BULLETIN

CALIFORNIA STATE POLYTECHNIC
SAN LUIS OBISPO

AND THE

VOORHIS UNIT
SAN DIMAS, CALIFORNIA

CIRCULAR OF INFORMATION
AND
ANNOUNCEMENT OF COURSES

1942-1943

BULLETIN OF THE CALIFORNIA POLYTECHNIC SCHOOL
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CALIFORNIA STATE POLYTECHNIC
CALENDAR, 1942-43

Summer Quarter
June 15 — Registration for Summer Quarter.
June 16 — Instruction Begins.
August 22 — End of Summer Quarter.

Fall Quarter
September 3 — Registration and Examinations for New Students.
September 4 — Examinations for New Students.
September 5 — Completion of Registration for New Students.
September 7 — Registration of Old Students.
September 8 — Instruction Begins.
September 9 — Wednesday — Admission Day — Holiday.
November 11 — Wednesday, Armistice Day — Holiday.
November 22-25 — Final Examinations.
November 25 — End of Fall Quarter.
November 26-30 — Thanksgiving Holidays.

Winter Quarter
November 30 — Registration for Winter Quarter.
December 1 — Instruction Begins.
December 10 — January 3, Christmas Vacation.
January 4 — Classes Resumed.
March 4-5 — Final Examinations.
March 5 — End of Winter Quarter.

Spring Quarter
March 8 — Registration for Spring Quarter.
March 9 — Instruction Begins.
April 23-25 — Spring Vacation.
April 26 — Classes Resumed.
May 27-28 — Final Examinations.
May 28 — Commencement.

*1942 FOOTBALL SCHEDULE

September 20 — Humboldt State — Eureka
September 26 — University of Nevada — Reno, Nevada
**October 17 — Whittier College — Whittier
**October 31 — Chico State College — San Luis Obispo
**November 7 — San Francisco State — San Francisco

* Schedule not complete at time catalog went to press.
** Night games.
The goal of all training at California State Polytechnic is education for a productive life, in war or peace.

Greater emphasis needs to be given generally to vocational and technical training on the college level. California State Polytechnic is dedicated to the principle that there will always be a fundamental need for those who know the technical and manual processes in the agricultural and engineering occupations, in addition to the basic theories which govern these processes.

This phase of occupational training complements the older concept of higher education as a process of the development of the mind toward creative thinking—the provision of broad, cultural training which forms the basis of a professional, rather than a technical or vocational career.

In many States, this need for a dual concept of higher public education is recognized in the organization of its collegiate system. A university dedicated to the fine arts and sciences is paralleled by a college of agriculture and mechanics arts, each providing a necessary function in the training of the young people of the State.

When California State Polytechnic was created in 1901, the founders had in mind such a service. It was more than a generation later that the institution was able to realize the full measure of its possibilities in meeting the challenge of education for productive activities on a college level.

This branch of the State's educational system, with its training program built upon the student operation of productive projects, is meeting its responsibilities of becoming the State's agricultural and mechanics arts type of college. In this sphere, it has confidence that it is filling a need and rendering a service which no other institution, because of its facilities, location or educational concept, is able or willing to provide.

In carrying out this responsibility of providing for California young people an agricultural and mechanics arts type of education on a college level, California State Polytechnic differs in one major respect from the typical "A. and M." college. It embraces no research in the agricultural or industrial fields, believing this to be a proper function of the State university.

The institution has entered into full-fledged collegiate standing with the graduation of its first four-year class. These young men are taking their places in the productive life of the State and in the armed forces—helping to provide the tools of war and helping to use them; as well as filling essential positions in civilian life.

Because the college was so essentially related to the basic National production needs in peace, it required no change in policy, training approach or methods to become an educational arsenal for war. Young men are continuing their regular courses in agricultural and industrial production. Courses have been streamlined, equipment added—the college day extended around the clock to provide shop and classroom space for the hundreds of new defense trainees. But the fundamental principles are as sound for wartime as peace time.

The conclusion of the war, again, will require no material 'change back. The world will always need its farmers and industrial technicians, its experts in the various public services for which training is provided. It is probable that the lessons of the war period—when millions of craftsmen had to be provided upon short notice—may center attention in the various States to the all-time need for protecting and encouraging vocational and technical education on all the necessary levels.
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CALIFORNIA STATE POLYTECHNIC
Administered By
THE STATE BOARD OF EDUCATION
ROBERT M. DULIN (President) Beverly Hills
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DR. CURTIS E. WARREN Santa Barbara

THE STATE DEPARTMENT OF EDUCATION
HON. WALTER F. DEXTER Director of Education, Sacramento
DR. JOEL A. BURKMAN Assistant Director of Education
JULIAN A. MCPHEE Chief, State Bureau of Agricultural Education and President, California State Polytechnic, San Luis Obispo

THE CALIFORNIA STATE POLYTECHNIC
JULIAN A. MCPHEE President
C. O. MCCORKLE Assistant to the President
VERNON H. MEACHAM In Charge, Voorhis Unit
EUGENE BOONE Business Office Manager
EUGENE A. EGAN Registrar
ALICE M. DANIEL Secretary to the President
HISTORY

The California State Polytechnic was established 40 years ago by the Legislature of the State of California, for public instruction in agriculture, home economics, business methods, trade and industry.

No level of instruction was proposed in the legislative act which created the institution. It opened as a State vocational high school, which was in keeping with the educational concept of that time. When other State institutions similarly created, moved to higher educational levels; as college training became more general and was more frequently required as a prerequisite to employment, California State Polytechnic remained a vocational high school for 30 years.

The institution was the forerunner in California, however, of vocational education along agricultural and industrial lines, which gradually spread to the district high schools and ultimately became a part of the basic Federal and State programs of vocational education, beginning in 1917.

Because the district high school was providing instruction on the same level, it was found necessary and desirable in 1933 to raise the level of instruction at California State Polytechnic, to that of a two-year technical college, offering terminal instruction in agricultural and industrial fields. This was increased in 1936 to three years of college work, and in 1940 to four years, with the Bachelor of Science degree authorized by the State Board of Education. First baccalaureate commencement exercises were held in 1942.

In 1933, the institution was made a direct administrative branch of the State Department of Education. The State Bureau of Agricultural Education is the branch of the State Department of Education which administers the vocational program in the State's secondary public schools, and the chief of this bureau was made ex officio president of the college. He has retained this dual office since 1933.

In 1938 came a valuable physical acquisition. A Pasadena citizen, Charles B. Voorhis, and his son, Congressman Jerry Voorhis, had built a beautiful school and home for deserving, underprivileged youngsters, in eastern Los Angeles county, near San Dimas. These men spent more than a million dollars on the buildings and orchard, and probably an equal amount to maintain this fine philanthropy for 10 years.

In 1938, feeling that they could no longer carry on the responsibility of this project, and learning that California State Polytechnic was doing a creditable job in preparing for useful employment and citizenship hundreds of young men of college age, Charles and Jerry Voorhis made an outright gift of this school, to be used as the horticulture branch of California State Polytechnic. This branch was named the Voorhis unit of the institution.

Development of this branch has been carried out in correlation with the offerings at San Luis Obispo, with the aim of providing a maximum amount of educational service to the young men of California with a minimum of duplication between the main school and its horticultural unit.

This State technical college was one educational institution which needed no reorientation of its educational program in order to take over
its share of National defense training. The college was equipped with the facilities and the educational pattern capable of training skilled workmen quickly. Early in the fall quarter of 1940, at the inception of the National Defense Training Program, evening classes for adults in welding, machine shop and aircraft sheet metal were authorized. The courses of instruction were placed on a seven-hour per day basis for periods of three months at a time, with 65 adult students enrolled during each period. During this past school year, 2,005 individuals have taken advantage of this program to prepare themselves for the war effort.

During the school year 1941-42, California State Polytechnic was selected as a training center for individuals preparing themselves for civilian employment under Civil Service in United States air depots. These trainees were assigned to California State Polytechnic under the title of Mechanic Learners. In order to be eligible for training with this group, an individual must pass a qualifying Civil Service examination.

One of the first in the Nation to be granted a National Youth Administration resident project in connection with the National Defense Training Program, California State Polytechnic dedicated the first unit of the NYA resident project in October of 1940. Almost immediately 110 young men, selected from thousands of applicants in the State, enrolled in special National defense training courses. A new unit to double the housing facilities of the resident NYA program was completed in the spring of 1941 and the NYA resident student enrollment was increased to 230 for the 1940-41 school year.

Looking into the future, this State technical college envisions almost unlimited opportunity for service strictly within the sphere of practical education leading to specific employment. Course offerings are added which have been only available at other colleges by devious combination of theoretical course offerings plus long post-graduate apprenticeship; these are combined at California State Polytechnic through its exceptional facilities for such on-campus practice.

The citizens of California are behind this practical college. Farmers, industrialists, secondary school principals and teachers, have acclaimed every move to increase educational opportunity at San Luis Obispo and San Dimas for the youth of the State who want and need technical training leading to technical employment. The demonstrated and enthusiastic support of such persons, plus a proved placement record of graduates, is the best proof that this educational program is sound.
ADMINISTRATION TOWER
This tower with its four massive clocks is part of the new administration-classroom building located on a knoll in the center of the 1400 acre campus and farm at San Luis Obispo.

VOORHIS CHAPEL
Beautifully situated near the foot of Mt. Baldy, this chapel is a picturesque attraction on the 150 acre campus of the southern branch at San Dimas, 30 miles southeast of Los Angeles.
Intercollegiate as well as intramural swimming meets are held in the large indoor swimming pool on the San Luis Obispo Campus.
VOORHIS CAMPUS buildings (top) remind one of an exclusive residential district. An outdoor swimming pool (above) provides students at the Voorhis branch with healthful exercise.

MUSIC is one of the extra-curricula activities and students may try out for the orchestra, band, glee club or quartets.

SPORTS at California Polytechnic include football, basketball, baseball, track, boxing, tennis, etc.
ADMINISTRATION BUILDING
Completed in June, 1942, the new administration-classroom building occupies a commanding position north of the gymnasium.

CALIFORNIA STATE at San

SHOPS AND BARS
Shop buildings and barns dot the eastern hillside slope of the campus.
MAIN DORMITORIES

The four main dormitories shown here house about 275 students. Six new dormitory units and two cottage units of three buildings each house an additional 375 students.

POLYTECHNIC CAMPUS
Luis Obispo

ENGINEERING BUILDING
Classroom buildings are seen in the foreground with the Engineering Building and powerhouse in the background.
DAIRY INDUSTRY
An outstanding dairy herd and all necessary laboratory facilities are available to students in dairy production and manufacturing courses.

ELECTRICAL ENGINEERING
Technical and practical training is given students with actual work projects carried on in the electrical laboratory and the college power plant.

ORNAMENTAL HORTICULTURE
Students may take horticulture at both San Luis Obispo and the Voorhis branch at San Dimas.
BEEF HUSBANDRY
Prize winning beef being shown by Poly students to members of a Great Western Livestock tour

CROPS PRODUCTION
Crops students baling hay on a student-operated project which will net them profits as well as valuable experience

AERONAUTICS
Aircraft engines and construction shops are operated with student workers as an approved repair station, under rating of the Civil Aeronautics Authority
SWINE HUSBANDRY
Students raise and market hogs on a project basis.

POULTRY HUSBANDRY
Students work with a completely equipped poultry production plant.

SHEEP HUSBANDRY
Meat animals students have an opportunity to work with sheep as well as with beef and hogs.
THE STATE BUREAU OF AGRICULTURAL EDUCATION
(ADVISORY)

JULIAN A. McPhee_________________________Chief of Bureau
HOWARD F. CHAPPELL______________________Regional Supervisor
GEORGE P. COUPER________________________Extension Specialist
B. R. DENBIGH____________________________Regional Supervisor
E. W. EVERETT____________________________Regional Supervisor
WEIR FETTERS____________________________Regional Supervisor
B. J. McMAHON___________________________Regional Supervisor, Assistant Teacher Trainer
A. G. RINN_______________________________Regional Supervisor
S. S. SUTHERLAND________________________Teacher Trainer
J. I. THOMPSON____________________________Live Stock Specialist
HAROLD O. WILSON________________________Regional Supervisor
FACULTY COMMITTEES

The following faculty committees will serve during the school year ending June 30, 1943.

Admissions, Grade Standing, and Graduation—Mr. Lucksinger, chairman; Dr. Bowls, Miss Chase, Mr. Egan, Mr. Fetters, Mr. Martinsen, Mr. McCorkle, Mr. Sharpe, Mr. Younger.

Gifts, Trusts and Scholarship—Mr. Thompson, chairman; Mr. Boone, Mr. Collins, Mr. Egan, Mr. Knott, Mr. Lucksinger, Mr. McCorkle, Mr. Metz.

Athletics—Mr. Wilson, chairman; Mr. Drumm, Mr. Ilg, Mr. Jewett, Mr. Kennedy, Mr. Metz, Mr. Dakan.

Student Activities—Mr. Davidson, chairman; Mr. Beck, Mr. Hyer, Mr. Ilg, Mr. Jewett, Mr. Martinsen, Dr. McCapes, Mr. Merson.

Fraternities—Mr. Couper, chairman; Mr. Bennion, Mr. Leach, Dr. McCapes, Mr. Patchett.

Host—Mr. Beck, chairman; Mr. Patchett, Mr. Younger.

Housing—Mr. Winner, chairman; Mr. Boone, Mr. Lucksinger, Dr. McCapes, Mr. Patchett.

Student Loans—Mr. McFarland, chairman; Mr. Beck, Mr. Knott.

Off-Campus Employment—Mr. Sharpe, chairman; Mr. Collins, Mr. Egan.

Student Welfare—Miss Chase, chairman; Dr. Bowls, Mr. Kennedy, Mr. Sharpe.

Class Advisors—Mr. Winner—Senior; Mr. Sharpe—Junior; Mr. Younger—Sophomore; Mr. Ilg—Freshman.
FACULTY

MCPHEE, JULIAN A.—B.S., M.A.-----------------------------President

Received B.S. from University of California, 1917; M.A. from University of California.

Experience: Agricultural Extension Service, University of California; United States Navy; Director Vocational Agriculture, Gilroy High School; Assistant State Supervisor of Agricultural Education, State Department of Education (California); State Supervisor of Agricultural Education, State Department of Education (California); Chief, Bureau of Agricultural Education, State Department of Education (California), 1927-present.

President, California Polytechnic since 1933.

MCCORKLE, C. O.—B.S., M.S.------------------------Assistant to the President

Received B.S. from University of California, 1927; M.S. from University of California, 1937.

Experience: Director of Agriculture, Red Bluff Union High School, 1927 to 1931; at California Polytechnic, 1932 to 1936; Research Assistant on Giannini Foundation of Agricultural Economics, University of California, 1936-37; Return to California Polytechnic, 1937.

MEACHAM, VERNON H.—B.S.-------------------In Charge, Voorhis Unit Related Subjects

Received B.S. from University of California, 1924.

Experience: Agricultural Instructor Gilroy High School; Agricultural Instructor Manteca High School.

At California Polytechnic since 1929.

BOONE, EUGENE—B.S.-----------------------------Business Office Manager

Received B.S. from the University of California (Davis) 1932.


At California Polytechnic since 1938.

EGAN, EUGENE A.—B.S., M.S.------------------------Registrar

Received B.S. from Montana State College 1932; M.S. Montana State College, 1940.

Experience: Director of Vocational Agriculture Moccasin Public Schools; Director of Vocational Agriculture and Critic Teacher Cascade Public Schools; Director of Vocational Agriculture and Critic Teacher, Fergus County High School (Montana); Director of Agriculture Tracy Union High School, California.

At California Polytechnic since 1941.

DANIEL, ALICE M.-------------------------------Secretary to the President

Graduate Business College.

Experience: Secretary to State Supervisor of Agricultural Education, State Department of Education (California); Secretary to Chief,

* At Voorhis Unit, San Dimas.
Bureau of Agricultural Education, State Department of Education (California); Secretary to President, California State Polytechnic, San Luis Obispo, California; Registrar California State Polytechnic, San Luis Obispo, California.

At California Polytechnic since 1933.

BECK, CARL G.—B.S.-------------------Accounting and Economics; Adviser, Cal Poly Chapter, California Young Farmers

Received B.S. from Colorado State College, 1921. Additional graduate study at Colorado State, and University of California at Berkeley and Davis.

Experience: Director of Agriculture, Del Norte Union High School (Colorado); Principal, Del Norte Union High School; Director of Agriculture at Middletown Union High School and Colusa Union High School, California; with American Expeditionary Force, Field Artillery.

At California Polytechnic since 1932.

BENNION, LYMAN L.—B.S.-----------------Meat Animal Husbandry

Received B.S. from Utah State College, 1929; Sales Department Purina Mills, 1929-30; American Packing Co., Union Stock Yards, Ogden, Utah, 1930-31; Director of Agriculture, Salinas Union High School, 1932-33; Agricultural Extension Service, University of California, 1934-37.

At California Polytechnic since 1938.

BOWLS, WOODFORD E.—A.B., M.A., Ph.D.---------------Physics and Chemistry

Received A.B. at University of California in 1932, M.A. in 1935, and Ph.D. in 1937.

Experience: Pacific Gas and Electric Company, Maintenance Foreman in summer camps; Teaching Fellow in Physics at University of California 1932-33; Teaching Assistant in Physics at University of California 1933-37.

At California Polytechnic since 1937.

BUTLER, J. B. V.—A.B., M.D.------------------------School Physician

Received A.B. from Willamette University, 1927; M.D. from University of Oregon Medical School.

Experience: Practicing physician in San Luis Obispo, Lieutenant in Naval Reserve; Division Surgeon, Southern Pacific Co.

At California Polytechnic since 1933.

CHASE, MARGARET H.—B.A., M.A.-----------------English, History, Economics

Received B.A. from Dalhousie; M.A. from University of California, 1915. Additional graduate study, Stanford University and University of California.

Experience: Instructor in English, at California Polytechnic School, 1906-17 and 1932——; head of Academic Department, 1915-32; vice-president, 1917-32; acting president, 1924 (half-year); dean of junior college, 1927-32.

At California Polytechnic since 1908.
Faculty

COLE, SPELMAN B.------------------------Meat Animal Husbandry
   Received B.S., University of California, 1925.
   Experience: Engaged in range sheep business, 1927-32; Director of Agriculture, Middletown, Calistoga and Livermore high schools, 1934-40.
   At California Polytechnic since 1940.

COOK, DAVID W.—B.S.-------------------Electrical Industries Theory
   Received B.S. Degree, University of California, 1937.
   Experience: Examiner Board of Fire Underwriters of the Pacific 1938-1939; Engineer Insurance Company of North America 1940.
   At California Polytechnic since 1941.

*COURT, WILLIAM E.—B.S.----------------Agricultural Inspection
   Received B.S. degree, University of California, 1929.
   Experience: Director of Agriculture at the Williams Union High School and Wasco Union High School.
   At California Polytechnic since 1936.

DAKAN, R. E.—A.B.----------------------Physical Education, Athletics
   Received A.B., Stanford University, 1938; General Secondary, Stanford, 1940.
   Experience: Freshman Assistant Coach Stanford, 1940-1941; Director of Athletics, San Luis Obispo Junior College 1941-1942.

DAVIDSON, HAROLD P.—B.A., M.A.----------------Music, English, Psychology
   Received B.A., Pomona College, 1929; M.A., Claremont Colleges, 1932; Additional Graduate Work, University of Southern California.
   Experience: Director of All-City Pomona P. T. A. Chorus; Head of Music Department, Emerson Junior High School, Pomona; Master Training Teacher, Claremont Colleges.
   At California Polytechnic since 1936.

DOUGHERTY, PAUL—B.S.----------------Crops Production and Fruit Production
   Received B.S. from University of California, 1914.
   Experience: Farm Adviser Imperial County; Farrier, United States Army; Supervisor Advanced Registry Dairy Tests, University of California; Manager Modesto Fruit Exchange; Managed and operated own ranch; Director of Agriculture, Washington Union High School, Centerville.
   At California Polytechnic since 1939.

DRUMM, GEORGE M.—B.S., M.S.-------------------Dairy Production
   Received B.S. from Kansas State College, 1921; M.S. from Iowa State College.
   Experience: Extended travel, Middle Western and Western United States; Instructor of Dairying, University of California; Herdsman for numerous commercial dairy farms; Farm Manager, Rancho Del Monte, Carmel, and Patrick Farms, Salinas.
   At California Polytechnic since 1931.

* At Voorhis Unit, San Dimas.
FETTERS, G. WEIR—B.S.---------------------------Plant Science Specialist; Regional Supervisor, Bureau of Agricultural Education

Received B.S. from University of California, 1931. Graduate work, University of California; additional work Fresno State College.

Experience: Director of Agriculture, Liberty Union High School, Brentwood; Turlock Union High School, Turlock.

At California Polytechnic since 1936.

FIGGE, HENRY C.-----------------------------Welding and Forge

Apprenticeship in Blacksmithing served in Germany. Journeyman in California. Vocational Training Course, University of California at Los Angeles, Summer Sessions 1922-1923-1924.


At California Polytechnic since 1927.

*HAWKINS, HOWARD H.—B.S.----------------Citrus Fruit Production

Received B.S. from University of California, 1933. Graduate study at University of California at Los Angeles.

Experience: Director of Agriculture, Valencia High School, Placentia, California.

At California Polytechnic since 1937.

HOLLENBERG, ALVIN H.—B.S.-----------------Agricultural Mechanics, Farm Machinery

Received B.S. from Oregon State College, 1927; Additional Graduate Study, Oregon State College and University of California at Davis.

Experience: Director of Agriculture, Atascadero High School; Instructor Agricultural Mechanics, Watsonville High School; At California Polytechnic 1932-41; Pacific Regional Supervisor National Defense Training Courses, Vocational Agriculture Division, U. S. Office of Education, 1941-42.

At California Polytechnic since 1932.

HOWES, WILBUR B.—B.A.-------------------Ornamental Horticulture, Plant Science

Nondegree work at University of California, Davis; Received B.A. from Chico State College, 1930; Additional Graduate Study at University of Southern California and Cornell University.

Experience: Instructor in Agriculture, Los Angeles School System. At California Polytechnic since 1932.

HYER, JOHN J.-----------------------------Electric Testing, Drawing, and Construction

Certificate of Vocational Arts in Electricity, and related Mathematics, Science, and Drawing, University of California, 1927.

Experience: Served in U. S. Volunteer Army during Spanish-American War, and Philippine Insurrection; extended travel in America, Mexico, Europe, and the Orient; Switchboard Constructor, Pacific Tel. and Tel. Co.; Electrical Engineer and Chief Inspector for City of San Francisco; Electrical Engineer, Nevada Douglas Copper Co., Nev.; Cop-
Faculty

George F. Ilgo—B.S., M.S.—Dairy Manufacturing, Chemistry
Received B.S. University of California 1936; M.S. from Ohio State University 1937.
At California Polytechnic since 1941.

L. M. Jewett—B.S.—Meat Animal Husbandry
Received B.S. from University of California, 1932.
Experience: Instructor in Agriculture Mechanics and Athletics, Los Molinos; Director of Agriculture at Central Union High School, Fresno; Director of Agriculture Puente Union High School; instructor of agriculture Lodi Union High School.
At California Polytechnic since 1941.

Stanley Keane—Ornamental Horticulture
Apprenticeship in plant propagation and greenhouse management served under Henry A. Dreer, Philadelphia.
Experience: Associated with Howard and Smith Nurseries, Montebello, California, since 1919. Extensive travel in Europe and America for the observation of all phases of ornamental horticulture. Sixteen years of practice in the field of Landscape Architecture in California. Formerly with Los Angeles City School System.
At California Polytechnic since 1940.

Robert E. Kennedy—A.B.—Librarian, Journalism, Publications
Received A.B. from San Diego State College, 1938.
Experience: Staff Fine Arts Gallery, Balboa Park, San Diego; Editorial Department San Diego Sun, Scripps-Howard paper; Director Publicity, San Diego State College, 1937-38; Advertising Manager, Hamiltons, Ltd., San Diego, 1939-40.
At California Polytechnic since 1940.

C. E. Knott—B.S., M.S.—Head of Industrial Division; Industry Coordinator
Received B.S. from University of California, 1916; M.S. from University of California.
At California Polytechnic since 1921.

Richard Leach—B.S.—Poultry Husbandry
Received B.S. from Montana State College, 1931.
Experience: Supervisor, Feed Sales Agency for Sweet & Company, Bozeman, Montana; Manager and Owner of Commercial Poultry Plant, Bozeman, Montana.
At California Polytechnic since 1930.

*At Voochis Unit, San Dimas.
LUCKSINGER, O. F.—B.S., M.S.——-—In Charge Resident Students
Related Subjects

Received B.S. from University of California, 1916; M.S. from University of California; additional graduate study, University of California.

Experience: American Expeditionary Force, Medical Corps; Agricultural Instructor, Lemoore Union High School; Director of Agriculture, Gonzales Union High School; Principal, Gonzales Evening High School.

At California Polytechnic since 1934.

MARTINSEN, M. C.-----------------Aeronautics Industries

Graduate California Polytechnic, 1917; Mechanics Engineering; additional study, University of California at Los Angeles; certificates issued by Civil Aeronautics Authority as Aircraft Pilot; Aircraft and Engine Mechanic; and Ground School instructor.


At California Polytechnic since 1930.

McCAPES, A. M.—D.V.M.-------------Veterinarian, Biological Sciences

University of Colorado 1919-23 Premedic. Received D.V.M. from Colorado State College, 1927.

Experience: Assistant Veterinarian, Oregon State College, 1927-31; Extension Veterinarian, Univ. of Missouri, 1931-33; Assistant Manager, Ashe-Lockhart Inc., Kansas City, Mo., 1933-34; Supervising Veterinarian, U. S. Bureau of Animal Industry, Tuberculosis Eradication, California, 1934-36.

At California Polytechnic since 1936.

MCFARLAND, L. E.—B.S.----------Maintenance and Operation

Received B.S. from University of California, 1924; Graduate work, University of California.

Experience: Marine Corps, World War.

At California Polytechnic since 1925.

MERSON, JAMES F.—R.A.-------------Agricultural Mechanics

Graduate San Jose State College 1928; received B.A. from San Jose State College 1932; graduate work University of California at Davis.

Experience: Western Electric Co., Oakland; Instructor Agricultural Mechanics, Dos Palos High School, Santa Rosa High School.

At California Polytechnic since 1936.

METZ, ROY F.---------------------Aeronautics Industries

Cas Technical School of Engineering, 1914. Additional study, various aircraft and engines companies including the Wright Aeronautical Corporation, United Air Lines. Holds Civil Aeronautics Authority Airplane and Engine Certificate No. 4579.
Faculty

Experience: Experimental Department, Chalmers Motor Company; Army Air Corps, World War; Assembling Motor Trucks, Stuts Motor Company; Operated Pacific Airmotive Corporation, an approved Engine Repair Station; Engine Mechanic with the United Air Lines, Standard Oil Company Aviation Division and Pan-American Lines.
At California Polytechnic since 1937.

PARKER, HARRY____________________Meat Animal Husbandry
At California Polytechnic since 1932.

PATCHETT, WALTER C.—B.S., M.S.—Related Agricultural Sciences
Received B.S. from Oregon State College 1922, M.S. from University of Southern California.
At California Polytechnic since 1938.

PEROZZI, J. H.______________Power Plant Operation, Chief Engineer
Attended Southern Oregon State Normal School; graduate of California Polytechnic, 1912; University of California.
Experience: Instructor in Forge and Carpentry, California Polytechnic; Superintendent of Construction, California Department of Public Works; Chief Engineer, California Polytechnic.
At California Polytechnic since 1912.

SHARPE, NORMAN—B.A.—Air Conditioning Industries, Refrigeration
Received B.A. degree University of California at Los Angeles, 1929. M.A. at University of Southern California, 1939. Carrier Engineering School, 1930.
Experience: Research Engineer Carrier Engineering Corporation, Newark, New Jersey, 1930; Design Engineer Carrier Engineering Corporation, 1930-1932; Physics and Mathematics Teacher, Los Angeles City Schools, 1934-1935; Design and Construction Engineer Luppen and Hawley, 1935-1937.
At California Polytechnic since 1937.

SMITH, MERRITT B.________________________Industrial Arts
Teacher Training, University of California at Los Angeles, 1925.
Experience: Member of firm of Smith, Purse and Warner, Construction Engineers; General Superintendent, Perfection Corn Planter Company.
At California Polytechnic since 1925.
SMITH, S. STRATTON

Graduate E. J. Sweeney Auto and Tractor School, Kansas City, Mo., 1920; C. K. Cooke Electrical School, Chicago, Ill.


At California Polytechnic since 1938.

THOMSON, DWIGHT C.—B.S.—Truck Crops and Related Subjects

Received B.S. degree, University of California, 1934; Graduate study, University of California at Berkeley.

Experience: Director of Agriculture at Sutter Union High School, Sutter City, California, and Brawley Union High School, Brawley, California.

At California Polytechnic since 1939.

THOMPSON, J. I.—B.S.—Agriculture Coordinator, Livestock Specialist, Technical Adviser, Bureau of Agriculture Education.

Received B.S. from Iowa State College, 1910; Graduate work Iowa State College.

Experience: Director of Agriculture, Guthrie County High School, Iowa; Associate Professor of Animal Husbandry, University of California; Exchange Professor, Kansas State College; Manager, Straloch Livestock Farm, Davis.

At California Polytechnic since 1931.

WINNER, C. PAUL—B.S.—Agricultural Economics, Agricultural Mechanics

Received B.S. from Montana State College, 1931.

Experience: Utah Construction Co., 1928; Director of Vocational Agriculture, Valier High School, Valier, Montanas, in 1931-1935; Director of Vocational Agriculture and Critic Teacher, Elk Grove Union High School, in 1935-1939; Director of Vocational Agriculture and Critic Teacher, Arroyo Grande Union High School, 1939-1940.

At California Polytechnic since 1940.

YOUNGER, ROBERT C.—B.A.—Architectural Drafting, Mathematics

Received B.A. at University of California in 1924.


At California Polytechnic since 1940.

* At Voorhis Unit, San Dimas.
GENERAL INFORMATION

THE COLLEGE PLANT

Lands

The lands of the California State Polytechnic total about 1550 acres, of which 1400 acres are embraced in the home unit at San Luis Obispo, and 150 acres in the Voorhis unit for horticultural instruction, at San Dimas.

Because the curricula of the California State Polytechnic are primarily concerned with teaching production practices and skills, the availability of good farm land is a major factor. A different type of land is needed for each major agricultural field: pasture and range for beef cattle, dairy cattle, sheep and swine; range for poultry, hay and alfalfa land, and irrigable land for truck and field crops. Orchard land must be climatically situated as to frost and sunshine.

While additions must eventually be made to round out this land need as student enrollment increases, in order to give each student as much opportunity as possible for actual project operation, the present properties are in the main, satisfactory and diversified. Good drainage throughout makes flood damage impossible in the heaviest rainfall. Both branches are located in thermal belts.

There are several hundred acres at San Luis Obispo suitable only for range purposes. Other land is devoted to hay, alfalfa and orchard. The major campus and land immediately surrounding various buildings, now requires about 100 acres.

At San Dimas, about 30 acres of the land utilized for citrus, avocados and a small deciduous tract, are well adapted to these uses. Some additional acres may be utilized for further deciduous plantings. Considerable land is now in the rough state, suitable for expansion.

Buildings

Description of buildings is divided between those at San Luis Obispo and those at San Dimas.

San Luis Obispo

Buildings on the campus and farm include the general structures for dormitory, classroom and administration use, and the headquarters for the major departments.

Dormitories

The San Luis Obispo campus has four main dormitory buildings, two groups of cottages, and a unit of six new dormitories. The four main buildings house about 275 students. They are named Chase, Jespersen, Deuel, and Heron halls. The cottage groups each contain three buildings housing twelve students, making a total of 72 young men living in these home-like structures. The new dormitories house 250 students. All dormitory rooms are modern, well lighted, and especially constructed for student use.

The two new units of the National Youth Administration resident project which are located on the campus, very comfortably house 230 National defense trainees in quarters constructed for permanence during
the fall and spring of 1940-41. In addition to its very adequate sleeping quarters, sanitary facilities, and recreation hall, the resident unit has its own kitchen and dining hall.

National Defense Training Buildings

There are two buildings on the campus devoted entirely to National Defense Training classes. These buildings house aircraft sheet metal, machine shop, and radio classes, and are well equipped for these classes. The buildings were constructed by the NYA to accommodate the resident NYA training, as well as project work; however, other defense training classes are being carried on in these buildings.

Gymnasium and Pool

An excellent gymnasium and adjoining indoor pool, give first-class physical education and recreational facilities. The gymnasium floor is of standard size, with a spectators’ balcony. The equipment provides for basketball, boxing, wrestling, and gymnastics of all kinds. The pool is joined to the gymnasium by a modern locker and shower room. The pool itself is one of the finest in the State, with complete heating, filtration and chlorinating equipment. A balcony is provided for spectators. Close to the physical education buildings is the football field, and the track, with seating for about 2000 persons in permanent and temporary field seats. The field is one of the best lighted in the State. The baseball field is also located close by.

Classroom and Administration Building

In keeping with the progress of the California State Polytechnic, a new Classroom and Administration Building has very recently been constructed. This new unit with its 52,000 square feet of floor space occupies a commanding position north of the gymnasium. The building is of Spanish design, with a tile roof and a clock tower at the northwest corner. The clock indicates the time and serves as the campus bell system since it is provided with a clarion that chimes each hour. The upper story accommodates large lecture classes, the ground floor houses the administrative offices of the school and the Bureau of Agricultural Education, the accounting office, the registrar’s office, and faculty offices. In the basement are housed the students’ activity room, post office, print shop, mimeograph and mailing department, student body offices and social room.

Three other major buildings are devoted to classrooms and general laboratories. One is the Agricultural Education building, last to be built of the three original structures planned in 1901. The others are one-story units in the center of the campus, providing space for physical and biological science, the library, music, landscape drafting, mathematics and similar courses.

Well distributed over the campus and farm are the major structures devoted to agricultural instruction. These include the following:

Swine Unit

This consists of a central farrowing house, and more than 30 double colony houses and pens for feeder pigs, brood sows and boars. The plant is under the supervision of an instructor and a student assistant, while many meat-animal students either have self-owned swine projects, or responsibilities in connection with the college herd.
General Information

Beef Unit

The beef unit consists of two widely separated plants. Newest of them is the beef feeding unit, of two feeding wings and a central feed storage unit. This accommodates about 150 steers, fed out annually in student projects. A central, enclosed court provides excellent facilities for judging and other instruction, training in showmanship, and project supervision. The other building is a calving and feed storage barn at the northwest corner of the farm, for the foundation herd.

Sheep Unit

This most recent major agricultural building addition is located just north of the main campus, and provides permanent facilities for lambing, feed storage and feeding projects. The climate of San Luis Obispo is well adapted to sheep production and instruction in sheep husbandry.

Dairy Unit

The dairy unit was the first to be completed under modern planning. It consists of a large feeding barn, a milking barn and bottling plant, a calf barn, and a bull barn with welded steel pipe corrals and pens. All of these structures are located adjacent to each other along one road, giving a compact unit for instruction in dairy husbandry and practices.

Poultry Unit

The poultry unit consists of a central egg-house and incubation building, also utilized for feed storage; and a number of houses for egg-laying, brooding, trapnesting and similar work. A number of range colony houses are also provided.

To facilitate the project program in which each poultry department student cooperates, a new sales office and egg candling building was constructed and put into use in the fall of 1940. It was the first unit completed of a proposed three-unit addition; the other two units will be housed in adjoining buildings and will include a hatchery, feeding room, battery brooders, store room and butchering room.

Ornamental Horticulture Unit

Buildings for ornamental horticulture include a propagation house, greenhouses and a lath-house. The entire campus provides the principal project area, with students doing all of the landscaping and maintenance.

Horse Barn

A stock horse breeding program is being carried on, using a government remount stallion; and four teams of work horses are kept, to give students full experience in the care and treatment of work horses.

Thoroughbred Breeding Unit

A new barn, paddocks, and pastures to accommodate eight thoroughbred mares and their offspring, and two thoroughbred stallions, was dedicated in December of 1940.

At present, there are seven thoroughbred mares and the eighth mare has been accepted to be delivered after she is in foal.

These mares were donated by the following men: C. E. Perkins—two mares; Walter T. Wells, Bing Crosby, Charles E. Cooper, A. W. De Veau, Walter H. Hoffman, and Henry P. Russell. One stallion was donated by A. T. Jergens.
Adequate barns and stalls are available to accommodate these mares and their foals and yearlings. The plan is to sell the offspring of these mares as yearlings at the Breeders' Sale. Pastures and paddocks to accommodate mares and foals, and yearlings also are provided.

California Breeders' Association under the program, is donating services of different stallions for these mares.

**Agricultural Mechanics**

Two shop buildings and the entire farm comprise the unit where instruction is given to all agricultural students on the mechanical side of farming.

The industrial buildings are more closely grouped than those for agricultural purposes. The major ones are as follows:

**Aeronautics Industries Building**

This structure consists of the airplant construction floor, flanked on one side by the paint spray room, and on the other by the engines laboratory. Adjacent are buildings for closely related work in aeronautical drafting, machine shop and welding. All buildings are well equipped for instruction and practice in all techniques involving aeronautics mechanics and construction.

