the retirement of two full-time faculty members and one full-time instructional aide. At the end of the 2006/07 school year, one full-time instructor did not return from a leave of absence and we have lost this position. To continue at the current level and to have the opportunity to grow, we will need to replace these individuals.
- The supply budget will need to be increased to meet the rising costs of supplies, laundry, and gasoline for our vehicles.
- Additional equipment budget to address the changing technology of new model vehicles.

**2. If appropriate, discuss methods the program could share resources with other programs in the College and District.**

The most important thing the program can share is its ability to retain students. This is because the program places the students ahead of everything else. Each student is made to feel that they are important. This is evident at our annual winter luncheon and end-of-the year graduation/awards banquet.

We share our facility with the Business Division for annual Tech Prep field trips with local high schools and ROP students. Students come to the college for career exploration, learn about the benefits of Tech Prep, receive hands-on demonstrations and the fun-filled day culminates with a barbeque.

## Skyline College Program Review Worksheet for Program Services and Performance

### *Weekly Student Contact Hours – WSCH*

Report the 3 previous **Fall** semesters with the most recent on the right.

Year	2004	2005	2006
WSCH	4994	4251	4768

**Please comment on program enrollment and expected trends.**

We experienced a decline in enrollment from 2004 through 2005 for two reasons:

- 1) During the 2005/06 school year we were undergoing major construction/remodeling and we remained within our existing facility the entire time. For the spring 2006 semester we altered our entire program schedule by starting three weeks prior to the rest of the campus. We also skipped spring break so that we could vacate early and then the contractor could take possession of the building. We reduced our summer 2006 course offering to the bare minimum. We did not settle into a “normal” teaching environment until the spring 2007 semester.
- 2) We have experienced a loss of apprentices in our evening program. Approximately forty apprentices graduated over a two-year period and they were not replaced because the industry has moved away from union supported shops. There are two corporations, SONIC and AUTO NATION, who have purchased a large number of dealerships who supported union shops and apprentice training.

We have been marketing our program trying to find students to fill the seats of our former apprentices. The increase in WSCH from 2005 to 2006 reflects the fact that we are back on track and meeting our objectives.

### *FTE and WSCH/FTE (LOAD)*

**Report the previous 3 Fall semesters with the most recent on the right**

	2004	2005	2006
FTE	9.41	9.32	9.34
WSCH/FTE	531	456	510

**Please comment on the comparison of this program to College trends.**

The trend from 2004 through 2005 varied for two reasons:

- 1) The automotive program rides the unemployment wave along with the rest of the college. As unemployment drops, so does our enrollment.
- 2) The entire campus was impacted by the major construction from 2005 through 2006.

## ***Retention and Success***

Report data on program retention and success rate with the most recent on the right. Have these rates broken down by student types (i.e. age, ethnicity, gender)

	<b>2004</b>	<b>2005</b>	<b>2006</b>
<b>Retention</b>	97%	97%	86%
<b>Success</b>	91%	88%	84%

*Please comment on the programs success and retention rate. Include factors that affect the rates and how college services are used to provide multiple avenues for student success.*

- We believe the 2006 Retention/Success rates of 86 percent and 84 percent are abnormal and we are not concerned at this time, but we will continue to track these rates and make changes as needed.
- The automotive staff prides itself on being flexible and adaptable to student needs and industry trends. By following this plan, we are better able to serve our students.
- The professional and caring attitudes of our instructors is an attribute that encourages students to work hard at achieving their respective career goals.
- We try to make all students feel welcome in our program, this personal touch goes a long way when it comes to program and student success.
- Our instructors and program coordinators are available to counsel students on an individual basis.



