

SAM[®] School of Automotive Machinists

1911 ANTOINE DRIVE • HOUSTON, TEXAS

2011-2012 SCHOOL CATALOG VOLUME 6 EFFECTIVE 1/1/12



SAM STUDENTS PROJECT ON DYNO

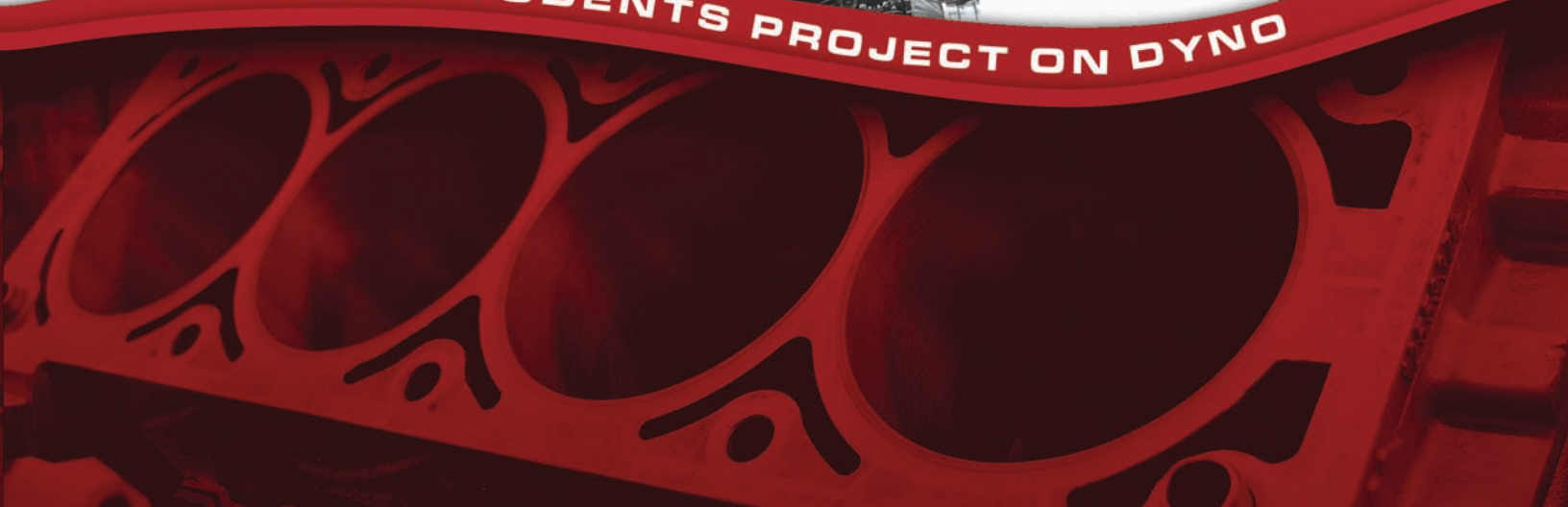


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FACILITIES

The School of Automotive Machinists has 16,000 square feet of floor space which includes spacious air-conditioned classrooms, teaching lab, educational resource center, student lounge, faculty and administrative offices. The classrooms are designed and equipped for academic instruction within the faculty-student ratio for occupational training as specified by state regulatory authorities.

The lab equipment is the same as found in a typical industry working environment (see Equipment List Addendum). The lab provides an area for practical demonstration and hands-on experience to reinforce the academic theory.

A student lounge is available for social contact during class breaks. Vending machines for light refreshments are located in the student lounge area.

An educational resource center is provided for use by both students and staff.

Parking is available at the School's campus and additional parking is adjacent to the School.

APPROVALS & MEMBERSHIPS

The School of Automotive Machinists is approved by, or holds memberships in, the following organizations and associations:

APPROVALS

1. Accrediting Commission of Career Schools and Colleges (ACCSC)
2. United States Department of Education
3. Approved to train VA eligible persons through the Texas Veterans Commission, Austin, Texas
4. Texas Workforce Commission, Career Schools and Colleges (TWA-CSC)
5. Texas Department of Assistive Rehabilitative Services (DARS)
6. Texas Workforce Commission, Workforce Investment Act (TWC-WIA)

MEMBERSHIPS

1. Automotive Engine Rebuilders Association (AERA)
2. Texas Association of Student Financial Aid Administrators (TASFAA)
3. Automotive Parts & Services Association (APSA)
4. Specialty Equipment Manufacturing Association (SEMA)
5. Career Colleges and Schools of Texas (CCST)

ADVISING

All students are encouraged to seek assistance from the Director or other appropriate staff members concerning vocational decisions or any other problems that affect the student's attendance or grades in the School.

ORIENTATION

The School provides a student orientation program for all new students. The program serves to acquaint the student with the School's policies and procedures, the faculty, course objectives, curriculum and other services offered by the School.

HOUSING

The School does not maintain a dormitory facility. However, students desiring housing accommodations should contact the admissions department for information.

TRANSCRIPTS

The School requires official transcripts or diploma from high schools and post secondary schools attended. A copy of the official GED certificate or test score is required.

The information in this catalog is true and correct to the best of my knowledge.

Judson Massingill
 Founder/Director of Education

HISTORY

The School of Automotive Machinists was the concept of Judson Massingill who had for approximately nine years trained automotive machinists for his machine shop (Northwest Engine & Supply). During this period of time many well-trained employees departed to open their own automotive machine shops. The loss of these highly skilled, well trained machinists slowed down the general production of the machine shop. To help solve this problem, Mr. Massingill began to take on students as apprentices; teaching them the science and skill of the automotive machinist, which led to the founding of the School in 1985. The School of Automotive Machinists was developed to fill a need and a void in the automotive industry. The initial two courses received state approval in 1989, became accredited by the Accrediting Commission of Career Schools and Colleges (ACCSC) and approved by the Department of Education in 1991. In July of 2004, final approval was received for a third course and in 2006, the School received approval for its fourth program which is a combination of the Block and Head Machining programs.

MM&L Corporation owns the School of Automotive Machinists and is responsible for all activities of the School.

We have established a good working relationship with many nationally known standard and high performance industry shops. Our graduates have been placed locally and nationwide in both public and private automotive machine shops.

PHILOSOPHY & PURPOSE

The School of Automotive Machinists (SAM) believes strongly in the education of the professional automotive machinist. The curriculum is structured such that it provides the student with training to meet the demands of today's work place plus job placement assistance to successfully enter the world of work. The School strives to develop and offer programs so that each student can achieve his/her goal of maximum learning in the required time while maintaining quality educational standards. Therefore, skill and knowledge should lead to job placement, satisfaction, and advancement.

SAM focuses on the values of positive attitudes, ethical conduct, and proper behavior at the workplace and in relation to employers, co-workers, and the public. The purpose of the School of Automotive Machinists is to offer professional instruction that will enable the student to develop his/her educational potential and increase his/her contribution to society.

EDUCATIONAL OBJECTIVES

In order to accomplish this philosophy and purpose, the School of Automotive Machinists has established the following primary educational objectives:

1. To offer training and instruction in automotive technology at a superior level.
2. To provide an opportunity for a student to achieve an entry level skilled trade in the automotive field.
3. To offer an education that will enrich the student's personal life and prepare him/her for better citizenship, as well as, increase his/her employment potential.

EDUCATIONAL RESOURCE CENTER

The School has established an Educational Resource Center consisting of periodicals, books, and video-cassette software to supplement and to assist in the teaching of its programs. These resources are available to students seeking other material to support their curriculum.

JOB PLACEMENT ASSISTANCE

SAM will assist graduates and students to locate suitable employment. The School does not guarantee employment, but stands ready to help in the job search. With the student's consent, information on the student's demonstrated performance will be made available to prospective employers and to students upon request without charge.

STUDENT ACTIVITIES

The School of Automotive Machinists does not maintain a regularly planned student activities calendar. The School does, from time to time, arrange for field trips, seminars, and other special activities that they feel are supportive to the course of study as well as being socially acceptable and entertaining to the student body. Examples of such activities include tours of local professional race team shops, seminars featuring performance and race engine builders, technical speakers from parts and equipment manufacturers, and tours of working machine shops.