**Engineering Building**

This modern structure was opened during the spring of 1940. A two-story central unit has an assembly room for 500 students, and class and drafting rooms on the second floor. One wing is entirely utilized for laboratory work. A significant feature of the building is that it is completely air conditioned, with the machinery installed forming a commercial practice unit for the students. The other wing is devoted entirely to the electrical laboratory and construction department. Aside from the usual laboratory test equipment there is a complete electrical substation with its rotating machinery and switchboards in this wing. Since the development of skills is one of the main objectives a workshop is provided for the repair and construction of equipment adjacent to the college power plant building. Here most of the energy for power and light is generated by Diesel and steam electric generating units, operated by students either as part of their training in power plant operation, or as campus employment.

**Other Facilities**

In addition to the major buildings, facilities are provided for the many related subjects and foundation sciences. These include some general drafting and surveying, nine courses in biological sciences, English, mathematics, music, physical sciences, many social science courses, typing and others.

**San Dimas**

The campus at San Dimas is compact, and with the field limited to horticultural enterprises, presents more of a unified development.

**Administration**

The center of campus activities is in the Administration group of buildings, joined by corridors. This unit houses the administrative offices, all major classrooms, the library, museum, photographic dark room, and laboratories. One entire wing is devoted to student life and
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activities, containing the dining rooms, kitchen, campus store, and social room. A second story is used for dormitory purposes.

Dormitories

All dormitories are of the smaller type, housing from 20 to 80 students. They are Sunset cottage, Rose cottage and Smith hall, and "Uncle Charley's" and "Aunt Nell's," named after the principal donor and his wife, Mr. and Mrs. Charles B. Voorhis.

Shop

One large building serves as the automotive service shop and the agricultural mechanics laboratory building. It is situated in the heart of the orchard area, making it convenient for tractors and tillage and spraying implements.

Infirmary

A well-equipped infirmary is located on the campus, with ample bed space for any emergency or isolation cases.

Chapel

One of the most beautiful chapels in southern California, built to provide a view from the interior to the snow-capped Sierra Madres, is near the center of the campus. Student "sings" and non-sectarian services are held in the chapel.

Pool and Athletics Field

A splendid outdoor swimming pool is in the center of the campus, near three of the dormitories. The water is chlorinated for proper health protection, and a diving board provides practice in this exercise. Nearby is the athletics field.

Project Operation and Plant Facilities

California State Polytechnic has become known throughout the nation as a college based upon "doing" practices of commercial scope. The feature of the training method involves virtually all of the facilities of the entire institution, including buildings, equipment and land.

The Project System

Each student is expected to engage in some project of commercial scope. Agriculture students raise and market meat animals, such as pigs, sheep and beef cattle. They conduct dairy and poultry enterprises, either with their own foundation stock, or by contracting for some of the school's project animals or birds. They raise various plant crops and ornamentals. The students in the industrial division have projects of similar commercial scope, rebuilding airplanes, constructing and operating air conditioning machinery, running the college power plant and keeping the many electrical devices in good condition.

The Project Fund

A student does not need to have finances to engage in this valuable practice work. A $20,000 revolving loan fund and $31,000 worth of live stock have been built up through student project operation over the
California Polytechnic School

last few years. Boys may borrow from this fund with only the project itself as security, for the purchase of feeder stock, feed, plant material, etc., and when the product is marketed, pay back the loan with interest. A share of the profits also goes back to the fund as insurance against project losses and for the use of equipment owned by, or leased to, the project fund.

Agricultural Project Facilities at San Luis Obispo

The facilities available for agricultural projects are similar to those which would be found on any well-equipped ranch dealing in that commodity.

In foundation live stock, California State Polytechnic has some of the best in the State. The beef herd includes Herefords and Shorthorns, offspring of which are sold to students. All necessary equipment for beef cattle production—barns, dehorning and loading chutes, castration equipment, stock horses, etc., are available. Many show champions have come from the beef herd.

The dairy herd includes purebred Jerseys, Guernseys and Holsteins, including two State Fair champion bulls as herd sires. Equipment includes all the necessary paraphernalia for feeding, milking, care of calves and bulls, milk testing, bottling, separating and other operations. Students own about 50 head of purebreds.

The swine herd is the outgrowth of a gift from C. Harold Hopkins, owner of Straloch farm, who gave his entire Poland herd—one of the best in western States. Polands and Durocs are in the breeding herd. Equipment includes the farrowing pens, pig brooders, feeding equipment, etc. Students market between 600 and 700 fat and breeding swine each year.

The sheep flock is principally Hampshire and Southdown, including the sires and dams of many show champions. The new sheep unit centralizes the project facilities, which are typical of a largescale farm enterprise. Students learn shearing and the care of fleeces, as well as lamb production.

The poultry flock consists of between 2000 and 3000 birds. The equipment includes a modern incubator, egg-handling facilities, brooders and brooder houses, pens for trap-nesting and pedigree work, and similar devices. A student assistant and the students themselves, care for every operation under the supervision of the department head.

Equipment in ornamental horticulture includes land and buildings already mentioned, garden tractors, potting and spotting equipment, and landscape drafting facilities. Boys not only have an opportunity for much campus employment, but are in demand to do private landscaping work in the community where home building operations are at a record peak.

Students in agricultural mechanics do a great deal of the mechanical work on the farm such as operating and repairing tractors and farm machinery, designing and building all kinds of equipment for poultry, dairy, meat animals, and crops projects and also building gates, fences, etc. for the general farm.

Agricultural Project Facilities at San Dimas

At San Dimas, the project work is carried on in a somewhat different manner than at San Luis Obispo. Due to the nature of the enterprises in the plant field, the work is concentrated into group projects—that is, the fruit production students handle the entire grove of citrus as a unit. The cultivation, irrigation and survey work is done entirely by the student group, plus a major portion of the harvesting
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and pest control. The same procedure is followed by the students majoring in ornamental horticulture, and inspection work, in relation to various areas on the school property.

The facilities include 28 acres of bearing oranges and lemons and five acres of avocados, available for student practice work and management. The school is located in a thermal belt, making it possible to find ample field practice in deciduous fruit production from the campus plantings and in neighboring orchards.

In addition to the fruit acreage, approximately four acres are available for growing vegetable crops. This offers an opportunity for students to secure practical experience in the growing, insect and disease control, and harvesting of these crops.

Besides this type of project work, a fine opportunity for practical experience is offered in the form of an apprentice training period. Advanced students are encouraged to secure, and are assisted in securing, work in the field of their major interest. They are under the supervision of the department head, and are given undergraduate credit for this work. In addition, outside training jobs are taken in orchard mapping and grading, tree treatment, orchard pruning and scale survey work. Many ranches near the school call upon students for work in pest control, fertilizer application, orchard heating and scale survey.

Before becoming eligible for a technical certificate, students must complete some 30 weeks of apprenticeship training in selected fields. Evidence of such a program must be accompanied by a recommendation from the employer.

Climatic conditions at the Voorhis unit which make it admirably located for fruit production are equally advantageous in the ornamental horticulture field. The Voorhis unit has ample propagation facilities for starting landscape curricula, and extensive opportunity for supervised gardening on the campus and for field trips to major propagation areas and estates.

Facilities are provided at the Voorhis unit for training men in the common practices and skills and the essential techniques in agricultural inspection. Equipment includes that used in fruit testing, plant, insect and disease specimens of importance in the major fruit and crops production areas of California, as well as laboratory samples and specimens of diseases and pests which might be introduced from other States and nations; laboratory equipment for microscopic analysis, a small apiary for all types of bee work, farm equipment and supplies used in weed and rodent control, and a complete library covering all subjects taught. Pest control equipment and material is available. The curricula were established after each course and combination had received the approval of the State Department of Agriculture for its effectiveness in training inspectors.

In addition to the inspection facilities on the campus, the whole State provides a training ground. Sophomore and junior students conduct field problems in inspection and pest control. Graduation requirements include actual work in commercial packing houses and at inspection points. Field trips are made to shipping points, picking and propagation districts in addition to the campus area.
An integral part of the administration of the California State Polytechnic is the service program for the vocational agriculture system throughout the State. The school was made a responsibility of the same agency which is in charge of this high school agriculture work—the State Bureau of Agricultural Education—in 1933, and was officially designated as the service institution to aid the high school vocational agriculture program, in addition to its resident offerings.

In this function, the school serves as headquarters for the bureau. The president of the school is chief of the bureau, and members of the bureau staff maintain their offices at the college. From this point, they directly supervise vocational agriculture throughout the State, and provide project materials for boys and teaching materials for the 285 instructors in 194 schools.

The project materials are varied. These include many thousands of hatching eggs, or baby chicks through a commercial hatchery arrangement using Polytechnic eggs; feeder pigs and steers; breeding sheep, swine and dairy cattle, and plant materials.

The teaching material prepared for agricultural teachers is quite extensive. A release is issued once each month containing brief digests of current magazine articles and of new bulletins and circulars; wall-size charts showing price movements of farm commodities produced as student projects; a price comparison sheet showing present quotations compared with a month earlier, a year earlier and a base period. Blueprints of agricultural structures and devices, are made available. Film strips are prepared and distributed. Regular project suggestions are prepared for the State Future Farmer magazine.

Another service performed by the bureau is to make available to high school boards throughout California, floor plans and photographs of recommended vocational agriculture buildings. These plans are grouped according to the number of agriculture teachers and students for which the building was erected.

Radio programs originate from California State Polytechnic, or are supervised from there for origination at many points throughout California.
AGRICULTURAL TEACHER TRAINING

The college is of particular importance in the training program for prospective vocational agriculture teachers and in-service teachers.

CADET PROGRAM

Requirements

In the curricular offerings at California State Polytechnic, no specific teacher training program is listed, the omission occurring for a definite purpose. It is felt more desirable at this college to select, perhaps during their junior year, those students who have shown the greatest promise of becoming successful farmers and equally worthy agriculture teachers, rather than have students entirely unqualified for vocational agricultural teaching, elect in their freshman year to follow a pedagogic career, which does not prepare them for any other occupation if they are unsuccessful in obtaining a cadet appointment or incapable of a successful professional career. Trainees for the fifth or cadet year, after receiving their B.S. degree in agriculture, are selected by the assistant teacher trainer and the State supervisor or some other member of the supervisory staff who interview each applicant. Students are interviewed and selected during April and May and receive their appointments for the coming year shortly thereafter. Factors which are weighed carefully in selecting trainees are (1) scholarship in technical agriculture courses; (2) participation in extra-curricular activities in high school and college, especially leadership activities; (3) practical farm experience; (4) general appearance and personality. No trainee may receive an appointment without a minimum of three years of farm experience, or three summers while attending college.

Training

The training program for prospective vocational agriculture teachers is particularly noteworthy. A selected group of from 25 to 30 men are chosen each year from among the agricultural college graduates of California and other western states. They enter a year of training, part of which consists of supervised practice teaching in selected high schools known as "critic centers," and part of which consists of attending special classes at California State Polytechnic, in teaching methods and in actual agricultural practices. The "cadets" or trainees thus spend five months in adding to their agricultural techniques at the State Technical College. Their work here is supervised by the assistant State teacher trainer, while California State Polytechnic faculty members teach the skills courses.

Many of the "critic centers" are located adjacent to Polytechnic, making this college the year-around center of the training program.

In-Service Program

The college is also the training center for the aid of in-service teachers. During the summer months, various courses are given in agricultural management and farming skills, and in professional improvement. In addition, the annual conference of the teachers is held on the campus. The dormitories, swimming pools, and other facilities are made available to some 250 men, many of whom bring their wives and families for the one to three weeks spent in summer school. Full credit is given toward credentials and for local professional standing, through Polytechnic School-Bureau of Agricultural Education summer work.
SUMMER SESSION COURSES

Summer session courses are given each year under the joint sponsorship of the State Bureau of Agricultural Education and the California State Polytechnic. These courses are primarily for teachers of vocational agriculture in California high schools.

Courses are of three types:

1. Those in which the student spends a week or more learning various manipulative skills in more than one agricultural enterprise.
2. Those in which the student spends a week or more learning production factors and skills in a single agricultural enterprise.
3. Courses of a professional nature, primarily concerned with teaching methods.

Such course offerings are designated in the official summer session transcripts as "500" courses—the first digit at the left indicating that the course is beyond that of undergraduate materials for regular session students at California State Polytechnic.

Prospective vocational agriculture teachers who are in the cadet training section will also be registered for these "500" courses, during the first period prior to the opening of the regular fall quarter.

EXTENSION COURSES

Extension courses on a college level may be given at various centers throughout the State in certain specialized fields, at such times as demand requires and instructors are available. Credits obtained in such courses may be applied toward meeting credential requirements for special fields of vocational education.

Any group of individuals wishing to have a course given in their area should write to the California State Polytechnic for applications at least two months previous to the time that they wish to have the course started.

Full information concerning the extension course system will be sent on request.
THE BUREAU OF AGRICULTURAL EDUCATION

The Bureau of Agricultural Education is a division of the State Department of Education, located at California State Polytechnic. It has charge of all of the agriculture taught in the public schools of the State, except in the University of California. A close correlation between the agriculture in the State's secondary schools, and the more intensive type on a higher educational level at California State Polytechnic, is maintained by the fact that this bureau is located on the State technical college campus.

Bureau Representatives in the Field

Every high school vocational agriculture teacher is a representative of the bureau in the field, and since the Polytechnic is a responsibility of the bureau, the vocational agriculture teachers are representatives of the technical college. These men work in close cooperation with Polytechnic in service functions, giving suggestions for the curricula to complete education often started in the high school vocational agriculture departments.

Agriculture department heads and instructors represent the bureau in high schools in the following localities:

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California Polytechnic School

Ferndale: Willard Lusk
Clarence Jensen
Fillmore: Clarence Neuman
Fortuna: L. E. Cross
Fowler: J. S. Johnson
Fresno (Central U.): Walter Atwood
E. W. Ragle
Fresno (Roosevelt Jr.-Sr.): L. T. Baldwin
S. M. Poulsen
Fullerton: Lynn Keller
J. E. Mullin
T. E. Tuft
Garden Grove: Keith Lee
Gilroy: F. V. Ryercraft
Gonzales: Keith Abbott
Gridley: Maurice Hogan
Grossmont: Ralph Brown
Harold Voth
Gustine: Conrad Leifeldt
Hamilton City: Ed Danbom
Hanford: J. H. Harper
S. R. Strader
Hayward: O. C. Markwell
Leslie Brown
Dale Waltron
Healdsburg: George Stanley
Hemet: Fred Hagen
Hilmar: John D. Hardie
Hollister: R. J. Larson
M. C. Ralston
Wayne Hansen
Harold Stoker
Holtville: Herbert Fincher
Hoop: Perry Hill
Hughson: Chilton Allison
Imperial: Ernest Frane
Julian: Albert Kattenhorn
Kerman: A. R. Taylor
W. O. Smith
King City: C. A. Thompson
Kingsburg: Truman Frane
Lakeport: E. B. Helston
Lancaster: R. E. Lofnck
Arthur Wren
Lath: W. J. Maynard
La Verne: James Ingalls
Le Grand: Fred Long
Lemoore: A. M. Hardin
Clarence Soderstrom
Lindon: Ewood Juergenson
Lindsay: J. E. Myers
Livermore: Kenneth Clarke
Live Oak: Lawrence McDaniel
Livingston: Eldon Callister
Lodi: Herman Diekman
George Crum
Ruion Ricks
Los Angeles—E. B. Angier, Supervisor
Bell: E. L. Crump

Canoga Park: Arvid Nelson
Fremont: Dale V. Leever
Gardena: Clarence Smith
Garfield: Leo A. Marks
North Hollywood: Leslie Wright
San Fernando: Paul Thornton
Torrance Jr.-Sr.: Harry H. Stone
Van Nuys: E. R. Hansen
Los Banos: A. E. Cleveland
Bernard Butcher
Los Gatos: B. B. Ward
L. P. Hillman
Los Molinos: R. C. Geibergen
Madera: Edward Grieswold
Allen Hatch
Manteca: Ralph Keaphart
Russell Berg
Mariposa: Cecil Burke
Maryville: R. W. Mitchell
V. G. Binaocca
Maxwell: S. T. Eggen
McArthur: J. W. Beauette
McFarland: U. C. Allen
H. M. Ritter
Merced: Alvin King
Middletown: Harry C. Smith
Miranda: Francis A. Goetsch
Modeo High: J. E. Walker
E. N. Spafford
L. J. Banks
Ernest Tarone
Modeo Jr. College: Reuben A. Sylva
Arthur Eggers
Morgan Hill: Ralph Fitzsimmons
W. G. Yerian
Napa: Wayne Johnson
E. C. Conners
Newman: George Hall
Dell J. Rollins
Newport Beach: Horace Parker
North Sacramento: L. D. Keller
Norwalk: Lindsay Bogges
Edson Tenant
Oakdale: H. C. Helt
Oceanside: Philip Itokei
Ojai: David Davis
Ontario: Charles Perrin
Glen Moody
Orland: W. W. Coke
C. C. Glenwick
Parlier: Noble Coryell
Pasco Robes: H. H. Burlingham
Patterson: Chas. King
Chas. Jennings
Perma: R. C. Roth
Petaluma: W. L. Norton
Barton Reedon
Placentia: A. G. Stephens
Walter Wood
Pleasanton: George Patterson
Point Arena: Loren Philips
Pomona: W. R. Trounter
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Efforts of alumni of California State Polytechnic to form a functioning association of graduates and former students, have been going forward for several years. Homecoming programs have been held in both fall and spring. In the spring of 1940, alumni voted a permanent fall Homecoming.

Previous catalogs have listed the directors of the 30 districts into which the State is divided according to the alumni constitution. Because of frequent changes in the personnel of the district directors, and vacancies existing in a number of districts, this plan is not continued this year.

Officers serving from spring until the fall meeting in 1942, are: M. C. Martinsen, '17, San Luis Obispo, president; Bernard Preuss, '24, San Luis Obispo, first vice president; Don McMillan, '17, Shandon, second vice president; Belle Tomasini, '25, Cayucos, third vice president; Loren McNicholl, California State Polytechnic, Executive Secretary.

The districts of the State are:

District 1. Lassen, Modoc, Tehama, Siskiyou counties.
District 2. Humboldt, Del Norte counties.
District 3. Mendocino, Lake counties.
District 4. Shasta, Trinity, Plumas counties.
District 5. Glenn, Colusa counties.
District 6. Sutter, Yuba, Nevada, Butte, Placer, Sierra counties.
District 7. Napa, Yolo counties.
District 8. Sonoma, Marin counties.
District 10. Solano county.
District 11. Alameda, Contra Costa counties.
District 15. Stanislaus county.
District 16. Santa Cruz county.
District 17. Merced, Madera counties.
District 20. San Luis Obispo county.
District 21. Fresno, Calaveras, Tuolumne, Mariposa counties.
District 22. Santa Barbara, Ventura counties.
District 23. Tulare county.
District 24. Kern county.
District 25. Orange county.
District 27. Riverside county.
District 28. Los Angeles, Inyo, Mono counties.
District 29. Imperial county.
District 30. San Diego county.
ATHLETICS

The program of intercollegiate athletics is designed to supplement the physical education program, and to give healthy inter-school competition which provides for better relationships with neighboring and other college institutions.

The development of the four-year degree curricula will give emphasis to the trend toward competition principally with four-year colleges. At San Dimas, competition remains principally with junior colleges, and teams representing colleges in the southern conference.

California State Polytechnic is not now a member of any intercollegiate conference, and does not restrict competition to men beyond the freshman year. Observance of the freshman rule will be dependent on the development of a large enrollment in the four-year curricula.

Any regularly-enrolled student who maintains a satisfactory average in at least 10 quarter hours of a regular curricula, is eligible to participate in intercollegiate athletics. A faculty committee on athletics will determine the satisfactory grade average.

Each regular enrolled student, regardless of curricula selected, is required to take six quarters of physical education. An intramural program covering basketball, baseball, swimming, track, boxing and wrestling is carried out in addition to the regular physical education program.

Provisions have been made whereby any student enlisted in one of the United States Army, Navy, or Marine Reserve Programs, and while still in school, may secure the required number of hours in physical education.

CAMPUS EMPLOYMENT

To give a student an opportunity to work during his college enrollment is a privilege for the student, rather than an obligation to the college.

For many years, this opportunity for self-help has been one of the outstanding features of enrollment at the State Technical College. During this period, the enrollment has increased to a point where it is no longer possible to give every student employment in sufficient amounts to materially supplement his other income.

In spite of this increased enrollment, students are earning through campus labor and project operation, nearly $70,000 per year, or an average of about $100 per boy. This amount is probably reaching a peak, so that with further enrollment increase, the average earning from this source will decrease. The average earning is several times as great as the typical college where the adults are employed full-time to do a large part of the work done by students at California State Polytechnic.

National Youth Administration college aid work projects offer employment for those students who are in actual need of financial assistance in order to continue their education. No student will be granted work on NYA projects unless it is shown that his parents are financially unable to assist him. This government aid for college students should not be confused with the National Youth Administration resident project for national defense students, which offers no financial assistance to regular students.

To preserve in full the spirit of campus employment, the following rules will be enforced:

1. Only students who can show actual need of campus employment, will be given work.

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2. Money so earned should be spent on the necessities of campus living and college expenses. A student who obtains the employment upon claim of need, but spends his money on nonessentials, is not deserving of the self-help privilege.

3. Campus employment is primarily intended for those regularly enrolled and completing their college courses within a reasonable period. Campus employment should not extend over a period more than a year longer than student's regular curriculum. Exceptions will be made for student graduate assistants, or those returning to complete degree requirements after having completed two or more years prior to June, 1940.

OFF-CAMPUS EMPLOYMENT

The college works in cooperation with the California State Employment Service and the local towns-people in finding employment for students working their way, in part, through school. Usually this employment consists of odd jobs, although some steady part-time work is obtained.

CAMPUS ORGANIZATIONS

San Luis Obispo

Clubs and organizations on the campus cover all departments and activities, and the opportunity exists for every student to take an active part in club life. Two organizations are making definite plans to establish fraternity houses near the campus. The following clubs are organized:

Aeronautics Club for all aeronautics students.
Air Conditioning Club for all students in the air conditioning department.
Alpha Gamma Epsilon, a service fraternity for air conditioning students chosen for scholarship, leadership, and personality.
Block "P" Association for all lettermen in major intercollegiate sports.
Boots and Spurs Club for all students of meat animal husbandry.
Crops Club for all crops students.
California Young Farmers chapter.
Gamma Pi Delta, an all-agriculture honor service fraternity.
Golden Key, an honorary society open to all students of high scholastic standing.
Horticulture Club for all students of ornamental horticulture.
Los Lecheros for all dairy production and dairy manufacturing students.
Mustang Masquers for all students interested in dramatics.
Poly Phase Club for all students in the electrical industries department.
Poultry Club for all poultry students.
Press Club for all students working on publications.
Rodeo Club for all students interested in taking part in rodeos.
Sigma Phi Kappa, a service fraternity made up of students interested in Boy Scout work.
Ski Club for all students interested in winter sports.
Twelve dormitory clubs, for students residing in dormitories.
Poly Royal—The Poly Royal is an annual exhibition and show conducted by the Associated Students of the California State Polytechnic at which the results of the year’s school work are put on display for the general public. Particular emphasis is placed on the project work which has been carried on during the year.

The Poly Royal is a two-day event and besides educational displays there is a variety of other activities, principally among which are contests for the public, a rodeo, a Poly Royal barbecue, and athletic events. The climax of the two days of activities is the Poly Royal Coronation ball at which the Poly Royal Queen and her attendants are given fitting recognition.

San Dimas

- Block “P” association.
- Dormitory clubs.
- Agricultural Inspectors club.
- Horticulture club.

Poly Vue—Poly Vue is the name given to the annual open house day of the Voorhis Unit of the California State Polytechnic. It is designed to show parents and friends the yearly activities and progress of the school as well as to provide a time for friends to meet.

EXPENSES

The question of expenses is one of the most important ones to virtually all students.

It can not be denied that an education is an expense. It is the desire and necessity on the part of most students to keep this expense at the lowest possible point.

No student should prepare to enter California State Polytechnic with the expectation of completing a school year with much less than $325 to $350 to be expended for the necessities of food, shelter, books, necessary fees, laundry, medical care and essential clothing.

It is possible to reduce this figure by stinting on food, but this is often injurious to health. An improper diet during the growing years may leave a student with a lifetime health problem. It is also possible to secure part-time employment, or project income, to help defray the expenses.

* The items of living expenses are as follows:

- Dormitory room (per month $7) nine months $63.00
- Meals (per month approximately $26) nine months 234.00
- Laundry (per month average $2.00) nine months 18.00
- Incidental (approximately) 40.50

$355.50

* Increasing living costs may necessitate a nominal increase during the year.
HEALTH AND MEDICAL SERVICE

San Luis Obispo

Each student enrolled at the California State Polytechnic is protected by group medical service for which the students contract on a yearly basis. This service has been so successful during the past eight years since the time of its inception, that there has not been an epidemic of any kind on the school campus.

The contract usually provides that a student pays a fee of 50 cents per month, for which he receives all medical services while in attendance at the school. It not only covers first aid treatment, but all minor and major surgery and a free physical examination. The only items not covered are diseases of chronic nature which the student has contracted before entering school. The student receives hospitalization at industrial accident rates and medical supplies at reduced rates.

The physician is on the campus one hour daily five times a week, and in addition students may consult him at his office at any time by appointment. The physician is on call at all times at the dormitories and/or for emergency visits to students living in San Luis Obispo.

San Dimas

The medical service at the Voorhis Unit is similar to that at San Luis Obispo. A school physician is available in San Dimas, and he visits the campus once each week for a general check-up and physical examinations. Hospital facilities are available at Pomona, 10 miles distant from the campus.

PLACEMENT

The primary objective of all instruction at California State Polytechnic is placement, either in a regular field of employment for others, or in an agricultural or industrial enterprise operated by the student.

The placement function is the responsibility of each department head, and certain other individuals connected with the administration of the college.

In order that placement may function as efficiently as possible, the cooperation of every student should be obtained. Every conceivable job opportunity in the student's home communities must be investigated during vacation periods and reported to department heads.

Students should also cooperate by making the best use of their training period. The conscienious, responsible student who has made good scholastic records and measurable strides in physical accomplishment, has materially improved not only his own opportunities for placement, but those of other students who follow him.

The student who wastes his time, who enters a field against the recommendations of his counselors, or fails to show responsibility and cooperation, has destroyed any opportunity of placement in a position of trust.

No guarantee of placement is made to any student, but a sincere effort is made to find employment for everyone who shows himself worthy of this service.

The institution has been successful for a number of years in placing all or virtually all, of its recommended graduates. Not only is
placement attempted by the college for each graduate, but men so employed are contacted often. An effort is made to see whether both employer and employee are satisfied, and whether advancement is being made. Better positions in other firms are often found for students who have been doing satisfactory work for a sufficient period to justify advancement.

**PUBLICATIONS**

The two principal campus publications are:

**El Mustang**—a student newspaper printed once each week during the school year, primarily to cover San Luis Obispo campus activities. The staff is drawn principally from students in the journalism classes.

A student paper is published once each week at San Dimas covering the campus activities at the southern branch.

**El Rodeo**—the college annual, the pictorial history of the campus year for both units. The staff is drawn from the student body at large.

Other publications include the circular of information, a Poly Royal Pictorial which publicizes the annual exhibition and show and gives a representative view of campus facilities and activities, and the California Future Farmer, a monthly magazine supported by and mailed to the 10,000 members of the Future Farmers of America in nearly 200 California high schools.

**FRESHMAN SCHOLARSHIPS**

A number of freshmen scholarships are available at California State Polytechnic for young men immediately after they have graduated from high school. In all cases, evidence must be submitted that additional financial assistance is necessary in order for the applicant to complete school. The applicant for these scholarships must be approved by the high school principal and one other instructor.

The sophomore and advanced scholarships are granted on the basis of performance of the individual in his work and activities at California State Polytechnic.

**Sears, Roebuck and Company State-wide Scholarship Awards**

The Sears, Roebuck and Company offers 23 scholarships to California State Polytechnic in three different groups.

**State-wide Scholarship Awards.** Deeply cognizant of the necessity of developing trained agricultural leadership in the Nation, and recognizing the splendid results in this field now being accomplished by California State Polytechnic, Sears, Roebuck and Company wishes to broaden the availability of such training by offering scholarships to needy California farm boys of good character and capabilities who might otherwise be unable to enter college.

In carrying out this policy, Sears, Roebuck and Company has granted to California State Polytechnic 20 scholarships of $90 each to be awarded to first-year students who enroll in agriculture for the school year of 1942-43. It is the earnest desire of Sears, Roebuck and Company to make these permanent annual scholarships.

The scholarship awards to boys will be determined on the basis of:

1. **Financial need for assistance to continue his education.**
2. **Interest in agriculture and accomplishments as evidenced by his supervised home farm program.**
3. Scholarship as shown on the transcript of high school credits, which shall include a statement of the number in the graduating class and the applicant’s scholarship ranking in the class.

4. Citizenship and moral integrity, as certified by the high school principal, agriculture teacher and others qualified to pass judgment on the applicant.

Application should be made through the local high school agriculture teacher, who will have all the necessary information. All candidates for these scholarships will be notified as to their status on or before August 15, 1942.

**Regional Scholarships.** The Sears, Roebuck Company offers in addition, two $100 regional scholarships to the California State Polytechnic. These are part of a live stock improvement program in two areas of the State, San Jose and Fresno. Additional live stock improvement programs sponsored by Sears, Roebuck and Company are being developed in other areas of California.

*South San Francisco Union Stockyards Company Scholarship*

One annual $100 scholarship is awarded at a Future Farmers of America Marketing Day, or similar event, on the basis of excellence of performance in the farm home program in the production of beef cattle, sheep or hogs.

*Consolidated Chemical Industries, Inc., Scholarship*

One annual $100 scholarship is awarded at a Future Farmers of America Day, or similar event, on the basis of excellence of performance in the farm home program in the production of beef cattle, sheep or hogs. Applicants are limited to those participating in this special event.

*Safeway Stores, Inc., Scholarship*

One annual $100 scholarship is awarded at a Future Farmers of America Marketing Day, or a similar event, on the basis of excellence of performance in the farm home program in the production of beef cattle, sheep or hogs. Applicants are limited to those participating in this special event.

**California Cattlemen’s Association Scholarship**

The California Cattlemen’s Association, recognizing the worthwhile practical instruction being offered by the vocational agriculture departments in the high schools of California, and hoping to encourage some worthy student to continue further study of this same type at the California State Polytechnic, offers a $100 scholarship. The winner must have had an outstanding beef project and be a senior in high school, must plan to attend and be eligible to enter California State Polytechnic and include beef cattle in his courses, and expect to engage in the beef business when he has finished his schooling.

*These three scholarships go to outstanding Future Farmers for excellence in production of market live stock as demonstrated at the Future Farmers of America Marketing Day held at Stockton this year. One company giving the award to a beef producer, one to a lamb producer and one to a swine producer. The type for which the particular scholarship is given rotates from year to year.
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The Poultrymen's Cooperative Association of Southern California Scholarship

One annual scholarship of $100 will be awarded to a boy who has had an outstanding home farm program in high school, and part of his home farm program must have been with poultry. The boy must be a resident of one of the following counties: Fresno, Kings, Los Angeles, Orange, Riverside, San Bernardino, Santa Barbara, San Diego, San Luis Obispo, or Ventura.

Washburn & Condon Scholarship

Washburn & Condon Live Stock Commission Company of Los Angeles and San Francisco, has made available a $100 scholarship to a resident of any part of California. This young man must have carried on an outstanding home farm project that included the production for market of some beef, pork or lamb, or two or more of them. He must have graduated from high school and be eligible to attend California State Polytechnic for the school year immediately following the awarding of this scholarship, and he must enroll in the Animal Husbandry department. He should expect to engage in the production of market live stock after completing his education.

Challenge Creamery Scholarship

One annual scholarship of $100 will be awarded to a Future Farmer boy who excels in dairy production, and who enrolls as a freshman in dairy industries at California State Polytechnic. The boy must be a resident of one of the following counties of California: Humboldt, Sonoma, Marin, Butte, Tehama, Colusa, Sutter, Glenn, San Luis Obispo, Merced, Fresno, Tulare, Kings, Los Angeles, San Bernardino, Imperial or Stanislaus.

The E. C. Loomis and Sons Scholarship

One annual scholarship of $50 will be awarded to the outstanding graduate in the high school vocational agriculture departments at San Luis Obispo, Arroyo Grande or Cambria.

Freshman Industrial Scholarships

The California Polytechnic Women's Club has made available ten $50 scholarships to high school students interested in enrolling in the industrial division of California State Polytechnic. These scholarships are open to individuals residing anywhere in California. Preference will be given to applicants whose grades and high school educational pattern indicate ability to succeed in one of the industrial majors of instruction at California State Polytechnic.

ADVANCED STUDENT SCHOLARSHIPS

Philip R. Park, Incorporated, Scholarship

The Philip R. Park, Inc., Naval Station, San Pedro, California, will award a $100 scholarship to a worthy boy who has completed two years of outstanding work at this school in Animal Husbandry, Dairy Husbandry or Poultry Production.
Van Camp Laboratories Scholarship
The Van Camp Laboratories, Terminal Island, California, will award a $100 scholarship to a third or fourth year student in Animal Husbandry, Dairy Husbandry or Poultry Production, who has demonstrated unusual ability and interest in his first two years of work at this institution.

OTHER SCHOLARSHIPS

Carl Raymond Gray Scholarships
Four Carl Raymond Gray $100 scholarships are made available by the Union Pacific Railroad, Omaha, Neb. Applicants must have completed two or more years of vocational agriculture, including commendable projects. One scholarship is to be awarded to one resident in each of the following counties: Los Angeles, Riverside, San Bernardino, and Orange. Scholarships may be used at California State Polytechnic, University of California, or Chaffee Junior College. All applications, however, must be submitted not later than April 15th. Scholarships shall be used within the calendar year after the date of graduation from high school. All project books and a picture of the applicant and, if possible, pictures of his project, must accompany the application.

Sears, Roebuck and Company Sophomore Scholarship
The Sears, Roebuck and Company, as a continuation of the freshman scholarship plan described above, will award a $200 sophomore scholarship to the most outstanding student of those receiving Sears, Roebuck awards as first year students.

Sears, Roebuck and Company Junior Scholarship
All winners of Sears, Roebuck and Company scholarships are eligible to compete for junior scholarships offered by this same firm. The representative from California State Polytechnic must compete with similar winners from 37 other agricultural colleges throughout the United States.

STUDENT LOAN FUNDS
There are three Student Loan Funds to temporarily assist worthy students. Loans from these funds are made for varying periods of time, and are passed upon by a faculty committee.

The character and integrity of the student are the primary qualifications for obtaining a loan, upon evidence of real need for such temporary assistance. Students who have spent funds far beyond the necessary school expenses will not be considered for loans, even though need is shown.

The Wrasse Fund
The principal source of loans is the Leopold Edward Wrasse Loan Fund, established by an elderly Fresno County farmer for the benefit of deserving boys desirous of an education and needing financial assistance. Approximately $1,000 will be available for loans during the year 1941-42 with the following general provisions:

1. First preference will be given to graduates of Caruthers high school in Fresno County, second preference to graduates of other high
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schools in Fresno County, and third preference to graduates of California high schools.

2. During the 12-months' period preceding the granting of the loan, the applicant must have earned through his own endeavor, at least half of the amount of the desired loan, and must furnish evidence to this effect.

3. Interest will not be charged until graduation, or until the student ends his enrollment. Loans must be repaid within three years after the termination of enrollment.

The Rotary Club Fund

The San Luis Obispo Rotary Club has established a student loan fund open to any deserving student after one quarter of successful matriculation. Applications are made through the business office.

The Women's Faculty Club Fund

The social club of women staff members and faculty wives at San Luis Obispo has established a student loan fund, added to each year by some type of public benefit event. Loans are made to deserving students after one quarter of successful matriculation.

Student Accommodation Loan Fund

The Women's Faculty Club and the Associated Students have set up a fund from which students may secure small short term loans.

Wilder Memorial Loan Fund

The Alumni Association sponsors the Wilder Memorial Loan Fund, from which small short term loans are made to deserving students.
REGULATIONS

ADMISSION REQUIREMENTS

It is the belief of the California State Polytechnic that the admission of a student to its classes, and his progress through the institution, should be based upon demonstrated and continuing ability and interest, rather than the completion of a previous pattern of courses under a totally different environment.

To substantiate this belief, experience has shown that boys who have been required to complete a college preparatory curriculum of the conventional pattern, often do not receive the best grades; but when confronted with courses involving the science and techniques of agricultural and industrial operations in which they are actively interested, they do very well.

The opposite is sometimes true, in that students of good intelligence may make excellent grades in preparatory schools, but when confronted with the need to demonstrate actual skills in technical courses, definitely lack such abilities and do not make successful students.

It is the objective of California State Polytechnic to give a core of usable and job-getting information and skill courses, surrounded by such natural and social science, and complemented with such work in other than the major fields, to produce a graduate from the varying curricula with the greatest amount of employability, training in living with others, and reasonable material culture.

Therefore, admission to California State Polytechnic for any of the various curricula levels, is open to the graduate of any standard California high school upon the submission of evidence of fitness to profit by college instruction, such fitness to be shown by previous scholastic records, by evidence of good moral character and personal qualifications, and by a satisfactory score on such aptitude tests as may be required.

Persons over 21 years of age who have not completed high school may be admitted as special students only, for work in the vocational or technical levels. No student who has not completed high school may be admitted to the degree curricula.

ADMISSION WITH ADVANCED STANDING

Persons who have attended junior colleges or four-year colleges will be given full credit for such courses as may be applicable to the graduation pattern in the curricula followed.

