The California Polytechnic

Administered through the State Department of Education
Hon. Vierling Kersey, Director of Education
Sam H. Cohn, Deputy Director of Education

STATE BOARD OF EDUCATION
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Daniel C. Murphy, Mrs. Daisie L. Short, Mrs. Amy S. Steinhart.

The California Polytechnic is established by the State of California to give free instruction to boys and young men. The Junior College Division specializes in terminal courses of a semi-professional nature in mechanics, engineering and printing.

APRIL 1, 1932
SAN LUIS OBISPO, CALIFORNIA

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FACULTY

Administration

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Margaret H. Chase, Vice-Pres. Dagmar Goold, Stenographer.
Margaret L. Hansen, Secretary. Martha L. Kuch, Assistant Registrar

Instructional Staff

A. P. Agosti, B. S., M. S.—Head Science and Physical Education.
Walter Albrethsen, B. S., M. S. (C. E.)—Civil Engineering, Mathematics.
John O. Ball, A. B.—Drafting.
James R. Bell, B. S.—Aerodynamics, Meteorology and Aviation, Stress Analysis, Radio.
Margaret H. Chase, A. B., M. A.—Vice-President, Dean of Junior College.
George P. Couper—Journalism.
James L. Cushingham—Machine Shop.
Capt. J. C. Deuel—Military, Librarian.
Elmer Dunning—Agricultural Mechanics.
George M. Drumm, B. S., M. S.—Dairying.
Henry Figge—Forge, Acetylene and Electric Welding.
Olive M. Finn, B. A.—English and Journalism.
Chandos M. Funk, B. Pd.—Assistant Librarian.
Walter A. Funk, B. S.—Chemistry.
Elsie Haskin, A. B., M. A.—Spanish and French.
J. J. Hyer, B. S.—Electricity.
Hope Jordan, B. S.—Mathematics.
C. E. Knott, B. S., M. S.—Head of Engineering-Mechanics Department, Mechanical Engineering.
Marien Knox, A. B., M. A.—History, Political Science.
Richard Leach, B. S.—Poultry.
Donald Macfarlane, B. S.—Auto Mechanics.
M. C. Martinsen—Aeronautics.
Ray McCart, B. S.—Science and Physical Education.
L. E. McFarland, B. S.—Head of Agriculture Dept. and Superintendent of Farm.
Vernon Meacham, B. S.—Dairy Instruction and Operation.
M. B. Smith—Carpentry, Band, Orchestra.
Walter O. Smith, Ph. B.—Mathematics.
S. S. Sutherland, B. S., M. S.—Supt. of Agricultural Teacher Training.
Louie Taylor—Welding and Sheet Metal Work.
J. I. Thompson, B. S., M. S.—Animal Husbandry.
G. W. Wilder, Ph. D.—Electrical Engineering.

SCHOOL CALENDAR
1932-33

FIRST SEMESTER

Aug. 31, Wednesday—Dormitories and Dining Hall open.
Sept. 1 and 2, Thursday and Friday—Registration of students not enrolled the previous semester.
   9 a. m. to 12 m.; 1 p. m. to 4 p. m.—Registration, either day.
   1 p. m. Thursday or Friday—Guidance Tests for students in the Preparatory Division, Room 112, Junior College Bldg.
Sept. 3, Saturday—Registration of students enrolled the previous semester.
   2 p. m. Saturday only—Guidance tests for Junior College entrants, Library.
   3 p. m. Subject A examinations for Junior College entrants. Special assemblies for new students.
Sept. 5, Monday—Class work begins.
Sept. 9, Friday—Admission Day, holiday.
October 22, Saturday—Homecoming.
Nov. 11, Friday—Armistice Day. Battalion and Band in parade.
Nov. 23 to 28, Wednesday noon to Sunday night—Thanksgiving recess.
Dec. 23 to Jan. 3—Christmas vacation.
Jan. 3, Tuesday—Class work is resumed.
Jan. 20, Friday—End of first semester.

SECOND SEMESTER

Jan. 20, Friday—Registration of new students.
Jan. 23, Monday—Class work begins.
April 7 to 17—Spring vacation.
May 1, Monday—Annual School Festival.
May 31, Wednesday—Commencement.
June 2, Friday—School closes.
THE CALIFORNIA STATE POLYTECHNIC

The Founding Act of The California Polytechnic was a very liberal one. "The People of the State of California, represented in Senate and Assembly, do enact as follows: There is hereby established in the County of San Luis Obispo, at or near the City of San Luis Obispo, a school to be known as the California Polytechnic School. The purpose of this school is to furnish to young people of both sexes mental and manual training in the arts and sciences, including agriculture, mechanics, engineering, business methods, domestic economy, and such other branches as will fit the students for the non-professional walks of life. This Act shall be liberally construed, to the end that the school established hereby may at all times contribute to the industrial welfare of the State of California."

The only legal amendment to this Act was one passed by the legislature of 1929 to do away with the coeducational character of the school limiting the attendance to boys and young men.

In accordance with the terms of its charter the purpose of The California Polytechnic has been to provide leadership, guidance, and training along vocational and industrial lines, particularly in agriculture and engineering-mechanics. It has thus far offered no comprehensive course in business methods or administration. The course in home economics was discontinued with the exclusion of girls.

In 1931 the work in agriculture became an integral part of the state system of agricultural education, the institution becoming the centralizing agency for the entire work in agricultural education in the public school system of the state.

A dissimilar yet equally significant change has taken place in the work in mechanics. In the early years of the school a three year vocational course was offered which was open to eighth grade graduates. In 1915 this was lengthened and became a four year course. As vocational education was introduced into the various high schools of the state and students could obtain such education at home, the need for vocational training of an elementary nature diminished. At the same time a need arose for more advanced training along vocational and technical lines. This need the local high schools were unable to meet because of the cost of equipment, the difficulty of obtaining teachers properly trained and possessing the necessary experience, and also because of the inability of these schools to provide the advanced training in science and mathematics essential as a foundation for engineering courses of a semi-professional type. The creation of the Junior College Division in 1927 was the response to these demands. Since that time continuous progress has been made in the variety and the strength of the
courses offered. High school graduates in increasing numbers are finding in this institution a combination of practical and theoretical training which will prepare them effectively for occupations intermediate between that of a mechanic and a graduate engineer. This is the only public junior college in the State which makes such preparation its chief purpose.

LOCATION

The California Polytechnic is located in a beautiful valley surrounded by the foothills and rugged mountains of the Santa Lucia range. It is about one mile from the town of San Luis Obispo. This town is situated on the Southern Pacific Railway and on one of the main state highways, almost exactly halfway between Los Angeles and San Francisco. As it is located about eight miles from the ocean the temperature is comparatively equable and the climate is one of the most delightful in California.

GROUND

The campus consists of thirty acres of gently undulating land, carefully landscaped and planted to trees and ornamental shrubs. Winding walks and drives traverse the entire campus. California Boulevard, leading from the city limits to the campus, is typical of beautiful California.

BUILDINGS

The Administration Building, Anderson Hall, and Junior College Building are the three chief class-room buildings. They form three sides of a quadrangle with the Administration Building as the central unit. They are all three-story structures built in the mission style, with an attractive exterior of light stucco. They contain the administrative offices, the offices of the Agriculture Department, the Library and Study Hall, science laboratories, and class rooms for all of the academic subjects and agriculture. The Print Shop is also located in the basement of the Junior College Building.

Agricultural Buildings. Apart from the class rooms a model dairy barn, a horse barn, a barn for beef cattle, farm-shop, silos, poultry buildings, greenhouses, sheds for sheep, hogs, and for the shelter of young cattle comprise the buildings used for agricultural purposes.

Shops. Separate shops are provided for instruction in Sheet Metal, Forge, Acetylene and Electrical Welding, Machine Shop Practice, Auto Mechanics, Woodwork, Aeronautics, Electrical Engineering, and Gas and Steam Engines. Most of these are located in a group about two hundred yards from the class room buildings, so that a student may transfer from one building to
another as his work requires. The equipment of the various shop
buildings is described later in this bulletin.

*Crandall Gymnasium.* In this new two-story building, stu-
dent activities center. Assemblies of the student body, indoor ath-
letics, dramatic performances, graduation exercises and receptions
take place here. The gymnasium floor, 68 by 94 feet free from all
obstructions, offers opportunity for basketball, volleyball, etc. On
the north side of this large room is a stage 24 by 32 feet. Opposite
the stage is the balcony with a seating capacity of 600. When it is
desired to use the room as an auditorium, folding chairs may be
used to increase the seating capacity to twelve hundred. At the
west end of the building are rest rooms, a social room of ample
size, a small kitchen, and convenient office rooms for the instruc-
tors in athletics and physical education. Showers and locker rooms
are located in the basement.

*Dining Hall.* On the north-east corner of the dormitory quad-
rangle is an attractive, T-shaped building of stucco exterior. This
Cafeteria Dining Hall is adequately equipped for serving meals to
all the students and the members of the faculty.

*Dormitories.* There are four dormitories for students’ use. All
of them are under faculty supervision, all contain pleasant recrea-
tion rooms. Deuel Dormitory is occupied by sophomore and junior
boys. Heron Hall is the home for seniors. There are two junior
college dormitories, Jesperson Dormitory for freshman junior
college students, and Chase Hall for sophomore junior college
students. The last three buildings named are modern two-story
fireproof structures of concrete with stucco exterior and tile roofs.
The rooms are all well equipped.

*Annex.* The Annex is a small dormitory where young men
live who are taking a teacher training course in agriculture. These
men are all college graduates and are preparing for the teaching
of agriculture in the high schools of California.

*President's Residence.* This new two-story building of beauti-
ful mission architecture is situated on a knoll in close proximity to
the dormitories, and commands a wide view of campus and hills.
President and Mrs. Crandall, who take deep interest in boys and
boys’ problems, find pleasure in entertaining the students singly and
in groups.

**SHOP EQUIPMENT**

*Aeronautics Department Equipment*

The aeronautics laboratory has several distinct types of equip-
ment. The shop equipment includes a jointer, table saw, band saw,
sanders, and other wood working machines in the construction
division, as well as special machines such as the Campbell nibbler
which is a machine designed especially for making metal fittings
that enter into the construction of an airplane. In the metal-working division are included machines and presses necessary for the fabrication of a complete airplane and also for the overhauling and rebuilding of airplane engines so that they may attain the maximum in the performance and reliability so necessary to aviation. Included in the equipment might be mentioned the oxyacetylene welding outfits, the lathes, the grinders, the drill press, the arbor press, the valve refacer, the electric test bench, etc.