FINANCIAL ASSISTANCE

Financial aid programs consisting of grants, loans or private financing are available. Most students can qualify for some form of assistance. Contact the financial aid office for qualifications and details.

SUPPLEMENTAL INCOME

The School of Automotive Machinists will assist in locating positions and placing students in full or part time jobs, while attending School, if desired.

SCHOOL CALENDAR AND HOURS

School holidays will be New Year's Holiday, Spring Break, Good Friday, Memorial Day, Independence Day/Summer Break, Labor Day, Thanksgiving, and Winter Holiday. See Supplement A for day school classes and night school classes for program entrance and ending dates.

CLASS HOURS**DAY SCHOOL**

Instruction is scheduled for 4.5 hours per day, Monday-Friday, for 22.5 clock hours per week, from 8:00 a.m. to 12:30 p.m.; afternoon class from 1:30 p.m. to 6:00 p.m.; a 15-minute break will be given at 9:55 a.m. and 3:25 p.m. Special class sessions may be scheduled.

NIGHT SCHOOL (to be determined)

Class instruction is scheduled for 4 hours per evening, Monday-Thursday for 16 clock hours per week, from 6:00 p.m. to 10:00 p.m.; a 15-minute break will be given at 7:55 p.m. Special class sessions may be scheduled.

OFFICE HOURS

The School business office shall be open Monday through Thursday from 9:00 a.m. to 6:00 p.m. (6:30 p.m. if Night Class scheduled) and on Friday from 9:00 a.m. to 5:00 p.m.

TEXTBOOKS AND SUPPLIES

The cost of textbooks, workbooks, two work shirts with identifying School name, safety glasses, and tool tags are included in the tuition.

TOOLS AND SUPPLIES

All tools necessary for training are supplied. It is recommended that the student purchase a dial caliper tool at approximately \$75.00. This caliper is used throughout the program and will be used when the student graduates and obtains employment in the occupational field.

SCHOOL PAYMENT PLANS

The School accepts tuition wholly before entry, or offers weekly or monthly payment plans to meet the student's needs. Method of payment will be arranged prior to or on the day of entry.

COLLECTION OF DELINQUENT FEES AND PAYMENTS

The student who terminates with tuition or other fees due the School are requested to make arrangements for payment at the time of termination. The School will attempt to secure payment within one month. Should the amount due remain unpaid for a period of 30 days after the student leaves the School, the account will be submitted to a collection agency.

WITHDRAWAL FROM SCHOOL

Any student wishing to withdraw from the School should contact the Education Director. Failure to withdraw properly may result in the assignment of failing grades that appear on the student's permanent record. When withdrawing, the student should complete a withdrawal form. All loaned books and materials must be returned in satisfactory condition or the student will be charged for their replacement.

MINIMUM CANCELLATION POLICY

A full refund will be made to any student:

1. Who cancels the enrollment contract within 72 hours (until midnight of the third day excluding Saturdays, Sundays and legal holidays) after the enrollment contract is signed by the prospective student.
2. Whose enrollment was procured as a result of any misrepresentation in advertising, promotional materials of the School or misrepresentations by the owner or representatives of the School.
3. An applicant rejected by the School is entitled to a refund of all monies paid.
4. An applicant has the right to cancel this contract if he/she was recruited by a door-to-door salesman.
5. The student who has not visited the School facility prior to enrollment will have the opportunity to withdraw without a penalty within three days following either attendance at a regularly scheduled orientation or following a tour of the School facilities and inspection of equipment.

REFUND POLICY

1. Refund computations will be based on scheduled clock hours of class attendance through the last date of attendance. Leaves of absence, suspensions, and School holidays will not be counted as part of the scheduled class attendance.
2. Refunds for resident programs and synchronous distance education courses or programs will be based on the period of enrollment computed on the basis of course or program time;
3. The effective date of termination for refund purposes in residence programs and synchronous distance education courses or programs will be the earliest of the following:

- (a) The last date of attendance, if the student is terminated by the school or college;
 - (b) The date of receipt of written notice of withdrawal from the student; or
 - (c) 10 school days following the last date of attendance;
4. If tuition and fees are collected in advance of entrance, and if, after expiration of the 72-hour cancellation privilege, the student does not enter the residence career school or college, not more than \$100 shall be retained by the school or college;
 5. For the student who enters a residence program or a synchronous distance education course and who withdraws or is otherwise terminated, the school or college may retain not more than \$100 of any administrative fees charged and the minimum refund of the remaining tuition and fees will be the pro rata portion of tuition, fees, and other charges that the number of hours remaining in the portion of the course or program for which the student has been charged after the effective date of termination bears to the total number of hours in the portion of the course or program for which the student has been charged, except that a student may not collect a refund if the student has completed 75 percent or more of the total number of hours in the portion of the program for which the student has been charged on the effective date of termination;
 6. Refunds of items of extra expense to the student, such as instructional supplies, books, student activities, laboratory fees, service charges, rentals, deposits, and all other such ancillary miscellaneous charges, where these items are separately stated and shown in the data furnished the student before enrollment, will be made in a reasonable manner acceptable to the commission;
 7. Refunds based on enrollment in residence and synchronous distance education courses or programs be totally consummated within 60 days after the effective date of termination;
 8. Refunds for asynchronous distance education courses or programs will be computed on the basis of the number of lessons in the course or program;
 9. The effective date of termination for refund purposes in asynchronous distance education courses or programs will be the earliest of the following:
 - (a) The date of notification to the student if the student is terminated;
 - (b) The date of receipt of written notice of withdrawal from the student; or
 - (c) The end of the third calendar month following the month in which the student's last lesson assignment was received unless notification has been received from the student that the student wishes to remain enrolled;
 10. If tuition and fees are collected before any courses for a program have been completed, and if, after expiration of the 72-hour cancellation privilege, the student fails to begin the program, not more than \$50 shall be retained by the school or college;

3 GENERAL INFORMATION



Flowbench instruction



Degreeing a camshaft



Students setting valve lash

11. In cases of termination or withdrawal after the student has begun the asynchronous distance education course or program, the school or college may retain \$50 of tuition and fees, and the minimum refund policy must provide that the student will be refunded the pro rata portion of the remaining tuition, fees, and other charges that the number of courses completed and serviced by the school or college bears to the total number of courses in the program; and

12. Refunds based on enrollment in asynchronous distance education schools or colleges will be totally consummated within 60 days after the effective date of termination.

(a) A career school or college shall record a grade of "incomplete" for a student who withdraws during the portion of a course or program for which the student is not eligible to collect a refund under Subsection (b)(4) if the student requests the grade at the time the student withdraws and the student withdraws for an appropriate reason unrelated to the student's academic status. A student who receives a grade of incomplete may re-enroll in the course or program during the 12-month period following the date the student withdraws and complete those incomplete subjects without payment of additional tuition for that portion of the course or program.

(b) A program that is 40 hours or less of course time, or a seminar or workshop, is exempt from the 72-hour rule provided by Subsection (a). The career school or college shall maintain a policy for the refund of the unused portion of tuition, fees, and other charges in the event the student fails to enter the program or withdraws or is discontinued from the program at any time before completion of the program as provided by this section. A policy must provide that:

- (1) Refunds are based on the period of enrollment computed on the basis of course or program time;
- (2) The effective date of termination for refund purposes is the earlier of:
 - (i) The last date of attendance; or
 - (ii) The date the school or college receives written notice from the student that the student is withdrawing from the class; and

(3) The student will be refunded the pro rata portion of tuition, fees, and other charges that the number of hours remaining in the portion of the program for which the student has been charged after the effective date of termination bears to the total number of hours in the portion of the program for which the student has been charged.

13. If this Contract is sold, assigned, or transferred by the School of Automotive Machinists with or without recourse, the above refund policy will continue to apply.