# Program Review

## Course Outline & Prerequisite Checklist

Discipline: Automotive Technology

Semester: Fall 2007

COURSE OUTLINE & PREREQUISITE CHECKLIST							
1 Prefix & Number	2 Title	3 Review Date	4 Transfer		5 G.E.	6 Prerequisites, Corequisites, Recommendations	7 Validated
			CSU	UC & CSU			
706	Toyota Engines	9/2007	✓			This course requires admission by special application.	✓
707	Toyota Transmissions	9/2007	✓			This course requires admission by special application.	✓
708	Automotive Principles Lab	9/2007	✓				✓
710	Fundamentals Of Auto Mechanics	9/2007	✓				✓
713	Automotive Electricity/Electronics	9/2007	✓			This course requires admission by special application.	✓
716	Automotive Cooling/Heating & Air Conditioning	9/2007	✓			This course requires admission by special application.	✓
721	Automotive Chassis Technology	9/2007	✓			This course requires admission by special application.	✓
725	Toyota Brakes & Chassis	9/2007	✓			This course requires admission by special application.	✓
727	Toyota Air Conditioning	9/2007	✓			This course requires admission by special application.	✓
728	Toyota Advanced Electrical	9/2007	✓			This course requires admission by special application.	✓
729	Toyota Engine Performance	9/2007	✓			This course requires admission by special application.	✓
730	Japanese Basic Electrical	9/2007	✓			This course requires admission by special application.	✓
734	Automotive Engine Technology	9/2007	✓			This course requires admission by special application.	✓
735	Automotive Drive Train Technology	9/2007	✓			This course requires admission by special application.	✓
751	Automotive Engine Performance Technology	9/2007	✓			This course requires admission by special application.	✓
752	Automotive Advanced Engine Performance Technology	9/2007	✓			This course requires admission by special application.	✓
754/854	High Performance Engine I	9/2007	✓			Recommended: AUTO 754 -Professional experience. AUTO 854 - Auto Apprentice	✓
755/855	High Performance Engine II	9/2007	✓			Recommended: AUTO 755 -Professional experience. AUTO 855 - Auto Apprentice	✓
758/858	Automotive Computer Controls	9/2007	✓			Recommended: AUTO 758 -Professional experience. AUTO 858 - Auto Apprentice	✓
761/861	Automotive Brakes II	9/2007	✓			Recommended: AUTO 761 -Professional experience. AUTO 861 - Auto Apprentice	✓
764/864	Emissions Control Systems I	9/2007	✓			Recommended: AUTO 764 -Professional experience. AUTO 864 -- Auto Apprentice	✓
765/865	Ignition Systems I	9/2007	✓			Recommended: AUTO 765 -Professional experience. AUTO 865 - Auto Apprentice	✓

## COURSE OUTLINE & PREREQUISITE CHECKLIST

1	2	3	4		5	6	7
Prefix & Number	Title	Review Date	Transfer		G.E.	Prerequisites, Corequisites, Recommendations	Validated
			CSU	UC & CSU			
768/868	On-Board Diagnostics II	9/2007	✓			Recommended: AUTO 768 -Professional experience. AUTO 868 - Auto Apprentice	✓
769/832	Head and Valve Services	9/2007	✓			Recommended: AUTO 769 -Professional experience. AUTO 832 - Auto Apprentice	✓
771/846	Automotive Electrical II	9/2007	✓			Recommended: AUTO 771 -Professional experience. AUTO 846 - Auto Apprentice	✓
772/842	Clean Air Car I	9/2007	✓			Recommended: AUTO 772 -Professional experience. AUTO 842 - Auto Apprentice	✓
773/840	Automotive Electrical I	9/2007	✓			Recommended: AUTO 773 -Professional experience. AUTO 840 - Auto Apprentice	✓
775/848	Oscilloscopes & Exhaust Gas Analyzers	9/2007	✓			Recommended: AUTO 775 -Professional experience. AUTO 848 - Auto Apprentice	✓
777/832	Automatic Transmissions I	9/2007	✓			Recommended: AUTO 777 -Professional experience. AUTO 832 - Auto Apprentice	✓
778/878	Manual Transmissions I	9/2007	✓			Recommended: AUTO 778 -Professional experience. AUTO 878 - Auto Apprentice	✓
779/823	Block Services	9/2007	✓			Recommended: AUTO 779 -Professional experience. AUTO 823 - Auto Apprentice	✓
781/881	Automotive Electrical III	9/2007	✓			Recommended: AUTO 781 -Professional experience. AUTO 881 - Auto Apprentice	✓
786/860	Automotive Air Conditioning	9/2007	✓			Recommended: AUTO 786 -Professional experience. AUTO 860 - Auto Apprentice	✓
787/887	Automatic Transmissions II	9/2007	✓			Recommended: AUTO 787 -Professional experience. AUTO 887 - Auto Apprentice	✓
790/850	Automotive Brakes I	9/2007	✓			Recommended: AUTO 790 -Professional experience. AUTO 850 - Auto Apprentice	✓
791/852	Automotive Chassis II	9/2007	✓			Recommended: AUTO 791 -Professional experience. AUTO 852 - Auto Apprentice	✓
792/853	Automotive Chassis I	9/2007	✓			Recommended: AUTO 792 -Professional experience. AUTO 853 - Auto Apprentice	✓
793/893	Engine Performance	9/2007	✓			Recommended: AUTO 793 -Professional experience. AUTO 893 - Auto Apprentice	✓
665	Selected Topics in Automotive Technology	9/2007	✓				✓

*Faculty Signatures*

*Richard T. Escalambre*  
Rick Escalambre

*Jerry C. Ciofalo*  
Jerry Ciofalo

*Kevin Sullivan*  
Kevin Sullivan

*Paul A. Spokowski*  
Paul Spokowski

*Thomas G. Broxholm*  
Thomas G. Broxholm

*Daniel Ming*  
Dan Ming

Date Submitted: October 2007

Division Dean: *Margery Meadows*