The engine division includes practically all types of airplane engines in use at the present time, both liquid and air cooled, in line, V, and radial types. Among the engines used for instruction purposes are Hall Scott, Union, Liberty, Hallet, Curtiss, Aeromarine, Hispano Suiza, Packard and Pratt & Whitney "Wasp" and "Hornet." These engines range in size from 90 to 525 Horse Power. Many other engines and aeroplanes in active aviation equipment go through the shop each year for overhauling and reconditioning.

Several types of inertia, hand and electric starters are also used for instruction purposes.

These engines and other instructional units are arranged in pits or individual compartments to allow two or three men to work on and carry through to completion each type of engine overhaul. After such an overhaul the engine is put through a regular service test on the test stands in the rear of the shop.

The aeronautics department tool room is well stocked with all the necessary hand tools for wood and metal work.

The stock room supply covers a complete line of plywood, steel tubing, sheet aluminum, terne plate, airplane spruce and other materials used in airplane construction and overhaul.

Auto Shop

The Auto Shop is well equipped with major equipment consisting of a lathe, drill press, a brake lining machine, a valve facing grinder, valve seating tools, a cylinder reboring machine, cylinder hone, a valve spring tester and a hydraulic press. It has an ample supply of small tools such as electric drills, speed wrenches, micrometers, greasing guns, and reamers. There is also equipment for auto-electric work such as an electric test bench and battery charger. Oxyacetylene welding repair equipment is provided.

Electrical Laboratory

The Electrical Laboratory, 40 by 110 feet in size, is placed close to the electrical power generating plant owned by the school. The test room is 21 by 100 feet in size and contains modern types of electrical machines, A. C. and D. C. switch boards, test tables, control apparatus, transformers, and instruments for running all
kinds of commercial tests. It is also equipped with a lathe, drill press and hand tools necessary for the repair of electrical equipment. Because of the proximity of the electrical building to the power plant, opportunity is afforded students of electricity to obtain practice in power plant operation as well as practical experience in sub-station operation. See also gas and steam laboratory equipment.

Forge Shop

In the Forge Shop are twenty-four individual forges and anvils, a power grinder, power hammer, tire upsetting and tire binding machines, blacksmith shears, drill press and power blower and exhaust fans. All necessary small tools and equipment to go with this heavy machinery are supplied.

Gas and Steam Laboratory

This laboratory is provided with the regular equipment of small gas and steam engines, and fuel and oil testing equipment. The student also has access to the large electrical power generating plant owned by the school. This plant consists of two 100 H. P. Sterling boilers with a 75 H. P. steam-electric generating unit, a 50 H. P. gas engine belted to an electric generator, and a 120 H. P. Diesel electric generating unit.

Machine Shop

The Machine Shop is divided into two rooms, a tool room where the small tools are stored and checked out by the regular shop-check system to students and the large shop where the heavy machinery is installed. This includes eighteen lathes, two shapers, two drill presses, a vertical mill, a milling machine, a tool grinder, a planer, a power hacksaw, and an even-type gas furnace. A recitation room adjoins the shop.

Printing

The print-shop equipment is complete with three linotypes, a cylinder press, two platen presses, a folding machine, a binder, a paper cutter, various type faces and other miscellaneous equipment.

Sheet Metal

The equipment in the sheet metal shop consists of a 14 gauge cornice brake, squaring shears to handle 16 gauge iron, a three foot bar folder, forming rolls, turning machines and all small tools necessary to complete the job. These tools and machines are all new and of the best make.

Woodworking Shop

The woodworking equipment includes individual motor-driven surfacers, a joiner, a band saw, two circular saws, and five turning
lathes. There are twenty-one work benches with fifty-five lockers fully equipped with hand tools, a tool room for special tools and a special room for finishing.

Welding

The Welding Shop is connected with the forge shop. It is equipped with fifteen acetylene welding torches of the best makes. By means of these, welding, brazing, and cutting may be done. There are also two portable welding outfits and two large welding tables. The welding equipment also includes an electrical welding outfit for all types of electric welding.

Surveying

This department has complete and varied equipment; transits, levels, a plane table, compasses, hand levels, tapes, etc.

SUPPORT

The California Polytechnic is supported directly by the State of California in the same way as are the teachers' colleges. The funds for its support are appropriated in the regular state budget. It is under the control of the State Board of Education. The Director of Education is charged with its oversight. For the present biennium the State appropriations are $40,000 for permanent improvements and $333,730 for support. The dormitories and the cafeteria are financed by money received from the students for room and board, but the committee in charge is under State supervision and a regular audit of all funds and expenditures is made by the State Department.

GENERAL INFORMATION

Living Arrangements. According to State ruling all students who are not living with parents or with close relatives are required to live in dormitories on the campus where they can receive proper care and supervision. The dormitories and the cafeteria are conducted on a non-profit basis so that students receive large returns in exchange for their expenditures for room and board. A free clinic for dormitory students has recently been established. Students have access to the services of a doctor on the campus four times a week free of charge. If a student is so ill that he requires special treatments in a doctor's office he is able to obtain these at a rate lower than the usual one.

EXPENSES

Expenses at The California Polytechnic are very moderate. There is no charge for tuition and no registration fee except the student-body fee of seven dollars. A shop and breakage deposit of $5.00 is required of all students but is returned at the end of the
year unless charges against it are incurred by the student. Expenses may be summarized as follows:

Initial expenses for all students

(a) Uniform for high school students not eligible to and included in band, about .............................................. $30.00  
Or for junior college or band students, about .............. 24.00  
(b) Student body fee. No refund for 1st sem. after Oct. 1, or for 2nd sem. after Feb. 1 ...................................... 7.00  
(c) Text-books and school supplies for immediate needs from ................................................................. 5.00 to 20.00  
(d) Gymnasium privileges and towels including 50c towel deposit ............................................................... 1.50  
(e) Towel fee for those electing physical education rather than military drill .............................................. 1.00  
(f) Gymnasium outfit for those electing physical education, about ................................................................. 4.50  
(g) Mechanical drawing outfit if needed, about.............. 16.00  
(h) Machine shop equipment if needed, about .............. 12.00  
(i) Coveralls if needed .......................................................... 2.25  
(j) Shop and breakage deposit, refunded at end of year except for cause ...................................................... 5.00  

Required initial amount from all students (partial only, for resident students) varying from $42.50 to about $95.00 according to course. Of this $5.50 maybe refunded at the end of the year. Ninety-five dollars would be exceptionally high.

Additional expenses for resident students

The State requires that all students who are not living at home or with close relatives live in dormitories on the campus where they may obtain proper care and supervision. The additional expenses for such students are as follows:

(k) Room reservation fee. This should be sent well in advance. It will be refunded if the student decides not to attend and makes application for refund by August 15, or at the end of the year if the student remains in residence throughout .............................................. $10.00  
(l) Room rent payable one month in advance .................. 7.50  
(m) Board per month including free medical clinic service payable in advance .................................................. 27.00

If payment for both board and room in advance is received on or before the fifth of the month, the amount is reduced to $33.00 for both instead of $34.50.
(n) Annual cafeteria deposit, refunded as a credit when the last month's board bill is due............................ 30.00

Total Initial Outlay for resident students except as noted below under personal expenses, ranging from $123 to about $170.

Later Expenses

(o) Board and room for eight months at $34.50.............$276.00
Or if paid in advance on or before the fifth of each month at $33.00, $224.00. Less $40.00 credit from deposits, $236.00 or $224.00.

(p) Additional school books and supplies from $5.00 to $10.00
Total for all expenses except as noted below from about $358.00 to $420.00.

PERSONAL EXPENSES

Students rooming in the dormitories supply their own sheets, towels, pillow cases, blankets, toilet articles, drapes and a four foot rug. A single bed with mattress and pillows, a dresser, a study table and chairs are part of the room equipment. Sheets, towels and pillow cases are laundered by the school without charge. The cost of personal laundry should not exceed $2.50 a month. It may be charged to board and room accounts and paid monthly. Dry cleaning is extra and depends on the need of the student. The student will need to estimate his personal expenses for extra clothing, incidentals, and laundry. A fountain pen is a valuable addition to his equipment. Students should obtain information of the amounts due from the business office, and send it home, as bills are not mailed out. This information is available at all times. When the money is received, a receipt for board, room-rent and incidentals is mailed immediately. A detailed statement of the incidentals account is mailed occasionally. When finances permit, parents sometimes wish to make a small weekly allowance to their sons for spending money. If it is desired, this amount will be handled by the school office. The amount sent a boy should be moderate. All checks should be made payable to The California Polytechnic and should reach the office from the first to the fifth of each month.

SELF SUPPORT

While there is some opportunity for students in agriculture to earn money for self support it is not advisable for a student to enter without funds sufficient to cover board and room expenses for four or five months, in addition to the initial outlay referred to under the heading "Expenses." As far as possible students are employed on campus work and the placement agency makes contact between students who need work and any openings in the town.
For the most part, however, such positions are filled by the students who have been at the school long enough to demonstrate their dependability. The new student who wishes to submit an application for work will be given an opportunity of stating his qualifications and will be assigned to jobs when these are available.

STUDENT ACTIVITIES

Student body government at The California Polytechnic is carried on for the most part by the Student Affairs Council. This council is composed of members chosen by the student body as a whole, members elected by the classes, and faculty members selected because of their special knowledge of student affairs. The council decides all policies in regard to athletics, dramatics, school publications, and any other activities which include the students as a whole. Several of these activities have their own sub-committees. For financing these, the fee of seven dollars a year is paid by each student, except that when there are two or more members from one family only one is required to pay seven dollars while the others pay five dollars each. In this case they receive only one copy of the annual "El Rodeo" for the family. In addition to the annual, the student receives a student body membership card, a subscription to the bi-weekly newspaper, "The Polygram", and admission to all athletic games on the campus. He also receives the benefit of many student activities such as dramatics, music and social affairs.

STUDENTS CO-OPERATIVE STORE

A store on the campus operated for the benefit of the student body but under faculty supervision is called The Students Co-operative Store. Its chief purpose is to provide for the needs of the students at a low cost. It also contributes occasional dividends to the student body treasury as its finances permit. It is a great convenience for all members of the school.

CLUBS

Clubs are organized for many of the student activities. The Block "P" Club includes only those who have won block letters in the major branches of athletics.

The Campus Play Shop is organized for those interested in plays, makeups, stage effects, and play productions. There is also a chapter of the Delta Psi Omega, a member of the national dramatics honorary society, for junior college students.

The Orpheus Club includes those members of the band and orchestra who wish to belong to a musical organization.

The Glee Club has an organization apart from the regular class instruction in vocal music.
The Poly-Y and Hi-Y Clubs are organizations respectively of junior college and high school students established for the purpose of creating, maintaining and extending throughout the school and community high standards of Christian character.

The Press Club is composed of students interested in Journalism. It includes the members of the Polygram and El Rodeo staffs, and also the members of the printers' club.