Each application for admission with advanced standing will be considered upon its merits. In accepting work in the major field, it shall be the duty of the registrar to determine, by examination or otherwise, that the student is skilled in all of the techniques developed by attendance at California State Polytechnic, in addition to subject matter. Final evaluation of credit transferred to California State Polytechnic will not be made until after a full year of residence is completed with at least a minimum load.

No limit is placed upon the number of transferable credits, except that no student may be graduated in any of the various curricula with less than three full quarters of residence, or with less than 45 quarter units of work received in residence at California State Polytechnic. These three full quarters in residence must be the last three quarters prior to graduation.
ATHLETICS ELIGIBILITY

Matters of eligibility are under the jurisdiction of the faculty committee, whose duty it is to determine the eligibility of students for participation in intercollegiate athletics.

1. Athletics competition is open to any regularly enrolled student who fulfills the following minimum requirements:
   a. He must carry 10 quarter units during the quarter of competition.
   b. He must have completed with a passing grade at least 8 quarter units and earned one-half as many grade points as units completed in the last preceding quarter of attendance at the California State Polytechnic, or other collegiate institution.
   c. He must have matriculated not later than 16 days after the opening date of registration during the quarter of competition.
   d. In order to remain eligible during a quarter, a student must maintain at least a .50 grade average.

2. Students, during the first quarter of college attendance, are eligible for varsity competition. A student's athletic competition is limited to four years if he enters as a freshman; it is limited to three years for junior college transfers.

3. The manager of each type of intercollegiate athletics competition shall secure from the coach and present to the faculty committee seven days in advance of the opening contest of the season, a complete list of students who are expected to participate in this activity during the season. If later any additions or omissions are made to this list, that shall also be submitted to the faculty committee seven days in advance of the contest in which students may first participate. The faculty committee shall advise the Physical Education Department head and manager regarding the ineligibility of any student listed at least 48 hours in advance of the contest for which he may be declared ineligible. No student may be permitted to compete who has not been approved by the faculty committee.

CHANGE OF CURRICULA

The objective of all training at California State Polytechnic is to prepare the student for useful employment and useful citizenship.

Students who find that they are in a type of curriculum which does not provide for the kind of training for which they have the greatest aptitude, should endeavor to transfer to another curriculum as soon as this condition becomes apparent, rather than to attempt to overcome an insurmountable handicap.

Transfer from one curriculum to another will be expedited as much as possible, but prerequisites and the full complement of major courses must be met in order to graduate in the curriculum to which transfer is made.

The registrar will discourage change of curriculum unless the student evidences a sincere and definite objective.

CLASS ATTENDANCE

Students are expected to be regular in attendance. It is in this way that they will be able to keep up the quantity and quality of work.

* Aero students should see page 121 for further regulations.
Absence from classes when at school without securing an excuse previously is regarded as a very serious offense. Three days before or after a holiday, any unexcused absence will count as a double cut. The following regulations in regard to unexcused absences are in effect:

1. If the number exceeds the number of credit units in a course, the grade transmitted by the instructor will be automatically reduced in the registrar's office.

2. If the number exceeds twice the number of credits, the grade transmitted by the instructor will be automatically reduced to an I in the registrar's office.

Before an excusable absence can be granted by the instructor, a student, (1) in the case of illness, must present an excuse signed by a physician or dormitory superintendent.

(2) No student will be excused to leave for home on school days or go on a job before he has completed his class work for the day. If an emergency arises which makes it necessary for a student to be absent from school, a request signed by the parents or prospective employer must be presented to the office before such an excuse can be validated.

(3) No excuse will be accepted for failure to take a final examination. Credit for a course, however, may be received by passing a comprehensive examination over the entire course.

CREDIT BY SPECIAL EXAMINATION

1. Students desiring credit by examination in courses in which they have not been regularly enrolled must first petition the registrar for the privilege of taking special written and/or oral examinations to cover content regularly offered in these courses. In each case where credit by special examination is requested, the approval of the instructor who offers the course and the department head must be secured before the petition will be considered by the registrar.

2. After the privilege of taking a special examination is granted, the following procedure is to be followed:
   a. If the examination is written, (1) a copy of the questions and (2) the special examination paper must be filed with the registrar.
   b. If the examination is in skills and conducted orally, (1) a list of the skills in which the student was tested indicating that he is proficient in at least 70 per cent of the group must be filed with the registrar.
   c. Regardless of the nature of the examination, a statement by the instructor who gave the examination certifying that the special test given covers the content of the course for which credit was received must accompany (a) and/or (b) above.

3. A fee of $1 per quarter unit of credit is charged for the privilege of taking each special examination.

4. Grades received for courses by special examination shall be recorded in the same manner as grades received for courses taken in the regular way, except that the permanent record shall show the total number of credits received by this process.

5. The regular grading system shall apply to special examinations.

6. The maximum credit secured by special examination that may be applied toward graduation is 15 quarter units regardless of the level of instruction.
CURRICULA REQUIREMENTS AND EXPLANATION

VOCATIONAL CERTIFICATE CURRICULA

The vocational certificate is awarded to graduates of the two-year curricula. The objectives of this curricula are to give a maximum of job-training in a minimum of time. Since the intention of the student is to complete the requirements for employment in as short as possible a time, the curricula contains only such science and related work as is necessary for him to understand the major field, and to be a generally useful employee. Students in these curricula will receive the same instruction in the major field that the technical or degree students receive during their first two years.

The fact that the vocational certificate curricula may be completed in a shorter period of time, carries with it no implication that these curricula are in any way inferior or less desirable. On the contrary, the school is definitely obligated to train persons for those fields of employment which do not require more than this period of time. It is expected that a large number of students, particularly those who plan to return to the home farm and go into partnership with parents or otherwise engage in a farming occupation, will be registered in these curricula.

TECHNICAL CERTIFICATE CURRICULA

The technical certificate is awarded to graduates of the three-year curricula. The objectives of these curricula are to combine a maximum of job-training with a good foundation in practical sciences, preparing the graduates for a large number of technical openings in the field of agriculture and industry.

Persons enrolling in these curricula will receive, for the first two years, the same agricultural instruction in the major field, as offered to degree or vocational certificate students; and the same agricultural instruction in the major field in the junior year, as offered to the degree students.

These curricula are offered primarily to those students interested in fields of employment not requiring a degree, and desirous of spending three years in securing the training leading to such employment. In the three-year period, it is possible to delve more deeply into the basic sciences, than is possible in the vocational curricula. The extra year in the major field also gives opportunity for more management practice in addition to the project training.

DEGREE CURRICULA

The Bachelor of Science degree will be conferred upon those students who have demonstrated ability to successfully complete a four-year course of instruction in their major field, including all of the necessary farming or industrial skills and techniques; and have in addition completed necessary and desirable courses in the social and natural sciences, the humanities, and in technical fields other than the major.

The objective of the degree curricula is to increase the employability of graduates of California State Polytechnic school by giving them the prerequisite credentials demanded in many employment fields, without limiting the technical scope of training in any manner.

The degree field embraces in general that education offered in the agricultural and mechanical arts type college, with particular emphasis
on the practical arts and sciences rather than the liberal arts; and with greater application to the technical operations underlying production and management, rather than to the scientific phenomena or theory.

The instruction core in the major field will be parallel for the first two years with that offered the vocational or technical certificate group; and for the third year with that offered the technical certificate students. Students in the degree field will be enabled to go more deeply in the major field, and will in addition be required to enroll in technical courses other than their major.

A study of the curricula will also show the breadth of related subjects and science required. If the student maintains satisfactory progress in the major field but has difficulty with the related subjects, he may transfer to one of the other curricula where less emphasis is placed upon the supporting courses.

*FEES AND DEPOSITS PAYABLE AT REGISTRATION TIME*

**State Fees**
Laboratory and Course Fee (quarter) $5 00

**State Deposits**
Breakage (year) 10 00

(All deposits refunded at the end of the year if there are no charges against them.)

**Local Fees**
**Student Body Membership (year)** 10 00
Medical (year) 5 00

**Local Deposits**
Board (year) 10 00
†Room and Laundry (year) 10 00

**Special State Fees**
Late Registration 2 00
Late Return of Registration Cards 2 00
Transcript Fee 50
National Defense Transcript Fee 1 00
Cadet Course Fee 3 00
Extension Course Fee (per unit) 1 00 or 5 00

**LIVING EXPENSES**
Room, per month $7 00

(This includes the laundering of sheets, pillow slip, and towel each week. Students are required to furnish these articles.)

Board, per month (approximately) 26 00

Board and room charges are entered quarterly. They may be paid wholly in advance or 1/3 in advance, 1/3 after four weeks and 1/3 after nine weeks.

* Living expenses subject to change.
** At Voorhis unit, $7.00.
† Room reservations will be made in the order in which deposits are received.
(All deposits refunded at the end of the year if there are no charges against them.)
EXAMPLE of what the average on-campus student pays at the time of registration:

<table>
<thead>
<tr>
<th>Item</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Board Deposit</td>
<td>$10.00</td>
</tr>
<tr>
<td>Room and Laundry Deposit</td>
<td>$10.00</td>
</tr>
<tr>
<td>Breakage Deposit</td>
<td>$10.00</td>
</tr>
<tr>
<td>Student Body Fee</td>
<td>$10.00</td>
</tr>
<tr>
<td>Laboratory and Course Fee</td>
<td>$5.00</td>
</tr>
<tr>
<td>Medical Fee</td>
<td>$5.00</td>
</tr>
<tr>
<td>One month's room in advance</td>
<td>$7.00</td>
</tr>
<tr>
<td>One month's board in advance</td>
<td>$26.00</td>
</tr>
</tbody>
</table>

Total: $83.00

EXAMPLE of what the average off-campus student pays at the time of registration:

<table>
<thead>
<tr>
<th>Item</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breakage Deposit</td>
<td>$10.00</td>
</tr>
<tr>
<td>Student Body Fee</td>
<td>$10.00</td>
</tr>
<tr>
<td>Laboratory and Course Fee</td>
<td>$5.00</td>
</tr>
<tr>
<td>Medical Fee</td>
<td>$5.00</td>
</tr>
</tbody>
</table>

Total: $30.00

NOTICES IN REGARD TO FEES

Student fees and deposits are payable at the time of registration. Subsequent quarter registrations will not be permitted until all obligations have been paid or extended by the school.

The student body fee entitles the student to a membership in the student body, with the privileges pertaining thereto. Some of these privileges are:

- Admission to regularly scheduled home athletic contests.
- Admission to other student body activities.
- A copy of the yearbook, "El Rodeo."
- A copy of weekly paper, "El Mustang."

The laboratory and course fee covers such items as use of towels and lockers and use of material in shops and laboratories for instructional purposes.

All students must pay for personal use of material and equipment.

GRADING SYSTEM

The following grading system is in effect:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Numerical Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>93-100</td>
</tr>
<tr>
<td>B</td>
<td>85-92</td>
</tr>
<tr>
<td>C</td>
<td>77-84</td>
</tr>
<tr>
<td>D</td>
<td>70-76</td>
</tr>
<tr>
<td>E</td>
<td>62-69</td>
</tr>
<tr>
<td>E-F</td>
<td>Below 62</td>
</tr>
</tbody>
</table>

In addition to the grades, scholarship points are assigned to the various grades as follows:

For each unit of Grade A—3 points.

- B—2 points
- C—1 point
- D—0 points
- E-F—1 point minus.

---

1 In physical education and hygiene, two grades only are given. P denotes passing and F falling. Six quarters of passing work in physical education are required.
Any student whose grade points are less than one-half the total units for which he enrolled will be placed on probation for the following quarter. A student on probation may have his activities curtailed.

Passing grades are marked by A, B, C, D. Grade E (conditional) indicates a record below passing. It can be made up or completed without repeating the course in class by reexamination or completing all unfinished work or both, as the instructor may determine. The removal of grade E entitles the student to the grade points he may have lost by the condition or failure, and in addition the number of grade points to which he may be entitled for his passing grade.

Grade E may be given to a student for the following reasons:
(a) He may be passing in class work, but failed to take the final examination.
(b) Class work passing, but final examination so poor that it does not justify a grade of D.
(c) Passing in class work completed and final examination but a student failed to complete all assigned work.

If a grade of E is not made up to a passing grade within one year after the grade has been given, it will automatically revert to an F grade.

Grade F indicates a failure. It is a record so poor that it can be raised to passing grade only by repetition of the course.

MINIMUM REQUIREMENTS

Any student who fails to maintain a C average for any quarter (that is, he does not have as many grade points as units) will be placed on probation for the succeeding quarter. Students on probation will have their activities curtailed until such time as their work is brought up to a C average again.

Any student will become subject to dismissal from the California State Polytechnic who fails to maintain a C average when on probation, or if his record for any quarter falls below a D average.

Students whose personal conduct is unsatisfactory may be disqualified by the administration at any time. Students may apply to the Director for readmission after a quarter has passed. This application for readmission must be accompanied by evidence to show that he is serious in his attempt to do better work. The application must be approved by the Department Head.

REQUIREMENTS FOR GRADUATION

Requirements for the Vocational Certificate
This certificate is evidence that the student has completed one of the two-year vocational curricula.

Requirements include:
1. A minimum of 100 quarter units of specified or elective courses.
2. For agriculture majors, completion of the Farm Skills courses with satisfactory evidence of ability to perform general farm functions.
3. For industry majors, ability to pass an examination in Shop Skills.
4. At least as many grade points as units earned.

Requirements for the Technical Certificate
This certificate is evidence that the student has completed one of the three-year technical curricula.
Requirements include:
1. A minimum of 150 quarter units of specified or elective courses.
2. For agriculture majors, completion of the Farm Skills courses with satisfactory evidence of ability to perform general farm functions.
3. For industry majors, ability to pass an examination in Shop Skills with especial references to the major field.
4. Recommendation of the department head in at least one occupational field.
5. At least as many grade points as units earned.

Requirements for the Bachelor of Science Degree

The Bachelor of Science degree will be conferred upon students who have completed the requirements of the degree curricula with the following provisions:
1. A minimum of 200 quarter units of specified and elective courses with a grade point average of 1 or higher.
2. For agriculture majors:
   a. 70 quarter units of agriculture and especial agricultural science directly related to the major. This group is made up as follows:
      (1) 50 units of major production courses, or courses specified by the department head.
      (2) 8 or 9 units of especial agricultural science specified by the department head.
      (3) 12 units of general agricultural production courses in fields other than the major selected by the student.
   b. 90 quarter units of specified work in the fields of biological and physical science, political science and economics, mathematics, English and other practical arts and sciences.
   c. 40 quarter units of unrestricted electives.
   d. For agriculture majors preparing for one of the public service fields, such as local, county, State or Federal civil service work in technical agriculture, agricultural teaching or similar occupation, the above curricula is slightly varied as follows:
      (1) Of the 70 units of agriculture and closely related science work, only 40 quarter units may be specified by the major department head, plus the closely related science courses. This provides opportunity for the student to prepare himself for a wider range of agricultural production by use of additional elective openings.
3. For industry majors:
   a. 80 quarter units of industries major work, or that specified by the department head.
   b. 80 quarter units of specified work in the fields of physical science, political science and economics, mathematics, English and other practical arts and sciences.
   c. 40 units of unrestricted electives.
4. For all graduates, a comprehensive graduation thesis on a topic approved by the department head. Agriculture majors will prepare theses.
on topics involving the production, marketing or distribution of agricultural products; those preparing for public service work will prepare theses on topics showing creative thinking in either an agricultural production, or an agricultural teaching field. Industry majors will prepare theses on the production and distribution of industrial goods, on industrial plant maintenance or operation, or personnel direction. A minimum of 5,000 words is suggested for theses.

MAXIMUM AND MINIMUM LOAD

All students except those registered as "special" must be classified in one of the major departments of the college.

Students so classified must register for not less than 10 or more than 20 quarter units of work, the only exceptions to be made on the joint recommendation of the head of the department, the head of the division, and the registrar. During the present emergency, students whose scholastic attainment will warrant, may enroll up to a maximum of 24 quarter units during each regular quarter period of instruction.

Minimum load requirements may be waived because of poor health, or when only a few credits are needed for graduation. Maximum load requirements may be waived only on presentation of evidence of ability to successfully carry such a group of courses.

WAR EMERGENCY CHANGES

The war emergency has emphasized the importance of reducing the time required by college men to complete their requirements for graduation. The California State Polytechnic has established a plan, effective immediately, and continuing throughout the war period, which will provide the greatest amount of training feasible in the shortest lapse of time. Provision is made for allowing credit for military service.

There is a reduction in the total units of credit required for graduation in every curriculum; there is a 10-week summer quarter to run from June 15 to August 22; and provision is made whereby students whose scholastic record will justify it, may be allowed to enroll in more than the usual number of units.

Of necessity there is some variation between majors as to the amount of time that can be saved but it is possible to shorten the total period from first enrollment to graduation substantially in all majors. Because the changes explained below are designed to meet an emergency situation, the basic unit requirements for graduation explained elsewhere in this circular of information are not changed. Only students who enroll during the war will pursue this changed pattern.

During the emergency period, the graduation requirements are as follows:

- Bachelor of Science Degree------------------194 quarter units
- Technical Certificate-----------------------145 quarter units
- Vocational Certificate-------------------- 97 quarter units

CREDIT FOR MILITARY SERVICE

(a) Nine quarter units of elective credit will be allowed toward graduation to any student submitting evidence of satisfactory completion of 15 weeks of training in the military service of the United States.

(b) 13½ quarter units of elective credit will be allowed toward graduation to any student submitting evidence that the student has received
General Information

PHYSICAL EXAMINATION AND PHYSICAL EDUCATION

With extreme emphasis placed on physical education throughout the Nation during the present conflict, California State Polytechnic has deemed it advisable to set up the following physical education program:

Students will be required to take six quarters of physical education with a minimum of three hours of physical education per week. In addition, every student in the freshman and sophomore years must compete in at least one competitive intramural or intercollegiate sport during a season extending for a minimum of 12 weeks. Students must provide themselves with a gymnasium outfit and rubber soled shoes. Students will be excused from physical education only in the following cases:

1. Completion of two years of physical education in a collegiate institution.
2. Excused by the college physician because of health or physical condition.
3. Taking special corrective exercises prescribed by the college physician.

REGISTRATION PROCEDURE

Each student must make application for admission. This will not be complete unless a transcript of preparatory school records is sent to the registrar, or accompanies the application. Applications for admission made during the registration period may be held up pending the receipt of the transcript.

Upon approval of the application, the student applies to the registrar's office for the necessary instructions, and a list of fees and deposits. All financial obligations must be met before the student is permitted to sign up for class work.

Beginning with the spring quarter of 1940, pictures were taken of all students, to be made a part of their permanent records. All new students entering in the fall quarter of 1941, or old students returning to the college who for any reason were not photographed in the spring quarter, must be photographed to complete their registration.

Various comprehensive examinations will be given to assist the registrar, deans and department heads in classifying the students and in counseling them on curricula and courses. THESE ARE NOT ENTRANCE EXAMINATIONS but are to aid in helping the student select the program to which he is best adapted. In the major field, students will be grouped in sections according to their abilities and past experience, rather than their curricula level.

1. Summer Quarter

Summer Quarter registration for both old and new students is on June 15. All students should be on the campus on this date to consult department heads and make arrangements for rooms in the dormitories. A late registration fee of $2 will be charged all students who fail to register on this date with one exception: Any students attending summer quarter who are from high schools which do not close until after June 15, will be excused from paying the late registration fee. Examinations will be given upon completion of each course at regular intervals during the summer quarter. The summer quarter will end August 22.
2. Fall Quarter

(a) New Students—Registration falls on September 3. All new students should be on the campus on this date to consult the department heads and make arrangements for the physical examination. Examinations for new students will be given September 3, 4 and 5.

(b) Old Students—Should register on Tuesday, September 7. They should make arrangements for the physical examination.

(c) A late registration fee of $2 will be charged all new students who register for the fall quarter after September 3.

A late registration fee of $2 will be charged all old students who register for the fall quarter after September 7.

Registration is not complete until all examinations are taken at the scheduled time; fees and deposits are paid; and the program, directory, report and class cards are made out and handed in. A fee of $2 will be charged all students who have not turned in their cards 10 days after the date on which they register.

3. Winter Quarter

(a) All students will register for the winter quarter November 30, 1942. New students will observe the same regulations as outlined above for the fall quarter. For students who have paid all fees and deposits at the start of the fall quarter no additional charge will be made except the payment of the laboratory and course fee of $5.

(b) A late registration fee of $2 will be collected after November 30.

4. Spring Quarter

(a) For all students registration for the spring quarter will take place March 8, 1943. The same procedure as outlined in the winter quarter will be followed.

(b) A late registration fee of $2 will be collected after March 8.

Further details for registration procedure will be posted at the opening of school.

COLLEGE RATING

Beginning with the fall quarter of 1940-41 California State Polytechnic became a four-year college, with authority to grant Bachelor of Science degrees to students completing the four-year curricula, and to award vocational and technical certificates to students completing the two-year and three-year curricula respectively.

The authority to grant the Bachelor of Science degree was voted by the State Board of Education, whose authority to take such action has been upheld by the Attorney General of the State of California.

California State Polytechnic is thus accredited for the undergraduate training leading to a Bachelor of Science degree, by the sole body authorized by State law to take such action.

The school is not accredited by any college or university association, as to the status of undergraduate courses for acceptance in graduate divisions of any university. No student should enroll at California State Polytechnic with definite plans to continue with graduate work, unless he carefully checks the acceptance of undergraduate credits from Polytechnic at the graduate school of his choice.
General Information

Transfer to Other Institutions

The authority of the California State Polytechnic to grant the Bachelor of Science degree is too recent to permit full determination of the transfer status.

Students who had previously enrolled in the degree-transfer curricula offered were able to receive virtually full credit at a number of State agricultural and mechanics arts' type colleges. The continuance of this relationship has not been established.

In general, it is recommended that students consider very carefully the course they wish to pursue, and to enroll in the institution from which they ultimately desire to be graduated, rather than to transfer after a year or two. This is recommended because the years in which various subjects are offered at California State Polytechnic, and the entire graduation pattern, differ from the undergraduate program at most other schools.

Withdrawal From Courses or From College

Honorable dismissal may be obtained from the college at any time, provided that all financial obligations are met, and that a passing grade is maintained in all subjects at the time of withdrawal.

The student may withdraw from any course, irrespective of the grade, within the first four weeks, without receiving a failing grade. The student may withdraw from any course after four weeks, and if passing in that subject, will not be credited with a failure or incomple- tion but will have his name withdrawn from the rolls as if he had never registered for that course. If a failing grade is recorded, however, at the time of request for withdrawal after four weeks of enrollment, a failing grade will be recorded.

EXPLANATION OF SYMBOLS

The letter prefix indicates the field of study. The first digit indicates the year in which the course normally falls. The last digit indicates the quarter in which the course is normally taught—numbers 1, 4 and 7 indicating fall quarter, 2, 5 and 8 winter quarter, and 3, 6 and 9 spring quarter. Post-graduate courses have as the first digit the number 5, as summer courses for vocational agriculture teachers. Pre-college courses are numbered less than 100, as makeup English and mathematics. Such courses carry no college credit. General undergraduate agriculture courses show the year offered followed by two zeros.
California Polytechnic School

The following symbols show only the base classification, without regard to years in which the courses are taught:

Aeronautics Industries
   Aero 1 to 9—Engine Class
   Aero 10 to 19—Engines Shop
   Aero 20 to 29—Construction Class
   Aero 30 to 30—Construction Shop
   Aero 40 to 49—Drafting Class
   Aero 50 to 59—Drafting Practice
   Aero 60 to 69—Miscellaneous Class
   Aero 70 to 70—Miscellaneous Shop
   Aero 80 to 89—Sheet Metal
   Aero 90 to 99—Design

Agricultural Education
   AgEd 1 to 19—Introduction to Agricultural Education
   AgEd 20 to 90—Post-collegiate Agricultural Education

Agricultural Inspection
   AgInsp 1 to 20—Agricultural Inspection

Agricultural Mechanics
   AgMech 1 to 99—Agricultural Mechanics

Air Conditioning
   AC 1 to 9—Air Conditioning and Refrigeration Theory
   AC 10 to 19—Air Conditioning Shop
   AC 20 to 29—Refrigeration Shop
   AC 30 to 89—Air Conditioning Drafting
   AC 40 to 49—Engineering Practice

Animal Husbandry
   AH 10 to 19—Animal Husbandry
   (Also see Meat Animal Husbandry, Dairy Production, Poultry Husbandry)

Architectural Drafting
   Arch 1 to 9—Architectural Theory
   Arch 10 to 19—Drafting Practice
   Arch 20 to 29—Quantity Survey and Estimating
   Arch 30 to 80—Materials of Construction
   Arch 40 to 49—Codes and Specifications
   Arch 50 to 59—Architectural Mechanics

Biological Science
   BSc 1 to 9—General Biological Sci.
   BSc 10 to 19—Anatomy
   BSc 20 to 29—Bacteriology
   BSc 30 to 39—Botany
   BSc 40 to 49—Entomology
   BSc 50 to 59—Nutrition
   BSc 60 to 69—Physiology
   BSc 70 to 79—Plant Pathology
   BSc 80 to 89—Veterinary Science
   BSc 90 to 99—Zoology and Genetics

Crops Production
   CP 40 to 49—Crops Production

Dairy Manufacturing
   DM 50 to 59—Dairy Manufacturing

Dairy Production
   DP 20 to 29—Dairy Production

Economics
   Econ 1 to 9—General Economics
   Econ 10 to 49—Agricultural Economics
   Econ 50 to 59—Industrial Economics

Electrical Industry
   EI 1 to 9—Theory
   EI 10 to 19—Test Laboratory
   EI 20 to 29—Construction Shop
   EI 30 to 39—Drafting
   EI 40 to 49—Codes
   EI 50 to 59—Power Plant Operation

Electrical Industry—Continued
   EI 60 to 69—Miscellaneous Class
   EI 70 to 79—Design

English
   Eng 1 to 19—Written English
   Eng 20 to 30—Drama
   Eng 51 to 90—Public Speaking

Farm Skills
   FS 1 to 20—Farm Skills

Fruit Production
   FP 60 to 69—Deciduous Fruit Prod.
   FP 70 to 79—General Fruit Prod.
   FP 80 to 89—Subtropical Fruit Prod.
   FP 90 to 99—Citrus Fruit Production

Industrial Arts
   IA 1 to 10—General Carpentry

Journalism
   Jour 1 to 9—News Writing
   Jour 10 to 19—Miscellaneous
   Jour 20 to 29—Technical Writing
   Jour 30 to 39—Journalism Practice

Machine Shop
   MS 1 to 49—Machine Shop

Mathematics
   Math 1 to 9—General Mathematics
   Math 10 to 19—Engineering Math
   Math 20 to 29—Surveying
   Math 30 to 39—General Drafting

Mechanical Engineering
   ME 1 to 9—Mechanics Classes
   ME 10 to 19—Hydraulics
   ME 20 to 29—Thermo-dynamics
   ME 30 to 39—Mechanics of Materials
   ME 40 to 49—Drafting Theory
   ME 50 to 59—Drafting Practice
   ME 60 to 69—Sanitation

Music
   Mu 1 to 9—Band
   Mu 10 to 19—Glee Club
   Mu 20 to 29—Orchestra
   Mu 30 to 39—Music Theory

Ornamental Horticulture
   OH 70 to 79—Ornamental Horticulture

Physical Education
   PE 1 to 9—Physical Education and Athletics

Physical Science
   PSc 1 to 9—General Physical Science
   PSc 10 to 19—Chemistry
   PSc 20 to 29—Geography
   PSc 30 to 39—Physics
   PSc 40 to 49—Strength of Materials
   PSc 50 to 59—Soils

Political Science
   PolSci 50 to 59—Political Science

Psychology
   Psy 1 to 9—Psychology

Poultry Husbandry
   PouL 80 to 90—Poultry Husbandry

Typing
   Typ 1 to 9—Typing

Welding
   Weld 1 to 19—Welding
   Weld 20 to 29—Foundry
THE AGRICULTURAL CURRICULA

The various agricultural curricula are outlined in detail on the following pages. Each curriculum follows a pattern determining the amount and content of required credits in the major and supporting fields.

The Degree Curricula in Agricultural Production

There are two large fields of occupation in agriculture, the field of production, and the field of public service.

In the curricula for students planning to enter the production phases of agriculture, the pattern is as follows:

- Total required for graduation: 200 quarter units
- Core material in selected fields of biological, physical and political science, economics, English and other practical arts and sciences: 90 quarter units
- Agricultural courses: 70 quarter units
- Unrestricted electives: 40 quarter units

In the agricultural courses outlined above, each student must complete 50 quarter units in the major field or specified by the department head, 8 or 9 quarter units of closely related science in addition to the core material, and 12 quarter units of agricultural production in fields other than the major.

The Degree Curricula in Public Service

Students planning to enter various public service fields, such as local, county, state or federal civil service and other positions, agricultural teaching and similar work, may vary the above program as follows:

- Total required for graduation: 200 quarter units
- Core material in selected fields: 90 quarter units
- Agricultural courses: 70 quarter units
- Electives: 40 quarter units

In the agricultural courses, however, the student must complete only 40 quarter units in the major field.

Of the remaining 30 units (making up the 70) 8 or 9 will be in the closely related sciences, leaving 21 or 22 quarter units to be drawn from at least four fields other than the major.

The Technical Curricula

The technical curricula follow a similar basic pattern as follows:

- Total required for graduation: 150 quarter units
- Core material in selected fields of biological, physical and social sciences and practical arts: 56 quarter units
- Agricultural courses in major field: 50 quarter units
- Agricultural courses in other fields: 6 quarter units
- Required related sciences: 8-9 quarter units
- Unrestricted electives: 30 quarter units
The Vocational Curricula

The vocational curricula also have a basic pattern as follows:

- Total required for graduation: 100 quarter units
- Core material in selected fields of biological, physical, and social sciences and practical arts: 47 quarter units
- Agricultural courses: 40 quarter units
- Required related sciences: 6 quarter units
- Unrestricted electives: 7 quarter units

General Agricultural Production Courses

Each graduate in agriculture, particularly in the three-year and four-year curricula, should know some agricultural production in addition to the major field. Each degree student (with minor exceptions) must select 12 quarter units from 24 offered, in general agricultural production courses. Each technical student must select 6 quarter units from the offerings. Vocational students are not required to take any general courses because of the short, intensive period of their enrollment, but any course is open to any student. The offerings are as follows:

- CP 100 Forage Crops, taught in the spring quarter, recommended in the freshman year.
- CP 200 Truck Crops, taught in the winter quarter, recommended in the sophomore year.
- CP 300 Field Crops, taught in the fall quarter, recommended in the junior year.
- FP 400 Fruit Production, taught in the spring quarter, recommended in the senior year.
- Poul 200 Poultry Production, taught in the spring quarter, recommended in the sophomore year.
- MA 300 Meat Animal Production, taught in the fall quarter, recommended in the junior year.
- DP 400 Dairy Production, taught in the winter quarter, recommended in the senior year.
- OH 400 Ornamental Horticulture, taught in the spring quarter, recommended in the senior year.

Curricula and description of courses follow:
CROPS PRODUCTION DEPARTMENT

PAUL DOUGHERTY, Instructor

The function of the crops department is to train students in the field of crop growing both as a specialty and as a part of livestock farming. The crops department is also charged with the supervision of the crops and fruits operation on the California State Polytechnic Farm. It grows a variety of plant material for instructional purposes and carries on a limited number of field tests and trials with a view to improving crop operations on the farm.

Since approximately one-third of agricultural income in California is derived from field and truck crops, this department stands in a position to place major students in an expanding field.

Facilities

The department uses the four hundred acres of crop land and the extensive range and pastures of the Polytechnic Farm as a basis for much of its instruction. The equipment and facilities of the farm are available for the use of students studying crops. Smaller areas are reserved for the study of special crop problems and land is available near the school farm for projects and farming programs built around class instruction. Plantings of deciduous fruits, walnuts, citrus fruits, avocados, and grapes are available to those taking the general fruit course. The department maintains an extensive collection of seeds, grains, soils and herbarium specimens for the use of crop students. Since all field labor on the farm is done by students excellent opportunities are available for practical experience in all farm operations as well as opportunities for students to earn part of their way through school.

Placement Fields

At the present time students are prepared for responsible positions on specialized and general field crop farms as well as for work in related fields such as field work in County Agricultural Conservation associations.

With the growth of the department it is planned to extend the fields of training to include truck crops and other specialized fields.

Note—

Material in bold face required of all students.
Material in light face required in the major field.
Mathematics 1 is a review of arithmetic. It may be passed by examination, or if not passed must be taken without credit.
Units in parenthesis indicate student has choice of quarter in which subject may be taken.
Degree students must select 12 units and technical students 6 units of general agricultural production courses in addition to the major. See page 56 for details.
**California Polytechnic School**

**Degree Curriculum in Crops Production**

### FRESHMAN YEAR

<table>
<thead>
<tr>
<th>Course</th>
<th>F</th>
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</thead>
<tbody>
<tr>
<td>English (Eng 104) (Eng 105) (Eng 106)</td>
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<td>3</td>
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<tr>
<td>Agricultural Mechanics (AgM 101)</td>
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<tr>
<td>Mathematics (Math 1) (Math 102) (Math 103)</td>
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<td>2</td>
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<tr>
<td>Botany (BSc 132) (BSc 133)</td>
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<tr>
<td>Physical Education (PE 101) (PE 102) (PE 103)</td>
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<tr>
<td>Cereal Crops (CP 141)</td>
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<td>Field Crops (CP 142)</td>
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<td>Crops Problems (CP 144) (CP 145) (CP 146)</td>
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<td>Farm Surveying (AgM 121)</td>
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<tr>
<td>Electives</td>
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**Total:** 17 1/2 17 1/2 17 1/2

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**SOPHOMORE YEAR**

<table>
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<th>Course</th>
<th>F</th>
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<tbody>
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**JUNIOR YEAR**

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**Total:** 17 17 17

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1 Recommended but not required.

2 Required additional science.
### Agricultural Curricula

#### SENIOR YEAR

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<td>Contemporary Political Problems (PolSci 452)</td>
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#### Technical Curriculum in Crops Production

#### FRESHMAN YEAR

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#### SOPHOMORE YEAR

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¹ Recommended but not required.
² Required additional science.
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### Vocational Curriculum in Crops Production

#### Freshman Year

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Description of Crops Production Courses

CP 100. General Forage Crops (8)
Two lectures, one laboratory, spring quarter, recommended freshman year. Cultural methods and practices in the field of forage crops, while production costs and diseases are also emphasized. Typical forage, cover pasture, and root crops found in California, are especially emphasized. For students not majoring in crops production. Mr. Dougherty.

CP 141. Cereal Crops (8)
Two lectures, one laboratory, fall quarter, freshman year. A study of the major cereal crops found in California. Soil management, seed selection, cultivation and irrigation practices, rotation, uses, varieties, harvesting methods and cost of production are stressed. Common diseases and pests are also considered. Mr. Dougherty.

CP 142. Field Crops (8)
Two lectures, one laboratory, winter quarter, freshman year. Miscellaneous field crops, including field beans, cotton, sugar beets, potatoes and flax. Soil management, varieties, uses and harvesting methods are included. Production costs, diseases and pests and their control are considered. Mr. Dougherty.

CP 143. Forage Crops (8)
Two lectures, one laboratory, spring quarter, freshman year. Typical forage, irrigated pasture, hay and root crops grown in California. Cultural methods and practices are emphasized, while production costs and diseases are also considered. Harvesting, including silage and hay-making, is studied in the field. The effects of these crops in soil improvement and problems of range and pasture maintenance and improvement are stressed. Mr. Dougherty.

CP 144. Crops Problems (1)
One lecture, fall quarter, freshman year. Current problems in crop production, both in the State and on the California Polytechnic farm. Assignments and reports on seasonal crop operations. Plans and program for the group of crops majors. Mr. Dougherty.

CP 145. Crops Problems (1)
One lecture, winter quarter, freshman year. Extension of CP 144. Mr. Dougherty.

CP 146. Crops Problems (1)
One lecture, spring quarter, freshman year. Extension of CP 145. Mr. Dougherty.

CP 200. General Truck Crops (8)
Two lectures, one laboratory, winter quarter, recommended sophomore year. A study of the major truck crops found in California, their production, packing, growing, and marketing commodities produced. For students not majoring in crops production. Mr. Dougherty.
CP 241. Weeds and Poisonous Plants (3)
Two lectures, one laboratory, fall quarter, sophomore year. A study of common weeds and weed seeds with objective learning to recognize them. Methods of control. Problems of weeds in cultivated crops, pastures, hayfields, roadsides, etc. Poisonous plants and their effects on live stock. Laws regarding weeds, weed seeds and agricultural seeds, pure seeds, their qualities and source of supply. Mr. Dougherty.

CP 242. Truck Crops (3)
Two lectures, one laboratory, winter quarter, sophomore year. Production of general truck crops, packing, growing and marketing commodities produced. Field trips into commercial producing districts. Project required. Season operations studied. Mr. Dougherty.

CP 244. Crops Problems (1)
One lecture, fall quarter, sophomore year. An extension of Crops Problems work taken during the freshman year. Mr. Dougherty.

CP 245. Crops Problems (1)
One lecture, winter quarter, sophomore year.
An extension of CP 244. Mr. Dougherty.

CP 246. Crops Problems (1)
One lecture, spring quarter, sophomore year.
An extension of CP 245. Mr. Dougherty.

