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ABSTRACT

In this curriculum guide, courses in a three-phase community college program for training import automobile technicians are provided. Following an introducation to the guide, the background of the development of the program, the program, the instruction, support for instruction, and the import automobile industry are discussed. Sample options for students during five semesters of study are listed. The three phases of the program are: I. General Automotive Background, II. Entry Level Preparation for the Import Automobile Industry, and III, Continued Training with On-the-job Experience. The 19-subjects entry level class, which is one semester in length, is designed to provide necessary background for a student to be employed as a trainee in an import automobile shop. Upon completion of the entry level class, the trainee then enrolls in the 11 advanced classes, covering three semesters, which provide a controlled learning situation of a class associated with hands-on-training. Appendixes give lists of automotive test equipment and tools and equipment, and provide a form announcing the program at East Los Angeles College, an applicant information form, a Draft of Flyer for the Import Automobile Distributors to Present to Their Dealers, a Student Data Sheet, and Instructor's Evaluation Form, and A Dealer Visitation Report and Evaluation Form. A Management Plan, Performance Requirements, Narrative Description, Diagrams, Bibliography, and sample certificate to be awarded to the traininee are included, together with a sample of a Cooperative Education Agreement among college, employer, and student. (DB)

IMPORT AUTO TECHNICIAN;

Curriculum Guide

For The Development of An
Import Automobile Technology Program

This publication was prepared by Los Angeles Community College District in cooperation with California Community Colleges pursuant to a funding under the Vocational Education Act of 1968 (P.L. 90-576).

QUOTE

This is to inform you that the Federation of Local Automotive Apprentice Committees have approved and recommended the curriculum guide for Import Auto Technicians of the Los Angeles Community College District, when accompanied by the appropriate number of hours of on-the-job training.

It is our intention to recommend this program to all Federation Committee members and to any and all schools and colleges who wish to participate in related training for apprenticeship committees.

Joseph G. Fitzhugh
Chairman, Federation of
Automotive Apprentice Committees

DESIGN: Robert Niece

PHOTOGRAPHY: Steve DuBany

CONTENTS

PREFACE

This publication was prepared by the Los Angeles Community College District in cooperation with the California Community Colleges pursuant to a funding under the Vocational Educational Act of 1968, Public Law 90-576, Part D, Exemplary.

This guide is the result of dual efforts of East Los Angeles College and the Los Angeles Community College District. The East Los Angeles College effort was headed by Donald Y. Saguchi, who developed the project; the Los Angeles Community College District effort was headed by John R. Luther, who originated the project.

This guide is meant to be simply a basic guide which should be adapted to local needs and frequently updated. A principal strength of the guide is that it reflects the industry point of view. Hewing closely to the industry viewpoint was considered absolutely basic because it is industry which will provide the jobs.

We believe the students who successfully complete the suggested course will have the skills the import car dealers seek in entry level technicians and the basis for continuing training towards journeyman status.

Persons having questions regarding the implementation of this program are asked to contact the Los Angeles Community College District or East Los Angeles College where the program is being implemented.

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QUOTES

Good training is the kind of training which produces the desired results. In the automotive repair business, the desired results are qualified auto technicians. Your program has all the makings of producing the desired results and, thus, will contribute to the achievement of the end goals, i.e., complete consumer satisfaction through quality service and repairs.

B. W. George Soane
Regional Service Director
Saab-Scania of America

In regard to your letter dated August 31, 1973, I have reviewed the proposed Import Auto Technician curriculum guide, and in my opinion, it seems to cover what the Los Angeles Community Colleges are trying to accomplish in preparing a trainee for a career as an Import Auto Repair Mechanic.

If the program as written is *followed out* and also *followed-up* there can be no doubt that anyone who involves himself in this program will be gratified that the Los Angeles Community Colleges had enough interest in the students who are seeking ways of obtaining a career in Import Auto Repair; to develop this needed and worthwhile program.

Norman Carter
Vocational Training Supervisor
Volkswagen of America, Inc.

I have read the curriculum guide for Import Auto Technician of the Los Angeles Community College District. It appears to me that this is a complete up-to-date general guide, and when accompanied by relevant on the job training will contribute greatly toward the employability of students.

Because of its general theme, I believe that this guide will be a proper format to recommend to other community colleges that are interested in entering the Import Auto Technician Program.

Alfonso C. Urias
Specialist, Occupational Education
California Community Colleges

The need for a cooperative education program for import auto technicians has existed for a long time. The concept of cooperative education is not a new one, in fact, most European technicians have received their training this way for many years now.

The most unique feature of the program is that it has been planned to meet the requirements of the import industry and we at the Hoffman Motors Corporation are pleased to have been given the opportunity to be involved in the development of the program.

Naturally we intend to give you all the support we can on the program and look forward to the time when the program is supplying us with our future BMW technicians.

The need for automotive technicians is great. We feel that our combined efforts will now provide young people with the ideal path to enter a respected and rapidly growing profession.

John Staley
Training Manager
Bavarian Motor Works

"Theory, by itself, serves only a limited purpose. Application of the learned theories in a 'hands-on' training situation reinforces learning many times. In the area of automobile repair and service, which is becoming more and more complex, this form of training is especially good. We are glad to have taken part in the development of this training program, and we believe it will be successful."

Karl-Eric Karlsson
Service Training Coordinator
Volvo Western Distributing, Inc.

We, at Peugeot, feel that this program together with the enthusiasm of yourself and Bill Palmer, will prove to be worthy of the time spent on putting it together, and will mutually provide us, the importers, with the type of technicians we desire.

Thomas A. Newall
Regional Service Director
Peugeot

One of the greatest needs in the automotive industry is qualified, dedicated young men. The training program should provide a basis for these young men to become Technicians and help meet the needs of the industry.

W. J. Hutton
Zone Service Manager
Mercedes-Benz of North America, Inc.

INTRODUCTION

California, without a doubt, is an automobile oriented state. There is hardly a community that does not have an automobile dealer. In recent years, import automobiles have made ever increasing gains in their distribution in the United States and particularly in California. There are many factors that indicate that the trend for imports will increase; gasoline shortage problem is only one of them.

As sales increase, maintenance and repair needs increase also. The import automobile industry is realizing a need for competent automotive technicians. Those who are presently employed need constant upgrading. The consumer is demanding more and better service.

A realistic import automobile technician training program must combine classroom and laboratory programs with actual experience on the job. To accomplish this, a student must first gain the necessary background to be employable in the industry, then continue his training while gaining experience on the job. To develop and provide such a program, industry's cooperation and input is vital. Without industry participation, there is no way to define the needs and to train accordingly.

Another important aspect of this training is the automobile's relationship to the environmental problem, specifically air pollution. With stricter controls and new devices on automobiles, technical knowledge must be upgraded constantly.

The program described in this curriculum guide has been developed to encompass the above described criteria.

BACKGROUND ON DEVELOPMENT OF THE PROGRAM

Assessment of Conditions

Any occupational program designed to give job entry and continued instructions while a trainee is gainfully employed must consider the many conditions that exist in the world in which that trainee will function. This, coupled with the nature of the student, must come together in formulating a realistic situation for training and placement. This program is no exception. Therefore, the student and his relationship to the program must be considered.

Very few, if any, profit making organizations in a competitive economy can afford to assume the responsibility of a trainee who is an economic liability. The import automobile industry is one of the most competitive and cost conscious businesses. A trainee must have at least entry level skills in order to remain employed. This is the nature of the business.

Conversely, there is an urgent need for technicians in the industry. Many have tried to fill this need through existing sources with limited success. Attempts have been made to place trainees in the shops, but because they lack proper training, most of these programs have not been successful. Many of the dealers, the ones who hire the trainees, have experienced these unsuccessful attempts. Understandably, they may be less than enthusiastic about having a trainee. This is the climate of the job market.

Recruitment, training, preparation and placement must consider these realistic circumstances. If they do not, extreme difficulties will be experienced after the program is in operation. This will result in disappointment to all concerned and a disservice to the trainee.

The Student

Recognizing the situation that prevails in the industry, the student who will be the trainee must then be considered. To minimize the problems the trainee may confront, recruitment and selection of students is vital for the students' sake. To encourage a student without hope of a successful career in the industry would be a disservice to him. Under the section entitled "Career Guidance Counselling", there is an elaboration on how the student is counseled to help him evaluate himself so he could select a career suitable to his needs and abilities.

Categorically, there are two types of disadvantaged students that would benefit from this program. An eligible student economically disadvantaged would be made employable in a semester so he could continue his education and training. Also, the academically disadvantaged student will have an opportunity to have his deficiencies diagnosed and counseled so he could be successful in the program.

This program provides a student, who otherwise would not be able to be employed in the import automobile industry, an opportunity not available until now. The student now has a continuous spectrum of education beginning with the high school, through the entry level class, to employment and a continuing open-end program with technical classes in automotive, supplementary classes and general education classes leading to an Associate of Arts degree.

Development of the Program

The program has been developed not merely with the aid of the import automobile industry veterans but with their participation in defining the objectives of the entire program and each segment of it. It is through their input in an advisory capacity that the program presented in this guide was developed.

There are numerous automotive mechanics courses offered by schools and colleges. This program was developed without using any of these existing automotive training programs, but beginning with the basic problem of a need for a training program for import automobile technicians. To accomplish this a steering committee was formed of import automobile distributor training personnel.

This steering committee is unique in that the members are all directly involved in their companies' training programs. All are experienced in automotive maintenance and repair and training. Their companies' needs vary somewhat due to the size and structure of their organization but the need for good technicians is common to all. The fact that there was representation from both large and small, European and Japanese comoanies gave a broader input, thus a more comprehensive program.

The first item that was defined was the trainee; just what skills and knowledge he must have to be employable in an automobile maintenance and repair shop; how he fits into the operation of the shop in which he will be employed; and what will he realistically be called upon to do in the shop. The following characteristics were agreed upon as desirable qualities for an entry level trainee:

1. A quality person with good attitudes, high motivation, and interest in import automobiles.
2. A background in import automobile nomenclature and function so that with short, intensive training by the distributors on their respective automobiles, they can be placed in their dealer's shops.
3. A broad background in import automobiles without specialization in any particular area.
4. Preparation for work in a real shop situation.
5. Receptive to further on-the-job training coupled with classroom instruction.
6. Acceptable to the dealer as a productive employee.

Having defined the trainee, the prerequisites for enrollment in the program were determined by the committee as: the student should have an automotive background and the recommendation of his high school or trade school automotive instructor.

The subject matter and the depth to which each subject is covered in the entry level training was determined by the committee. Based on this information, measurable objectives were written by the consultant-instructor and reviewed by the committee. The curricula material based on these objectives are found under the section entitled "Entry Level Class".

With the objectives defined, committee members committed themselves to supplying those references, audio-visual material, components and related material they had at their disposal to meet these objectives. The consultant-instructor reviewed all the materials and incorporated them into the instructional package.

The same procedure was followed to develop the advanced classes for continuing education after the trainee completed the entry level class in the program and was employed. This portion will be an evening program to avoid conflict with the schedule of the working trainee. The objectives and other curriculum material are found in the section entitled "Advanced Classes".

Coincident with the curriculum development, a search for a laboratory facility for implementing the program was instituted, recruiting of students started and all the administrative procedures for starting a new course were finalized.

Progression Through the Program

The student beginning in this program will enroll in the Entry Level Class. As the end of this one semester class draws near, his availability will be made known to the import automobile distributors participating in the program.

Upon completion of the Entry Level Class, the distributor will place the trainee in a dealer's shop. The trainee will enroll in an advanced class in import automobile technology, continue working in the shop and, on a Cooperative Education basis, receive college credit for both classroom work and on-the-job experience.

Each semester the trainee will take advanced class work while he is employed. When he has completed all of his technical automotive course work, or concurrently, he could take classes in supervision, management, communication or general education requirements for a degree. Classes other than the automotive classes are those offered by the college.

A sample Cooperative Education form may be found on page 78.

SAMPLE OPTIONS FOR STUDENTS

	Option 1	Units	Option 2	Units
Semester 1	Entry Level Class	4	Entry Level Class	4
	Subtotal	4	General Studies or	
	Accumulated Subtotal	4	Elective	3*
			Subtotal	7
			Accumul· Subtotal	7
Semester 2	First Advanced Class	4	First Advanced Class	4
	Cooperative Education		Cooperative Education	
	Work Experience	4	Work Experience	4
	Subtotal	8	General Studies or	
	Accumulated Subtotal	12	Elective	3
			Subtotal	11
			Accumulated Subtotal	18
Semester 3	Second Advanced Class	4	Second Advanced Class	4
	Cooperative Education		Cooperative Education	
	Work Experience	4	Work Experience	4
	Subtotal	8	General Studies or	
	Accumulated Subtotal	20	Elective	3
			Subtotal	11
			Accumulated Subtotal	29
Semester 4	Third Advanced Class	4	Third Advanced Class	4
	Cooperative Education		Cooperative Education	
	Work Experience	4	Work Experience	4
	Subtotal	8	General Studies or	
	Accumulated Subtotal	28	Elective	3
			Subtotal	11
			Accumulated Subtotal	40
Semester 5	Cooperative Education		Cooperative Education	
	Work Experience	4	Work Experience	4
	General Studies or		General Studies or	
	Elective	3	Elective	6
	Subtotal	7	Subtotal	10
	Accumulated Subtotal	35	Accumulated Subtotal	50
Additional Semesters	General Studies or Electives at 6 units per semester will require 3 additional semesters for sufficient units for an A.A. degree.		General Studies or Electives at 6 units per semester will require 2 additional semesters for sufficient units for an A.A. degree.	

*If Semester 1, option 2 were a day program, additional General Studies or Electives can be taken reducing the total semesters required for an A.A. degree.

THE PROGRAM

Scope of the Program

The program is divided into three distinct phases, one dependent on the other to train an import automobile technician.

Phase I. General automotive background. There are many ways to acquire a general automotive background. The most common ones are high school auto shops, both day school and evening adult education programs; Armed Forces; trade schools and working in an automobile repair shop. With this background, a student is prepared for the second phase.

Phase II. Entry level preparation for the import automobile industry. This phase is a block program, one semester in duration, specially designed for entry into the import automobile dealer's shop. It contains a brief review of basic automobile mechanics with emphasis on import automobiles and concentrates on preparing the student to be a full time paid trainee-technician.

Phase III. Continued training with on-the-job experience. Once employed, full-time in an import automobile dealer's shop, the trainee-technician will take evening classes in advanced automotive while getting industrial experience. Classes in supervision, management, communication and other areas related to the trainee's job will be part of his program. Graduation requirements for an Associate in Arts degree also may be taken. Technicians presently employed in the industry can update their training in this phase.

Operation of the Program

Phase I

Contact with the high school auto shop teachers in the surrounding area is very important. Information must be provided to them about the program. The extent of each high school's program may differ and these differences must be known. This program has been well received by the high school automotive shop teachers. They see this as a continuation of their training and it gives their graduates an opportunity to prepare for a career in the automotive industry.

To determine the background a student actually has before entering the program, a pretesting program has been developed. This will be covered in detail in the section entitled "Career Guidance Counseling". Pretesting will help to define the students areas of strength and weakness so reinforcement can be given as necessary. Individualized instructional material incorporated into the program will permit reinforcement. There are details on this in the section entitled, "Individualized Instruction".

The student with trade school, Armed Forces or other automotive training should not require any different consideration from the student coming from a high school automotive program. Regardless of background, information about the individual must be obtained so that appropriate consideration may be given in the training.

Should a student be interested in the program but not have the necessary automotive mechanics background, he can be directed to the high school adult education program. There, in about one year, he can get the necessary background and then enroll in the program. This is attractive to the high schools since it becomes another source for students and their program then becomes a part of the entire training.

In a college which has an existing automobile mechanics program, this program would be a specialization in import automobile added to their present program.

Phase II

The course material offered in this phase is detailed in the section entitled "Entry Level Class". It describes the objective of each portion of the course and the associated material and equipment to reach those objectives.

The primary objective of this phase is to provide the necessary skills that permit a trainee entry into the import automobile dealer's shop. The requirements for entry have been clearly defined by input from the steering committee consisting of import distributors training personnel. Due to the nature of changes in their industry, import automobile distributors like any other dynamic industry, must maintain an in-house training program that constantly updates the technical knowledge of their product. More information on industry's training is found in the section entitled "Import Automobile Industry's Training".

Since the students have basic automobile knowledge, this facet of the program briefly reviews the concepts they have already been exposed to and continues further training with orientation to the import automobile. Components, engines and audio visual material are oriented to the import automobile. Although there is basically very little difference in concept between domestic and import automobiles, there are differences in size, tolerances and construction.

The program relies heavily on audio visual presentation for both reviewing and presenting new material. Most of these materials have been made available from the importers. A listing of audio visual material is found in the appendix and incorporated into the course material. Elaboration of audio visual material can be found in the section entitled "Audio Visual Materials".

Hands-on instruction is essential to any automobile technology program. The nature of the student in an automotive program is such that he would want and need to learn by using his hands. The hands-on experience is a laboratory situation rather than the traditional automobile shop. This makes the need for a traditional, extensive automobile shop unnecessary. In the laboratory, running engines mounted on stands are used for diagnostic work. Automobile components such as transmissions, front ends, rear ends, brakes and the like are mounted separately so their operation can be demonstrated and appropriate adjustment made. Where tearing down components is necessary, several components of different manufacturers are used for varied experience.

Since job entry is the objective, placement in a dealer's shop is an important consideration at the end of this phase. The details of this is covered under the section entitled "Placement".

Phase III

This phase is the most important part of the program in developing the completely trained technician. It is a combination of class and laboratory training and experience on the job in a dealer's shop. The emphasis is to give the trainees rigorous background in specialized areas of automobile maintenance and repair so their experience on the job would complement their training.

There are many facets in this phase. Details of each of these areas are found in appropriately titled sections further in this guide. Briefly, the areas are the classes to be offered, coordination of the trainee's classwork and job experience, follow up by the college and the distributor, reporting on trainees' progress, and long range goals of the program.

Classes will be offered at times that would allow enrollment of trainees employed full-time. This usually would be in the evenings. Weekend classes could be considered if the situation permits.

Class Combination Options

Various combinations of classes can make up the entire training program. After the Entry Level Class, the advanced automotive classes taken concurrently while gaining experience in a dealer's shop are required to complete the technical training. The program is open-ended in that after or concurrently with the technical training, general education classes required for an Associate in Arts degree and technical and non-technical electives to make up the necessary units required for the degree can be taken. The table (page 11) shows two sample options of a student's progress through the program that could lead to an Associate in Arts degree. Various combinations of classes can be made to provide other options to meet each individual's needs.

THE INSTRUCTION

The Instructor

In the setting up of any new curriculum, technically accurate input is essential. This input came from the industry steering committee. Once the information was available, a technically capable instructor who can translate the input into instructional terms was absolutely essential. The instructor made recommendations on equipment and tool selection and evaluation of a laboratory facility if an automobile shop is not available on the campus or if expansion of existing facilities was necessary.

An automotive course requires components for hands-on training. The instructor must determine what is necessary and the quantity needed to meet the objectives. Since components must come from industry, the items required must be listed and the list made available to the appropriate people. Mock-ups and components must be mounted so they can be used for demonstration and instruction. Details of this can be found in the section entitled "Components". These must all be tested and made ready for use. All test equipment must be checked out and made ready.