The Galley Slaves is the organization for the printing students.

The California Polytechnic has a local chapter of "Future Farmers of America," the national organization of vocational agriculture students. The motto of the organization is "Learning to do, doing to learn, earning to live and living to serve."

The Poly Phase Club is the organization of students in the course in electricity. It gives weekly programs and has a very loyal membership. The auto-mechanics also have a club organization.

The Aeronautics Club and the Junior Aeronauts are the junior college and high school organizations for students interested in aeronautics.

The Mechanics Club and the Junior Mechanics Club, the Academic Club, and Junior Academic Club are centers of student interest in the activities which their names indicate for junior college and high school students, respectively.

Dormitory Clubs are organized by the members of each dormitory for promoting school spirit and social activities among the members of its group.

**ACADEMIC INFORMATION**

*Entrance Requirements.* Entrance requirements in agriculture may be found in the information provided on the work of that department. For entrance to all other departments, graduation from junior high school or one year of accredited high school work is required with a minimum of four units or eight semester credits. Credit for additional work done in high school will be accepted in so far as it applies to the prerequisites or the requirements of the course selected. Should a weakness manifest itself in any subject for which credit has been allowed to such a degree as to handicap the student in his work, it may be necessary for him to repeat that section of the work in which he is deficient. In shop work and mechanical drawing there is such great diversity in the standards of the different high schools that it may be necessary to ask the student to perform a test assignment should he desire credit. If that assignment is satisfactorily completed, he will be awarded full credit.
GUIDANCE

Students frequently apply for entrance who are uncertain as to what course they wish to pursue, particularly as to whether they wish to select a technical or a vocational course. The guidance program of the institution is most valuable for these students and for others who may have selected types of work for which they are not adapted or may be taking courses which will not offer sufficiently full scope for their abilities. When a student enters the school he is given both mental and achievement tests. A tentative program is made out in accordance with the results shown by these tests and his previous record if it seems to possess validity. Results are watched carefully and the program may be modified or changed to meet his needs. His work is under the direct supervision of a counselor to whom he goes with any request for program adjustment and by whom he may in turn be referred to the vice-president by whom schedule changes are effected. A student is not required to adhere to one program throughout the semester. In some cases it may be changed several times to meet his needs. When a satisfactory course is finally selected, it is found that few subsequent changes are required. The student is satisfied that he is taking the course which is best adapted to his needs and is happy in his work.

CHANGES OF PROGRAM

To obtain a change of program, a student must secure a blank upon which the desired change is indicated. The change must be approved by his counselor, by the vice-president, and signed by the teachers in whose classes changes are requested before it becomes effective. If a student drops a subject through any other procedure he may receive a failing grade for the semester in that subject.

GRADING SYSTEM

A report on student work is issued to the parents or guardians every six weeks. To high school students, grades are awarded in both effort and accomplishment. Four passing grades are awarded. "A" indicates decidedly satisfactory, "B" indicates satisfactory, "C" indicates a creditable pass mark, "D" is a low pass mark, "F" indicates failure. Given as a semester grade "F" indicates that the subject so graded must be repeated before credit may be obtained. The signs of plus and minus may be used to indicate slightly superior and slightly inferior work. A and B are recommending grades for college transfer, but B—does not recommend as it indicates a grade slightly below the required standing. If a student obtains a grade of incomplete, his work has not been finished because of illness or for some other approved

(16)
reason. If it is not removed within a specified time it automatically becomes an F.

HONOR ROLL STANDING

The requirements for honor roll standing are the following: 1. A record of A or B in at least four solids. 2. At least two solids of work requiring home preparation at least three times a week. 3. No "Incomplete" or grade below a C. 4. For every grade of C there must be another grade of A of equal unit value in order that there may be a B average. 5. An honorable record in conduct.

MERIT SYSTEM

A student may be awarded demerits for unsatisfactory conduct in class, on the campus, or in the dormitories, and for conduct in general which is unbecoming to a student. He will be warned when his demerits total forty. The assignment of fifty demerits is sufficient cause for expulsion.

ATTENDANCE

Students are expected to be punctual and regular in attendance. If a student must be absent because of illness or any other necessity he obtains a pass from the attendance officer before he may be admitted to any class. A similar pass is also necessary in case of tardiness. Demerits are awarded for unexcused absences and repeated tardinesses.

LATE REGISTRATION

A student who plans to enter should consult the bulletin and note carefully the dates upon which students are supposed to register. Late registration inevitably renders the making of a satisfactory program more difficult and retards his own progress and that of every member of his class. A student who enters after the opening of the session and who later fails in his work may not offer his late admission as a satisfactory reason for his deficiency.

A student who enrolls after the set time will be charged a fee of $2.00. This fee applies to both old and new students. In order to register after the first week he must obtain the written approval of the Dean and the head of his department.
TECHNICAL COURSES

The technical courses constitute distinct five year units. They include grades X, XI, and XII of specialized high school work and grades XIII and XIV of junior college work. The completion of the first three years entitles the student to a diploma of high school graduation. The completion of the last two, entitles him to a junior college diploma. The student who takes this five year course possesses a number of distinct advantages over one who enters the junior college division as a high school graduate. His course is a well-integrated unit, each subject being valuable not only for its own sake but for its contribution to the course objective. It is so arranged that all the prerequisites of the junior college courses are provided in the first three years, whereas many students who transfer after high school graduation, because of the lack of such prerequisites require an additional year. It also has the advantage of placing the student for a longer time in an environment where through friends, club associations, and association with instructors, he is constantly in contact with people whose chief interest is in the kind of work which he is preparing himself to do. Their interest intensifies his, and he enters the upper division with an attitude and a background of knowledge which it takes a beginner a long time to acquire. Moreover the larger unit adds very decidedly to the content of his course, the five year course containing a larger and more comprehensive program of technical training than a course limited to two or even three years could possibly provide. A student may transfer from this course to the three year vocational course or to the academic or university transfer course if his interests or his aptitudes seem to indicate that such change is desirable. If such transfer is to take place, it should, if possible, be made by the beginning of the eleventh year. The following courses are included in the technical group: aeronautics, civil engineering, electrical engineering, engineering construction, engineering drafting, mechanical engineering, and printing. Aeronautics, electrical engineering, and printing have their special preparatory courses. The general mechanics course prepares students for each of the other courses, its content varying somewhat with the student's objective.

Prerequisites

Prerequisites for all courses: Graduation from junior high school or the completion of the ninth grade. Subjects advised: English I, algebra, general science, and wood-shop. For students electing printing, typing would be preferable to wood-shop.
### AERONAUTICS

#### OUTLINE OF STUDIES
(See Prerequisites.)

<table>
<thead>
<tr>
<th>Grade X</th>
<th>Grade XI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Periods</td>
<td>Cl. Lab.</td>
</tr>
<tr>
<td>English II</td>
<td>5</td>
</tr>
<tr>
<td>Geometry</td>
<td>5</td>
</tr>
<tr>
<td>Elective (class)</td>
<td>5</td>
</tr>
<tr>
<td>Mech. Drawing</td>
<td>8</td>
</tr>
<tr>
<td>Forge-Welding 1st sem. machine-shop 2nd sem.</td>
<td>12</td>
</tr>
<tr>
<td>Hygiene</td>
<td>1</td>
</tr>
<tr>
<td>Phys. education</td>
<td>4</td>
</tr>
<tr>
<td>Assembly</td>
<td>1</td>
</tr>
<tr>
<td>Study</td>
<td>4</td>
</tr>
</tbody>
</table>

#### Grade XII

<table>
<thead>
<tr>
<th>U. S. History and Gov.</th>
<th>5</th>
<th>Study</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemistry</td>
<td>3 4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Algebra II</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Modern aviation</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shop sketching</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sheet metal work</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Welding, acet., and electric</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical education</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assembly</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Study</td>
<td>4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

At the completion of this work, a student is entitled to a diploma of graduation from high school and enters the Junior College Division. The Junior College course in Aeronautics outlined on page 31 gives the outline for the last two years. It may be somewhat modified because of the superior preliminary training received by students who have completed the program just described.

### ELECTRICITY

#### OUTLINE OF STUDIES
(See Prerequisites.)

<table>
<thead>
<tr>
<th>Grade X</th>
<th>Grade XI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Periods</td>
<td>Cl. Lab.</td>
</tr>
<tr>
<td>English II</td>
<td>5</td>
</tr>
<tr>
<td>Geometry</td>
<td>5</td>
</tr>
<tr>
<td>Class elective</td>
<td>5</td>
</tr>
<tr>
<td>Mechanical drawing</td>
<td>8</td>
</tr>
<tr>
<td>Forge-Welding 1st sem. machine shop 2nd sem.</td>
<td>12</td>
</tr>
<tr>
<td>Hygiene</td>
<td>1</td>
</tr>
<tr>
<td>Assembly</td>
<td>4</td>
</tr>
<tr>
<td>Physical education</td>
<td>4</td>
</tr>
<tr>
<td>Study</td>
<td>4</td>
</tr>
</tbody>
</table>

#### Grade XII

<table>
<thead>
<tr>
<th>U. S. History and Gov.</th>
<th>5</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Algebra II</td>
<td>5</td>
<td>Physical education</td>
</tr>
<tr>
<td>Chemistry</td>
<td>3 4</td>
<td>Assembly</td>
</tr>
<tr>
<td>Electricity II</td>
<td>4 12</td>
<td>Study</td>
</tr>
<tr>
<td>Physical education</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Assembly</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Study</td>
<td>7</td>
<td></td>
</tr>
</tbody>
</table>

At the completion of this course the student is eligible for graduation from high school. He also has acquired a good foundation in science and mathematics, has covered the elements of electricity and is ready for the more advanced work of the junior college course. His course from this time on will agree with the course as outlined for junior college students on page 34 except that he will be able to carry more advanced work.
GENERAL MECHANICS

The course in General Mechanics, as its name indicates, provides a good general training in elementary mechanics and shop work and also acts as a preparatory course particularly for students who, in the Junior College Division, may elect any one of the following courses: Civil Engineering, Engineering Construction, Mechanical Drafting, Mechanical Engineering. Certain substitutions may be made in this course to meet the needs of the students, particularly in shop work and mechanical drawing. For a description of the shop equipment and training offered, see pages 8 to 11.

OUTLINE OF STUDIES
(See Prerequisites.)