*CP 247. Crops Skills (2)
One lecture, one laboratory, fall quarter, sophomore year. A practical course with required hours of practice in the operation of machinery, treatment of seed grains, harvesting operations, planting crops, and preparing seed beds. Mr. Dougherty.

*CP 249. Crops Skills (2)
One lecture, one laboratory, spring quarter, sophomore year. An extension of CP 247 given in the fall quarter. Mr. Dougherty.

CP 300. General Field Crops (3)
Two lectures, one laboratory, fall quarter, recommended junior year. This course includes the miscellaneous study of field crops, including field beans, cotton, sugar beets, potatoes, and flax. Soil management, varieties, uses and harvesting methods; production costs, diseases and pests and their control, are considered. For students not majoring in crops production. Mr. Dougherty.

CP 341. Pest Control (3)
Two lectures, one laboratory, fall quarter, junior year. Methods of combating insect pests, plant diseases, and rodents attacking commercial plants. Sprays, dusts, fumigation and poisoning, as well as cultural and sanitary practices to control pests. Mr. Dougherty.

* Not given 1941-42
Agricultural Curricula

CP 342. Fertilizers and Soil Management
(3)
Two lectures, one laboratory, winter quarter, junior year. Present-day practices in prescribing and supplying commercial fertilizers. Fertilizer plot trials and figuring fertilizer costs. Underlying principles of soil management in relation to irrigation and crop production. Mr. Dougherty

CP 343. Range Management
(3)
Two lectures, one laboratory, spring quarter, junior year. Principles of range management as applied to livestock grazing and conservation. Study of range grasses and means of propagating them. Feeding, breeding and livestock management. Mr. Dougherty and Mr. Bennion.

CP 344. Crops Problems
(1)
One lecture, fall quarter, junior year. An extension of Crops Problems work taken during the sophomore year. Mr. Dougherty.

CP 345. Crops Problems
(1)
One lecture, winter quarter, junior year. An extension of CP 344. Mr. Dougherty.

CP 346. Crops Problems
(1)
One lecture, spring quarter, junior year. An extension of CP 345. Mr. Dougherty.

Description of Courses in Fruit Production
AT SAN LUIS OBISPO ONLY

FP 162. Fruit Production
(3)
Two lectures, one laboratory, winter quarter, freshman year. A study of commercial orchard practices in production and management with the principal California tree fruits as the basis of this course. Pruning, spraying, cover crop growing, grafting, tree-planting and other seasonal operations, principally in the school’s orchard and vineyard for the laboratory work. Mr. Dougherty

FP 400. General Fruit Production
(3)
Two lectures, one laboratory, spring quarter, recommended senior year. Designed for students not majoring in fruit or crops production, who want general information about common orchard practices. Students may substitute FP 162 for this course if they desire. Mr. Dougherty.
The function of the dairy department is to prepare students in the occupational fields of dairy production and dairy manufacturing. The field of dairy production in California is one requiring considerable study because of the wide divergence in production methods in such areas as the Los Angeles milk shed, and nonirrigated pasture range conditions of the north coastal region.

Facilities

The Dairy Production unit includes modern, convenient bull, calf, feed, shelter and milk barns. Use of a share of the 1400-acre school farm, and rental of additional 130 acres for production of feed and pasture.

A. A foundation herd of 25 Guernseys, 40 Jerseys, and 40 Holsteins. All the animals are purebred, outstanding producers, and in several cases they are grand champions in the show rings.

B. Dairy Manufacturing includes in its equipment a laboratory, and the usual market milk equipment such as cooling, washing, sterilizing, and pasteurizing items. Students obtain the majority of their practice in the plants of the two local creameries.

Placement Fields

Men graduated in the various curricula are prepared for one or more of the following fields:

A. Dairy production: cow testing, herdsman, farm manager, public service employment, or dairy farming.

B. Dairy manufacturing: buttermaking, cheese making, ice cream making, handling of market milk, creamery testing, manager of creamery, public service employment.

Note—

Material in bold face required of all students.
Material in light face required in the major field.
Mathematics 1 is a review of arithmetic. It may be passed by examination, or if not passed must be taken without credit.

Units in parenthesis indicate student has choice of quarter in which subject may be taken.
Degree students must select 12 units and technical students 6 units of general agricultural production courses in addition to the major. See page 56 for details.
# Agricultural Curricula

Degree Curriculum in Dairy Production

## Freshman Year

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1 Recommended but not required.
2 Required additional science.
### SENIOR YEAR

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### Technical Curriculum in Dairy Production

#### FRESHMAN YEAR

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#### SOPHOMORE YEAR

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¹Recommended but not required.
²Required additional science.
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| Total | 17 | 17 | 17 |

### Vocational Curriculum in Dairy Production

#### FRESHMAN YEAR

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| Total | 17½| 17½| 17½|

#### SOPHOMORE YEAR

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| Total | 18½| 17½| 17½|

1 Recommended but not required.
2 Required additional science.
Description of Courses in Dairy Production

DP 122. Elements of Dairying (3)
Two lectures, one laboratory, winter quarter, freshman year. A general and elementary course in dairying. The importance of the industry from all standpoints, the composition of all the common dairy products, and the common tests that are in use; a study of separators and milking machines, and a study of the approved general practices in feeding and management of a dairy herd. Mr. Drumm

DP 123. Judging Dairy Cattle (2)
One lecture, one laboratory, spring quarter, freshman year. Training in the selection of dairy cattle, giving due consideration to breed types while emphasizing the relation of form to function. Comparative judging. Mr. Drumm

DP 124. Dairy Problems (1)
One lecture, fall quarter, freshman year. This course affords an opportunity for meetings of all dairy industry students as a body to discuss common problems and current events of the industry; and to organize departmental activities of an educational nature. Mr. Drumm and Mr. Ilg

DP 125. Dairy Problems (1)
One lecture, winter quarter, sophomore year. An extension of DP 124. Mr. Drumm and Mr. Ilg

DP 126. Dairy Problems (1)
One lecture, spring quarter, freshman year. An extension of DP 125. Mr. Drumm and Mr. Ilg

DP 221. Milk Production (3)
Two lectures, one laboratory, fall quarter, sophomore year. Prerequisites: DP 122, DP 123, AH 114. A detailed study of the various factors influencing dairy production both within the cow herself such as size, breed, stage of lactation, etc.; and also those factors involving herd management such as milking, housing, breeding, treatment, etc. Added study of general subjects related to dairy farming. Mr. Drumm

DP 222. History of Breeds (3)
Two lectures, one laboratory, winter quarter, sophomore year. Prerequisites: AH 111, AH 114, DP 122, DP 123, and DP 221. Study of prehistoric cattle and their distribution. The early development, origin, and distribution of modern breeds of cattle. Growth and development of breed associations, their requirements for registration, and method of making such application. Study of the leading families, strains, and individuals of the major dairy breeds. Value of pedigrees in selecting foundation or breeding stock. Mr. Drumm

DP 224. Dairy Problems (1)
One lecture, fall quarter, sophomore year. Same as DP 124, but for sophomore students. Mr. Drumm and Mr. Ilg
Agricultural Curricula

DP 225. Dairy Problems (1)
One lecture, winter quarter, sophomore year. An extension of DP 224.
Mr. Drumm and Mr. Ilg

DP 226. Dairy Problems (1)
One lecture, spring quarter, sophomore year. An extension of DP 225.
Mr. Drumm and Mr. Ilg

DP 326. Dairy Herd Management (4)
Two lectures, one laboratory, one period field work, spring quarter, junior year. Prerequisites: AH 114, DP 221. An advanced study in the feeding of dairy cattle both from the standpoint of commercial dairy conditions and advanced registry test; fitting animals for show and sale, development of a herd; keeping of records; raising calves and heifers, successful purebred stock production, sanitation programs.
Mr. Drumm

DP 400. General Dairy Production (3)
Two lectures, one laboratory, winter quarter, recommended in senior year. A general study of the selection, feeding, breeding and management of dairy cattle; also general information on the dairy industry. Practical methods for the dairy farmer in producing and handling high-quality dairy products, will also be studied.
Mr. Drumm

DP 423. Dairy Seminar (2)
Two lectures, spring quarter, senior year. This course is designed for juniors and seniors only. It consists of a study of current literature on dairy subjects. A study is also made of commercial dairy enterprises, for the purpose of enabling graduates to more easily engage in commercial enterprises or secure positions in other lines of dairy work.
Mr. Drumm

Note—
Material in bold face required of all students.
Material in light face required in the major field.
Mathematics 1 is a review of arithmetic. It may be passed by examination, or if not passed must be taken without credit.
Units in parenthesis indicate student has choice of quarter in which subject may be taken.
Degree students must select 12 units and technical students 6 units of general agricultural production courses in addition to the major. See page 56 for details.
# Degree Curriculum in Dairy Manufacturing

## Freshman Year

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<td>Ice Cream (DM 153)</td>
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| Courses Total | 17½ | 17½ | 20½ |

## Sophomore Year

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| Courses Total | 18½ | 17½ | 18½ |

## Junior Year

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<td>Botany (BSc 132)</td>
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<td>Dairy Bacteriology (BSc 321)</td>
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| Courses Total | 17 | 17 | 17 |

¹Recommended but not required.
²Required additional science.
### Agricultural Curricula

#### SENIOR YEAR

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**Total:** 17F 18W 19S

#### Technical Curriculum in Dairy Manufacturing

#### FRESHMAN YEAR

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**Total:** 17F 17W 17S

#### SOPHOMORE YEAR

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**Total:** 17F 17W 17S

1 Recommended but not required.
### JUNIOR YEAR

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### Vocational Curriculum in Dairy Manufacturing

#### FRESHMAN YEAR

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#### SOPHOMORE YEAR

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*Recommended but not required*
Agricultural Curricula

Description of Courses in Dairy Manufacturing

DM 151. Buttermaking (3)
Two lectures, one laboratory, fall quarter, freshman year. Principles of creamery buttermaking, construction and care of creameries and equipment, methods of sampling and grading cream, pasteurization, cream ripening. Mr. Ilg

DM 152. Buttermaking (3)
Two lectures and one laboratory, winter quarter, freshman year. A continuation of DM 151, with more time devoted to creamery and commercial plant practices; creamery accounting. Mr. Ilg

DM 153. Ice Cream (4)
Two lectures, two laboratories, spring quarter, freshman year. A study of the science and practice of the commercial manufacture of ice cream and ices. Mr. Ilg

DM 156. Market Milk Production (3)
Two lectures, one laboratory, spring quarter, freshman year. Classes of market milk; equipment and methods of producing high quality milk; means of determining quality of market milk; relationship and means of improving it to mutual advantage of producers, processors, distributors and consumers. Milk plants including their equipment and method of receiving, processing, and marketing the product. Mr. Ilg

DM 252. Cheesemaking (4)
Two lectures, two laboratories, winter quarter, sophomore year. Manufacture of the more common varieties of cheeses. Mr. Ilg

DM 253. Factory Practices (5)
Three lectures, two laboratories, spring quarter, sophomore year. Further experience in operating the school milk plant, along with the factory experience in a local commercial plant. Mr. Ilg

DM 255. Dairy Products Judging (2)
One lecture, one laboratory, winter quarter, sophomore year. Practice in score card grading of butter, cheese, ice cream and market milk. Mr. Ilg

DM 351. Creamery Management (2)
Two lectures, fall quarter, junior year. A course of advanced nature on creamery management. Mr. Ilg

DM 352. Creamery Management (2)
Two lectures, winter quarter, junior year. A continuation of DM 351. Mr. Ilg

DM 353. Creamery Management (2)
Two lectures, spring quarter, junior year. A continuation of DM 352. Mr. Ilg

DM 356. Dairy Inspection (3)
Two lectures, one laboratory, spring quarter, junior year. Advanced testing of dairy products, practice in the use of score cards for inspecting and grading milk plants, farm dairies and creameries; outlining city and State ordinances for dairy products; training in the duties of city, State, and government inspectors. Mr. Ilg
The Meat Animal Department seeks:

1. To train students for the occupation of farming where beef cattle, sheep or swine production is practiced to utilize farm grown crops.
2. To train students for technical positions in the livestock industry.
3. To train students for professional positions in agriculture dealing with meat animals, teaching, Federal and State positions.

The meat animals phase of the livestock industry in California accounted for some $80,000,000 in farm income in 1940. A large proportion of land in California is utilized by meat animals and a large share of crops grown are consumed by meat animals.

The industry provides employment for a considerable number of trained young men. A large number of young men are following the occupation of live stock farming and are attending California Polytechnic for additional training in their field of occupation.

Facilities

1. Live Stock. Breeding herd of approximately 80 beef cows; breeding flock of approximately 150 registered ewes; breeding herd of approximately 75 brood sows.

2. Building. Beef breeding barn and steer shed plus feed lots, to accommodate approximately 250 head of steers throughout the year.

   Swine—Barn and houses and lots to accommodate 75 brood sows and approximately 500 fat hogs marketed throughout the year.

   Sheep—Barns and feeding shed to accommodate breeding flock plus approximately 400 fat lambs per year.

   Approximately 350 acres of pasture land is available for beef cattle and sheep. The farm furnishes the hay and silage amounting to approximately 170 tons of silage and 250 tons of hay per year.

   Over $20,000 worth of live stock are marketed each year by students in the Meat Animal Department at California Polytechnic. From $4,000 to $5,000 worth of live stock is purchased each year for student projects in addition to the number produced from our own breeding herds.

Placement Fields: Fields for which students are trained:

2. Beef, sheep and swine herdsman.
3. Ranch managers.
5. Feed lot operators or managers.
7. Agriculture teachers—Federal or State positions.
### Agricultural Curricula

**Note**

Material in bold face required of all students.
Material in light face required in the major field.
Mathematics I is a review of arithmetic. It may be passed by examination, or if not passed must be taken without credit.
Units in parenthesis indicate student has choice of quarter in which subject may be taken.
Degree students must select 12 units and technical students 6 units of general agricultural production courses in addition to the major. See page 56 for details.

#### Degree Curriculum in Meat Animal Husbandry

**Freshman Year**

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**Sophomore Year**

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1 Recommended but not required.
2 Required additional science.
California Polytechnic School

**JUNIOR YEAR**

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| Total | 17 | 20 | 17 |

* **SENIOR YEAR**

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| Total | 17 | 17 | 17 |

**Technical Curriculum in Meat Animal Husbandry**

**FRESHMAN YEAR**

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| Total | 17½ | 17½ | 17½ |

1 Recommended but not required.
### SOPHOMORE YEAR

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**Total:** 18½ 17½ 17½

### JUNIOR YEAR

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**Total:** 17 17 17

¹Recommended but not required.
²Required additional science.
Vocational Curriculum in Meat Animal Husbandry

**FRESHMAN YEAR**

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| Total | 17½ | 17½ | 17½ |

**Sophomore Year**

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| Total | 18½ | 18½ | 17½ |

1 Recommended but not required.
Agricultural Curricula

Description of Courses in Meat Animal Husbandry

MA 132. Market Classes of Live Stock (3)
Two lectures, one laboratory, winter quarter, freshman year. Swine, sheep and beef cattle, study of types, market classes, carcases, live stock markets, packing industries, packing house by-products, commercial live stock production. Practice in selecting feeder and fat stock.
Mr. Jewett

MA 133. Live Stock Judging (3)
Two lectures, one laboratory, spring quarter, freshman year. Relating form to function of the various kinds of live stock. Continuation of fall and winter courses in the study of market and breed types and practice in judging groups representing the various types, market classes, and breeds of cattle, sheep, hogs, and horses. Comparative judging.
Mr. Jewett

MA 134. Live Stock Problems (1)
One laboratory, fall quarter, freshman year. A course in which problems arising in project work are discussed, including such topics as financing, feeding, and general management of the individual project and herd.
Mr. Bennion, Mr. Collins and Mr. Jewett

MA 135. Live Stock Problems (1)
One laboratory, winter quarter, freshman year. A continuation of MA 134.
Mr. Bennion, Mr. Collins and Mr. Jewett

MA 136. Live Stock Problems (1)
One laboratory, spring quarter, freshman year. A continuation of MA 135.
Mr. Bennion, Mr. Collins and Mr. Jewett

MA 231. Market Beef Production (2)
Two lectures, fall quarter, sophomore year. The market production of beef to meet present wholesale and retail demands, with particular emphasis on the beef project work of the student.
Mr. Bennion

MA 232. Market Swine Production (2)
Two lectures, winter quarter, sophomore year. Market production of swine to meet present consumer demands, with particular application to hog project work of student.
Mr. Jewett

MA 233. Market Sheep Production (2)
Two lectures, spring quarter, sophomore year. A study of the present market demands for sheep and lambs, with special emphasis on the sheep project work of the student.
Mr. Collins

MA 234. Live Stock Problems (1)
One laboratory, fall quarter, sophomore year. Problems of practical nature on feeding, breeding and management of project and State herd animals.
Mr. Parker

MA 235. Live Stock Problems (1)
One laboratory, winter quarter, sophomore year. A continuation of MA 234.
Mr. Parker
MA 236. Live Stock Problems (1)
One laboratory, spring quarter, sophomore year. A continuation of MA 235.  Mr. Parker

MA 237. Meat Cuts (2)
One lecture, one laboratory, fall or winter or spring quarter, sophomore year. A study of meat quality from producer's and buyer's standpoint as influenced by proper feeding, breeding and management; killing and dressing of live stock, cutting and curing of meats, sanitation and inspection of slaughter houses (abattoirs); packing houses and retail markets. To be repeated each quarter. Sections to be limited to 15 students.  Mr. Parker

MA 300. General Meat Animal Production (3)
Two lectures, one laboratory, fall quarter, junior year. A general course in beef cattle, sheep, swine and horse husbandry, covering breeds, feeds and feeding, and management. For students not majoring in meat animals.  Mr. Parker

MA 323. Live Stock Seminar (1)
One lecture, spring quarter; open to junior or senior meat animal students. A general discussion of contemporary problems affecting live stock industry. Study of live stock journals, bulletins and other publications of the industry.  Mr. Parker

MA 331. Swine Husbandry (3)
Two lectures, one laboratory, fall quarter, junior year. Methods of pork production. Breeds, breeding, selection of breeding stock and feeder pigs, feeding, care and management of swine. Special study of the economic phases of the various swine enterprises.  Mr. Jewett

MA 332. Sheep Husbandry (3)
Two lectures, one laboratory, winter quarter, junior year. Methods of lamb production. Breeds, breeding, selection of breeding and feeder stock; feeding, care and management of sheep. Grades and types of wool and wool marketing. Special study of economic phases of the sheep industry.  Mr. Jewett

MA 333. Beef Husbandry (3)
Two lectures, one laboratory, spring quarter, junior year. Methods of producing purebred and commercial beef cattle. Selection of foundation stock, breeding, feeding, care and management of the herd. Special study of economic phases of the beef cattle industry.  Mr. Jewett

MA 334. Live Stock Problems (1)
One laboratory, fall quarter, junior year. Advanced live stock problems in connection with the student projects and the farm flocks and herds.  Mr. Parker

MA 335. Live Stock Problems (1)
One laboratory, winter quarter, junior year. An extension of MA 334.  Mr. Parker
MA 336. Live Stock Problems (1)
One laboratory, spring quarter, junior year. An extension of MA 335. Mr. Parker

MA 337. Live Stock Problems (2)
One lecture, one laboratory, fall quarter, junior year, for technical majors. Comparable with MA 334. Mr. Parker

MA 338. Live Stock Problems (2)
One lecture, one laboratory, winter quarter; sophomore year for vocational majors, junior year for technical majors. An extension of MA 337. Mr. Parker

MA 339. Live Stock Problems (2)
One lecture, one laboratory, spring quarter; sophomore year for vocational majors, junior year for technical majors. An extension of MA 338. Mr. Parker

MA 434. Live Stock Problems (1)
One laboratory, fall quarter, senior year. Advanced practice and discussion in live stock problems, with particular reference to herd management. Mr. Bennion

MA 435. Live Stock Problems (1)
One laboratory, winter quarter, senior year. A continuation of MA 434. Mr. Bennion

MA 436. Live Stock Problems (1)
One laboratory, spring quarter, senior year. A continuation of MA 435. Mr. Bennion
ORNAMENTAL HORTICULTURE DEPARTMENT

Wilbur B. Howes, Instructor

Ornamental Horticulture is taught both at San Dimas and San Luis Obispo. At San Dimas, students may take the first two years of the degree program, transferring to San Luis Obispo for the last two years; or may enroll in the technical program taken entirely at San Dimas. At San Luis Obispo, the student may take either the vocational, or the degree course. Students wanting three years of work leading to the technical certificate, should enroll at San Dimas.

The functions of the department are to teach subjects related to ornamental horticulture, a list of which is given in the catalog, and courses in landscape gardening which are chiefly taught by maintenance of the campus and grounds.

Facilities

The facilities of the department are a large propagation house, two lath houses covering approximately 3,000 square feet, and approximately 1,800 square feet of glass house surface. Other equipment includes necessary tractors, both large and small, all of the necessary hand equipment and approximately two acres of growing ground for the nursery. The campus and grounds are used as a laboratory to the extent of 85 acres, and all the necessary equipment for maintenance of such a large area is provided.

Placement Fields

Students are prepared for work in any type of nursery work such as glass house, cut flowers, general nursery work, and teaching of ornamental horticulture. Positions now held by graduates of this department who are in the nursery industry include nursery salesmen, propagators, nursery superintendent, construction in connection with landscape service, the head of a nursery shipping department, and several owners of independent nurseries. Another field is in civil service positions, particularly in landscape maintenance, the classification of maintenance gardener, another classification called institute gardener, another classification known as highway and shade tree maintenance.

Note—

Material in bold face required of all students.
Material in light face required in the major field.
Mathematics 1 is a review of arithmetic. It may be passed by examination, or if not passed must be taken without credit.
Units in parenthesis indicate student has choice of quarter in which subject may be taken.
Degree students must select 12 units and technical students 6 units of general agricultural production courses in addition to the major. See page 56 for details.
### FRESHMAN YEAR

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### SOPHOMORE YEAR

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\(^1\) Recommended but not required.
### SENIOR YEAR

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### Technical Curriculum in Ornamental Horticulture at San Luis Obispo

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### SOPHOMORE YEAR

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### Vocational Curriculum in Ornamental Horticulture at San Luis Obispo

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*Recommended but not required.*
OH 171. Nursery Practice  (2)
One lecture, one laboratory, fall quarter, freshman year. General seasonal nursery work by lecture and practice. The work will consist of planting seedlings, potting, and transplanting. Mr. Howes

OH 172. Nursery Practice  (2)
One lecture, one laboratory, winter quarter, freshman year. Seasonal work with special emphasis on planting and balling out, and transplanting of trees and shrubs. Mr. Howes

OH 173. Nursery Practice  (2)
One lecture, one laboratory, spring quarter, freshman year. Seasonal work with special emphasis on planting of annual and perennial flowering plants, their irrigation and fertilizing. Mr. Howes

OH 174. Plant Materials  (2)
Two lectures, fall quarter, freshman year. The identification and characteristics of broadleaf evergreen trees and shrubs used in landscape work. Mr. Howes

OH 175. Plant Materials  (2)
Two lectures, winter quarter, freshman year. A continuation of fall quarter. Mr. Howes

OH 176. Plant Materials  (2)
Two lectures, spring quarter, freshman year. A continuation of winter quarter. Mr. Howes

OH 177. Landscape Problems  (1)
One lecture, fall quarter, freshman year. Current problems in nursery work and production both in the State and on the California Polytechnic farm and campus. Plans and program for the Ornamental Horticulture department. Mr. Howes

OH 178. Landscape Problems  (1)
One lecture, winter quarter, freshman year. Extension of OH 177. Mr. Howes

OH 179. Landscape Problems  (1)
One lecture, spring quarter, freshman year. Extension of OH 178. Mr. Howes

OH 181. Plant Propagation  (3)
Two lectures, one laboratory, fall quarter, freshman year. Principles of sexual and asexual propagation. Gathering and storing of seeds, fall budding, and general propagation by cuttings. Mr. Howes

OH 182. Plant Propagation  (3)
Two lectures, one laboratory, winter quarter, freshman year. Grafting of evergreen and deciduous plant material, making of hardwood cuttings. Mr. Howes
Agricultural Curricula

OH 183. Plant Propagation (3)
Two lectures, one laboratory, spring quarter, freshman year. Propagation by seed, with special emphasis on glass house plants. Spring budding and grafting. The growing of ornamentals from cuttings.
Mr. Howes

OH 271. Nursery Practice (2)
One lecture, one laboratory, sophomore year, fall quarter. Handling of nursery soils and fertilizers, irrigation and general lath house and green house management.
Mr. Howes

OH 272. Nursery Practice (2)
One lecture, one laboratory, winter quarter, sophomore year. Design and construction of propagating frames, plant shelters and lath houses. General nursery management.
Mr. Howes

OH 273. Nursery Practice (2)
One lecture, one laboratory, spring quarter, sophomore year. The construction and management of glass houses, the growing of glass house plants and handling of lining out stock.
Mr. Howes

OH 274. Plant Materials (2)
Two lectures, fall quarter, sophomore year. The identification and characteristics of annual and herbaceous perennial flowering plants and their uses in landscape work.
Mr. Howes

OH 275. Plant Materials (2)
Two lectures, winter quarter, sophomore year. A continuation of the fall quarter.
Mr. Howes

OH 276. Plant Materials (2)
Two lectures, spring quarter, sophomore year. The identification and characteristics of woody perennials for use in the herbaceous border including rock garden and alpine plants.
Mr. Howes

OH 277. Landscape Problems (1)
One lecture, fall quarter, sophomore year. An extension of Landscape Problems taken during freshman year.
Mr. Howes

OH 278. Landscape Problems (1)
One lecture, winter quarter, sophomore year. Extension of OH 277.
Mr. Howes

OH 279. Landscape Problems (1)
One lecture, spring quarter, sophomore year. Extension of OH 278.
Mr. Howes

OH 371. Nursery Practice (2)
One lecture, one laboratory, fall quarter, junior year. The design and layout of the modern nursery with special emphasis on the growing of ornamentals.
Mr. Howes

OH 372. Nursery Practice (2)
One lecture, one laboratory, winter quarter, junior year. The handling of nursery stock, nursery sales and management.
Mr. Howes
OH 373. Nursery Practice (2)
One lecture, one laboratory, spring quarter, junior year. A continuation of the winter quarter. Mr. Howes

OH 374. Plant Material (2)
Two lectures, fall quarter, junior year. The identification of trees and shrubs used in landscape work with special emphasis on their place in landscape design. Mr. Howes

OH 375. Plant Material (2)
Two lectures, winter quarter, junior year. The identification and characteristics of some of the common coniferous plants used in landscape work. Mr. Howes

OH 376. Plant Material (2)
Two lectures, spring quarter, junior year. The identification and characteristics of the more common deciduous trees and shrubs used in landscape work. Mr. Howes

OH 377. Landscape Problems (1)
One lecture, fall quarter, junior year. An extension of Landscape Problems taken during sophomore year. Mr. Howes

OH 378. Landscape Problems (1)
One lecture, winter quarter, junior year. Extension of OH 377. Mr. Howes

OH 379. Landscape Problems (1)
One lecture, spring quarter, junior year. Extension of OH 378. Mr. Howes

OH 471. Nursery Practice (2)
One lecture, one laboratory, fall quarter, senior year. A study of various nursery types, including wholesale and retail selling. Mr. Howes

OH 472. Nursery Practice (2)
One lecture, one laboratory, winter quarter, senior year. A continuation of the fall quarter. Mr. Howes

OH 473. Nursery Practice (2)
One lecture, one laboratory, spring quarter, senior year. A study of nursery and quarantine laws for both state and United States. Mr. Howes
The purpose of the poultry program is to give young men actual training and experience in the skills needed to successfully operate a poultry ranch, hatchery, service organization or marketing establishment. The projects and laboratory skills are supplemented with courses in poultry husbandry to give the student the necessary fundamental knowledge and information to reason and work out all problems apt to confront him in commercial endeavor. Courses such as Poultry Feeds and Feeding supplement the student's experience with basic information on preparing economical feeds, the nutritional deficiencies and effects of various feeds on the product produced.

California ranks as the fourth leading State in the country in poultry production. Records show that more than two of every three farms in California keep poultry. Poultry is the second most important live stock enterprise in California from the standpoint of wealth produced. Each year turkey production has become of greater importance so that now California produces more value of turkey products than any other State.

California ranks high in the hatchery industry with a total incubator capacity of about 18,000,000 eggs. To maintain efficient production the hatcherymen insist and must carry on scientific breeding and flock supervision which requires men of technical training.

Facilities

The school plant has facilities for 2,500 laying hens in projects, and broods about 6,000 chicks each season. In addition to the Leghorn laying flock the plant maintains 500 Barred Rock breeders, two pens of Rhode Island Reds and a broad-breasted Bronze turkey breeding flock. Each year the students raise and market about 500 turkeys. Supplementing the laying and brooding projects is the 12,000-egg modern hatchery, battery brooders and a detailed pedigree breeding program. All common commercial makes and types of equipment are maintained including a modern poultry dressing plant. The new specially designed egg sales and candling building is equipped with 14 candling lights for class work in marketing eggs. It is also equipped with a sales room, storage room and office.

Placement Fields

A large number of the graduates in Poultry Husbandry return home to their poultry plants or start in business for themselves after graduation. Each year a greater number of requests are received for graduates as sales and service men for feed and supply companies. Other requests are for technically trained men to take over or develop a branch in a hatchery, or to do pedigree work for breeders or to operate commercial ranches on a partnership basis. Each year there are several positions open for turkey flock managers or broodermen. In an industry of this size there are always positions open in marketing and distributing poultry products. The technically trained poultryman has the fundamental knowledge and skills necessary to make rapid progress and progresses rapidly in foreman and superintendent positions.
Students completing the degree curricula will find many positions open for laboratory assistants, teaching positions and marketing specialists, poultry improvement program inspectors, market product inspectors as well as commercial fields of endeavor.

Vote—

Material in bold face required of all students.
Material in light face required in the major field.
Mathematics 1 is a review of arithmetic. It may be passed by examination, or if not passed must be taken without credit.
Units in parenthesis indicate student has choice of quarter in which subject may be taken.
Degree students must select 12 units and technical students 6 units of general agricultural production courses in addition to the major. See page 56 for details.
Six units of poultry problems are required for the technical certificate.

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<thead>
<tr>
<th>Degree Curriculum in Poultry Husbandry</th>
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<tbody>
<tr>
<td><strong>FRESHMAN YEAR</strong></td>
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<tr>
<td><strong>English</strong> (Eng 104) (Eng 105) (Eng 106)</td>
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<td><strong>Agricultural Mechanics</strong> (AgM 101) (AgM 102) (AgM 103)</td>
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<td><strong>Chemical Science</strong> (PSci 111)</td>
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<td><strong>Poultry Brooding</strong> (Poul 182)</td>
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<td><strong>Poultry Feeding</strong> (Poul 183)</td>
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<th><strong>SOPHOMORE YEAR</strong></th>
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<td><strong>Poultry Problems</strong> (Poul 284) (Poul 285) (Poul 286)</td>
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<td><strong>Poultry Parasites and Diseases</strong> (Poul 287)</td>
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<td><strong>Incubation</strong> (Poul 289)</td>
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<td><strong>Farm Carpentry</strong> (AgM 204) (AgM 205) (AgM 206)</td>
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1 Recommended but not required.
2 Required additional science.
## Agricultural Curricula 91

### JUNIOR YEAR

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### SENIOR YEAR

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### Technical Curriculum in Poultry Husbandry

#### FRESHMAN YEAR

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1 Recommended but not required.
2 Students must select six units.
## Sophomore Year

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<td>Agricultural Prices (Econ 216)</td>
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## Junior Year

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<td>Family Relations (Psy 403)</td>
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<tr>
<td>Poultry Breeding (Poul 381)</td>
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<tr>
<td>Poultry Anatomy and Diseases (Poul 382)</td>
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<td>Genetics (BSc 394)</td>
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## Vocational Curriculum in Poultry Husbandry

## Freshman Year

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1 Recommended but not required.
### Agricultural Curricula

#### SOPHOMORE YEAR

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### Description of Courses in Poultry Husbandry

#### Poul 181. Poultry Breeds and Judging

Three lectures, one laboratory, fall quarter, freshman year. A general study in the scope and place of the poultry industry as it applies to agriculture. A study of poultry organizations and publications as well as opportunities in the industry. A study of poultry breeds and their selection for commercial purposes. Judging for utility and exhibition type. Mr. Leach

#### Poul 182. Poultry Brooding

Three lectures, one laboratory, winter quarter, freshman year. A study of brooding equipment, brooding principles and practices, and the care and feeding of chicks and growing stock. Diagnosis, prevention and control of chick diseases and vices. A study of how to select and secure stock for commercial purposes. Mr. Leach

#### Poul 183. Poultry Feeding

Three lectures, one laboratory, spring quarter, freshman year. A study of poultry feeds and feeding principles, and their effects on the birds. Technique of feeding birds economically for egg-production, growth and fattening. Nutritional diseases and deficiencies are discussed. The manufacturing of feeds and constructing of formulae for specific purposes. The fundamentals of metabolism and digestion of the fowl. Prerequisite, Elements of Feeding. Mr. Leach

#### Poul 184. Poultry Problems

Hours to be arranged, fall quarter, freshman year. A project course. Mr. Leach

#### Poul 185. Poultry Problems

Hours to be arranged, winter quarter, freshman year. A project course. Mr. Leach

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1 Recommended but not required.
Poul 186. Poultry Problems (1)
Hours to be arranged, spring quarter, freshman year. A project course.
Mr. Leach

Poul 200. General Poultry Production (3)
Two lectures, one laboratory, spring quarter, recommended sophomore year. For students not majoring in poultry. A general course, including problems of selection of stock, brooding, housing and feeding. Some work is given in judging and marketing of poultry products, as well as a general understanding of the importance of poultry in California agriculture.
Mr. Leach

Poul 281. Poultry Selecting and Culling (2)
One lecture, one laboratory, fall quarter, sophomore year. Biological and environmental factors that affect the number, size and quality of eggs produced. A study of the causes of culls and culling practices in the commercial poultry plants. Practices and skill in grading and culling.
Mr. Leach

Poul 282. Poultry Products (4)
Mr. Leach

Poul 283. Poultry Housing (2)
One lecture, one laboratory, spring quarter, sophomore year. A study of types and principles of poultry housing. Principles of ventilation, construction and design. Construction, organization and types of equipment in poultry housing to meet commercial needs. Planning and organizing the building arrangement of the poultry plant.
Mr. Leach

Poul 284. Poultry Problems (1)
Hours to be arranged, fall quarter, sophomore year. A project course.
Mr. Leach

Poul 285. Poultry Problems (1)
Hours to be arranged, winter quarter, sophomore year. A project course.
Mr. Leach

Poul 286. Poultry Problems (1)
Hours to be arranged, spring quarter, sophomore year. A project course.
Mr. Leach

Poul 287. Poultry Parasites and Diseases (2)
One lecture, one laboratory, fall quarter, sophomore year. A study of changes to the bird, and economic importance of some of the common poultry parasites and diseases. Pathologic changes due to disease attack, are discussed.
Mr. Leach

Poul 288. Hatchery Practice (1)
Laboratory practice, winter and spring quarters, sophomore year. A seminar course for poultry majors in hatchery practice, incubator operation, grading and sorting chicks, hatchery sanitation, wing banding and pedigreeing chicks.
Mr. Leach
Agricultural Curricula

Poul 289. Poultry Incubation (2)

One lecture, one laboratory, spring quarter, sophomore year. Fundamental study of embryology and metabolism of the developing embryo. Principles and practices in artificial incubation and environmental factors affecting the hatch. Selection, care and operation of commercial incubators. Selection and care of hatching eggs. Mr. Leach

Poul 381. Poultry Breeding (4)

Three lectures, one laboratory, fall quarter, junior year. Fundamental factors of genetics as applied to problems of poultry breeding. A study of hereditary factors as they apply to developing a strain of birds for commercial egg production. A study of sib-testing, progeny testing, experimental mating and pedigree. A study and practice in pedigree and flock mating for commercial purposes. Mr. Leach

Poul 382. Poultry Anatomy and Diseases (4)

Three lectures, one laboratory, winter quarter, junior year. A study of the causes, pathology, prevention and control of poultry diseases of economic importance in California. A study of life cycles and control of poultry parasites. Sanitation practices on the farm. Special emphasis is placed on reproductive, circulatory, respiratory and digestive organs and their functions. Mr. Leach

Poul 383. Poultry Plant Management (3)

Two lectures, one laboratory, spring quarter, junior year. A study of the general coordination of the commercial poultry plant for most economic operation. Discussion and practice work in such operations as incubation, brooding, care of laying stock, disease control, pullorum testing, vaccination, culling and marketing. Mr. Leach

Poul 481. Turkey Production (3)

Two lectures, one laboratory, fall quarter, senior year. (Time arranged.) Brooding, rearing, fattening, and marketing turkeys under commercial California conditions. Turkey breeds, breeding and judging. Feeding, housing, and control of turkey diseases. Prerequisite, Poultry Breeding. Mr. Leach

Poul 482. Advanced Poultry Plant Management (3)

Two lectures, one laboratory, winter quarter, senior year. (Time arranged.) A study of the general organization and coordination of the commercial poultry plant. Open only to students who have demonstrated superior ability in prerequisite courses. This course requires supervised commercial practice or equivalent. Outlining and planning the operation of a poultry plant including budgets, record keeping system, replacing the laying stock and marketing. Prerequisites, all previous major poultry courses. Mr. Leach

Poul 483. Hatchery Management (3)

Two lectures, one laboratory, spring quarter, senior year. A seminar course open only to students who have demonstrated superior ability in prerequisite work. A study of the modern hatchery operations, care of incubators, and baby chicks. A study of hatchery sales, and service work to poultrymen. Organization and production of a hatchery catalog. Practice work in commercial hatcheries with various makes of commercial equipment required. Prerequisites, all previous major poultry courses. Mr. Leach
AGRICULTURAL MECHANICS DEPARTMENT

A. H. HOLLENBERG, Senior Instructor
JAS. F. MERSON, Instructor
C. PAUL WINNER, Instructor

This department is maintained:

a. To train men majoring in the fields of Meat Animal Husbandry, Dairy Industry, Poultry Husbandry, Ornamental Horticulture, and Crops Production to design, operate, construct, and repair equipment and machinery necessary in their fields of agriculture.

b. To train men majoring in the specific field of Farm Mechanics for positions pertaining to the mechanical side of farming.

