

CURRICULUM
OFFICE

PimaC

DO NOT REMOVE

71|72



Catalog Supplement 71 | 72



"Nature forms us for ourselves, not for others, to be, not to seem." *Michel de Montaigne*

**To Serve The Community
... Pima College**

2202 West Anklam Road
Tucson, Arizona 85709
Phone: (602) 884-6666



Catalog information on courses and regulations may be changed following a determination by the college's program coordinators or the Board of Governors.

Pima College Philosophy

The proper functioning of a democratic society and the well-being of the individual depend on his opportunity to develop his abilities in accordance with his own chosen goals. To achieve this end, Pima College believes education should be designed as a continuous process which develops a man's awareness both of himself and his environment and, thus, prepares him to function more effectively in a highly complex society.

Each individual in the Pima College community is encouraged to take pride in his own heritage and at the same time to develop awareness and appreciation of differences which stem from differing backgrounds.

An institution committed to these ends attempts to create an atmosphere rich in a diversity of subject matter, materials and educational approaches. In accepting the principle of continuous and open evaluation of all activities, the college will encourage all participants to make free, intelligent and responsible choices from a wide range of alternatives.



Goals

Pima College provides an open door to educational opportunity. It is more interested in what a student is ready to do than in what he has done. Seriousness of purpose and the ability to profit from selected instruction are the most important qualifications for enrollment.

Pima College es una institución educativa que reconoce la diversidad de las necesidades de toda la comunidad, igual que acepta las valiosas contribuciones de los múltiples grupos étnicos de nuestro Suroeste.

Los programas educativos de Pima College, en los cuales cualquier persona podrá participar sin importar su nivel de instrucción formal, responderán a las necesidades de toda la comunidad. Se efectuarán los programas en un ambiente rico en la diversidad de técnicas pedagógicas, de materiales, y de materias, algunas de las cuales se dictarán en español, de acuerdo con las necesidades del alumnado.

Para más informes en español, comunicarse con la Oficina de Admisión.

Información – General

Pima College es una institución dedicada a la educación superior. Se reconoce la necesidad que hay en toda comunidad de que exista una institución donde todos los miembros tengan la posibilidad de educarse, de buscar nuevas metas personales, y que todo individuo pueda contribuir al desarrollo cultural de la comunidad.

Esto significa que Pima College no solamente reconoce, sino que trata de fomentar el conocimiento común de esos hechos culturales e históricos de los múltiples grupos étnicos de nuestro Suroeste. La multiculturalidad cultural que presenta nuestra comunidad se presta a la creación de un proceso educativo rico en sus raíces, diverso en materia, y amplio en sus métodos.

Los programas educativos que se imparten en Pima College en general no tendrán una duración mayor de 2 años. El currículo incluye cursos en las diversas materias que se imparten tanto en español como en inglés. Presentando materias en ambos idiomas, Pima College proporciona a la comunidad la posibilidad de aprovechar más procesos educativos sin perder el tiempo mientras se aprende inglés, o simplemente, significa que una persona que desea practicar ambos idiomas tiene la posibilidad de hacerlo.

La legislación del Estado de Arizona define el "junior college" diciendo que serán instituciones educativas donde se proporcionarán programas en las artes, ciencias y humanidades; se llevarán a cabo al terminar la escuela secundaria, y se incluirán cursos vocacionales y técnicos.

Al llevar a cabo esta definición, Pima College se compromete a prestar los siguientes servicios a la comunidad:

Educación de tipo general que fomente interés en el conocimiento así como interés en la capacidad del hombre para formar una parte inteligente y responsable de su comunidad

Programas educativos de duración variable que prepare a los estudiantes en carreras útiles y satisfactorias.

Dos años de estudios preparatorios que permitan al estudiante ingresar en cursos universitarios superiores.

Cursos educativos de toda índole que tienen como fin satisfacer las aspiraciones vocacionales o académicas de la población.

Un personal profesional que trata de servir a la comunidad en forma académica y vocacional.

Servicios en cuanto a las necesidades culturales, recreativas, y de interés general.

No es necesario el certificado de secundaria para ingresar en Pima College. Si usted desea más informes, comuníquese con la Oficina de Admisión.

Functions

Arizona law defines a junior college as an “educational institution which provides a program not exceeding two years training in the arts, sciences and humanities beyond the twelfth grade of the public or private high school curriculum or vocational education, including terminal courses of a technical or vocational nature and courses beyond the basic education courses for adults.”

Operating within this definition, Pima College declares its functions to include:

General education designed to increase the individual's awareness of man's knowledge and his capacity for intelligent and responsible participation in society.

Educational programs of varying length to prepare students for useful and satisfying vocations with emphasis on community needs.

Two years of lower division collegiate work to enable students to progress smoothly into upper division work at universities.

Continuing education courses to satisfy the vocational and avocational aspirations of those young people and adults who are interested in attending evening classes.

A professional staff responsive to the needs of individuals for assistance in career guidance, academic work, and personal counseling.

Community services related to specific needs including cultural, recreational and general interest programs.

Applicants will be admitted regardless of past performance. The faculty will help each student develop an individual program.

Accreditation

Pima College, which officially opened in September of 1970, currently has Correspondent Status with the North Central Association of Colleges and Secondary Schools. This permits the college to offer various programs and award Associate of Arts and Associate of Science degrees.

Full accreditation is being sought through appropriate procedures. This includes seeking a Recognized Candidate Status during the 1971-72 academic year.

Offerings contained in this catalog have been approved by the Arizona State Board of Junior Colleges.

The College Campus

Pima College is located at 2202 W. Anklam Road, three miles west of Tucson's central business district. Its 273-acre campus is bounded by Anklam Road and Speedway Boulevard on the south and north, and by La Cholla and Greasewood Roads on the east and west. Nine classroom and administration buildings became ready for occupancy in January of 1971. The College Center and Gymnasium buildings are scheduled to be ready in time for the opening of the 1971 Fall Semester.

No dormitories are included in present plans. Assistance is provided, however, for students requiring housing in Tucson.

- A. College Center
- B. Gymnasium
- C. Learning Resource Center & Administration
- D. Fine Arts & Music
- E. Technical Labs
- F. Large Group Instruction
- G. Large Group Instruction
- H. Academic House
- J. Academic House
- K. Science & Business Education
- L. Propulsion Lab

B

A

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Intercultural Committee

Located in an area where history has for generations reflected the interaction of peoples from varied ethnic and cultural backgrounds, Pima College is committed to the concept of a pluralistic society.

Representatives of the four major groups in Pima County — Indians, Mexican Americans, Anglos and Blacks — and of the varying points of view within each of those groups make up the college's Intercultural Committee, whose major responsibility is fostering individual cultural identity and cross-cultural communication.

Members of the committee serve as resource persons within the college, contacts with various groups in the total community and sponsors of intercultural activities. Among their activities are the reviewing of courses and programs for intercultural content, the securing of special grants for curriculum development and assistance to both faculty and students in the area of cultural and community awareness and sensitivity. A major in Intercultural studies is being planned and will be offered as a degree program.

An additional function of the Intercultural Committee is to provide assistance to persons seeking information, professional guidance or special programs from the college.

Comite Intercultural

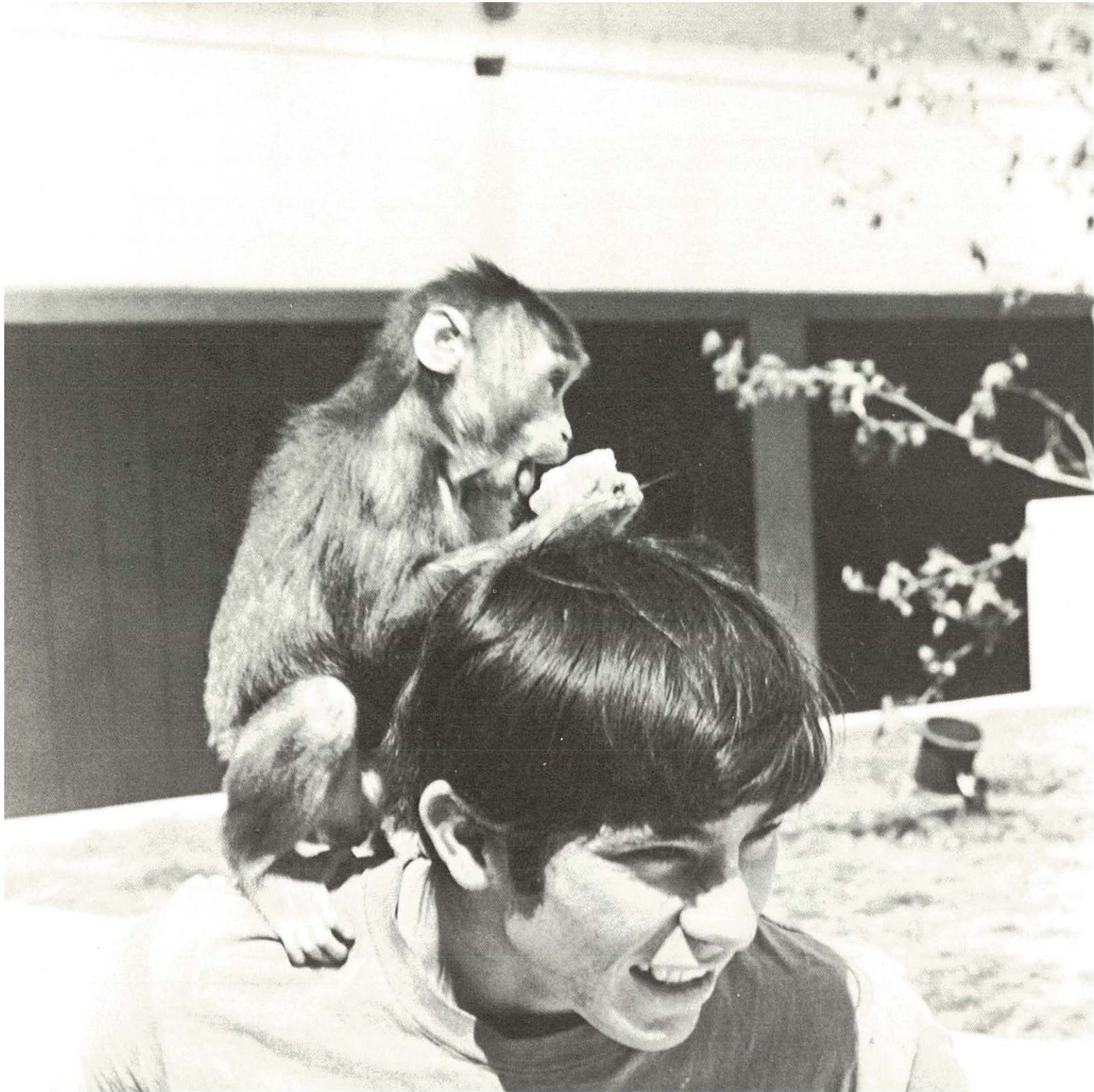
Pima College se encuentra en la muy favorable situación de formar parte de una zona cuya historia llene en la multinidad de culturas india, hispana, mexicana y anglo-sajona. En relación con los procesos educativos, esto significa la posibilidad de crear una atmósfera que estimula el interés en la diversidad humana tanto como fomentar el acervo artístico de la región.

Pima College reconoce la diversidad étnica de la población y se compromete al concepto de una sociedad múltiple.

Este compromiso lo demuestra con la designación de un comité intercultural donde representantes de los cuatro grupos étnicos principales de el condado de Pima. Este comité tiene la responsabilidad de fomentar la identidad individual así como la comunicación entre los diversos grupos. Los miembros del comité proporcionan a profesorado informes acerca de los diversos grupos en la comunidad. También tienen la responsabilidad de patrocinar actividades interculturales. Así mismo, revisan el contenido de los cursos para asegurar el reconocimiento académico de la participación de toda la población. Tienen la obligación de procurar dineros estatales o federales para llevar a cabo la investigación necesaria y de proporcionar cursos interculturales así como la creación de una atmósfera que se traduzca en el estímulo y reconocimiento intercultural.

Pima College Academic Calendar 1971–72

Registration and Orientation	Aug. 30 - Sept. 3
Labor Day	Sept. 6
Classes begin	Sept. 7
Late registration, drop-add	Sept. 7 - 17
Veteran's Day	Oct. 25
Thanksgiving	Nov. 25 - 28
First semester ends	Dec. 23
Registration and Orientation	Jan. 10 - 14
Classes begin	Jan. 17
Late registration, drop-add	Jan. 17 - 31
Rodeo Day	Feb. 24 - 25
Spring Vacation	Mar. 27 - Apr. 2
Pima College Day	Apr. 24
Second semester ends	May 12



Fee Schedule — 1971-72

Tuition	
County Resident	None
Out-of-County, In-State Resident (12 + hours)	\$462*
Per semester hour (7 to 11)	38
Out-of-State Resident (12 + hours)	600
Per semester hour (7 to 11)	50
Registration Fee	
Full-time Student (12 + hours)	60
Part-time Student (7 to 11 hours)	40
Part-time Student (1 to 6 hours)	20
Laboratory Fees	
<i>Nominal non-refundable lab fees may be assessed for lab courses.</i>	
Special fees	
Out-of-State Application (non-refundable)	10
Graduation	10
Late Registration	5
Late Payment of Fees	5
Music Lessons (Private)	
Non-Music Majors (1 hour/week)	128
(1/2 hour/week)	64
Excessive Loss or Breakage, due to Carelessness	(up to actual replacement cost.)

* Arizona students who reside in counties which do not have junior colleges may be eligible to have tuition paid by the county of their residence.



Refunds

Registration Fee Refund: The registration fee is generally not refundable except where classes are cancelled by the College. Students who officially withdraw before the term begins will receive a refund of 50% of the fee paid.

Tuition Refunds: The following graduated scale for refunding tuition fees to out-of-county or out-of-state students who officially withdraw or are dismissed from the College applies:

75% if the withdrawal is prior to the seventh (7th) calendar day after college scheduled classes commence.

50% if withdrawal is between the eighth (8th) and fourteenth (14th) day after college scheduled courses commence.

Residency Requirements for Arizona Junior Colleges

A student shall be considered a resident student for fee purposes provided he qualifies under any of the following:

Living in district with parent or parents having custody.

Parent or legal guardian has legal residence in district.

Living in district with person or persons designated as legal guardians.

Living in district as an "emancipated minor" (must have administrative approval) provided he has been a resident of the district for at least six months directly prior to the first day of instruction of a semester.

An unmarried minor who for at least two years has been in the continuous direct care and control of, and has lived with, an adult resident of the district other than his parent.

Living in district, legally married, under 21 years of age — provided he has been a resident of Arizona

for at least six months directly prior to the first day of instruction of a semester.

Living in district as a “ward of the court,” having been placed in district by court action.

Living in district and being at least 21 years of age — provided he has been a resident of Arizona for at least six months prior to the first day of instruction of a semester.

If an alien who has taken out first naturalization papers — that residence has been maintained in the district for at least six months prior to the first day of instruction, and that he has filed with the United States Immigration and Naturalization Service an application for such citizenship or a declaration of intention to make such application when eligible.

Non-resident tuition shall be waived for students registering for six or fewer semester hours of credit.

Non-resident tuition shall be waived for members of the immediate families of those on active duty in the Armed Forces of the United States stationed within the State of Arizona.

Questions concerning residency status or requests to change such status currently recorded on a student file should be directed to the Office of Admissions and Records. Requests for change of status should be processed before registration for each term in order to clarify fee status for that term.

Veterans

Pima College is approved for the enrollment of veterans and their dependents under the provisions of Title 38, U.S. Code. Students who qualify under this program should apply to the Veterans Administration Regional Office at 230 N. First Ave., Phoenix, Arizona, in sufficient time to receive their certificate of eligibility before the start of the term. These certificates are then presented to the Office of Admissions and Records at the time of registration for classes.

Admission of Foreign Students

A foreign student at Pima College is defined as a non-citizen who has entered the United States for the expressed purpose of full-time enrollment at a college or university. In such a case, a non-immigrant student visa must be obtained from the nearest Immigration Office for this purpose.

Foreign student applicants generally should have completed a secondary school program equivalent to the twelfth grade in the U.S. A transcript of this high school record and any courses taken at a college or university must be sent directly to Pima College, preferably written in English or Spanish. A reasonable proficiency in the English language is desirable.

Pima College has no financial aid programs specifically for foreign students. Therefore, each student must come prepared to meet the necessary financial obligations for the full time he will be in the United States. Since foreign students are required to pay out-of-state tuition, it is estimated that each will need approximately \$3,000 per academic year in order to meet all expenses, exclusive of travel.

Financial Aid

Pima College offers a complete program of financial assistance to its students through scholarships, loans, grants and jobs. The principal objective of the Pima College financial aid program is to remove any financial barriers to college attendance by sincerely motivated students without regard to age, ethnic heritage or personal circumstances.