<table>
<thead>
<tr>
<th>Grade X</th>
<th>Periods</th>
</tr>
</thead>
<tbody>
<tr>
<td>English II</td>
<td>5</td>
</tr>
<tr>
<td>Geometry</td>
<td>5</td>
</tr>
<tr>
<td>Class elective</td>
<td>5</td>
</tr>
<tr>
<td>Mechanical drawing I</td>
<td>8</td>
</tr>
<tr>
<td>Forge-welding 1st sem., machine shop 2nd sem.</td>
<td>12</td>
</tr>
<tr>
<td>Hygiene</td>
<td>1</td>
</tr>
<tr>
<td>Physical education</td>
<td>4</td>
</tr>
<tr>
<td>Assembly</td>
<td>1</td>
</tr>
<tr>
<td>Study</td>
<td>6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Grade XI</th>
<th>Periods</th>
</tr>
</thead>
<tbody>
<tr>
<td>English III</td>
<td>5</td>
</tr>
<tr>
<td>Trigonometry and solid geometry</td>
<td>5</td>
</tr>
<tr>
<td>Physics</td>
<td>4</td>
</tr>
<tr>
<td>Mechanical drawing II</td>
<td>8</td>
</tr>
<tr>
<td>Machine shop or auto mechanics</td>
<td>8</td>
</tr>
<tr>
<td>Physical education</td>
<td>4</td>
</tr>
<tr>
<td>Assembly</td>
<td>1</td>
</tr>
<tr>
<td>Study</td>
<td>6</td>
</tr>
</tbody>
</table>

Grade XII

<table>
<thead>
<tr>
<th>Periods</th>
</tr>
</thead>
<tbody>
<tr>
<td>U. S. History and govt.</td>
</tr>
<tr>
<td>Algebra II</td>
</tr>
<tr>
<td>Chemistry</td>
</tr>
<tr>
<td>Welding</td>
</tr>
<tr>
<td>Sheet metal</td>
</tr>
<tr>
<td>Mechanical drawing or additional shop</td>
</tr>
<tr>
<td>Physical education</td>
</tr>
<tr>
<td>Assembly</td>
</tr>
<tr>
<td>Study</td>
</tr>
</tbody>
</table>

At the completion of this course the student is entitled to a diploma of graduation from high school. On entering the Junior College Division he may select any of the terminal courses in engineering offered. His preparation particularly fits him for one of the courses mentioned in the introductory statement given above.

PRINTING

Printing is one of the world's leading industries. Upon it every business, profession and trade in some measure depend. The work is interesting and pleasant and the compensation for printers is good. A boy who is at least sixteen years of age, has completed the requirements for entrance, and is intelligent and observant, has a good opportunity for acquiring a valuable trade. The student is guided by example, approved texts and a careful selection of subject matter. Honest and consistent effort on his part is encouraged in every way.

(20)
Prerequisites: Graduation from junior high school or completion of the ninth grade. Subjects advised: English, algebra, general science and typing.

**OUTLINE OF WORK**

<table>
<thead>
<tr>
<th>Grade X</th>
<th>Grade XI</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Periods</strong></td>
<td><strong>Cl. Lab.</strong></td>
</tr>
<tr>
<td>English II</td>
<td>5</td>
</tr>
<tr>
<td>Geometry</td>
<td>5</td>
</tr>
<tr>
<td>History I</td>
<td>5</td>
</tr>
<tr>
<td>Printing I</td>
<td>20</td>
</tr>
<tr>
<td>Hygiene</td>
<td>1</td>
</tr>
<tr>
<td>Physical education</td>
<td>4</td>
</tr>
<tr>
<td>Assembly</td>
<td>1</td>
</tr>
<tr>
<td>Study</td>
<td>4</td>
</tr>
</tbody>
</table>

**Grade XII**

<table>
<thead>
<tr>
<th>Periods</th>
<th>Cl. Lab.</th>
</tr>
</thead>
<tbody>
<tr>
<td>U. S. history and govern</td>
<td>5</td>
</tr>
<tr>
<td>Chemistry or physics</td>
<td>3 4</td>
</tr>
<tr>
<td>English IV or elective</td>
<td>5</td>
</tr>
<tr>
<td>Printing III</td>
<td>20</td>
</tr>
<tr>
<td>Physical education</td>
<td>4</td>
</tr>
<tr>
<td>Assembly</td>
<td>1</td>
</tr>
</tbody>
</table>

At the completion of this course the student is entitled to a diploma of graduation from high school and is ready for the course in printing offered to Junior College students on pages 38 and 39.

**Printing I.** Press work, elementary composition and working at the case; elementary course in job sheets, practical proof-reading, imposition.

**Printing II.** Display composition, advanced job sheets.

**Printing III.** Newspaper practice, advertising composition, English for printers.

For equipment, see page 10.

**VOCATIONAL COURSES**

**AGRICULTURE**

The agriculture course is designed for those who wish to train for some special agricultural activity and only students with vocational agricultural objectives will be admitted. To comply with the admission requirements, students must have completed the equivalent of the sophomore work in high school, or be at least sixteen years of age. High school graduates will receive special attention. The work offered is on a definite vocational basis, with the greatest possible participation in agricultural activities. All agricultural curricula are of a terminal character and none of them are for the purpose of qualifying for admission to degree-granting institutions.

The core of the work centers around the production of meat animals, dairy husbandry, and poultry production. Agricultural mechanics, and associated field operations are correlated with these subjects.

Students are not classified by grades but rather designated (21)
as "preparatory students" or "advanced students." Preparatory students are those who have had no previous work in agriculture. Those students who have had sufficient agricultural preparation, as determined by the instructors, are classified as "advanced." The length of the course depends upon the individual's needs and his rate of progress. Each agricultural student must devote at least half of his time to agricultural classes.

The greatest freedom possible is allowed to students in choosing their courses. These are fitted to the needs of the individual, so are not closely prescribed. Class room work is reduced to a minimum with the emphasis put on individual instruction. The length of time necessary for the completion of a curriculum depends upon the selection of courses and the effort and ability of the individual.

At the present time the school has 500 head of high quality livestock, and 2,000 birds of various breeds of poultry. About 1,400 acres of land belonging to the school are being used for instructional purposes.

**Project Fund**

The California Polytechnic Project Fund is a revolving loan fund, which makes it possible for every student to carry a commercially productive project. The type of contract between the student and the Project Fund varies with the different types of projects. Agricultural instruction is carried on through the project record book, which gives an accurate accounting of each project.

**LIVESTOCK COURSES**

*Course No. 1 (Lower Division).*

The elementary course in agriculture deals with the relative importance of various major livestock enterprises in California. The course, designed for students with little knowledge or experience in agriculture, will include study of selection, judging, feeding, management and marketing of livestock, the production of the common feed crops and related subjects.

*Courses 100 and 101 (Upper Division).*

This course deals with meat animal production, including beef, sheep, and hogs. The instruction is based on the study required and the experience gained in planning, carrying on and analyzing the supervised practice program in one or more of the classes of animals listed. The project is usually a commercially productive enterprise.

The successful completion of this course together with advanced supervised practice in the management and marketing of
livestock will lead to the certificate of accomplishment in beef, sheep, or hog production.

Courses 102 and 103 (Upper Division).  
Prerequisite Course No. 1

This is a course in dairy production dealing with the feeding, breeding and management of dairy cattle and the handling of dairy products. The instruction is based on the study required and the experience gained in planning, carrying out and analyzing the supervised practice program in dairy production, which is usually a commercially productive project.

Successful completion of this course along with advanced supervised practice in the management and the marketing of dairy stock and products will lead to the awarding of a certificate of accomplishment in dairy production.

POULTRY

Elementary Course

The preparatory work is arranged to give the students a training in a general way in the fields of incubating, brooding, feeding and laying-hen management. Practice in these fields is made possible by means of laboratory periods.

Advanced Course

The student in advanced poultry spends at least one half his time in project work under supervision. The projects vary in size and scope according to the student's interest and ability. Every effort is made to have each one of a size that is commercially productive. The student may secure a loan through a fund provided for the aid of the projects; he may also receive a share of the profits of the project. The poultry students may select their projects from laying hens, trapnesting, a laying flock, breeding hens, incubating, brooding, growing young stock and other projects.

AGRICULTURE MECHANICS

The operation, care, and repair of farm machinery and equipment, and the construction and repair of simple farm buildings and equipment are a part of the regular agricultural course under the head of Agriculture Mechanics.

FLORICULTURE AND ELEMENTARY LANDSCAPE GARDENING

This is an elementary course in the propagation, and culture of flowers and shrubs, and the use of plant material in elementary landscape design. Trips to nearby commercial flower growers, seedsmen, and nurserymen add interest to the work done in the classroom,
VOCATIONAL COURSES IN MECHANICS AND PRINTING

The vocational courses in mechanics and printing are designed for students who because of limitations of time, money, interest, or aptitude should not enroll in the technical courses. They do not provide the background in science or mathematics provided in the technical courses, and do not lead to the Junior College Division but are designed to prepare a student for immediate employment. The courses in this group are auto-mechanics, carpentry, and the trade-courses in electricity and printing.

Grade X For Mechanics Students

The outline of work in Grade X is the same for auto-mechanics, carpentry and the electric-shop trade course except that in carpentry, wood-work is substituted for forge-welding and machine shop. The course outline is as follows:

<table>
<thead>
<tr>
<th>Periods</th>
<th>Cl. Lab.</th>
<th>Periods</th>
<th>Cl. Lab.</th>
</tr>
</thead>
<tbody>
<tr>
<td>English II</td>
<td>5</td>
<td>Hygiene</td>
<td>1</td>
</tr>
<tr>
<td>Shop mathematics</td>
<td>5</td>
<td>Physical education</td>
<td>4</td>
</tr>
<tr>
<td>Mechanical drawing I</td>
<td>8</td>
<td>Assembly</td>
<td>1</td>
</tr>
<tr>
<td>Forge 1st sem., machine shop</td>
<td></td>
<td>Study</td>
<td>3</td>
</tr>
<tr>
<td>2nd sem.</td>
<td>18</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

AUTO MECHANICS

The aim of the course in Auto Mechanics is to train a boy for general automobile repair work. The skill of the student is developed through real repair jobs under conditions as much as possible like those in commercial shops. The progress of the student depends on his own earnestness and application. For a description of the equipment provided see Forge Shop, Machine Shop, Auto Shop, Welding Shop, pages 9 and 10.

OUTLINE OF STUDIES

Grade X. See above.

Grade XI

<table>
<thead>
<tr>
<th>Periods</th>
<th>Cl. Lab.</th>
<th>Grade XII</th>
<th>Periods</th>
<th>Cl. Lab.</th>
</tr>
</thead>
<tbody>
<tr>
<td>English III</td>
<td>5</td>
<td>U. S. History and govt.</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Shop mathematics</td>
<td>5</td>
<td>Vocational physics</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Auto mechanics I</td>
<td>5</td>
<td>Welding</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Machine shop</td>
<td>8</td>
<td>Auto mechanics II</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Physical education</td>
<td>4</td>
<td>Physical education</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Assembly</td>
<td>1</td>
<td>Assembly</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Study</td>
<td>5</td>
<td>Study</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

Auto Mechanics I consists of selected repair jobs graded according to the ability of the student. The class work deals with the fundamental principles of automobile construction.