14. REFUND POLICY FOR STUDENTS CALLED TO ACTIVE MILITARY SERVICE

A student of the School or college who withdraws from the School or college as a result of the student being called to active duty in a military service of the United States or the Texas National Guard may elect one of the following options for each program in which the student is enrolled:

- (a) if tuition and fees are collected in advance of the withdrawal, a pro rata refund of any tuition, fees, or other charges paid by the student for the program and a cancellation of any unpaid tuition, fees, or other charges owed by the student for the portion of the program the student does not complete following withdrawal;
- (b) a grade of incomplete with the designation "withdrawn-military" for the courses in the program, other than courses for which the student has previously received a grade on the student's transcript, and the right to re-enroll in the program, or a substantially equivalent program if that program is no longer available, not later than the first anniversary of the date the student is discharged from active military duty without payment of additional tuition, fees, or other charges for the program other than any previously unpaid balance of the original tuition, fees, and charges for books for the program; or
- (c) the assignment of an appropriate final grade or credit for the courses in the program, but only if the instructor or instructors of the program determine that the student has:
 - (1) satisfactorily completed at least 90 percent of the required coursework for the program; and

(2) demonstrated sufficient mastery of the program material to receive credit for completing the program.

15. See Supplement B for Return of Title IV Funds Policy.

SEMINARS

Taking the Mystery Out of CAM Degreeing and Valve Timing (non-credit)

Attendees will be introduced to CAM Pro Plus, a software and sensor package for measuring and analyzing motion profiles. Along with looking at lobe profiles, duration, lobe separation, centerlines and lift can be identified. The effects of varied CAM timing events and their relationship to engine performance will be thoroughly explored. See Supplement A for more details.

ADMISSION POLICIES

The School of Automotive Machinists is an equal opportunity School and is dedicated to a policy of non-discrimination in employment and training. Prospective students will not be denied admission on the basis of race, color, national origin, sex, religion, handicap, age or veteran status (except where age, sex, or handicap constitute a bona fide occupational qualification necessary to proper and efficient administration).

ADMISSION/APPLICATION PROCEDURES

Persons seeking admission should apply in person, e-mail to admissions@samracing.com, or by writing to the Admissions Department, The School of Automotive Machinists, 1911 Antoine, Houston, TX 77055-1803. Prior to acceptance for enrollment, each prospective student must:

1. Submit a completed application form
2. Submit a registration fee of \$100
3. Satisfactorily complete all tests required
4. Tour School facilities

The student will receive a copy of the completed application forms. The tests will become the property of the School and will not be returned to the applicant. The School will notify the applicant of action taken on his/her admission request.

ADMISSION/ENROLLMENT REQUIREMENTS

The student must have a high School diploma or a General Education Development Test (GED) and must be at least 17 years of age, (under 18 requires parental consent). The School uses the Bennett Mechanical Comprehension Test with a passing score of 37, which is the mean score for a 12th grade student, as an entrance exam. A student that fails the test shall wait a minimum of 24 hours before the retake.

RE-ADMISSION/APEAL

When a student has extraordinary circumstances, an appeal may be submitted in writing to the Director. These circumstances will be considered in making a determination on satisfactory progress. The student's written appeal must document the circumstances and reason(s) the appeal should be considered. The Director will consider each case on its own individual merit and a decision shall be placed in the student's file. These standards of satisfactory progress are designed to give all students a reasonable opportunity to progress and obtain their educational objectives.

In order for a student to be considered to be making satisfactory progress, he/she must meet the attendance policy below.

TARDINESS

A student not present at the time of checking roll will be counted an hour absent. Four tardies per grading period will result in one (1) full day of absence; and for evening, three tardies per grading period.

ATTENDANCE

Roll is checked each class period, and attendance is recorded by the instructor. Attendance is entered daily onto the master attendance record of each student.

Arriving to a class late or leaving early will result in an hour's absence recorded for that class period. School holidays or leaves are not considered as days of absence. Under NO circumstances is an absence considered excused. Termination from training, for reasons of unsatisfactory attendance will occur if:

1. A student is absent in excess of more than 10 consecutive School days.
2. A student cannot miss more than 20% of the total course time hours in a program.
3. A student is absent in excess of any number of days if the student fails to return as scheduled from an approved leave of absence.

A student's overall record of attendance will be evaluated in determining his/her progress during training. If the attendance of the student is interfering with academic progress, a conference with the Director may be required to evaluate the continuance of the student in the program. A student that has been terminated for excessive absences will not be allowed to enter for a third time. The student whose enrollments are terminated for violation of the attendance policy may not re-enter before the start of the next grading period (see student evaluation). This does not circumvent the approved refund policy (see Appeal/Re-admission). The following symbols are used:

A = ABSENT G = GRADUATED
 P = PRESENT D = DROP
 X = TERMINATED T = TARDY
 C = CANCEL S = SPECIAL (make-up)
 H = HOLIDAY F = FIELD TRIP
 L = LEAVE OF ABSENCE

SUSPENSION

A student may be suspended due to violation of Causes of Termination, Attendance, or for other performance or behavior problems. Such suspensions will be for a specified period after which a student may apply for re-enrollment (see Appeal/Re-admission).



Machinists Math and Measurement course



Checking chamber volume

CREDIT FOR PREVIOUS EDUCATION OR TRAINING EXPERIENCE

A student or sponsoring agency may request transfer credit or request placement testing credit for any course in a program. Such requests must occur prior to the first week of attendance. The request must be made to the Director of Education. Previous work experience and/or education must satisfactorily attest to the potential for course credit. Credit received through transfer or placement testing will decrease program tuition according to the number or course transfer or test approvals. Credit hours which are granted from transfer or placement testing do not count toward earned credit hours in computing the cumulative grade point average. There are no charges or fees for transferring credits or requesting placement testing credit for any course in a program.

LEAVE OF ABSENCE

Only two (2) leaves of absence (including military leave) will be permitted during any twelve month period. Leave of absence (including military leave) shall be reasonable in duration and shall not exceed (60) calendar days and shall be for specific and acceptable purposes. Only the Director can grant a leave of absence. A written request for leave is required. Failure to return from leave on or before the appointed time will result in immediate termination from the program.

CONDUCT POLICY

Enrollment at the School of Automotive Machinists should be personally satisfying as well as enjoyable and technically rewarding. It is equally important that each student respect the individual rights of associates within the School. Any student who is dismissed for reasons of serious misconduct has a right to ask for an administrative hearing but is advised that re-entry is difficult.

CAUSES OF TERMINATION

A list of serious offenses within the School includes:

1. Dishonesty or cheating.
2. Using drugs or alcohol within the building, possessing them, or distributing them as prohibited by law.
3. Stealing the belongings of other persons or the property of the School.
4. Physically abusing any person on School property or at School-sponsored activities.
5. Physically abusing School property.
6. Obstructing or disrupting teaching.

7. Abusive, vulgar, or profane language.
8. Displaying or using articles of violence on School property.

The School reserves the right to suspend and/or dismiss a student for the reasons listed above, but does not limit itself to those listed.

GRIEVANCES AND COMPLAINTS

The student should discuss their problems with their teacher first and then with the Education Director. Schools accredited by the Accrediting Commission of Career Schools and Colleges must have a procedure and operational plan for handling student complaints. If a student does not feel that the School has adequately addressed a complaint or concern, the student may consider contacting the Accrediting Commission. All complaints considered by the Commission must be in written form, with permission from the complainant(s) for the Commission to forward a copy of the complaint to the School for a response. The complainant(s) will be kept informed as to the status of the complaint as well as the final resolution by the Commission. Please direct all inquiries to:

Executive Director
 Accrediting Commission of Career Schools
 and Colleges (ACCSC)
 2101 Wilson Blvd., Suite 302
 Arlington, Virginia 22201
 and/or
 Texas Workforce Commission
 Career Schools and Colleges
 101 E. 15th Street
 Austin, Texas 78778-0001

A copy of the Commission's Complaint Form is available at the School and may be obtained by contacting Linda Massingill, Executive Director.