Facilities

a. Agricultural Mechanics building, 50 x 100.
b. Farm Machinery building, 24 x 150.
c. Tractors, farm machinery, pumps, engines, and tools.

Fields of Employment

Maintenance man on farm, farm owner, tractor operator, farm machinery salesman, service man, and farm layout specialist. Present indications show that there are more jobs open than there are qualified men to fill them in the field of Agricultural Mechanics.

Note—

Material in bold face required of all students.
Material in light face required in the major field.
Mathematics 1 is a review of arithmetic. It may be passed by examination, or if not passed must be taken without credit.
Units in parenthesis indicate student has choice of quarter in which subject may be taken.
No degree curriculum offered in the Agricultural Mechanics department.

Technical Curriculum in Agricultural Mechanics

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<th>FRESHMAN YEAR</th>
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SOPHOMORE YEAR

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<td>Soils (PSc 251)</td>
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JUNIOR YEAR

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<td>Farm Electrical Wiring (AgM 304)</td>
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Vocational Curriculum in Agricultural Mechanics

FRESHMAN YEAR

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1 Recommended but not required.
2 Required additional science.

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### SOPHOMORE YEAR

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**Description of Courses in Agricultural Mechanics**

**AgM 101. Agricultural Mechanics**  
One lecture, one laboratory, fall quarter, freshman year. Students should register for this course as "Dairy Mechanics," "Poultry Mechanics," etc., according to their major field. Work in each section deals with the design, repair and construction of equipment common to that major field, and to general diversified farming.

Mr. Hollenberg and Mr. Merson

**AgM 102. Agricultural Mechanics**  
One lecture, one laboratory, winter quarter, freshman year. A continuation of AgM 101.

Mr. Merson

**AgM 103. Agricultural Mechanics**  
One lecture, one laboratory, spring quarter, freshman year. A continuation of AgM 102.

Mr. Merson

**AgM 104. Farm Structures**  
One lecture, one laboratory, fall quarter, freshman year. This course deals with the fundamentals of mechanical drawing, lettering and blue-printing, and plan reading as applied to the design of farm structures and equipment.

Mr. Winner

**AgM 105. Farm Structures**  
One lecture, one laboratory, winter quarter, freshman year. A study of various farm structures and equipment. Designing, planning and making blue-prints of various feeding and watering devices, as well as other farm structures.

Mr. Winner

**AgM 106. Farm Structures**  
One lecture, one laboratory, spring quarter, freshman year. The planning of farmstead layouts, including fields, buildings, pens and corrals, in relation to each other and to the rest of the farm. Individual students make their layouts according to their enterprise major.

Mr. Winner
AgM 121. Farm Surveying
One lecture, one laboratory, fall or spring quarter, freshman year. This course entails the fundamentals of farm surveying as related to irrigation and soil conservation. Mr. Winner

AgM 201. Farm Machinery
One lecture, one laboratory, full quarter, sophomore year. The study of tillage, planting and cultivation implements. Demonstrations and laboratory work. The different types of agricultural implements in this field are studied, with their care, repair, and adjustment. Mr. Hollenberg

AgM 202. Farm Machinery
One lecture, one laboratory, winter quarter, sophomore year. Continuation of AgM 201. Mr. Hollenberg

AgM 203. Farm Machinery
One lecture, one laboratory, spring quarter, sophomore year. The study of harvesting equipment, comprising mowing machines, rakes, loading and threshing equipment. Students will repair, adjust and care for these devices. Mr. Hollenberg

AgM 204. Farm Carpentry
One lecture, one laboratory, fall quarter, sophomore year. This course fits the needs of a student in any major field. The work covers the building of appliances and buildings as they are related to each enterprise. The proper use of carpentry tools is taught in their relation to agriculture. Mr. Hollenberg

AgM 205. Farm Carpentry
One lecture, one laboratory, winter quarter, sophomore year. This course takes up the construction of farm buildings. Small structures for poultry and swine are actually built. The study includes foundations, materials and requirements for the agricultural industry. Mr. Hollenberg

AgM 206. Farm Carpentry
One lecture, one laboratory, spring quarter, sophomore year. A continuation of AgM 205. Mr. Hollenberg

AgM 207. Farm Power
One lecture, one laboratory, fall quarter, sophomore year. The fundamental principles of the internal combustion engine and its relation to farm power. Laboratory practice consists primarily of troubleshooting, servicing and adjusting various types of gasoline engines. Mr. Merson

AgM 208. Farm Power
One lecture, one laboratory, winter quarter, sophomore year. Tractor and belt-driven equipment are studied, overhauling and repairing various types of engines and tractors which are used on the farm. Prerequisite: AgM 207. Mr. Merson
AgM 209. Farm Power (2)
One lecture, one laboratory, spring quarter, sophomore year. A study of the Diesel engine and its various uses in agriculture. Laboratory practice consists of trouble-shooting, servicing and adjusting various types of Diesel tractors. Prerequisites: AgM 207, AgM 208.
Mr. Merson

AgM 301. Irrigation (2)
One lecture, one laboratory, fall quarter, junior year. Water measurement as it applies to the farmer. Water supply, wells, casings, types of irrigation, as related to California.
Mr. Hollenberg

AgM 302. Irrigation (2)
One lecture, one laboratory, winter quarter, junior year. Different types of irrigation systems, penetration of water in different kinds of soils, and draw-down in wells.
Mr. Hollenberg

AgM 303. Irrigation (2)
One lecture, one laboratory, spring quarter, junior year. This course includes underground water supplies, size and rate of pumps, and kinds of irrigation pumps needed under various conditions.
Mr. Hollenberg

AgM 304. Farm Electric Wiring (2)
One lecture, one laboratory, fall quarter, junior year. The fundamental principles of wiring farm buildings, electric rates available to various farm enterprises, together with a study of the necessary fundamentals of electricity.
Mr. Merson

AgM 305. Farm Electric Devices (2)
One lecture, one laboratory, winter quarter, junior year. Electrical equipment used in connection with agriculture is studied in this course. Brooders, incubators and other electrical equipment are used in laboratory work.
Mr. Merson

AgM 306. Electric Motors (2)
One lecture, one laboratory, spring quarter, junior year. A study of the construction, use and repair of electric motors, common to farm enterprises. Costs will be studied, and connections made for pumping installation.
Mr. Merson

AgM 307. Advanced Agricultural Mechanics (2)
One lecture, one laboratory, fall quarter, junior year. This is an advanced course in the design, repair and construction of various types of farm equipment. Students may work out special problems in their major field.
Mr. Hollenberg

AgM 308. Advanced Agricultural Mechanics (2)
One lecture, one laboratory, winter quarter, junior year. A continuation of AgM 307.
Mr. Hollenberg

AgM 309. Advanced Agricultural Mechanics (2)
One lecture, one laboratory, spring quarter, junior year. A continuation of AgM 308.
Mr. Hollenberg
AGRICULTURAL INSPECTION DEPARTMENT

W. E. COURT, Senior Instructor
DWIGHT THOMPSON, Instructor

The field of agricultural inspection is relatively new and in the last decade has expanded very rapidly. At the present time there are more than 750 agricultural inspectors at work in California. The job of the agricultural inspector is to act as a friendly cooperative agent to enforce California's agricultural laws which have been set up to protect and assist California's agriculture.

Agricultural inspection is a new career that demands a large number of properly selected and trained men to help California's vast agricultural enterprises.

Facilities

The Voorhis unit of the California State Polytechnic located at San Dimas, is particularly well set up to train men in agricultural inspection. Not only are the equipment and farm at the school adequate for the task but the location is exceedingly fortunate. The Los Angeles fruit and vegetable markets are the second largest in the United States, more agricultural inspection work is carried on in the southern counties than elsewhere and the school is situated in the center of California's great citrus production area.

Placement Fields

The following fields of employment are open to the agricultural inspector in either county, State or Federal work:

1. Quarantine.
2. Pest control.
3. Bee inspection.
4. Standardization.
5. Weed and rodent control.
6. Shipping point inspection.
7. Weights and measures.

In addition to the above divisions of public service, many opportunities for like activities can be found in private enterprise.

Note—

Material in bold face required of all students.
Material in light face required in the major field.
Mathematics 1 is a review of arithmetic. It may be passed by examination, or if not passed must be taken without credit.
Units in parenthesis indicate student has choice of quarter in which subject may be taken.
Degree students must select 12 units and technical students 6 units of general agricultural production courses in addition to the major. See page 56 for details.
No vocational curriculum is offered in Agricultural Inspection.
## Degree Curriculum in Agricultural Inspection

### First two years at San Dimas

#### FRESHMAN YEAR

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<td>(AgInsp 206)</td>
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<td>Shipping Point Inspection (AgInsp 212)</td>
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<td>Weights and Measures (AgInsp 211)</td>
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<tr>
<td>Citrus Pest Control (FP 281)</td>
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<td>Deciduous Pest Control (FP 262)</td>
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<td>Deciduous Fruit Production (FP 161) (FP 162)</td>
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<td>(FP 163)</td>
<td>(3) (3) (3)</td>
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<tr>
<td>or</td>
<td></td>
<td></td>
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1. Recommended but not required.
2. Required additional science.
Agricultural Inspection Department

At San Luis Obispo

JUNIOR YEAR

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<td>Accounting (Econ 311) (Econ 312)</td>
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<td>American Government (PolSci 352)</td>
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<td>Mathematics (Math 103)</td>
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<tr>
<td>Zoology (BSc 192)</td>
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<td>Genetics (BSc 394)</td>
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At San Luis Obispo

SENIOR YEAR

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<td>Contemporary Political Problems (PolSci 452)</td>
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Technical Curriculum in Agricultural Inspection

All at San Dimas

FRESHMAN YEAR

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<td>Plant Pathology (BSc 172)</td>
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<td>(AgInsp 102) (AgInsp 103)</td>
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1 Recommended but not required.
2 Required additional science.
### Sophomore Year

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<td>¹Shipping Point Inspection (AgInsp 212)</td>
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<td>¹Bee Inspection (AgInsp 213)</td>
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<td>¹Weights and Measures (AgInsp 211)</td>
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<td>Legal Procedure (AgInsp 201)</td>
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<td>Public Relations (AgInsp 202)</td>
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<td>Citrus Pest Control (FP 291)</td>
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<td>(FP 193)</td>
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<td>or</td>
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<td>Deciduous Fruit Production (FP 161) (FP 162)</td>
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<td>18½</td>
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### Junior Year

*Description of Courses in Agricultural Inspection*

**AgInsp 101. Agricultural Inspection Problems**  
(1)  
One lecture, fall quarter, freshman year. Inspection students meet for a round-table discussion of problems pertaining to their intended occupation.  
Mr. Court

**AgInsp 102. Agricultural Inspection Problems**  
(1)  
One lecture, winter quarter, freshman year.  
A continuation of AgInsp 101.  
Mr. Court

**AgInsp 103. Agricultural Inspection Problems**  
(1)  
One lecture, spring quarter, freshman year.  
A continuation of AgInsp 102.  
Mr. Court

¹Recommended but not required.
Agricultural Inspection Department

Aglnsp 106. Weed Control (3)
Two lectures, one laboratory, spring quarter, freshman year. The identification of weeds and weed seeds, control methods and materials, weed injury, collection and preservation of specimens. Related laws and regulations. Weed dissemination and distribution. Mr. Court

Aglnsp 201. Legal Procedure (4)
Four lectures, fall quarter, sophomore year. Gathering and presentation of evidence. Court procedure, preparation of cases, visits to courts, fundamental law and agricultural code. Law enforcement regulations, primarily for agricultural inspection majors. Mr. Court

Aglnsp 202. Public Relations (2)
Two lectures, winter quarter, sophomore year. Ethics of law enforcement, psychology of handling people. Federal and State civil service regulations. Organization of State Department of Agriculture and its functions. Primarily for agricultural inspection students. Mr. Court

Aglnsp 204. Agricultural Inspection Problems (1)
One lecture, fall quarter, sophomore year. A period for round-table discussion of professional problems for those majoring in agricultural inspection. Mr. Court

Aglnsp 205. Agricultural Inspection Problems (1)
One lecture, winter quarter, sophomore year. A continuation of Aglnsp 204. Mr. Court

Aglnsp 206. Agricultural Inspection Problems (1)
One lecture, spring quarter, sophomore year. A continuation of Aglnsp 205. Mr. Court

Aglnsp 207. Standardization Problems (3)
Three lectures, fall quarter, sophomore year. A course training the students in the regulations set up and enforced by the agricultural code relating to fruits, vegetables, eggs and honey. The student must have completed a year in the inspection or fruit production curricula, as a prerequisite. Mr. Court

Aglnsp 208. Plant Quarantine (3)
Three lectures, winter quarter, sophomore year. Related laws and regulations, diseases and insect host plants. State and federal quarantine laws and regulations, including insects and diseases against which quarantines are enforced. Mr. Court

Aglnsp 209. Inspection Plant Materials (2)
One lecture, one laboratory, spring quarter, sophomore year. This course acquaints students in the wide field of plant materials with which inspectors come in contact, including those that may be introduced carrying foreign pests. Mr. Court
Aglnsp 211. Weights and Measures (3)
Two lectures, one laboratory, fall quarter, sophomore year. This course is definitely aimed to prepare agricultural inspection students to become county sealers of weights and measures. Related laws, relationships of various units of weights and measures and the care and adjustments of scales will be stressed.

Mr. Court

Aglnsp 212. Shipping Point Inspection (3)
Three lectures, winter quarter, sophomore year. A course designed to train students for civil service positions of junior fruit and vegetable certification inspection. It is an elective limited to students who have had considerable experience in the production, or in the grading and packing, of fruits and vegetables which are commonly inspected in the out-of-state shipments by the fruit and vegetable certification service. A student should plan on traveling expenses during the quarter of at least $10.

Mr. Court

Aglnsp 213. Bee Inspection (3)
Two lectures, one laboratory, spring quarter, sophomore year. Bee keeping as taught from the needs of the agricultural inspection student. Emphasis on bee laws and bee diseases.

Mr. Court

Aglnsp 301. Supervised Field Practice in Agricultural Inspection (12-16)
A course in practical work in the field carried on under supervision. Hours to be arranged. Courses may be taken only by students of junior standing in addition to attendance at California Polytechnic for two quarters. The contemplated field practice must receive the approval of the major advisor before being undertaken. The fields of supervised work are generally in pest control and fruit production, packing house enterprises and in actual inspection work.

Mr. Court

Aglnsp 302. Supervised Field Practice in Agricultural Inspection (12-16)
Hours to be arranged, winter quarter, junior year. A continuation of Aglnsp 301.

Mr. Court

Aglnsp 303. Supervised Field Practice in Agricultural Inspection (12-16)
Hours to be arranged, spring quarter, junior year. A continuation of Aglnsp 302.

Mr. Court
The magnitude of the fruit industry in California is such that the value of the deciduous and citrus fruits together is greater than any other agricultural industry. Thus the industry demands many young men who have had technical and specific instruction in the fields of production, marketing and handling of fruits. For this reason the California Polytechnic school trains young men interested in these fields for specific jobs in these fruit enterprises.

Facilities

The San Dimas campus has facilities for teaching fruit production successfully to students on a "doing" level. The school owns groves and orchards, and operates them with the students in the classes doing the work and determining the management problems. The school owns 20 acres of oranges, five acres of avocados, approximately five acres of assorted deciduous, and two acres of grapes. Additional plantings of deciduous and grapes are planned to give the students experience in starting and developing orchards; lemon acreage is available to give experience in handling this fruit and to round out the citrus instruction.

Farm equipment is available in the way of tractors of various types, tillage tools, spray rigs, and fumigation equipment, for orchard and pest control operations. Several different irrigation methods are employed on the campus so the students have an opportunity to become familiar with the common irrigation systems. A small nursery of citrus, avocados and deciduous plantings is operated to give instruction in the problems of propagation and raising of trees.

The Voorhis Unit is fortunately located in the midst of the citrus district and all types of deciduous plantings are within a few miles of the campus, and are available for special work and field trips to these production centers. The marketing organizations, commercial operators, and pest control associations are looking more and more to the school as a source of well-trained employees, and are extremely helpful in letting the school use their facilities and provide help in the line of packing house work, and operation and pest control problems, with which to train the students.

The main function of a technical school of this nature is to train and place on a job the students successfully carrying the work to completion. The school is very much interested in follow-up on the students placed after they have obtained their technical training, and feels its responsibility ended only when the student is on the job.

Placement Fields

The fruit curriculum trains students for placement in the fields of orchard operators and managers. Students primarily interested in going back to their own farms receive specific instruction in ranch operation and management. Many students are trained for positions in related fields such as packing house and marketing work, and citrus and deciduous pest control operators and supervisors.
California Polytechnic School

Note—

Material in bold face required of all students.
Material in light face required in the major field.
Mathematics 1 is a review of arithmetic. It may be passed by examination, or if not passed must be taken without credit.
Units in parenthesis indicate student has choice of quarter in which subject may be taken.
Degree students must select 12 units and technical students 6 units of general agricultural production courses in addition to the major. See page 56 for details.

Degree Curriculum in Fruit Production

First Two Years at San Dimas

Freshman Year

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<td>Botany (BSc 131) (BSc 133)</td>
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<td>Soils (PSc 153)</td>
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<td>1 Chemical Science (PSc 112)</td>
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<td>2 Entomology (BSc 141)</td>
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<td>Pest Control Materials (BSc 138)</td>
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Choice of the following:

Deciduous Fruit Production (FP 161) (FP 162) (FP 163)  (3) (3) (3)

or

Citrus Fruit Production (FP 191) (FP 192) (FP 193) (3) (3) (3)

Electives                                                  4  3  3

17½  18½  18½

1 Recommended but not required.
2 Required additional science.
# Fruit Production Department

## Sophomore Year

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<td>or</td>
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## Junior Year

At San Luis Obispo

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<td>Zoology (BSc 193)</td>
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1 Recommended but not required.
## SENIOR YEAR

### At San Luis Obispo

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### Technical Curriculum in Fruit Production

#### All at San Dimas

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<td>or</td>
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1 Recommended but not required.
2 Required additional science.
**Fruit Production Department**

**SOPHOMORE YEAR**

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<td>Public Speaking (Eng 252)</td>
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<td>Orchard Management (FP 279)</td>
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<td>Citrus Marketing (FP 292)</td>
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<td>Citrus Pest Control (FP 291)</td>
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<td>Deciduous Pest Control (FP 262)</td>
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<td>Citrus Laboratory Analysis (FP 294)</td>
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<td>Avocado Production (FP 282) (FP 283)</td>
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**JUNIOR YEAR**

This year is devoted to supervised field practice with approved commercial concerns in the specialized fields of production, pest control and marketing of fruit. Registration must be done previous to the commencing of work. To register for these courses the student must be a junior in good standing, have spent at least two quarters at the California State Polytechnic College. To graduate as a technical student, the student must have satisfied the minimum of 12 units in each of three fields.

Commercial Pest Control Practice (FP 371) 12-16
Packing House Practice (FP 372) 12-16
Fruit Production Practice (FP 373) 12-16

**Description of Courses in Fruit Production**

**FP 161. Deciduous Fruit Production**

Two lectures, one laboratory, fall quarter, freshman year. Kinds of fruit and nuts, varieties and where grown, root stock, seasonal problems. Work designed particularly to coordinate the inspection and production fields.

Mr. Meacham

**FP 162. Deciduous Fruit Production**

Two lectures, one laboratory, winter quarter, freshman year. Pruning, propagation, various types of pest control, fertilizing and use of cover crops.

Mr. Meacham

**FP 163. Deciduous Fruit Production**

Two lectures, one laboratory, spring quarter, freshman year. Irrigation, cultivation, special problems and field practices.

Mr. Meacham

$^1$ Recommended but not required.
FP 171. Fruit Problems
One lecture, fall quarter, freshman year. Round-table discussion of the current problems facing the fruit industry. Mr. Hawkins

FP 172. Fruit Problems
One lecture, winter quarter, freshman year. A continuation of FP 171. Mr. Hawkins

FP 173. Fruit Problems
One lecture, spring quarter, freshman year. A continuation of FP 172. Mr. Hawkins

FP 191. Citrus Fruit Production
Two lectures, one laboratory, fall quarter, freshman year. Scope of the industry and its outlook, soil and climate requirements, type and characteristics of desirable fruit. Frost protection methods and requirements. Mr. Hawkins

FP 192. Citrus Fruit Production
Two lectures, one laboratory, winter quarter, freshman year. Diseases of citrus trees and fruits and their control. Marketing methods for oranges and lemons, and fruit handling problems. Mr. Hawkins

FP 193. Citrus Fruit Production
Two lectures, one laboratory, spring quarter, freshman year. The use of root stock with certain citrus varieties, new varieties, bud selection and tree records, with their practical use. Raising of citrus nursery stock, top-working old trees, irrigation requirements and methods. Mr. Hawkins

FP 262. Deciduous Pest Control
Two lectures, one laboratory, winter quarter, sophomore year. Advanced studies of deciduous fruit pests and diseases, including field identification and application of control materials. Prerequisites: BSc 138, BSc 141, BSc 172. Mr. Court

FP 271. Fruit Problems
One lecture, fall quarter, sophomore year. Round-table discussion of the problems facing the fruit industry. Mr. Hawkins

FP 272. Fruit Problems
One lecture, winter quarter, sophomore year. A continuation of FP 271. Mr. Hawkins

FP 273. Fruit Problems
One lecture, winter quarter, sophomore year. A continuation of FP 272. Mr. Hawkins

FP 276. Packing House Management
Two lectures, one laboratory, spring quarter, sophomore year. Problems in the operation of packing houses. Study of positions of responsibility and the duties of those who hold them. Handling and packing fruit. The problems of labor relations and government regulations. Record and office routine of the packing house. Mr. Hawkins
Fruit Production Department

FP 279. Orchard Management (3)
Two lectures, one laboratory, spring quarter, sophomore year. Problems of fertilization, irrigation, cost of production problems, pruning, cover crops and other problems of the grower. Evaluating orchards, irrigation systems, cost accounts, records, and methods of culture.

Mr. Hawkins

FP 282. Avocado Production (3)
Two lectures, one laboratory, winter quarter, sophomore year. Problems dealing with the production and marketing of avocados. Their problems in pest control, fertilization and culture.

Mr. Hawkins

FP 283. Avocado Production (3)
Two lectures, one laboratory, spring quarter, sophomore year. A continuation of FP 282.

Mr. Hawkins

FP 291. Citrus Pest Control (3)
Two lectures, one laboratory, fall quarter, sophomore year. The control of citrus pests, including insects, scale thrips and red spiders. Spraying, fumigating and dusting methods, and the use of their equipment. Methods of orchard examination for pest infestation.

Mr. Hawkins

FP 292. Citrus Marketing (8)
Three lectures, winter quarter, sophomore year. Problems in pooling fruit, grading and proration. The sales methods of the C. F. G. Ex. and their set-up. Auction sales and other co-ops and independents and their effect on the market. Price determiners. Prerequisite: Econ 201.

Mr. Hawkins

FP 294. Citrus Laboratory Analysis (8)

Mr. Hawkins

FP 371. Commercial Pest Control Practice (12-16)
Hours to be arranged, fall quarter, junior year. Pest control, nursery practice, or any other field work of special interest to the student, and closely related to fruit production carried on under the supervision of the instructor.

Mr. Hawkins

FP 372. Packing House Practice (12-16)
Hours to be arranged, winter quarter, junior year. Students work in the various packing houses under the supervision of the instructor, with the cooperation of the plant superintendent. Purpose of this course is to develop practical packing house skills.

Mr. Hawkins

FP 373. Fruit Production Practice (12-16)
Hours to be arranged, spring quarter, junior year. Deals with orchard problems, in which the students work directly in cooperation with the growers. Whenever possible, they are placed in the various orchards under the direction of the instructor.

Mr. Hawkins

8—14322
ORNAMENTAL HORTICULTURE DEPARTMENT

STANLEY KEANE, Instructor

Ornamental Horticulture is taught both at San Dimas and San Luis Obispo. At San Dimas, students may take the first two years of the degree program, transferring to San Luis Obispo for the last two years; or may enroll in the technical program taken entirely at San Dimas. At San Luis Obispo, the student may take either the vocational, or the degree course. Students wanting three years of work leading to the technical certificate, should enroll at San Dimas.

Function of this department is to teach courses pertaining to the subjects of nursery, gardening, park and landscape work.

Facilities

The facilities consist of lath house, glass house, and propagating frames. The extensive landscaped portions of the campus includes 15 campus buildings, seven acres of lawn and three miles of roadway planning. The general arrangements of buildings and grounds are such that it offers opportunities for actual landscape and maintenance work on small residences, public buildings and parks. Estates, parks, golf courses, nurseries and flower plantings in the vicinity serve as a natural laboratory for field experience.

Placement Fields

Students are prepared for general nursery work, landscape construction, estate maintenance and civil service park work and highway and shade tree maintenance, or first two years of training for teaching ornamental horticulture.

Note—

Material in bold face required of all students.
Material in light face required in the major field.
Mathematics 1 is a review of arithmetic. It may be passed by examination, or if not passed must be taken without credit.
Units in parenthesis indicate student has choice of quarter in which subject may be taken.
Degree students must select 12 units and technical students 6 units of general agricultural production courses in addition to the major. See page 56 for details.
Junior and senior years in degree curriculum of Ornamental Horticulture are taught at San Luis Obispo.
Transfers from San Dimas to San Luis Obispo who wish to fulfill requirements for a Bachelor of Science degree must complete Math 103, Econ 202, Econ 203, and Eng 104, Eng 105 and Eng 106 at San Luis Obispo during their Junior and Senior years.
## Ornamental Horticulture Department

### Degree Curriculum in Ornamental Horticulture At San Dimas

#### FRESHMAN YEAR

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#### SOPHOMORE YEAR

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### Technical Curriculum in Ornamental Horticulture at San Dimas

#### FRESHMAN YEAR

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<td>Pest Control Materials</td>
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1 Recommended but not required.
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<td>Supervised Nursery Practices (OH 375)</td>
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<td>Supervised Landscaping Practices (OH 376)</td>
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<td><strong>Total</strong></td>
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### Description of Courses in Ornamental Horticulture

**OH 171. Nursery Practice** (2)

One lecture, one laboratory, fall quarter, freshman year. General seasonal nursery work by lecture and practice. The work will consist of planting seedlings, potting, and transplanting. 

Mr. Keane

**OH 172. Nursery Practice** (2)

One lecture, one laboratory, winter quarter, freshman year. Seasonal work with special emphasis on planting and balling out, and transplanting of trees and shrubs.

Mr. Keane

**OH 173. Nursery Practice** (2)

One lecture, one laboratory, spring quarter, freshman year. Seasonal work with special emphasis on planting of annual and perennial flowering plants, their irrigation and fertilizing.

Mr. Keane

**OH 174. Plant Materials** (2)

Two lectures, fall quarter, freshman year. The identification and characteristics of broadleaf evergreen trees and shrubs used in landscape work.

Mr. Keane

**OH 175. Plant Materials** (2)

Two lectures, winter quarter, freshman year. A continuation of fall quarter.

Mr. Keane

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1 Recommended but not required.
Ornamental Horticulture Department

OH 176. Plant Materials (2)
Two lectures, spring quarter, freshman year. A continuation of winter quarter. Mr. Keane

OH 177. Landscape Problems (1)
One lecture, fall quarter, freshman year. Current problems in nursery work and production both in the State and on the California Polytechnic farm and campus. Plans and program for the Ornamental Horticulture department. Mr. Keane

OH 178. Landscape Problems (1)
One lecture, winter quarter, freshman year. Extension of OH 177. Mr. Keane

OH 179. Landscape Problems (1)
One lecture, spring quarter, freshman year. Extension of OH 178. Mr. Keane

OH 181. Plant Propagation (3)
Two lectures, one laboratory, fall quarter, freshman year. Principles of sexual and asexual propagation. Gathering and storing of seeds, fall budding, and general propagation by cuttings. Mr. Keane

OH 182. Plant Propagation (3)
Two lectures, one laboratory, winter quarter, freshman year. Grafting of evergreen and deciduous plant material, making of hardwood cuttings. Mr. Keane

OH 183. Plant Propagation (3)
Two lectures, one laboratory, spring quarter, freshman year. Propagation by seed, with special emphasis on glass house plants. Spring budding and grafting. The growing of ornamentals from cuttings. Mr. Keane

OH 271. Nursery Practice (2)
One lecture, one laboratory, sophomore year, fall quarter. Handling of nursery soils and fertilizers, irrigation and general lath house and green house management. Mr. Keane

OH 272. Nursery Practice (2)
One lecture, one laboratory, winter quarter, sophomore year. Design and construction of propagating frames, plant shelters and lath houses. General nursery management. Mr. Keane

OH 273. Nursery Practice (2)
One lecture, one laboratory, spring quarter, sophomore year. The construction and management of glass houses, the growing of glass house plants and handling of lining out stock. Mr. Keane

OH 274. Plant Materials (2)
Two lectures, fall quarter, sophomore year. The identification and characteristics of annual and herbaceous perennial flowering plants and their uses in landscape work. Mr. Keane
OH 275. Plant Materials (2)
Two lectures, winter quarter, sophomore year. A continuation of the fall quarter. Mr. Keane

OH 276. Plant Materials (2)
Two lectures, spring quarter, sophomore year. The identification and characteristics of woody perennials for use in the herbaceous border including rock garden and alpine plants. Mr. Keane

OH 277. Landscape Problems (1)
One lecture, fall quarter, sophomore year. An extension of Landscape Problems taken during freshman year. Mr. Howes

OH 278. Landscape Problems (1)
One lecture, winter quarter, sophomore year. Extension of OH 277. Mr. Howes

OH 279. Landscape Problems (1)
One lecture, spring quarter, sophomore year. Extension of OH 278. Mr. Howes

OH 371. Nursery Practice (2)
One lecture, one laboratory, fall quarter, junior year. The design and layout of the modern nursery with special emphasis on the growing of ornamentals. Mr. Keane

OH 372. Nursery Practice (2)
One lecture, one laboratory, winter quarter, junior year. The handling of nursery stock, nursery sales and management. Mr. Keane

OH 373. Nursery Practice (2)
One lecture, one laboratory, spring quarter, junior year. A continuation of the winter quarter. Mr. Keane

OH 374. Plant Material (2)
Two lectures, fall quarter, junior year. The identification of trees and shrubs used in landscape work with special emphasis on their place in landscape design. Mr. Keane

OH 375. Plant Material (2)
Two lectures, winter quarter, junior year. The identification and characteristics of some of the common coniferous plants used in landscape work. Mr. Keane

OH 376. Plant Material (2)
Two lectures, spring quarter, junior year. The identification and characteristics of the more common deciduous trees and shrubs used in landscape work. Mr. Keane

OH 377. Landscape Problems (1)
One lecture, fall quarter, junior year. An extension of Landscape Problems taken during sophomore year. Mr. Keane
OH 378. Landscape Problems (1)
One lecture, winter quarter, junior year. Extension of OH 377.
Mr. Keane

OH 379. Landscape Problems (1)
One lecture, spring quarter, junior year. Extension of OH 378.
Mr. Keane

OH 383. Tree Surgery (3)
One lecture, two laboratories, winter quarter, junior year. Cavity work, bracing, heavy pruning, root pruning, etc.
Mr. Keane
THE INDUSTRIAL CURRICULA

*The Degree Curricula in Industrial Work

Total required for graduation........................................ 200
Core material selected from physical science, mathematics, English, economics, psychology, drafting and general engineering subjects .................................................. 80
Major field courses........................................................ 80
Electives ............................................................................ 40

*The Technical Curricula

In each of the various departments the technical curricula will follow this general pattern:
Total required for graduation........................................... 150
Core material selected from mathematics, drafting, physics, English and physical education................................................... 42
Major field courses............................................................ 100
Electives ............................................................................ 8

*The Vocational Curricula

The vocational curricula follows this general pattern in each department:
Total required for graduation............................................ 100
Core material selected from physical education, physics, drafting and English............................................................... 33
Major field courses............................................................ 55
Electives ............................................................................ 12

In each department courses are so arranged that the student on completion of one year has very definite preparation for employment. On completion of the second year he is qualified for a vocational certificate with better preparation for employment. The completion of the three years technical certificate course qualifies the student for employment in the more technical fields, while the completion of the four year course is comparable to a typical engineering education.

* Since the majority of boys selecting aeronautics as a major are interested in passing their C.A.A. examinations, and since the C.A.A. examinations are based on the up to date regulations of the Civil Aeronautics Administration, electives cannot be allowed the first three years in the aeronautics curriculum.

In order to qualify under the regulations set up by the Civil Aeronautics Administration, it is necessary for a student to complete a definite number of units and hours in each of the required courses in the aeronautics curriculum.
AERONAUTICAL INDUSTRIES DEPARTMENT

M. C. MARTINSEN, Senior Instructor, Aircraft Construction
ROY F. METZ, Instructor, Aircraft Engines

The Aeronautics department at California Polytechnic is an approved repair station, under the rating of the United States Department of Commerce, Civil Aeronautics Administration. The students receive credit for all time spent in class and laboratory work toward eligibility for an Airplane and Engine Mechanics certificate. Students who meet the required industrial standards as evidenced in class and laboratory work are recommended to take the C. A. A. examinations, passing of which is a prerequisite to receiving the college's certificate of recommendation for employment. The curricula at California Polytechnic are so arranged that recommended students complete all Civil Aeronautics Administration requirements for eligibility for mechanics certificates. All students to qualify for a certificate of graduation in any curriculum must have been in attendance not less than 98% of the total hours required by the school to complete the approved curricula for which he enrolled.

Facilities

The Aeronautics department is divided into two separate sections: The engine shop consists of a building 56 x 70 feet in which there are approximately 30 engines of various types upon which the students work. In addition to the engines, the shop is equipped with the necessary machine tools such as lathes, drill press, grinder, Magnaflux, and such special tools as are required to carry on repair work on aircraft engines. The construction shop is a building 40 x 100 feet in which the general repair work on airplanes is conducted. This shop is equipped with the necessary small tools for carrying on sheet metal instruction, repair work on wood wings and steel fuselage work. There is a painting and fabric room 16 x 40 feet for covering wings. The necessary power, woodworking, as well as metal working tools are available in this shop, including air compressors and sand blasting equipment.

Adjacent to the Aeronautics department is the welding shop 40 x 80 feet, equipped to instruct 25 students at a time in aircraft welding. There is also a machine shop 40 x 100 feet equipped with lathes, planers, milling machines, drill presses, shapers and universal tool grinders, upon which the aeronautics students receive their machine shop instruction. This shop is equipped to handle 30 students at a time.

In addition to the above, the department also has two well equipped drafting rooms, which include drafting tables, drafting machines, blue print and black and white machine. Capacity 50 students.

Placement Fields

The placement fields for the aeronautical industries are primarily with the operating airlines, the engineering departments of the aircraft factories, and at the airports as mechanics for the third and fourth-year men. The two-year men are particularly well qualified to go into the factory as factory workers, many going on the final assembly line.
### Degree Curriculum in Aeronautical Maintenance and Operations Engineering

**FRESHMAN YEAR**

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**SOPHOMORE YEAR**

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## Industrial Department

### Junior Year

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### Senior Year

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| Total Credits | 18 | 18 | 18 |
Curriculum for Technical Certificate Major in Aeronautical Industries

**FRESHMAN YEAR**

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**SOPHOMORE YEAR**

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VOCATIONAL CERTIFICATE CURRICULUM

A Vocational Certificate will be issued to a student who leaves school after successfully completing two years of technical or degree curricula. A Vocational student must make arrangements to secure credit in American Government (PolSci 352) in the winter quarter of his Sophomore year.

Curriculum for Technical Certificate Major in Aero Drafting

The objective of this course is to give the student the necessary training that he may find employment in the drafting rooms of the airplane factories of the United States. It is recommended, however, that the student enter employment in the factory and work into the drafting room after completing a period of training in the factory as a workman.

FRESHMAN YEAR

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| Total | 17½ | 17½ | 17½ |
California Polytechnic School

SOPHOMORE YEAR

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JUNIOR YEAR

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Description of Courses in Aeronautical Industries

**Aero 101. Aero Engines Theory**

Thirty one-hour lectures, fall quarter, freshman year. The fundamentals of engine operation are studied, such as the two-and four-stroke cycles, types of engines, cooling systems and principles, lubrication, crank shafts, pistons, piston displacements, volumetric efficiency, compression ratio, horsepower calculations, mechanical efficiency, carburetion principles, and ignition principles.

Mr. Metz

**Aero 102. Aero Engines Theory**

Three one-hour lectures, winter quarter, freshman year. Continuation of Aero 101.