Types of Financial Aid

SCHOLARSHIPS: *A limited number of scholarships have been established for Pima College students by generous private donors. The awards range from \$120 to \$500 and often can be renewed for a second year.*

STUDENT LOANS: *Pima College offers a large number of student loans at low interest rates and deferred repayment at favorable terms. Among these are the*

Student Nursing Loans, Law Enforcement Student Loans, Federally Insured Student Loans and the National Defense Student Loans. A Pima College Emergency Loan Fund provides small loans for short periods of time to assist students in meeting emergencies.

GRANTS: A large number of Educational Opportunity Grants are offered to students with exceptional financial need. A Law Enforcement Education Grant program is available to students who are employed by law enforcement or correctional agencies.

EMPLOYMENT: Pima College maintains a large student employment program to enable students to earn a portion of their college costs and to provide opportunities for work experience. Part time positions are available on campus through regular employment or the College Work-Study Program and an active placement service maintains listings of available off-campus openings.

ELIGIBILITY: Each of the above programs has somewhat different eligibility requirements. In general, financial need is the most important selection factor. The lack of previous academic achievement should not discourage an otherwise deserving financial aid applicant.

APPLICATION: Pima College, in cooperation with the other colleges and universities in Arizona, uses the standard "Arizona Financial Aid Application" form along with the American College Testing Service Family Financial Statement form. Both forms are available in the Pima College Financial Aid Office or the office of any Pima County high school counselor.

Because funds under all programs are limited in the amount available each year, applicants are encouraged to apply early to insure full consideration. The financial aid staff welcomes inquiries and members may be called upon to meet with groups of students and their families in high schools and neighborhood centers to provide information and counsel about financing college expenses. Inquiries should be directed to the Officer of Financial Aid and Placement.

Counseling for Students

As a student, you may need occasional help to get the most out of your life at Pima. All members of the college faculty want to help you — and they are the prime source for assistance. And you may find your fellow students to be helpful. The Listening Post, in particular, consists of students who are interested in providing either direct assistance or referring you to the appropriate resource.

In addition, the Student Development Faculty has about ten members who provide counseling resources. You are encouraged to go to the Student Development office, in the College Student Center, where specialists will assist you with admissions, health, financial aid, student employment, appraisal of abilities and interest, and career planning. A G.E.D. testing and counseling program also is available to encourage students who do not have a high school diploma to obtain an equivalency certificate. An effort is being made to provide these services both during the day and evening.

The Student Development Faculty also provides psychological counseling to develop skills for handling a variety of personal concerns. A group program is offered to provide students an opportunity to help each other in areas such as career exploration, personal growth and cultural awareness. If adequate resources are not available on campus, liaison has been established with a variety of community agencies to facilitate referrals to the service which is best equipped to help you.

Student Health Services

Professional assistance, both in emergency and long-term health problems, will be offered to the student. Workshops and other means of health education also will be available to assist students in recognizing and understanding health needs.

It is hoped that students will avail themselves of these services as they recognize their own health need or would like to have some health counseling.





Exploratory Program, Student Learning Teams, Physical Activities

To encourage a wide ranging curiosity and joy in learning throughout life, Pima College emphasizes both open enrollment and freedom of choice among the varied courses offered. The only requirements for specific courses are those essential to completion of particular programs.

All who enroll will be given every possible opportunity to explore and sample courses leading to the development of new ideas and new skills.

Some will choose to make this aspect the major focus of their studies at Pima College through the Exploratory Program, which may lead either to an Associate of Arts degree or to selection of a particular transfer major or career oriented program.

All may participate in activities within the college community which add important dimensions to class work; student organizations that provide experiences in leadership and democratic processes, small learning teams that provide opportunities to understand ideas and human relationships, and physical activities that encourage teamwork, foster good health and teach skills for wholesome lifetime recreation.

For the student who has still to define his personal and career goals, the *Exploratory Program* is an individualized approach to education. While in the Exploratory Program, he will be encouraged to sample many ideas, technical skills, arts, crafts and human relationships.

Classes can be grouped from regular Pima College courses or planned to meet individual needs through consultation with a faculty member. Each person is encouraged to explore a variety of subjects to determine interests and aptitudes.

Whether an individual remains in the Exploratory Program until completion of the minimum requirements for an Associate of Arts degree or moves into another program will be a personal choice which may

be made at any time. Once a desired career or educational goal has been determined by a student, he may proceed at his own rate to attain it. You are invited to discuss and plan your program with any member of the Student Development Faculty.

The style of education at Pima College will include small groups of students meeting with a faculty member as informal *Student Learning Teams*. Through a learning team, each student will have a chance to explore ideas and experiences in many different areas of study, work, cultural awareness and community involvement.

Field experience, outings, guest resource persons, exchanges with other groups and recreation activities will be shared by members of each learning team.

Teams are expected to be developed in connection with a number of courses and program areas (such as business, industrial technology and the social sciences) and will be especially emphasized in the Humanities Workshop (Hum 50), a one credit course. Any student who wishes may repeat the Workshop for credit for as many as four semesters at Pima College.

The workshops will be conducted as forums for discussion of concerns of members — experiences with their academic courses, personal goals, inquiries into community problems and consideration of ideas, art and literature. Faculty facilitators will come from all program areas of the college.

Membership in each group will be limited to from 8 to 16 persons who will meet together informally once a week for two hours.

Each student at Pima College is encouraged to participate in the wide variety of *Physical Activities* provided. According to his ability and interest, the individual may choose a lifetime sports or recreational activity, intramural competition or intercollegiate athletics as a part of his college program. Students will be given an important role in deciding both the kinds of intramural activities to be offered in any semester and their own and Pima College's participation in intercollegiate athletic competition.

Grading Policies

Grades earned at Pima College will be recorded at the end of each semester according to the following system:

*A — Superior (4 grade points per credit hour),
B — Good (3 grade points per credit hour), C —
Average (2 grade points per credit hour).*

By arrangement with the instructor, a student may take a course under special circumstances which will be recorded on his transcript in the following manner:

P — Pass (C or better without grade differentiation ordinarily indicated by the college grading system) or AU — Audit.

An X placed next to a grade indicates that the grade was earned through successful completion of a proficiency examination.

At the discretion of the instructor, an individual may elect to receive credit for a course without being given a grade other than "Pass."

Individuals who are officially registered may audit courses with the permission of the instructor. No credit will be earned. Requests for audit status must be made before the end of the regular schedule readjustment period of each term.

A record of "Incomplete" as a grade will be made at the individual's request or at the instructor's option.

Withdrawals

Individuals may withdraw from a course at any time. Students who feel they must withdraw from a course should consult with their instructor or a faculty-counselor before doing so.

If, after such consultation, withdrawal is still considered necessary, the student should notify each instructor or the Registrar's Office of his intention. An accurate record of the date and reasons for each withdrawal must be kept because student records are subject to audit by many state and federal agencies which provide financial support.

Degrees

Pima College offers both Associate of Arts and Associate of Science degrees in a variety of study areas. In general, these degrees are granted upon successful completion of a program, usually two years in duration, outlined by the Pima College faculty and approved by the Arizona State Board of Junior Colleges. Details of programs being offered are listed.

In addition, Pima College will offer a number of technical, skill improvement, special interest and adult continuing education programs. These may range in duration from a one-day seminar to several semesters. In general, certificates will be awarded to those successfully completing the work covered in such courses.

Classes will be scheduled as need and interest in non-degree programs are demonstrated. As others are added to those listed in this catalog, information will be made available to the public through appropriate supplementary bulletins and releases to news media.

Appropriate credit will be given at Pima College for work done at other institutions as determined by the faculty of each program area. The equivalent of at least one semester of full time attendance at Pima College normally will be required of degree candidates.



Pima College Programs

Applied Arts and Design

Art

Arts and Crafts

Bilingual — Bilingue

Chemical Technology

Community Planning

Community Services

Computer Science

*Key Punch Operator (one semester)**Control Technician (one year program)**Computer Operator (one year program)**Computer Programmer/Analyst**Computer Systems Programmer**(continuing education)*

Dance, Physical Activities, Recreation

Drama

Engineering

Exploratory

Finance

Fire Science

General Business

Health Occupations

*Dental Assisting Technology**Emergency Medical Technology**Hospital Unit Clerk**Nursing**Operating Room Technology**Ophthalmic Dispensing Technology**Physical Therapy Assistant Technology**Radiation Science Technology**Radiologic (X-ray) Technology**Respiratory Therapy*

Home Economics

*Child Care Careers**Child Development and Family Relations**Food and Nutrition**Food Services**Home Economics (General)**Home and Family Life**Hospitality**Merchandising and Fashion**Seamstress (Professional)*

Industrial Technology

*Automotive Mechanics**Automotive Technology**Aviation**Building Trades**Drafting Technology**Electronics Technology**Sheet Metal and Air Conditioning**Tool and Machine Technology**Welding*

Journalism

Law Enforcement

Liberal Arts and Sciences

*Behavioral Sciences**Biology**Chemistry**Communicative Arts**Economics**Geography**Geology**History**Humanities**Languages**Literature**Mathematics**Philosophy**Physics**Political Science**Religions (Comparative)**Speech*

Library Technician

Media Technician

Mid-Management

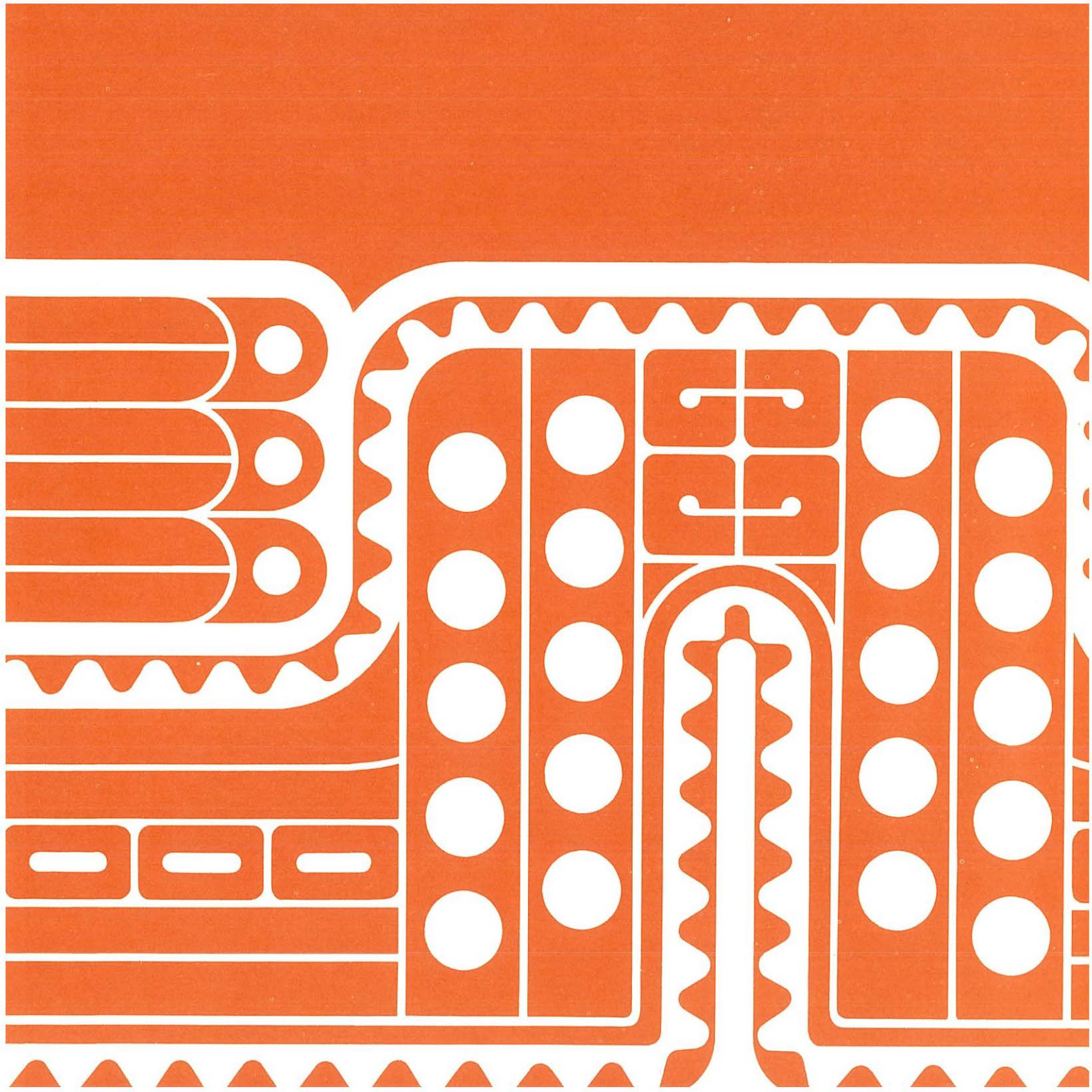
Music

Pre-Environmental Design

Secretarial Studies

*Clerical**Executive Secretary**General Secretary**Legal Secretary**Medical Secretary*

Teacher Assistant and Aides



Applied Arts and Design

Students successfully completing the two-year Applied Arts and Design program will be able to enter fields of commercial illustration, photo-journalism, studio photography, industrial or furniture design, audio-visual production, scientific illustration, commercial graphics, sign writing or typography.

Appropriate courses would include Perception (ART 1); Graphics (ART 10 or 20), Photography (ART 13); Audio-Visuals (ART 23) and Functional Design (ART 12 or 22).

These would be supplemented by related courses in Humanities, Writing, Human Relations, Art History and electives to make up an average semester class load of 16 credit hours.

Art

Students completing the two-year Art program will have most of the humanities background necessary to transfer to a university or a professional school to continue formal studies in a chosen art field.

Courses in Perception (ART 1), Art and Culture (ART 15), Graphics (ART 10 or 20), Photography (ART 13), Functional Design (ART 12 or 22) and Art History (ART 25) should be supplemented by studies in Humanities, Communicative Arts, Social Science and electives to make up an average semester class load of 17 credit hours. It should be noted that at least 24 credit hours of Art courses are recommended and that at least three semester hours of mathematics or science should be included in the two-year program.

Arts and Crafts

Graduates of the Arts and Crafts program will be artistically proficient in at least one medium, with some background in several media — such as print making, painting, sculpture, ceramics, silversmithing, fabrics and leather.

Students should complete a total of 34 credit hours in Art courses, including Perception (ART 1), Crafts Workshop (ART 9), Graphics (ART 10), Photography (ART 13), Art and Culture (ART 15), and Functional Design (ART 12 or 22).

Related courses in Communicative Arts, Behavioral Sciences and Humanities for a total of at least 14 credit hours are recommended.



Automotive Mechanics

Automotive Mechanics/Technology programs are designed to meet a wide range of student needs with the primary objective of fitting the student for job entry at whatever level of study he has completed. The student may complete additional study units at any time to advance his knowledge and qualify himself for a more highly skilled job in his chosen field.

Programs include those designed to qualify an individual as a service station attendant (one year), automobile mechanic (two years of study leading to a certificate) and automotive technology (two years of study leading to an Associate of Science Degree). Shorter periods of study will qualify the individual in automotive tune-up, automotive drive-line repair, and as an automotive chassis and automatic transmission mechanic.

The Service Station Attendant one-year course will normally include 22 credit hours of study in such areas as Engines I (AUT 53), Automotive Chassis I (AUT 58), Introduction to Mathematics (MTH 84), Electricity (ETR 65), Writing (COM 50), Salesmanship (MAN 50), Merchandising (MAN 51) and Human Relations (MAN 58).

The two-year Automotive Mechanic program would consist of courses in Automatic Transmissions (AUT 50–51), Chassis (AUT 58), Tune-Up (AUT 56), Drive Line (AUT 57), Accounting (BUS 1), Engines II (AUT 54), Chassis II (AUT 59), Electricity (ETR 68), and Electric Unit Repair (AUT 61). (48 semester hours.)

The degree program in Automotive Technology would further add studies in Management (MAN 63), Technical Physics (PHY 50), Engines (AUT 54), Electricity (ETR 68), Accounting (BUS 1), Air Conditioning (ACD 63), Special Topics in Behavioral Science (BHS 51), and an elective. A total of 64 credit hours would be required for the Associate of Science degree in this area.

Aviation

A two-year aviation maintenance program is being explored by the college faculty with the assistance of an advisory committee. Until a full determination is made regarding the program, the college plans during the 1971-72 academic year to repeat a program being held in conjunction with the Air National Guard and Davis-Monthan Air Force Base in Tucson, Arizona.

Bilingual — Bilingüe

The college is offering a variety of subjects on a bilingual-bicultural education basis for all persons fluent in Spanish.

This is not a remedial program, but is aimed at developing competency in Spanish for literacy, professional and cultural purposes. Additional credit may be received by taking courses in Spanish.

More than 20 courses are being offered in the bilingual program in areas of Art, Drama, Business, Home Economics, Physical Activities, Philosophy, History, Reading, Literature and Spanish. The courses are listed in the individual program sections of the catalog.