A method for tool storage and distribution must be set up by the instructor to insure orderly class operation and to prevent loss, damage or pilferage. More information on kind and quantity of tools is found under the section entitled "Tools".

The quality of the instructor will determine the quality of the program. The intent of this guide is to provide information that an experienced instructor can use to implement an import automobile technology program. The curriculum material in this guide is written for an instructor to use as a guide. Day-by-day or hour-by-hour schedule is not included. Objectives are stated and the support material required to meet these objectives is included. How the instructor uses this material to meet the objectives is the individual's prerogative and must fit the style of the instructor.

Facility for Training

Unlike traditional automobile courses, this program does not require facilities with hoists and other heavy equipment usually found in shops. The classes are classroom and laboratory in nature, therefore, a large room with concrete floor and double doors for easy access, work benches and an exhaust system to remove engine exhaust is all that is required. This means that appropriate available space can be made usable at minimum expense. Funds can be used to provide quality test equipment and instructional aids rather than be spent on facilities.

Since running engines mounted on stands are an integral part of this program, the facility should be located in an area of minimum student traffic due to the noise and exhaust from these engines. A minimum area of 2,000 square feet is necessary. Both classroom and laboratory facilities can be combined into one room and the activities scheduled to avoid conflict.

The major requirements of a facility are the following:

Work benches with metal top
Security cage (tool crib) for tools and small equipment
Storage area for large equipment and components
Storage for audio visual material and equipment
Office area for instructor
Exhaust system to remove exhaust gas
Adequate lighting
First aid equipment
Wash basin for clean up
Fire extinguisher
Double door access for large equipment and an automobile

Publications

There is no textbook which meets the needs of the entry level portion of the course. Since the students will have an automotive background, a basic automobile mechanic textbook would not be appropriate. However, a standard textbook can be used for reviewing basic principles.

There are many reference materials that an instructor can use. Import distributors have developed instructional material for their use which has application to import automobiles in general. Shop manuals and manufacturers' publications must be used for instruction. It is important that each engine and component used has its associated shop manual.

Arrangement for manufacturers' publication must be made on an individual basis. Each distributor must be contacted and arrangements made for purchase, loan or donation.

Since emission control, brakes and headlights certification is administered by the State of California, their handbooks in these areas should be used as teaching reference. They are available for purchase from the State of California, Department of Consumer Affairs, Bureau of Automotive Repair, Sacramento.

In the sections describing the curriculum, appropriate publications are specified.

Audio Visual Materials

Because of the variety of import automobiles, it is necessary to provide the trainee general instructions on all imports and specific instructions in areas common to all. It would be impractical and expensive to have all parts of every automobile involved. It is realistic and possible to present much of the general information using available media material.

Import distributors all have general information films on their factory that include good background material. Using this source of information, the trainee can become familiar with the extent of the industry and relate to its economic importance and how the trainee is involved as a technician.

Because of the nature of the industry's training program, media material is available that can be incorporated into this program. Some of the material is consumer oriented but there is a great deal of technical information that can be used for instruction.

As an example available 35 mm slides can be adapted for instructional presentation. Many imports use identical components, therefore information from one manufacturer can be used to give general instructions.

Various means of audio visual presentation have been incorporated in the instruction. The choice of media equipment was determined by what the importers used. The emphasis is to use as much of what industry has available to minimize duplication and to present a realistic program. The following is the media equipment for which industry has developed audio visual materials:

35 mm slide projector
16 mm sound motion picture projector
Overhead slide projector
Super 8 mm sound motion picture projector
35 mm filmstrip projector
Color video cassette player
Color video cassette recorder
Color monitor/receiver

One of the import automobile distributors has gone heavily into use of color video cassettes in their training. They have developed many of their own cassettes that can be used universally for all imports. They have also made cassettes on use of test equipment. Certain parts manufacturers have made cassettes applicable for training. With the addition of a TV camera, audio visual material can be readily made on a reusable medium. Experimenting on instructional ideas can be done quite inexpensively after the initial investment for equipment. Updating can also be easily accomplished without wasting material.

Slide presentations can be converted into filmstrips once they have been finalized and with taped audio to accompany them, they can be used for classroom or individual instruction. The slides can be used later when updating is necessary.

Overhead projector slides are commonly used by industry and are easily reproducable. Additional slides can be made readily from printed material.

A combination of all of the mentioned media can bring a variety of information into the classroom and laboratory that would otherwise prove too expensive or impractical. A realistic program can be presented which would be interesting and comprehensive.

Audio visual material that import distributors have developed must be arranged for by each college. The training department of each manufacturer must be contacted and arrangement for purchase, loan or donation be made individually.

Individualized Instruction

Although students have automotive background prior to the entry level portion of the program, the type and depth will vary with each individual. Through pretesting, areas of weakness can be determined and reinforced individually using prepared audio visual materials constructed to involve the student actively in the learning process. There are sufficient materials available commercially. In the appendix there is a listing of individualized instruction that has been validated that has been reviewed and found effective. These materials are used for review and reinforcement of basic concepts to prepare the student for specialized instruction on import automobiles.

To meet individual learning needs of the student, media material in specialized areas of import automobile technology can be made to, (1) accommodate the slow learner, (2) the student who requires or desires reviewing and, (3) the fast student who wants to get ahead. This type of flexibility allows the instructor to utilize his time to help the student where he needs it most. A variety of activities can be taking place at one time which allows the best use of equipment, components and tools.

The development of individualized instructional material requires time and talent. Where media production facilities are available on campus, their services will make the task much easier. To make such material, the objectives of the instruction must be clearly defined in measurable terms and a test developed to measure its effect to validate the material.

For technicians already employed in the industry who desire upgrading, the entry level material may be used to review and develop background at the individual's own speed. This allows students to enter the advance automobile technology program with the same background as those going through the entry level program.

Components

Emission control and tune-up are a vital part of the training since these are areas that require great attention in the shops. In order to give proper training in these subjects, a running engine with emission control devices must be available in the laboratory. Engines mounted on stands are appropriate for instructional purposes. They have many advantages over using engines in an automobile. Availability of a variety of automobiles for training can not always be assured.

An engine mounted on a stand accommodates instruction by providing good visibility and easy access. Malfunctions can be simulated without concern for having to make the engine operable before the end of the class as would be necessary if the car were to be used for transportation.

Components mounted for demonstration and hands-on training are more accessible than in the normal location in the automobile. This would not, however, detract from the realism of the course since all the students have experienced working on similar components in place of the automobile in their prerequisite training. Making of mock-ups can be a class project and used as a learning experience.

This program, of course, does not preclude the use of entire automobiles. It is, however, not necessary to have automobiles available.

The source of all automobile components is the manufacturer. There has been no blanket commitment by the distributors to provide components to any educational institution. Each college must make arrangements with each individual distributor for purchase, loan or donation.

Test Equipment

In training automotive technicians, proper test equipment of the kind and quality used in industry is important. Although there are many manufacturers of such equipment, industry, in general, has a preference. Wherever possible, the equipment most commonly used in shops should be used in training. Also, there are more instructional aids available for the more popular brands of equipment.

The curriculum material indicates where the equipment will be used in training. There is also a complete list of equipment in Appendix A.

Training given on the use of test equipment must be comprehensive. It must cover the function as well as simply the use of the equipment. This type of training would equip a trainee to use, without difficulty, any test equipment, even those that he has not used before.

Tools

Generally, all European and Japanese manufactured automobiles are standardized under the metric system, with the exception of some English cars. Metric tools are readily available. Emphasis on quality tools should be stressed. To reinforce this concept, industrial quality tools must be available for training.

Special tools required to work on certain manufacturer's automobiles are not always available commercially. Arrangements should be made for these tools when the manufacturer makes his components available to the program. One set of these tools is sufficient.

A system of tool inventory, storage and distribution must be developed for orderly class function and to insure against loss. Fixed or portable tool cabinets that allow easy distribution and control must be used.

A list of the tools necessary for this program is in Appendix B.

SUPPORT FOR INSTRUCTION

Recruitment of Students

There are many areas from which students for this program can be recruited. Because the nature of the program requires automotive background, there are some restrictions that must be made clear to the prospective student.

Before attempting recruiting, a brochure must be developed containing an invitation to the student and an explanation of the program. Where time is a factor or budget is a limitation, a printed flyer would suffice. However, an attractive brochure would catch more interest than a flyer. A sample of a flyer is found in Appendix C. This same information with illustrations can be used for a brochure. It is important that the information in the brochure not be too wordy but it should spell out the program's highlights and the advantages to the student. An application form included would prompt the interested student to take positive action in showing this interest.

Since this program is looking for serious, career-minded trainees, this concept must be relayed in the recruitment effort. Career guidance counseling held in conjunction with sound recruiting would assure this. This would not necessarily exclude students wanting merely to expand their knowledge but the Cooperative Educational features necessitates that the trainee be employed in the industry.

The vocational class of the high school auto shop is an excellent source of students. Contact with the auto shop teacher early in the spring semester is important so that the teacher could look for the students with the necessary requisites.

Trade school graduates in automobile technology would be desirable candidates. Although a student completing a college level auto training may appear to have sufficient credentials for employment, not all schools provide intensive import automobile training and very few have programs which provide the entry skills required by the import automobile industry. Therefore, contact with local trade schools explaining the concept of the program and how it complements their training would result in good relationship and a source of students.

Veterans can be reached through various governmental agencies which provide services in helping and placing veterans on jobs and in schools. The veterans counselor and the veterans clerk at the college should be informed of the program. Since many veterans have responsibilities that necessitate their being employed, a one semester entry level class, after which they are placed on the job, has great appeal. Coupled with this, they can receive their G.I. education benefits both in the entry level class and in their continuing training to the extent that under cooperative education, their job experience is eligible for those benefits.

Publicity would inform the community of the program. The college's communication officer can handle the details once the information is provided. There are many people in the community who are looking for an opportunity to pursue new careers which would give them assurance of job placement. Presently enrolled or enrolling students looking for such a program can be informed through the campus newspaper and publicity posted on the campus. Counselors must be informed and brochures given them so they can effectively help interested students.

Career Guidance Counselling

An occupational curriculum must have as its goal job placement and hopefully a long tenure in the trade. Naturally, an employer is looking for a career minded trainee. To realize these ends, selection of students into the program is important. There are many factors to consider in student selection. It must be clearly understood that being selective does not necessarily mean screening students out. On the contrary, it means using sound career counselling techniques to help the student determine for himself his interest and abilities so he is assured in his mind that he has made the best selection.

An obvious requisite for career guidance counselling is an experienced counselor. Tools to aid in his counselling are inventories and tests from which profiles can be constructed to use as a starting point for counselling. It is important to recognize that the test results themselves are of little value unless properly evaluated. Therefore, the counselor's individual attention must be given to each prospective student.

To maintain an orderly record of testing and counselling there must be a systematic method. As each prospective student comes from testing, he would be required to fill out an intake form which gives personal data pertinent to the program. A copy of such a form is in Appendix D.

A file including the intake form and test profiles must be maintained. As the student is counseled, a record of the counselling must be made.

In addition to interest and personality inventories, knowledge in automotive technology is important since the entry level class is designed for students with automotive background. Level of technical knowledge required for acceptance must be determined and the test written to measure it. The test should be divided into categories of subject matter even though the student is required to have automotive background, he may not have it in all subject categories. This should not disqualify an otherwise eligible student. Knowing his deficiencies, the automotive instructor could help him in these areas by use of individualized instruction and extra assignments.

The following is a package of inventories and tests that have been compiled for this program:

Occupational Interest Inventory: Measures six fields of occupational interest; personal-social, natural (outdoor), mechanical, business, artistic, and scientific; also three types of interest; verbal, manipulative, and computational, as well as a level of interest.

Raven's Progressive Matrices - Standard: Measures the ability for non-verbal logical reasoning.

Wide Range - Arithmetic: A ten minute timed test that goes from very easy arithmetical computations to difficult, and indicates the degree of knowledge on a grade level and percentile rank.

Gates-McGinitie - Reading: Determines the level of reading comprehension, vocabulary, and speed.

D.A.T. Mechanical Reasoning: Measures the comprehension of common principles of the mechanics of everyday things, and the understanding of the laws governing the motion of simple appliances, machinery and tools.

East Los Angeles College Personality Inventory: Indicates certain personality traits as they relate to the world of work.

Automotive Proficiency: Determines the student's knowledge of automotive diagnosis and repair.

The Occupational Interest Inventory coupled with the D.A.T. Mechanical Reasoning will help the student to determine if his interest and aptitudes are in the automotive area. The Wide Range — Arithmetic and the Gates-McGinitie — Reading will determine the student's background in these two basic areas. Without reading skills and mathematical ability, success in this or any other technical program would be doubtful. Remedial work in these areas prior to entering the program would prove beneficial to the student.

Since diagnosis requires logical reasoning, the Raven's Progressive Matrices - Standard will give insight to the student's reasoning ability. The East Los Angeles College Personality Inventory will be used to discover personality traits that are desirable in a career minded employee.

All of the inventories must be used in conjunction with professional counselling so a student entering the program will do so with good assurance of success.

The Automotive Proficiency examination will be used to test basic technical knowledge of each interested student so he would have the required prerequisite for the program or be advised as to how he could prepare himself for the program.

Placement

The objective of the job entry portion of the program is placement of the trainee in an import automobile dealer's shop. With numerous manufacturers involved, it is important that a planned approach to placement be agreed upon by all concerned.

Placement will be handled by the distributors contacting their dealers who need trainees. To introduce the trainee program to their dealers, a brochure was designed. Since the demand for technicians has been well established, the brochure will serve an informational function, however, for those dealers who are apprehensive about hiring a trainee, the brochure is intended to recruit them as participants. A draft of the brochure is found in Appendix E.

As part of the training program, distributors' training personnel will appear as a panel where each will give information about his organization. After their presentation, they will be available to answer questions either as a panel or individually. This will give the trainee an opportunity to gather information so he could decide where he would prefer to work.

About a month prior to the completion of the entry level program, the instructor will provide the distributors with information on each student that they can use to talk to their dealers about specific trainees. The form used for this information is found in Appendix F.

The distributors will have the dealer understand that in the event that a trainee does not fit into the dealer's shop operation, the distributor will be notified before any action is taken to discharge the trainee. The distributor may find another dealer that would prove satisfactory for both the trainee and the dealer, or finding that not possible, inform the college who in turn will inform other distributors of the availability of the trainee for placement.

To insure that recruitment of trainees be on an equal monetary basis, a minimum starting salary equal to the minimum union rate was agreed upon by the distributors.

Once the trainee has committed himself to a certain manufacturer, the distributor will train him on certain aspects of his automobile prior to actual placement in the shop. The extent and length of training will vary with each distributor.

Follow-up After Placement

After placement, the trainee will continue his training in advanced import automobile technology while employed full time in the shop. Under the Cooperative Education concept, the trainee will receive up to four units of college credits per semester for his work experience, one unit of which is a coordinating class.

Coordination of class work and experience on the job is a requirement of the Cooperative Education agreement which must be signed by the employer, the college and the student. The variety of experience would depend on the shop and the trainee. A shop must obviously be profit oriented. A good trainee will very quickly make money for the shop, and as he progresses in his training, he would be able to do more complex jobs and still continue to be an economic asset to the dealer.

In order to insure against conditions that would prove detrimental to the trainee, a follow-up procedure was designed and implemented. The cooperative education coordination class will allow constant input from the trainees on the conditions of their employment. This class will also help the trainee in understanding the shop situation by discussing their situation with others in similar circumstances.

The college will make visits to the shops as a follow-up on cooperative education for an evaluation of the trainee for purposes of giving credit for his experience. During these situations an evaluation of the working conditions and opportunities can be made.

The distributor's training department will institute a follow-up procedure of their own. In some cases, they would use their service representatives who make frequent calls on their dealers. Other distributors will have training department representatives make the follow-up. In either case, a report will be filed on a standard form, a sample of one is found in Appendix G. A copy of the report will be made available to the college to help in evaluating the trainee and the program.

THE IMPORT AUTOMOBILE INDUSTRY

This program in no way competes nor conflicts with the distributors' training. It complements it by providing intensive background and theory that is necessary to understand their training. As a trainee continues to take advanced classes in automotive, this knowledge will be used as a foundation on which he builds his knowledge of diagnosing and repairing particular automobiles.

In the development of this program, it was very fortunate that the training managers of the distributors were available to provide the necessary information to formulate the objectives of a curriculum geared to their needs. Since they are experienced and involved in training, they can very effectively provide the information needed to produce a program to meet the needs and goals defined.

Import Automobile Dealers' Shop

The primary concern of the service manager who is responsible for a shop is to maintain a sound economic operation. Unless this can be maintained, the shop will not survive. To accomplish this, the trainee will be used in the most productive manner. How this would be done would vary with the shop and the individual trainee. This kind of situation appears to be ripe for exploitation of the trainee and could possibly happen. The safeguards against this are that the distributor will be selective of the shops in which trainees are placed. Follow up by the college and the distributors will minimize questionable practices. The trainee will prove to be an asset to the shop and will be used productively and still receive a variety of experiences. Because the trainee will be aware of the operation of a shop from his training, he will be able to adjust to its demands and respond favorably so that opportunities would be made available to him. Where the situation becomes intolerable to the trainee or the shop, a process of rectifying this situation is mentioned in the section entitled "Placement".

Most shops are organized to pay a technician a flat rate for particular jobs. This could cause a journeyman technician to avoid spending time helping a trainee to learn because he may feel that his productivity would be reduced and consequently, so will his pay. In some shops, this situation may make it undesirable to place a trainee. However, with the acute shortage of technicians, trainees should, be accepted and, once they prove productive because of their training, this situation will not be a detriment.

In areas where labor unions are strong, close liaison with them in the development of the program, keeping them informed and getting union cooperation would minimize problems that could arise due to misunderstanding.

This program has been approved by the Federation of Local Automotive Apprentice Committee when accompanied by the appropriate number of on-the-job training hours. This Committee has recommended the program described in this guide to all Federation Committee members and to any and all schools and colleges that wish to participate in related training for apprenticeship committees.

ENTRY LEVEL CLASS

The Entry Level Class is one semester in length, designed to provide necessary background for a student to be employed as a trainee in an import automobile shop. The curriculum material that follows is the result of the Steering Committee's recommendations both as to the subjects and depth of knowledge necessary in each subject.

The curriculum material is written as a guide for an instructor implementing the class. The objectives are written in measurable terms; the conditions given, the behavior defined and the criteria specified.

The subjects are presented in sequence. Some of the material can be used in conjunction with other subjects as suggested in the explanation of the characteristics of the subject. Other subjects can be and must be injected throughout the class as again the characteristics suggest.

Estimated time for lecture and laboratory work is based on objectives. It is suggested as a guide for the instructor.

Special material needed and sources of that material is indicated. The Appendix has listings of required tools and equipment.

To clarify what has already been said, this is a guide for the instructor. It is not a teaching manual. Using this guide, the instructor must work out his day to day activities to teach to the objectives using his skills as a teacher and a technician.

This class can be offered in the evenings, two evenings per week, for a total of 7 hours providing a full evening schedule for a student working during the day.

If this class is offered during the day, the 7 hours per week can be supplemented with general education courses applicable to an Associate in Arts degree. Students desiring or requiring reinforcement in communication skills or mathematics may take appropriate courses to meet their needs and be integrated into a program leading to an A.A. degree. It is important that each student meet with his advisor so his particular needs are defined so he can be counselled in the proper selection of classes.