Mr. Metz
Aero 103. Aero Engines Theory
Three one-hour lectures, spring quarter, freshman year. Continuation of Aero 102. Mr. Metz

Aero 111. Aero Engine Shop
This course consists of studying and making shop drawings of the many and varied parts that go into the make-up of a complete modern aircraft engine. The student learns the relationship of one part to the other as it will be in the final assembly; works on aircraft engine shop equipment to learn how to properly design, build, maintain and repair time and labor saving devices used in the modern well equipped engine overhaul and maintenance base. The importance of cleanliness in aircraft work is stressed so that the proper work habits will be developed. The student is taught how to properly disassemble an aircraft engine, clean and minor inspect parts for defects and reassemble the engine. Mr. Metz

Aero 112. Aero Engine Shop
One three-hour period, winter quarter, freshman year. Continuation of Aero 111. Mr. Metz

Aero 113. Aero Engine Shop
One three-hour period, spring quarter, freshman year. Continuation of Aero 112. Mr. Metz

Aero 121. Aero Construction Theory
Two one-hour lectures, fall quarter, freshman year. In this course general safety-first methods and practices are demonstrated and studied in the proper and safe use of hand tools and machines. A general study of the materials of aircraft construction and miscellaneous manufactured parts used in the construction, maintenance and repair of all types of aircraft is made. Instructor to be assigned

Aero 122. Aero Construction Theory
Two one-hour lectures, winter quarter, freshman year, continuation of Aero 121. Instructor to be assigned

Aero 123. Aero Construction Theory
Same as above for spring quarter. Instructor to be assigned

Aero 131. Aero Construction Shop
One three-hour period, fall quarter, freshman year. Introductory course in airplane repair work, airplane sheet metal work and airplane repair base equipment designing, building, maintaining and repairing. First year students are generally assigned to second and third year students in the repair shop as helpers. They are also assigned to the tool room to become familiar with the many small tools used in aircraft and engine repair. In this course the student also becomes familiar with the proper use of hand and machine tools, sandblasting, etc. Mr. Martinsen

Aero 132. Aero Construction Shop
One three-hour period, winter quarter, freshman year. A continuation of Aero 131. Mr. Martinsen
Aero 133. Aero Construction Shop

One three-hour period, spring quarter, freshman year. A continuation of Aero 132.  
Mr. Martinsen

Aero 204. Aero Engines Theory

Two one-hour lectures, fall quarter, sophomore year. In this course the student studies the details of construction of the various aircraft engines. In addition to the textbook the student uses the manuals published by the different manufacturers of aircraft engines. Considerable attention is given to tolerances, clearances and fits, on the engines as compared to other types of machinery. Overhaul charts and procedures are made up for various makes of engines.  
Mr. Metz

Aero 205. Aero Engines Theory

Two one-hour lectures, winter quarter, sophomore year. Continuation of Aero 204.  
Mr. Metz

Aero 206. Aero Engines Theory

Two one-hour lectures, spring quarter, sophomore year. Continuation of Aero 205.  
Mr. Metz

Aero 214. Aero Engine Shop

Two three-hour periods, fall quarter, sophomore year. In this course the student is working on modern aircraft engines, designing and fabricating any special piece of time and labor saving equipment or special tool that may be required to properly do the job. The engines are completely disassembled, all parts are properly cleaned by modern methods and minutely inspected for defects. Cylinders are sandblasted and painted, main cases are stripped of paint, inspected for cracks or flaws and repainted; a careful study is made of the oiling system and all major parts. After all parts have been cleaned, inspected, painted or electro-plated, the engine is reassembled, timed and given a final check.  
Mr. Metz

Aero 215. Aero Engine Shop

Two three-hour periods, winter quarter, sophomore year. Continuation of Aero 214.  
Mr. Metz

Aero 216. Aero Engine Shop

Two three-hour periods, spring quarter, sophomore year. Continuation of Aero 215.  
Mr. Metz

Aero 221. Aero Construction Theory

Three one-hour lectures, fall quarter, sophomore year. This course includes methods of repairing aircraft, study of civil air regulations for repairs, maintenance and overhaul of certificated aircraft. Considerable attention is given to the materials used in repairs and the maintenance of the airplanes.  
Mr. Martinsen

Aero 222. Aero Construction Theory

Three one-hour lectures, winter quarter, sophomore year. Continuation of Aero 221.  
Mr. Martinsen
Aero 223. Aero Construction Theory (8)
Three one-hour lectures, spring quarter, sophomore year. Continuation of Aero 222. Mr. Martinsen

Aero 231. Aero Construction Shop (1)
One three-hour period, fall quarter, sophomore year. In his first year the student is usually a helper; in his second year, if his capabilities warrant, he may be put in charge of a project. In this course the student is given further training in the use of hand and machine tools, the building of fabrication fixtures and jigs, aircraft woodworking, steel tube construction, aluminum alloy construction, sandblasting, painting, electro-plating, fabric sewing and doping. The student gets experience in pattern layout, making and using forming blocks, handforming, flanging, rivet removing and riveting. Mr. Martinsen

Aero 232. Aero Construction Shop (1)
Two three-hour periods, winter quarter, sophomore year, continuation of Aero 231. Mr. Martinsen

Aero 233. Aero Construction Shop (1)
Two three-hour periods, spring quarter, sophomore year. Continuation of Aero 232. Mr. Martinsen

Aero 236. Aero Construction Shop (1 to 3)
Fall quarter, sophomore year. This course is arranged for students who wish to put in more time in the aero construction shop than is provided in Aero 231. The credit will be arranged in each case according to the number of hours spent in the shop and the progress made by the student. Mr. Martinsen

Aero 237. Aero Construction Shop (1 to 3)
Winter quarter, sophomore year. Continuation of Aero 236. Mr. Martinsen

Aero 238. Aero Construction Shop (1 to 3)
Spring quarter, sophomore year. Continuation of Aero 237. Mr. Martinsen

Aero 244. Aero Drafting Theory (1)
One-hour lecture, fall quarter, sophomore year. To be taken in conjunction with Aero 254. The Army and Navy standards and drafting room manuals from leading manufacturers are studied. Principles of descriptive geometry are studied and applied to the drafting of aircraft structures. Other subjects studied include the application of limits and tolerances to dimensions, use of title blocks and bills of material, material specification numbers, finish nomenclature, drawing conventions, types of drawings, the dash number system, screw thread design, use of rivets, and fabrication methods. Bend allowances and flat patterns are also studied. Instructor to be assigned

Aero 245. Aero Drafting Theory (1)
Two one-hour lectures, winter quarter, sophomore year. Continuation of Aero 244. Instructor to be assigned
Aero 246. Aero Drafting Theory  
Two one-hour lectures, spring quarter, sophomore year. Continuation of Aero 245. Instructor to be assigned

Aero 254. Aero Drafting Practice  
One three-hour period, fall quarter, sophomore year. To be taken in conjunction with Aero 244. This course is to teach the student the type of drafting required in the aeronautical industry. The student will learn the standard drafting practices of the industry. Drafting involving the principles of descriptive geometry and flat pattern will be especially studied. If the student's capabilities warrant he may be assigned to make assemblies and sub-assemblies of airplanes in the shop for repair. Instructor to be assigned

Aero 255. Aero Drafting Practice  
One three-hour period, winter quarter, sophomore year. Continuation of Aero 254. Instructor to be assigned

Aero 256. Aero Drafting Practice  
One three-hour period, spring quarter, sophomore year. Continuation of Aero 255. Instructor to be assigned

Aero 261. Aerodynamics  
Four one-hour lectures, fall quarter, sophomore year. This is a foundation course in elementary aerodynamics covering the following subjects: physical properties of air, effects of deflecting airstreams, air flow, airfoils, lift and drag coefficients, moment coefficients and center of pressure, induced and parasite drag, propellers, airplane performance, turns, control surfaces and stability. Instructor to be assigned

Aero 262. Aerodynamics  
Four one-hour lectures, winter quarter, sophomore year. Continuation of Aero 261. Instructor to be assigned

Aero 263. Aerodynamics  
Four one-hour lectures, spring quarter, sophomore year. Continuation of Aero 262. Instructor to be assigned

Aero 264. C.P.T.P. Collegiate Phase Private Course  
This course covers the required 72 hours of ground school instruction for the Civilian Pilot Training Program. Credit will be given at the end of the quarter in which the course is completed. Hours to be assigned, summer, fall, winter, or spring. Mr. Martinsen

Aero 267. Aeronautical Meteorology  
Two one-hour lectures, fall quarter, sophomore year. This course prepares the student to read meteorological instruments, weather maps, and properly interpret weather reports, etc. The individual subjects studied include: Atmospheric temperature, general circulation of the atmosphere, secondary circulation, vertical structure of the atmosphere (troposphere and stratosphere), humidity, pressure, Boyle's Law, Gay Lussac's Law, meteorological instruments, and their care and use. Winds, prevailing fogs, formation and types, line squalls, cold front theory, cyclones and anticyclogenae. The daily weather map, weather forecasting, the formation of ice on aircraft. Questions and discussion. Mr. Martinsen
Aero 268A. Aeronautical Meteorology (1)
Two one-hour lectures, first half winter quarter, sophomore year. Continuation of Aero 267. Mr. Martinsen

Aero 268B. Aerial Navigation (1)
Two one-hour lectures, second half winter quarter, sophomore year. A continuation of Aero 268A. A study is made of the fundamental principles of aerial navigation to give the student a general idea of the different methods of aerial navigation and the problems involved. Aside from lectures, there are textbook assignments and problems. Mr. Martinsen

Aero 269. Aerial Navigation (2)
Two one-hour lectures, spring quarter, sophomore year. Continuation of Aero 268B. Mr. Martinsen

Aero 301. Aero Engines Theory (2)
Two one-hour lectures, fall quarter, junior year. This course is given over largely to the study of the later types of aircraft engines. Overhaul manuals from the engine factories are used in the place of textbooks. Reference work is done using the trade journals as a source of information. Considerable work is done on testing methods, trouble shooting charts, and factory methods of overhaul. Mr. Metz

Aero 302. Aero Engines Theory (2)
Two one-hour lectures, winter quarter, junior year. Continuation of Aero 301. Mr. Metz

Aero 303. Aero Engines Theory (2)
Two one-hour lectures, spring quarter, junior year. Continuation of Aero 302. Mr. Metz

Aero 311. Aero Engines Shop (2)
Two three-hour periods, fall quarter, junior year. This course consists largely of major and top overhaul, installation, adjustment, running-in, and testing of Aircraft power plants and their necessary accessories. The students also work on engines for the planes that are in the shop for repairs. Mr. Metz

Aero 312. Aero Engines Shop (2)
Two three-hour periods, winter quarter, junior year. Continuation of Aero 311. Mr. Metz

Aero 313. Aero Engines Shop (2)
Two three-hour periods, spring quarter, junior year. Continuation of Aero 312. Mr. Metz

Aero 321. Aero Construction Theory (8)
Three one-hour lectures, fall quarter, junior year. This course includes lectures, and class assignments on such topics as inspection charts for repairs in aircraft, cost estimating, fire fighting, first aid, wire splicing, inspection of controls, and rigging; and a study of the materials used in the repairs of the airplane and their uses and a careful study of the Civil Air Regulations. Mr. Martinsen
Aero 322. Aero Construction Theory (3)
Three one-hour lectures, winter quarter, junior year.
Continuation of Aero 321. Mr. Martinsen

Aero 323. Aero Construction Theory (3)
Three one-hour lectures, spring quarter, junior year.
Continuation of Aero 322. Mr. Martinsen

Aero 331. Aero Construction Shop (3)
Three three-hour periods, fall quarter, junior year. In this course the student is given experience in the heat treatment of aluminum alloys, installation of instruments, accessories, electrical circuits, engine controls, etc.; splicing control cables, wing spars and wing ribs; sewing and fitting fabric, painting and doping; final assembly, making adjustment of parts and fittings and rigging. All work must meet Civil Air Administration standards and is inspected and approved as airworthy when completed. Mr. Martinsen

Aero 332. Aero Construction Shop (3)
Three three-hour periods, winter quarter, junior year.
Continuation of Aero 331. Mr. Martinsen

Aero 333. Aero Construction Shop (3)
Three three-hour periods, spring quarter, junior year.
Continuation of Aero 332. Mr. Martinsen

Aero 334. Aero Construction Shop (1)
One three-hour period, fall quarter, junior year. This course is intended for the students in the Aero Drafting major. The main purpose of the course is to keep the drafting student in contact with the work going on in the shop and give him further construction training to assist him in making working drawings of the repair work in the shop. Mr. Martinsen

Aero 335. Aero Construction Shop (1)
One three-hour period, winter quarter, junior year.
Continuation of Aero 334. Mr. Martinsen

Aero 336. Aero Construction Shop (1)
One three-hour period, spring quarter, junior year.
Continuation of Aero 335. Mr. Martinsen

Aero 347. Aero Drafting Theory (1)
One-hour lecture, fall quarter, junior year. To be taken in conjunction with Aero 357. Continuation of the study of standard aircraft drafting practices. Special emphasis is placed on aircraft layout and detail design. General design considerations and layout procedure are studied. Other subjects studied are connections and fabrication methods. The student learns the fundamental principles of fitting analysis and makes strength checks of parts and assemblies he has designed. Some work in aircraft lofting is included. Instructor to be assigned

Aero 348. Aero Drafting Theory (1)
One one-hour lecture, winter quarter, junior year.
Continuation of Aero 347. Instructor to be assigned
Aero 349. Aero Drafting Theory
One one-hour lecture, spring quarter, junior year.
Continuation of Aero 348. Instructor to be assigned

Aero 357. Aero Drafting Practice
One to three, three-hour periods, fall quarter, junior year. This course is taken in conjunction with Aero 347. Credit will be arranged for the student specializing in aeronautical drafting according to the hours spent in drafting. The student makes original layouts and detail designs of airplane parts and assemblies. He learns to make drawings that are not only correct from the drafting standpoint, but they must also be reasonable from a strength standpoint and practical to manufacture. Descriptive geometry is applied to the design of control systems and pulley brackets. He may also be assigned to the making of assemblies and sub-assemblies of airplanes in the shop for repair. Blue printing of the necessary jobs for shop use will also be included in the course. Instructor to be assigned

Aero 358. Aero Drafting Practice
One three-hour period, winter quarter, junior year. Continuation of Aero 357.

Aero 359. Aero Drafting
One three-hour period, spring quarter, junior year. Continuation of Aero 358.

Aero 361. Advanced Aerodynamics and Design
Four one-hour lectures, fall quarter, junior year. The prerequisites to this course are physics, algebra, trigonometry, elementary aerodynamics, and strength of materials. This course includes the following subjects: theory of dimensions, wind tunnels, parasite drag estimation, moment coefficients and center of pressure, plotting of airfoil characteristics, preliminary airplane design, airfoil selection, high lift devices, longitudinal stability, design load factors, aerodynamic load calculations, airplane performance, stability and control, and economics of design. The study of the above principles will be applied to the design of an actual airplane. Instructor to be assigned

Aero 362. Advanced Aerodynamics and Design
Four one-hour lectures, winter quarter, junior year. Continuation of Aero 361.

Aero 363. Advanced Aerodynamics and Design
Four one-hour lectures, spring quarter, junior year. Continuation of Aero 362.

Aero 364. Heat Treating
One one-hour lecture, one three-hour laboratory, fall quarter, junior year. The theory of heat treating and the physical change in structure of materials are covered in this course. Special emphasis is placed upon methods, temperature control, and processes of heat treating, as well as changes in characteristics of materials due to heat treating. Both steel and aluminum alloys are considered in this course. Instructor to be assigned.
Aero 365. C.P.T.P. Collegiate Phase, Secondary Course  
(Restricted Commercial)  
This course covers 108 hours of ground school work for the secondary flight training under the Civilian Pilot Training Program. Pre-requisite for this course is Aero 264. Credit will be given at the end of the quarter in which the course is completed. Hours to be assigned, summer, fall, winter or spring.  
Mr. Martinsen

Aero 491. Stress Analysis  
Methods of calculating the principle stresses occurring in airplane structures and of determining their respective margins of safety are studied. Stress analyses will be made on various components of actual designs. Graphical as well as analytical methods of stress analysis will be used.  
Instructor to be assigned

Aero 492. Stress Analysis  
Two one-hour lectures, winter quarter, senior year. A continuation of Aero 491.  
Instructor to be assigned

Aero 493. Stress Analysis  
Two one-hour lectures, spring quarter, senior year. A continuation of Aero 492.  
Instructor to be assigned
The objective of the course is primarily to train the students to enter employment, in the installation, maintenance, and operation of air conditioning and refrigerating equipment. It is expected that some of the students will go from the construction departments of the organizations to the sales departments, others will go to the engineering or drafting departments, and still others will remain in the construction departments.

Facilities

The air conditioning department is located in a newly constructed laboratory 40 x 110 feet. In addition to this there are drafting rooms and classrooms for the use of this department. This laboratory is well equipped with a variety of refrigerating, ventilating, steam heating, and humidity control equipment for laboratory test purposes. In addition to this class of equipment, there is a complete reverse cycle air conditioning system located in the laboratory for a lecture room which seats 500 people. This air conditioning system is so constructed that it will be used for test work in the laboratory, as well as the air conditioning system for the lecture room. The laboratory equipment is selected so that students may have experience on a number of different types of equipment such as carbon dioxide, ammonia, sulphur dioxide, freon, and methyl chloride. Each piece of equipment is arranged for test work as well as trouble shooting. The carbon dioxide equipment is constructed so that experiments may be run in quick freezing. In connection with the air conditioning laboratory there is also a well equipped sheet metal shop for giving the students experience in the construction of duct work and other sheet metal work connected with air conditioning systems.

Placement Fields

The placement fields for the air conditioning industries are primarily engineering and sales engineering for the third and fourth-year men. The second-year men are well qualified to go into the operation and maintenance of equipment.

Note—

Material in bold face required of all students.
Material in light face required in the major field.
If the entering student passes a satisfactory mathematics examination, he may choose an elective instead of Mathematics 104, 105, 106.

* Major courses under this curriculum beginning with the number series 200 and running through the 400 series will be offered only if enrollment justifies offering them.
Degree Curriculum in Air Conditioning Engineering

**FRESHMAN YEAR**

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<td>Complete Summer and Winter Air Conditioning Systems (AC 206)</td>
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**JUNIOR YEAR**

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1 Recommended but not required.
### Industrial Department

#### SENIOR YEAR

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<td>Family Relations (Psy 403)</td>
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<td>Design of Large Industrial and Comfort Air Conditioning Systems</td>
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#### Technical Certificate Curriculum

No especial curriculum is offered. Students who satisfactorily complete three years of the degree program will be awarded the Technical Certificate in Air Conditioning Industries.

#### Curriculum for Vocational Certificate Major in Air Conditioning Industries

##### FRESHMAN YEAR

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<td>Commercial Refrigeration (AC 103)</td>
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##### SOPHOMORE YEAR

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<td>Summer Air Conditioning (AC 205)</td>
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Description of Courses in Air Conditioning Industries

AC 101. Heat Transfer and Psychrometry (3)

Three one-hour lectures, fall quarter, freshman year. The history and development of air conditioning is first studied. This is followed by the fundamentals and physical laws, such as measurements of heat; heat loss and heat gain or transmission through substances; conductance and coefficients; air and its properties. Insulation, such as the value and kinds for the use in heating, refrigeration and air conditioning systems, also for acoustical purposes.

Mr. Sharpe

AC 102. Warm Air Furnace Systems (3)

Three one-hour lectures, winter quarter, freshman year. Methods of heating; hot air systems. Heat exchange surfaces; covering, plate surfaces and forced convection units. Ventilation is studied for air distribution by ducts, duct design and construction; sheet metal work; fans and blowers, fuels and their properties.

Mr. Sharpe

AC 103. Commercial Refrigeration (3)

Three one-hour lectures, spring quarter, freshman year. The fundamentals of refrigeration and physical laws. This course includes compression, absorption, vacuum, centrifugal and steam jet systems; reverse cycle; automatic devices and controls; temperatures and pressures; power and power drives; refrigerants and lubricating oils; cooling towers and spray ponds. Cold storage of commodities; cooling solids, liquids, gases and manufacture of ice; also the study of pumps and pumping systems, covering fundamentals and types of pumps; balanced and unbalanced piping systems and methods of construction; pipe, copper and steel connections, valves and fittings. The study of layout procedure, estimating, pricing, specifications, operating costs and codes, and salesmanship.

Mr. Sharpe

AC 111. Sheet Metal Shop (2)

Two three-hour shop periods, fall quarter, freshman year. This course consists of shop work covering heat transfer tests through substances; testing of British Thermal Unit (B. T. U.) content of fuels; instruction in the use of tools; construction of heat exchange surfaces; construction of forced convection units; sheet metal work with ducts, fan housing and tanks; soldering.

Mr. Sharpe

AC 152. Engineering Practice (2)

Two three-hour shop periods, winter quarter, freshman year. The design and construction of ducts, warm air furnaces, ratings, flow tests and flue effects.

Mr. Sharpe

AC 113. Refrigeration Shop (2)

Two three-hour shop periods, spring quarter, freshman year. In this course the student works with pumps, refrigerant and air compressors, condensers, receivers, motors and controls. The equipment is completely dismantled, checked for conditions, repaired if needed and reassembled, working with the controls for proper adjustments; running tests and recording results; servicing, operation and care; layout procedure. A considerable amount of work is done about the campus on practical installations in order to gain the experience needed when entering the commercial field.

Mr. Sharpe
AC 122. Refrigeration Shop

Three three-hour laboratory periods, winter quarter, freshman year. In this course the student works with pumps, refrigerant and air compressors, condensers, receivers, motors and controls. The equipment is completely dismantled, checked for conditions, repaired if needed and reassembled. A considerable amount of work is done about the campus on practical installations in order to gain the experience needed when entering the commercial field.

AC 123. Refrigeration Shop

Three three-hour laboratory periods, spring quarter, freshman year. The shop work in this course consists of the fabrication and assembling of refrigeration systems; working with the controls for proper adjustments; running tests and recording results; servicing, operation and care; layout procedure.

AC 125. Refrigeration Shop

One three-hour laboratory period, winter quarter, freshman year. This course is arranged in refrigeration for the student who has not had the opportunity to put in the full three units of AC 113. It will cover the fundamentals of pumps, refrigeration compressors, condensers, receivers and controls. The student will work on and adjust refrigeration equipment. There will be a certain amount of service work on the refrigeration equipment in use on the campus.

AC 126. Refrigeration Shop

One three-hour laboratory period, spring quarter, freshman year. Continuation of AC 125.

AC 128. Refrigeration Shop

Hours to be arranged, winter quarter, freshman year. Special shop work similar to AC 122. Units are arranged.

AC 129. Refrigeration Shop

Hours to be arranged, spring quarter, freshman year. Continuation of AC 128.

*AC 204. Steam and Hot Water Heating

Five one-hour lectures, fall quarter, sophomore year. Covering the study of steam and hot water heating systems, boilers, oil burners, gas burners, chimneys, radiators, piping and forced convection systems for heating and humidifying.

*AC 205. Summer Air Conditioning

Five one-hour lectures, winter quarter, sophomore year. Covering the elements of design of direct-expansion air conditioning systems for comfort cooling.

*AC 206. Complete Air Conditioning Systems

Five one-hour lectures, spring quarter, sophomore year. Covering the elements of design of air conditioning systems for moderate temperature work, heating and cooling, industrial and comfort, involving refrigeration, well water, adiabatic cooling or combinations of the three.

* Not offered 1942-43.
*AC 214. Air Conditioning Tests and Measurements (2)
Two three-hour laboratory periods, fall quarter, sophomore year. Testing and rating of boilers, convectors and radiators, according to A. S. H. V. E. codes. Maintenance of boilers and steam equipment.
Mr. Sharpe

*AC 215. Air Conditioning Tests and Measurements (2)
Two three-hour laboratory periods, winter quarter, sophomore year. Testing of fans, air quantities and distribution devices, according to A. S. H. V. E. codes and standards.
Mr. Sharpe

*AC 216. Air Conditioning Tests and Measurements (2)
Two three-hour laboratory periods, spring quarter, sophomore year. Testing and adjusting air conditioning systems in order to maintain high efficiencies.
Mr. Sharpe

*AC 234. Air Conditioning Drafting (2)
Two three-hour periods, fall quarter, sophomore year. Drafting of steam heating systems.
Mr. Sharpe

*AC 235. Air Conditioning Drafting (2)
Two three-hour periods, winter quarter, sophomore year. Design of equipment and project work on air conditioning systems. Mr. Sharpe

*AC 236. Air Conditioning Drafting (2)
Two three-hour periods, spring quarter, sophomore year. Continuation of AC 235.
Mr. Sharpe

*AC 254. Engineering Practice (3)
Three three-hour laboratory periods, fall quarter, sophomore year. Project work in the design of steam and hot water heating systems.
Mr. Sharpe

*AC 255. Engineering Practice (3)
Three three-hour laboratory periods, winter quarter, sophomore year. Project work in the design of direct expansion comfort cooling systems.
Mr. Sharpe

*AC 256. Engineering Practice (3)
Three three-hour laboratory periods, spring quarter, sophomore year. Project work on the design of complete comfort heating and cooling systems.
Mr. Sharpe

*AC 261. Agricultural Refrigeration (2)
One one-hour lecture and one three-hour laboratory, fall quarter, any year. A study of fundamental principles of refrigeration, servicing problems, and general information on holding of perishable foods under refrigeration.
Mr. Sharpe

*AC 262. Agricultural Refrigeration (2)
One one-hour lecture and one three-hour laboratory, winter quarter, any year. A continuation of AC 261.
Mr. Sharpe

*Not offered 1942-43 unless enrollment justifies.
*AC 263. Agricultural Refrigeration  
One one-hour lecture and one three-hour laboratory, spring quarter, any year.  
A continuation of AC 262. Mr. Sharpe

*AC 301. Cold Storage Plants  
Three one-hour lectures, fall quarter, junior year. Methods and designs of systems of cold storage of commodities, ice and ice cream making. Mr. Sharpe

*AC 302. Quick-Freezing Plants  
Three one-hour lectures, winter quarter, junior year. Methods and designs of systems for quick-freezing. Mr. Sharpe

*AC 303. Industrial Air Conditioning  
Three one-hour lectures, spring quarter, junior year. Methods and designs of industrial air conditioning of bakeries, textile mills, cigar factories and printing plants. Mr. Sharpe

*AC 331. Air Conditioning Drafting  
Two three-hour periods, fall quarter, junior year. In this course, drafting in machine and compressor design is covered. Mr. Sharpe

*AC 332. Air Conditioning Drafting  
Two three-hour periods, winter quarter, junior year. Continuation of AC 331. Mr. Sharpe

*AC 333. Air Conditioning Drafting  
Two three-hour periods, spring quarter, junior year. Continuation of AC 332. Mr. Sharpe

*AC 351. Engineering Practice  
Three three-hour laboratory periods, fall quarter, junior year. Project work in the design of cold storage systems. Mr. Sharpe

*AC 352. Engineering Practice  
Three three-hour laboratory periods, winter quarter, junior year. Project work in the design of quick freezing systems. Mr. Sharpe

*AC 353. Engineering Practice  
Three three-hour laboratory periods, spring quarter, junior year. Project work in the design of industrial air conditioning systems. Mr. Sharpe

*AC 404. Design of Large Industrial and Comfort Air Conditioning Systems  
Three one-hour lectures, fall quarter, senior year. A continuation of AC 303, but expanding into more complicated systems. The theory is considered in this course and closely coordinated with the work in AC 454. Mr. Sharpe

*AC 405. Large Comfort Heating and Cooling Systems  
Three one-hour lectures, winter quarter, senior year. Methods and designs of central and district heating and cooling systems. A continuation of AC 404. Mr. Sharpe

* Not offered 1942-43 unless enrollment justifies.
*AC 406. Large Comfort Heating and Cooling Systems
Three one-hour lectures, spring quarter, senior year. Continuation of AC 405.
Mr. Sharpe

*AC 454. Engineering Practice
Three three-hour laboratory periods, fall quarter, senior year. Project work in the design of industrial air conditioning systems.
Mr. Sharpe

*AC 455. Engineering Practice
Three three-hour laboratory periods, winter quarter, senior year. Project work in the design of large comfort heating and cooling systems.
Mr. Sharpe

*AC 456. Engineering Practice
Three three-hour laboratory periods, spring quarter, senior year. Continuation of AC 455.
Mr. Sharpe

* Not offered 1942-43 unless enrollment justifies.
ARCHITECTURAL DRAFTING DEPARTMENT

R. C. YOUNGER, Instructor

The objective of this course is to train the student to obtain employment as a draftsman in the building industry and its allied industries. It is expected that the graduate in these curricula will be employed by the planing mills, larger contracting firms, and building material organizations rather than architects. However, he will be qualified to enter an architect’s office as a junior draftsman.

Facilities

There is a commodious, well-lighted drafting room. In addition, the student will have access to the mechanical engineering and electrical laboratories, carpentry shop, machine and welding shops, so that he may observe and receive instruction in such trades as are allied to his work. This is a distinct advantage to the student as he should be familiar with the construction methods of all the trades with which he will come in contact.

Placement Fields

The placement fields are primarily with the mills, contracting firms, large corporations who maintain their own building departments, and building material organizations in the estimating departments or as junior draftsmen.

Note—

Material in bold face required of all students.
Material in light face required in the major field.
If the entering student passes a satisfactory mathematics examination, he may choose an elective instead of Mathematics 104, 105, 106.

Curriculum for Technical Certificate

FRESHMAN YEAR

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17½ 17½ 20½
### CURRICULUM FOR VOCATIONAL CERTIFICATE

Same as first two years of Technical Certificate Curriculum.

### DESCRIPTION OF COURSES IN ARCHITECTURAL DRAFTING

**Arch 101. Architectural Theory**

One one-hour lecture, fall quarter, freshman year. Discussion of the principles of architectural drafting pointing out what drawings are necessary for the construction of buildings. Assigned problems in simple details of small residential work. Mr. Younger

**Arch 102. Architectural Theory**

One one-hour lecture, winter quarter, freshman year. Continuation of Arch 101. Mr. Younger

**Arch 103. Architectural Theory**

One one-hour lecture, spring quarter, freshman year. Continuation of Arch 102. Mr. Younger

**Arch 116. Architectural Drafting Practice**

Three three-hour periods, spring quarter, freshman year. Practical drafting room work. The student will be required to develop a complete
set of working drawings and details for simple structures. Students with sufficient drafting ability or experience will be permitted to start this course in the winter quarter.

Arch 201. Architectural Theory (2)
Two one-hour lectures, fall quarter, sophomore year. Study of methods of detailing the various parts of structures. Assigned problems in complex detailing and full sizing.

Arch 202. Architectural Theory (2)
Two one-hour lectures, winter quarter, sophomore year. Continuation of Arch 201.

Arch 211. Architectural Drafting Practice (4)
Four three-hour periods, fall quarter, sophomore year. Practical drafting room work comprising the development of working drawings for larger structures, with some work in structural engineering drafting.

Arch 212. Architectural Drafting Practice (4)
Four three-hour periods, winter quarter, sophomore year. Continuation of Arch 211.

Arch 213. Architectural Drafting Practice (4)
Four three-hour periods, spring quarter, sophomore year. Continuation of Arch 212.

Arch 221. Quantity Surveying (3)
Three one-hour lectures, fall quarter, sophomore year. Methods of taking off and listing quantities of materials from working drawings for estimating the cost of structures. Assigned problems for simple structures.

Arch 222. Quantity Surveying (3)
Three one-hour lectures, winter quarter, sophomore year. Continuation of Arch 221.

Arch 223. Quantity Surveying (3)
Three one-hour lectures, spring quarter, sophomore year. Continuation of Arch 222.

Arch 231. Materials of Construction (8)
Three one-hour lectures, fall quarter, sophomore year. Discussion of the nature and proper use of the various materials used in building construction.

Arch 232. Materials of Construction (8)
Three one-hour lectures, winter quarter, sophomore year. Continuation of Arch 231.

Arch 243. Building Codes (8)
Three one-hour lectures, spring quarter, sophomore year. Study of the Uniform Building Code, electrical and plumbing codes.
Arch 301. Architectural Theory (2)
Two one-hour lectures, fall quarter, junior year. Discussion of the problems encountered in large structures. Assigned problems in advanced detailing. Mr. Younger

Arch 302. Architectural Theory (2)
Two one-hour lectures, winter quarter, junior year. Continuation of Arch 301. Mr. Younger

Arch 303. Architectural Theory (2)
Two one-hour lectures, spring quarter, junior year. Continuation of Arch 302. Mr. Younger

Arch 311. Architectural Drafting Practice (4)
Four three-hour periods, fall quarter, junior year. Working drawings of large buildings. Mr. Younger

Arch 312. Architectural Drafting Practice (4)
Four three-hour periods, winter quarter, junior year. Continuation of Arch 311. Mr. Younger

Arch 313. Architectural Drafting Practice (4)
Four three-hour periods, spring quarter, junior year. Continuation of Arch 312. Mr. Younger

Arch 314. Perspective (1)
One three-hour period, fall quarter, junior year. Theory and practice of laying out perspective drawings of buildings. Methods of indicating shades and shadows. Mr. Younger

Arch 315. Perspective (1)
One three-hour period, winter quarter, junior year. Continuation of Arch 314. Mr. Younger

Arch 321. Estimating (3)
Three one-hour lectures, fall quarter, junior year. Taking off quantities of material for larger structures. Pricing materials and figuring labor costs to obtain cost of completed building. Assigned problems. Mr. Younger

Arch 322. Estimating (3)
Continuation of 321. Three one-hour lectures, winter quarter. Mr. Younger

Arch 323. Estimating (3)
Continuation of 322. Three one-hour lectures, spring quarter. Mr. Younger

Arch 341. Specifications (3)
Three one-hour lectures, fall quarter, junior year. Study of specification writing. Emphasis on clearness of text and the proper arrangement of material according to the various trades involved. Mr. Younger
Arch 342. Specifications (3)
Three one-hour lectures, winter quarter, junior year. Continuation of Arch 341.
Mr. Younger

Arch 343. Specifications (3)
Three one-hour lectures, spring quarter, junior year. Continuation of Arch 342.
Mr. Younger

Arch 351. Architectural Mechanics (2)
Two one-hour lectures, fall quarter, junior year. Discussion of the mechanical elements that enter into structures such as plumbing, heating and electrical work and the problems arising therefrom.
Mr. Younger

Arch 352. Architectural Mechanics (2)
Two one-hour lectures, winter quarter, junior year. Continuation of Arch 351.
Mr. Younger
ELECTRICAL INDUSTRIES DEPARTMENT

J. J. HYER, Senior Instructor, Electrical Laboratory Work
DAVID W. COOK, Instructor, Electrical Theory

The electrical industries department at the California State Polytechnic offers the student the opportunity to get the necessary technical and practical training so that he may advance into a responsible position in his chosen industry. It is the objective of the two-year course in this department to give men the necessary training so that they can advance into that gap in the electrical industries between the journeyman worker and the college graduate engineer. The four-year course will train a man to enter employment in the operative or maintenance fields of industry with a practical as well as a theoretical background of training. He is equipped to hold down responsible positions in the electrical engineering field.

Facilities

The electrical laboratory is a building 40 x 110 feet, located adjacent to the power plant. In addition to this laboratory, there are classrooms and drafting rooms available for this department connected directly to the laboratory. The laboratory is equipped with all varieties of electrical machinery, transformers, relays, contactors, etc., so that the students may have a wide experience in test work on this class of equipment. There is also a small substation with its switchboard in one end of the laboratory for giving students experience in power plant or substation operating procedures. As is the plan in all departments, there is a well-equipped work shop with lathes, drill press, band-saw, jig-saw, and grinders, so that the students have an opportunity for developing workmanship skills in the electrical field. One section of the shop is set aside for coil windings, motor and transformer repair. The instrument room is well equipped with all varieties of standard test instruments for portable use. Adjacent to the electrical industries laboratory is 180 horsepower in Diesel electric generating units, and a 75-horsepower steam electric generating unit. These units are supplying the electrical energy for the campus. The central steam heating boilers for the campus are also located in this power plant. In addition to the above equipment, the school has its own electrical distribution system, which is part of the laboratory equipment for this department.

Placement Fields

The placement fields for the electrical industries for the third and fourth-year men are primarily in the drafting room work in engineering departments of power companies and other operating concerns. The second-year men are especially well qualified to go into the operation, maintenance and instruction fields of the electrical industries.

Note—
Material in bold face required of all students.
Material in light face required in the major field.
If the entering student passes a satisfactory mathematics examination, he may choose an elective instead of Mathematics 104, 105, 106.
## Industrial Department

### Degree Curriculum in Electrical Engineering

#### FRESHMAN YEAR

<table>
<thead>
<tr>
<th>Course</th>
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<tr>
<td>Physics (PSc 131) (PSc 132) (PSc 133)</td>
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<tr>
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<td>Elementary Theory of D.C. (EI 101)</td>
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<tr>
<td>D.C. Circuit Laboratory (EI 111)</td>
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<tr>
<td>Advanced Alternating Theory (EI 204)</td>
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<td>Advanced A.C. Machinery Laboratory (EI 205)</td>
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<td>Network Analysis and Power Line Construction (EI 206)</td>
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<td>A.C. Machinery Laboratory (EI 211) (EI 212)</td>
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<td>Industrial Control Laboratory (EI 213)</td>
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<tr>
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**Total Credits:** 18

#### SOPHOMORE YEAR

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<td>Advanced Alternating Theory (EI 204)</td>
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<td>Advanced A.C. Machinery (EI 205)</td>
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<tr>
<td>Network Analysis and Power Line Construction (EI 206)</td>
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<td>A.C. Machinery Laboratory (EI 211) (EI 212)</td>
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<td>Industrial Control Laboratory (EI 213)</td>
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<td>Electrical Construction Shop (EI 221) (EI 222)</td>
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**Total Credits:** 18

**Total Credits for Both Years:** 36
### Junior Year

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<td>American Government (PolSci 352)</td>
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<td>Fluid Flow (ME 313)</td>
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<td>Vacuum Tube Laboratory (EI 312)</td>
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<td>Industrial Electronics Laboratory (EI 313)</td>
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Total: 18 18 18

### Senior Year

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Total: 17 17 17

### Technical Curriculum in Electrical Industries

The first three years of the degree curriculum course in Electrical Industries cover the technical aspects of the industry.