El colegio está ofreciendo una variedad de cursos, tomando como base la educación bilingüe-bicultural: para todas las personas que ya hablan español.

Es un programa en el que se ha señalado el propósito de obtener mayor dominio en el idioma, con fines profesionales, culturales y técnicos. Hay la ventaja de obtener crédito adicional en español en estos cursos.

Más de 20 (veinte) cursos, tales como el arte, el drama, negocio, economía doméstica, educación física, filosofía, historia, lectura, literatura y español. Los cursos se encuentran en el catálogo bajo las secciones de programas respectivos.

Building Trades

A Building Trades program still is in the planning stage, but when developed is expected to be offered on a short-term, one and two-year basis. An advisory committee, consisting of both union and non-union members, is to be selected to work with the college faculty in determining the program. Sheet metal and air conditioning courses, which will be a part of the building trades program, currently are offered by the college.

Chemical Technology

A two-year career program in Chemical Technology is in the planning stage at Pima College. Students interested in such a program should check with a faculty adviser at registration.

Recommended courses for this program include Writing (COM 1 and 2), Mathematics (MTH 11, 20, 60, 80 or 81 for a total of from four to seven credit hours), Applied Chemistry (CHM 60–61), Introductory Physics (PHY 2), Slide Rule (CHM 80), and Earth, Man and Environment (LSC 54).

Community Planning

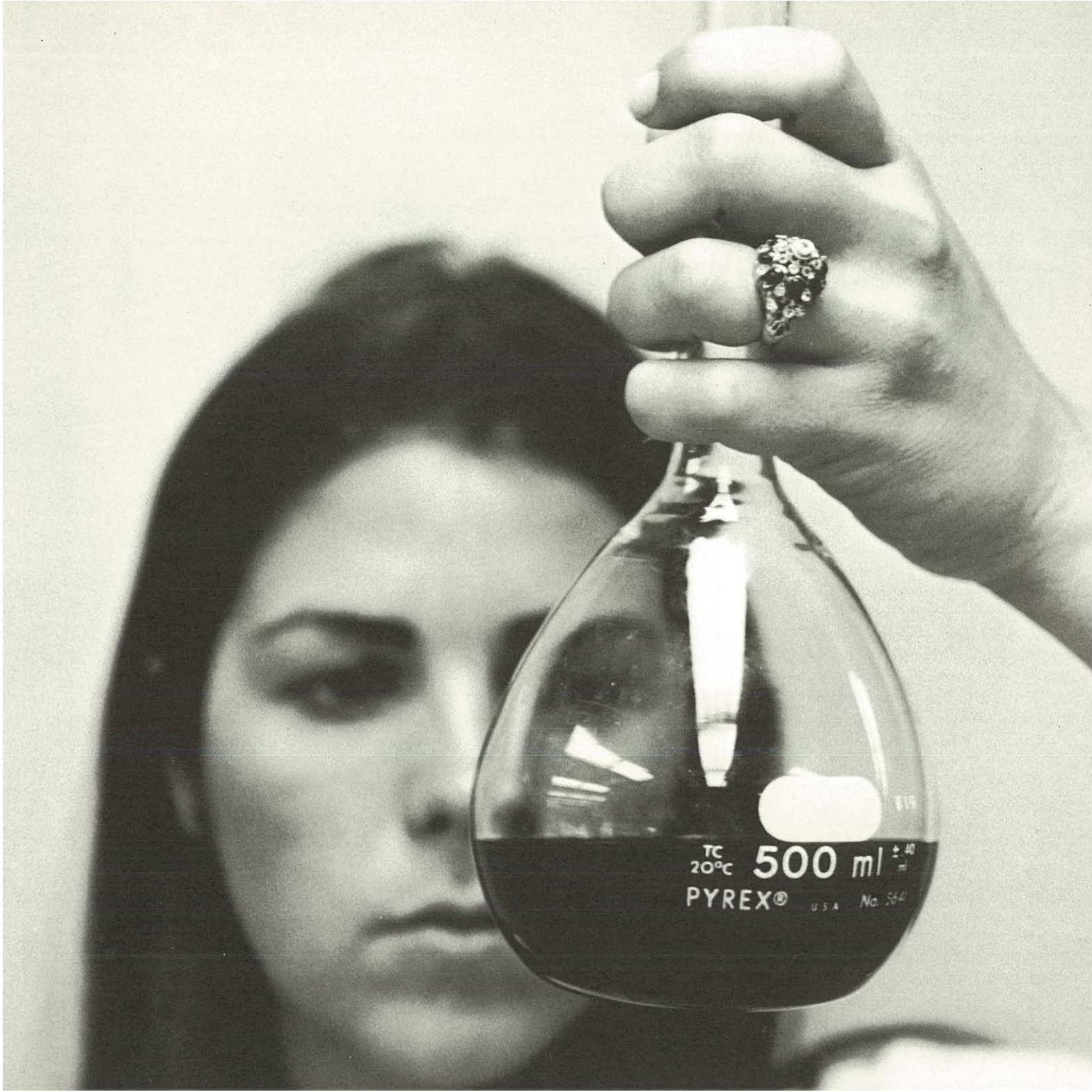
A Community Planning program is being designed primarily to qualify students for employment as assistants to professional planners. Upon completion of the curriculum and requirements, graduates could work in public, private, city and regional planning offices; redevelopment agencies; and other organizations responsible for urban planning and its administration. It is planned that courses in this study area, leading to an Associate of Arts degree, will be offered in the fall. One is Introduction to Cities and Community Planning (BHS 59).

Community Services

The Community Services technician program is designed to prepare students for job entry into various agencies which provide community and social services.

Upon completing the program, which leads to an Associate in Arts degree, the graduate is prepared for further education, or employment in welfare agencies, youth programs and other private or public enterprises.

Recommended courses for the two-year program include Writing (COM 1 and 4), Earth, Man and



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Environment (LSC 54); Behavioral Sciences (BHS 20, 31, 32, 33, 34); Mathematics (MTH 60); Oral Communications (SPE 2); Health (BHS 36), Child Development (HEC 17), Humanities (50); Ethnic Studies, Economic Development (ECO 50) and electives. It is possible for students to pursue individual courses of study through consultation with an adviser. (A typical program should include at least 60 semester hours of credit.)

Computer Science

Various Computer Science programs consist of one, two and four semesters of study, with the four semester program leading to an Associate in Science degree.

Certificates are awarded upon completion of the shorter programs, indicating that the student is qualified as a computer operator, a key-punch operator or a control technician.

Students entering the pre-computer science program as a preliminary to additional study in business administration, engineering mathematics, or similar fields at a four-year college or university should plan their programs to include mathematics through calculus, basic computer science and statistics.

The Continuing Education program is designed for those who hold an Associate in Science degree in Computer Science and have at least two years of programming experience.

In one semester, a student may be prepared to work as a Key-Punch Operator. Courses necessary to this career program include Key Punch (CSC 52), Introduction to Business (BUS 50), Human Relations (MAN 58), Writing (COM 1), Technical Reading (REA 61), Business Machines (OED 21) and either Data Processing Projects (CSC 68) or Humanities I. (18 semester hours.)

The one-year Control Technician program adds to the above curriculum Accounting (BUS 1 and 2), Typing (OED 11), Business Mathematics (BUS 51) and related courses for a total of 34 semester hours of credit.

Under the one-year Computer Operator program, for which a certificate is awarded, some of the necessary courses include Introduction to Computers (CSC 47), Computer Operations (CSC 56), Algebra (MTH 11 or 20) and Job Stream (CSC 58). (35 semester hours.)

The two-year Computer Programmer/Analyst program includes 20 credit hours of Computer Science (Introduction, CSC 47; Programming, CSC 60, or 62 or 63, 70, and 74); Systems Analysis (CSC 80–81) and Data Processing Projects (CSC 98). These are supplemented by Accounting (BUS 1 and 2), Economics (ECO 2 and 3), Writing (COM 1, 2 and 3), Cost Accounting (BUS 56) or Social Science, Business Statistics (BUS 5 and 6), Reading, Humanities, Math through Business Calculus (MTH 25–26), Philosophy or Science electives. The Associate in Science degree in Computer Science is awarded upon successful completion of the program, made up of at least 67 semester hours of course work.

Additional credits beyond the degree in a three semester continuing education program may be taken by an experienced programmer wishing to become a Computer Systems Programmer.

These credits should be distributed among Computer Science (CSC 40), Systems Programming (CSC 90), Operating Systems (CSC 76), Teleprocessing (CSC 94), Advanced Computer Science (CSC 43), Data Processing Projects (CSC 98), Analytic Geometry and Calculus (MTH 30–31–32). (30 semester hours.)

Dance, Physical Activities, Recreation

Physical activities at Pima College are divided into seven broad categories: the philosophical basis of sports; life-long sports activities; intramurals and community competition; cultural movements; explorations; dance; and career orientation.

Students in beginning Physical Activities courses will be taught fundamental skills of sports and activities along with rules, scoring, etiquette and safety measures.

Intermediate courses are open to all individuals who have a basic understanding of an activity and wish to improve their skills. Courses on the advanced level emphasize special techniques, styles, and strategies of various sports.

The career oriented program at Pima College is designed to meet requirements for Dance and Physical Education and Recreation major and minor transfers.

Persons planning to major in recreation or dance also should familiarize themselves with requirements of universities to which they plan to transfer.

Both the Physical Activities and Recreation majors program and the two-year Dance specialist program lead to an Associate in Arts degree.

(60 semester units required.)

Among courses recommended under the two-year Physical Activities and Recreation majors program are Development of Basic Skills (PAC 40–43), Health Education (PAC 36 and 37), Writing (COM 1), Psychology (BHS 20), Government (POL 10 and 11) and Anatomy (LSC 20 and 21).

These courses also will prepare the student to transfer to a four-year institution.

The Dance specialist program is designed to prepare the student to participate in bringing dance into the elementary school curriculum.

Courses suggested under this program are Modern Dance (PAC 50), Dance for Children (PAC 54 and 55), Humanities (HUM 10), Child Development (HEC 17), and Practice Teaching (PAC 62 and 63).

Drafting Technology

ARCHITECTURAL DRAFTING: The two-year program, which leads to a degree of Associate in Applied Science, is designed to provide experiences in drafting techniques and practices for employment in construction oriented fields. A one-year certificate also is offered.

Majors in Architectural Drafting should take as part of their studies program Graphics (ART 10), Writing (COM 1, 2 and 3), Architectural Drafting (DFT 61 through 64), Physics (PHY 2 and 3) and Human Relations (MAN 58).

MECHANICAL AND ELECTRO-MECHANICAL DRAFTING: *Two-year programs in Drafting Technology lead to an Associate in Science degree and opportunities for employment in drafting departments of several types of industries. The program also provides for a one-year certificate.*

Basic courses in Mechanical and Electro-Mechanical Drafting include Technical Mathematics (MTH 80–81), Technical Drafting (DFT 55–56), Writing (COM 1 and 2), Materials (MAC 90), and Engineering Graphics (MTH 2). Two semesters of Physical Activities are recommended.

In the second year, Mechanical majors should add Introduction to Electricity (ETR 53), Introductory Physics (PHY 2), Industrial Processes (MAC 91), Technical Drafting and Tool Design (DFT 57 and 58), Structural Drafting (DFT 64), Technical Illustration (DFT 71), Electronic Drafting (DFT 73) and four hours of electives in Humanities, Social Science or Human Relations.

Second Year Electro-Mechanical majors should take a Mathematics elective and Introduction to Computers (MAC 51), in place of Tool Design and Structural Drafting.

Drama

Students completing the two-year Drama program will have received experience both in performing and working with others on various theatrical production tasks. They should qualify for transfer to a four-year college or university to work toward a Bachelor of Arts degree in Drama if they complete a two-year foreign language requirement or for a Bachelor of Fine Arts in Drama if they elect courses in Art, Music, Behavioral Sciences or Industrial Technologies in the first year and Group Discussion (SPE 30) and Oral Interpretation (SPE 36) in the second year.

A typical Drama program should include Acting (DRA 5, 6, 48, 49), Stagecraft (DRA 20 and 21), Make-Up (DRA 15), Writing (COM 1 and 2), History (DRA 40 and 41), four semesters of Humanities, and electives in Physical Activities and Science for a total of 62 to 66 semester hours of credit.

Electronics Technology

Graduates of a two-year Electronics Technology program may expect to find employment in many areas of the electronics field, having completed basic studies in the area. Specialties within the field probably will require additional part-time study or on-the-job training to acquire specific knowledge and skills.

A typical program should include 33 semester hours of Electronics (Introduction, ETR 53; Semi-Conductors, ETR 55; Circuits, ETR 57; Advanced Circuits, ETR 61; Pulse Circuits, ETR 66, and Special Studies in Electronics, ETR 63, 67 or 80). These should be supplemented with studies in Writing, Drafting, Chemistry, Physics, Mathematics, Humanities, Philosophy and Behavioral Sciences. At least one

semester of Physical Activities is recommended. A total of 67 semester hours is typical of an Electronics Technology program.

Courses also are offered on an exploratory basis. These include Television Repair (ETR 72–73), and Upgrade Training for F.C.C. License (ETR 74).

Engineering

Students completing the two-year program in Engineering should be able to transfer to a four-year college or university for further studies in Engineering. Before entering the program, each individual should consult the catalog of the institution to which he plans to transfer to make certain what courses are required there. Similar planning is necessary to qualify for specialist degrees in Civil Engineering, Electrical Engineering and other areas within the general field.

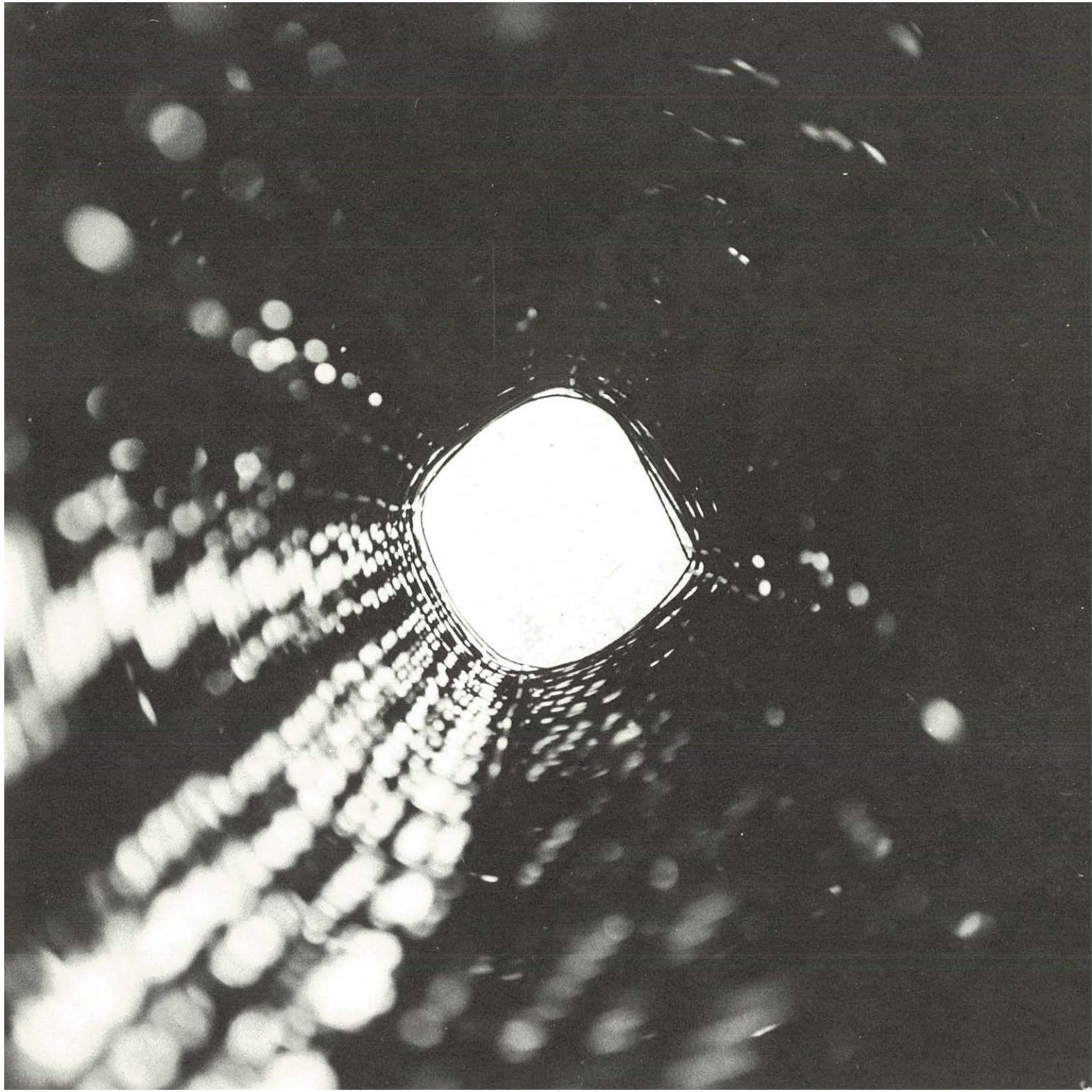
A typical program in Engineering at Pima College might include three semesters of Analytic Geometry (MTH 30, 31, 32), Chemistry (CHM 3 and 4), Engineering Graphics (MTH 2), Computer Science (CSC 40), Mechanics (PHY 10), Electricity (PHY 16), Waves and Heat (PHY 21), Engineering Analysis (CSC 45), some Engineering courses in the major field of interest and electives in the Social Sciences, Humanities and Physical Activities for a total of 68 semester hours.