ENTRY LEVEL CLASS

OUTLINE OF SUBJECTS

Subject	Hours of Instruction	
	Lecture	Laboratory
Orientation to the Import Automobile Industry	3	0
Shop Safety	2	0
Proper Use of Tools	2	2
Correct Use of Fasteners	1½	1½
Use of Manuals and Other Publications	1½	1½
The Metric System	1½	½
Internal Combustion Operation	As Appropriate	
Cooling Systems	2	2
Fuel Systems	6	6
Basic Automotive Electricity	3	5
Tune-Up	5	10
Emission Control Systems	6	6
Brake Systems	3	7
Front End	2½	9½
Suspension Systems	3	7
Steering Systems	3	2
Wheel Balancing	1	2
Headlight Adjustment	1	1
Dealer Organization	2	0
Totals	49	63

ENTRY LEVEL SUBJECT

Subject Title:
ORIENTATION TO THE IMPORT AUTOMOBILE INDUSTRY

Characteristics of the Subject:
Students will be informed about the automobile industry as a whole. This area will be treated as an introduction to the import course itself. Differences in import versus domestic automobiles and the technology required for each will be discussed. The instructor will use his discretion as to the arrangement of materials.

Student Performance Standards (Behavioral Objectives):
Conditions: With the aid of films, charts, booklets, demonstrations, field trips and special qualified speakers from the import industry, students will be exposed to and informed about the industries.

Behavior: The students will be able to participate in class discussions. They also will be able to evaluate and apply this information so as to assist themselves in planning their careers.

Criteria: The Steering Committee proposed that no measurable objectives be applied.

Estimated Time:
Lecture: 3 hours
Laboratory: 0

Special Materials Needed:
Films, charts, booklets, speakers

Source of Materials:
Distributors, Dealers, will supply Audio Visual materials and special speakers.

Note: See information about Source of Materials contained in Audio Visual Materials and Publications Sections.

ENTRY LEVEL SUBJECT

Subject Title:
SHOP SAFETY

Characteristics of the Subject:
The students will be exposed to shop safety and required to be aware of general shop safety. This subject is designed to provide information through lectures, demonstrations, films, charts, and class participation. Students will learn the importance of working safely with himself and others and how safe practices will prolong the life and use of tools, equipment and physical plant. (It is significant to mention here that safety practices are an integral part of each subject and they will be constantly applied and stressed throughout the total program.)

Student Performance Standards (Behavioral Objectives):
Conditions: With the aid of films, charts, lectures, demonstrations and class participation.

Behavior: Students will complete a written examination on general shop safety.

Criteria: With a score of 100%

Conditions: Given the proper tools, equipment, laboratory units and the proper information on safe practices.

Behavior: The students will be performing shop activities throughout the entire program and will be evaluated constantly in a manner consistent with accepted safety standards.

Criteria: The acceptable assessment will be 100%

Estimated Time:
Lecture: 2 hours

Laboratory: 0

Special Materials Needed:
Films, Charts, booklets, safety examinations

Source of Materials:
Safety Film (Chrysler), Booklets and safety examinations supplied by College District, films from distributors, instructor developed materials.

Note: See information about Source of Materials contained in Audio Visual Materials and Publications Sections.

ENTRY LEVEL SUBJECT

Subject Title:
PROPER USE OF HAND TOOLS

Characteristics of the Subject:
Students will review, identify, and learn to use hand tools. They also will learn the importance of selecting and matching the correct tool to fit the operation or operations involved and do so in a safe manner. (Emphasis on this important area will be prevalent throughout the total program.) (May be applied concurrently with Correct Use of Fasteners.)

Student Performance Standards (Behavioral Objectives):
Conditions: With the aid of films, charts, lectures, demonstrations, and given various types of fasteners, laboratory units, hand tools, and practice time.

Behavior: The students will demonstrate their ability to identify, select, and properly use the hand tools in a safe manner, and complete an identification examination.

Criteria: With a minimum of 85% accuracy.

Estimated Time:
Lecture: 2 hours

Laboratory: 2 hours

Special Materials Needed:
Films, (ABC of Hand Tools), tool tests (one developed by John Lemster of Mazda), various fasteners, laboratory units.

Source of Materials:
ABC of Hand Tools (G.M. Film), Tool Test (by John Lemster of Mazda). Tools on hand from college, flip charts and transparencies, instructor developed materials.

Note: See information about Source of Materials contained in Audio Visual Materials and Components Sections.

ENTRY LEVEL SUBJECT

Subject Title:
CORRECT USE OF FASTENERS

Characteristics of the Subject:
Students will review, identify and learn the importance of the correct selection and safe use of fasteners. The significance of the ability to differentiate will be stressed and applied throughout the total program. (May be applied concurrently with Correct Use of Hand Tools.)

Student Performance Standards (Behavioral Objectives):
Conditions: With the aid of lectures, demonstrations, films, charts, and given various fasteners, laboratory units, hand tools, and practice time.

Behavior: The students will be able to complete a written examination and demonstrate ability to identify, select, and safely use fasteners, and adjust or secure to specifications.

Criteria: With a minimum of 90% accuracy.

Estimated Time:
Lecture: 1-1/2 hours

Laboratory: 1-1/2 hours

Special Materials Needed:
Films, charts, booklets, fasteners, laboratory units

Source of Materials:
Fasteners Film (Cadillac), flip charts, films from import distributors, tools on hand at college, laboratory units provided by distributors.

Note: See information about Source of Materials contained in Audio Visual Materials and Components Sections.

ENTRY LEVEL SUBJECT

Subject Title:
USE OF MANUALS AND OTHER PUBLICATIONS

Characteristics of the Subject:
The subject is designed to instill in the student the importance of the concept that a professional always refers to manuals and bulletins for needed, accurate information and specifications. Students will learn how to select and interpret various manufacturers' publications, and apply information to simulated or real situations.

Student Performance Standards (Behavioral Objectives):
Conditions: With the aid of lectures, demonstrations, class participation, and given manuals, publications, and supplemental information involving real or simulated conditions.

Behavior: Students will be able to select the proper manuals, etc., and fill in the correct information written and/or orally, as to specifications, disassembly and assembly procedures, and component part identification.

Criteria: With 100% accuracy.

Estimated Time:
Lecture: 1-1/2 hours

Laboratory: 1-1/2 hours

Special Materials Needed:
Manuals, publications, supplements

Source of Materials:
Provided from distributors.

Note: See information about Source of Materials contained in Audio Visual Materials and Publications Sections.

ENTRY LEVEL SUBJECT

Subject Title:
THE METRIC SYSTEM

Characteristics of the Subject:
Students will learn to measure, feel for size and use specific tools to a designated accuracy, with ref' rence to and utilization of the metric system.

Student Performance Standards (Behavioral Objectives):
Conditions: Given the basic design of the metric system, with the aid of charts, films, handouts, lecture, etc.

Behavior:
The student will be able to complete a written examination.

Criteria: With a minimum score of 80%.

Conditions: Given a steel scale

Behavior: The student will be able to explain the divisions of said scale

Criteria: To within one millimeter.

Conditions: Given an outside micrometer and measurable components or objects

Behavior: The student will be able to measure and record at least six different objects such as a crankshaft, piston, bearing race, valve stem, piston pin, camshaft, etc.

Criteria: To a minimum of 95% accuracy and tolerance of the micrometer.

Conditions: Given a vernier calipers and measurable components or objects,

Behavior: The student will be able to measure at least three applicable items,

Criteria: To a minimum of 95% accuracy and tolerance of the calipers.

Conditions: Given a dial indicator.

Behavior: The student will be able to demonstrate the correct methods of use and be able to measure at least three surfaces; flat, end play, and out-of-round,

Criteria: To a minumum of 95% accuracy and tolerance of the dial indicator.

Estimated Time:
Lecture: *1-1/2 hours*
Laboratory: 1/2 hour

Special Materials Needed:
Charts, films, handouts, steel scales, micrometers, calipers, dial indicators, crankshafts, camshafts, pistons, piston pins, bearings, valves, etc.

Source of Materials:
Measuring equipment and tools supplied by college, components supplied by distributors, audio visual materials supplied by distributors.

Note: See information about Source of Materials contained in Audio Visual Materials and Components Sections.

ENTRY LEVEL SUBJECT

Subject Title:
INTERNAL COMBUSTION OPERATION

Characteristics of the Subject:
This subject is not specifically one lesson, but is designed as a series of lessons given as necessary throughout the total program. Internal combustion operation will be implemented wherever and whenever related to other subjects in which internal combustion is a factor. Application will be arranged by the use of reviews, charts, lectures, films, demonstrations, laboratory units, and class discussions.

Student Performance Standards (Behavioral Objectives):
Conditions: With the aid of reviews, films, charts, lectures, discussions, and demonstrations,

Behavior: The students will be able to demonstrate their knowledge of internal combustion operation.

Criteria: By completing written examinations with a minimum score of 85%.

Conditions: With the aid of laboratory units, proper tools, and various components,

Behavior: Students will be able to identify parts and demonstrate their ability to apply 4 stroke principles of operation while performing practical (hands-on) operations, such as, valve timing, camshaft/crankshaft timing, cylinder balance, and ignition timing,

Criteria: With a minimum of 90% accuracy.

Estimated Time:
Lecture: At various appropriate times.
Laboratory: At various appropriate times.

Special Materials Needed:
Films, charts, textbooks, engine components, running engines, diagnostic equipment.

Source of Materials:
Audio Visual Materials supplied by distributors, engines and components supplied by distributors, diagnostic equipment and tools supplied by college.

Note: See information about Source of Materials contained in Audio Visual Materials and Components Sections.

ENTRY LEVEL SUBJECT

Subject Title:
COOLING SYSTEMS

Characteristics of the Subject:
Students will demonstrate their knowledge of Automobile Cooling Systems. Both liquid and air systems will be reviewed through the use of films, charts, textbooks, manuals, lecture, demonstrations and class discussion.

Student Performance Standards (Behavioral Objectives):
Conditions: With the aid of cooling system components as follows: pressure caps, water pumps, radiators, thermostats, fan blades and fan clutches and given the proper testing equipment,

Behavior: The students will be able to identify the components, describe the function of each, and demonstrate their ability to select and use the proper test equipment correctly,

Criteria: By completing a written test with a minimum score of 85% and doing hands-on operations with a minimum of 95% accuracy.

Estimated Time:
Lecture: 2 hours
Laboratory: 2 hours

Special Materials Needed:
Films, charts, manuals, textbooks, cooling system components, test equipment

Source of Materials:
Audio Visual Materials provided by distributors, test equipment provided by college.

Note: See Information about Source of Materials contained in Audio Visual Materials, Components and Publications Sections.

ENTRY LEVEL SUBJECT

Subject Title:
FUEL SYSTEMS

Characteristics of the Subject:
Students will review, identify, and explain the basic principles of the operation of fuel pumps, carburetion, and fuel injection systems. The student will learn also to identify and operate fuel system test equipment.

Student Performance Standards (Behavioral Objectives):
Conditions: With the aid of various films, charts, booklets, textbooks, lectures, diagrams, and class participation,

Behavior: The students will be able to review the operations of the fuel system,

Criteria: And without reference to outside material complete a written examination with a minimum score of 85%.

Conditions: Given a basic fuel pump, carburetor, and fuel injection system, and proper tools,

Behavior: The students will be able to identify and explain the operation of the basic components of the fuel pump, injection system, and the choke, float, idle, low speed, high speed, accelerator, and power systems of the carburetor,

Criteria: With a minimum of 90% accuracy.

Conditions: With the aid of charts, films, lectures and demonstrations on the types of and proper use of fuel system test equipment such as: Fuel Pump Tester, Infra-Red Spectrometer, Exhaust Gas Analyzer, Tachometer, Fuel Injection Test Equipment.

Behavior: The students will be able to test, adjust and correct basic carburetor and fuel system malfunctions,

Criteria: With a minimum of 90% accuracy.

Conditions: Given a basic carburetor, proper tools, and with the aid of specification manuals,

Behavior: The students will be able to adjust the float level according to manufacturers specifications,

Criteria: With a minimum of 95% accuracy.

Estimated Time:
Lecture: 6 hours
Laboratory: 6 hours

Special Materials Needed:
Films, charts, books, laboratory units, Fuel Pump Tester, Infra-Red Spectrometer, HC/CO Analyzer, Tachometer, Fuel Injection Test Equipment, Special Carburetor Tools.

Source of Materials:
Components will be provided by distributors, audio visual material will be provided by distributors, test equipment and tools will be provided by college.

Note: See information about Source of Materials contained in Audio Visual Materials and Components Sections.

ENTRY LEVEL SUBJECT

Subject Title:
BASIC AUTOMOTIVE ELECTRICITY

Characteristics of the Subject:
Students will review basic automotive electricity in regard to ampere, volt, ohm, DC, AC, and Ohms Law. He will be able to identify, use and explain purposes of various test equipment such as Ammeter, Voltmeter, Ohmmeter, Test Light and Continuity Tester. He will be able to read accurately wiring diagrams and trouble shoot and repair simple electrical problems such as found in the horn, lighting, turn signals, brake lights, wipers, charging system, starting system, and ignition system.

Student Performance Standards (Behavioral Objectives):
Conditions: Given a review of basic automotive electricity with the aid of textbooks, lectures, charts, films, demonstrations, class discussions and home study,

Behavior: The student will be able to complete a short written examination with,

Criteria: A minimum score of 85%.

Conditions: Give information with the aid of films, charts, test equipment, manuals and demonstrations and test equipment such as, Ammeter, Voltmeter, Ohmmeter, Test Light and Continuity Tester,

Behavior: The student will be able to trace and correct five simple problems in the electrical system, such as the lights, turn signals, horn, brake lights, starting system, charging system, wipers and ignition system,

Criteria: With a minimum of 90% accuracy.

Conditions: Given an accurate wiring diagram,

Behavior: The student will be able to trace five separate circuits from source of power to the unit,

Criteria: To the satisfaction of the instructor.

Estimated Time:
Lecture: 3 hours
Laboratory: 5 hours

Special Materials Needed:
Textbooks, charts, films, test equipment, manuals, wiring diagrams, starters, alternators, batteries, lights.

Source of Materials:
Audio Visual materials will be provided by distributors, components will be provided by distributors, test equipment and tools will be provided by college

Note: See information about Source of Materials contained in Audio Visual Materials and Components Sections.

ENTRY LEVEL SUBJECT

Subject Title:
TUNE-UP

Characteristics of the Subject:
Students will review and learn the following: The operating principles of the ignition system, the correct sequence according to factory specifications while performing a tune-up; the correct procedure for attacking the problem when found; be able to identify, explain, and use the proper test equipment involved with tune-up, such as the Oscilloscope, Distributor Tester, Dwell/Tach Meter, Timing Light, CO/HC Analyzer, Compression Gauge, and Complete Engine Analyzer.

Student Performance Standards (Behavioral Objectives):
Conditions: Given a review of the ignition system principles with the aid of films, charts, lectures, demonstrations, textbooks and class participation,

Behavior: The student will complete a written examination on ignition system principles,

Criteria: With a minimum score of 85%.

Conditions: Given lectures, demonstrations, proper manuals, tools, laboratory units and practice time,

Behavior: The students will be able to follow the acceptable sequence as per manufacturers' specifications, while performing tune-up procedures,

Criteria: With a minimum of 95% accuracy.

Conditions: Given a laboratory unit with contrived or real malfunctions, proper tools and test equipment, and specification manuals,

Behavior: The students will be able to attack the problem and properly repair said problem or problems,

Criteria: With a minimum of 95% accuracy.

Conditions: Given test equipment, tools, manuals, and laboratory units, and after the aid of films, charts, lectures, demonstrations, and practice time,

Behavior: The students will be able to identify, explain, and use the following equipment: Oscilloscope, Distributor Tester, Dwell/Tach Timing Light, CO/HC Analyzer, Compression Gauge and Complete Engine Analyzer,

Criteria: With a minimum of 90% accuracy.

Estimated Time:
Lecture: 5 hours
Laboratory: 10 hours

Special Materials Needed:
Films, charts, books, laboratory units, mock-ups, running engines, Oscilloscope, Distributor Tester, Compression Gauge, CO/HC Analyzer, Dwell/Tach Meter, Complete Engine Analyzer.

Source of Materials:
Engines, films, charts, components will be available from distributors. Special test equipment and tools will be provided by college.

Note: See information about Source of Materials contained in Audio Visual Materials and Components Sections.

ENTRY LEVEL SUBJECT

Subject Title:
EMISSION CONTROL SYSTEMS

Characteristics of the Subject:
Students will learn the purposes of the Emission Control Systems, how they operate, how they are tested and adjusted and certified. Films, charts, Smog Control Handbooks, demonstrations, lectures and class participation will be implemented throughout. Students also will learn how to use the various test equipment necessary for Emission Control Systems. Preparation for taking the State Examination for the Class "A" Installers License will be emphasized and students will be required to have said license as a condition for advancing to the Import Car Dealerships.

Student Performance Standards (Behavioral Objectives):
Conditions: Given all possible and necessary information with the aid of films, charts, books, demonstrations, lectures and class participation,

Behavior: The student will apply the related and theoretical information necessary to complete practice written examinations, administered by the instructor,

Criteria: With a minimum score of 90% to qualify for taking the State Examination.

Conditions: Given the proper tools, test equipment, manuals and automobile or engine,

Behavior: Students will be able to connect, test, adjust, and repair Emission Control Systems, with proper procedure, according to manufacturers' specification,

Criteria: With a minimum of 95% accuracy.

Estimated Time:
Lecture: 6 hours
Laboratory: 6 hours

Special Materials Needed:
Films, charts, test equipment, State Emission Control Handbook, automobile (or running engine with Emission Controls).

Source of Materials:
Audio Visual materials will be provided by distributors, diagnostic and engine analyzer and tools will be provided by college, State handbooks will be purchased by students from State Department of Consumer Affairs.

Note: See information about Source of Materials contained in Audio Visual Materials, Components and Publications Sections.

ENTRY LEVEL SUBJECT

Subject Title:
BRAKE SYSTEMS

Characteristics of the Subject:
Students will review both drum and disc brake systems, with emphasis placed on the operation of the following system components; master cylinder, slave (brake) cylinder, booster, disc and caliper arrangement, drum brake arrangement and emergency brake system. Students also will be prepared for obtaining the State Brake Adjusters License.

Student Performance Standards (Behavioral Objectives):
Conditions: Given a review with the aid of films, mock-ups, charts, textbooks, lectures and demonstrations,

Behavior: The student will demonstrate his theoretical knowledge by completing a written examination,

Criteria: With a minimum score of 85%. *Conditions:* Given the two master cylinders and brake cylinders, proper tools, and with the aid of specifications,

Behavior: The student will be able to disassemble and service both single and dual master cylinders and brake cylinders, to manufacturers' specifications,

Criteria: With 100% accuracy.

Conditions: Given a power brake cylinder, proper tools and specifications,

Behavior: The student will be able to disassemble and service the power brake unit, to manufacturers' specifications,

Criteria: With 100% accuracy.

Conditions: Given a disc and caliper arrangement, proper tools and specifications,

Behavior: The student will be able to service calipers and replace disc pads, to manufacturers' specifications,

Criteria: With 100% accuracy.

Conditions: Given an emergency/parking brake system, proper tools, specifications,

Behavior: The student will be able to service and adjust to manufacturers' specifications,

Criteria: With 100% accuracy.