Student receiving financial aid assistance

5 SCHOOL POLICIES

COMPARABLE PROGRAM INFORMATION

As required, comparable information to the School of Automotive Machinists programs, if any, with regards to tuition and program length, are available from:

Accrediting Commission of Career Schools and Colleges (ACCSC)
2101 Wilson Blvd., Suite 302
Arlington, Virginia 22201
(703) 247-4212

ACADEMIC STRUCTURE AND GRADING

The course objectives are to prepare graduates for employment in their chosen career. For this reason, grading is administered to correlate the student's progress in terms related to employee proficiency expected by business and industry. Grading is based on nine key performance factors, including theory, lab, appearance, courtesy, dependability, cooperation, initiative, attendance and safety. The student's progress reports are issued periodically.

PERFORMANCE FACTOR GRADING SYSTEM

E = Excellent F = Fair
G = Good P = Poor

SUBJECT GRADING SYSTEM LAB/ THEORY

Numeric Grade	Grade Points
90-100 (Excellent)	4.0 (A)
80-89 (Good)	3.0 (B)
70-79 (Fair)	2.0 (C)
60-69 (Poor)	1.0 (D)
0-59 (Failure)	0.0 (F)
I (Incomplete)	Not computed in grade point average
W (Withdrawal)	Not computed in grade point average
CR (Course Repetition)	Is computed in grade point average

COURSE INCOMPLETION

A student who is obligated for full tuition may request a grade of "incomplete." This occurs if the student has failed to meet a course requirement due to illness or other reason beyond his/her control as excused by the course instructor. An incomplete grade of "I" is awarded to the student at the end of an academic term.

The student is allowed a maximum of three weeks into the next term to rectify a grade of incomplete. If the incomplete is not rectified within that period, the incomplete is automatically converted to an "F".

If the student earns an "F" he/she is then placed on academic probation. (See Satisfactory Academic Progress)

WITHDRAWALS

If a student wishes to withdraw from a class before the completion of a subject and/or before finals are given, he or she must complete a Change in Status form with the Registrar. A withdrawal grade of "W" will be awarded at the time of withdrawal to a student with a passing grade. A student with failing grades at the time of withdrawal will be given an "F". It must be understood that a withdrawal may affect the student's date of graduation and eligibility for financial aid. The student must see his/her financial aid officer to discuss the impact of withdrawals on their financial aid. Tuition charges will be calculated through the last day of attendance. The date of withdrawal will be the effective date of termination.

COURSE REPETITIONS

SAM students may repeat a course only one time. No more than three courses may be repeated throughout the academic program.

When a student re-takes a course, the former grade remains on the student's transcript and is used in assessing the student's academic progress. However, after students retake a course, only the latter grade is used in the calculation of the GPA.

The student must see his/her financial aid officer to discuss the impact of repeated courses on their financial aid.

SIZE OF CLASS

Class size is limited to provide adequate personal instruction in both classroom and lab, and to allow access to special tools and equipment. With this objective in mind, the maximum student to instructor ratio is thirty to one (30-1) for theory and twenty to one (20-1) for lab.

GRADUATION

A candidate for graduation must have completed the program, show a cumulative grade point average (GPA) of at least 2.0 (Grade of "C") on all work attempted, and must have cleared his/her account with the School. Upon successful completion of the requirements for graduation, SAM will award a Certificate of Completion.

AWARDS

Awards are presented at graduation to those students maintaining a perfect attendance record and to those students maintaining an overall 99% excellence in attendance record.

MAKE-UP WORK

A student who has missed assignments due to absences will be allowed to make up these assignments provided all make-up work is completed within a 3-week period from the date of absence. Make-up work shall not be authorized for the purpose of removing an absence.

1. No more than 5% of the total course time hours for a program may be made up.
2. The school shall submit make-up work policies to the Commission for approval.
3. Make-up work shall:
 - (a) be supervised by an instructor approved for the class being made up;
 - (b) require the student to demonstrate substantially the same level of knowledge or competence expected of a student who attended the scheduled class session;
 - (c) be completed within two weeks of the end of the grading period during which the absence occurred;
 - (d) be documented by the school as being completed, recording the date, time, duration of the make-up session, and the name of the supervising instructor; and
 - (e) be signed and dated by the student to acknowledge the make-up session.

The school may close due to inclement weather or emergencies (e.g. flooding, icy roads, power failures, etc.) SAM follows HISD guidelines for such conditions. These announcements are made on radio and television stations and posted online. School Director will determine make-up dates in such instances.

SATISFACTORY ACADEMIC PROGRESS

1. A student is in good standing if a cumulative grade point average (GPA) of 2.0 (70%) or

better is maintained and attendance is in accordance with School policy.

2. The student shall be placed on academic probation if at any time they fail to maintain at least a 70% cumulative average. A student who is placed on probation shall have 4 weeks (day students) or 8 weeks (night students) in which to raise the cumulative average to the 70% level.
3. A student entering academic probation may attend supplementary tutoring during the probationary period (see Individualized Assistance).
4. A student who is making unsatisfactory progress at the end of a grading period shall be placed on probation for the next grading period. If the student on probation achieves satisfactory progress for the subsequent grading period but has not achieved the required grades to achieve overall satisfactory progress for the program, the student may be continued on probation for one more grading period.
5. If the student on probation fails to achieve satisfactory progress for the first probationary term, the student's enrollment shall be terminated.
6. The enrollment of a student who fails to achieve overall satisfactory progress for the program, at the end of two successive probationary grading periods shall be terminated. A student may appeal the School's termination in writing. See Re-Admission/Appeal on page 3.
7. When a student is placed on probation, that student will be advised prior to returning to class, of the beginning date and the action taken. The terms of the probation shall be clearly indicated on the appropriate permanent records.
8. A student whose enrollment was terminated for unsatisfactory progress may be re-entered after a minimum of one grading period. This does not circumvent the approved refund policy.
9. A student who returns after the enrollment was terminated for unsatisfactory progress shall be placed on probation for the next grading period. The student shall be advised of this action and the student's file documented accordingly. If the student does not maintain satisfactory progress during or at the end of this probationary period, the student shall be terminated.
10. A student must complete his/her program within 1.5 times the length of the program to meet minimum requirements specified by the Maximum Time Frame (MTF).

INDIVIDUALIZED ASSISTANCE

School instructors are available to assist students who feel additional attention is needed in maintaining their academic standing. SAM encourages all students to use this time to their full advantage. The student needing arrangements should contact the Education Director.

STUDENT EVALUATION

The student's progress reports are issued at the following grading periods: every 8 weeks and one after 4 weeks of start date throughout the duration of the academic programs. These reports evaluate attendance, academic performance, appearance, courtesy, dependability, cooperation, initiative and safety.

PROGRAM OBJECTIVES

The program objective of Automotive Engine/Block Machining is to qualify the student as an automotive machinist. Although the actual machining process will be the emphasis of the program, a thorough education on theory of operation of the modern automotive engine will be presented. Performance modifications effect on power, longevity, and emissions, will be highlighted throughout the different courses. This program is intended for the mechanically inclined student with a desire to work in the automotive industry. The program will include both classroom and hands-on lab instruction. One semester credit hour for each fifteen (15) hours of classroom contact plus appropriate outside preparation or the equivalent; or one semester credit hour for each thirty (30) hours of laboratory work plus appropriate outside preparation. This program has an outside work requirement for completion. Please see the course descriptions for additional information. Single subjects making up this program are not offered individually. The students will learn performance machining operation skills on industry standard machines, a boring bar, Sunnen cylinder hones, align hone and rod resizer, as well as a SuperFlow dynamometer and DynoJet chassis dynamometer. See Equipment List Addendum for a complete list of machines used in the Block Machining Program.