Exploratory

Exploratory programs, to satisfy individual interests, may be arranged through conferences with Exploratory faculty members or members of the Student Development Faculty.

Programa de Exploracion

Para satisfacer intereses individuales, pueden ingresar los estudiantes en el programa exploratorio. Que se llevara acabo atravez de conferencias con el profesorado del programa o con profesores de Student Development Faculty.



Finance

The Finance program at Pima College combines four semesters of class work with internship at an approved firm.

The principal courses are taught in English or in Spanish, and students completing the program are prepared to enter accounting departments of private firms or, in some cases, public accounting offices.

A typical two-year Accounting technician program might include two semesters of Accounting (BUS 1 and 2), a semester of Cost Accounting (BUS 56) and a semester of Tax Accounting (BUS 57). Important related courses would probably be Introduction to Computer Science (CSC 47), Programming (CSC 60), Systems Analysis (CSC 80 and 81), Business Mathematics (BUS 51), Business Machines (OED 21), Typing (OED 11), Business Law (BUS 10), Cooperative Accounting (BUS 66) and Payroll Accounting (BUS 63).

Supplementing these would be courses in Technical Writing (COM 4), Economics (ECO 2 and 3), a semester of Management and a semester of Government as well as one elective course in each of four semesters. A typical two-year program will include 63–68 semester hours of credit.

Fire Science

At least half of the 60 semester hours required for an Associate in Science degree in Fire Science should be in courses directly related to the field, designed to prepare the graduate for service or additional responsibility in a municipal, rural, or private fire department. The other half of each individual's program, selected after consultation with a faculty adviser, should include work in Chemistry, Mathematics, Life Science, Basic Psychology, Sociology and American Government.

Specialized courses are Introduction to Safety (FSC 51), Fire Suppression (FSC 53), Fire Protection (FSC 52), Fire Prevention (FSC 54), Tactics (FSC 60), Materials (FSC 61 and 62), Protection Systems (FSC 64), Equipment (FSC 65) and Safety Laws (FSC 71).

Recommended electives are Earth, Environment and Man (LSC 54), Chemistry (CHM 1 and 2), Humanities (HUM 10 and 11) and Algebra (MTH 11).

General Business

General Business programs are designed to enable graduates to enter the modern business world with salable skills in such areas as cashier, banking, salesman or Civil Servant. They also may transfer to a four-year college or university to continue their studies toward a Bachelor of Science degree. Many of the courses provide skills of special value to the person operating his own business.

All Business students are advised to include in their programs such courses as Accounting (BUS 1 and 2), Writing (COM 1), Business Law (BUS 10), College Algebra (MTH 20), Math for Business (MTH 25–26), Economics (ECO 2 and 3), and electives.

Students in the two-year career program also should take Typing (OED 11), Business Communications (BUS 59), Business Management (MAN 52), College Algebra (MTH 20), Business Mathematics (BUS 51), Salesmanship (MAN 50), Introduction to Computers (CSC 47), Supervision (MAN 54), Merchandising (MAN 51) and Advertising (MAN 53) for a total of 60 semester hours.

Health Occupations

Seven new Health Occupations programs are in various stages of development and plans are to offer them in time for the 1971–72 academic year.

Those in the planning stages are Dental Assisting Technology, Operating Room Technology, Radiation Science Technology, Ophthalmic Dispensing Technology, Physical Therapy Assistant Technology, Emergency Medical Technology and Hospital Unit Clerk.

These are being added to the present programs of Nursing, Radiologic (X-ray) Technology and Respiratory Therapy.

Students interested in entering the new programs should contact or confer with an adviser in the Health Occupations area in arranging their studies.

All Health Occupations program students, except those in Nursing, should take Introduction to Health Care (HOC 50).

Journalism

A two-year program aimed at readying students to enter the Journalism field after successfully completing their studies currently is being developed at Pima College through the aid of advisory committees.

Although the program may not be fully developed until the 1972–73 academic year, some Writing and Journalism courses are being offered through the Communicative Arts area.

Law Enforcement

This two-year program provides professional education and some skills in the field of Law Enforcement for those seeking a career in either public service or private industry. It also is planned to assist those already employed in law enforcement to improve their professional skills.

Courses within the program are equally appropriate for those seeking an Associate of Arts degree and those planning to continue their studies at a four-year college or university.

Well-rounded education for prospective officers should include courses in Writing (COM 1 and 2), Government (POL 10 and 11), Sociology (BHS 30), Psychology (BHS 20), Humanities (HUM 10 and 11), and Physical Activities in addition to special Law Enforcement classes: Introduction to Law Enforcement (LEN 100), Criminal Law (LEN 102), Crime Investigation (LEN 104), Traffic (LEN 106), and Police and Community Relations (LEN 108). Speech (SPE 20) and 15 to 17 semester hours of electives round out the program to from 64 to 66 semester hours of course work.

Liberal Arts and Sciences

Included in the transfer program for Liberal Arts majors are Behavioral Sciences, Biology, Chemistry, Communicative Arts, Economics, Geography, Geology, History, Humanities, Languages, Literature, Mathematics, Philosophy, Political Science, Physics, Comparative Religions and Speech.

Requirements differ slightly in the various areas and students are urged to confer with a faculty member in their proposed major area to determine specific recommendations for that field. Students, after successful completion of the program, will be eligible to transfer to upper class levels in a four-year university.

The typical program should include 16 hours of Foreign Language, six hours of Writing, eight hours of Humanities, six hours of Social Science and six to eight hours of Mathematics or Science plus electives, in addition to 12 hours in the major field of study.

Library Technician

Students in the Library Technician program are prepared to work in semi-professional positions needed in library facilities. Graduates of the two-year program can find employment opportunities in school and public libraries and in business library facilities.

Recommended courses include Writing (COM 1, 2 and 3), Library Resources (LMT 50), Media Terminology (MET 80), Library Public Services (LMT 52), Media Technology (MET 84) and electives in Humanities, Behavioral or Physical Sciences for a total of 64 units. This is an Office Education Program.

Media Technician

The Instructional Media Technology program is designed to provide knowledge and skills in the areas of communigraphics, reprographics, telecommunications, and repair and maintenance of audio-visual equipment. Students, under the two-year program, may either specialize in one of the areas or select courses from each of the areas for general preparation.

Students are prepared to work in educational or public institutions, business and industry.

Courses which should be taken include Writing (COM 1, 2 and 3), Media Terminology (MET 80, 81 and 82), Media Technology (MET 84) and electives in Media Technology, Humanities, Behavioral Science and Physical or Social Science for a total of 66 units.

Mid-Management

Mid-Management, an area of Distributive Education, is an occupation-oriented training program for students who plan to qualify for junior executive positions in the field of marketing and distribution. Class instruction will be combined with on-the-job training.

Courses under the general category should include Accounting (BUS 1 and 2), Salesmanship (MAN 50), Merchandising (MAN 51), Marketing (MAN 59), Micro and Macroeconomics (ECO 2 and 3), Business Management (MAN 52), Management Trends (MAN 63 and 64), and Mid-Management (MAN 60 and 61). A typical program would be made up of 62 semester hours of credit.

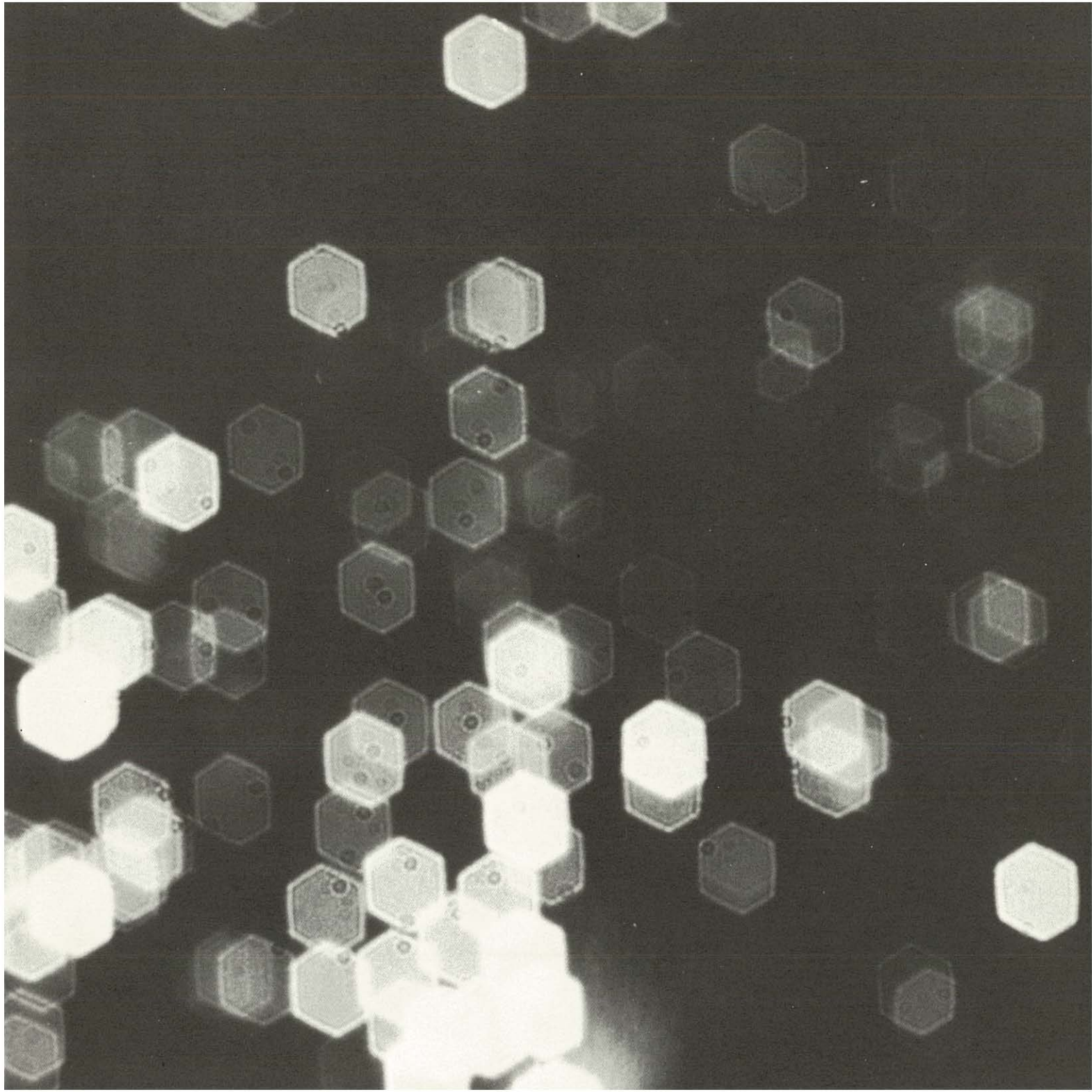
Students specializing in Advertising should have Advertising Design (MAN 56), Advertising Principles (MAN 53), and Advanced Advertising (MAN 57), as well as Accounting (BUS 1 and 2), Marketing (MAN 59), Salesmanship (MAN 50), Business Management (MAN 52), Merchandising (MAN 51), Management Trends (MAN 63 and 64), Mid-Management (MAN 60 and 61), and Microeconomics (ECO 2). Sixty-three semester hours would be typical of a program in this area.

Students specializing in Fashion Merchandising will be working in both the Home Economics and Mid-Management areas.

Music

The Music program suggested provides the first two years of music experiences generally required by higher institutions of learning. Arizona's three universities require an examination of all students who transfer applied work. All courses listed are merely suggestions. Because of different or specific degree requirements, it is necessary that each student consult with the music faculty for advice on specific programs.

Among suggested courses are History and Literature of Music (MUS 1), Music Theory (MUS 3–6), Conducting (MUS 7–8), Private Instruction (MUS 42), Piano and Voice. A music program typically includes 22 hours of required courses in Writing, Mathematics, Behavioral Sciences, Humanities or a foreign language.



Nursing

Health problems significant to the local community will be stressed during the two-year program which combines general education with a firm foundation in patient care. Students entering the program must have a high school diploma or an equivalency certificate. They must also submit a complete health form and arrange for a personal interview with the nursing faculty to determine their individual program of studies.

In addition to being prepared to take the state licensing examination for Registered Nurse, the new graduate also will be capable of giving quality nursing care with some degree of independence under the supervision of an experienced professional nurse.

Every student should study Nursing I through IV (NRS 70, 72, 80, 82), Anatomy (LSC 20 and 21), Psychology I (BHS 20), Child Development (HEC 17), Sociology (BHS 30) and Microbiology (LSC 7). (66–68 semester hours.)

All nursing courses must be taken at Pima College.

Pre-Environmental Design

Graduates of the two-year Pre-Environmental Design transfer program will have enough background to work in an architectural office or in related work while completing their education in architecture or environmental design at a university. Courses also will provide a humanist background.

For transfer, students should take Humanities (HUM 10 and 11), Mathematics (MTH 2, 11, 20, 24, 30, 31, or 40), Art and Culture (ART 15), Functional Design (ART 12 and 22), Graphics II (ART 20), Introductory Physics (PHY 2 and 3) or Introductory Physics with Calculus (PHY 4 and 5) and Photography (ART 13) or Crafts (ART 9), along with electives for a total of 64–67 semester hours of credit.

Radiologic (X-ray) Technology

The total program consists of four semesters on campus and at least 2,400 hours of externship (practicum) in an approved, affiliated hospital X-ray department. Graduates will be qualified for the Associate of Science degree in Radiologic Technology and for application for certification with the American Registry of Radiologic Technologists.

A high school diploma or G.E.D. equivalent is required for entrance into this program. High school preparation in algebra and geometry are considered to be prerequisites and a basic background in biology and physics will be most helpful to the students.

All students must receive approval from the Radiologic Technology adviser before entering this program.

Credit requirements call for 66 semester hours of work with a minimum of 36 semester hours to be completed on campus.

Introduction to Radiography (RAD 71), Positioning (RAD 73, 81 and 84), Radiographic Chemistry and Techniques (RAD 72), Radiographic Physics (RAD 82), Radiation Biology (RAD 87), Therapy (RAD 85), Clinical Procedures (RAD 83 and 86), Anatomy (LSC 20 and 21), Introductory Physics (PHY 2) and Writing (COM 2 and 3) should be included in this program.

Respiratory Therapy

Courses in Respiratory Therapy, leading to an Associate of Science degree and qualification to take the American Registry of Inhalation Therapists (ARIT) accrediting examination, prepare the student to care for persons having heart and lung associated problems. Both emergency and supportive treatment techniques are taught.

To enter the program, the student must have a high school diploma or equivalency certificate. High school and post secondary transcripts and a certificate of health examination must be submitted at the time of a required admission interview. High school chemistry, physics, algebra and geometry are highly desirable as preparation for admission to the Respiratory Therapy program.

Special courses in the program include Equipment (RTH 71, 80, 81, 87 and 90), Clinical Medicine and Health (RTH 73), Physiology (RTH 82), and Diseases (RTH 86 and 89). In addition, the student should take related courses in Writing (COM 1 and 2), Mathematics (MTH 65), Anatomy (LSC 20 and 21), Physics (PHY 2), Psychology (BHS 20), Supervision of Personnel (MAN 54) and Humanities or Social Science electives.

The completion of the required course work plus 600 hours of clinical practice normally will necessitate summer work, or an additional semester of study beyond two academic years.

Secretarial Studies

Secretarial Studies students will receive practical experience and on-the-job training with course instruction for general, medical, legal or executive secretary. For on-the-job training, it is recommended that students have either a high school diploma or equivalency certificate.

Courses provided under the clerical program are Writing (COM 1 and 2), Typing (OED 11, 12 and 52), Business Machines (OED 21), Duplicating Processes (OED 22), Business Law (BUS 10), Business Communications (BUS 59), Business Mathematics (BUS 51), Accounting (BUS 1), and Office Management (OED 57). (66 Semester Hours.)

General secretarial courses include Typing (OED 11, 12 and 52), Shorthand (OED 1, 2 and 53), Record Management (OED 3), Accounting (BUS 1 and 2), Microeconomics (ECO 2), Business Communications (BUS 59) and Business Law (BUS 10). (63 Semester Hours.)