Conditions: Given a drum brake arrangement, tools, specifications, and all special adjusting tools.

Behavior: The student will be able to adjust to manufacturers' specifications,

Criteria: With 100% accuracy.

Estimated Time:
Lecture: 3 hours
Laboratory: 7 hours

Special Materials Needed:
Films, charts, textbooks, manuals, brake components, and brake assemblies.

Source of Materials:
Audio visual material provided by distributors. Brake assemblies and brake components, provided by distributors. Special tools provided by College.

Note: See information about Source of Materials contained in Audio Visual Materials, Components and Publications Sections.

ENTRY LEVEL SUBJECT

Subject Title:
FRONT END

Characteristics of the Subject:
Designed to ensure student knowledge of front end principles such as caster, camber, toe-in and toe-out on turns. Students will be able to identify symptoms of improper tire wear, adjust front wheel bearings and how to align front end. Films, charts, textbooks, demonstrations and lectures will be applied.

Student Performance Standards (Behavioral Objectives):
Conditions: Given a review with the aid of films, charts, lectures, demonstrations and class discussions,

Behavior: The student will be able to demonstrate his knowledge of principles,

Criteria: By completing a written examination with a minimum score of 85%.

Conditions: Given common tools, a front wheel assembly, an automobile, special alignment equipment and special tools and specifications,

Behavior: The student will be able to adjust a front wheel bearing, and align a front end to manufacturers' specifications,

Criteria: With 100% accuracy.

Estimated Time:
Lecture: 2-1/2 hours
Laboratory: 9-1/2 hours

Special Materials Needed:
Films, charts, textbooks, front end components, mock-ups, automobile.

Source of Materials:
Films, charts, front end components, mock-ups, automobile, and other Audio Visual materials will be provided by distributors. Tools and equipment provided by college.

Note: See information about Source of Materials contained in Audio Visual Materials and Components Sections.

ENTRY LEVEL SUBJECT

Subject Title:
SUSPENSION SYSTEMS

Characteristics of the Subject:
Students will review suspension systems. Emphasis will be placed on different types of front and rear suspension systems such as: McPherson-Strut, Unequal A Arm, Spring Type, and Independent Arm Suspension. The students will learn how to use the special tools and equipment associated with these systems. They also will learn the principles of shock absorber operation and inspection.

Student Performance Standards (Behavioral Objectives):
Conditions: With the aid of films, charts, books, laboratory units, lectures and demonstrations,

Behavior: The students will review and learn the principles of the above-mentioned suspension systems, and demonstrate their knowledge and understanding,

Criteria: By completing a written examination with a minimum score of 85%.

Conditions: With the aid of demonstrations, practice time, laboratory units, special tools and equipment,

Behavior: The students will be able to use the special tools and equipment required for the above-mentioned suspension types, according to manufacturers' specifications,

Criteria: With a minimum of 90% accuracy.

Conditions: With the aid of demonstrations and practice time and given the proper tools, equipment and laboratory units,

Behavior: The students will be able to explain the operation of and the testing procedures for shock absorbers through written and manipulative examinations,

Criteria: With a minimum of 90% accuracy in each area.

Estimated Time:
Lecture: 3 hours
Laboratory: 7 hours

Special Materials Needed:
Films, charts, books, laboratory units, special tools, test equipment, various components.

Source of Materials:
Audio Visual materials, components and laboratory units provided by distributors. Special tools and equipment provided by college.

Note: See information about Source of Materials contained in Audio Visual Materials and Components Sections.

ENTRY LEVEL SUBJECT

Subject Title:
STEERING SYSTEMS

Characteristics of the Subject:
The subject will be arranged in two areas, herein described as Conventional Steering and Power Steering. The students will be reviewing from prerequisite point, and learning to identify two different types of Conventional Steering Boxes which are recirculating ball and nut, and the rack and pinion. They will learn how to test, check and make adjustments on each, and learn also the procedural step-by-step method of centering the steering wheel.

Student Performance Standards (Behavioral Objectives):
Conditions: With the aid of films, charts, books, lectures, and demonstrations,

Behavior: The students will review the principles of both conventional and power steering.

Criteria: Students will demonstrate their knowledge by completing a written examination with a minimum score of 85%.

Conditions: Given demonstrations, practice time, proper tools and test equipment,

Behavior: Students will be able to identify components of the power steering system and make operational tests on power steering pumps,

Criteria: With a minimum of 90% accuracy.

Conditions: Given demonstrations, practice time, proper tools and equipment,

Behavior: Students will be able to identify the two different types of conventional steering which are recirculating ball and nut and the rack and pinion types, and will be able to perform adjustments on each, according to manufacturers' specifications,

Criteria: With a minimum of 90% accuracy.

Conditions: Given demonstrations, practice time, proper tools and equipment,

Behavior: Students will be able to perform procedural step-by-step method for centering of the steering wheel, according to manufacturers' specifications,

Criteria: With a minimum of 90% accuracy.

Estimated Time:
Lecture: 3 hours
Laboratory: 2 hours

Special Materials Needed:
Films, charts, books, laboratory units, pump test equipment, toe-in/toe-out test equipment, special tools.

Source of Materials:
Audio Visual materials, laboratory units, components will be provided by distributors. Test equipment and tools provided by college.

Note: See information about Source of Materials contained in Audio Visual Materials and Components Sections.

ENTRY LEVEL SUBJECT

Subject Title:
WHEEL BALANCING

Characteristics of the Subject:
Students will learn the following; the principles of static and dynamic wheel balancing; they will learn and demonstrate their physical ability to balance wheels; and they will develop a knowledge so that no matter what type or make of equipment a dealership may use, he will be able to adjust to its proper use.

Student Performance Standard (Behavioral Objectives):
Conditions: With the aid of films, charts, lectures, demonstrations, textbooks and manuals,

Behavior: The students will be able to complete a written examination,

Criteria: With a minimum score of 90%.

Conditions: With the aid of the above materials, plus practice time and given a wheel balancer, proper tools and unbalanced tires,

Behavior: The students will be able to physically balance both front and rear wheels,

Criteria: To within 1/4 oz. accuracy.

Estimated Time:
Lecture: 1 hour
Laboratory: 2 hours

Special Materials Needed:
Films, charts, wheel balancers, weights, instruction manuals, wheels.

Source of Materials:
Audio Visual materials, wheels and manuals will be provided by distributors. Wheel balancing equipment, wheels provided by college.

Note: See information about Source of Materials contained in Audio Visual Materials, Components and Publications Sections.

ENTRY LEVEL SUBJECT

Subject Title:
HEADLIGHT ADJUSTMENT

Characteristics of the Subject:
Objectives of this subject are to prepare and qualify the students for the State License Examination. The goals will be defined by State requirements.

Student Performance Standards Behavioral Objectives):
Conditions: With the aid of the State Handbook, lectures, demonstrations, class discussion, films, charts and self study,

Behavior: The students will be prepared to qualify for the State License examination,

Criteria: And without reference to outside references and materials be able to complete a sample examination with a minimum score of 85%.

Conditions: Given the proper headlight alignment equipment and demonstrations as to its uses, proper tools and specifications,

Behavior: The students will be able to adjust several sets of headlights,

Criteria: To State required standards.

Estimated Time:
Lecture: 1 hour
Laboratory: 1 hour

Special Materials:
State Handbooks, headlight alignment equipment, automobile.

Source of Materials:
State of California. Automobile provided by distributors. Automobiles owned by students. Equipment and tools provided by college.

Note: See information about Source of Materials contained in Audio Visual Materials and Components Sections.

ENTRY LEVEL SUBJECTS

Subject Title:
DEALER ORGANIZATION

Characteristics of the Subject:
Designed to help the students learn dealer organization and his responsibilities and benefits.

Student Performance Standards (Behavioral Objectives):
Conditions: With the aid of lectures, special speakers, discussions and organization charts,

Behavior: The students will know the operation of dealerships and learn his entry position and will be able,

Criteria: To show his place in the dealership on an organization chart without any reference to outside materials.

Estimated Time:
Lecture: 2 hours
Laboratory: 0

Special Materials Needed:
Organization charts, outside speakers.

Source of Materials:
Speakers, charts, brochures, etc. provided by distributors.

Note: See information about Source of Materials contained in Audio Visual Materials and Publications Sections.

ADVANCED CLASSES

Upon completion of the Entry Level Class, the trainee will enroll in the Advanced Classes in import automobile technology while he is employed in the dealer's shop.

The subjects for these classes were defined by the Steering Committee along with the required depth of each subject.

The basic concept of the Advanced Classes is to provide a controlled learning situation of a class with associated hands-on training so he could be well grounded in automotive technology. Thus, the experiences he gets on the job would have meaning rather than merely doing manual tasks.

These Advanced Classes and the Entry Level Class will provide an in-depth background for the specialized training given him in the distributor's training schools on their particular product. These classes will complement the specialized training and shop experience to advance the trainee to the technician level.

The order of appearance of the subjects is the suggested order of presentation. Those areas that a trainee would likely be called upon to work in, should be offered first. The format of the curriculum material is identical to the Entry Level Class. The characteristics of the subject and the objectives are written in broader terms since they cover a broader area. An instructor would very likely write objectives on segments of the subject that would all lead to achieving the broad objectives stated for the subject.

Again, the material is only a guide for the instructor. Various combinations of subjects can be used to organize a semester's work depending on the number of hours the class is offered.

Since the Advanced Classes would most likely be offered in the evening to accommodate the working trainee, the following is a suggested combination of subjects that could constitute a semester's work at 7 hours per week.

Semester 1:

Air Conditioning
Advanced Automotive Electrical Systems and State Lamp License
Engine Diagnosis, Tune-Up, Emission Control

Semester 2:

Brake Systems — Advanced Level and State Brake License
Engine Service
Special Engines
Gas and Arc Welding, Brazing and Soldering

Semester 3:

Drive Train — Conventional Transmissions
Drive Train — Automatic Transmissions
Drive Train — Propeller Shaft, U-Joints and Rear End
Service Writing, Management and Parts Management

ADVANCED CLASSES

OUTLINE OF SUBJECTS

Subject	Hours of Instruction Lecture	Laboratory
Air Conditioning	5	10
Advanced Automotive Electrical Systems and State Lamp License	15*	35*
Engine Diagnosis, Tune-Up, Emission Control	15	35
Brake Systems — Advanced Level and State Brake License	18*	27*
Engine Service	15	25
Special Engines	8	3
Gas and Arc Welding, Brazing and Soldering	5	15
Drive Train — Conventional Transmissions	8	22
Drive Train — Automatic Transmissions	10	30
Drive Train — Propeller Shaft, U-Joints and Rear End	8	22
Service Writing, Management and Parts Management	3	7
Totals	110	231

*NOTE: Lamp and Brake subject matter hours are incorporated into Advanced Automotive Electrical Systems and Brake Systems — Advanced Level respectively.

ADVANCED SUBJECT

Subject Title:
AIR CONDITIONING

Characteristics of the Subject:
Provides information and hands-on experience to help students learn the principles of automotive air conditioning. In addition, the student will learn also how to test, service and install air conditioning units.

Student Performance Standards (Behavioral Objectives):
Conditions: With the use of films, charts, lectures, demonstrations by the instructor using laboratory units,

Behavior: The students will learn the fundamentals and theory of air conditioning and demonstrate their knowledge,

Criteria: By completing written examinations with a minimum score of 85% without reference to outside materials.

Conditions: With the aid of lecture demonstrations by the instructor, and the use of laboratory units,

Behavior: The students will learn the proper methods of testing, adjusting and installing air conditioning units, and will practice these methods in the laboratory through hands-on operations,

Criteria: With a minimum of 90% accuracy.

Estimated Time:
Lecture: 5 hours
Laboratory: 10 hours

Special Materials Needed:
Films, charts, textbooks, air conditioning, mock-ups, test equipment, manuals

Source of Materials:
Import distributors will lend and/or donate units, films, charts and manuals.

Note: See information about Source of Materials contained in Audio Visual Materials, Components and Publications Sections.

ADVANCED SUBJECT

Subject Title:
ADVANCED AUTOMOTIVE ELECTRICAL SYSTEMS

Characteristics of the Subject:
In depth study of Automotive Electrical theory and application of principles involved will be provided. The students will learn the theory of electrical units, and how to apply theory while diagnosing, repairing, and correcting electrical malfunctions. All information and operations involved will be applicable to and will enhance the students' on-the-job training. The electrical units involved will include the starter and related circuits, the battery and related circuits, the alternator and regulator, the lighting system circuits, the directional signals, stop lights and related circuits, and other applicable vehicle wiring circuits.

Student Performance Standards (Behavioral Objectives):
Conditions: With the use of textbooks, films, charts, lectures and demonstrations by the instructor and class participation,

Behavior: Students will be able to demonstrate their knowledge of the theoretical fundamentals of automotive electricity,

Criteria: By completing written examinations with a minimum score of 85% without reference to outside materials.

Conditions: With the application of theory, use of proper tools and testing equipment, all demonstrated by the instructor, and given proper tools, testing equipment, needed supplies, and hands-on practice,

Behavior: The students will be able to diagnose, test and repair electrical problems in the starting system, charging system, lighting system, stop light and directional system, and other related electrical systems,

Criteria: With a minimum of 90% accuracy.

Estimated Time:
Lecture: 10 hours
Laboratory: 30 hours

Special Materials Needed:
Films, charts, laboratory units, testing equipment

Source of Materials:
Import Distributors

Note: See information about Source of Materials contained in Audio Visual Materials and Components Sections.

ADVANCED SUBJECT

Subject Title:
ENGINE DIAGNOSIS, TUNE-UP, EMISSION CONTROL

Characteristics of the Subject:
Designed to provide an in-depth study of how to diagnose engine malfunctions affecting tune-up and ignition service; how to perform major tune-up operations according to manufacturers' procedures and specifications and how to perform tests and repairs on emission control devices. Laboratory time will be provided with hands-on operations of all testing and diagnostic equipment as well as the selection of proper tools necessary to perform repair operations.

Student Performance Standards (Behavioral Objectives):
Conditions: With the use of textbooks, shop manuals, equipment operating manuals, films, charts and laboratory units, the instructor will lecture and demonstrate the theory and operations involved and combined with class discussion,

Behavior: The students will be able to identify and select the correct test equipment,

Criteria: With 100% accuracy.

Behavior: The students also will be able to complete a written examination as to theory and application of diagnosis and repair procedures,

Criteria: With a minimum score of 85% accuracy.

Behavior: In addition the students will be able to connect all test equipment properly,

Criteria: With a minimum of 90% accuracy.

Conditions: Following lecture-demonstrations by the instructor in the proper uses, monitoring and reading of test instruments and tools and after the students have completed hands-on practice with the equipment and tools and then given the necessary equipment, tools, and source of specifications,

Behavior: The students will be able to connect test equipment, correctly diagnose malfunctions, and make repairs as necessary, according to manufacturers' specifications,

Criteria: With a minimum of 90% accuracy.

Estimated Time:
Lecture: 15 hours
Laboratory: 35 hours

Special Materials Needed:
Films, charts, running engines, automobile

Source of Materials:
Audio Visual materials, engines and autos provided by distributors. Tools and equipment provided by the College

Note: See information about Source of Materials contained in Audio Visual Materials and Components Sections.

ADVANCED SUBJECT

Subject Title:
BRAKE SYSTEMS — ADVANCED LEVEL

Characteristics of the Subject:
This subject area is in two parts. The first, will deal with the proper diagnostic procedures, their possible causes and corrections, and the means of logically tracing troubles to their causes. The second, will prepare students for the proper uses of brake reconditioning equipment, such as drum and disc rotor lathes, brake shoe arc equipment, and disc pad, rotor and drum measuring tools.

Student Performance Standards (Behavioral Objectives):
Conditions: With the aid of lectures, demonstrations, films, charts, textbooks and class discussions,

Behavior: The students will be able to complete a written examination on the proper procedures of diagnosing brake problems, and the logical methods used in tracing down the actual causes,

Criteria: With a minimum score of 85%.

Conditions: Given the proper equipment and tools, demonstrations, lectures, hands-on practice time, and supplied with proper specification manuals,

Behavior: The students will be able to measure, interpret conditions, set up and grind brake drums, disc rotors and brake shoes,

Criteria: With a minimum of 90% accuracy.

Estimated Time:
Lecture: 10 hours
Laboratory: 20 hours

Special Materials Needed:
Films, charts, laboratory units, brake reconditioning equipment, measuring tools, used (damaged) brake drums, disc rotors and brake pads and shoes.

Source of Materials:
College will provide brake reconditioning equipment and measuring tools. Distributors will provide used drums, rotors and other related equipment as well as any pertinent films, charts, and other Audio Visual materials. Mock-ups and laboratory units may be developed by the instructor.

Note: See information about Source of Materials contained in Audio Visual Materials and Components Sections.

ADVANCED SUBJECT

Subject Title:
DRIVE TRAIN — AUTOMATIC TRANSMISSIONS

Characteristics of the Subject:
This subject will involve in-depth study and hands-on operations of automatic transmission repair. Application from basic through complex principles of automatic transmission operation will be correlated with disassembly, inspection, repair or replacement of damaged parts, adjustments and reassembly of the transmission. Instruction in the correct selection and use of special tools will be demonstrated.

Student Performance Standards (Behavioral Objectives):
Conditions: With the aid of textbooks, manuals, films, charts, lectures, demonstrations and class discussion,

Behavior: The students will learn the basic and complex principles of automatic transmission operation and will demonstrate their theoretical knowledge by completing a written examination,

Criteria: With a minimum score of 85%.

Conditions: Given the proper manuals, tools, special tools, transmissions, and with the aid of demonstrations and ample practice time,

Behavior: The students will be able to disassemble, inspect, measure, adjust and reassemble the transmission, and demonstrate his ability to select and use the proper tools correctly,

Criteria: With a minimum of 90% accuracy.

Estimated Time:
Lecture: 10 hours
Laboratory: 30 hours

Special Materials Needed:
Films, charts, automatic transmissions, special tools.

Source of Materials:
College will provide tools. Distributors will provide transmissions, charts, films.

Note: See information about Source of Materials contained in Audio Visual Materials and Components Sections.

ADVANCED SUBJECT

Subject Title:
DRIVE TRAIN — CONVENTIONAL TRANSMISSIONS

Characteristics of the Subject:
This subject is designed to give in-depth study of the principles of operation of conventional transmissions and clutches, and hands-on practice of disassembly, inspection, measuring, adjusting, repairing, or replacing of damaged parts, and the reassembly of transmissions. Instruction in the correct selection and uses of special tools will be demonstrated.

Student Performance Standards (Behavioral Objectives):
Conditions: With the aid of textbooks, films, charts, lectures, demonstrations, and class discussion, and given a written examination,

Behavior: The students will be able to answer test questions on the principles of operation of the clutch and transmission,

Criteria: With a minimum score of 85%.

Conditions: Given the proper manuals, tools, special tools, and with the aid of demonstrations and ample practice time,

Behavior: The students will be able to disassemble, inspect, measure, adjust, replace or repair damaged parts, reassemble the transmission and at the same time demonstrate ability to select and use the proper tools correctly,

Criteria: With a minimum of 90% accuracy.

Estimated Time:
Lecture: 8 hours
Laboratory: 22 hours

Special Materials Needed:
Transmissions, films, charts, special tools

Source of Materials:
College will provide tools. Distributors will provide transmissions, films, charts.

Note: See information about Source of Materials contained in Audio Visual Materials and Components Sections.