Engine block honing

COURSE	TITLE	THEORY	LAB	SEM HRS	TEXAS WORKFORCE COMMISSION/ACCSC			DEPT. OF EDUCATION (Used for Title IV Funding)		
					THEORY	LAB	CLOCK HRS	THEORY	LAB	SEM HRS
101	Engine Block Work Practices, Tools, and Safety	2.0	0.0	2.0	30	0.0	30	1.0	0.0	1.0
102	Engine Block Machinist Math and Measurement	3.0	0.5	3.5	45	15.0	60	1.5	0.5	2.0
103*	Principles and Theories of Engine Block	2.0	0.0	2.0	30	5.0	35	1.0	0.0	1.0
104*	Design and Function of Engine Block Components	2.0	0.0	2.0	30	0.0	30	1.0	0.0	1.0
105*	Engine Block Disassembly and Inspection	3.0	0.5	3.5	45	15.0	60	1.5	0.5	2.0
106*	Operation of Engine Block Machining Equipment	3.0	0.5	3.5	45	15.0	60	1.5	0.5	2.0
107*	Engine Block and Component Machining	7.0	6.0	13.0	105	180.0	285	3.5	6.0	9.5
108*	Engine Block Blueprinting	2.0	0.5	2.5	30	15.0	45	1.0	0.5	1.5
109*	Engine Block Assembly and Dynamometer Testing	4.0	1.5	5.5	60	45.0	105	2.0	1.5	3.5
110*	Engine Block Career Planning	1.0	0.0	1.0	15	0.0	15	0.5	0.0	0.5
Totals		29.0	9.5	38.5	435	290.0	725	14.5	9.5	24.0

*Requires 101 and 102 as prerequisite

The approximate time to complete this program is thirty-six (36) weeks.

COURSE DESCRIPTIONS/SYNOPSIS

101 ENGINE BLOCK ENGINE WORK PRACTICES, TOOLS, AND SAFETY (30/0/2.0)

The student will gain a general introduction to the industry work environment including customer relations, work orders, build sheets, and block parts acquisition. The student will be introduced to the use of precision measurement and the required specialized, as well as basic hand tools. Special emphasis is placed on personal and shop safety due to the nature of potentially hazardous equipment. Outside-the-classroom work is required. This course includes an average of 7.5 hours of outside the classroom work.

102 ENGINE BLOCK MACHINIST MATH AND MEASUREMENT (45/15/3.5)

The student will learn procedures of careful inspection and precise measurement technologies, combined with the proper applications, formulas, and machinist math, to provide a solid basis for successful production and high performance engine assembly procedures. Outside-the-classroom work is required. This course includes an average of 15 hours of outside the classroom work.

103 PRINCIPLES AND THEORIES OF ENGINE BLOCK (30/5/2.0)

The student will explore the basic theory and concepts of internal combustion engine operation, and then move into more specific and complex areas including torque, airflow, volumetric efficiency, operating cycles, and horsepower. Outside-the-classroom work is required. This course includes an average of 7.5 hours of outside the classroom work.

104 DESIGN AND FUNCTION OF ENGINE BLOCK COMPONENTS (30/0/2.0)

The student will learn the individual components, their function, design, material composition, and differences. This includes the relationship of the individual pieces to each other and assembly as a whole. Production and performance variations will also be discussed. Outside-the-classroom work is required. This course includes an average of 7.5 hours of outside the classroom work.

105 ENGINE BLOCK DISASSEMBLY AND INSPECTION (45/15/3.5)

The student learns the techniques of thorough examination and evaluation during disassembly to correctly diagnose engine failure, potential problems, and component replacement. Cleaning methods for both cast iron and aluminum are covered, including the impact of current environmental concerns. Additionally, crack detection methods and casting repairs are also covered. Outside-the-classroom work is required. This course includes an average of 15 hours of outside the classroom work.

106 OPERATION OF ENGINE BLOCK MACHINING EQUIPMENT (45/15/3.5)

The student learns the set-up and operation procedures of the machining equipment. He will also learn the procedures used to complete the machining of block and component parts. The differences between standard and high performance applications will be highlighted. Outside-the-classroom work is required. This course includes an average of 15 hours of outside the classroom work.

107 ENGINE BLOCK AND COMPONENT MACHINING (105/180/13.0)

Actual hands-on block and component machining will be accomplished by each student as they become proficient with all machining operations. Machined components will be carefully checked for accuracy. These pieces will become part of each student's course project. Outside-the-classroom work is required. This course includes an average of 66.5 hours of outside the classroom work.

108 ENGINE BLOCK BLUEPRINTING (30/15/2.5)

The student will learn blueprinting. The art of producing maximum capable horsepower, torque, volumetric efficiency, and R.P.M. through precise component assembly relationships will be taught. The effects of camshaft selection, degreasing, and valve timing in relation to cylinder pressure, will be studied. The student will learn the real mystery of high performance. Outside-the-classroom work is required. This course includes an average of 11 hours of outside the classroom work.

109 ENGINE BLOCK ASSEMBLY AND DYNAMOMETER TESTING (60/45/5.5)

The primary focus of this course is mastering the art of assembling precisely machined components into a complete, operating engine block. Upon completion, the student will run his engine project on a Superflow Dynamometer for evaluation. Changes and adjustments will be made to demonstrate their effects on power output. Outside-the-classroom work is required. This course includes an average of 26 hours of outside the classroom work.

110 ENGINE BLOCK CAREER PLANNING (15/0/1.0)

The student is prepared to enter the work force by learning the importance of personal appearance, conduct, attitude and mechanical aptitude. Job search techniques, the application process, effective resume composition, and interviewing skills are covered. Career goal setting, steps toward self-employment, and job placement assistance is covered. Outside-the-classroom work is required. This course includes an average of 4 hours of outside the classroom work.

7 AUTOMOTIVE ENGINE/CYLINDER HEAD MACHINING

PROGRAM OBJECTIVES

The objective of Automotive Engine/Cylinder Head Machining is to qualify the student as an automotive cylinder head machinist. The theory of operation and the cylinder head role in the engine operation will be thoroughly covered. Airflow characteristics and their effect on performance and longevity will be highlighted in all courses of this program. This program is intended for the mechanically inclined student with a desire to work in the automotive industry. The program will include both classroom and hands-on lab instruction. One semester credit hour for each fifteen (15) hours of classroom contact plus appropriate outside preparation or the equivalent; or one semester credit hour for each thirty (30) hours of laboratory work plus appropriate outside preparation. This program has an outside work requirement for completion. Please see the course descriptions for additional information. Single subjects making up this program are not offered individually. The students will learn performance machining operation skills on industry standard machines, Sunnen surfer, seat and guide machine, valve guide workstation, and SuperFlow flow bench. See Equipment List Addendum for a complete list of machines used in the Cylinder Head Machining Program.



Cylinder head seat and guide machine

COURSE	TITLE	THEORY	LAB	SEM HRS	TEXAS WORKFORCE COMMISSION/ACCSC			DEPT. OF EDUCATION (Used for Title IV Funding)		
					THEORY	LAB	CLOCK HRS	THEORY	LAB	SEM HRS
201	Cylinder Head Work Practices, Tools, and Safety	2.0	0.0	2.0	30	0.0	30	1.0	0.0	1.0
202	Cylinder Head Machinist Math and Measurement	3.0	0.5	3.5	45	15.0	60	1.5	0.5	2.0
203*	Principles and Theories of Engine Cylinder Head	2.0	0.0	2.0	30	5.0	35	1.0	0.0	1.0
204*	Design and Function of Cylinder Head Components	2.0	0.0	2.0	30	0.0	30	1.0	0.0	1.0
205*	Cylinder Head Disassembly and Inspection	3.0	0.5	3.5	45	15.0	60	1.5	0.5	2.0
206*	Operation of Cylinder Head Machining Equipment	3.0	0.5	3.5	45	15.0	60	1.5	0.5	2.0
207*	Cylinder Head and Component Machining	6.0	3.5	9.5	90	105.0	195	3.0	3.5	6.5
208*	Cylinder Head Blueprinting	2.0	0.5	2.5	30	15.0	45	1.0	0.5	1.5
209*	Cylinder Head Assembly	2.0	2.0	4.0	30	60.0	90	1.0	2.0	3.0
210*	Cylinder Head Porting	2.0	2.5	4.5	30	75.0	105	1.0	2.5	3.5
211*	Cylinder Head Career Planning	1.0	0.0	1.0	15	0.0	15	0.5	0.0	0.5
Totals		28.0	10.0	38.0	420	305.0	725	14.0	10.0	24.0

*Requires 101 and 102 as prerequisites

The approximate time to complete this program is thirty-six (36) weeks.