Additional courses for those planning to be Medical Secretaries are Anatomy (LSC 20 and 21), Medical Shorthand (OED 55), Medical Terms (OED 56), Office Internship (OED 60 and 61) and Office Management (OED 62 and 63). (67 Semester Hours.)

Courses for the Executive Secretary include Office Management (OED 62 and 63), Microeconomics (ECO 2), Introduction to Business (BUS 50), Office Internship (OED 60 and 61), Human Relations in Business (MAN 58), Business Math (BUS 51), Business Law (BUS 10) and Accounting (BUS 1). (66 Semester Hours.)

Additional courses for the Legal Secretary include Legal Shorthand (OED 50), Legal Terms (OED 51) and Business Law (BUS 10), in addition to the Executive Secretary curriculum to replace six hours of electives and Introduction to Business. (66-69 Semester Hours.)

Sheet Metal and Air Conditioning

A two-year Sheet Metal and Air Conditioning program is slated to be offered in time for the 1971-72 academic year. Students interested in such a program should consult with an adviser in the Industrial Technology area.

Teacher Assistant and Aides

A two-year Teacher Assistant and Aide program, which will lead to an Associate in Arts degree, is in the development stage. Parts of the program are expected to be ready for student offering in time for the 1971-72 academic year. Teacher Aide areas will be subject oriented. Students interested in this program should confer with an adviser from the Community Services area.

Tool and Machine Technology

Basic career courses are being offered in Tool and Machine Technology.

Students planning a career in this field should consult with a faculty adviser in setting up an individual program directed toward more advanced studies in the field until an actual program is developed.

A one-year program will lead to a certificate, and a two-year program to an Associate in Science degree.

Welding

Welding courses and equipment are being expanded in preparation of offering both a one and two-year program. Plans are to have the programs underway during the spring semester of the 1971-72 academic year.

Among courses being offered during the fall semester are Arc Welding (Heli-Arc), Oxy-Acetylene Welding (MIG Welding), Automotive Welding and Blueprint Reading for Welders.

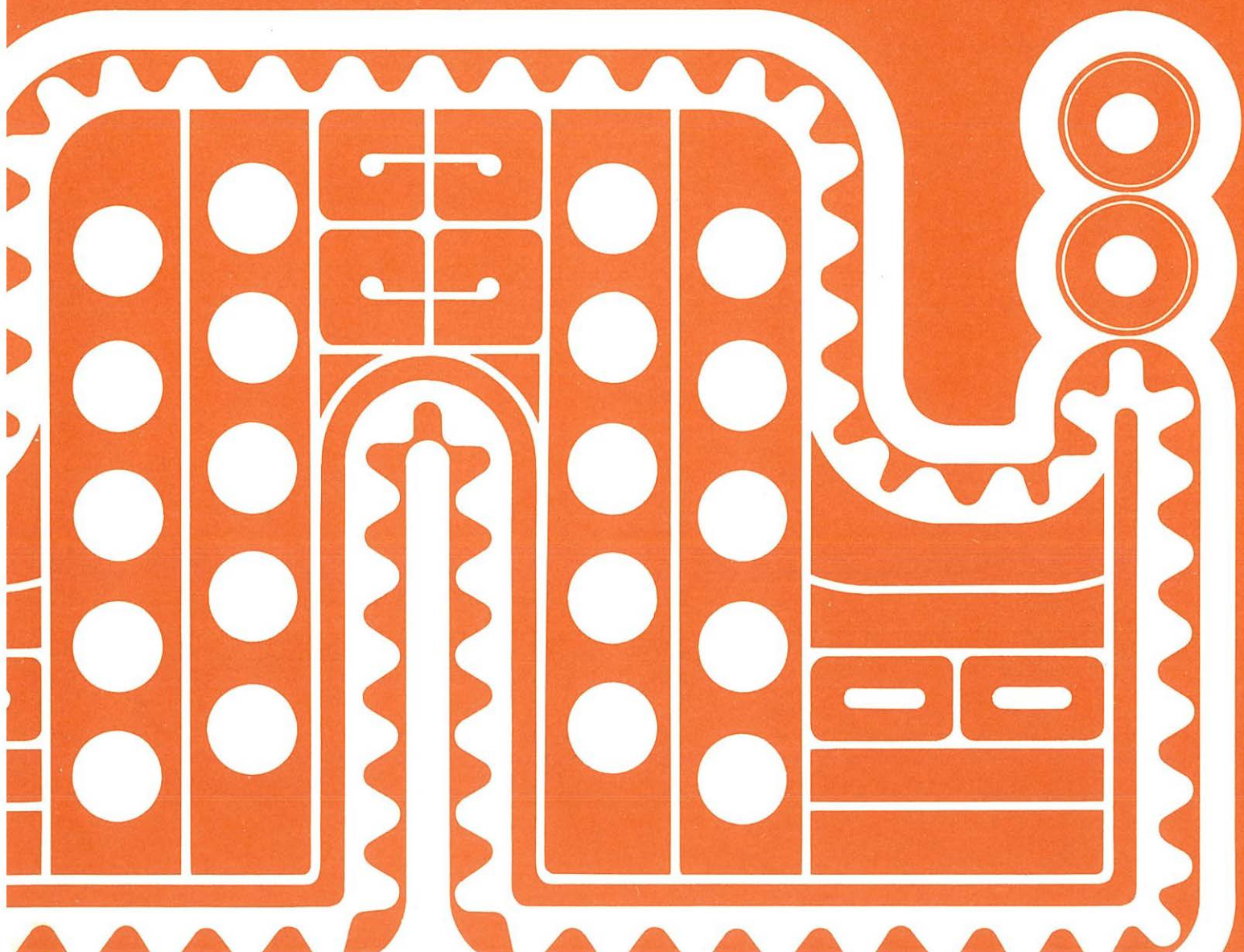
Pima College Courses

COURSE NUMBERING SYSTEM: Courses at Pima College numbered 1 through 49 correspond with courses generally offered during the first two years at four-year colleges and universities. Credit for these courses, in most cases, will be transferable for students planning to continue their studies.

Courses numbered 50 through 99 carry Pima College credit. In some instances, these, too, may be transferable to four-year colleges and universities for credit. Students planning a transfer after completing two years at Pima College should check the catalog of the institution they wish to attend.

Courses numbered 100 through 120 are equivalent to those offered in the junior or senior years at Arizona universities. Credit for these upper division courses may be transferable. Each case should be checked individually by the student seeking transfer credit.

Non-credit and workshop type courses are numbered 121 through 199.



AIR CONDITIONING

ACD 60 Air Conditioning Fundamentals I / 4 sem. hrs.

Emphasis is on detail and specific treatment of air conditioning and problem solving techniques. Areas covered are psychrometry, ventilation, heating and cooling load calculations. Laboratory work consists of refrigeration tube bending, flaring, soldering and brazing; cooling load calculations, dew point determination; and precision measurement of air temperatures, quantities and velocities. First or Second Year Level.

ACD 61 Air Conditioning Fundamentals II / 4 sem. hrs.

Continuing detailed study of air conditioning fundamentals and problem solving methods. Areas covered are compression and absorption, refrigeration cycles, fans and blowers, and duct design. Laboratory consists of refrigeration compressor and disassembly, and expansion valve performance check. First or Second Year Level.
Prerequisite: ACD 60.

ACD 63 Air Conditioning Basics (Automotive) / 3 sem. hrs.

Fundamentals of refrigeration; principles of automotive air conditioning design; related mathematics and drawings; specification charts and tables; and safety practices.

ART and DESIGN

ART 1 Perception / 4 sem. hrs.

It becomes obvious we see what we want to see and hear what we want to hear, therefore consistently blinding ourselves to what is occurring now. This is not a "how to" course, but an investigation and observation of our accepted processes of seeing, listening and learning.

ART 9 Crafts Workshop / 2-4 sem. hrs.

Students of various levels of experience work alongside one another with a craftsman to pursue the disciplines of a craft. Separate sections will explore leather craft, metalsmithing, fabrics, weaving, ceramics or a combination of these.
Prerequisite: Concurrent with ART 1 recommended.

ART 9 Cerámica Mexicana / 3 sem. hrs.

Este curso consistirá en modelar objetos con barro negro traído de Guadalajara. Se dará importancia al espíritu creativo del alumno evitando la imitación de modelos ya formados.

ART 10 Graphics I / 3 sem. hrs.

Exploration of sensory experience and visual communication. Introduction to drawing, lettering and conceptual problems of design in extensive studio practice and experimentation. First Year Level.
Prerequisite: ART 1 or concurrent with ART 1.

ART 12 Functional Design I / 3 sem. hrs.

Application of perceptual experience to our physical and technological environments. Participants, individually and in teams, develop models for exploring simple problems of function. Studio activity is as directly involved with the actual environment as possible.
Prerequisite: ART 1 recommended.

ART 13 Introduction to Photography / 3 sem. hrs.

Black and white photography as a craft, and its creative use in expression and illustrations. Course will include sections in still photography, and 8 mm film. Film sections will include experience in editing, lighting and sound.
Prerequisite: ART 1 recommended.

ART 15 Art and Culture / 3 sem. hrs.

Illustration and discussion of meaning and value in art forms from various traditional and contemporary cultures. Some studio experience included. (Same as Philosophy 15.)
First Year Level.
Prerequisite: ART 1 or equivalent.

ART 20 Graphics II / 3-6 sem. hrs.

Experience with the special problems of the graphics industry and commercial design. Students, on an individual basis, pursue solutions to problems of a meaningful graphic environment.
Prerequisite: ART 10.

Art 21 Visual and Spacial Arts / 2-6 sem. hrs.

Intensive studio experience in one or more media. Separate sections will pursue different media or processes such as painting, print making, three-dimensional design, metal sculpture and drawing.
Prerequisite: ART 10.

ART 22 Functional Design II / 3-6 sem. hrs.

Introduction to architectural, landscape, interior and industrial design problems. Individual and small teams pursue problems in designing environmental solutions as well as participating in studio exercises.
Second Year Level.
Prerequisite: ART 10, 12, 20.

ART 23 Audio Visual Communication / 2-4 sem. hrs.

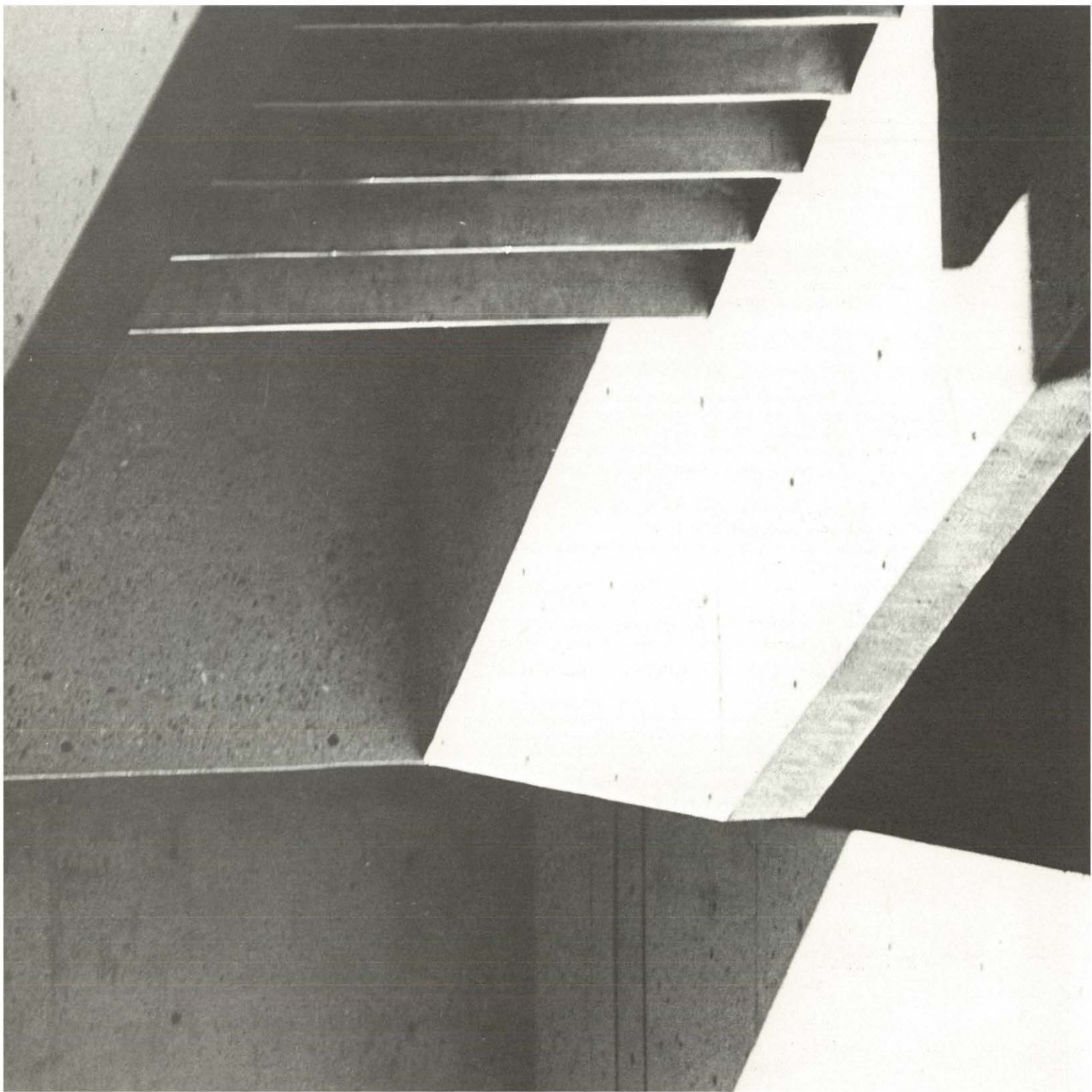
An expansion of the still photography and film experience. Sections in photo journalism, visionary photography and 16 mm film production. Individual and group projects will explore communication through visual and audio combinations or editing, and light control in film production.
Prerequisite: ART 13.

ART 25 History, Philosophy and Psychology of Design / 2-4 sem. hrs.

Study of particular movements, periods, ideas and problems in art, film and design arranged each semester by separate sections or for individual study according to need.
Prerequisite: ART 1 or 15.

ART 26 Early African Art / 3 sem. hrs.

Traditional forms of African art from pre-literate times to the present will be covered through visual and audio presentations. Discussion will be aimed at understanding the relationship of African art to the Western world. Student projects and field trips.
First or Second Year Level.



ART 27 Pre-Columbian Art / 3 sem. hrs.

A visual survey of the art styles of ancient Mexico. Students will be involved in reproducing some of the materials studied. Movies and field trips will be included.
First or Second Year Level.

ART 121 Handwriting, Calligraphy and Lettering

An introduction to italic handwriting through demonstrations and practice with the pen. Extension of this basis to sign writing, sign painting and other uses in individual cases.
Non-Credit.

ASTRONOMY**AST 1–2 Introduction to Astronomy / 4–4 sem. hrs.**

An introduction to the basic principles and methods of astronomy.

AUTO MECHANICS**AUT 50 Automotive Transmissions I / 2 sem. hrs.**

A two-semester course covering the construction, operation, maintenance, adjustment and overhaul of automatic transmissions.

AUT 51 Automatic Transmissions II / 2 sem. hrs.

Continuation of AUT 50 for a complete automatic transmissions study.

AUT 53 Engines I / 2 sem. hrs.

This is a basic course which covers the function of gasoline and diesel automotive engines.

AUT 54 Engines II / 3 sem. hrs.

Offers the student practical experience in engine maintenance and service. Fundamental knowledge in theory, design construction and service procedures are studied.
Prerequisite: AUT 53 or 1 year high school automotives.

AUT 55 Engine-Overhaul, Automotive / 3 sem. hrs.

Development of work skills and proficiency in engine rebuilding are emphasized.

AUT 56 Engine Tune-Up, Automotive / 3 sem. hrs.

This course deals with the diagnostic instruments, tools and methods of engine tune-up.
Second Year Level.
Prerequisite: AUT 54, ETR 68.

AUT 57 Drive Line, Automotive / 3 sem. hrs.

Included in the course are stick shift transmissions, clutches, u-joints, propshaft and differential, and drive axle assembly.
Second Year Level.

AUT 58 Automotive Chassis I / 3 sem. hrs.

A two-semester course covering brakes, steering, suspension and exhaust.
Second Year Level.

AUT 59 Automotive Chassis II / 3 sem. hrs.

A continuation of Automotive Chassis I for a complete chassis study.
Second Year Level.

AUT 60 Service Station Mechanic / 3 sem. hrs.

The student is given practical experience in the maintenance of exhaust systems, PCV and clean air systems, coolant systems, VEE belt, filters, tires, brakes and lubrication.

AUT 61 Electric Unit Repair / 5 sem. hrs.

An advanced study in class and lab of the theory, design and repair of the cranking system, charging system and electromechanical accessories.