ADVANCED SUBJECT

Subject Title:
DRIVE, PROPELLER SHAFT, U-JOINTS AND REAR END

Characteristics of the Subject:
This subject will deal with the principles of operation of the propeller shaft, U-Joints and rear end assembly which includes the differential and axle shafts. Hands-on practice of disassembly, inspection, measuring, replacing or repairing of damaged parts, adjusting, and reassembly will be provided. Instruction on the correct selection and uses of special tools will be demonstrated.

Student Performance Standards (Behavioral Objectives):
Conditions: With the aid of textbooks, films, charts, lectures, demonstrations and class discussion and given a written examination,

Behavior: The students will be able to answer test questions on principles of operation on the propeller shaft, U-Joints and rear end assembly,

Criteria: With a minimum score of 85%.

Conditions: Given the proper tools, special tools, manuals, propeller shafts, with U-Joints rear end assemblies, and with the aid of demonstrations and ample practice time,

Behavior: The students will be able to disassemble, inspect, measure, replace or repair damaged parts, adjust and reassemble propeller shafts, U-Joints and rear end assemblies and at the same time demonstrate their ability to select and use the proper tools correctly,

Criteria: With a minimum of 90% accuracy.

Estimated Time:
Lecture: 8 hours
Laboratory: 22 hours

Special Materials Needed:
Special tools, propeller shafts with universal joints, rear end assemblies, films, charts,

Source of Materials:
College will provide tools. Distributors will provide propeller shafts, rear end assemblies, films, charts.

Note: See information about Source of Materials contained in Audio Visual Materials and Components Sections.

ADVANCED SUBJECT

Subject Title:
ENGINE SERVICE

Characteristics of the Subject:
This subject is not designed specifically for engine overhaul. It is provided as information and practice to give students as idea of the size of the job, the special tools required and how the troubles in the valve mechanism, pistons and connecting rods, and crankshaft and engine block may be corrected.

Student Performance Standards (Behavioral Objectives):
Conditions: With the aid of films, charts, lectures, demonstrations, class discussions and given a written examination,

Behavior: The students will be able to answer questions on the principles of operation of the valve train, pistons and connecting rods, and crankshaft and engine,

Criteria: With a minimum score of 80%.

Conditions: Given the correct common tools, all special tools, engine blocks with piston, rod, and crankshaft assemblies, and cylinder heads with valves and after having had demonstrations and ample practice time,

Behavior: The students will be able to disassemble, inspect, measure, replace or repair damaged parts, adjust, and reassemble all parts in the valve mechanism, piston and rod assemblies and the crankshaft and block assemblies according to manufacturers' procedures. The students also will be able to demonstrate ability to use correctly all special tools involved,

Criteria: With a minimum of 90% accuracy.

Estimated Time:
Lecture: 15 hours
Laboratory: 25 hours

Special Materials Needed:
Engines with all internal components, special measuring tools, films, charts, textbooks.

Source of Materials:
College will provide all tools. Distributors will provide engines, films, charts.

Note: See information about Source of Materials contained in Audio Visual Materials and Components Sections.

ADVANCED SUBJECT

Subject Title:
STATE LICENSING FOR LAMP AND BRAKE

Characteristics of the Subject:
Designed to prepare students for the State Lamp and Brake Adjuster License. Information and practice time will be provided along with the use of the State Handbooks to qualify students for the State Examinations. Following this subject, the students are required to take the State examinations and secure their Lamp and Brake licenses.

Student Performance Standards (Behavioral Objectives):
Conditions: With the aid of the State Handbooks, lectures, demonstrations and class discussions,

Behavior: The students will be able orally and practically to apply information received from State Handbooks on Brakes and Lamps,

Criteria: With a minimum of 85% accuracy.

Conditions: Given practice written examinations, and without reference to outside materials,

Behavior: The students will complete test questions on both Lamp and Brakes,

Criteria: With a minimum score of 85%.

Conditions: Outside the classroom,

Behavior: The students will apply to the State Department of Consumer Affairs for an appointment to take the examinations, and will be able to complete the tests for their licenses.

Criteria: With the minimum score required by the State.

Estimated Time:
Lecture: 13 hours
Laboratory: 12 hours

Special Materials Needed:
State Handbooks for Lamp and Brake.

Source of Materials:
State Department of Consumer Affairs

Note: See information about the Source of Materials contained in Audio Visual Materials and Publications Sections.

ADVANCED SUBJECT

Subject Title:
GAS AND ARC WELDING, BRAZING AND SOLDERING

Characteristics of the Subject:
This subject area will deal with the uses of gas and arc welding only to the extent of its use in regard to the automobile. Students will learn how to do an acceptable gas and arc welding job on small components or small sections of the car body and chassis. In addition, the students will learn how to make small repairs by brazing and soldering.

Student Performance Standards (Behavioral Objectives):
Conditions: With the aid of lectures and demonstrations, the use of equipment manuals, films or other audio visual aids,

Behavior: The students will learn the principles of gas and arc welding, brazing and soldering and will complete a written examination on these principles,

Criteria: With a minimum score of 80%.

Conditions: Given ample practice time and supplied with gas and arc welding equipment, brazing equipment, manuals, and needed supplies,

Behavior: The students will be able to demonstrate ability to weld or braze with gas or arc on five different thicknesses and three different materials,

Criteria: To the satisfaction of the instructor.

Conditions: Given ample practice time, soldering equipment and needed supplies,

Behavior: The students will demonstrate ability to solder three different materials,

Criteria: To the satisfaction of the instructor.

Estimated Time:
Lecture: 5 hours
Laboratory: 15 hours

Special Materials Needed:
Gas welding equipment, arc welding equipment, soldering equipment, five different thicknesses of metals, three different materials of metal, welding and brazing material, solder.

Source of Materials:
Welding and soldering equipment furnished by college. Welding materials furnished by distributors. Soldering materials furnished by college and distributors.

Note: See information about Source of Materials contained in Audio Visual Materials and Components Sections.

ADVANCED SUBJECT

Subject Title:
SPECIAL ENGINES

Characteristics of the Subject:
The subject is designed to help the students learn differences of special engines in regard to design and operation. Two types are the gasoline rotary engine and the diesel engine.

Student Performance Standards (Behavioral Objectives):
Conditions: With the aid of films, charts, components, running engines, lectures, demonstrations and class discussions,

Behavior: The students will be able to demonstrate theoretical knowledge of rotary and diesel engines by completing a written examination,

Criteria: With a minimum score of 80%.

Conditions: Given the proper tools and proper measuring equipment, manuals, demonstrations and ample practice time,

Behavior: The students will be able to identify basic components and make minor adjustments on both rotary and diesel engines,

Criteria: With a minimum of 80% accuracy.

Estimated Time:
Lecture: 8 hours
Laboratory: 3 hours

Special Materials Needed:
Running rotary and diesel engines, components from rotary and diesel engines, films, charts, special measuring equipment.

Source of Materials:
Distributors will provide engines, films, charts. College will provide tools and equipment.

Note: See information about Source of Materials contained in Audio Visual Materials, and Publications Components Sections.

ADVANCED SUBJECT

Subject Title:
SERVICE WRITING, MANAGEMENT AND PARTS MANAGEMENT

Characteristics of the Subject:
The subject is designed to distribute information to the students regarding the knowledge and experience required to work with or to enter these phases of the industry, and the problems involved with each area.

Student Performance Standards (Behavioral Objectives):
Conditions: With the aid of films, lectures, demonstrations and special speakers, the students will be provided with information about Service Writing, Management, and Parts Management, and given a written examination,

Behavior: The students will demonstrate interpretation of these areas, identify each responsibility and describe their responsibility with persons in each area,

Criteria: With a minimum score of 80%.

Conditions: Given the opportunity to play the role of a service manager, or parts manager, and with the aid of hypothetical situations, and the involvement of the whole class as role players,

Behavior: The students will be able to react and demonstrate ability to formulate sensible solutions to problems,

Criteria: To the instructor's satisfaction.

Conditions: After learning the responsibilities and problems involved with service writing, management and parts management,

Behavior: The students will be able to formulate ideas, compare positions and choose whether they would be interested in pursuing any of the other categories for future employment.

Estimated Time:
Lecture: 3 hours
Laboratory: 7 hours

Special Materials Needed:
Films, special speakers, special organization booklets.

Source of Materials:
Distributors will provide films, booklets and speakers.

Note: See information about Source of Materials contained in Audio Visual Materials and Publications Sections.

APPENDIX A

AUTOMOTIVE TEST EQUIPMENT

Quantity	Item
	Sun Electric Corporation
1	Infra-red engine performance tester, Mod. EET-947
1	Ignition simulator and drive unit, Mod. ISD
1	Battery charger, Mod. BC-160
1	Battery, starting and charging system tester, Mod. VAT-28
1	Distributor tester, Mod. DT-504
1	Generator Alternator tester, Mod. GAT-620
1	Tune-up tester, Mod.TUT-915
1	Power timing light, Mod. PTL-45
1	Compression tester, Mod. UCT-48
1	Rectifier-diode tester, Mod. RDT-10
1	Battery cell probes, Mod, BCP-1
	Alemite
1	Electronic wheel balancer, Mod. 7064-A
1	Cross-sight wheel aligner, Mod. 3064
1	Torsion bar gauge, Mod. 328010

APPENDIX B

TOOLS AND EQUIPMENT

Quantity	Unit	Description
10	set	Screwdrivers
10	set	Midget combination wrenches
10	set	Short handle combination wrenches
10	set	Metric set Hex Key (5 keys)
		Metric set Hex Key (7 keys)
2	set	Metric set double flaring
2	each	Tubing cutter
2	set	Flare nut wrenches
10	set	Metric drive socket set
10	set	Metric Hex head wrenches
2	set	Short handle box wrenches
1	set	Metric impact sockets
1	each	Universal joint
5	set	Feeler set gauges
5	set	Automotive wire gap gauges
2	set	Flank drive metric sockets
2	each	Rachet
2	each	Spinner
4	each	Extension
1	set	Handle
1	set	Metric set die
1	set	Metric set tap
2	each	Metal tool box
1	each	Dial-type torque wrench
1	each	Click-type torque wrench
2	each	Inside metric micrometer
2	each	Outside metric micrometer
2	each	Main journal crank shaft gauge
2	each	Long pressure blow gun
2	each	Internal-External snap ring plier
4	each	Tip Kit
1	each	Oil filter wrench
1	each	Automatic transmission filler
1	each	Speed spout
1	each	Flip Spout
1	each	Extra long Phillips
1	each	Extra long Standard
2	each	Super Champ hand tool
4	each	Brake spring plier
1	set	Cylinder clamps
1	each	Brake shoe hold down tool
1	each	Disc brake piston popper
1	each	Disc brake piston plier
2	each	Interlocking joint grip plier
4	each	Ignition plier
4	each	Heavy duty gripping plier
6	each	Diagonal cutters
4	each	Vise grip wrenches
2	each	Hack saw frame
2	pkges.	Hack saw blades
2	each	Pressure blow gun
3	each	Half Moon Boxocket
6	each	Adjustable wrench
6	each	Small pressure oiler
2	each	Clamp Valve Lifter
6	each	Extra jaws
4	each	Fender covers
2	each	Angle-Nose battery plier
6	each	Hydrometer-Thermometer

1	each	Battery cable terminal plier
2	each	Battery carrier
1	each	Heavy duty booster cables
1	each	Battery filler
2	each	Battery terminal brush
2	each	Battery mate
2	each	Battery cable puller
2	each	Distributor wrench
3	set	File set
12	each	Wood file handles
2	each	Standard wire brush
6	each	Parts cleaning brush
1	each	Cross peen hammer
8	each	Ball peen hammer
2	each	Brass hammer
2	each	Soft face hammer
2	each	Tough nylon tip
4	each	Spark plug gapper
5	each	Extension cord
1	each	Pry bar
1	each	Pinch bar
2	each	Separator
1	each	Pry bar with handle
1	each	Round mirror
2	each	Engine Saf-T-Lif
4	each	Pick up tool-screw starter
1	each	Magnetic pick up tool
6	each	Needle Nose pliers
3	each	Off set screw driver (std)
2	each	Off set screw driver (Phillips)
6	each	Whip hoses
6	each	Quick coupler
6	each	Male coupler adapter
6	each	Female coupler adapter
6	each	Extension lights
2	each	Extension bars
1	each	Extractor set
8	each	Spark plug sockets (flank drive)
2	each	Brake cylinder hone
2	set	Grit stones
2	each	Rigid carbon scraper
2	each	Chisel edge scraper
1	each	Taunus brake wrench
1	each	Brake bleeder wrench
1	each	Brake adjusting tool
2	each	Disc brake piston compressor
1	kit	Electrical terminal and Connector kit
3	each	Compressors
2	each	Wire wheels
1	each	Eye shields
1	set	Impact sockets
1	each	Whip hose
2	each	Boot
2	each	Case
2	each	Soldering gun
2	sets	Flexockets wrench
1	set	Chisel and punch
1	set	Drill bits
1	set	Outside metric Micrometer
2	each	Calipers
2	each	Drill motor
4	each	Vise
1	set	Radiator pressure tester
1	each	Jack
4	each	Car stands
[illegible]	each	Creeper
1	pkge.	Headlamp aimer
1	each	Bench grinder
1	each	Impact wrench

APPENDIX C

IMPORT AUTOMOBILE TECHNICIAN PROGRAM

to be offered at

EAST LOS ANGELES COLLEGE

What is it? The Import Automobile Industry has a need for trainee-technicians who can train on-the-job. To meet this need the Industry, in cooperation with East Los Angeles College, has developed a program to give interested students, with automotive background, an opportunity to gain entry into the import automobile industry with continuing education and training to become a technician.

What is different about this program? This program is directly oriented to the needs of the import automobile industry and is being developed in cooperation with their representatives. It has the interest and support of both European and Japanese automobile distributors.

Who can participate? Anyone who has automotive background from high school, trade school, Armed Forces automobile or related training, or related job experience is invited to fill in the form below or contact East Los Angeles College. Persons without automotive background will be counseled on how they can become eligible.

When does it start? The program is scheduled to start in February, 1974. A block program will be offered to prepare the student to become a trainee-technician.

How long is the block program? The preparatory block program can be completed in no more than one semester. After successful completion, the trainee will be eligible to be employed by the import automobile industry in their shops and continue his education and training at East Los Angeles College and on-the-job.

What is the entire program? On a cooperative education basis, the trainee-technician will continue to get further education at East Los Angeles College in advanced courses in import automobile technology while getting coordinated work experience. Credit will be given for class work and the coordinated work experience.

MAIL TO:

Import Automobile Technology Program
East Los Angeles College
5357 East Brooklyn Avenue
Los Angeles, California 90022
(213) 263-7261, Extension 425

Name: _____ Telephone: _____

Street
Address: _____ Automotive Background:

City: _____ Zip: _____

- ☐ None
- ☐ High School or Trade School
- ☐ Armed Forces
- ☐ Other (explain) _____

_____

APPENDIX D

IMPORT AUTOMOBILE TECHNOLOGY PROGRAM

EAST LOS ANGELES COLLEGE

INTAKE INFORMATION

DATE: _____

Mr. ____

Mrs. ____

Miss ____ _____ _____

Name LAST FIRST MIDDLE PHONE NUMBER

_____ _____

Address STREET CITY ZIP CODE

Date of birth: _____ _____ Age today: _____

Month Day Year

High School graduate: _____ If not, highest grade level achieved: _____

Yes No

Name of high school: _____ City: _____ State: _____

Number of semesters of high school auto shop: _____

High School auto shop teacher(s) we can contact: _____

_____

Veteran: ____/____ Eligible for any G.I. Bill ____/____

Yes No Yes No

Auto training in the service: ____/____ If so, how many weeks of training: _____

Yes No

Automotive trade school: ____/____ If so, name of school(s): _____

Yes No

_____ _____

Number of weeks attended: _____

Auto shop instructor(s) we can contact: _____

_____

Work experience as auto mechanic: ____/____

Yes No

Name, address and telephone number of auto shop(s) you have worked in: _____

_____

_____

_____

Supervisor(s) we can contact: _____

Presently employed: ____/____ If so, what work are you doing: _____
Yes No

Presently enrolled at East Los Angeles College: ____/____
Yes No

Presently enrolled at another college or trade school: ____/____
Yes No

If so, name of school: _____

Address of school: _____
Street City State Zip

If enrolled in any college, what are you studying:

In order to get the extent of your auto mechanics background, indicate the approximate hours of training in the categories listed below. Precise hours are not necessary. If you have no training in any of the categories write "none".

Internal combustion theory _____

Automotive electricity _____

Emission control _____

Tune up _____

Brakes, _____

Front end _____

Transmissions _____

Wheel balancing _____

Cooling System _____

Steering System _____

Suspension System _____

Fuel System _____

Headlights _____

APPENDIX E

DRAFT OF FLYER FOR THE IMPORT AUTOMOBILE DISTRIBUTORS TO PRESENT TO THEIR DEALERS.

Emphasis of the Program

The basic goal of the program is to make available to the import automobile dealers' shops trainee-technicians who, through cooperative efforts of industry and college, will receive training and experience to become an import automotive technician. Your distributors' training personnel have been involved in determining the material presented in preparing the trainee for entry into your shops. It is through our efforts that your needs were defined and incorporated into the program.

Advantages to You

This program is designed with your needs in mind. Some of the direct advantages are:

1. Availability of trainees oriented to the import automobile industry.
2. Trainees will have formal training in auto mechanics and have a preparatory class in import automobiles.
3. Trainees will have California smog license.
4. Trainees will be available during the normal working hours and be an employee of the dealers.
5. Trainees will continue training in the evening while gaining experience on the job.
6. Efforts will be made by the college to provide career minded trainees.
7. Dealer recruitment will be minimized.

The Trainee

The students enrolled in the program have all had basic automotive background in either high school, trade school, the Armed Forces or the auto industry. The class preparing them for entry into the import automobile industry builds on this background with emphasis on import automobiles and orientation to that industry. Wherever possible, training aids, components and references are made to import automobiles. Upon completion of the entry level program, the student will be a trainee who will be a full time employee in your shop. He will require some supervision and guidance, but will be a productive person in your shop.

Entry Preparation Course

To prepare the student for entry into the import automobile industry, a one semester course, twenty weeks long, covering the following subjects will be presented:

Orientation to the Import Automobile Industry
Shop safety
The metric system
Correct use of fasteners
Proper use of hand tools
Internal combustion theory
Basic automotive electricity
Emission control systems
Tune-up
Brake systems
Front end
Wheel balancing
Cooling systems
Steering systems
Suspension systems
Fuel systems
Headlight adjustment
Use of manuals and other publications
Automobile dealer organization

Continuing Education and Training

One semester of classes certainly does not make an automotive technician. For the trainee to advance, he would be required to enroll in evening classes while employed in your shop. The classroom will further his training and, complemented with on-the-job experience, for which he would receive college credit, a proficient technician will result.

Courses to be offered for continuing education will be advanced courses in the following:

Air conditioning
Automobile electrical
Engine diagnosis, tune-up, and emission control
Brakes
Drive train
Engine overhaul
Licensing by the State for lamp and brake
Gas and arc welding, brazing and soldering
Special engines
Service writing and management, parts management
Communications
Human relations

Cooperative Effort

The complete training of a technician requires a cooperative effort by all involved. The college will be responsible for the formal technical training and for follow-up with the dealers as the trainee continues to take classes while he is employed.