COURSE DESCRIPTIONS/SYNOPSIS

201 CYLINDER HEAD WORK PRACTICES, TOOLS, AND SAFETY (30/0/2.0)

The student will gain a general introduction to the industry work environment including customer relations, work orders, build sheets, and cylinder head parts acquisition. The student will be introduced to the use of precision measurement and the required specialized, as well as basic hand tools. Special emphasis is placed on personal and shop safety due to the nature of potentially hazardous equipment. Outside-the-classroom work is required. This course includes an average of 7.5 hours of outside the classroom work.

202 CYLINDER HEAD MACHINIST MATH AND MEASUREMENT (45/15/3.5)

The student will learn procedures of careful inspection and precise measurement technologies, combined with the proper applications, formulas, and machinist math to provide a solid basis for successful production and high performance cylinder head assembly procedures. Outside-the-classroom work is required. This course includes an average of 15 hours of outside the classroom work.

203 PRINCIPLES AND THEORIES OF ENGINE CYLINDER HEAD (30/5/2.0)

The student will learn the basic theory and concepts of internal combustion engine operation. The course then moves into more specific and complex areas including torque, airflow, volumetric efficiency, operating cycles, and horsepower. Outside-the-classroom work is required. This course includes an average of 4.5 hours of outside the classroom work.

204 DESIGN AND FUNCTION OF CYLINDER HEAD COMPONENTS (30/0/2.0)

The student will learn the how and why of the many components of cylinder head assembly and their relationship to each other. The function and various material compositions of cylinder head castings and components will also be covered. Standard and high performance differences will be discussed. Outside-the-classroom work is required. This course includes an average of 4.5 hours of outside the classroom work.

205 CYLINDER HEAD DISASSEMBLY AND INSPECTION (45/15/3.5)

The student will learn the proper procedure of head disassembly and careful inspection to determine any causes of failure, repair needs, and component replacement. Cleaning methods, crack detection, repair, and associated environmental issues, for both aluminum and iron heads, will also be discussed. Outside-the-classroom work is required. This course includes an average of 15 hours of outside the classroom work.

206 OPERATION OF CYLINDER HEAD MACHINING EQUIPMENT (45/15/3.5)

The student learns the set-up and operation procedures of machining equipment. The student

will also learn the procedures used to complete the machining of cylinder heads and component parts. A discussion of high performance and production differences will complete this section. Outside-the-classroom work is required. This course includes an average of 15 hours of outside the classroom work.

207 CYLINDER HEAD AND COMPONENT MACHINING (90/105/9.5)

Actual hands-on cylinder head and component machining will be accomplished by each student as they become proficient with all machining operations. Machined components will be checked closely for accuracy. These pieces will become part of each student's course project. Outside-the-classroom work is required. This course includes an average of 54.5 hours of outside the classroom work.

208 CYLINDER HEAD BLUEPRINTING (30/15/12.5)

The student is exposed to the art of creating maximum efficiency and horsepower through precision component assembly relationships. Combustion chamber sizing and compression ratios will be discussed. The student will also study cylinder head performance secrets. Outside-the-classroom work is required. This course includes an average of 10 hours of outside the classroom work.

209 CYLINDER HEAD ASSEMBLY (30/60/4.0)

The student will learn how to assemble the precisely machined components into a complete cylinder head. This is covered in detail. Evaluation and testing of complete assemblies will reveal the relationship of changes to performance. Outside-the-classroom work is required. This course includes an average of 22.5 hours of outside the classroom work.

210 CYLINDER HEAD PORTING (30/75/4.5)

The student will explore flow characteristics of various head designs and the resultant effects of change. Proper porting technique, when it should be used, and how it should be used, is covered. The actual hands-on experience will illustrate methods and levels of airflow improvement. Outside-the-classroom work is required. This course includes an average of 22.5 hours of outside the classroom work.

211 CYLINDER HEAD CAREER PLANNING (15/0/1.0)

The student is prepared to enter the work force by learning the importance of personal appearance, conduct, attitude, and mechanical aptitude. Job search techniques, the application process, effective resume composition, and interviewing skills are covered. Career goal setting, steps toward self-employment, and job placement assistance is covered. Outside-the-classroom work is required. This course includes an average of 4 hours of outside the classroom work.

PROGRAM OBJECTIVES:

The program objective for the Automotive Engine/CNC Machining course is to qualify the student as a CNC automotive machinist, to be capable of understanding and performing machining operations utilizing Computer Numerically Controlled Machining Centers. This program is intended for the mechanically inclined student with a desire to work in the automotive industry. The program will include both classroom and hands-on lab instruction. One semester credit hour for each fifteen (15) hours of classroom contact plus appropriate outside preparation or the equivalent; or one semester credit hour for each thirty (30) hours of laboratory work plus appropriate outside preparation. This program has an outside work requirement for completion. Please see the course descriptions for additional information. The primary emphasis of this program will be the application of CNC machining techniques to improve performance of cylinder heads and engine blocks. The student will thoroughly learn and explore the utilization of 5-Axis CNC Machining Centers as well as Coordinate Measuring Machine digitizing hardware and software applications and interfacing. Machine set-up, operation, and work piece preparation will be covered in detail. Special emphasis will be given to modification of high-performance and racing cylinder heads. The student will analyze and evaluate completed projects to quantify improvements, using racing industry standard equipment and techniques. Graduates will benefit from improved opportunities for employment in all forms of the motorsports industry. Single subjects making up this program are not offered individually. See Equipment List Addendum for a complete list of machines used in the CNC Machining Program.



CNC machine programming

CNC ADMISSIONS REQUIREMENTS:

Program applicants are required to:

1. Present proof of secondary education (high School diploma or GED certificate) and at least 18 years of age.
2. Be computer literate and familiar with Microsoft® Windows XP or later.
3. Achieve a passing score on the SAM Math Proficiency Test (a passing score of 75%), as a CNC Program entrance exam.
4. Achieve a passing score on the Bennett Mechanical Comprehension Test (a passing score of 37 which is the mean score of 12th grade students), as an entrance exam.
5. Automotive Engine/Block Machining, Automotive Engine/Cylinder Head Machining, or equivalent industry experience. SAM must verify and approve industry experience.

TEXAS WORKFORCE COMMISSION/ACCSC

COURSE	TITLE	THEORY	LAB	SEM HRS	TWC/ACCSC TOTAL INSTRUCTIONAL			DEPT. OF EDUCATION (Used for Title IV Funding)		
					THEORY	LAB	CLOCK HRS	THEORY	LAB	SEM HRS
301	Work Practices, Tools, and Safety	2.0	0.0	2.0	30	0.0	30	1.0	0.0	1.0
302	Introduction and Basic Machine Overview	2.0	1.0	3.0	30	30.0	60	1.0	1.0	2.0
303*	Introduction to CAM Software	4.0	1.0	5.0	60	30.0	90	2.0	1.0	3.0
304*	Digitizing Techniques and Applications	4.0	1.0	5.0	60	31.0	91	2.0	1.0	3.0
305*	Machine, Fixtures, and Component Preparation	1.0	2.0	3.0	15	60.0	75	0.5	2.0	2.5
306*	Machining Operations - Engine Block	1.0	2.0	3.0	15	60.0	75	0.5	2.0	2.5
307*	Machining Operations - Cylinder Head	1.0	2.0	3.0	15	60.0	75	0.5	2.0	2.5
308*	Inspection and Analysis of Machined Parts	1.0	1.0	2.0	15	30.0	45	0.5	1.0	1.5
Totals		16.0	10.0	26.0	240	301.0	541	8.0	10.0	18.0

*Requires 301 and 302 as prerequisites

The approximate time to complete this program is twenty nine (29) weeks.