AUT 121 Know Your Car

This course is designed to help laymen (and women) to understand basically how a car is supposed to function, what is expected from the car and how to recognize trouble signs. Safety, and how to deal with a mechanic or service man also will be discussed. (A six week course offered two times a year, 1 hour lecture.)
Non-Credit Course.

BEHAVIORAL SCIENCES**BHS 1 Introduction to Cultural Anthropology / 3 sem. hrs.**

A study of how our culture influences the way we behave. A look at our culture and other cultures, using the tools of anthropology.
First Year Level.

BHS 2 Introduction to Physical Anthropology / 3 sem. hrs.

Man's evolution, including his origin, distribution, and variation. Race and racism in the modern world also will be explored.

BHS 3 Cultural Anthropology / 3 sem. hrs.

An intensive introduction to the methods by which different cultures are studied and compared. Particular attention will be given to anthropological theory, the meaning of culture and cultural change, and the relationships between dominant and minority groups.
Second Year Level.
Prerequisite: BHS 1.

BHS 4 Archaeology / 3 sem. hrs.

The history of archaeological research, and a survey of concepts and methods for the study of prehistoric cultures. The student will be exposed to how archaeologists reconstruct human history from the past through material they find in the field.
Second Year Level.

BHS 6 Contemporary Indian Groups of the Southwest / 3 sem. hrs.

Studies on the Federal-Indian relationship system and a comparative descriptive account of the contemporary Indian reservations in the Southwest, with emphasis on Arizona.

BHS 7 Papago History and Culture / 3 sem. hrs.

(Same as History 7.)

BHS 8 History of the Indians of North America / 3 sem. hrs.

Studies on the origin of the American Indian; a survey of the historical developments of Indian reservations in the United States and their relationships to the contemporary problems of American Indians.

BHS 9 History and Culture of the Mexican-American in the Southwest / 3 sem. hrs.

(Same as History 9.)

BHS 10 The Mexican-American in Transition / 3 sem. hrs.

What is it like to be a Mexican in American society today? The problems resulting from differences in cultures, values and needs will be examined through class discussion and participation in related activities in the community. First or Second Year Level.

BHS 11 Culture and Personality of the Mexican-American / 3 sem. hrs.

A review of how the culture and personality of the Mexican-American differs from those of other people and what it means to the individual. First or Second Year Level.

BHS 12 Afro-American History and Peoples / 3 sem. hrs.

(Same as History 12.)

BHS 13 History and Peoples of Africa / 3 sem. hrs.

(Same as History 13.)

BHS 14 History and Peoples of Latin America / 3 sem. hrs.

(Same as History 14.)

BHS 15 History and Peoples of Asia / 3 sem. hrs.

(Same as History 15.)

BHS 16 Introduction to Community Organization and Development / 3 sem. hrs.

A study of the theory of organizing groups to effect change and of the role of the professional organizer. Students, under direction, will be involved in informal and formal groups within the Tucson community for purposes of observation and experience. First Year Level.

BHS 19 Individual Studies in Anthropology / 1 to 3 sem. hrs.

Independent readings or special projects of interest to the student, through arrangement with the instructor. First Year Level. Prerequisite: BHS 1 or 2 or consent of instructor.

BHS 20–21 Introduction to Psychology I, II / 3–3 sem. hrs.

I — Basic principles of learning; physical and physiological factors as related to individual growth. II — Introduction to affect, personality organization and perception.

BHS 22 Introduction to Social Psychology / 3 sem. hrs.

Basic theories and concepts of social psychology; the individual's experience in group situations.

BHS 23 Normal Personality / 3 sem. hrs.

Psychological functioning and coping behaviors for normal personality development. Early adulthood is stressed.

BHS 24 Ghetto Society / 3 sem. hrs.

A study of minority socialization and life of urban disadvantaged groups. First or Second Year Level. Prerequisite: BHS 30 for U.A. transfer.

BHS 25 Social Psychology Practicum / 3 to 5 sem. hrs.

Familiarization with some specific area of social psychology through a review of pertinent research, directed observation, and personal participation in relevant experimental or natural settings. First or Second Year Level. Prerequisite: Consent of instructor.

BHS 26 Explorations in Prejudice / 3 sem. hrs.

Why we hate each other. What we, as participants in this course, do about our own prejudice and prejudice in the community. First or Second Year Level. Prerequisite: BHS 30 for U.A. transfer.

BHS 30 Introduction to Sociology / 3 sem. hrs.

What this society is, how we live in it, and what we can do with it. First or Second Year Level.

BHS 31 Current United States Social Problems / 3 sem. hrs.

How individuals get constructively involved. (Must be taken concurrently with Speech 24.) First or Second Year Level. Prerequisite: BHS 30 for U.A. transfer.

BHS 32 Introduction to Civil Rights Practices / 3 sem. hrs.

An explanation of legal practices and regulations with emphasis on individual rights and problems, the welfare system, financial contracting, health and building codes, and administrative processes in the schools. Applied field work included. (Included in Political Science 49.) First or Second Year Level.

BHS 33 Introduction to Social Welfare / 3 sem. hrs.

Our social welfare system; what it has been, what it is, and what it may become in the nation and in the local community. First Year Level.

BHS 34 Introduction to Casework / 3 sem. hrs.

An introduction to the theory and practice of casework within the context of the Southwest; interviewing, case history and review, and how to develop a helping relationship. First Year Level.

BHS 35 Introduction to Group Work / 3 sem. hrs.

Group work including personal growth, leadership and organization development in different economic and cultural settings. Both directive and non-directive techniques will be studied.

Second Year Level.

BHS 36 Personal and Public Health / 3 sem. hrs.

Students may select topics such as traumatic injuries, communicable diseases, nutrition, mental health, environmental health problems, or socio-medical problems such as venereal diseases, drug use and abuse, alcoholism, abortion. The focus is on preventive health measures and public health services. (Same as Physical Activities 36.)

BHS 37 Preparation for Teaching Personal and Public Health / 3 sem. hrs.

Course content may be the same as in BHS 36, but the focus is on learning to use methods and materials in teaching health topics to different age groups. (Same as Physical Activities 37.)

Prerequisite: BHS 36 or consent of instructor.

BHS 41 Analytical Psychology I / 3 sem. hrs.

Introduction to personality theory of analytical psychology and how the theory applies to the individual.

BHS 42 Analytical Psychology II / 3 sem. hrs.

Explorations in dream interpretation and the process of active imagination.

Prerequisite: BHS 41.

BHS 46 Special Topics in the Behavioral Sciences (or) Meeting with Change / 3 to 6 sem. hrs.

Topics such as alienation, altered states of consciousness, death, parapsychology, Utopian society, man and his symbols, human sexual behavior, and ceremonial behaviors. To be offered dependent on the background and current interests of faculty and students.

First or Second Year Level.

Prerequisite: Consent of instructor.

BHS 47 Investigations in Values: Contemporary and Future / 3 sem. hrs.

(Same as Philosophy 47.)

BHS 48 Sociology of Utopia / 3 sem. hrs.

The course will include the study of "Alternative Life Styles" and the history of the communal movement in America with special emphasis on the literature of Utopia and modern communal experimentation.

BHS 49 Individual Studies in Behavioral Sciences / 3 to 6 sem. hrs.

Exploration of areas of special interest. Content to be determined by student and facilitator-instructor.

First or Second Year Level.

Prerequisite: Consent of instructor.

BHS 50 Man in the Computer Age / 3 sem. hrs.

A view of the world into which we are moving, emphasizing man's relationship to machines, particularly the computer. A cross-curriculum course including units from computer science, behavioral science, economics and technological areas. (Same as Computer Science 50.)

First Year Level.

BHS 51 Special Topics in Human Relations in Business and Industry / 3 sem. hrs.

Special aspects of business and industrial psychology developed from the needs of registrants.

First or Second Year Level.

BHS 52 Teachers and Children / 3 sem. hrs.

A discussion of pertinent topics developed for practicing teachers and teacher aides evolving from needs of individual participants.

Second Year Level.

BHS 54 Earth, Environment and Man / 3 sem. hrs.

(Same as Life and Earth Sciences 54.)

BHS 55 Topics in Community Involvement / 1 to 3 sem. hrs.

Direct constructive student involvement in community problems, as individuals or small teams. Specific activities to be determined and guided through periodic consultation with an appropriate faculty adviser. Students employed or working as volunteers with agencies or groups also may get credit for those activities under this course.

First or Second Year Level.

Prerequisite: Consent of instructor.

BHS 58 Human Relations in Business and Industry / 3 sem. hrs.

(Same as Management 58.)

BHS 59 Introduction to Cities and Community Planning / 3 sem. hrs.

Designed primarily as an introductory course to help the student understand the urban environment and how it functions. The role that community planning can and should play in adding to the quality of urban living.

BHS 60 Introducción de las Ciencias Sociales / 3 sem. hrs.

En este curso un grupo de profesores presentarán sus puntos de vista profesionales sobre la historia, antropología, economía, sociología y psicología de la region sudoeste con énfasis en los de habla hispana.

BHS 61 Psychology for Parents with Disturbed Children / 3 sem. hrs.

Exploration of the unconscious relationship between parents and child.



CHEMISTRY

CHM 1–2 Introductory Chemistry / 4–4 sem. hrs.

Classification and structure of matter along with basic principals of chemical reactions and their relevancy to common environments. Designed for the non-science major, the course will meet the needs and interests of these students.

First Year Level.

Prerequisite: MTH 70 or equivalent background.

CHM 3–4 General Chemistry / 4–4 sem. hrs.

Essential concepts, models and problem solving techniques. Emphasis is on chemical bonding, periodicity, chemical properties, stoichiometry, kinetics and descriptive inorganic chemistry.

First Year Level.

Prerequisite: High School chemistry, concurrent enrollment in MTH 20, or equivalent background.

CHM 5–6 Introduction to Chemistry / 4–4 sem. hrs.

The classification, structure and general chemical behavior of matter as a basis for the study of the chemistry of some life processes.

First Year Level.

CHM 40–41 Organic Chemistry / 4–4 sem. hrs.

An integrated course in the fundamentals of organic chemistry covering the occurrence, uses, syntheses, analyses and typical reactions of important classes of organic compounds.

Second Year Level.

Prerequisite: CHM 3–4, equivalent or consent of instructor.

CHM 50 Topics in Physical Science / 1 to 4 sem. hrs.

Special topics selected according to needs of students requiring material not covered in regular listings.

Level – Variable.

Prerequisite: Consent of instructor.

CHM 60 Applied Chemistry I / 4 sem. hrs.

Introductory chemistry, beginning instrumentation, and practical chemistry. Emphasis is placed on the laboratory aspect and is intended to provide the student with immediate employable skills.

First Year Level.

CHM 61 Applied Chemistry II / 4 sem. hrs.

A continuation of Applied Chemistry I. More mathematics are employed in the course and there is greater depth in instrumentation uses.

First Year Level.

Prerequisite: CHM 60.

CHM 65 Qualitative and Quantitative Analysis / 4 sem. hrs.

The modern methods of qualitative and quantitative analysis of materials involved in current technology. Mathematical solutions are stressed.

Second Year Level.

Prerequisite: CHM 61, MTH 81, 60 or 20.

CHM 70 Special Organic Techniques / 4 sem. hrs.

A study of advanced preparative and analytical techniques particularly applicable to organic chemistry.

Second Year Level.

Prerequisite: CHM 61.

CHM 71 Industrial Processes / 4 sem. hrs.

The practical aspects of some of the general processes employed in various industries.

Second Year Level.

Prerequisite: CHM 61.

CHM 72 Industrial Hygiene / 4 sem. hrs.

The course primarily is concerned with the analytical methods employed in hygiene chemistry. Industrial safety procedures also are considered.

Second Year Level.

Prerequisite: CHM 71.

CHM 73 Mining Chemistry / 4 sem. hrs.

Under study is descriptive chemistry of mined materials, assay methods, milling and smelting procedures.

Second Year Level.

Prerequisite: CHM 61.

CHM 74 Pollution Control / 4 sem. hrs.

A review of pollution problems, pollution control systems, pollution detection, and pollution research from current literature.

Second Year Level.

Prerequisite: CHM 61, 72 recommended.

CHM 75 Medical Technology Chemistry I / 4 sem. hrs.

The course covers introductory organic and biochemistry. Also basic techniques employed in medical laboratories.

Second Year Level.

Prerequisite: CHM 61 and concurrent enrollment in CHM 65.

CHM 76 Medical Technology Chemistry II / 4 sem. hrs.

A continuation of basic techniques, quantitative analysis of blood, urine, electrolytes, enzymes and many other specific tests. Emphasis will be on performance.

Second Year Level.

Prerequisite: CHM 75.

CHM 77 Radiochemical Techniques / 4 sem. hrs.

Studied are analytical methods employing micro Curie levels of radioisotopes.

Second Year Level.

Prerequisite: CHM 61 and concurrent enrollment in CHM 65.

CHM 78 Advanced Instrumentation / 4 sem. hrs.

The use of instrumental techniques not studied in previous courses are reviewed, also instrument maintenance and basic theory of operation.

Second Year Level.

Prerequisite: CHM 65.

CHM 80 Slide Rule and Calculators / 2 sem. hrs.

Practical aspects of slide rule use are studied. Also, short cuts in calculations and experience with various calculating devices. First Year Level.
Prerequisite: MTH 11 or 60.

CHM 85 Basic Employment Information / 2 sem. hrs.

This course is intended to inform students of local, regional and national job market conditions. Practical aspects of how to get a job, how to keep a job, and how to advance on a job are reviewed.
Second Year Level.

COMMUNICATIVE ARTS**COM 1 Writing I / 3 sem. hrs.**

An introduction to the excitement of good writing with emphasis on the technique and practice of description, explanation and argument. Students also will review language fundamentals when necessary, analyze collateral readings and keep individual journals.

COM 2 Writing II / 2 sem. hrs.

The excitement of writing meets the needs of advanced college work. Continued practice in longer and more analytical compositions with reading and analysis of modern short stories, novels, plays, poetry or suitable works on non-fiction. The research paper course (COM 3) must be taken with or following COM 2 for college transfer credit. It is recommended that COM 2 and 3 be taken concurrently with the same instructor.
Prerequisite: COM 1.

COM 3 Research Paper / 1 sem. hr.

This course is part of Writing I and II. Students doing a research paper in any area may take this course to learn techniques and formats of research papers. Students taking COM 2 and 3 concurrently should attempt to take the courses with the same instructor.
Prerequisite: COM 1.

COM 4 Technical Communications / 3 sem. hrs.

Basic techniques of writing long and short reports, abstracts and other forms required in scientific and technical occupations. The course will be structured to allow students to work on writings required in current courses and in future occupations.
Prerequisites: COM 1, 2, 3 or consent of instructor.

COM 5 Imaginative Writing — Poetry / 1–4 sem. hrs.

An introduction to the techniques used in contemporary poetry; a study of selected poems as examples; practice in applying techniques by writing and discussing original poetry. For University of Arizona transfer, students must have completed COM 2 and 3. This course may be taken as COM 55 for Pima College credit.

COM 6 Imaginative Writing — Short Story / 1–4 sem. hrs.

Introduction to the techniques used in contemporary short fiction; study of selected short fiction with emphasis on why a story works or does not; practice in the separate elements of technique through short written exercises; completion of at least one manuscript. For University of Arizona transfer, students must have completed COM 2 and 3. This course may be taken as COM 66 for Pima College credit.

COM 7–8 Reporting / 3 sem. hrs.

The gathering, selecting, evaluating and writing of news.

COM 10 Exploring Mass Media / 3 sem. hrs.

What is happening to us with TV in our homes and newspapers on our doorsteps? An evaluation of information and its sources.

COM 15 Intensive English I / 3 sem. hrs.

An intensive course in English, specially designed for the foreign student. Oral and written drills will be used for the improvement of fluency and comprehension. Students are required to take Reading 50 simultaneously.

COM 16 Intensive English II / 3 sem. hrs.

A continuation of COM 15 with emphasis in composition and literary selections to introduce the foreign student to the cultural heritage of the English language. Students are required to take Reading 51 simultaneously.
Prerequisite: COM 15 or consent of instructor.

COM 20 Advanced Composition / 3 sem. hrs.

Extensive practice in writing a variety of forms such as essays, reports, journals and interviews.
Prerequisite: COM 2, 3.

COM 50–51 Plain Writing / 3 sem. hrs.

Practical experience in solving individual everyday writing problems. For students with specific or limited writing objectives that differ from the aims of COM 1 and 2. Individual career needs also are met.

COM 55 Imaginative Writing — Poetry / 1–4 sem. hrs.

Same as COM 5, but non-transferable. Open to all Pima College students.

COM 66 Imaginative Writing — Short Story / 1–4 sem. hrs.

Course is the same as COM 6, but is non-transferable. It is open to all Pima College students.