Upon completion of the third year (except for the requirement in Engineering Mathematics) of the degree curriculum course, the student may be granted a technical certificate of recommendation.

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*Recommended but not required.*
## Industrial Department

### Vocational Curriculum in Electrical Industries

#### Freshman Year

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<th>Course</th>
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#### Sophomore Year

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<td>Network Analysis and Power Line Construction <em>(EI 206)</em></td>
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<td>Electrical Construction Shop <em>(EI 221) (EI 222)</em></td>
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<td><strong>18$$\frac{1}{2}$$</strong></td>
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### Description of Courses in Electrical Industries

**El 101. Elementary Theory of D.C.** *(3)*

Three one-hour lectures, fall quarter, freshman year. Study of nature of electricity, conductors, and non-conductors. Simple circuits, series and parallel. The meaning of current, voltage and resistance, relationships between these; Ohms law; electrical power and energy; practical applications of Ohms law; measurements of quantities; volt arc electricity, primary and secondary batteries. Study of the nature of magnetism.

Mr. Cook
EI 102. D. C. Circuits and Machinery (3)
Three one-hour lectures, winter quarter, freshman year. Electromagnetism, electrodynamics, magnetic induction, self and mutual. The magnetic circuit, Ohms law for the magnetic circuit, study of electromagnetic apparatus. Study of electric generators, shunt, series and compound. Control and regulating equipment for generators and motors; switchboards. Direct current armatures, and armature and field windings.
Mr. Cook

EI 103. Elementary A. C. Theory (3)
Three one-hour lectures, spring quarter, freshman year. Fundamentals of alternating current. Maximum, average and effective values. The meaning of reactance and impedance. Counter e.m.f. Meaning of phase, lagging and leading currents, sine waves, power waves. Measurements of A. C. quantities, power factor, single and poly phase currents, A. C. apparatus, transformers, generators, motors, and control equipment and circuits.
Mr. Cook

EI 111. Direct Current Circuit Laboratory (2)
Two three-hour periods, fall quarter, freshman year. Laboratory experiments measuring voltage, current, watts, resistance, simple D. C. networks and batteries.
Mr. Hyer

EI 112. Direct Current Machinery Laboratory (2)
Two three-hour periods, winter quarter, freshman year. Laboratory experiments on D. C. generators, compounded D. C. generators, series and shunt D. C. motors.
Mr. Hyer

EI 113. Alternating Current Laboratory (2)
Two three-hour periods, spring quarter, freshman year. Laboratory measurements of A. C. voltage, current, power, and impedance. Voltage and current transformations in transformers, single phase motors.
Mr. Hyer

EI 121. Electrical Construction Shop (1)
One three-hour period, fall quarter, freshman year. Experience in the practices of the electric trades, including wiring for light and power, repairs of electrical apparatus, winding of motors, transformers, and special apparatus. An elective course which may be extended to more hours if time affords. Specially recommended for those who may have some doubt of continuing through at least two years.
Instructor to be assigned

EI 122. Electrical Construction Shop (1)
One three-hour period, winter quarter, freshman year. A continuation of EI 121.
Instructor to be assigned

EI 123. Electrical Construction Shop (1)
One three-hour period, spring quarter, freshman year. A continuation of EI 122.
Instructor to be assigned

EI 164. Agricultural Electricity (2)
Two one-hour lectures, fall, winter or spring quarters, freshman year. This class consists of lectures, assignments, problems and class demonstrations in electrical work as applied to the farm. The purpose
of the course is to give the student an understanding of the fundamentals of electrical circuits, wiring rules, requirements, and types of motors and other electric equipment used on the farm so that he may be able to put in small installations and do some of his own repair work. A study is also made of rate schedules for the purchase of power.

Mr. Hyer

EI 204. Advanced Alternating Current Theory (5)
Five one-hour lectures, fall quarter, sophomore year. The application of vector algebra to alternating currents, polyphase circuits, power in polyphase circuits, balanced and unbalanced polyphase circuits, the transformer, equivalent circuit of the transformer, the induction motor, circle diagrams, the single phase induction motor, alternating current series motors, sub-synchronous motors, methods of starting induction motors.
Instructor to be assigned

EI 205. Advanced Alternating Current Machinery (5)
Five one-hour lectures, winter quarter, sophomore year. Construction and operation of the polyphase alternator, voltage regulators, alternator regulation, measurement by the pessimistic, optimistic, and A. I. E. E. methods, the synchronous motor, the synchronous condenser and power factor regulation, reactive power.
Instructor to be assigned

EI 206. Network Analysis and Power Line Construction (5)
Five one-hour lectures, spring quarter, sophomore year. Impedance network theorems, transformations, symmetrical components, resonance, the infinite line, electrical distribution systems.
Instructor to be assigned

EI 211. A. C. Machinery Laboratory (2)
Two three-hour periods, fall quarter, sophomore year. Special emphasis in this laboratory course is placed on the testing of alternating current circuits and machinery. Complete tests are run on induction motors, and generators, transformers, repulsion motors, relays, etc. The student becomes familiar with circuits, capacities, etc.
Mr. Hyer

EI 212. A. C. Machinery Laboratory (2)
Two three-hour periods, winter quarter, sophomore year. A continuation of EI 211.
Mr. Hyer

EI 213. Industrial Control Laboratory (2)
Two three-hour periods, spring quarter, sophomore year. In this course the student carries on experimental work with relays, contactors, and automatic control switches of the type used in any industrial plant. The wiring diagrams for complicated control systems are drawn, and the student has the opportunity to connect up and operate these circuits. A special study is made of the effect of capacity and inductance, as well as resistance, on the operation of certain types of control circuits.
Mr. Hyer

EI 221. Electrical Construction Shop (2)
Two three-hour periods, fall quarter, sophomore year. Electrical experience is offered to the sophomore students in the form of construction of special equipment, design and building of small transformers, the service of the electrical equipment on the campus which includes more
than 400 H. P. in connected motors, repair of motors and transformers, and the installation of any new electrical equipment or wiring as it is required on the campus. There is a well-equipped motor and transformer repair department provided in the electrical shop, as well as the usual machine tools such as lathe, drill press, grinders, etc. Mr. Hyer

**El 222. Electrical Construction Shop**

Two three-hour periods, winter quarter, sophomore year. Continuation of EI 221.

Mr. Hyer

**El 223. Electrical Construction Shop**

Two three-hour periods, spring quarter, sophomore year. Continuation of EI 222.

Mr. Hyer

**El 231. Electrical Drafting**

One three-hour period, fall quarter, sophomore year. Continuation of ME 153, with the addition of more design problems, and layout problems to go with the Electrical Construction Shop courses EI 221, EI 222, and EI 223.

Mr. Hyer

**El 232. Electrical Drafting**

One three-hour period, winter quarter, sophomore year. Continuation of EI 231.

Mr. Hyer

**El 233. Electrical Drafting**

One three-hour period, spring quarter, sophomore year. Continuation of EI 232.

Mr. Hyer


Two one-hour lectures, fall quarter, sophomore year. A study of the National Electric Code prepared by the National Board of Fire Underwriters. The student becomes familiar with standard practice in electrical installations. Certain city electrical codes are studied in this course.

Mr. Hyer

**El 242. Electrical Safety Orders**

Two one-hour lectures, winter quarter, sophomore year. A continuation of the preceding course, but extending it to the study of the booklet of electrical safety orders in use in the State of California. The students follow this book in detail in order to become familiar with the safety requirements in commercial practice in wiring and installation of electric equipment.

Mr. Hyer

**El 243. Rules for Overhead Line Construction**

Two one-hour lectures, spring quarter, sophomore year. A study of the standard rules for overhead line construction in use in the State of California. The book of rules published by the California Railroad Commission is used as the text.

Mr. Hyer

**El 251. Power Plant Operation**

Three one-hour lectures, fall quarter, sophomore year. A special study with reference reading on power plant operating problems, various types and sources of power and the economics of the power generating plant with special emphasis on the internal combustion engine in the
small plants, and especially the Diesel engine, its operation, maintenance and repairs. Throughout the year the students in the power plant operating class are getting operating experience in the school generating plant. There are Diesel, steam and gas engine electric generating units in this plant. Each student puts in one full day each month as the operator of this plant. Mr. Knott

**EL 252. Power Plant Operation** (3)

Three one-hour lectures, winter quarter, sophomore year. A continuation of EL 251 with more emphasis placed on the Diesel engine and the cost of generating power in the small plants. The introduction to the steam cycles, steam tables, and the steam engine as a prime mover. Mr. Knott

**EL 253. Power Plant Operation** (3)

Three one-hour lectures, spring quarter, sophomore year. A continuation of course EL 252, but extending into the care and operation of steam units and boilers. Considerable attention is given to the auxiliaries in the steam plant, as well as the heat values and combustion of fuels. Mr. Knott

**EL 301. Advanced Electricity and Magnetism** (3)

Three one-hour lectures, fall quarter, junior year. This course takes up the scientific part of electrical theory which is the basis of modern electrical engineering. The subjects covered include electrostatic field and potential theory, dielectrics, capacity, electrical conduction and direct current networks, magnetism, magnetic induction, non-Ohmic current elements, and thermo electricity. Instructor to be assigned

**EL 302. Advanced Electricity and Magnetism** (3)

Three one-hour lectures, winter quarter, junior year. A continuation of EL 301, in which the study is extended to thermionic emissions, photoelectricity, thermionic vacuum tube theory, electrical conduction in gases, cold and hot cathode discharge devices. Instructor to be assigned

**EL 303. Advanced Electricity and Magnetism** (3)

Three one-hour lectures, spring quarter, junior year. Electrical oscillations and electrical waves. Properties of impedance networks operating with vacuum tubes, coupled circuits, electrical radiation, and properties of electrical waves. Instructor to be assigned

**EL 311. Electrical Measurements Laboratory** (2)

Two three-hour periods, fall quarter, junior year. A study of electrical instruments and absolute methods of measuring electrical quantities such as charge, current, voltage, capacitance, inductance, flux, permeability, dielectric constants, etc. Mr. Hyer

**EL 312. Vacuum Tube Laboratory** (2)

Two three-hour periods, winter quarter, junior year. Laboratory studies of various types of vacuum tubes such as diodes, triodes, pentodes, gaseous triodes, etc. First their static characteristics are experimentally determined; then these characteristics are used to determine the operating properties of the various tubes as voltage amplifiers, class A, B, and C power amplifiers, detectors, oscillators, thyatron relays, etc. Instructor to be assigned
El 313. Industrial Electronics Laboratory (2)
Two three-hour periods, spring quarter, junior year. Laboratory studies of industrial control vacuum tube circuits. Vacuum tube voltage regulators, frequency stabilizers, gaseous triode control circuits, photoelectric circuits. Instructor to be assigned

El 324. Electrical Construction Shop (2)
Two three-hour periods, fall quarter, junior year. The design and construction of equipment for the shop and for use on other parts of the campus. The student has an opportunity to use his initiative and constructive ability in producing original pieces of equipment for the shop. Mr. Hyer

El 325. Electrical Construction Shop (2)
Two three-hour periods, winter quarter, junior year. Continuation of El 324. Mr. Hyer

El 326. Electrical Construction Shop (2)
Two three-hour periods, spring quarter, junior year. Continuation of El 325. Mr. Hyer

El 334. Electrical Drafting (1)
One three-hour period, fall quarter, junior year. Design problems, wiring diagrams, and layout problems to go with the Electrical Construction Shop, El 324, El 325, El 326. Mr. Hyer

El 335. Electrical Drafting (1)
One three-hour period, winter quarter, junior year. A continuation of El 334. Mr. Hyer

El 336. Electrical Drafting (1)
One three-hour period, spring quarter, junior year. A continuation of El 335. Mr. Hyer

El 402. Communication Engineering (2)
Two one-hour lectures, winter quarter, senior year. Properties and problems of transmission lines for currents of many frequencies, attenuation, filters, carrier systems, modulation and demodulation, equalizers, etc. Instructor to be assigned

El 403. Illumination Engineering (2)
Two one-hour lectures, spring quarter, senior year. A study of the fundamentals of light; relationship of color as it affects reflection. Nature of light sources, measurement of their intensity and efficiency. Photometry, selection of units and their distribution. Study of reflectors and diffusers. Latest accepted methods of laying out lighting installations for domestic, industrial and outdoor illumination. Instructor to be assigned

El 411. Radio Frequency Laboratory (2)
Two three-hour periods, fall quarter, senior year. A study of radio frequency circuit constants and circuits. Radio frequency amplifiers, detectors, and frequency measurements. Instructor to be assigned
El 412. Communication Laboratory (2)
Two three-hour periods, winter quarter, senior year. Measurements of transmission line constants, equalizers, repeaters, modulation and demodulation, etc. Mr. Hyer

El 413. Illumination Laboratory (2)
Two three-hour periods, spring quarter, senior year. Putting to practice the methods taught in the class course EI 106. Lighting projects in shops and buildings of the campus afford opportunity for ample experience in this course. Mr. Hyer

El 461. Electrical Developments (2)
Two one-hour lectures, fall quarter, senior year. This course is dealing with current literature and late developments in the electrical field. Assignments are made from technical literature and trade magazines, as well as sections of the latest textbooks. Topics are assigned students to give oral reports in class. Instructor to be assigned

El 462. Electrical Developments (2)
Two one-hour lectures, winter quarter, senior year. A continuation of EI 461. Instructor to be assigned

El 463. Electrical Developments (2)
Two one-hour lectures, spring quarter, senior year. A continuation of EI 462. Instructor to be assigned

El 471. Electrical Machine Design (2)
Two one-hour lectures, fall quarter, senior year. Theory that is the basis of electrical machine design, such as magnetic properties of matter, motional electromotive force, the rotating field, problems of regulation, etc. Instructor to be assigned
MECHANICAL INDUSTRIES DEPARTMENT

NORMAN SHARPE, Instructor

The purpose of the mechanical industries courses is to train students to enter employment in the design, maintenance and operation of mechanical systems. It is the objective of the two-year course to train men primarily for the field of operation and maintenance. The four-year course is planned to give sufficient training so that the student completing it will be able to plan and draft heating, piping, air conditioning, refrigeration, plumbing and electrical systems as used in public buildings, factories, or warehouses. It further offers a good background to enter the oil industry and many other mechanical fields.

Facilities

The college has a well equipped laboratory for the study and construction of steam, refrigeration and air conditioning systems; a power house comprising two Diesel electric generating units, and a steam electric generating unit; machine shop; sheet metal shop; and welding shop.

Placement Fields

The placements of the two year men are primarily in the field of operation and maintenance. The placements of the four year men are in the field of sales, drafting and construction engineering.

Note—

Material in bold face required of all students.
Material in light face required in the major field.
If the entering student passes a satisfactory mathematics examination, he may choose an elective instead of Mathematics 104, 105, 106.

Degree Curriculum in Mechanical Engineering

FRESHMAN YEAR

<table>
<thead>
<tr>
<th>Course</th>
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1 Recommended but not required.
### Technical Curriculum in Mechanical Industries

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Total Credits: 17

#### Sophomore Year

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Total Credits: 17

#### Junior Year

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Total Credits: 18

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1. Recommended but not required.
### Freshman Year

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### Sophomore Year

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### Description of Courses in Mechanical Industries

**ME 141. Engineering Drafting Theory** (1)

Two one-hour lectures, fall quarter, freshman year. This course embraces a review of the principles of orthographic and isometric projection. The new requirements of industry, based upon standard practices in mechanical drafting are taken up; the angles of projection are discussed; projection drawings involving straight lines, plane figures and solids are studied from an elementary standpoint. French's "Engineering Drawing" is used as the textbook. Mr. Younger

**ME 142. Engineering Drafting Theory** (1)

Two one-hour lectures, winter quarter, freshman year. A continuation of ME 141. Mr. Younger

**ME 143. Engineering Drafting Theory** (1)

Two one-hour lectures, spring quarter, freshman year. A continuation of ME 142. Mr. Younger

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1 Recommended but not required.
ME 151. **Engineering Drafting Practice**  
One three-hour period, fall quarter, freshman year. This course is to be taken in conjunction with ME 141. The work in the drafting room is of a practical nature, and the student is allowed to go ahead as rapidly as he shows ability. He is started on elementary drawings until he demonstrates the ability to handle the drafting instruments and do first-class work. The assignments become more complicated, and as soon as possible, the student is placed on the drawing of parts of equipment and elementary design problems. The student who demonstrates ability to handle the first-year drafting practice is given credit for the work, and passed on to the second year of work in his specialized line.  
Mr. Younger

ME 152. **Engineering Drafting Practice**  
One three-hour period, winter quarter, freshman year. A continuation of ME 151.  
Mr. Younger

ME 153. **Engineering Drafting Practice**  
One three-hour period, spring quarter, freshman year. A continuation of ME 152.  
Mr. Younger

ME 154. **Engineering Drafting Practice**  
Three three-hour periods, fall quarter, freshman year. This course is to be given in conjunction with ME 141, and is primarily intended for the student who is specializing in architectural or mechanical drafting. The work in the drafting room is of practical nature. The student is allowed to go ahead as rapidly as he shows ability. He is started on elementary drawings until he demonstrates the ability to handle the drafting instruments and do first-class work. The assignments become more complicated as soon as possible. For those students who have had previous drafting in high school, assignments will be along an architectural nature during the first quarter, if the student has the previous experience and ability to take care of normal drafting and projection work.  
Mr. Younger

ME 155. **Engineering Drafting Practice**  
Three three-hour periods, winter quarter, freshman year. A continuation of ME 154, with the student being assigned work in his specialty as soon as he has reached the necessary skill and proficiency in normal mechanical drafting.  
Mr. Younger

ME 201. **Analytic Mechanics**  
Three one-hour lectures, fall quarter, sophomore year. Prerequisite, PSc 131, or equivalent. This course consists largely of problems in the elements of mechanics with special emphasis on forces, moments, levers, center of gravity, moments of inertia, etc. An elementary textbook in mechanics is used, and supplemented by lectures and demonstrations.  
Dr. Bowls

ME 232. **Strength of Materials**  
Three one-hour lectures, winter quarter, sophomore year. Textbook work, lectures on problems, on the fundamentals of strength of materials, with special emphasis placed on materials used in construction, and the properties of these different materials. The student becomes familiar
with methods of calculating the strength of simple beam columns, struts, tie rods, riveted joints, etc. It is recommended that a student should have had ME 201 prior to taking this course. Instructor to be assigned

**ME 233. Strength of Materials (3)**
Three one-hour lectures, spring quarter, sophomore year. A continuation of ME 232, with special emphasis placed on the graphical method of solution of stress problems. Mr. Johnson

**ME 251. Mechanical Drafting Practice (3)**
Three three-hour periods, fall quarter, sophomore year. This course deals with the layout of plumbing, electrical work, air conditioning and refrigeration systems. The purpose of the course is to give the student experience in standard practices used in commercial drafting rooms on methods of layout of these systems. The student will get some experience in structural details. Mr. Younger

**ME 252. Mechanical Drafting Practice (3)**
Three three-hour periods, winter quarter, sophomore year. A continuation of ME 251. Mr. Younger

**ME 253. Mechanical Drafting Practice (3)**
Three three-hour periods, sophomore year. A continuation of ME 252. Mr. Younger

**ME 313. Fluid Flow (3)**
Three one-hour lectures, spring quarter, junior year. The usual hydraulic principles of flow of liquid will be considered in this course, as well as the flow of gases through ducts and pipes. Measurement of fluids, including gases by standard commercial instruments, will be discussed. More consideration will be given to the flow of gases in ducts and pipes than is normally considered in an hydraulics course. Mr. Sharpe

**ME 361. Plumbing (3)**
Three one-hour lectures, fall quarter, junior year. This course deals with the fundamentals of plumbing and building codes relative to plumbing in the various cities of California. The principles of plumbing layout as well as sanitation are covered. Prerequisites: ME 251, ME 252, and ME 253. Instructor to be assigned

**ME 422. Thermodynamics (3)**
Three one-hour lectures, winter quarter, junior year. This course is a practical treatment of heat cycles, the gas laws, and relationship between heat energy and mechanical energy. Various methods of converting heat energy to mechanical energy will be considered in this course. Mr. Sharpe
DESCRIPTION OF RELATED COURSES

SAN LUIS OBISPO

(Note: Major courses are described in each department section)

COURSES OF INSTRUCTION AT CALIFORNIA STATE POLYTECHNIC, SAN LUIS OBISPO

Description of Courses in Agricultural Education

AgEd 302. Introduction to Vocational Agricultural Education (1)
One one-hour lecture, winter quarter. A guidance course for agriculture students interested in becoming agriculture teachers.
Mr. McMahon

AgEd 500L. Conference, Agriculture Teaching Problems (1)
One week, summer session. A series of lectures, seminars, demonstrations and discussions of agriculture education teaching problems, led by specialists in agriculture education for professional improvement of the teaching of vocational agriculture. At San Luis Obispo. Instructors to be assigned for each section.

AgEd 520L. Agricultural Skills (1)
One week, summer session. Various agricultural skills determined by circularizing vocational agriculture teachers and designed to meet their specific needs in the teaching of vocational agriculture students. At San Luis Obispo. Instructors will be assigned for each section.

Description of Courses in Animal Husbandry

AH 111. Types and Breeds of Live Stock (3)
Two lectures, one laboratory, fall quarter, freshman year. A study of modern market and breed types, origin, and adaptations of beef, sheep, hogs, horses, and dairy cattle. Special emphasis is placed upon commercial breeder and market demands.
Mr. Jewett

AH 114. Elements of Feeding (2)
Two lectures, fall quarter, freshman year. A study of the constituents of feeds, carbohydrates, proteins, fats, minerals, vitamins and water; their utilization by the animal body. The digestive system, the processes of digestion and assimilation of the various feed constituents. Computations of standard rations for live stock.
Mr. Collins, Mr. Drumm

AH 115. Elements of Feeding (2)
Two lectures, winter quarter, freshman year. A continuation of AH 114.
Mr. Jewett
AH 212. Elements of Horse Production
Two lectures, one laboratory, winter quarter, sophomore year. The feeding, care and management of farm work and riding horses; the common diseases and unsoundness affecting them. Breeds, breeding and selection of breeding stock. Mr. Bennion

AH 214. Advanced Feeds and Feeding
Three lectures, fall quarter, sophomore year. This course deals principally with the composition, grades and feeding value of the common farm animal feeds for various kinds of live stock. Selecting and computing rations to meet demands of the different farm animals under California conditions. Mr. Bennion

AH 312. Animal Breeding
Three lectures, winter quarter, junior year. Application of the principles of genetics to improvement of farm animals; study of the physical basis of inheritance, effect of nutritional and physiological factors of reproduction, gestation, parturition, lactation, fertilization and sterilization; successful breeding methods, including in-breeding, line breeding, and out-crossing. A study of artificial insemination. Dr. McCapes

AH 313. Horse Husbandry
Two lectures, one laboratory, spring quarter, junior year. A study of the breeding, care and management of light horses. Mr. Bennion

Description of Courses in Biological Science

BSc 132. Botany
Two lectures, one laboratory, winter quarter, freshman year. Basic botany, principles of plant structure, reproduction, growth and functions. Instructor to be assigned

BSc 133. Botany
Two lectures, one laboratory, spring quarter, freshman year. A continuation of BSc 132. Instructor to be assigned

BSc 192. Zoology
Two lectures, one laboratory, winter quarter, freshman year. Detailed study of phyla of the animal kingdom; the habitat, evolution and anatomical differences of the various species; special attention given to those forms directly related to agriculture, and parasites of domestic animals. Dr. McCapes

BSc 193. Zoology
Two lectures, one laboratory, spring quarter, freshman year. A continuation of BSc 192. Dr. McCapes

BSc 211. Anatomy
Two lectures, one laboratory, fall quarter, sophomore year. A course in anatomy of the domestic animals. Special attention is given to the structure of the digestive systems of the common farm animals. Dr. McCapes
BSc 221. Bacteriology

Three lectures, one laboratory, fall quarter, sophomore year. Morphology, classification, physiology and cultivation of bacteria; relation of bacteria to health of man, animals and plants; the home, sanitation and industry.

Dr. McCapes

BSc 243. Entomology

Two lectures, two laboratories, spring quarter, sophomore year. Insects and their injuries as affecting fruit and vegetable quality. Potential pests, control methods, host plants, life history. A survey of important tests. Each student will be required to make a collection of insects.

Instructor to be assigned

BSc 262. Animal Physiology

One lecture, one laboratory, winter quarter, sophomore year. A study of the functions and physiological processes of all animals. Special emphasis is placed on common farm animals.

Dr. McCapes

BSc 272. Plant Pathology

Three lectures, one laboratory, winter quarter, sophomore year. Principal diseases, types of injury, control methods, identification by field observation and symptoms.

Instructor to be assigned

BSc 283. Diseases of Live Stock

Two lectures, one laboratory, spring quarter, sophomore year. Common farm animal diseases, their causes, prevention and control; treatment of wounds.

Dr. McCapes

BSc 286. Parasites of Farm Animals

Two lectures, spring quarter, sophomore year. A study of the various parasites, external and internal; their life cycles, and their control.

Dr. McCapes

BSc 321. Dairy Bacteriology

Two one-hour lectures, one laboratory period, fall quarter, junior year. An advanced course dealing with bacteriology of milk, butter, cheese, ice cream, and evaporated milk. Prerequisites: DP 122 and BSc 221.

Mr. Ilg

BSc 391. Plant Breeding

Three lectures, spring quarter, junior year. A study of the mechanics of inheritance. Particular attention will be devoted to factors influencing production, diseases and pest resistance, new varieties, and the opportunities for the development of desirable characteristics in plants. Prerequisites: BSc 132, BSc 133.

Instructor to be assigned

BSc 394. Genetics

Three lectures, fall quarter, junior year. Principles of heredity and variation as applied to animal breeding.

Dr. McCapes

BSc 437. Plant Science Seminar

One lecture, fall quarter, senior year. Round-table discussion and special assignments in the plant science field relating to the major of each student. Instructors in plant science field.
Description of Related Courses

BSc 438. Plant Science Seminar (1)
One lecture, winter quarter, senior year. A continuation of BSc 437. Instructors in the plant science field.

BSc 439. Plant Science Seminar (1)
One lecture, spring quarter, senior year. A continuation of BSc 438. Instructors in the plant science field.

BSc 453. Animal Nutrition (3)
Three lectures, spring quarter, senior year. The chemistry and the digestion of the various food nutrients, proteins, carbohydrates, fats, minerals and vitamins; principles of metabolism maintenance. Growth and reproduction. Prerequisite: PSc 411. Instructors to be assigned.

Description of Courses in Economics

Econ 113. Economic Problems (8)
Three one-hour lectures, spring quarter, freshman year. Consideration of practical economic farm problems. Included are problems dealing with farm labor, insurance, banking, buying habits, land tenure, personal budgeting and farm organization for efficient production. For vocational students.

Mr. Beck

Econ 201. Principles of Economics (8)
Three one-hour lectures, fall quarter, sophomore year. Introduction to economic theory. Consideration is given to organization for production, the factors of production, namely land, labor, capital and management, and the problems of price determination under conditions of pure competition. Illustrations are drawn from the field of agriculture.

Instructor to be assigned

Econ 202. Principles of Economics (3)
Three one-hour lectures, winter quarter, sophomore year. Pricing under conditions of imperfect competition. The functional and institutional aspects of wealth and income distribution. Introduction to international economic relations.

Instructor to be assigned

Econ 203. Economics of Agricultural Production (3)
Three one-hour lectures, spring quarter, sophomore year. A study of the application of basic economic principles to the problems of agricultural production. Consideration is given to the various economic cost concepts, nature of marginal production, effect of prices, taxes, form of land tenure, credit policy, tariffs and transportation policies on agricultural production. Trends in agricultural production and the short and long-run effect of governmental activity upon agricultural output are discussed.

Instructor to be assigned

Econ 204. Adult Problems (3)
Three one-hour lectures, fall quarter, sophomore year. A study of the most important social, economic, and civic problems which a young man must face, particularly those that will affect him as a technical worker, consumer, owner or renter, investor, head of a family, and citizen. The discussion will include reference to the social, civic, and economic problems of the day.

Miss Chase
Econ 206. Adult Problems (3)
Three one-hour lectures, spring quarter, sophomore year. A continuation of Econ 204. Miss Chase

Econ 211. Accounting (3)
Three one-hour lectures, fall quarter, sophomore year (for technical and vocational students). A study of the fundamentals of accounting with their particular application to the business of farming. Also deals with the cost of production studies and their place in the accounting system. Mr. Beck

Econ 212. Accounting (3)
Three one-hour lectures, winter quarter, sophomore year (for technical and vocational students). Continuation of Econ 211. Emphasis is given to credit, negotiable instruments, banking services and other economic phases of farming. Mr. Beck

Econ 213. Farm Management (3)
Three one-hour lectures, spring quarter, sophomore year (for technical and vocational students). A course in management dealing with enterprise efficiency studies and cost accounting, placing particular emphasis on the problems of the farm manager. Mr. Beck

Econ 216. Agricultural Prices (3)
Three one-hour lectures, spring quarter, sophomore year. Study of the principles of price determination with reference to agricultural commodities. Consideration is given to the use of outlook reports, current market price releases, and to supply and demand factors associated with the price movements of more important farm commodities. Instructor to be assigned

Econ 311. Accounting (3)
Three one-hour lectures, fall quarter, junior year. A study of the fundamentals of accounting with their particular application to the business of farming. Also deals with cost of production studies and their place in the accounting system. Mr. Beck

Econ 312. Accounting (3)
Three one-hour lectures, winter quarter, junior year. Continuation of Econ 11. Some time will be given to credit, negotiable instruments, banking services and like subjects. Mr. Beck

Econ 313. Farm Management (3)
Three one-hour lectures, spring quarter, junior year. A course in management dealing with enterprise efficiency studies and cost accounting, placing particular emphasis on the problems of the farm manager. Mr. Beck

Econ 314. Agricultural Resources (3)
Three one-hour lectures, fall quarter, junior year. A broad survey of the agriculture of the United States, and particularly of the State of California. Consideration is given to soil, climate, topography, institutions, population and to the movement of farm products. Instructor to be assigned
Econ 315. Farm Law

Three one-hour lectures, winter quarter, junior year (for technical students). May be substituted for Econ 412. A study of the common laws relating to agricultural land ownership, contracts, and similar subjects.

Mr. Beck

Econ 317. Principles of Marketing Agricultural Products

Three one-hour lectures, fall quarter, junior year (for technical students only). A study of the nature of the problem of marketing agricultural products, the various services, sales methods employed, importance of standardization and grading, storage, market news, transportation and price quotations. Special reference is made to the distribution of California farm products.

Instructor to be assigned

Econ 318. Cooperative Marketing

Three one-hour lectures, winter quarter, junior year (for technical students only). A study of farmers' cooperative buying and selling organizations. Consideration is given to price and other objectives of cooperatives, their legal status, financial, pooling and price problems, growers' rights and duties, duties of directors, types of organizations and the place of cooperative marketing in the economic system.

Instructor to be assigned

Econ 351. Economics

Three one-hour lectures, fall quarter, junior year. A study of the economics of production for sale and the selling of the product of the factories of the nation. Special emphasis is placed on the methods of selling, costs of selling, and personal contacts by the salesmen as compared to the advertising and letter selling.

Instructor to be assigned

Econ 352. Economics

Three one-hour lectures, winter quarter, junior year. A continuation of Econ 351.

Instructor to be assigned

Econ 353. Economics

Three one-hour lectures, spring quarter, junior year. A continuation of Econ 352.

Instructor to be assigned

Econ 411. Principles of Marketing Agricultural Products

Three one-hour lectures, fall quarter, senior year. A study of the nature of the problem of marketing agricultural products, the various services, sales methods employed, importance of standardization and grading, storage, market news, transportation and price quotations. Special reference is made to the distribution of California farm products.

Instructor to be assigned

Econ 412. Cooperative Marketing

Three one-hour lectures, winter quarter, senior year. A study of farmers' cooperative buying and selling organizations. Consideration is given to price and other objectives of cooperatives, their legal status, financial, pooling and price problems, growers' rights and duties, duties of directors, types of organizations and the place of cooperative marketing in the economic system.

Instructor to be assigned
Econ 413. Commodity Marketing and Government Activity (3)
Three one-hour lectures, spring quarter, senior year. A study of State and Federal government activities as they affect agricultural marketing. The objectives and operation of control programs, regulatory measures and government service activities are considered in relation to their influence on the practices of private and cooperative marketing agencies. The commodity approach is used. Instructor to be assigned.

Description of Courses in English

The purpose of the courses offered in English is two-fold: first, to enable the student to express his ideas through the mediums of both written and spoken language; second, to acquaint him with the thought of other writers and with the forms by means of which they express their thoughts. Through a study of the work of these writers the student obtains a broader background of information and an enlargement of interests; he also finds models which will help him in the expression of his own ideas.

In order to determine the needs of each student and to place him in a class which provides for these needs, an examination in written English is given to those students who have not passed the examination in Subject “A” of a recognized college. The students are placed in different sections according to the strength or the weakness which they have shown in the examination. Those students enrolled in either the Technical or Vocational curriculum, who show deficiency, will normally enroll in Corrective English 1, 2, and 3 for the first year. They may, however, enroll in English 101, 102, or 103 when satisfactory improvement has been made. Technical or Vocational students with normal English usage usually enroll in English 101 which they follow with English 102 and 103. Should any student in this group pass the examination with credit, he may take his second examination, the passing of which will admit him to English 104, followed by 105 and 106. Since English 104, 106 and 106 is required in the degree courses, the student who enrolls in the degree course, but fails to pass the second examination, will need some additional work. Preparatory English 4, 5, and 6, is a no-credit course. After successful completion of this course, any student may enroll in English 104. A student who is taking a technical or a vocational course and who passes this second examination or who has passed the examination in Subject A of a recognized college may, if he so wishes, be excused from English 101 and given full credit for the course on the completion of 102 and 103. Should the placement made as a result of one of the entrance examinations prove to be faulty, by action of the English department, the student may be transferred to a section better adapted to his needs.

Eng 1. Corrective English (0)
Two one-hour lectures, fall quarter, freshman year. A no-credit course provided for vocational and technical students who show decided weakness in English usage and who need training in the fundamentals of English before proceeding to work in English 101, 102, 103. Instructor to be assigned.

Eng 2. Corrective English (0)
Two one-hour lectures, winter quarter, freshman year. A no-credit course that is a continuation of English I. Instructor to be assigned.
Eng 3. Corrective English
Two one-hour lectures, spring quarter, freshman year. A no-credit course to complete the work of the previous quarters. A grade of C in corrective English is required for admission to English 104, 105, 106.
Instructor to be assigned

Eng 4. Preparatory English
Two one-hour lectures, fall quarter, freshman year. A no-credit course provided for degree students who show a decided weakness in English usage and who need training in the fundamentals of English before attempting degree English 104, 105, and 106.
Instructor to be assigned

Eng 5. Preparatory English
Two one-hour lectures, winter quarter, freshman year. A no-credit course. A continuation of the work offered under English 4.
Instructor to be assigned

Eng 6
Two one-hour lectures, spring quarter, freshman year. A no-credit course. A continuation of the work offered in the two previous quarters under English 4 and English 5.
Instructor to be assigned

English 101, 102, 103
English 101, 102, and 103 constitute a "service course" in English with the maximum of practical work. The year's course includes spelling, those elements of grammar that vitally affect the use of language, sentence and paragraph structure, punctuation, the study of words often confused, the organization of thought, the expression of the thoughts of the student himself and the reproduction in his own words of the thoughts of others. It also includes instruction in letter-writing and in the use of the library. The reading provided in the course includes articles on civic, social, and national problems and provides background material. It enlarges the student's knowledge of ideas and the world about him and provides models for his own writing. It is of genuine interest to the student.

Eng 101
Three one-hour lectures, fall quarter, freshman year. The work includes the study of some of the subjects just enumerated and includes the answering of questions on assigned reading and the writing of definitions, summaries, and original articles.
Instructor to be assigned

Eng 102
Three one-hour lectures, winter quarter, freshman year. A continuation of the work described in the general article on the course and an extension of English 101.
Instructor to be assigned

Eng 103
Three one-hour lectures, spring quarter, freshman year. A continuation of the work described in the general article on the course and an extension of English 102.
Instructor to be assigned
English 104, 105, 106

English 104, 105, and 106 to some extent parallel English 101, 102, and 103, but are on a more advanced level. The work is still pre-eminently practical, but the student is given a little more of the theory behind some of the operations, and his study of sentence and paragraph structure is more extended. He also spends more time in learning how to obtain information on a variety of subjects from individuals, books, and magazines, how to organize the material obtained, and to present it in a paper of some length. Most of his reading still concerns present-day people, problems, and ideas, but more study is made of the form used by the author and the methods employed for the transmission of thought.