The distributors will follow up the trainees' progress in the shops.

You, the dealer, will provide a broad experience in automobile maintenance and repair while the trainee is employed productively in your shop.

Placement

Placement of the trainees will be coordinated between you, the dealer, your distributor's training department and the college. After having a trainee for a period of time, if you find he does not fit into your shop operation, you may contact your distributor's service training department before you take any action. Placement in another dealer's shop may work a mutual benefit for both you and the trainee.

APPENDIX F

IMPORT AUTOMOBILE TECHNOLOGY PROGRAM

STUDENT DATA SHEET

DATE

Name _____ Telephone _____

Address _____

Street City Zip Code

Age _____

Marital Status _____

Number of Children _____ Ages of Children _____

Military Service: Branch _____ Years of Service _____

High School _____ Graduated ____/____ Highest Grade _____

Yes No

Prior Automotive training _____

_____

_____

Automotive Work Experience _____

_____

_____

Preference of automobile manufacturer to work for:

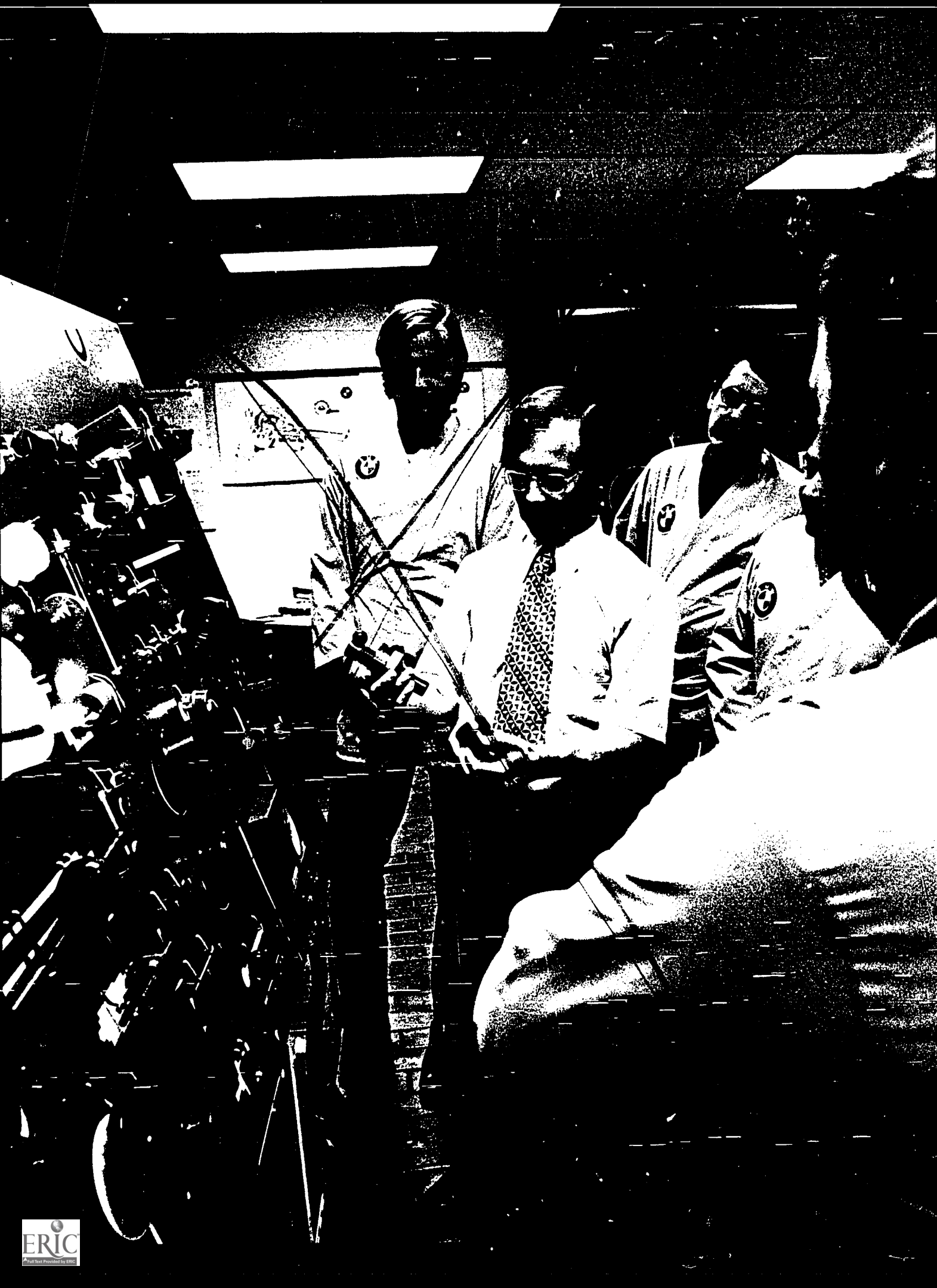
1. _____

2. _____

3. _____

Willingness to travel _____

_____



APPENDIX F

IMPORT AUTOMOBILE TECHNOLOGY PROGRAM

INSTRUCTOR'S EVALUATION

Date _____

Name _____

The evaluation of the trainee-technician has been made based on the following scale:

A – superior
B – excellent
C – acceptable
D – below acceptable
F – unsatisfactory

Technical knowledge

Shop safety _____
Use of tools _____
Use of fasteners _____
Use of manuals _____
Metric system _____
Internal combustion _____
Cooling system _____
Fuel system _____
Basic electricity _____
Tune up _____
Emission control _____
Brake system _____
Front end systems _____
Suspension systems _____
Steering systems _____
Wheel balancing _____
Head lamp adjustment _____
Dealer organization _____

Work habits

Neatness _____
Use of tools and equipment _____
Punctuality _____
Cooperation with instructor _____
Cooperation with students _____
Speed of work _____

APPENDIX G

IMPORT AUTOMOBILE TECHNOLOGY PROGRAM

DEALER VISITATION REPORT AND EVALUATION FORM

Date _____

Trainee _____

Dealer's Name _____

Address _____

City & Zip Code _____

Telephone Number _____

Trainee's supervisor interviewed: Name _____

Title _____

Date of previous visit _____

Work trainee was doing at previous visit _____

Work trainee is presently doing _____

Supervisor's evaluation:

Attitude toward work	5 4 3 2 1
Attitude toward supervisor	5 4 3 2 1
Attitude toward fellow employees	5 4 3 2 1
Speed of accomplishing work	5 4 3 2 1
Neatness and cleanliness	5 4 3 2 1
Attendance (lack of absenteeism)	5 4 3 2 1
Punctuality	5 4 3 2 1
Dependability	5 4 3 2 1
Eagerness to learn	5 4 3 2 1
Technical knowledge in skills performed on the job	
_____	5 4 3 2 1
_____	5 4 3 2 1
_____	5 4 3 2 1
_____	5 4 3 2 1
_____	5 4 3 2 1
_____	5 4 3 2 1

Evaluation scale

5 -- superior
4 — excellent
3 — acceptable
2 — below acceptable
1 — unsatisfactory

IMPORT AUTOMOBILE TECHNOLOGY PROGRAM

DEALER VISITATION REPORT AND EVALUATION FORM

General impression of the trainee: _____

_____

_____

_____

Is the trainee a productive employee? _____

_____

_____

_____

Is the trainee fulfilling your shop's needs? _____

_____

_____

_____

Area in which trainee needs improvement: _____

_____

_____

_____

MANAGEMENT PLAN

The purpose of this section is to present an integrative, generic model for the assessment of educational needs with an attempt to integrate the values and human behavior aspect peculiar to each partner in education — the student, the educator, and the community.

The challenge to provide veterans, disadvantaged and unemployed youth, career oriented youth, and handicapped individuals with the skills, knowledge and attitudes required for success as productive citizens on the job, at home, and at leisure is a real one.

Los Angeles Community College District has accepted that challenge. In doing so, they will develop an entry level cooperative education program titled, IMPORT CAR TECHNICIAN. This cooperative program will include the academics of the college in conjunction with the practical application as perceived by the automotive industry.

The task of this writer is to design a Management Plan for the Import Auto Technician Training Program. This plan will include the following:

(a) Mission Objective (a statement which tells us the outcome of the mission).
(b) Performance Requirements (criteria for describing and determining outcomes).
(c) Mission Profile (a flow chart indicating the steps or functions which will take us from where we are to where we want to go).
(d) Gantt Chart (a graph or time line indicating when each function of the Mission Profile shall be initiated and completed). The Gantt Chart will not be included in this paper as precise time constraints have not been delineated at this writing.

It is obvious to this writer that quite often, in the process of education, someone gets "left out". Often, it is the one for whom the program was intended; the student. The partners in education (student, educator, and community) all have perceived requirements or values. A sound educational program must consider the values of all partners and integrate these values into the learning process.

Perceived opinions, perceptions and outcomes are, of course, important. But even more vital is the empirical determination between current and required outcomes; e.g., VALUES. In applying the needs assessment approach to education, we must accept some of the inherent problems. One of the most important problems is that of defining the required outcomes. We all have our opinions. Usually, these are stated in the form of goals but, generally, not in measurable terms. These goal statements reflect implicit values without an attempt to determine empirically what they are. In designing this generic model, an attempt has been made to determine, empirically, the outcomes necessary to satisfy the stated goals. A further attempt will be made to appraise each partner of the significance of these values in relation to the success of the educational program, and more important, the success of the individual as a human being.
Values and human behavior is the launching pad around which this project has been designed. The reader's attention is directed to functions 4.0 — 9.0 in the flow chart. A detailed discussion of these six functions is to be found in the narrative portion of this paper. In determining the values involved within these functions, instrumentation has been designed to tap the goal statements (values) of students, educators, and industry.

Function 42.0 in the flow chart indicates a requirement for In-Service training of educators. It is at this point that further instrumentation designed around a value oriented framework will be utilized. A general value categories model (R. Rucker, 1969) represents eight valuing events ranging from personal to complex societal concerns. They include affection, respect, skill, understanding power and influence, goods and services well being and responsibility. As defined by Rucker, these value categories could be utilized in defining areas of concern for an educational needs assessment. It is proposed that these value categories be united in instrumentation using the Semantic Differential Scale (Osgood, T. and Suci, 1957) to obtain data concerning the hierarchy of educational valuing perceptions of students, educators, and industry. This data would be invaluable in the development of the In-Service program.

The model that follows is an attempt to integrate a system analysis approach to the development of a sound educational process whose end product will be directed toward the humanizing of the individual and, consequently, the benefit of society.

PERFORMANCE REQUIREMENTS

1.0 Identify Planning Task Force

1.1 Planning Task Force shall be selected by and meet approval requirements of Project Director Los Angeles Community College District.

2.0 Determine Preliminary Planning Requirements

2.1 All planning requirements will be listed as outcome statements which meet the criteria identified by Mager, R.F. *Setting Instructional Objectives*. Palo Alto, California. Fearon Pub., Inc., 1961.

2.2 Where possible, planning requirements will be measured at the interval and ratio levels of measurement.

2.3 Planning requirements will be determined by Project Director and Advisory Committee.

2.4 Planning requirements from 2.3 will be matched, mismatched and reconciled using criteria developed by Kaufman, R.A. *Educational System Planning*. New York: Prentice Hall, Inc., 1972.

2.5 Planning requirements will be approved by Project Director. Approval to be secured through written sign-off.

3.0 Obtain Required Approvals

3.1 Approvals to be obtained from Project Director and Advisory Committee.

3.2 Approvals to be secured through written sign-off.

3.3 Approvals shall be obtained.

4.0 Identify Preliminary Industry Perceived Requirements

4.1 A minimum of three (3) training managers of the import auto industry shall be contacted and their perceived

SKA requirements of import auto entry level technicians shall be determined and reported.

4.2 Approval and delineation of 4.1 shall be determined by Project Director, the Advisory Council, and consultant team.

4.3 Approval and delineation of 4.1 shall be secured through written sign-off.

5.0 Identify Learner SKA Requirements from Potential Employers

5.1 A minimum of ten (10) service managers of import auto dealers shall be contacted and their perceived SKA requirements of import auto entry level technicians shall be determined and reported.

5.2 Approval and delineation of 5.1 shall be as per 4.2.

5.3 Approval and delineation of 5.1 shall be secured through written sign-off.

6.0 Identify Learner SKA Requirements From Potential Educators

6.1 A representative sample of potential educators of the Import Auto Technician Training Program shall be contacted and their perceived SKA requirements of import auto entry level technicians shall be determined and reported.

6.2 Criteria for determining representative sample shall be delineated and agreed upon by Project Director and consultant team.

6.3 Same as 5.3.

7.0 Identify Learner SKA Requirements from Potential Students

7.1 A representative sample of potential program enrollees shall be contacted and their perceived SKA requirements of import auto entry level technicians shall be determined and reported.

7.2 Same as 6.2.

7.3 Same as 5.3.

8.0 Identify Maintenance and Repair Requirements from Sample Industry Work Orders

8.1 Maintenance and repair requirements data from work orders shall be obtained from a representative sample of import auto dealers.

8.2 Data of 8.1 shall be obtained, reduced, and reported by consultant team.

8.3 Consultant team shall obtain from at least one (1) dealer representing each import auto manufacturer in the project:

(a) work-orders representing five (5) working days within the period January 1 — December 31, 1972.

(b) work-orders representing five (5) working days within the period June 1 — July 1, 1973.

9.0 Identify Probable Future Maintenance and Repair Requirements.

9.1 Criteria for identifying future maintenance and repair requirements to be determined by Project Director and Advisory Committee.

10.0 Determine Preliminary Curriculum Objectives.

10.1 Selection criteria shall conform to that established by Project Director and Advisory Committee.

10.2 Criteria requirements shall be determined from a minimum of two alternate selection methods-means.

10.3 Advantages and disadvantages of each alternate methods-means shall be reconciled before selection is made.

10.4 Criteria requirements shall be matched, mismatched and reconciled as per 2.4.

10.5 Preliminary curricular objectives shall be determined.

10.6 Project Director and Advisory Committee shall make final approval of 10.5 in form of written sign-off.

11.0 Determine Matches and Mismatches from 5.0 — 8.0.

11.1 Match and mismatch data shall be listed as per specifications delineated by Project Director and Advisory Committee.

12.0 Determine Current Available Time, Personnel, Facilities and Financial Resources.

12.1 Criteria for determining 12.0 shall be selected by Project Director and Advisory Committee.

12.2 Data of 12.0 shall be obtained, reduced, and reported.

13.0 Reconcile Discrepancies.

13.1 Criteria for 13.0 shall be established as per 12.1.

13.2 Same as 12.2.

14.0 Determine Preliminary Curricular Methods-Means.

14.1 Methods-means selection criteria shall be determined by Project Director and Advisory Committee.

15.0 Report Reconciled Program Requirements.

15.1 Program requirements shall be reported as per specifications established by Project Director and Advisory Committee.

16.0 Obtain Preliminary Approvals for 15.0.

16.1 Approvals to be secured from Project Director, and Advisory Committee in form of written sign-off.

17.0 Determine Matches and Mismatches from 4.0, 9.0, and 15.0.

17.1 Same as 10.1 — 10.6 except for appointed dates.

18.0 Reconcile Discrepancies.

18.1 Criteria for 18.0 shall be established as per 12.1.

18.2 Data shall be obtained, reduced, and reported.

19.0 Determine Required Learner Characteristics.

19.1 The required learner characteristics shall be determined from a minimum of the following categories:

(a) sex
(b) age
(c) physical requirements
(d) language requirements
(e) ethnic group
(f) educational requirements
(g) field experience
(h) financial status

19.2 The required learner characteristics of 19.1 shall be determined from data obtained from a minimum of the following sources:

(a) a minimum of ten (10) service managers of import auto dealers.

(b) a minimum of three (3) training managers of the import auto industry.

(c) a representative sample of potential educators of the Import Auto Technician Training Program.

(d) a representative sample of current and potential students.

(e) a representative sample of current and potential administrators and counselors.

19.3 Approval and delineation of 18.2 shall meet specifications established by Project Director and Advisory Committee.

20.0 Determine Current Learner Characteristics of Potential Trainees.

20.1 Current learner characteristics shall be determined from a minimum of those categories delineated as per 19.1.

20.2 A representative sample of current learners shall be selected from a population approved of and delineated by Project Director and Advisory Committee.

21.0 Identify Discrepancies Between Current and Required Learner Characteristics.

21.1 Current and required discrepancies data shall be listed as specifications established by Project Director and Advisory Committee.

21.2 Current and required learner characteristics outcomes shall be matched, mismatched, and reconciled using criteria developed by Kaufman, R.A., *Educational System Planning*. New York: Prentice Hall, Inc., 1972.

21.3 Discrepancy data shall be obtained, reduced and reported to Project Director and Advisory Committee.

22.0 List Learner Characteristics Needs.

22.1 Needs shall be defined as the difference between current and required characteristics outcomes.

22.2 Needs shall be listed in prioritized order.

22.3 A minimum of two (2) priority setting and methods-means criteria shall be presented to Project Director and Advisory Committee for consideration.

22.4 Priority setting criteria shall be approved by Project Director and Advisory Committee.

22.5 Determination of needs in priority order shall be completed.

23.0 Obtain Required Approvals.

23.1 Approvals to be obtained in form of written sign-off.

24.0 Determine Learner SKA Requirements.

24.1 Criteria for determining learner SKA requirements shall conform to that established by Project Director and Advisory Committee.

24.2 Where possible, SKA requirements shall be listed as outcome statements as per criteria of 2.1.

24.3 Where possible, SKA requirements shall be measured as per 2.2.

25.0 Translate 24.0 into Summative Program Objectives to be Accomplished by L.A.C.C. District.

25.1 Program objectives shall be listed as outcome statements which meet the criteria identified by Mager, R.F. *Setting Instructional Objectives*. Palo Alto, California. Fearon Pub., Inc., 1961.

25.2 Where possible, program objectives will be measured at the interval and ratio levels of measurement.

25.3 Program objectives shall be approved by Program Director and Advisory Committee. Approval to be secured through written sign-off.

26.0 Translate 24.0 In Summative Program Objectives to be Accomplished by the Import Auto Dealers.

26.1 Same as 25.1.

26.2 Same as 25.2.

26.3 Same as 25.3.

27.0 Translate 24.0 into Formative Program Objectives to be Accomplished by L.A.C.C. District.

27.1 Same as 25.1.

27.2 Same as 25.2.

27.3 Same as 25.3.

28.0 Translate 24.0 Into Formative Program Objectives to be Accomplished by the Import Auto Dealers.

28.1 Same as 25.1.

28.2 Same as 25.2.

28.3 Same as 25.3.

29.0 Identify Required SKA Developmental Steps and Sequences.

29.1 Criteria for identifying required learning steps and sequences shall be established by Project Director and Advisory Committee.