Auto Mechanics II includes more advanced repair work, including "trouble shooting," generator and electrical system repairs,
and machine work and welding on repair jobs. The class work includes assigned reading, studies in shop management and shop records, and class discussions on the jobs being undertaken.

CARPENTRY

The purpose of the course in Carpentry is to train a young man to be a contractor's assistant or, after later practical experience, to become a journeyman carpenter. The course includes practical work in the shop and on the campus and theoretical work including the necessary mathematics, estimating, materials and the elementary theory of building.

OUTLINE OF STUDIES AND TRAINING

Grade X. See above.
(Wood-shop in place of forge and machine shop.)

Grade XI

<table>
<thead>
<tr>
<th>Periods</th>
<th>Grade XII</th>
</tr>
</thead>
<tbody>
<tr>
<td>English III</td>
<td>U. S. History and Gov.</td>
</tr>
<tr>
<td>Shop mathematics</td>
<td>Vocational physics</td>
</tr>
<tr>
<td>Construction drafting</td>
<td>Electric shop</td>
</tr>
<tr>
<td>Carpentry</td>
<td>Carpenter</td>
</tr>
<tr>
<td>Physical education</td>
<td>Physical education</td>
</tr>
<tr>
<td>Assembly</td>
<td>Assembly</td>
</tr>
<tr>
<td>Study</td>
<td>Study</td>
</tr>
</tbody>
</table>

OUTLINE OF STUDIES AND TRAINING

Grade X. See above.

Grade XI

<table>
<thead>
<tr>
<th>Periods</th>
<th>Grade XII</th>
</tr>
</thead>
<tbody>
<tr>
<td>English III</td>
<td>U. S. History and Gov.</td>
</tr>
<tr>
<td>Shop mathematics</td>
<td>Vocational physics</td>
</tr>
<tr>
<td>Electric shop</td>
<td>Electric shop</td>
</tr>
<tr>
<td>Physical education</td>
<td>Physical education</td>
</tr>
<tr>
<td>Assembly</td>
<td>Assembly</td>
</tr>
<tr>
<td>Study</td>
<td>Study</td>
</tr>
</tbody>
</table>

ELECTRIC-SHOP TRADE COURSE

The Electric-Shop Trade Course emphasizes practical work rather than class-room theory. Students may specialize in either wiring or armature winding and motor repair.

OUTLINE OF STUDIES AND TRAINING

Grade X. See above.

Grade XI

<table>
<thead>
<tr>
<th>Periods</th>
<th>Grade XII</th>
</tr>
</thead>
<tbody>
<tr>
<td>English III</td>
<td>U. S. History and Gov.</td>
</tr>
<tr>
<td>Shop mathematics</td>
<td>Vocational physics</td>
</tr>
<tr>
<td>Electric shop</td>
<td>Electric shop</td>
</tr>
<tr>
<td>Physical education</td>
<td>Physical education</td>
</tr>
<tr>
<td>Assembly</td>
<td>Assembly</td>
</tr>
<tr>
<td>Study</td>
<td>Study</td>
</tr>
</tbody>
</table>

PRINT-SHOP TRADE COURSE

A three year course leading to a certificate in printing but not qualifying for graduation is offered students who lack the time or aptitude required for the five year technical course. In addition to printing, the student takes English II and III, two years of history and physical education.
THE ACADEMIC DEPARTMENT

The work of the Academic Department is designed primarily to meet the needs of the students in the technical and vocational courses. Much of the work in these courses is dependent on an adequate foundation in English, mathematics, and the arts and sciences. The relation of vocational to academic work is shown in each case under the outline of the course.

In addition to this work the department also offers a College Preparatory Course. This course is given chiefly to meet the needs of students who enter the technical courses, but who, finding that they possess the desire and aptitude for more advanced study, desire to add to their work the few subjects which will properly prepare them for college. A limited number may also be enrolled who are unable to obtain an adequate high school education in their home community.

No definite course is laid down for the students in this department as their objectives should determine its content. The minimum requirement for graduation is sixteen units including three years of English, a year of laboratory science, and a year of American History and Civics. Three years of work should be carried in at least two academic subjects besides English. A student who wishes to enter college should take at least twelve units of academic work, including at least three years of foreign language, the other subjects chosen depending on the course which he wishes to take in college. The department reserves the right to refuse admittance to any student who, because of previous record or the result of a mental aptitude test, does not seem well adapted to the work required.

Because of the fact that in California the academic subjects are of standardized type, no description of the content of each subject is given. A high standard of work is maintained. The following subjects are offered: English II, III, IV, Journalism, Dramatics, Public Speaking, Algebra I, Geometry, Trigonometry, Solid Geometry, Algebra II, Mechanical Drawing, Ancient and Medieval History, Modern History, United States History, United States Government, Biology, Chemistry, Physics, Spanish I, II, and III. French is given when the demand justifies it. Work is also offered in Band, Orchestra, and Glee Club.

PHYSICAL EDUCATION

The physical education program at The California Polytechnic is adequately cared for by means of gymnasium work, supervised games, athletics, and military drill. The school has teams which compete in interscholastic athletics in football, baseball, tennis, basketball and track. Extra-mural athletics, however, is not required.
THE JUNIOR COLLEGE DIVISION OF THE CALIFORNIA POLYTECHNIC

HISTORY

The Junior College Division of The California Polytechnic was organized in 1927 to meet the very evident requirements of high school graduates who were coming to the school in increasing numbers. Most of these students came because of a desire to obtain training to fit them for remunerative employment in occupations of mechanical or engineering nature. They wished to obtain more technical knowledge and skill than could be provided in the vocational high schools yet did not desire the highly theoretical training of university education.

No public junior college was making the giving of terminal junior college courses in engineering its chief purpose; few of them had the necessary equipment for anything more than elementary work of vocational nature. The California Polytechnic had not only excellent shops and laboratories, but it had also the proper atmosphere for the development of such a program.

Since its beginning, the Junior College Division has been growing steadily and its aims have been broadening. These aims can be learned more in detail from a study of the individual courses offered.

GENERAL INFORMATION

Information on living arrangements, expenses, organizations, etc., may be found on pages 11 to 15 inclusive.

ACADEMIC INFORMATION

Admission Conditions and Requirements

The Junior College Division of The California Polytechnic admits high school graduates only. Young men over eighteen but not high school graduates may take special courses in the high school division. Such courses are eminently practical and require less theoretical work than do the Junior College courses.

While the prerequisites for each course are stated in detail under the heading for that course, high school students who wish to transfer later to The California Polytechnic as students in Mechanics or Engineering are advised to include in their high school program four years of regular high school mathematics, physics, and if possible, chemistry, mechanical drawing, and elementary work in both wood and metal shops. A high school graduate may be admitted without these requirements, but he is capable of better work if he possesses them, and his graduation may be delayed if he lacks those which are prerequisites to his course.
Because of the fact that each course offered is designed to impart to its students skill in some definite occupation, the courses are closely prescribed and few electives are allowed. Should a student already have completed a subject equivalent in content to one required in his course, he may be excused from repeating the subject but is required with the guidance of his counselor to select from the subjects offered under electives, a substitute equivalent in unit value to the one from which he is excused. Students who have carried strong courses in mathematics and science in high school may in many cases be able in this way to obtain a much broader education than the mere elements of the course would provide, and thus in turn procure a better foundation for future growth.

The aim of each course is listed under the appropriate heading. As the courses vary somewhat in difficulty, the ability of the student should determine to some measure at least the course in which he is to enroll.

**Entrance Tests**

When he registers in the Junior College Division each student is given three tests: a mental ability test, a high school content examination, and an examination in English composition, commonly known as an examination in “Subject A.” These tests have no bearing on admission. While the results of the first two examinations cannot be used without references to the personal characteristics of each student and his previous opportunities, yet they are of value for guidance purposes. The purpose of the examinations in English composition is to determine whether or not the entering student possesses the ability to write English clear in meaning, and free from gross errors. Should he fail to pass it he is required to take a one semester course in English composition without credit. The passing of the examination or the course is one of the conditions for graduation from any junior college course at The California Polytechnic.

**Courses**

The Junior College Division of The California Polytechnic offers terminal courses in aeronautics, civil engineering, electrical engineering, engineering construction, mechanical drafting, mechanical engineering, and printing, and also an academic transfer course. A description of these courses appears on the following pages.

**Character of the Student Body**

During the year 1931-32, 155 students were enrolled in the Junior College Division. They came from all parts of California. The average age of the entering students in 1931-32 was nineteen.
years and three and a half months but the range was from sixteen to twenty-nine. Most of the students select their courses before they matriculate and come with a definite purpose in mind. In the mental tests given in the autumn of 1931 to all new students, the median or average grade was slightly higher than that of the eleven thousand junior college students in California who were tested in the autumn of 1929 in the California Junior College Mental Educational Survey. In the scholarship or achievement tests the median score for the group was considerably above the State average.

Time Required for Completion of Courses

The chief purpose of the Junior College Division of The California Polytechnic is to train young men for situations and for profitable employment. Naturally, the attaining of this objective will depend upon the character, the ability and the previous training of the student rather than on any fixed number of units. The courses are so planned, however, that a young man with ability equal to the average in California junior colleges and possessing the pre-requisites for the course in which he enrolls as stated in this catalogue should be able to complete his course in two years. Unfortunately, many students have not known their educational objectives early enough in their high school course to select their subjects wisely and come badly prepared in mathematics, science and elementary shop work. It will naturally take them a longer time to secure adequate training. Such students may require three years for graduation.

Recognition of Credit

A student who transfers to The California Polytechnic from a reputable high school or from another junior college or a four-year college, will, as a general thing, receive credit for work completed in so far as that work applies to the prerequisites or the requirements of the course in which he is enrolled. Courses in mathematics or science will receive full credit. Should a weakness in one of these subjects later manifest itself to such a degree as to handicap him in his work, it may be necessary to repeat that section of the work in which he is weak. Students who wish credit in mechanical drawing should bring their plates with them. In shop work and mechanical drawing there is such great diversity in standards in the different high schools, that it may be necessary to ask the student to perform a test assignment in the shop in which he desires credit. If that assignment is satisfactorily performed, he will be awarded full credit.
The Aeronautics Department at The State Polytechnic is approved as an aircraft repair station by the United States Department of Commerce. It may repair or rebuild air-craft in accordance with the original design without the necessity of submitting to the Department the stress analyses, drawings and other technical data used in their construction. It is the only non-commercial station in California that has this privilege and is one of only two in the United States. Officially it is designated as Repair Station Number 84. In addition to its work in repairing or rebuilding damaged planes and overhauling and reconditioning engines, the shop has built three new planes. Two of these were sent to the State Fair and received the first premium awards for school projects in aeronautics. In addition one rebuilt ship received a similar award. The Department of Commerce recognizes the Aeronautics Department of the State Polytechnic as qualified also to give training to prepare for the Department of Commerce Mechanics Examination and will admit to the examination students whom it recommends. This privilege has been granted to no other public school or college in the United States.