COMPUTER SCIENCE**CSC 40 Computer Science I / 1 to 3 sem. hrs.**

A study of programming in the FORTRAN IV language. Application of programming to the numerical solution of problems. Includes flowcharting, block diagramming, documentation, and writing of programs. Problems are suited to business, engineering or math, depending upon students' objectives. First half of course satisfies the one unit transfer

credit. (Same as Mathematics and Machine Technology 40.)
First Year Level.

CSC 43 Advanced Computer Science — Mathematics / 3 sem. hrs.

(Same as Mathematics 43.)

CSC 45 Engineering Analysis — Modeling and Simulation / 3 sem. hrs.

Construction and analysis of models of engineering systems. Manipulation of these models by digital computers. (To be offered in the Spring.)

Second Year Level.

Prerequisite: MTH 30, 31, 32, PHY 16, 21.

CSC 47 Introduction to Computers / 3 sem. hrs.

Establishes the relationship of computer to manual processing systems, relating through unit record systems. Introduces stored program concepts, management information systems, machine configuration and storage, flowcharting and block diagramming, documentation and the Report Program Generator language. Business problems will be programmed by students in Report Program Generator.

First Year Level.

CSC 50 Man in the Computer Age / 3 sem. hrs.

(Same as Behavioral Sciences 50.)

CSC 51 Introduction to Numerical Control / 2 sem. hrs.

(Same as Machine Technology 51.)

CSC 52 Key Punch, Data Entry and Procedures / 3 sem. hrs.

Student learns creation and use of program drum cards, to punch numeric and alphameric data and computer program formats. Both the keypunch and verifier are learned, with stress on high volume/low error rates. Other methods of data entry are presented with controls and procedures in a keypunch department.

First Year Level.

Prerequisite: Typing speed 40 wpm or consent of instructor.

CSC 56 Computer Operations / 3 sem. hrs.

Instruction and lab experience in operations of a computer, covering tape, disk, printer, reader-punch, console and in-house role of the operations section including scheduling of jobs. Hands on training in at least one operating system is required.

First Year Level.

CSC 58 Job Stream Concepts and Operations / 3 sem. hrs.

A study of control statements and functions needed for computer operation. Multi-programming considerations, system flow, device assignment, labels on tape and disk, utility programs, and linkage editing are covered.

Hands-on operation required.

First Year Level.

Prerequisite: CSC 47, 56.

CSC 60 Programming II / 3 sem. hrs.

Comprehensive study and practice of writing programs in COBOL, standard business language. Proper documentation and programming standards are included, as are programming techniques to utilize auxiliary storage devices.

First Year Level.

Prerequisite: CSC 47 or consent of instructor.

CSC 62 Programming III / 3 sem. hrs.

Comprehensive study and practice of writing programs in a high level language such as PL/1. Proper documentation and programming standards are included, as are programming techniques to utilize auxiliary storage devices (To be offered in the Spring.)

First Year Level.

Prerequisite: CSC 40 or 47 or consent of instructor.

CSC 63 Programming I / 3 sem. hrs.

Intensive study and writing of programs in the Report Program Generator language. Topics include files, file organization and processing; programming for disk and tape file applications; tables, arrays and subroutines; and special RPG programming techniques.

First Year Level.

Prerequisite: CSC 47 or consent of instructor.

CSC 64 Numerical Controlled Machines I / 3 sem. hrs.

(Same as Machine Technology 64.)

CSC 68 Data Processing Projects I / 1 to 5 sem. hrs.

Practical work experience on assigned projects in a data processing installation, under supervision of the installation's management and the instructor. Applying for the job, work standards, and problems met in a work situation will be covered, as will opportunities for occupational advancement.

First Year Level.

Prerequisite: Consent of instructor.

CSC 70 Programming IV / 3 sem. hrs.

A study of an Assembly Level language and its relationship to machine language. Emphasis on Standard and Decimal instruction sets, sub-routine control and linkage. Debugging techniques and basic input/output control system applications are covered. Lab experience is provided.

Second Year Level.

Prerequisite: CSC 47 or consent of instructor.

CSC 74 File Management and IOCS / 3 sem. hrs.

Data organization and file management techniques with IOCS applications are thoroughly explored. Interaction of the operating system and multiprogramming considerations are covered. (To be offered in the Spring.)

Second Year Level.

Prerequisite: CSC 70 or consent of instructor.

CSC 76 Operating Systems I / 3 sem. hrs.

A study of functions and design of a computer's operating



system. Emphasizes system generation as affected by computer size, configuration, and needed library routines and macros. The class will work through an actual generation of an operating system.

Second Year Level.

Prerequisite: CSC 70 or consent of instructor.

CSC 77 Numerical Controlled Machines II / 3 sem. hrs.

(Same as Machine Technology 77.)

CSC 80 Systems Analysis and Design I / 3 sem. hrs.

A study of the tools of systems analysis: card design, print layouts, specifications for auxiliary storage devices, levels of system design, and a system/program narrative. A project is required of each student.

Second Year Level.

Prerequisite: CSC 60 or 62 or 63 or 70 or consent of instructor.

CSC 81 Systems Analysis and Design II / 3 sem. hrs.

Includes a feasibility study, with analysis of various hardware and applications. Emphasis is on the need of management information for decision making and control, and an understanding of the pace of electronic data processing in this environment. (To be offered in the Spring.)

Second Year Level.

Prerequisite: CSC 80.

CSC 90 Systems Programming Theory I / 3 sem. hrs.

The writing of compilers, operating systems and utility programs. Sorting and timing techniques included. (To be offered in the Spring.)

Second Year Level.

Prerequisite: CSC 76 or consent of instructor.

CSC 94 Teleprocessing Concepts I / 3 sem. hrs.

Topics covered are terminology of teleprocessing systems, hardware characteristics, considerations of direct access, backup and recovery procedures, buffering and queuing techniques.

Second Year Level.

Prerequisite: CSC 74, 81 or consent of instructor.

CSC 98 Data Processing Projects II / 1 to 5 sem. hrs.

Practical work experience on assigned projects in a data processing installation, under the supervision of the installation's management and the instructor. Designed to provide students with experience in defining and solving problems in a work situation.

Second Year Level.

Prerequisite: Consent of instructor.

DRAFTING

DFT 55 Technical Drafting I / 3 sem. hrs.

Designed for the drafting technician student as a fundamentals course in Drafting. This is the first of a series of four courses to develop skills and proficiency. The student proceeds through problems encountered in his association with engineers and designers. Familiarization with drafting tools, sketching, lettering, geometric construction, orthographic

projection, dimensioning, isometrics, sections and auxiliary views, with use of military standards and specifications as a guide.

First Year Level.

DFT 56 Technical Drafting II / 3 sem. hrs.

A continuation of Drafting 55, furthering the skills of the student. There will be a review of the first course procedures, with the following topics occurring for problem solution: dimensioning, tolerancing, detail and assembly drawings, hardware selection with Mil Standards and Specifications as the guide.

First Year Level.

Prerequisite: DFT 55.

DFT 57 Technical Drafting III / 3 sem. hrs.

This course follows Drafting 56 and covers additional problems in mechanical drafting. The student will be given more advanced problems, typical of industry, to develop skill, accuracy and speed.

Second Year Level.

Prerequisite: DFT 56.

DFT 58 Tool Design / 4 sem. hrs.

Introduction to the problems of tool design, drill jigs, radius dies, fixtures, welding jigs and assembly jigs. The industrial process and reference books are studied and drawings prepared concurrently with the study of related shop practices, mathematics, geometry, materials and basic tools of jig and fixture fabrications.

Second Year Level.

Prerequisite: MTH 2 or DFT 55.

DFT 61 Construction Drafting I / 2 sem. hrs.

Introduction to drafting equipment and blueprint reading. Basic floor plans, plot plans, elevations, roof plans, electrical, plumbing, and heating-ventilation plans will be discussed and produced. Framing details and building codes will be involved.

First Year Level.

DFT 62 Construction Drafting II / 2 sem. hrs.

A set of plans for a "typical" Southern Arizona area home or small business building will be designed and submitted after consideration of design, structural details, materials and estimate of cost.

First Year Level.

Prerequisite: DFT 61.

DFT 63 Architectural Illustration / 2 sem. hrs.

Perspective renderings in black and white, and colors — shades and shadows, and landscaping designs are studied.

Second Year Level.

Prerequisite: DFT 62.

DFT 64 Structural Drafting / 3 sem. hrs.

A practical study of structural steel, its strength and design capabilities, its fabrication, welding design and symbols, and standard drawings for steel construction.

Second Year Level.

Prerequisite: DFT 62.

DFT 65 Architectural Utilities Planning / 2 sem. hrs.

A study of the basic designs for heating-cooling, plumbing and electrical plans in accordance to specifications and building codes. Familiarity with materials and fabrication details will be stressed.

Second Year Level.

Prerequisite: DFT 62.

DFT 71 Technical Illustration / 2 sem. hrs.

Course is designed to provide skills in producing drawings for technical publications, advertising art studios, production illustrations. Content includes freehand sketching of mechanical parts and assemblies and isometric, oblique and perspective drawings, including air brush experience.

Second Year Level.

Prerequisite: DFT 55, ENG 2, 25.

DFT 73 Electronic Drafting / 3 sem. hrs.

Offered primarily for the drafting technician student. A depth of instruction is provided in schematics, logic diagrams, printed circuit and integrated circuit layout including taping.

First Year Level.

Prerequisite: DFT 55.

DFT 77 Electro-Mechanical Design / 4 sem. hrs.

Practical packaging problems common to the electronics industry are studied. Includes electrical, mechanical, environmental, functional and manufacturing involvement in the design of electro-mechanical gear.

Second Year Level.

Prerequisite: DFT 73.

DRAMA**DRA 5-6 Introduction to Acting / 3-3 sem. hrs.**

Introduction to performance techniques and the development of physical skills for effective performance; techniques of acting and characterization and the actor's relationship to all aspects of theatrical production.

First Year Level.

Prerequisite: DRA 5 for DRA 6.

DRA 7 Techniques of Rehearsal / 1-4 sem. hrs.

The practice in techniques of acting and methods of character development. (May be offered in the Spring.)

Prerequisite: DRA 5.

DRA 9 Ethnic Theater / 1 to 4 sem. hrs.

Experience in and study of theater as a social communication, including Mexican-American, Black and American Indian forms of dramatic presentation.

First or Second Year Level.

DRA 9 Teatro del Pueblo / 3 sem. hrs.

Este curso mostrará al estudiante la técnica y las diversas faces que ha tenido el teatro históricamente. Se pondrá gran empeño en poner en marcha la práctica junto a la teoría para que los estudiantes desarrollen sus facultades artísticas y para que el teatro con elementos de actualidad revista la enorme importancia social que con su influencia ha tenido

tradicionalmente. Para quienes participen como actores se otorgarán de una a dos unidades como crédito adicional si se presenta la obra al público. Este curso se ofrece en colaboración con El Teatro de Pueblo, Inc. de Tucson, Arizona.

DRA 15 Make-Up / 2 sem. hrs.

The study and practice of straight and character make-up under various conditions. Also, the history of make-up and masks in various cultures. (Fall semester only.)

First or Second Year Level.

DRA 20-21 Stagecraft and Production / 2-2 sem. hrs.

Study of and experience in the technical organization of the theater, stage management, scenery construction and painting, basic drafting, special effects, and lighting mounting and operations (DRA 20-21 need not be taken in sequence.)

First Year Level.

DRA 22 Advanced Stagecraft / 2 sem. hrs.

Study and application of graphic skills and design elements of theatrical production. May be taken concurrently with DRA 21. (Spring Semester only.)

Second Year Level.

Prerequisite: DRA 20.

DRA 40-41 History of the Theater / 3-3 sem. hrs.

A study of theater and drama from primitive rituals to the present, including European, Oriental, African and American cultural influences on the development of various dramatic levels.

Second Year Level.

DRA 48-49 Intermediate Acting / 3-3 sem. hrs.

The theories of and experiences in creating sustained and logical character portrayals, using all types of dramatic literature from various cultures.

Second Year Level.

EARTH SCIENCES**ESC 1 Physical Geography / 4 sem. hrs.**

The physical elements — weather, climate, vegetation, landforms and soils — are interrelated with one another, forming patterns of great importance to man. This course is about those elements, their interrelationships, the resulting patterns and why they are important. (3 hours lecture and 2 hours lab.)

First or Second Year Level.

ESC 2 Cultural Geography / 4 sem. hrs.

This is a course about people, where and how they live and some of the reasons why they live as they do. Race, language, religion and the physical environment are woven together and changed by time to produce many economic and settlement patterns. (3 hours lecture, 2 hours lab.)

First or Second Year Level.

ESC 20-21 Introductory Geology / 4-4 sem. hrs.

An introduction to the principles of geology. The physical and historical aspects of geology are revealed in a study of the

properties, processes, rocks, minerals and fossils of the earth. Both ESC 20 and 21 are offered each semester. Course consists of a three-hour lecture and a three-hour lab. Prerequisite: ESC 20 for ESC 21.

ESC 54 Earth, Environment and Man / 3 sem. hrs.

(Same as Life or Behavioral Sciences 54.)

ESC 121 Introduction to Maps

For hunters, hikers, housewives and travelers. How to read, use and obtain road and topographic maps, elements of map construction and an introduction to some special purpose maps. (Can be offered in the Fall if enrollment is justified.) Non-Credit.

ECONOMICS

ECO 1 Economic History / 3 sem. hrs.

Historical origins of the economic institutions of the United States and their evolution will be surveyed as a basis of understanding our present economy. First Year Level.

ECO 2 Introduction to Microeconomics / 3 sem. hrs.

The role of prices in the allocation of economic resources; market structures, and the distribution of income will be analyzed with specific emphasis given to the individual and the firm in their economic environment. First Year Level.

ECO 3 Introduction to Macroeconomics / 3 sem. hrs.

The relationship between national income, the level of employment, the monetary system, and the foreign trade sector will be analyzed from a policy maker's viewpoint. First Year Level.

ECO 4 Topics in Contemporary Economics / 3 sem. hrs.

Independent studies on specific economic topics based on student interest. Second Year Level.

ECO 50 Economic Development for Minority Groups / 3 sem. hrs.

This seminar will aim at the analysis and development of economic policies for low-income groups. First Year Level. Prerequisite: ECO 1 or consent of instructor.

ELECTRONICS

ETR 53 Introduction to Electronic Fundamentals / 6 sem. hrs.

An introductory course for students having no previous knowledge of electronics who will go on to an electronic technician program, or for those who wish to obtain a general background in electronics. Covers basic DC concepts and circuits, power, physical laws on electricity, inductance, capacitance and alternating current fundamentals. First Year Level. Prerequisite: Concurrent with MTH 82, or equivalent.

ETR 55 Semi-Conductors, Transistors and Vacuum Tubes / 3 sem. hrs.

An extensive examination of the principles and application of semi-conductors, basic analysis, theory of solids and valance rings, Firme level and quantum analysis. These in turn will be applied to transistors and all other solid-state devices. Vacuum tubes will be examined in the same manner consistent with the state of the art technique. First Year Level. Prerequisite: Concurrent with MTH 82 and ETR 53, or equivalent.

ETR 57 Electronic Circuit and Systems / 6 sem. hrs.

This course provides an extensive examination of electronic circuits and systems, basic and advanced network analysis, alternating current, resonance and power transfer. Most of the course is in lab sessions. Course is required in the electronics program. First Year Level. Prerequisite: ETR 53, 55, concurrent with MTH 83, or equivalent.

ETR 61 Advanced Circuits and Systems / 6 sem. hrs.

Advanced techniques which will be weighed toward the student's chosen specialized course. Second Year Level. Prerequisite: ETR 57, MTH 83, concurrent with MTH 87.

ETR 63 Specialized Course — Micro-wave / 6 sem. hrs.

The course deals with the micro-wave spectrum generally, and will give opportunity for study in micro-wave communications, radar, telemetry, UHF amplifiers, transmission lines, amplifiers, magnetrons, klystrons, and radio-wave propagation. Second Year Level. Prerequisite: ETR 61, MTH 87, concurrent with MTH 88.

ETR 65 Electricity — For Automotive Service Station Attendant / 2 sem. hrs.

A very basic study in class and lab of the ignition system, cranking system, charging system, and electrical circuits.

ETR 66 Specialized Course — Pulse-Circuits / 4 sem. hrs.

Study of wave-shaping, linear and non-linear amplifiers, pulse amplifiers, transit-time analysis. Application of pulse circuits will be weighed toward the major specialized course. Second Year Level. Prerequisite: ETR 61, MTH 87, concurrent with MTH 88.

ETR 67 Specialized Course — Industrial Implementation / 6 sem. hrs.

Course covers measurement techniques, testing, all contemporary methods of sensing, visual display devices and oscillograph read-outs, and latest industry techniques in the area of electronic quality control. Second Year Level. Prerequisite: ETR 61, MTH 87, concurrent with MTH 88.

ETR 68 Electricity for Automotive Mechanics / 4 sem. hrs.