Eng 104

Three one-hour lectures, fall quarter. To be given in the freshman year to those students who have met the prerequisites described in the introduction to the courses in English. Others may take it later. The work includes the first section of the subjects just enumerated.

Instructor to be assigned

Eng 105

Three one-hour lectures, winter quarter, freshman year or later. A continuation of the work described in the general article on the course and an extension of English 104.

Instructor to be assigned

Eng 106

Three one-hour lectures, spring quarter, freshman year or later. A continuation of the work described in the general article on the course and an extension of English 105.

Instructor to be assigned

PUBLIC SPEAKING

Eng 251. Public Speaking

Two one-hour lectures, fall or winter quarters, sophomore year. A practical course in public speaking for students in any of the curricula. Prerequisite: Eng 101, Eng 102 and Eng 103, or the equivalent.

Instructors to be assigned

Eng 253. Public Speaking

Three one-hour lectures, spring quarter, sophomore year. Additional practice in public speaking, primarily for students in the industrial fields in curricula requiring five quarter units of public speaking. (Eng 251 and Eng 253).

Instructors to be assigned

Description of Courses in Farm Skills

FS 201. Tractor Skills

One laboratory, offered in fall, winter or spring quarters, sophomore year. This course is required for graduation in all agriculture curricula of any level. The course includes the operation, servicing and field adjustments on various makes, models and types of tractors. Laboratory work consists of actual field operations involving various kinds of farm implements in season.

Mr. Merson
Description of Related Courses

FS 202. Tractor Skills (1)
One laboratory, offered in fall, winter or spring, sophomore year. This course is required for graduation in all agriculture curricula of any level. Continuation of FS 201. In this course, the student improves his skill and technique in handling various tractors and farm implements.

Mr. Merson

FS 203. Horse Skills (1)
One laboratory, offered in fall and winter quarters, sophomore year. This course is required for graduation in all agriculture curricula of any level. Instruction and practice in handling, harnessing, hitching and working horses with various kinds of farm machinery and equipment.

Instructor to be assigned

Description of Courses in Journalism

Jour 101. Introductory Journalism (3)
Two lectures, one two-hour laboratory period, fall quarter, any year. An introductory study of journalism with emphasis on news values, news sources, gathering of news, structure of news story, and newspaper organization. Writing assignments for class work made specifically for publication in the student weekly newspaper. Two hour laboratory spent in re-writing, copy reading, proof reading and general editing of copy for student weekly paper. Open to all students without prerequisite.

Mr. Kennedy

Jour 102. News Writing (3)
Two lectures, one two-hour laboratory period, winter quarter, any year. Continuation of Jour 101. More advanced study of news story structure with study and practice in covering speeches, interviewing, covering sports events and writing features for the student paper. Laboratory period spent in general editing of copy for student paper. Prerequisite: Jour 101.

Mr. Kennedy

Jour 103. Types of Journalism (3)
Two lectures, one two-hour laboratory period, spring quarter, any year. Continuation of Jour 102. Study of special types of journalism; editorials, criticism, columns, press associations, headlines, make-up, preparation of lay-outs, advertising problems. Laboratory period spent in writing headlines, making page layouts, correcting galley and page proofs for student paper. Prerequisites: Jour 101 and Jour 102.

Mr. Kennedy

Jour 201. News Analysis (1)
One lecture, fall quarter, sophomore, junior or senior year. Open to all students except freshmen interested in increasing their understanding and appreciation of news. Lectures, talks by prominent outsiders, classwork, and round-table discussions of news. Guidance in detecting propaganda, news coloring, over-emphasis in news selection, news evaluation, ethics, freedom of the press, radio newscasts, newsreels, and the future newspaper. No prerequisites. Continual study of newspapers, news magazines, and other news media.

Mr. Kennedy
Jour 202. News Analysis (1)
One lecture, winter quarter, sophomore, junior or senior year. Continuation of the work described for Jour 201. No prerequisites.
Mr. Kennedy

Jour 203. News Analysis (1)
One lecture, spring quarter, sophomore, junior or senior year. Continuation of the work described for Jour 201 and 202. No prerequisites.
Mr. Kennedy

Jour 231. Journalism Practice (1 to 3)
Fall, winter or spring quarter, open to sophomores, juniors and seniors who have completed Jour 101, 102, 103; prerequisite may be waived by instructor if student has sufficient background to handle work. Credit to be arranged for students holding editorial positions on school publications, student news and publicity bureau, or radio production shop. All work to be under supervision of instructor. Mr. Kennedy

Jour 301. Technical Journalism (3)
Three lectures, fall quarter, junior or senior year. Study and practice in writing feature stories, publicity releases and technical reports for magazines, trade journals and newspapers in both the agricultural and engineering field; students are encouraged to free-lance best manuscripts to suitable technical publications. Principles of photographic illustration of articles are studied and applied in practice. Radio script writing is studied and advanced students are given opportunity to write "radio copy" and "go on the air" regularly. Jour 101, 102, 103 required as prerequisite unless waived by instructor.
Mr. Kennedy

Jour 302. Technical Journalism (3)
Three lectures, winter quarter, junior or senior years. Continuation of Jour 301.
Mr. Kennedy

Jour 303. Technical Journalism (3)
Three lectures, spring quarter, junior or senior year. Continuation of Jour 301 and Jour 302.
Mr. Kennedy

Description of Courses in Machine Shop

MS 101. Machine Shop (1)
One three-hour period, fall quarter, freshman year. The student gets the fundamentals of bench work, layout, fitting, filing and the fundamentals of lathe work beginning with simple turning.
Mr. S. S. Smith

MS 102. Machine Shop (1)
One three-hour period, winter quarter, freshman year. Continuation of the first quarter. The student begins work on the shaper, and more advanced work on the lathe.
Mr. S. S. Smith

MS 103. Machine Shop (1)
One three-hour period, spring quarter, freshman year. Continuation of the second quarter with more practice on the lathe, shaper, and general shop and repair work.
Mr. S. S. Smith
Description of Related Courses

MS 107. Machine Shop (2)
Two three-hour periods, fall quarter, freshman year. A general practice machine shop course including bench work, layout work, lathe work, etc., for the special student who wishes more shop work than that offered in MS 101, 102 and 103. Mr. S. S. Smith

MS 108. Machine Shop (2)
Two three-hour periods, winter quarter, freshman year. Continuation of MS 107. Mr. S. S. Smith

MS 109. Machine Shop (2)
Two three-hour periods, spring quarter, freshman year. Continuation of MS 108. Mr. S. S. Smith

MS 204. Machine Shop (1)
One three-hour period, fall quarter, sophomore year. Intended for second-year aeronautics students. Continuation of MS 103, with more advanced problems assigned and more general repair work to be done. Lathe jobs consist of taper fits, thread fits, running fits, etc. The student is assigned work on the planer, universal tool grinder, and milling machine. The machine shop work is individual and the student may progress as rapidly as he shows the ability to proceed and he receives credit in proportion to his progress. Mr. S. S. Smith

MS 205. Machine Shop (1)
One three-hour period, winter quarter, sophomore year. Continuation of MS 204. Mr. S. S. Smith

MS 206. Machine Shop (1)
One three-hour period, spring quarter, sophomore year. Continuation of MS 205. Mr. S. S. Smith

MS 211. Machine Shop (2)
Two three-hour periods, fall quarter, sophomore year. A continuation of the general machine shop training offered in MS 109 for the special student who wishes more machine shop training than is offered in MS 204. The student obtains training on the lathe, planer, shaper, milling machine and takes up general repair work as it comes into the shop. Mr. S. S. Smith

MS 212. Machine Shop (2)
Two three-hour periods, winter quarter, sophomore year. A continuation of MS 211. Mr. S. S. Smith

MS 213. Machine Shop (2)
Two three-hour periods, spring quarter, sophomore year. A continuation of MS 212. Mr. S. S. Smith

MS 311. Machine Shop (3 to 6)
Hours to be assigned, fall quarter, junior year. A course for special students in machine shop work. The credit is determined by the progress made, and the time spent by the student. Prerequisite: MS 213. Mr. S. S. Smith
MS 312. Machine Shop

(3 to 6)

Hours to be assigned, winter quarter, junior year.

Continuation of MS 311.

Mr. S. S. Smith

MS 313. Machine Shop

(3 to 6)

Hours to be assigned, spring quarter, junior year.

Continuation of MS 312.

Mr. S. S. Smith

Description of Courses in Mathematics

Math 1. Practical Mathematics

(0)

Two one-hour lectures, fall quarter, freshman year. Minimum essentials of mathematics for business purposes. Deals with fractions, decimals, solution of equations, farm measurements and a review of fundamental operation. (Students who pass a satisfactory pre-examination will be excused from this course.) Required of all agriculture students. A no-credit course.

Mr. Beck

Math 102. Agricultural Mathematics

(2)

Two one-hour lectures, winter quarter. Primarily for technical and vocational agricultural students. This course consists of a study of the mathematical problems which are most commonly found in practical agriculture. Topics covered consist of such things as areas, volumes, capacities, mathematics of construction, levers, pulleys, work and power, and pressure.

Mr. Beck

Math 103. College Mathematics

(2)

Two one-hour lectures, spring quarter. Required of all degree students. Prerequisite: Satisfactory passing of entrance examination or completion of Mathematics 102 with a grade of A or B. Deals with graphical method, percentage, equations, lengths, areas, and volumes, the right triangle, exponents and logarithms. Applications are made to agricultural problems.

Instructor to be assigned

Math 107. College Algebra

(3)

Three one-hour lectures, fall quarter, freshman year. This is the usual course in college algebra consisting of quadratic equations, simultaneous equations, exponents and radicals, graphs of functions, logarithms, progressions and the binomial theorem. It is presumed that the student will have had two years of high school algebra or its equivalent; but admittance to this course will be based on ability to pass an entrance examination.

Instructor to be assigned

Math 108. College Algebra

(3)

Three one-hour lectures, winter quarter, freshman year. A continuation of Math 107.

Instructor to be assigned

Math 109. Trigonometry

(3)

Three one-hour lectures, spring quarter, freshman year. This course follows Math 108 and presumes that the student has had one semester of high school trigonometry. It covers the solution of the right and oblique triangles with applications, the functions of the acute and obtuse angles, formulas involving several angles, graphs of trigonometric functions, and is adequate preparation for work in analytic geometry and calculus.

Instructor to be assigned
Description of Related Courses

Math 111. Engineering Mathematics (3)
Three one-hour lectures, fall quarter, sophomore year. This course offers a practical study of the functions occurring most often in engineering. These include the simple algebraic variations, the rational and irrational algebraic functions, the logarithmic, the exponential, and the trigonometric. The student is encouraged to think of these functions as a quantitative relationship between the relative sizes of various real measurements rather than only as manipulations of mathematical symbols.
Mr. Cook

Math 112. Engineering Mathematics (3)
Three one-hour lectures, winter quarter, sophomore year. A continuation of Math 111. Rates of change, properties of curves, maxima and minima, areas under curves, etc. During this quarter the tools of differentiation and integration are introduced.
Mr. Cook

Math 113. Engineering Mathematics (3)
Three one-hour lectures, spring quarter, sophomore year. Mathematical methods of computation used in engineering, such as numerical integration, series expansion and approximations, harmonic analysis and Fourier's theorem, dimensional analysis, and simple differential equations.
Mr. Cook

Math 334. Vector Analysis (2)
Two one-hour lectures, fall quarter, junior year. A study of vector algebra and the vector functions of engineering. The vector operators of gradient, divergence, and curl are studied with relationship to practical problems in fields of force, fluid flow, heat transfer, and stress analysis.
Instructor to be assigned

Math 335. Vector Analysis (2)
Two one-hour lectures, winter quarter, junior year. A continuation of Math 334.
Instructor to be assigned

Math 336. Differential Equations (2)
Two one-hour lectures, spring quarter, junior year. A continuation of Math 335.
Instructor to be assigned

Description of Courses in Music

Mu 101. California State Polytechnic College Band (2)
Three two-hour periods, fall quarter, freshman, sophomore, junior or senior years. Prerequisite: High school or equivalent band experience. The band plays and marches in athletics contests. It participates in all college assemblies and special occasions. Several trips are taken each year. Students participating in extra band music groups may receive extra credit. A limited number of students wishing to learn to play instruments may have free instruction by arranging with the director of music. Later, those showing promise may enter the band. Nineteen instruments are available for use.
Mr. Davidson

Mu 102. California State Polytechnic College Band (2)
Three two-hour periods, winter quarter, freshman, sophomore, junior or senior years. A continuation of Mu 101.
Mr. Davidson


Mu 103. California State Polytechnic College Band (2)
Three two-hour periods, spring quarter, freshman, sophomore, junior or senior years. A continuation of Mu 102. Mr. Davidson

Mu 111. Men's Glee Club (1 to 2)
Two two-hour periods, fall quarter, freshman, sophomore, junior or senior years. Entrance by try-out. All types of four-part compositions are sung. Fundamentals of breathing, tone production, diction and interpretation are stressed. Several quartets are developed each year for radio work for which additional credit may be given. The club sponsors an annual tour and entertainment, besides the usual engagements. Mr. Davidson

Mu 112. Men's Glee Club (1 to 2)
Two two-hour periods, winter quarter, freshman, sophomore, junior or senior years. A continuation of Mu 111. Mr. Davidson

Mu 113. Men's Glee Club (1 to 2)
Two two-hour periods, spring quarter, freshman, sophomore, junior or senior years. A continuation of Mu 112. Mr. Davidson

Mu 121. Orchestra (1)
Two three-hour periods, winter quarter, freshman, sophomore, junior or senior years. Limited to those who have had considerable experience. The orchestra student has an opportunity to play for various college entertainments. Mr. Davidson

Mu 122. Orchestra (1)
Two three-hour periods, winter quarter, freshman, sophomore, junior or senior years. A continuation of Mu 121. Mr. Davidson

Mu 123. Orchestra (1)
Two three-hour periods, spring quarter, freshman, sophomore, junior or senior years. A continuation of Mu 122. Mr. Davidson

Mu 231. Music Theory (2)
Two one-hour lectures, winter quarter, sophomore year. A course including the elements of harmony and theory; transposition, instrumentation and arranging for orchestra and glee club. Mr. Davidson

Note: Course numbers above are those given to music courses when taken in the freshman year only (except Mu 231). When taken in the sophomore, junior or senior year, the left digit will be 2, 3 or 4.

Description of Courses in Physical Education

Every student who has not been officially excused will be required to complete three quarter units of physical education. Every student must complete one full year of Health Education; a total of 1½ quarter units. Every student's record shows whether he has passed in health education as well as physical education.
PE 101. Physical Education
Three one-hour laboratory periods, fall quarter, freshman year, consisting of gymnasium apparatus work, fundamentals of football, baseball, swimming, boxing and track.
Mr. Dakan and instructors to be assigned

PE 102. Physical Education
Three one-hour laboratory periods, winter quarter, freshman year. A continuation of PE 101.
Mr. Dakan and instructors to be assigned

PE 103. Physical Education
Three one-hour laboratory periods, spring quarter, freshman year. A continuation of PE 102.
Mr. Dakan and instructors to be assigned

PE 104. Mass Athletics
Hours to be arranged, fall quarter, freshman year. May be substituted by freshman students for PE 101.
Mr. Dakan and instructors to be assigned

PE 105. Mass Athletics
Hours to be arranged, winter quarter, freshman year. A continuation of PE 104.
Mr. Dakan and instructors to be assigned

PE 106. Mass Athletics
Hours to be arranged, spring quarter, freshman year. A continuation of PE 105.
Mr. Dakan and instructors to be assigned

PE 107. Health Education
One lecture, fall quarter, freshman year. The lecture deals with various aspects of personal hygiene. The relation of exercise and nutrition to health is also emphasized.
Dr. Butler and Mr. Dakan

PE 108. Health Education
One lecture, winter quarter, freshman year. A continuation of PE 107.
Dr. Butler and Mr. Dakan

PE 109. Health Education
One lecture, spring quarter, freshman year. A continuation of PE 108.
Dr. Butler and Mr. Dakan

PE 201. Physical Education
Three one-hour laboratories, fall quarter, sophomore year. Prescribed course in physical education for sophomores, similar to that of the freshman year.
Mr. Dakan and instructors to be assigned

PE 202. Physical Education
Three one-hour laboratories, winter quarter, sophomore year. A continuation of PE 201.
Mr. Dakan and instructors to be assigned
PE 203. Physical Education
Three one-hour laboratories, spring quarter, sophomore year. A continuation of PE 202.
Mr. Dakan and instructors to be assigned

PE 204. Mass Athletics
Hours to be arranged, fall quarter, sophomore year. May be substituted by sophomore students for PE 201. Participation in inter-collegiate athletics.
Mr. Dakan and instructors to be assigned

PE 205. Mass Athletics
Hours to be arranged, winter quarter, sophomore year. A continuation of PE 204.
Mr. Dakan and instructors to be assigned

PE 206. Mass Athletics
Hours to be arranged, spring quarter, sophomore year. A continuation of PE 205.
Mr. Dakan and instructors to be assigned

Description of Courses in Physical Science

PSc 111. General Chemical Science
Three lectures, fall quarter, freshman year. An introduction to elementary chemistry as applied daily in agriculture, including the important chemicals, elements and reactions found in agriculture. Formulæ of fertilizers, insecticides, etc., will be considered. Instructor to be assigned.

PSc 131. Physics
Three one-hour lectures, one two-hour laboratory, fall quarter, freshman year. An introductory course of college physics intended for all industrial students and by those degree agricultural students that are required to take physics. Particular emphasis is placed on practical applications of physical principles.
Dr. Bowls

PSc 132. Physics
Three one-hour lectures, one two-hour laboratory, winter quarter, freshman year. A continuation of PSc 131 extending into the subjects of heat, sound and light.
Dr. Bowls

PSc 133. Physics
Three one-hour lectures, one two-hour laboratory, spring quarter, freshman year. A continuation of PSc 132 extending into the subjects of magnetism and electricity.
Dr. Bowls

PSc 232. Sound and Light
Three one-hour lectures, winter quarter, sophomore year. Prerequisite: PSc 131, or equivalent. A study of the fundamental principles of sound and light, with particular emphasis on sound. The studies of sound and light are taken up in considerably more detail and from a more mathematical point of view than were discussed in the freshman physics course.
Dr. Bowles
Description of Related Courses

PSe 251. Soils (8)
Three one-hour lectures, fall quarter, sophomore year. A course combining a study of the physical character of soils and their origin with the social influence of their usage. The material includes a study of the soil depletion over the nation, and the soil-saving and soil-building programs recommended to save the national wealth. Instructor to be assigned.

PSc 311. Chemistry (4)
Three one-hour lectures, one three-hour laboratory, fall quarter, junior year. A course designed to familiarize the student with the important fundamentals of chemistry. Emphasis is placed on chemical principles. Instructor to be assigned.

PSc 312. Chemistry (4)
Three one-hour lectures, one three-hour laboratory, winter quarter, junior year. Prerequisite: PSc 311 or its equivalent. A continuation of PSc 311. Emphasis placed on chemical principles as applied to oxidation-reduction reactions involving metals and nonmetals. Instructor to be assigned.

PSc 313. Chemistry (4)
Three one-hour lectures, one three-hour laboratory, spring quarter, junior year. Prerequisites: PSc 311 and PSc 312 or their equivalent. A continuation of PSc 312. The laboratory work consists principally of devising and applying a qualitative scheme of analysis. Mr. Sharpe

PSc 331. Sound Control (3)
Two one-hour lectures, one three-hour laboratory period, fall quarter, junior year. Prerequisite: PSc 232. This course is a more extensive study of sound than that given in PSc 232, and deals primarily with the production, transmission, and control of sound in machinery and buildings. The lectures deal with the causes and methods of production of sound, while the laboratory section deals with experimental work in measurement of sound intensity and methods of absorption and prevention of noises. Dr. Bowls

PSc 412. Organic Chemistry (5)
Three one-hour lectures, two three-hour laboratories, winter quarter, senior year. Prerequisites: PSc 311, PSc 312, PSc 313 or equivalents. A practical approach to the fundamental concepts of organic chemistry which form the prerequisites for a further study of physiological chemistry and various applied courses in agriculture. Laboratories are designed to acquaint students with the particular types of analyses in their major fields. Protein analysis of feedstuff for animal science students, soil and insecticide work for plant science students are typical examples. Mr. Ilg

Description of Courses in Political Science

PolSci 253. Labor Relations (3)
Three one-hour lectures, spring quarter, sophomore year. This course deals with problems which the young worker will meet in connection with labor unions and working conditions in industry. A fair discussion of the labor problem will be presented, both from the standpoint
of the laborer and the employer. There will also be discussions on State and Federal laws dealing with the worker and labor problems, as well as discussions on current legislation and labor disputes.

Instructor to be assigned

**PolSci 258. American Government**

Three one-hour lectures, spring quarter, sophomore year, for vocational students only. Principles and problems in relation to the development, organization, and functions of the American system of government.

Instructor to be assigned

**PolSci 352. American Government**

Three one-hour lectures, winter quarter, junior year. Principles and problems in relation to the development, organization, and functions of the American system of government.

Instructor to be assigned

**PolSci 451. Comparative Government**

Three one-hour lectures, fall quarter, senior year. A study of the dictatorial techniques and ideologies, and the transformation of established governmental institutions in modern totalitarian states.

Miss Chase

**PolSci 452. Contemporary Political Problems**

Three one-hour lectures, winter quarter, senior year. An analysis of current legislative, executive, and judicial activities in American National and State government. Emphasis is placed upon the American governmental approach to the solution of contemporary political and economic problems.

Miss Chase

**PolSci 453. State and Local Government**

Three one-hour lectures, spring quarter, senior year. How American States organized; relations of State and Nation; election machinery and politics, law enforcement and the court system. County and municipality organization is considered.

Miss Chase

**Description of Courses in Psychology**

**Pay 303. Psychology**

Three one-hour lectures, spring quarter, junior year. A general introductory study of the facts and principles of psychology. The physical basis of behavior, inherited and acquired traits, learning and habit formation, the basis of memory, learning, reasoning, imagination and perception are dealt with.

Mr. Davidson

**Pay 403. Family Relations**

Three one-hour lectures, spring quarter, senior year. The study of premarital relations, including the necessary factors for successful marriage. Choosing a mate, budgeting, causes for divorce, and factors of religion are some of the topics considered.

Mr. Davidson
Description of Related Courses

Description of Courses in Typing

Typ 101. Typing (1)
Three one-hour periods, any quarter. Designed to teach the fundamentals of the touch system in the shortest time. Training is also given in making out business forms and the writing of letters.
   Instructor to be assigned

Typ 102. Typing (1)
Three one-hour periods, any quarter. Continuation of Typ 101. Prerequisite: Typ 101, or equivalent.
   Instructor to be assigned

Description of Courses in Welding

Weld 101. Welding (1)
One laboratory, fall quarter, freshman year. Oxy-acetylene welding on sheet metal, of the type required by the aircraft welder. This course is arranged for the aeronautics students. Most of the welding is done on 18-gauge sheet metal. As soon as the student becomes proficient in the flat welding, he progresses to the welding of aircraft tubing and making fittings and joints on aircraft tubing.
   Mr. Figge

Weld 102. Welding (1)
One laboratory, winter quarter, freshman year. A continuation of Weld 101.
   Mr. Figge

Weld 103. Welding (1)
One laboratory, spring quarter, freshman year. A continuation of Weld 102.
   Mr. Figge

Weld 104. Welding (2)
Two laboratories, fall quarter, freshman year. A course arranged for special students. It gives the student the opportunity to obtain the fundamentals of welding with the oxy-acetylene torch on lightweight steels. Most of the welding is done on 18-gauge steel.
   Mr. Figge

Weld 105. Welding (2)
Two laboratories, winter quarter, freshman year. A continuation of Weld 104.
   Mr. Figge

Weld 106. Welding (2)
Two laboratories, spring quarter, freshman year. A continuation of Weld 105.
   Mr. Figge

Weld 107. Welding (3 to 6)
Fall quarter, freshman year. Laboratories to be arranged. A course for special students in welding. Credit is given according to the time given to welding practice and the accomplishment of the student.
   Mr. Figge

Weld 108. Welding (3 to 6)
Winter quarter, freshman year. A continuation of Weld 107.
   Mr. Figge
Weld 109. Welding
Spring quarter, freshman year. A continuation of Weld 108.
Mr. Figge

Weld 121. Foundry
One laboratory, fall quarter, freshman year. An elementary course in foundry practice for students in aeronautical drafting department. Students obtain experience in making sand molds, pouring brass and aluminum castings, making patterns, etc.
Mr. Figge

Weld 122. Foundry
One laboratory, winter quarter, freshman year. A continuation of Weld 121.
Mr. Figge

Weld 123. Foundry
One laboratory, spring quarter, freshman year. A continuation of Weld 122.
Mr. Figge

Weld 201. Welding
Laboratory, fall quarter, sophomore year. This course is arranged for sophomore students in aeronautics industries. They continue with the sheet metal welding until they attain the necessary proficiency, and then advance to heavy welding of steel, both with the acetylene and electric processes.
Mr. Figge

Weld 202. Welding
One laboratory, winter quarter, sophomore year. A continuation of Weld 201, taking up in addition the welding of aluminum for aircraft purposes.
Mr. Figge

Weld 203. Welding
One laboratory, spring quarter, sophomore year. A continuation of Weld 202.
Mr. Figge

Weld 207. Welding
Two laboratories, fall quarter, sophomore year. This course is open to special students who want more welding than is offered to the aeronautics industries students. Prerequisites are Weld 104, 105 and 106, or the equivalent. This course includes heavy welding, both by the acetylene and electric processes, repair and new construction jobs as they come into the shop; and going out on repair jobs to other parts of the campus.
Mr. Figge

Weld 208. Welding
Two laboratories, winter quarter, sophomore year. A continuation of Weld 207.
Mr. Figge

Weld 209. Welding
Two laboratories, spring quarter, sophomore year. A continuation of Weld 208.
Mr. Figge
SAN DIMAS

(Note: Major courses are described in each department section.)

COURSES OF INSTRUCTION VOORHIS UNIT OF CALIFORNIA STATE POLYTECHNIC

Description of Courses in Agricultural Mechanics

AgM 101. Agricultural Mechanics
One lecture, one laboratory, fall quarter, freshman year. Instruction and practice in developing skills in such practices as tinwork, rope work, simple carpentry, pipe work, concrete work, forging and welding. The construction of such projects as are related to major agricultural enterprises, is used as a basis for instruction. Mr. Thompson

AgM 102. Agricultural Mechanics
One lecture, one laboratory, winter quarter, freshman year. A continuation of AgM 101. Mr. Thompson

AgM 103. Agricultural Mechanics
One lecture, one laboratory, spring quarter, freshman year. A continuation of AgM 102. Mr. Thompson

AgM 201. Agricultural Mechanics
One lecture, one laboratory, fall quarter, sophomore year. This course includes instruction and practices in gas engines and power equipment, spray rigs and pumps, farm machinery and simple electrical construction. For students majoring in Ornamental Horticulture. Mr. Thompson

AgM 202. Agricultural Mechanics
One lecture, one laboratory, winter quarter, sophomore year. A continuation of AgM 201. Mr. Thompson

AgM 203. Agricultural Mechanics
One lecture, one laboratory, spring quarter, sophomore year. A continuation of AgM 202. Mr. Thompson

AgM 222. Farm Surveying
One lecture, one laboratory, winter or spring quarter, sophomore year. This course is designed to give training in the fundamentals of plane surveying and the use of surveying equipment. Farm leveling, soil conservation methods and farm irrigation are made the basis of the work. Mr. Meacham
Description of Courses in Biological Science

**BSc 131. Botany** (3)
Two lectures, one laboratory, fall quarter, freshman year. Basic botanic principles of plant structure, reproduction, growth and function. Mr. Thompson

**BSc 133. Botany** (3)
Two lectures, one laboratory, spring quarter, freshman year. An extension of BSc 131, with particular emphasis on the practical relationship of botanical forms with everyday life. Mr. Thompson

**BSc 136. Pest Control Materials** (3)
Two lectures, one laboratory, spring quarter, freshman year. A course dealing with the principles and practices of general pest control, especially with the composition and materials used in pest control work. Detailed studies are made on the properties, preparation and application of common pest control materials. Mr. Court

**BSc 141. Entomology** (4)
Three lectures, one laboratory, fall quarter, freshman year. Insects and their injury to fruit and vegetables, affecting their quality. Potential pests, control methods, host plants and life history. Insecticides and quarantine problems. A survey of important pests. Students are required to make a laboratory collection of insects. Mr. Court

**BSc 172. Plant Pathology** (4)
Three lectures, one laboratory, winter quarter, freshman year. Principal plant diseases; types of injuries, control methods, identification by field observation, and symptoms. Mr. Court

**BSc 293. Rodent Control** (3)
Two lectures, one laboratory, spring quarter, sophomore year. This course for agricultural inspection majors. The principal points stressed are the laws affecting rodents, the life history of rodents, and various methods of rodent control. The bird problem is similarly treated. Mr. Court

Description of Crops Production Courses

**CP 141. Truck Crops Production** (3)
Two lectures, one laboratory, fall quarter, freshman year. The production of general truck crops, packing, growing and marketing commodities produced. Field trips into commercial producing districts. Mr. Thompson

**CP 142. Truck Crops Production** (3)
Two lectures, one laboratory, winter quarter, freshman year. A continuation of CP 141. Mr. Thompson

**CP 243. Crop Pest Control** (3)
Two lectures, one laboratory, spring quarter, sophomore year. This course includes a study of the important crop insects and diseases with methods for combating these pests. Spraying, dusting and fumigation are considered as well as cultural and sanitary practices of control. Mr. Thompson
CP 300. General Field Crops Production  
Two lectures, one laboratory, spring quarter, recommended for junior year. A brief survey of the important field and forage crops in California, with emphasis upon cultural practices and inter-relationship with other enterprises. Important skills are included. No project required, although field work is provided, including seed selection, planting, irrigation, cultivation, harvesting, pest control, marketing, processing and shipping.  
Mr. Thompson

Description of Courses in Economics

Econ 201. General Economics  
Three lectures, fall quarter, sophomore year. Introduction to economic theory. Consideration is given to organization for production, the factors of production, namely, land, labor, capital and management; and the problems of price determination under conditions of pure competition.  
Mr. Hawkins

Econ 214. Accounting  
Three lectures, fall quarter, sophomore year. A study of the fundamentals of accounting with their practical application to the business of horticulture. Also deals with cost of production studies, and their place in the accounting system. Meets requirement for Econ 311 for degree students.  
Mr. Thompson

Econ 215. Accounting  
Three lectures, winter quarter, sophomore year. A continuation of Econ 214. In addition, some time is given to credit, negotiable instruments, banking service and similar subjects. Meets requirement for Econ 312 for degree students.  
Mr. Thompson

Econ 213. Cooperative Marketing  
Three lectures, spring quarter, sophomore year. A study of farmer-cooperative buying and selling organizations. Consideration is given to price, and other objectives of cooperation, their legal status, financial, pooling and price problems; growers' rights and duties, types or organization, and the place of cooperative marketing in the economic system.  
Mr. Hawkins

Description of Courses in English

Eng 101. English  
Three lectures, fall quarter, freshman year. A course in writing and in literature, that embodies the principles of good English. Application of rules of grammar, spelling and composition, with particular emphasis upon the practical usage of the material in class work and in later occupation.  
Mr. Thompson

Eng 102. English  
Three lectures, winter quarter, freshman year. A continuation of Eng 101.  
Mr. Thompson

Eng 103. English  
Three lectures, spring quarter, freshman year. A continuation of Eng 102.  
Mr. Thompson
Eng 252. Public Speaking (2)
Two lectures, winter quarter, sophomore year. A course in public speaking to improve the ability of students in expression, elocution, and stage presence. Mr. Hawkins

Description of Courses in Farm Skills

FS 201. Farm Skills (1)
One laboratory, fall quarter, sophomore year. Basic training in common farm practices, such as tractor driving, handling of farming equipment, and general equipment repair and maintenance. Mr. Meacham

FS 202. Farm Skills (1)
One laboratory, winter quarter, sophomore year. A continuation of FS 202. Mr. Meacham

FS 203. Farm Skills (1)
One laboratory, spring quarter, sophomore year. A continuation of FS 202. Mr. Meacham

Description of Courses in Mathematics

Math 1. Review of Mathematics (0)
Two lectures, fall quarter, freshman year. This course may be passed by examination, or must be taken without credit. A general review of all fundamental principles in mathematics. Mr. Meacham

Math 102. Practical Mathematics (2)
Two lectures, winter quarter, freshman year. Minimum essentials of mathematics for business purposes. Deals with fractions, decimals, solution of equations, farm measurements, and review of fundamental mathematical principles. Mr. Meacham

Description of Courses in Music

Mu 111. Men's Glee Club (1)
One laboratory, fall quarter, freshman year. Entrance by tryouts. All types of four-part compositions are sung. Fundamentals of breathing, tone production, diction, interpretation, are stressed.
* Instructor to be assigned

Mu 112. Men's Glee Club (1)
One laboratory, winter quarter, freshman year.
A continuation of Mu 111. Instructor to be assigned

Mu 113. Men's Glee Club (1)
One laboratory, spring quarter, freshman year.
A continuation of Mu 112. Instructor to be assigned
Description of Related Courses

Description of Courses in Physical Education

Every student who has not been officially excused will be required to complete three quarter units of physical education.

Every student must complete one full year of Health Education; a total of 1 ½ quarter units. Every student's record shows whether he has passed in health education as well as physical education.

**PE 101. Physical Education**

Three one-hour laboratory periods, fall quarter, freshman year, consisting of gymnasium apparatus work, fundamentals of baseball, basketball and track. Mr. Meacham

**PE 102. Physical Education**

Three one-hour laboratory periods, winter quarter, freshman year. A continuation of PE 101. Mr. Meacham

**PE 103. Physical Education**

Three one-hour laboratory periods, spring quarter, freshman year. A continuation of PE 102. Mr. Meacham

**PE 104. Mass Athletics**

Hours to be arranged, fall quarter, freshman year. May be substituted by freshman students for PE 101. Mr. Meacham

**PE 105. Mass Athletics**

Hours to be arranged, winter quarter, freshman year. A continuation of PE 104. Mr. Meacham

**PE 106. Mass Athletics**

Hours to be arranged, spring quarter, freshman year. A continuation of PE 105. Mr. Meacham

**PE 107. Health Education**

One lecture, fall quarter, freshman year. The lecture deals with various aspects of personal hygiene. The relation of exercise and nutrition to health is also emphasized. Mr. Meacham and college physician

**PE 108. Health Education**

One lecture, winter quarter, freshman year. A continuation of PE 107. Mr. Meacham and college physician

**PE 109. Health Education**

One lecture, spring quarter, freshman year. A continuation of PE 108. Mr. Meacham and college physician

**PE 201. Physical Education**

Three one-hour laboratories, fall quarter, sophomore year. Gymnasium apparatus work, fundamentals of sports, intramural sports. Mr. Meacham

**PE 202. Physical Education**

Three one-hour laboratories, winter quarter, sophomore year. A continuation of PE 201. Mr. Meacham
PE 203. Physical Education (I)
Three one-hour laboratories, spring quarter, sophomore year. A continuation of PE 202.

PE 204. Mass Athletics (I)
May be taken in lieu of PE 201. Participation in mass athletics.

PE 205. Mass Athletics (I)
May be taken in lieu of PE 202. Participation in mass athletics.

PE 206. Mass Athletics (I)
May be taken in lieu of PE 203. Participation in mass athletics.

Description of Courses in Physical Science

PSoc 112. Chemical Science (3)
Two lectures, one laboratory, winter quarter, freshman year. The fundamental principles of chemical science as pertaining to agricultural problems, such as acids, bases, fertilizers, sprays, and soils.

PSoc 153. Soils (3)
Three lectures, spring quarter, freshman year. A course combining the study of the physical character of the soils and their origin, with the social influence of their usage. The material includes the study of soil depletion over the Nation and the soil-saving and soil-building programs recommended to save the national wealth.

Description of Courses in Political Science

PolSc 252. American Government (3)
Three lectures, winter quarter, sophomore year. Principles and problems in relation to the development, organization, and functions of the American system of government.

Description of Courses in Typing

Typ 101. Typing (1)
One laboratory, fall quarter, freshman year. The fundamentals of the touch system of typing, designed to improve student ability to make out records and reports. Training is also given in business forms and letters. Instructor to be assigned.
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Application for Admission

At San Luis Obispo  
At San Dimas  
(Check unit you plan to enter)

Date submitted  

Full Name  
P. O. Address  

Previous Education Completed:

Attended high school  
Graduated  

Attended college  
Applicant's age  

Indicate your contemplated major: (If undecided, check here.)  

---Aero. ---Crop Prod. ---Fruit Prod.  
---Air Cond. ---Elect. Ind. ---Ornamental Hort.  
---Arch. Draft. ---Poultry  

State when you expect to attend California State Polytechnic: At the beginning of the  quarter,  
(Fall) (Winter) (Spring)  

Have a transcript of record sent to the Registrar, California State Polytechnic, from the last institution you attended. Give the date  ,  

when you requested the institution to send this transcript of record.  

Give the names and addresses of three reliable persons from whom further information concerning your character or scholastic ability may be obtained.  

Mail this form to: The Registrar, California State Polytechnic,  
San Luis Obispo, California  

14322 7-42 5M