The purpose of the Aeronautics course is two-fold: first, to provide a foundation in aeronautics, both technical and practical, so that the graduate may be advanced to a position in the airplane industry superior to that of an ordinary mechanic; second, to prepare students to pass the Government examination for either the airplane mechanics license or the airplane engine mechanics license or both.

**Prerequisites**

Mathematics, 4 units. (We advise two units of algebra, one of plane geometry and one-half each of solid geometry and trigonometry.)

- High School Physics, 1 unit.
- Mechanical Drawing, 1 unit.
- Wood Shop, \( \frac{1}{2} \) unit.
- Forge, \( \frac{1}{2} \) unit.
- Welding, 1 unit.
- Machine Shop, 1 unit.
- High school chemistry strongly advised but not required.

If the matriculant has not completed this work in high school he may obtain it at The California Polytechnic. Such work, however, must be taken in addition to that required in the course of study.
## COURSE OF STUDY

### FIRST YEAR

#### First Semester

<table>
<thead>
<tr>
<th>Subject</th>
<th>Units</th>
</tr>
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<tbody>
<tr>
<td><strong>English I-A</strong></td>
<td>3</td>
</tr>
<tr>
<td><strong>Physics I-A</strong></td>
<td>3</td>
</tr>
<tr>
<td><strong>Strength of materials (18-A)</strong></td>
<td>3</td>
</tr>
<tr>
<td><strong>Airplane engines I-A (class)</strong></td>
<td>3</td>
</tr>
<tr>
<td><strong>Airplane engines I-C (lab)</strong></td>
<td>2</td>
</tr>
<tr>
<td><strong>Aero drafting I-A</strong></td>
<td>1</td>
</tr>
<tr>
<td><strong>Physical education</strong></td>
<td>1</td>
</tr>
<tr>
<td><strong>Assembly</strong></td>
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#### Second Semester

<table>
<thead>
<tr>
<th>Subject</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>English I-B</strong></td>
<td>3</td>
</tr>
<tr>
<td><strong>Physics I-B</strong></td>
<td>3</td>
</tr>
<tr>
<td><strong>Strength of materials (18-B)</strong></td>
<td>3</td>
</tr>
<tr>
<td><strong>Airplane engines I-B (class)</strong></td>
<td>3</td>
</tr>
<tr>
<td><strong>Airplane engines I-D (lab)</strong></td>
<td>2</td>
</tr>
<tr>
<td><strong>Aero drafting I-B</strong></td>
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<td><strong>Physical education</strong></td>
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<td><strong>Assembly</strong></td>
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### SECOND YEAR

#### First Semester

<table>
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<tbody>
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<td><strong>Economics I-A</strong></td>
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</tr>
<tr>
<td><strong>Stress analysis I-A</strong></td>
<td>3</td>
</tr>
<tr>
<td><strong>Aerodynamics</strong></td>
<td>2</td>
</tr>
<tr>
<td><strong>Radio</strong></td>
<td>1</td>
</tr>
<tr>
<td><strong>Engines II-A (class)</strong></td>
<td>2</td>
</tr>
<tr>
<td><strong>Engines II-C (lab), or</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Airplane Mechanics</strong></td>
<td>1</td>
</tr>
<tr>
<td><strong>Aero drafting II-A</strong></td>
<td>1</td>
</tr>
<tr>
<td><strong>Physical education</strong></td>
<td>1</td>
</tr>
<tr>
<td><strong>Assembly</strong></td>
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#### Second Semester

<table>
<thead>
<tr>
<th>Subject</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Differential calculus</strong></td>
<td>3</td>
</tr>
<tr>
<td><strong>Economics I-B</strong></td>
<td>3</td>
</tr>
<tr>
<td><strong>Stress analysis I-B</strong></td>
<td>5</td>
</tr>
<tr>
<td><strong>Meteorology and avigation</strong></td>
<td>2</td>
</tr>
<tr>
<td><strong>Airplane rigging</strong></td>
<td>1</td>
</tr>
<tr>
<td><strong>Engines II-B (class)</strong></td>
<td>2</td>
</tr>
<tr>
<td><strong>Engines II-D (lab), or</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Airplane mechanics</strong></td>
<td>1</td>
</tr>
<tr>
<td><strong>Aero drafting II-B</strong></td>
<td>1</td>
</tr>
<tr>
<td><strong>Physical education</strong></td>
<td>1</td>
</tr>
<tr>
<td><strong>Assembly</strong></td>
<td>No credit</td>
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</tbody>
</table>

To comply with the Department of Commerce requirements, an applicant for examination must have spent a certain specified time on active flight equipment. The requirements of the above course will be modified for those who wish to prepare for the examinations so as to allow them more opportunity for experience on airplanes and engines undergoing repair.

**Aero Drafting I** is engineering drawing as applied to the airplane. It serves as a preparatory course during which the student becomes familiar with aeronautical phraseology and airplane parts. In addition it allows the instructors to locate and remedy any faults in drafting technique.

**Aero Drafting II** is a continuation of Aero Drafting I. At this stage, the student is assigned practical problems where dimensions, etc., are taken directly from current aero-shop production, and reproduced in the drafting room in such a manner that the blueprints from these draftings can be sent to the Department of Commerce, aeronautics bureau in Washington, D. C.; and will compare favorably with those submitted by commercial companies.

**Aerodynamics** is the physics of the flight. It deals with actions and reactions by means of which heavier-than-air craft can be flown, maneuvered, and controlled and with the methods by which these actions and reactions may be produced. It explains the "why" of airplane mechanics.
Aeronautical Meteorology is the science which treats of the condition of the atmosphere, its changes in condition, and their causes in their relation to the safety and development of aviation. It embraces a study of both weather and climate. Texts are used, supplemented by use of instruments, weather maps, and visits to weather bureau stations. The students submit original weather forecasts.

Airplane Engines I deals with the fundamentals of heat engines and power plant requirements for aircraft, with the study of the various components of the power plant, their arrangement and installation, with the details of specific makes of engines and their accessories and with the correlation of theory with the practical laboratory work.

Airplane Engines II includes advanced work in the maintenance, overhaul, installation and adjustment of approved engines in-licensed flying equipment; dynamometers, fuel consumption and efficiency tests; theory and its application in the laboratory.

Airplane Mechanics I includes practical work on the inspection, repair and maintenance of various airplane components, on wire terminals, wing and fuselage checking and alignment and on wood and metal fabrication, glue joints and rib jig layout and construction.

Airplane Mechanics II is a laboratory course in the complete fabrication of aircraft components as well as the handling of major repairs and overhaul. The work is governed by rigid inspection demanding care and precision on the part of the students to meet the standards of the Department of Commerce.

Airplane Rigging includes practical work and instruction on proper methods of rigging the airplane for correct and stable flight, also the care and inspection of the airplane in service.

A knowledge of Avigation enables the aviator to fly a plane from point to point over the earth's surface with a knowledge of the position of his aircraft at all times. It embraces the study of piloting, maps, flight instruments, wind and drift problems, dead reckoning, and celestial navigation. Texts are used in conjunction with actual flight problems.

Radio—Code work. The fundamentals of the sending and receiving radio sets.

Stress Analysis is the science of determining the structural strength of the airplane. A weak member means a crippled plane. Students work on problems of a real plane, designing wing spars, fittings, landing gear, and fuselage in a manner suitable for submission to and approval by the Department of Commerce, Bureau of Aeronautics, in Washington, D. C.

For the equipment in Aeronautics, see pages 8 and 9.
CIVIL ENGINEERING

The purpose of the course in Civil Engineering is to train the student to do plane surveying, land-subdividing, leveling, etc. With the foundation of mathematics, drawing and technical training provided, he should be able to take a position as instrument man for practically any type of surveying.

Prerequisites

- Algebra, 1 unit.
- Plane geometry, 1 unit.
- Algebra II, ½ unit.
- Solid geom. or trig., ½ unit.
- Mechanical drawing, 1 unit.
- High school physics, 1 unit.

COURSE OF STUDY

FIRST YEAR

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Units</th>
<th>Second Semester</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject A (ex. or course)</td>
<td>No credit</td>
<td>English I-B</td>
<td>3</td>
</tr>
<tr>
<td>English</td>
<td>3</td>
<td>Intermediate algebra</td>
<td>2</td>
</tr>
<tr>
<td>Trig, or solid geom.</td>
<td>2</td>
<td>Physics</td>
<td>3</td>
</tr>
<tr>
<td>Physics</td>
<td>3</td>
<td>Plane surveying I-B</td>
<td>3</td>
</tr>
<tr>
<td>Plane surveying I-A</td>
<td>3</td>
<td>Surveying drafting I-B</td>
<td>2</td>
</tr>
<tr>
<td>Surveying drafting I-A</td>
<td>1</td>
<td>Strength of materials 18-B</td>
<td>3</td>
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<td>Physical education</td>
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<td>Assembly</td>
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</tr>
<tr>
<td>Assembly</td>
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SECOND YEAR

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Units</th>
<th>Second Semester</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advanced surveying</td>
<td>5</td>
<td>Advanced surveying</td>
<td>5</td>
</tr>
<tr>
<td>Materials of construction</td>
<td>3</td>
<td>Mechanics of materials</td>
<td>3</td>
</tr>
<tr>
<td>Hydraulics</td>
<td>3</td>
<td>Elective</td>
<td>3</td>
</tr>
<tr>
<td>Economics or history</td>
<td>3</td>
<td>Economics or history</td>
<td>3</td>
</tr>
<tr>
<td>Survey drafting II-A</td>
<td>1</td>
<td>Surveying drafting II-B</td>
<td>1</td>
</tr>
<tr>
<td>Physical education</td>
<td>1</td>
<td>Physical education</td>
<td>1</td>
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<tr>
<td>Assembly</td>
<td>No credit</td>
<td>Assembly</td>
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</tbody>
</table>

Plane Surveying I-A. Theory and practice of plane surveying. Field: exercises in care, use and adjustments of instruments; leveling; traverse and stadia surveys. Drafting room: plotting and adjusting traverses, and computing areas. First semester—Class 4 pds. Field and Dft. 12 pds.

Plane Surveying I-B. Continuation of I-A. Topographic surveying; land surveying; mine surveying; determination of azimuth, and manipulation of plane table. Drafting room: plotting profiles, and map drafting. Second semester—Class 4 pds. Field and Dft. 12 pds.