30.0 Identify Curricular Methods-Means.

30.1 Strategies selected shall be such as to meet program requirements as stated in the overall Mission Objective.

30.2 Methods-means shall comply with criteria established by Project Director and Advisory Committee.

30.3 Strategies shall be determined and reported to Project Director and Advisory Committee.

31.0 Identify Required Time, Personnel, Facilities and Financial Resources.

31.1 Same as 12.1.

31.2 Data of 31.0 shall be obtained, reduced and reported.

32.0 Determine Matches and Mismatches Between 12.0 and 25.0 — 26.0.

32.1 Same as 11.1.

***33.0* Reconcile Discrepancies.**

33.1 Criteria for 33.0 shall be selected by Project Director and Advisory Committee.

33.2 Data shall be obtained, reduced and reported.

34.0 Determine Revised Summative Program Objectives.

34.1 Same as 25.1.

34.2 Same as 25.2.

34.3 Same as 25.3 except for date revision.

35.0 Determine Revised Formative Program Objectives.

35.1 Same as 25.1.

35.2 Same as 25.2.

35.3 Same as 34.3.

36.0 Select Revised Curricular Methods-Means.

36.1 Same as 30.1.

36.2 Same as 30.2.

36.3 Same as 30.3 except for date revision.

37.0 Obtain Required Approvals.

37.1 Same as 3.1.

37.2 Same as 3.2.

37.3 Approvals shall be secured.

38.0 List Approved Program Objectives, Methods-Means and Resources.

38.1 Criteria for reporting 38.0 shall conform to specifications delineated by Project Director and Advisory Committee.

39.0 Develop Student Recruitment Plan.

39.1 Objectives for sub-system (39.0) shall be determined through criteria developed by Project Director and Advisory Committee.

39.2 Methods-means for developing (39.0) shall meet criteria established by Project Director and Advisory Committee.

39.3 Performance requirements 39.1 and 39.2, when implemented, shall cause the provisions accepted by the funding agencies for the initiation of this current project to be accomplished.

40.0 Develop Job Placement Counselling Plan.

40.1 Same as 39.1.

40.2 Same as 39.2.

40.3 Same as 39.3.

41.0 Develop Job Placement Vehicle Plan.

41.1 Same as 39.1.

41.2 Same as 39.2.

41.3 Same as 39.3.

42.0 Conduct Required In-Service Training (If Required).

42.1 Determination and delineation of 42.0 to be established by Project Director and Advisory Committee.

43.0 Validate Training Summative and Formative Objectives.

43.1 Implementation requirements shall conform to criteria established by Project Director and Advisory Committee for achieving program objectives.

43.2 Implementation of program shall be deemed in progress when criteria for implementation have been met.

43.3 Performance effectiveness shall be determined using criteria established by Project Director and Advisory Committee.

43.4 Data obtained shall be matched, mismatched, and reconciled using the criteria developed by Kaufman, R.A. *Educational System Planning*. New York: Prentice Hall, Inc., 1972.

44.0 Validate Training Materials.

44.1 Same as 43.1.

44.2 Same as 43.2.

44.3 Same as 43.3.

44.4 Same as 43.4.

45.0 Validate Training Aids.

45.1 Same as 43.1.

45.2 Same as 43.2.

45.3 Same as 43.3.

45.4 Same as 43.4.

46.0 Validate Program Methods-Means.

46.1 Same as 43.1.

46.2 Same as 43.2.

46.3 Same as 43.3.

46.4 Same as 43.4.

47.0 Determine Maintenance Requirements.

47.1 Program maintenance requirements shall conform to criteria established and approved by Project Director and Advisory Committee.

47.2 Program maintenance requirements to be determined and reported.

48.0 Determine Change Requirements.

48.1 Same as 47.1.

48.2 Same as 47.2.

49.0 Obtain Required Approvals.

49.1 Approvals shall be obtained.

49.2 Same as 3.2.

50.0 Publish Curriculum Guides.

50.1 Above (50.0) shall conform to specifications established by Project Director, Advisory Committee and Los Angeles Community College District.

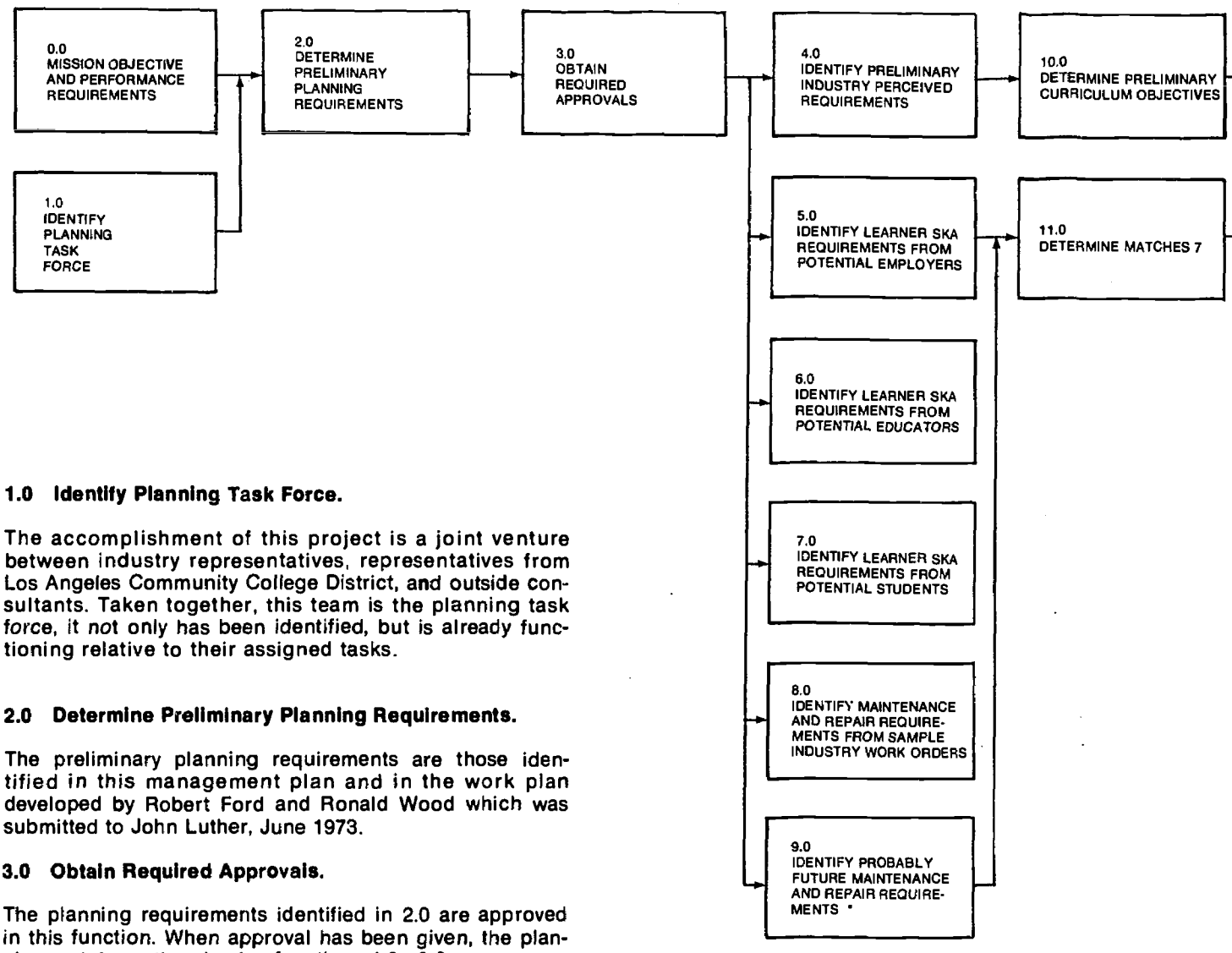
50.2 Completion of 50.0 shall be accomplished on or before established date.

51.0 Distribute Curriculum Guides to Funding Agencies.

51.1 Distribution methods-means shall conform to specifications established by Project Director, and Advisory Committee and shall meet approval requirements of Los Angeles Community College District.

NARRATIVE DESCRIPTION OF THE MISSION PROFILE

The following is a narrative description of the mission profile found in the enclosed function-flow-block diagram. Each function in the mission profile represents a series of tasks to be accomplished. The profile shows the sequence and order to be followed in the accomplishment of the required functions. These functions taken together represent the management plan to be followed in reaching the major objective of the project found in the mission objective and performance requirements.



1.0 Identify Planning Task Force.

The accomplishment of this project is a joint venture between industry representatives, representatives from Los Angeles Community College District, and outside consultants. Taken together, this team is the planning task force, it not only has been identified, but is already functioning relative to their assigned tasks.

2.0 Determine Preliminary Planning Requirements.

The preliminary planning requirements are those identified in this management plan and in the work plan developed by Robert Ford and Ronald Wood which was submitted to John Luther, June 1973.

3.0 Obtain Required Approvals.

The planning requirements identified in 2.0 are approved in this function. When approval has been given, the planning task force then begins functions 4.0 - 9.0.

4.0 Identify Preliminary Industry Perceived Requirements.

This project has been designed from the beginning as a joint effort between industry and educators. One of the important variables is the determination of requirements that industry would have this project meet. A curriculum which is designed to the satisfaction of educators but which is unacceptable to the clients served (industry) is one which will probably represent a waste of taxpayer dollars. By determining industry requirements first, it is possible to develop a curriculum which meets those requirements, thereby bringing education and the real world together.

5.0 Identify Learner Skills, Knowledge, Attitudes, Requirements From Potential Employers.

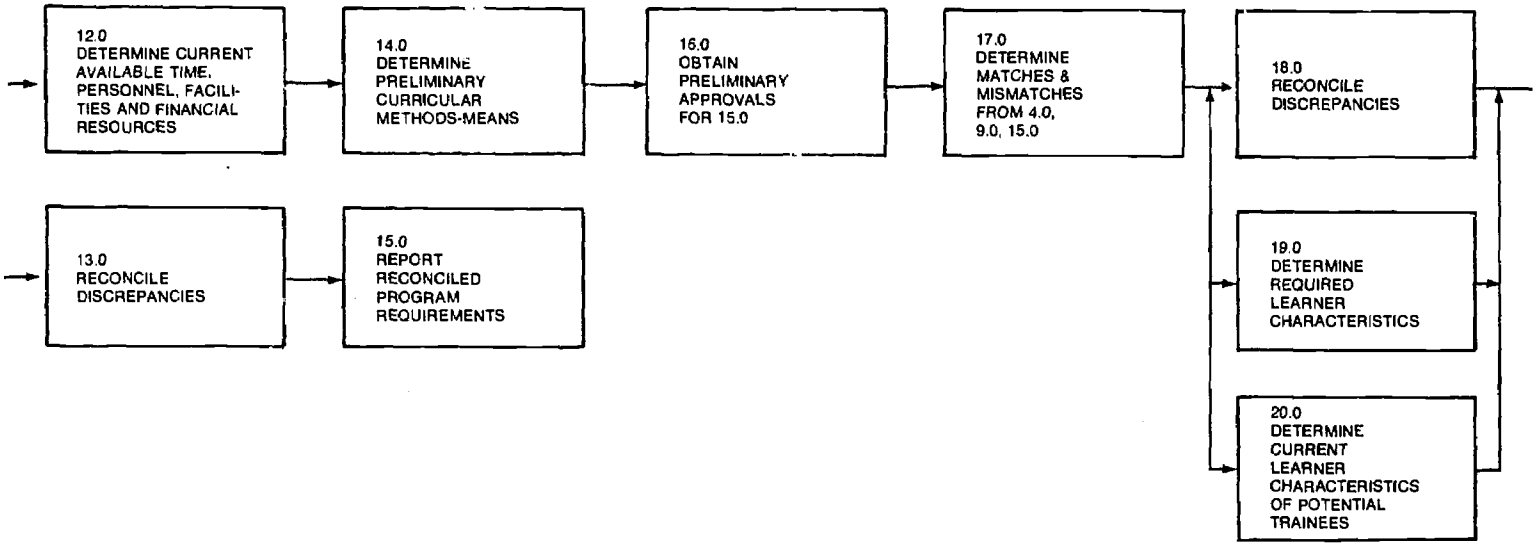
Based on the requirements that industry has for Import Auto Technicians, there are certain entry level skills, knowledge and attitude requirements expected from program graduates. This step represents the identification of those requirements.

6.0 Identify Learner Skills, Knowledge and Attitude Requirements From Potential Educators.

Not only is the planning task force concerned about the skill, knowledge and attitude requirements from industry and potential employers, but also from the potential educators. This is based on the belief that, in the final analysis, the educator will be the mediator of the program; anything unacceptable to them, in all likelihood, will not be taught; therefore, in developing the list of learning requirements, educator input is vital.

7.0 Identify Learner Skills, Knowledge, and Attitude Requirements From Potential Students.

Because students are the primary focus of the project, their perceived skill, knowledge, and attitude requirements are important. This is based upon a phenomenological viewpoint which states that a person is more likely to act on the basis of his perception of reality than he is on the reality itself. If the program does not meet the perceived expectations that students have, then they are likely to find the program of little or no value. This is one commitment or "buy-in" strategy to involve students in the decision making process.



8.0 Identify Maintenance and Repair Requirements From Sample Industry Work-Orders.

Steps 4.0 through 7.0 are primarily concerned with perception. 8.0 is an empirical validation from the world of reality where actual repair requirements are identified from work orders submitted to the service departments of participating manufacturers and dealerships. During this phase of the project, the types of repairs will be identified along with frequency data to provide a base for curriculum decision-making. Training will be geared toward the expectations identified in 4.0 through 7.0 and the real world as identified in 8.0.

9.0 Identify Probable Future Maintenance and Repair Requirements.

This step is included to insure that program graduates will learn skills which will be required not only in today's market but perhaps in tomorrow's market. For example, the experience that industry had with the transition from the use of generators to alternators in cars has shown that frequently mechanics are not prepared for changes on the horizon. Some maintenance and repair requirements to consider for the future might be such things as the increased use of rotary engines, of turbine engines, of the stratofied chargers, etc. The planning task force believes that the curriculum should reflect the real world, not only of today but of the near future.

10.0 Determine Preliminary Curriculum Objectives.

Coming directly from 4.0 where we have identified the preliminary industry perceived requirements, is function 9.0. Based upon those requirements, the preliminary curriculum objectives are established. These objectives are a first cut waiting for the data to be fed in from steps 5.0 through 15.0. Work has already begun to identify these preliminary objectives. It is understood that they are "carved in soap" and not "marble tablets". It is to be expected that what is developed during this phase will be revised. The intent is to establish some preliminary curricular guideposts.

11.0 Determine Matches and Mismatches From 5.0 Through 9.0.

During this step, the skill, knowledge and attitude requirements identified from potential employers, educators, and students, are brought together to determine perceptions shared in common and those unique to each group. Added to this perception data, is the real world data from 8.0 (the current maintenance and repair requirements) and 9.0 (the probable future maintenance and repair requirements). The outcome of this step is a list of the perceived and real requirements which match one another and the perceived and real requirements which do not match. It is expected that non-matching requirements will be reconciled further into the project.

12.0 Determine Current Available Time, Personnel, Facilities and Financial Resources.

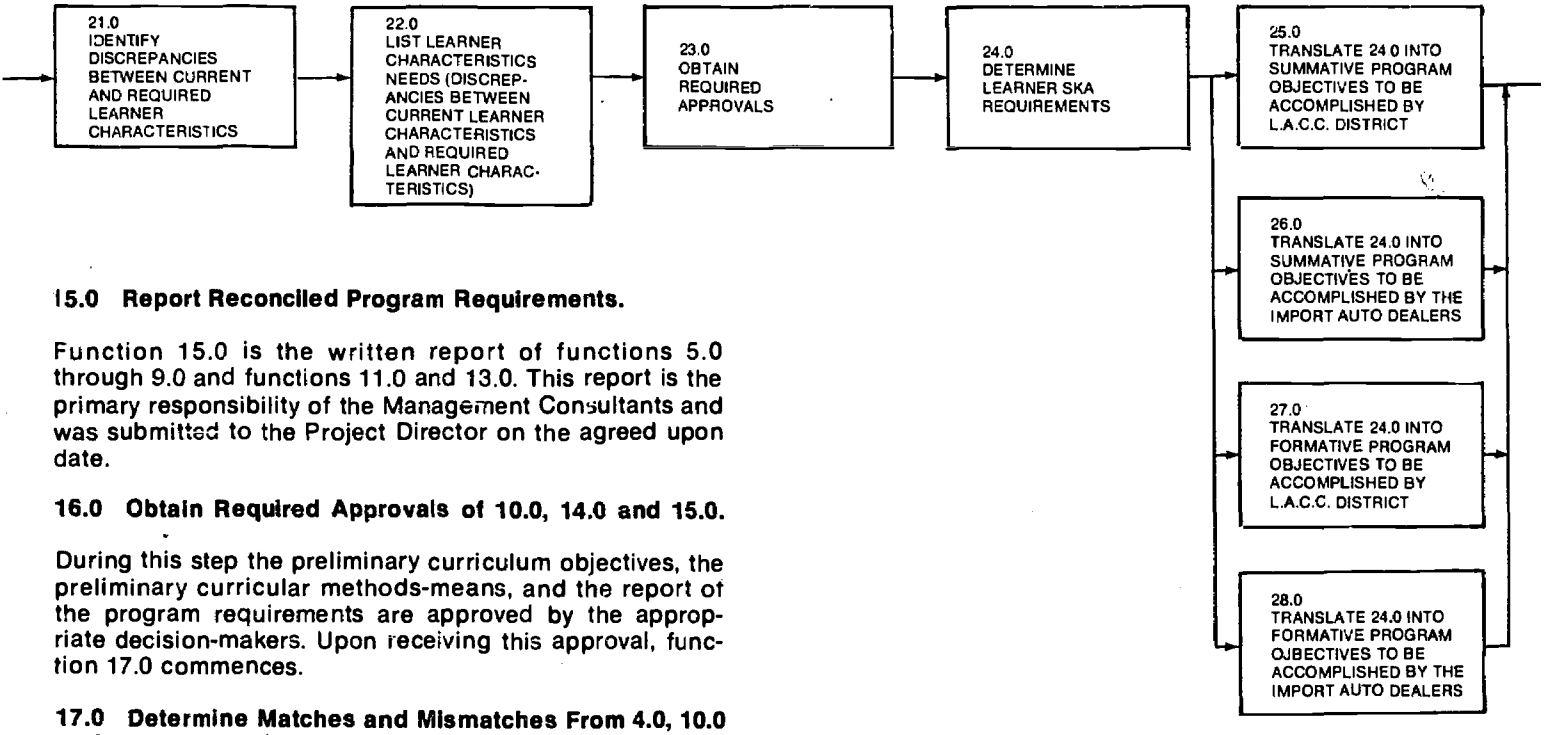
A look at the mission profile shows that 11.0 comes directly out of 10.0 which are the preliminary curriculum objectives. Based upon these preliminary objectives, the current available resources are identified. The developed curriculum must consider resource availability.

13.0 Reconcile Discrepancies.

Function 13.0 comes out of 11.0 and represents a reconciliation of the mismatches identified in 11.0. The product from this function is a list of reconciled mismatches; that is, the agreed-upon compromises between the employers, educators and students and these reconciled with the real world requirements identified from the current and future maintenance and repair work-orders.

14.0 Determine Preliminary Curricular Methods-Means.

Function 14.0 derives from function 12.0; namely, the determination of currently available resources. Based upon resource availability, and the preliminary curricular objectives, a first cut curriculum is developed. This is done with the realization that this curriculum will be revised based upon the report which is the product of function 15.0.



15.0 Report Reconciled Program Requirements.

Function 15.0 is the written report of functions 5.0 through 9.0 and functions 11.0 and 13.0. This report is the primary responsibility of the Management Consultants and was submitted to the Project Director on the agreed upon date.