COURSE DESCRIPTIONS/SYNOPSIS

CNC 301 WORK PRACTICES, TOOLS & SAFETY (30/0/2)

This course provides a general introduction to the industry working environment including customer relations, work orders, build sheets, and parts acquisition. Familiarization with the use of basic hand tools, specialized tools, and precision measurement tools will be covered. Special emphasis is placed on both personal and shop safety due to the nature of potentially hazardous equipment. Outside-the-classroom work is required. This course includes an average of 3 hours of outside the classroom work.

CNC 302 INTRODUCTION AND BASIC MACHINE OVERVIEW (30/3/3)

The student will learn the general operation and maintenance of CNC equipment. Familiarization with the capabilities of this equipment and applications in the racing industry will be covered. Outside-the-classroom work is required. This course includes an average of 4 hours of outside the classroom work.

CNC 303 INTRODUCTION TO CAM SOFTWARE (60/30/5)

The student will learn the CNC machining equipment operation using Computer Aided Manufacturing software to generate CNC control program code. The student will explore the interaction between CAM software, CNC controller, and digitizing equipment. Outside-the-classroom work is required. This course includes an average of 10 hours of outside the classroom work.

CNC 304 DIGITIZING TECHNIQUES AND APPLICATIONS (60/31/5)

Once optimum component designs have been achieved through conventional modification techniques, the part will be "digitized" using a Coordinate Measurement Machine. The student will learn component improvements using CAM software. Component will be evaluated and analyzed prior to additional machining operations. Outside-the-classroom work is required. This course includes an average of 20.5 hours of outside the classroom work.

CNC 305 MACHINE, FIXTURES, AND COMPONENT PREPARATION (15/60/3)

The student will learn the set-up of the machine for specific components and operations. Special purpose fixture fabrication and utilization will be learned. Proper fixture installation and work piece preparation to ensure accuracy and repeatability of machining operations will be thoroughly discussed and applied. Outside-the-classroom work is required. This course includes an average of 24 hours of outside the classroom work.

CNC 306 MACHINING OPERATIONS - ENGINE BLOCK (15/60/3)

Actual machining operations are the primary focus of this course. The student will learn to be proficient through hands-on machining procedures of engine blocks and components. Finished work will be thoroughly inspected for accuracy and quality. Outside-the-classroom work is required. This course includes an average of 24 hours of outside the classroom work.

CNC 307 MACHINING OPERATIONS - CYLINDER HEAD (15/60/3)

The student will perform actual machining operations on cylinder heads. The focus will be to ensure that each student is proficient in these procedures through inspection of finished work to verify accuracy and quality. Outside-the-classroom work is required. This course includes an average of 25 hours of outside the classroom work.

CNC 308 INSPECTION & ANALYSIS OF MACHINED PARTS (15/30/2)

The student will learn to evaluate and compare completed components against established standards. Special emphasis will be placed on effectiveness of head modifications, using flow testing, and other measurements. The possibility of further performance improvements will be analyzed. Outside-the-classroom work is required. This course includes an average of 23.5 hours of outside the classroom work.

9 **AUTOMOTIVE ENGINE/BLOCK & CYLINDER HEAD MACHINING**

PROGRAM OBJECTIVES

The program objective of Automotive Engine/Block and Cylinder Head Machining is to qualify the student as an automotive block and cylinder head machinist. Although the actual machining processes will be the major emphasis of the program, a thorough education on the theory of operation of the modern automotive engine will be presented along with the role of the cylinder head to the complete assembly. Performance modifications effects on power, longevity, and airflow characteristics will be highlighted in all courses of this program. The program is intended for the mechanically inclined student with a desire to work in the high performance/racing industry. The program will include both classroom and hands-on lab instruction. One semester credit hour for each fifteen (15) hours of classroom contact plus appropriate outside preparation or the equivalent; or one semester credit hour for each thirty (30) hours of laboratory work plus appropriate outside preparation. This program has an outside work requirement for completion. Please see the course descriptions for additional information. Single subjects making up this program are not offered individually. The students will learn performance machining operation skills on industry standard machines, a boring bar, Sunnen cylinder hones, align hone and rod resizer, as well as a SuperFlow dynamometer, DynoJet chassis dynamometer, Sunnen surfacer, seat and guide machine, valve guide workstation, and SuperFlow flow bench. See Equipment List Addendum for a complete list of machines used in the Block Machining and Cylinder Head Machining Program.



Students adjusting throttle linkage

COURSE	TITLE	THEORY	LAB	SEM HRS	TEXAS WORKFORCE COMMISSION/ACCSC			DEPT. OF EDUCATION (Used for Title IV Funding)		
					THEORY	LAB	CLOCK HRS	THEORY	LAB	SEM HRS
101	Engine Block Work Practices, Tools, and Safety	2.0	0.0	2.0	30	0.0	30	1.0	0.0	1.0
102	Engine Block Machinist Math and Measurement	3.0	0.5	3.5	45	15.0	60	1.5	0.5	2.0
103*	Principles and Theories of Engine Block	2.0	0.0	2.0	30	5.0	35	1.0	0.0	1.0
104*	Design and Function of Engine Block Components	2.0	0.0	2.0	30	0.0	30	1.0	0.0	1.0
105*	Engine Block Disassembly and Inspection	3.0	0.5	3.5	45	15.0	60	1.5	0.5	2.0
106*	Operation of Engine Block Machining Equipment	3.0	0.5	3.5	45	15.0	60	1.5	0.5	2.0
107*	Engine Block and Component Machining	7.0	6.0	13.0	105	180.0	285	3.5	6.0	9.5
108*	Engine Block Blueprinting	2.0	0.5	2.5	30	15.0	45	1.0	0.5	1.5
109*	Engine Block Assembly and Dynamometer Testing	4.0	1.5	5.5	60	45.0	105	2.0	1.5	3.5
201	Cylinder Head Work Practices, Tools, and Safety	2.0	0.0	2.0	30	0.0	30	1.0	0.0	1.0
202	Cylinder Head Machinist Math and Measurement	3.0	0.5	3.5	45	15.0	60	1.5	0.5	2.0
203*	Principles and Theories of Engine Cylinder Head	2.0	0.0	2.0	30	5.0	35	1.0	0.0	1.0
204*	Design and Function of Cylinder Head Components	2.0	0.0	2.0	30	0.0	30	1.0	0.0	1.0
205*	Cylinder Head Disassembly and Inspection	3.0	0.5	3.5	45	15.0	60	1.5	0.5	2.0
206*	Operation of Cylinder Head Machining Equipment	3.0	0.5	3.5	45	15.0	60	1.5	0.5	2.0
207*	Cylinder Head and Component Machining	6.0	3.5	9.5	90	105.0	195	3.0	3.5	6.5
208*	Cylinder Head Blueprinting	2.0	0.5	2.5	30	15.0	45	1.0	0.5	1.5
209*	Cylinder Head Assembly	2.0	2.0	4.0	30	60.0	90	1.0	2.0	3.0
210*	Cylinder Head Porting	2.0	2.5	4.5	30	75.0	105	1.0	2.5	3.5
212*	Career Development Planning	2.0	0.0	2.0	30	0.0	30	1.0	0.0	1.0
Totals		57.0	19.5	76.5	855	595.0	1450	28.5	19.5	48.0

*Requires 101, 102, 201, and 202 as prerequisites

The approximate time to complete this program is seventy-two (72) weeks.

COURSE DESCRIPTIONS/SYNOPSIS

101 ENGINE BLOCK WORK PRACTICES, TOOLS, AND SAFETY (30/0/2.0)
The student will gain a general introduction to the industry work environment including customer relations, work orders, build sheets, and block parts acquisition. The student will be introduced to the use of precision measurement and the required specialized, as well as basic hand tools. Special emphasis is placed on personal and shop safety due to the nature of potentially hazardous equipment. Outside-the-classroom work is required. This course includes an average of 7.5 hours of outside the classroom work.

102 ENGINE BLOCK MACHINIST MATH AND MEASUREMENT (45/15/3.5)
The student will learn procedures of careful inspection and precise measurement technologies, combined with the proper applications, formulas, and machinist math, to provide a solid basis for successful production and high performance engine assembly procedures. Outside-the-classroom work is required. This course includes an average of 15 hours of outside the classroom work.