Advanced Surveying. The application of surveying to engineering problems. Reconnaissance, preliminary, location and construction surveys pertaining to highways, waterways, etc. Prerequisite: C. E. I-A-B. Class 4 pds. Field and Dft. 12 pds.

(33)
Hydraulics. An elementary study of the principles of water pressure, the flow of water under pressure, friction loss in pipes, measurement of water and pumps.

For a description of other subjects offered, see pages 37 and 38. For a description of equipment, see page 11.

ENGINEERING CONSTRUCTION

The purpose of this course is to furnish training for the positions of draftsman, inspector, foreman, and superintendent on such types of work as the construction of bridges, highways, buildings and dams.

Prerequisites: Algebra 2 units, plane geometry 1 unit, trigonometry \( \frac{1}{2} \) unit, solid geometry \( \frac{1}{2} \) unit, mechanical drawing 1 unit, high school physics 1 unit.

COURSE OF STUDY

FIRST YEAR

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Second Semester</th>
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<tbody>
<tr>
<td>Subject—</td>
<td>Units</td>
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<tr>
<td>Subject A (ex. or course) No credit</td>
<td></td>
</tr>
<tr>
<td>English I-A</td>
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</tr>
<tr>
<td>College algebra</td>
<td>3</td>
</tr>
<tr>
<td>Physics</td>
<td>3</td>
</tr>
<tr>
<td>Materials of construction</td>
<td>3</td>
</tr>
<tr>
<td>Mechanical drawing</td>
<td>2</td>
</tr>
<tr>
<td>Spherical trigonometry</td>
<td>1</td>
</tr>
<tr>
<td>Physical education</td>
<td>1</td>
</tr>
<tr>
<td>Assembly</td>
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SECOND YEAR

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Second Semester</th>
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<tbody>
<tr>
<td>Subject—</td>
<td>Units</td>
</tr>
<tr>
<td>Plane surveying I-A</td>
<td>3</td>
</tr>
<tr>
<td>Surveying draft</td>
<td>1</td>
</tr>
<tr>
<td>Materials of constr. lab</td>
<td>2</td>
</tr>
<tr>
<td>Hydraulics</td>
<td>3</td>
</tr>
<tr>
<td>Highway construction</td>
<td>3</td>
</tr>
<tr>
<td>Economics</td>
<td>3</td>
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<tr>
<td>Physical education</td>
<td>1</td>
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<tr>
<td>Assembly</td>
<td>No credit</td>
</tr>
<tr>
<td>Assembly</td>
<td>No credit</td>
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</tbody>
</table>

Materials of construction. A study of the common materials of construction; their production, adaptation, and maintenance. Wood, stone, brick asphalt, lime cement, and concrete are considered. Recitations and assigned reading.

Materials of construction. A laboratory course supplementing the work undertaken in course I. Students are required to make a series of experiments testing physical properties of the materials considered.

Elementary mechanics. A course covering the fundamental
principles of statics, kinematics and kinetics restricted mainly to coplanar forces and to plane motion of particles and of rigid bodies. The laboratory work includes graphic statics.

Mechanics of materials. Strength and elastic properties of the ordinary materials of engineering construction. Simple tension, compression, and shear.

Highway construction. A study of modern roads and pavements from the point of view of an inspector. Plans specification; construction surveys; selection of materials; selection of equipment and methods of construction.

Construction costs. This course includes the making of bills of materials and cost estimates of building; bridge; dam and minor structures. Labor costs of construction.

Building construction. A study of buildings from the point of view of an inspector foreman; superintendent. Plans specifications; selection of materials; selection of equipment; and methods of construction.

ELECTRICAL ENGINEERING

The aim of the course in Electrical Engineering is to prepare young men to become intermediate executives in the many electrical industries.

Prerequisites

Mathematics, 3 units required, including algebra \(1\frac{1}{2}\) units, geometry 1 unit, and either trigonometry or solid geometry \(\frac{1}{2}\) unit advised. High school physics 1 unit, high school chemistry 1 unit, mechanical drawing 1 unit. If 4 units of mathematics is taken in high school, analytic geometry and differential calculus will be taken the first year and integral calculus the second. Integral calculus is particularly valuable to students who wish to transfer to a large electrical corporation for further training.

COURSE OF STUDY

FIRST YEAR

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Subjects—</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>Subject A (ex. or course)</td>
<td>No credit</td>
<td></td>
</tr>
<tr>
<td>Physics I-A</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Trigonometry C</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Gas and steam engines</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>English I-A</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Elect. engin. I-A (dir. cur.)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Elect. engin. I-C (lab.)</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Physical education</td>
<td>1</td>
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<tr>
<td>Assembly</td>
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<table>
<thead>
<tr>
<th>Subjects—</th>
<th>Units</th>
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<tbody>
<tr>
<td>Physics I-B</td>
<td>3</td>
</tr>
<tr>
<td>Intermediate algebra</td>
<td>2</td>
</tr>
<tr>
<td>Gas and steam engines</td>
<td>3</td>
</tr>
<tr>
<td>English I-B</td>
<td>3</td>
</tr>
<tr>
<td>Elect. Engin. I-B (dir. cur.)</td>
<td>3</td>
</tr>
<tr>
<td>Elect. engin. I-D (lab.)</td>
<td>2</td>
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<tr>
<td>Elect. engin. drafting</td>
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SECOND SEMESTER

<table>
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<tr>
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<th>Units</th>
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<tbody>
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(35)
SECOND YEAR

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Second Semester</th>
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<tbody>
<tr>
<td>Plane surveying or physics I-C..</td>
<td>Plane surveying or physics I-D ..3</td>
</tr>
<tr>
<td>Analytic geometry........</td>
<td>Differential calculus........ 3</td>
</tr>
<tr>
<td>Elec. engin. II-A (alter. cur.)...</td>
<td>Elec. engin. II-B (alter. cur.)... 3</td>
</tr>
<tr>
<td>Elec. engin. II-C (lab.)........</td>
<td>Elec. engin. II-D (lab.)........ 3</td>
</tr>
<tr>
<td>Economics I-A or history.......</td>
<td>Economics I-B or history....... 3</td>
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<td>Adv. Elec. drafting...........</td>
<td>Adv. elec. drafting........... 1</td>
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<td>Physical education............</td>
<td>Physical education............ 1</td>
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</tbody>
</table>

Some modification of this course to meet the needs of individual students may be made on the advice of the counselor.

A two-year elective course in wiring or armature winding and motor repair is offered to those who wish to specialize in these subjects, the periods to be arranged.

Students who have completed the technical courses in the High School Division (see page 19) will receive advanced training in electricity.

**Electrical Engineering I.** One year is devoted to the study of direct current machinery and appliances using the same grade of text, problem and laboratory work as followed by engineering schools of recognized standing.

**Electrical Engineering II.** A continuation of the above in which one year is devoted to alternating current phenomena and their application. Vectory diagrams and graphical methods are emphasized.

**Electricity V** is a one year's course of a general nature for those majoring in some other subject.

**Electrical Measurements** is an advanced course for those who have taken Electrical Engineering I and II and desire a more detailed knowledge of the physics of electrical phenomena and of the units employed.

For a description of other subjects in this course, see pages 33 and 38. For information in shop equipment, see pages 9 and 10.

**MECHANICAL DRAFTING**

On the completion of this course the student is prepared to take a position in the drafting room of some industrial concern. He has acquired not only the technical skill, but also the theoretical knowledge of drafting and design necessary to enable him to advance in his profession. He has also laid a sound foundation in drawing and related subjects for further advanced study in the engineering field.

**Prerequisites**

- Mathematics, 4 units.
- Mechanical drawing, 1 unit.
- High school physics, 1 unit.
- Wood shop, 1 unit.

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### COURSE OF STUDY

#### FIRST YEAR

##### First Semester

<table>
<thead>
<tr>
<th>Subjects</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject A (ex. or course)</td>
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<tr>
<td>Analytic geometry</td>
<td>3</td>
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<tr>
<td>College physics I-A</td>
<td>3</td>
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<tr>
<td>Strength of materials 18-A</td>
<td>3</td>
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<tr>
<td>English I-A</td>
<td>3</td>
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<tr>
<td>Engineering drawing I-A</td>
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<tr>
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<tr>
<td>Assembly</td>
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##### Second Semester

<table>
<thead>
<tr>
<th>Subjects</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Differential calculus (or elective of equal unit value on advice of counselor)</td>
<td>3</td>
</tr>
<tr>
<td>College physics I-B</td>
<td>3</td>
</tr>
<tr>
<td>Strength of materials 18-B</td>
<td>3</td>
</tr>
<tr>
<td>English I-B</td>
<td>3</td>
</tr>
<tr>
<td>Engineering drawing I-B</td>
<td>3</td>
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<tr>
<td>Physical education I-B</td>
<td>1</td>
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#### SECOND YEAR

##### First Semester

<table>
<thead>
<tr>
<th>Subjects</th>
<th>Units</th>
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<tbody>
<tr>
<td>Descriptive geometry</td>
<td>3</td>
</tr>
<tr>
<td>Machine design</td>
<td>3</td>
</tr>
<tr>
<td>College physics I-C</td>
<td>3</td>
</tr>
<tr>
<td>Economics or history</td>
<td>3</td>
</tr>
<tr>
<td>Shop training (forge-welding)</td>
<td>3</td>
</tr>
<tr>
<td>Physical education</td>
<td>1</td>
</tr>
<tr>
<td>Assembly</td>
<td>No credit</td>
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</table>

##### Second Semester

<table>
<thead>
<tr>
<th>Subjects</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>Machine design</td>
<td>3</td>
</tr>
<tr>
<td>College physics I-D</td>
<td>3</td>
</tr>
<tr>
<td>Economics or history</td>
<td>3</td>
</tr>
<tr>
<td>Elective</td>
<td>3</td>
</tr>
<tr>
<td>Shop training (machine shop)</td>
<td>3</td>
</tr>
<tr>
<td>Physical education</td>
<td>1</td>
</tr>
<tr>
<td>Assembly</td>
<td>No credit</td>
</tr>
</tbody>
</table>

Some modification of this course to meet the needs of individual students may be made on the advice of the counselor.

**Machine Design** involves a study of the principal elements of the materials commonly used in machine construction, the analysis of the forces acting on the machine parts and the ability of materials to withstand these forces under varying conditions, and final representation of the design by means of working drawings and specifications of the materials to be used.

**Descriptive Geometry.** Standard problems on the point, line, plane, curved surface and solid are taken up in lectures and in the drawing room. Special attention is paid to the application of these principles to the problems of the draftsman. Some practical problems are solved. Class 2 pds. Dft. 7 pds.