16.0 Obtain Required Approvals of 10.0, 14.0 and 15.0.

During this step the preliminary curriculum objectives, the preliminary curricular methods-means, and the report of the program requirements are approved by the appropriate decision-makers. Upon receiving this approval, function 17.0 commences.

17.0 Determine Matches and Mismatches From 4.0, 10.0 and 14.0.

The discrepancies or mismatches will be identified between 4.0, the preliminary industry perceived requirements; 10.0, the preliminary curricular objectives and 15.0, the written report of empirically identified requirements. So too, will be identified their matches or common grounds of agreement.

18.0 Reconcile Discrepancies.

Where there are mismatches or discrepancies between 4.0, 10.0 and 15.0, reconciliation is required. The preliminary curriculum objectives and the preliminary industry perceived requirements will be revised in the light of the report which is the product of 14.0.

19.0 Determine Required Learner Characteristics.

In this function those characteristics of the successful Import Auto Technician are identified; that is, a determination of what must the successful entry-level employee look like, what kinds of physical attributes or characteristics must he have, what kinds of psychological characteristics must the employee have, what kinds of attitudinal characteristics must the employee have. The product from this function is a list of the learner characteristics that are required for the successful entry-level employee.

20.0 Determine Learner Characteristics of Potential Trainees.

Based upon the required learner characteristics identified in 18.0, what are the current or actual learner characteristics of those who might enroll in the program? This function is designed to take a look at the real world so that it will be possible to have a "reading" of the characteristics of the average potential trainee in the program, compared with the required characteristics.

21.0 Identify Discrepancies Between Current and Required Learner Characteristics.

In functions 19.0 and 20.0 the required and current learner characteristics have been identified. In this step, the discrepancies or gaps are determined between the current learner characteristics and the required learner characteristics, it is quite possible that the required learner characteristics identified by employers and educators will not fit the learner characteristics of the disadvantaged students who will enroll in this program. During this step, therefore, those gaps are identified and listed.

22.0 List Learner Characteristics Needs (Discrepancies Between Current Learner Characteristics and Required Learner Characteristics).

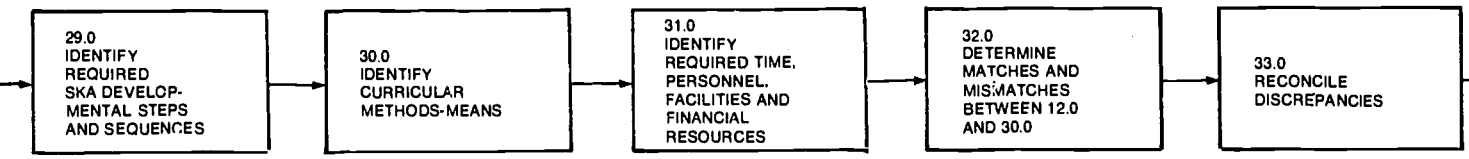
In function 20.0 the gaps or discrepancies between the current and required learner characteristics have been determined and listed. During this step, the gaps are identified in measurable terms and listed in priority order.

23.0 Obtain Required Approvals.

This function represents the formal approval step for functions 4.0 through 22.0. Once this approval is given, the curriculum development begins, based upon the preliminary curriculum and the obtained empirical data.

24.0 Determine Learner Skills, Knowledge and Attitudes Requirements.

Based upon the data obtained from all of the functions which have been accomplished prior to 24.0, the skills, knowledge, and attitudes requirements for entry level Import Auto Technicians are identified and listed. These requirements are the foundation for the definition of the program objectives to be included in the curriculum guide.



25.0 Translate 22.0 into Summative Program Objectives to be Accomplished by Los Angeles Community College District.

26.0 Translate 22.0 into Summative Program Objectives to be Accomplished by the Import Auto Dealers.

Once the learner skills, knowledge, and attitudes requirements have been identified in 24.0, the planning task force will translate those requirements into summative objectives. A summative objective is an objective to be attained at the end of the training program. By definition, summative objectives are program end-of-training objectives. The reader will note that the summative objectives are listed in two categories, those to be accomplished by the Community College District and those to be accomplished through hands-on training at the import auto dealership. These objectives provide the basic criteria by which the training program will be evaluated.

27.0 Translate 24.0 into Formative Program Objectives to be Accomplished by the Los Angeles Community College District.

28.0 Translate 24.0 into Formative Program Objectives to be Accomplished by the Import Auto Dealers.

From the learner skills, knowledge and attitude requirements identified in 24.0, the formative objectives are derived. A formative objective is an "enroute" objective to be accomplished through the learning sequences of the program. By definition, a formative objective leads to the accomplishment of a summative objective. Very often, a summative objective will have a set of formative objectives logically sequenced which, if accomplished, will lead to the achievement of the summative objective. The reader should again note that this is done for the training to be accomplished by the Community College District and by the Import Auto Dealerships.

29.0 Identify Required Skills, Knowledge and Attitudes, Developmental Steps and Sequences.

Based upon the summative and formative objectives identified for both the Community College District and Dealership Training Programs, the learning steps are identified and placed in logical sequential order to maximize student learning in the shortest time possible. What is known from learning theory and the field of educational psychology will be utilized in developing these learning steps and sequences.

30.0 Identify Curricular Methods-Means.

Given the summative and formative objectives for the program and the identified learning steps and sequences, the actual curriculum will be developed. This process involves the determination of alternative learning strategies along with their advantages and disadvantages; based upon an objective set of criteria, the selection of those methods-means most appropriate to the stated program objectives. The curricular methods-means includes the identification of all required learning vehicles such as written and audio-visual-media materials, the training strategies to be employed, and the selected training aids.

31.0 Identify Required Time, Personnel, Facilities and Financial Resources.

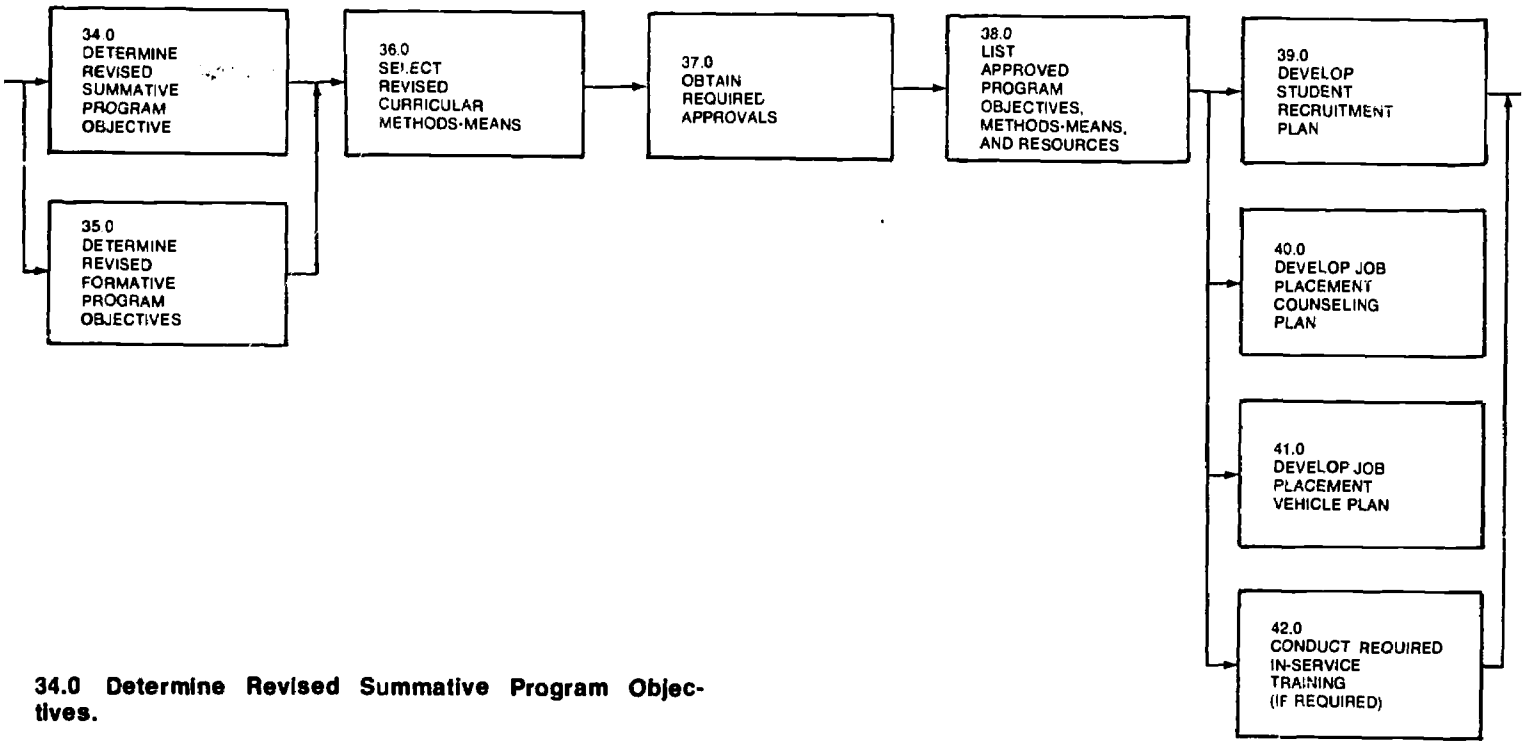
Based upon the identified summative and formative program objectives, the developmental steps and sequences, and the identified curriculum, the resources required to implement the program are estimated. These resources include average training time, personnel requirements, facilities requirements and the required financial resources.

32.0 Determine Matches and Mismatches Between 11.0 and 29.0.

In 12.0 the currently available time, personnel, facilities and financial resources are identified for the Import Auto Technician Program. In 31.0 the required time, personnel, facilities and financial resources are identified for the summative and formative objectives and curriculum to be included in the curriculum guides. If there is a gap or discrepancy between the *currently available* resources and those which are *required,* then a reconciliation will be necessary. Based upon that reconciliation, a revision is made in the program. This revision is the outcome of functions 31 through 34.

33.0 Reconcile Discrepancies.

Once the resource gaps have been identified, the reconciliation occurs. This is usually a trade-off process between what the planning task force hopes to accomplish and what is feasible within the resources available. Either increased resources can be applied to the program to achieve the objectives as stated, or the program is revised downward within the realistic resource framework.



34.0 Determine Revised Summative Program Objectives.

Based upon the reconciliation between the available and required resources and the developed curriculum (functions 24.0 through 30.0), the end-of-program or summative objectives are revised; this is an attempt to bring the "ideal" curriculum of the planning team within the reality framework of feasible resource allocation.

35.0 Determine Revised Formative Program Objectives.

In the same way as the summative objectives are revised in 32.0 above, so the formative objectives are revised.

36.0 Select Revised Curricular Methods-Means.

When the summative and formative objectives are revised, it is necessary to also revise the curriculum to match the revised objectives. This is usually a cutting back operation where the ideal program is changed to meet the reality-oriented objectives (hopefully) identified in the revision phases of 34.0 and 35.0.

37.0 Obtain Required Approvals.

With this function, the revised training program (including objectives, resources and curriculum) is approved by the appropriate personnel in the Community College District and planning task force.

38.0 List Approved Program Objectives, Methods-Means and Resources.

When the required approvals are secured, the program is listed for all interested parties to review.

39.0 Develop Student Recruitment Plan.

Given the approved program, the student recruitment plan is developed. The recruitment plan is one of the features identified in the project proposal which was granted by the funding agency and represents the efforts by the Community College District to meet the formal grant requirements.

40.0 Develop Job Placement Counseling Plan.

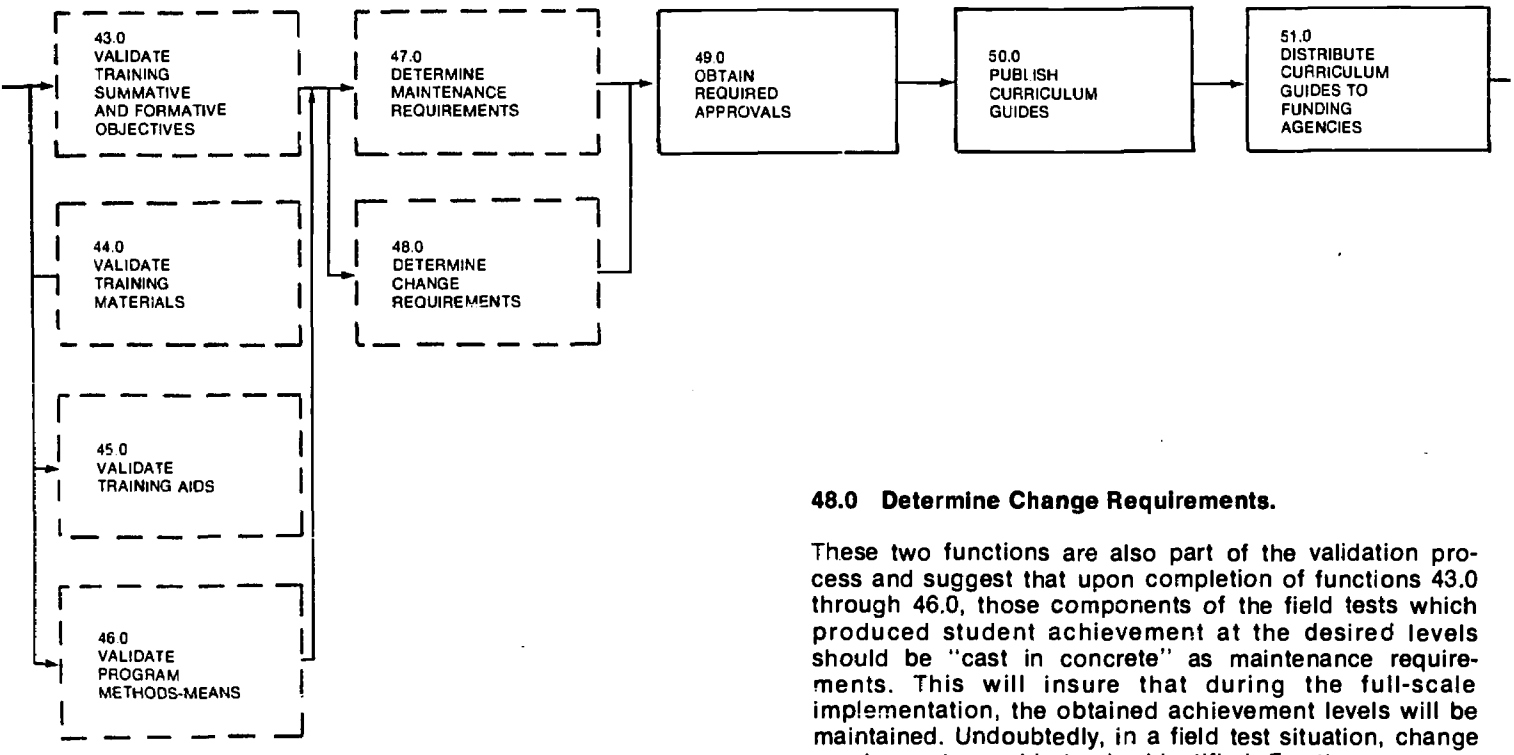
The job placement counseling plan is also a grant requirement and is developed during this function in the sequence of the project.

41.0 Develop Job Placement Vehicle Plan.

The original grant also refers to the development of a job placement sub-system to insure that the import auto technician trainees will secure jobs upon completion of training.

42.0 Conduct Required In-Service Training Program (if required).

Based upon the developed objectives and curriculum, the in-service training (which might be required to retool the current educators) should be identified and listed. This might not be necessary depending upon: 1) the nature of the program that is identified and/or, 2) the skill, knowledge, and attitude levels of the existing staff who will be involved in the training program.



43.0 Validate Training Summative and Formative Objectives.

44.0 Validate Training Materials.

45.0 Validate Training Aides.

46.0 Validate Program Methods-Means.

These four functions represent the validation phase for the training program. The validation should consist of an empirical field-test to determine the success of the program. Because of time and financial constraints, however, validation will not be possible before the curriculum guides are developed and published. In this project, the program will be validated at the end of the first year of operation. These functions are included in the management plan, however, to show the reader that in the ideal case, this is where the validation would occur. Note that these functions are surrounded by dotted lines in the flow-block-diagram; this is done to show that validation in this management plan is a place-holding operation and not a real function which will be accomplished before curriculum guide publication.

47.0 Determine Maintenance Requirements.

48.0 Determine Change Requirements.

These two functions are also part of the validation process and suggest that upon completion of functions 43.0 through 46.0, those components of the field tests which produced student achievement at the desired levels should be "cast in concrete" as maintenance requirements. This will insure that during the full-scale implementation, the obtained achievement levels will be maintained. Undoubtedly, in a field test situation, change requirements would also be identified. For those summative and formative objectives not met during the validation phase, it is necessary to either revise the curricular methods-means or to revise the objectives to meet the existing program. Regardless, however, where students success is not achieved, revision is necessary and a determination of change requirements is imperative. The reader should note the dotted lines for function 47.0 and 48.0 in the flow-block-diagram. They indicate that in the ideal sense, the functions should be accomplished but, again, because of time and resource constraints, it will not be possible before the publication of the curriculum guides.

49.0 Obtained Required Approvals.

The approvals reverred to in this function relate to the student recruitment plan (39.0), job placement counseling plan (40.0), job placement vehicle plan (41.0), and the required in-service training (42.0). If the planning task force were able to validate the program, these approvals would also refer to functions 43.0 through 48.0.

50.0 Publish Curriculum Guides.

When the functions through 49.0 have been accomplished, the Import Auto Technician training program is complete and this function represents the publication of the curriculum guides detailing the program. The curriculum guide will meet all of the requirements of the funding agency and will minimally contain the management plan, the training objectives (both summative and formative), the curricular methods-means and other features identified by the planning task force.

51.0 Distribute Curriculum Guides to Funding Agencies.

Once the Curriculum Guides are published, they will be distributed to the funding agency.

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CERTIFICATE

A certificate similar to the one shown below is suggested as an appropriate award for those students successfully completing the Import Auto Technician Course. A similar certificate may be awarded to those students successfully completing the Advanced Import Auto Technician Program.

CALIFORNIA COMMUNITY COLLEGES ACHIEVEMENT CERTIFICATE

IS AWARDED THIS CERTIFICATE IN RECOGNITION OF SUCCESSFUL COMPLETION OF THE IMPORT AUTO TECHNICIAN COURSE.

GIVEN AT _____ THIS ____ DAY OF _____ 19 ____

iat

_____ _____

INSTRUCTOR PRINCIPAL

Los Angeles Community Colleges

COOPERATIVE EDUCATION AGREEMENT

_____
Date Semester Year

EMPLOYER _____ STUDENT'S NAME _____

STATEMENT OF JOB-ORIENTED LEARNING OBJECTIVES

Each semester that a student is enrolled in the Cooperative Education Program it is necessary that new learning experiences be identified on his/her job. The achievement of these stated objectives will determine the credit and grades which will be granted for work experience.

These objectives must be specific, measurable, and achievable during the semester. They will be reviewed at the end of the semester by the college coordinator who will determine the level of achievement.

1. _____
_____
_____

2. _____
_____
_____

3. _____
_____
_____
_____

The above learning objectives are reasonable and obtainable during this semester.

_____
Employer-Company Representative

The three participants in this Cooperative venture are the student, the employer, and the college. The college coordinator has the sole responsibility for evaluating each student with advice and counsel of the employer, and the college will award academic credit.

The student agrees to abide by the Cooperative Education guidelines.

_____ _____
Student's Signature College Representative