103 PRINCIPLES AND THEORIES OF ENGINE BLOCK (30/5/2.0)
The student will explore the basic theory and concepts of internal combustion engine operation, and then move into more specific and complex areas including torque, airflow, volumetric efficiency, operating cycles, and horsepower. Outside-the-classroom work is required. This course includes an average of 7.5 hours of outside the classroom work.

104 DESIGN AND FUNCTION OF ENGINE BLOCK COMPONENTS (30/0/2.0)
The student will learn the individual components, their function, design, material composition, and differences. This includes the relationship of the individual pieces to each other and assembly as a whole. Production and performance variations will also be discussed. Outside-the-classroom work is required. This course includes an average of 7.5 hours of outside the classroom work.

105 ENGINE BLOCK DISASSEMBLY AND INSPECTION (45/15/3.5)
The student learns the techniques of thorough examination and evaluation during disassembly to correctly diagnose engine failure, potential problems, and component replacement. Cleaning methods for both cast iron and aluminum are covered, including the impact of current environmental concerns. Additionally, crack detection methods and casting repairs are also covered. Outside-the-classroom work is required. This course includes an average of 15 hours of outside the classroom work.

106 OPERATION OF ENGINE BLOCK MACHINING EQUIPMENT (45/15/3.5)
The student learns the set-up and operation procedures of the machining equipment. He will also learn the procedures used to complete the machining of block and component parts. The differences between standard and high performance applications will be highlighted. Outside-the-classroom work is required. This course includes an average of 15 hours of outside the classroom work.

AUTOMOTIVE ENGINE/BLOCK & CYLINDER HEAD MACHINING 10

107 ENGINE BLOCK AND COMPONENT MACHINING (105/180/13.0)

Actual hands-on block and component machining will be accomplished by each student as they become proficient with all machining operations. Machined components will be carefully checked for accuracy. These pieces will become part of each student's course project. Outside-the-classroom work is required. This course includes an average of 66.5 hours of outside the classroom work.

108 ENGINE BLOCK BLUEPRINTING (30/15/2.5)

The student will learn blueprinting. The art of producing maximum capable horsepower, torque, volumetric efficiency, and R.P.M. through precise component assembly relationships will be taught. The effects of camshaft selection, degreasing, and valve timing in relation to cylinder pressure, will be studied. The student will learn the real mystery of high performance. Outside-the-classroom work is required. This course includes an average of 11 hours of outside the classroom work.

109 ENGINE BLOCK ASSEMBLY AND DYNAMOMETER TESTING (60/45/5.5)

The primary focus of this course is mastering the art of assembling precisely machined components into a complete, operating engine block. Upon completion, the student will run his engine project on a Superflow Dynamometer for evaluation. Changes and adjustments will be made to demonstrate their effects on power output. Outside-the-classroom work is required. This course includes an average of 26.5 hours of outside the classroom work.

201 CYLINDER HEAD WORK PRACTICES, TOOLS, AND SAFETY (30/0/2.0)

The student will gain a general introduction to the industry work environment including customer relations, work orders, build sheets, and cylinder head parts acquisition. The student will be introduced to the use of precision measurement and the required specialized, as well as basic hand tools. Special emphasis is placed on personal and shop safety due to the nature of potentially hazardous equipment. Outside-the-classroom work is required. This course includes an average of 7.5 hours of outside the classroom work.

202 CYLINDER HEAD MACHINIST MATH AND MEASUREMENT (45/15/3.5)

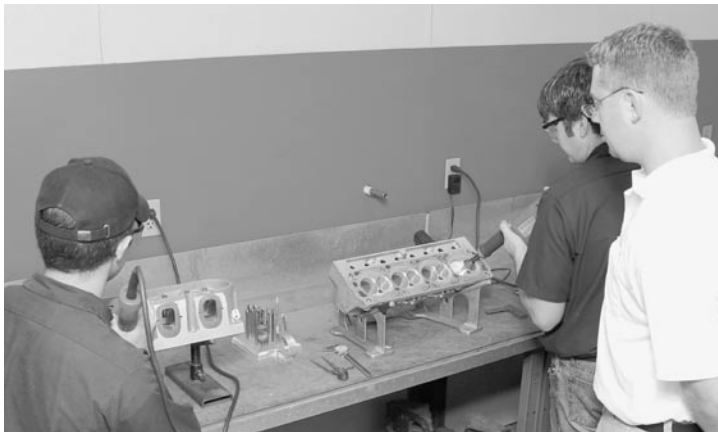
The student will learn procedures of careful inspection and precise measurement technologies, combined with the proper applications, formulas, and machinist math to provide a solid basis for successful production and high performance cylinder head assembly procedures. Outside-the-classroom work is required. This course includes an average of 15 hours of outside the classroom work.

203 PRINCIPLES AND THEORIES OF ENGINE CYLINDER HEAD (30/5/2.0)

The student will learn the basic theory and concepts of internal combustion engine operation. The course then moves into more specific and complex areas including torque, airflow, volumetric efficiency, operating cycles, and horsepower. Outside-the-classroom work is required. This course includes an average of 4.5 hours of outside the classroom work.

204 DESIGN AND FUNCTION OF CYLINDER HEAD COMPONENTS (30/0/2.0)

The student will learn the how and why of the many components of cylinder head assembly and their relationship to each other. The function and various material compositions of cylinder head castings and components will also be covered. Standard and high performance differences will be discussed. Outside-the-classroom work is required. This course includes an average of 4.5 hours of outside the classroom work.



Student measuring valve depth

205 CYLINDER HEAD DISASSEMBLY AND INSPECTION (45/15/3.5)

The student will learn the proper procedure of head disassembly and careful inspection to determine any causes of failure, repair needs, and component replacement. Cleaning methods, crack detection, repair, and associated environmental issues, for both aluminum and iron heads, will also be discussed. Outside-the-classroom work is required. This course includes an average of 15 hours of outside the classroom work.

206 OPERATION OF CYLINDER HEAD MACHINING EQUIPMENT (45/15/3.5)

The student learns the set-up and operation procedures of machining equipment. The student will also learn the procedures used to complete the machining of cylinder heads and component parts. A discussion of high performance and production differences will complete this section. Outside-the-classroom work is required. This course includes an average of 15 hours of outside the classroom work.

207 CYLINDER HEAD AND COMPONENT MACHINING (90/105/9.5)

Actual hands-on cylinder head and component machining will be accomplished by each student as they become proficient with all machining operations. Machined components will be checked closely for accuracy. These pieces will become part of each student's course project. Outside-the-classroom work is required. This course includes an average of 54.5 hours of outside the classroom work.

208 CYLINDER HEAD BLUEPRINTING (30/15/2.5)

The student is exposed to the art of creating maximum efficiency and horsepower through precision component assembly relationships. Combustion chamber sizing and compression ratios will be discussed. The student will also study cylinder head performance secrets. Outside-the-classroom work is required. This course includes an average of 10 hours of outside the classroom work.

209 CYLINDER HEAD ASSEMBLY (30/60/4.0)

The student will learn how to assemble the precisely machined components into a complete cylinder head. This is covered in detail. Evaluation and testing of complete assemblies will reveal the relationship of changes to performance. Outside-the-classroom work is required. This course includes an average of 22.5 hours of outside the classroom work.

210 CYLINDER HEAD PORTING (30/75/4.5)

The student will explore flow characteristics of various head designs and the resultant effects of change. Proper porting technique, when it should be used, and how it should be used, is covered. The actual hands-on experience will illustrate methods and levels of airflow improvement. Outside-the-classroom work is required. This course includes an average of 22.5 hours of outside the classroom work.

212 CAREER DEVELOPMENT PLANNING (30/0/2.0)

The student is prepared to enter the work force by learning the importance of personal appearance, conduct, attitude and mechanical aptitude. Job search techniques, the application process, effective resume composition, and interviewing skills are covered. Career goal setting, steps toward self-employment, and job placement assistance is covered. Outside-the-classroom work is required. This course includes an average of 8 hours of outside the classroom work.



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