For a description of other subjects in this course, see page 38.

### MECHANICAL ENGINEERING

The aim of the junior college course in Mechanical Engineering is to give the student training in mechanics and shop practice so that he will be a valuable man in the manufacturing plant. The foundation provided should be sufficient to enable him to work up to the position of department or shop foreman in whatever industry he may select.

**Prerequisites**

<table>
<thead>
<tr>
<th>Subject</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>Algebra</td>
<td>1 1/2 units</td>
</tr>
<tr>
<td>Plane geometry</td>
<td>1 unit</td>
</tr>
<tr>
<td>Trig. or solid geom.</td>
<td>1/2 unit</td>
</tr>
<tr>
<td>Mechanical drafting</td>
<td>1 unit</td>
</tr>
<tr>
<td>Physics</td>
<td>1 unit</td>
</tr>
<tr>
<td>Forge welding</td>
<td>1/2 unit</td>
</tr>
<tr>
<td>Acetylene welding</td>
<td>1/2 unit</td>
</tr>
<tr>
<td>Machine shop</td>
<td>1 unit</td>
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</table>
## COURSE OF STUDY

### FIRST YEAR

<table>
<thead>
<tr>
<th>Subject- Units</th>
<th>Subject- Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject A (ex. or course) No credit</td>
<td>Intermediate algebra I 2</td>
</tr>
<tr>
<td>Trigonometry or solid geom. 2</td>
<td>Physics 3</td>
</tr>
<tr>
<td>Physics 3</td>
<td>Strength of materials 18-B 3</td>
</tr>
<tr>
<td>Strength of materials 18-A 3</td>
<td>English I 3</td>
</tr>
<tr>
<td>English I 3</td>
<td>Engineering drawing I-B 2</td>
</tr>
<tr>
<td>Machine shop 2</td>
<td>Machine shop 2</td>
</tr>
<tr>
<td>Physical education 1</td>
<td>Physical education 1</td>
</tr>
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<td>Assembly  No credit</td>
<td>Assembly  No credit</td>
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</table>

### SECOND YEAR

<table>
<thead>
<tr>
<th>Subject- Units</th>
<th>Subject- Units</th>
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<tbody>
<tr>
<td>General electricity (V) 3</td>
<td>General electricity (V) 3</td>
</tr>
<tr>
<td>Gas and steam engines 3</td>
<td>Gas and steam engines 3</td>
</tr>
<tr>
<td>Machine design 3</td>
<td>Machine design 3</td>
</tr>
<tr>
<td>Economics or history 3</td>
<td>Economics or history 3</td>
</tr>
<tr>
<td>Machine shop 3</td>
<td>Machine shop or shop elective 3</td>
</tr>
<tr>
<td>Physical education 1</td>
<td>Physical education 1</td>
</tr>
<tr>
<td>Assembly  No credit</td>
<td>Assembly  No credit</td>
</tr>
</tbody>
</table>

Some modifications of this course to meet the needs of the individual student may be made on the advice of the counselor.

**Gas and Steam Engines.** A study of internal combustion engines, both gas and Diesel types, fuels, boilers, steam engines, valve gear, steam turbines, and the thermodynamics of the steam cycles. This includes an afternoon a week lab.

**Strength of Materials.** An elementary study of materials, stresses in materials and structures and the analysis of simple structures such as beams, columns and trusses.

For a description of other subjects, see pages 36 and 37. For information on shop equipment, see pages 9 and 10.

### PRINTING

The purpose of the course in printing is to train a young man to be a practical printer, with training which should qualify him, after more experience, to become a master printer.

Prerequisites: High School graduation, courses I, II, III in Printing as described on page 21. Students who have not had this work in high school may take it after their admission to Junior College. Their so doing will not reduce the requirements for graduation.
COURSE OF STUDY

First Year

Subject— Units
Subject A (ex. or course) No credit
English I-A .................................... 6
Political science.............................. 6
Modern European history.......... 6
Printing IV.................................... 12
Physical education........................ 2
Assembly ........................ No credit

Printing IV. Book composition, elementary linotype operation.
Printing V. Advanced linotype operation.
For information on equipment, see page 10.

ACADEMIC COURSE

Although the courses at The California Polytechnic are designed primarily for young men who are preparing for semi-professional courses in industry and who desire no college education beyond that given at The Polytechnic, a number of students learn through experience that their interest in the theoretical aspect of their work is greater than in the practical. Such students may and should transfer to the academic department which prepares them for transfer to the four year colleges and universities with advanced standing. A program is arranged for a student in accordance with the requirements of the college which he proposes to enter and the course which he wishes to pursue. A program in mathematics, science, foreign languages, English, and social science is provided sufficiently liberal to meet the requirements of any university. As the subjects are standardized and conform to university requirements, no description of their content is included. The offering is broad enough to allow students a liberal choice of majors. The subjects are listed on page 40.

PHYSICAL EDUCATION

Physical education is required of all students who do not possess such severe physical handicaps as to render it dangerous or impossible. Satisfactory completion of the four semesters work is required for graduation. This includes general gymnastics and class athletics or military drill. After a student has completed registration for Physical Education he may be transferred to athletic squads upon the recommendation of the coach in charge of a recognized sport. He must, however, return to the class in physical education at the close of the season in order to obtain credit.
JUNIOR COLLEGE ELECTIVES

Most of the following subjects are required in one or more of the regular courses. They may be taken as electives in other courses if the proper prerequisites have been obtained.

Group A—Usual college subjects.

<table>
<thead>
<tr>
<th>Subject</th>
<th>Units</th>
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<tbody>
<tr>
<td>English:</td>
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<tr>
<td>Subject A</td>
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</tr>
<tr>
<td>English IA-IB</td>
<td>6</td>
</tr>
<tr>
<td>Public speaking IA-IB</td>
<td>6</td>
</tr>
<tr>
<td>English 56A-56B</td>
<td>6</td>
</tr>
<tr>
<td>Journalism IA-IB</td>
<td>6</td>
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<tr>
<td>Dramatics</td>
<td>2</td>
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Mathematics:

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<tr>
<td>Trigonometry C</td>
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<tr>
<td>Solid geometry E</td>
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<tr>
<td>Intermediate algebra 1</td>
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<td>College algebra 8</td>
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<tr>
<td>Analytic geometry 5</td>
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<tr>
<td>Differential calculus 9A</td>
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<tr>
<td>Integral calculus 4A-4B</td>
<td>6</td>
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<tr>
<td>Descriptive geometry 2</td>
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Social science:

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<tbody>
<tr>
<td>Hist. of West. Europe 4A-4B</td>
<td>6</td>
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<tr>
<td>History of England 5A-5B</td>
<td>6</td>
</tr>
<tr>
<td>Political science IA-IB</td>
<td>6</td>
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<tr>
<td>Economics IA-IB</td>
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Natural science:

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<tr>
<td>Chemistry 6A-6B</td>
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<tr>
<td>Physics IA-IB</td>
<td>6</td>
</tr>
<tr>
<td>Physics IC-ID</td>
<td>6</td>
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<tr>
<td>Elem. astronomy 3 (C. E.)</td>
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Foreign language:

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<tbody>
<tr>
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<td>French C-D</td>
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</tr>
<tr>
<td>Spanish A-B</td>
<td>10</td>
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<tr>
<td>Spanish C-D</td>
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Engineering:

<table>
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<th>Subject</th>
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<tbody>
<tr>
<td>Plane surveying</td>
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<tr>
<td>Astronomy 3</td>
<td>1</td>
</tr>
<tr>
<td>Descriptive geometry 2</td>
<td>3</td>
</tr>
<tr>
<td>Strength of materials</td>
<td>6</td>
</tr>
<tr>
<td>Machine drawing</td>
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Group B—Subjects which do not parallel usual college subjects.

<table>
<thead>
<tr>
<th>Subject</th>
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<tbody>
<tr>
<td>Aerodynamics</td>
<td>3</td>
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<tr>
<td>Aero drafting IA-IB</td>
<td>2</td>
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<tr>
<td>Aero drafting IIA-IIB</td>
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<tr>
<td>Airplane engines IA-IB</td>
<td>6</td>
</tr>
<tr>
<td>Airplanes IC-ID</td>
<td>4</td>
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<tr>
<td>Airplane engines IIA-IIB</td>
<td>4</td>
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<td>Airplane engines IIC-IID</td>
<td>2</td>
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<tr>
<td>Airplane mechanics</td>
<td>12</td>
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<tr>
<td>Airplane rigging</td>
<td>1</td>
</tr>
<tr>
<td>Meteorology and Avigation</td>
<td>2</td>
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<tr>
<td>Radio</td>
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</table>

Civil engineering,

Engineering construction,

Mechanical drafting,

Mechanical engineering:

<table>
<thead>
<tr>
<th>Subject</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>Surveying drafting IA-IB</td>
<td>3</td>
</tr>
<tr>
<td>Surveying drafting IIA-IIB</td>
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<tr>
<td>Elementary mechanics, class</td>
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<td>Elementary mechanics, lab.</td>
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<td>Mechanics of materials</td>
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</tr>
<tr>
<td>Materials of construc., class</td>
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</tr>
<tr>
<td>Materials of construc., lab.*</td>
<td>2</td>
</tr>
<tr>
<td>Hydraulics</td>
<td>3</td>
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<td>Highway construction*</td>
<td>3</td>
</tr>
<tr>
<td>Construction costs, class*</td>
<td>3</td>
</tr>
<tr>
<td>Construction costs, lab.*</td>
<td>1</td>
</tr>
<tr>
<td>Building construction, class*</td>
<td>1</td>
</tr>
<tr>
<td>Building construction, lab.*</td>
<td>4</td>
</tr>
<tr>
<td>Machine practice</td>
<td>4</td>
</tr>
<tr>
<td>Eng. drafting IA-IB</td>
<td>4</td>
</tr>
<tr>
<td>Machine design</td>
<td>3</td>
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</table>

Gas and steam engines                   | 6     |

Electrical engineering:

<table>
<thead>
<tr>
<th>Subject</th>
<th>Units</th>
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<tbody>
<tr>
<td>Elect. eng. I (dir. curr.) cl.</td>
<td>6</td>
</tr>
<tr>
<td>Elect. eng. I (dir. curr.) lab.</td>
<td>4</td>
</tr>
<tr>
<td>Elect. eng. II (alt. curr.) cl.</td>
<td>6</td>
</tr>
<tr>
<td>Elect. eng. II (alt. curr.) lab.</td>
<td>6</td>
</tr>
<tr>
<td>Electricity V (general)</td>
<td>3</td>
</tr>
<tr>
<td>Electrical measurements</td>
<td>6</td>
</tr>
</tbody>
</table>

*Not given till 1933-34.