A general study in class and labs, of A.C. and D.C. electrical

circuits, lighting and ignition systems, the cranking and charging systems, to enable the mechanic to trouble shoot and repair.

ETR 72–73 Television Repair I, II / 3–3 sem. hrs.

A two-semester course covering electronic fundamentals in the first section and practical trouble shooting and alignments of television sets during the second. No electronics experience is required. A math background would be helpful, but also is not required.

ETR 74 Technician Upgrade Training for F.C.C. License / 3 sem. hrs.

A one-semester course to prepare present electronic technicians (radio, radar, television repair, etc.) for the second class radio telephone license examination administered by the Federal Communications Commission. Electronics training and experience is required as the course only will review circuit analysis and laws and regulations concerning the transmission of radio energy.

Prerequisite: Must have completed Electronic Fundamentals training including transistor and circuit theory.

ETR 80 Digital Computer Fundamentals / 5 sem. hrs.

This course will provide an extensive examination of the principles of digital logic circuits as applied to electronic digital computers. Covered will be computer operations, programming, number systems, logic circuits and design, arithmetic and memory elements, input/output devices and computer organization and control.

Prerequisite: ETR 53, 55, MTH 82 or equivalent.

ENGINEERING

ENG 2 Engineering Graphics / 3 sem. hrs.

(Same as Mathematics 2.)

ENG 14 Engineering Mechanics / 3 sem. hrs.

Vector algebra, calculus, equilibrium, kinematics, momentum, energy concepts and equivalent force systems.

Second Year Level.

Prerequisite: PHY 10, MTH 31.

ENG 17 Mechanics of Materials / 3 sem. hrs.

Material behavior, relationships between external forces acting on inelastic and elastic bodies and the resulting behavior, stress and strain, and combined stresses.

Second Year Level.

Prerequisite: ENG 14.

ENG 21 Elementary Surveying / 3 sem. hrs.

Course includes measurement of horizontal distances, use of surveying instruments, angle measurements, traverse surveys and computations, topographics, government land, and construction surveys.

Second Year Level.

Prerequisite: MTH 2, 81.

ENG 25 Engineering Drawing / 3 sem. hrs.

Preparation of detail and assembly drawings using standard

shop and drafting room practices. Fundamental principles of orthographic projection, sectional views, auxiliary views, graphs, intersection and developments, dimensioning and tolerances will be reviewed.

First Year Level.

EXPLORATORY

EXP 50 Potpourri / 3 sem. hrs.

From auto mechanics to Zen meditation. An exploration with area experts of seven subjects selected by the class.

FIRE SCIENCE

FSC 51 Introduction to Public Safety / 3 sem. hrs.

A study of the history and development of public safety systems and basic information about the field of public safety.

First Year Level.

FSC 52 Fire Protection / 3 sem. hrs.

Basic information related to fire protection is reviewed.

First Year Level.

FSC 53 Fire Suppression / 3 sem. hrs.

A development of understanding of techniques of suppressing fires.

First Year Level.

FSC 54 Fire Prevention / 3 sem. hrs.

Basic material deals with fire prevention codes and their application.

First Year Level.

FSC 60 Fire Fighting Tactics and Strategy / 3 sem. hrs.

The basic theory and practice of fire fighting.

Second Year Level.

FSC 61–62 Hazardous Materials / 3–3 sem. hrs.

Course goes into the impact of modern technology on fire fighting.

Second Year Level.

Prerequisite: CHM 1, 2, or equivalent, or consent of instructor.

FSC 63 Building Construction / 3 sem. hrs.

Building codes and their application are studied. Also, the hazards and problems of various types of building construction.

Second Year Level.

FSC 64 Fire Protection Systems / 3 sem. hrs.

Basic information as to the development, installation, maintenance and operation of fire protection systems.

Second Year Level.

FSC 65 Equipment Operation and Maintenance / 3 sem. hrs.

The theory and practice of operating equipment related to fire fighting.

First or Second Year Level.

FSC 66 Rescue Practices and First Aid / 2 sem. hrs.

Basic training in handling emergency situations.
First or Second Year Level.

FSC 70 Topics in Fire Science / 1 to 4 sem. hrs.

Special topics are selected according to the needs of students requiring material not covered in regular listings.
Variable Level.

FSC 71 Public Safety Laws / 3 sem. hrs.

Laws relating to the public safety profession are studied.
Second Year Level.

FRENCH**FRE 1–2 Elementary French / 4–4 sem. hrs.**

An oral approach to French taught primarily through conversation with reading and writing introduced only after listening and speaking skills have been acquired. Only French will be used.
First Year Level.

FRE 3–4 Intermediate French / 4–4 sem. hrs.

A review of basic French skills will be supplemented by regular assignment of compositions in French and a variety of readings. As in the introductory course, only French will be used.
Second Year Level.
Prerequisite: FRE 1–2.

FRE 3R Intensive Review and Intermediate French / 3 sem. hrs.

Students who have previously studied French and wish a refresher will find this course an intensive review of basic skills with new materials suitable to their needs.
Meets five days weekly.
Second Year Level.
Prerequisite: FRE 1–2 or consent of instructor.

FRE 25–26 Composition and Conversation / 3–3 sem. hrs.

Students having some fluency in French will have an opportunity to develop conversational skills and writing ability. Both creative and analytical papers will be written to illustrate different styles.
Second Year Level.
Prerequisite: FRE 4.

FRE 48–49 Intensive French / 4–4 sem. hrs.

Planned for students having a background in any Romance language, this course will permit completion of the equivalent of two years of college French in one year. Literature will be emphasized along with intensive practice in conversation, composition and reading.
Second Year Level.
Prerequisite: Consent of instructor.

FRE 50 Contemporary France and Its Relation to the World / 3 sem. hrs.

France in the world today, its influence, and influences on it

by other countries are examined through studies in politics, economics, literature, arts, religion and philosophy.
Class in English.
First Year Level.

FRE 121 Conversational French

Practice in speaking French, emphasizing current usage and promoting facility in the expression of ideas.
Non-Credit.
Prerequisite: FRE 4 or consent of instructor.

GENERAL BUSINESS**BUS 1 Principles of Accounting I / 3 sem. hrs.**

This course will provide business administration students with the basic concepts and uses of accounting, and accounting majors with a broad foundation for advanced study. Topics include basic concepts and method, income measurement and valuation problems (AIB)
First Year Level.

BUS 1 Principio de Contabilidad I / 3 sem. hrs.

Este curso le dará a los estudiantes de administración de negocios el concepto básico y uso de la contabilidad, también ayudará a los estudiantes de contabilidad dándoles una base sólida para estudios avanzados. El tópico incluye conceptos básicos y métodos de valuaciones. Nivel de Primer Año.

BUS 2 Principles of Accounting II / 3 sem. hrs.

Continuation of Principles of Accounting I. Topics include income measurement and valuation problems, financial reporting, cost accumulation, cost control and financial planning. (AIB)
First Year Level.
Prerequisite: BUS 1.

BUS 5–6 Statistical Methods in Economics and Business / 3–3 sem. hrs.

Students develop an understanding of statistical techniques and their applications for use in economic and business decision making.
Second Year Level.
Prerequisite: MTH 20, BUS 5 for BUS 6.

BUS 10 Business Law I / 3 sem. hrs.

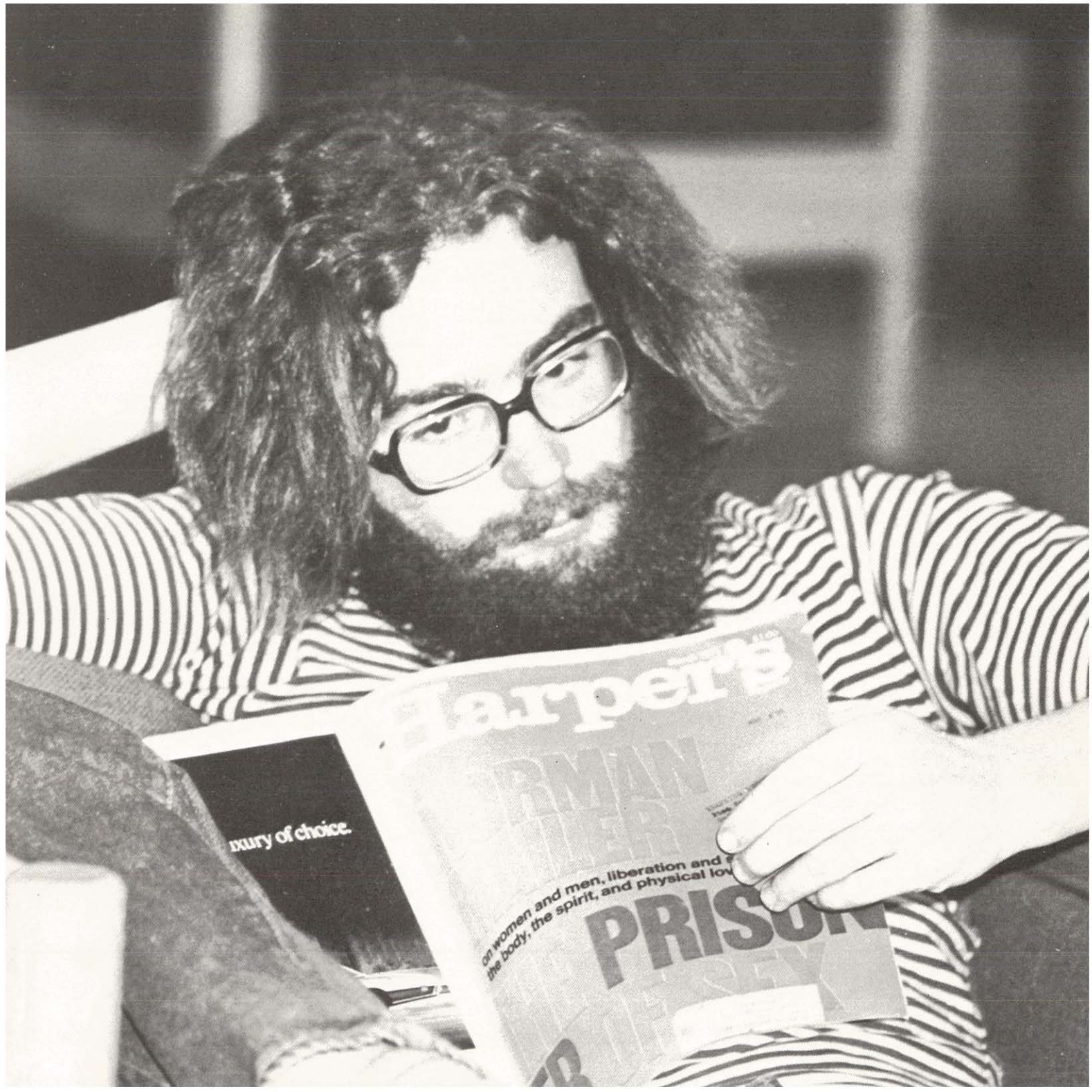
Nature and sources of business law are studied, such as judicial system, contracts, sales and agency law.
Second Year Level.

BUS 50 Introduction to Business / 3 sem. hrs.

A survey of fundamental characteristics and functions of modern business involving business principles, marketing, record keeping and risks, as well as a historical review of business development, including the viewpoint of various ethnic groups. (Offered both semesters.)
First Year Level.

BUS 51 Mathematics of Business / 3 sem. hrs.

Designed to develop skills by solving problems involving the



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on women and men, liberation and the body, the spirit, and physical love

PRISON

application of basic mathematical procedures to business situations. Includes percentage formula application, mark-up, statement analysis, and simple and compound interest. (Offered both semesters.) (AIB)
First Year Level.

BUS 52 Analyzing Financial Statements / 3 sem. hrs.

Characteristics of financial statements and their analysis will be covered in the course. There will be a review of basic accounting principles for those who have studied accounting. For those who have not, there will be a minimum accounting background provided for financial statement analysis. (AIB)

BUS 53 Installment Credit / 3 sem. hrs.

Presented are techniques of installment lending. Emphasis is on credit, obtaining and checking information, servicing the loan and collecting amounts due. Other topics covered are inventory financing, special loan programs, business development and advertising, and the public relations aspect of installment lending. (AIB)

BUS 54 Intermediate Accounting I / 3 sem. hrs.

Study of accounting theory and practice applicable to current assets, fixed assets, liabilities, sources and application of funds. This course is for those who plan to specialize in accounting.
Second Year Level.
Prerequisite: BUS 2.

BUS 55 Intermediate Accounting II / 3 sem. hrs.

Accounting theory and practice applicable to corporate net worth accounts, investments, reserves and income. This course is for those who plan to specialize in accounting.
Second Year Level.
Prerequisite: BUS 54.

BUS 56 Cost Accounting / 3 sem. hrs.

Interpretation, use, and analysis of cost data for management planning, coordination and control. The application of theories and concepts which underlie cost accounting and budgeting.
Second Year Level.
Prerequisite: BUS 1, 2.

BUS 57 Tax Accounting / 3 sem. hrs.

Course includes all aspects of federal income tax in business operations.
Second Year Level.
Prerequisite: BUS 1, 2.

BUS 58 Business Finance / 3 sem. hrs.

A basic course dealing with the methods of securing and managing fixed and working capital funds of individual business units. Special problems encountered by minority enterprises in obtaining funds will be highlighted.
Second Year Level.

BUS 59 Business Communications / 3 sem. hrs.

A study is made of various means of communications, such as

letters, business reports, dictation techniques and telephone conferences (Offered both semesters.)
First or Second Year Level.

BUS 60 Business Law II / 3 sem. hrs.

This course is designed to emphasize general principles which are followed in business, and to provide training in the application of these principles to typical business situations. Subjects include contracts, agency and employment, commercial papers and personal property. (To be offered in the Spring.)
Second Year Level.

BUS 61 Bank Investments / 3 sem. hrs.

As the bank's needs for primary reserves and loanable funds limit money available for investment, the course describes the nature of such funds and how their uses are determined. Also analyzed are primary and secondary reserve needs of commercial banks, reserve sources and their fluctuations. A study of yield changes and their effect on long-term holdings of banks also are covered. (AIB)

BUS 62 Bank Management / 3 sem. hrs.

A working knowledge of bank management is provided, along with new trends which have emerged in the philosophy and practice of management. Case study also is introduced. (AIB)

BUS 63 Payroll Accounting / 2 sem. hrs.

Detailed study and work practice in payroll systems. (To be offered both semesters.)
Second Year Level.
Prerequisite: BUS 1, 2.

BUS 64 Accounting for Government Agencies / 3 sem. hrs.

Concepts and procedures of fund accounting, budgeting and financial control.
Second Year Level.
Prerequisite: BUS 1, 2.

BUS 65 Personal Finance / 3 sem. hrs.

Study of material which will enable individuals to make wise decisions regarding personal and family affairs. Includes banking, taxes, insurance, home ownership and other concerns of consumer financial education. (To be offered both semesters.) (Same as Home Economics 65.)
First or Second Year Level.

BUS 66 Cooperative Accounting Training / 3 sem. hrs.

A supervised cooperative work program is provided for students in an accounting occupation for an average of 15 hours per week.
Second Year Level.
Prerequisite: Accounting core and consent of instructor.

BUS 67 Public Administration / 3 sem. hrs.

A study of management and administration principles and practices found in public agencies.
Second Year Level.
Prerequisite: BUS 1, 2.

BUS 68 Credit Administration / 3 sem. hrs.

Aimed at the executive level, this course reviews factors influencing and determining loan policy. Discussed are credit investigation and analysis, credit techniques, specific credit problems, and regular and unusual types of loans. (AIB)

BUS 69 Principles of Bank Operations / 3 sem. hrs.

The fundamentals of bank functions are given in a descriptive fashion to help the beginning banker view his profession in a broad perspective. (AIB)

BUS 70 Trust Department Organization / 3 sem. hrs.

The course concentrates on the actual operation and administration of the trust institution; how a trust department is organized, how responsibility is shared among divisions, how the department growth may be stimulated. (AIB)

BUS 71 Bank Letters and Reports / 3 sem. hrs.

For bank officers, supervisors and employes who dictate or review correspondence. Not only mechanical forms of bank letters, but psychological principles that help the writer achieve best results. The course covers letter forms, different kinds of bank letters, and principles underlying modern correspondence. (AIB)

BUS 72 Money and Banking / 3 sem. hrs.

Stressed are practical aspects of money and banking, and the basic monetary theory needed by banking students. Emphasis also is on economic stabilization, types of spending, the role of gold, limitations of central bank control, government fiscal policy, balance of payments and foreign exchange. (AIB)

BUS 73 International Banking / 3 sem. hrs.

The basic framework and fundamentals of international banking are introduced along with how money is transferred from one country to another, how trade is financed, what the international agencies are and how they supplement the work of commercial banks, and how money is changed from one currency to another. (AIB)

BUS 74 Home Mortgage Lending / 3 sem. hrs.

The viewpoint of the home mortgage loan officer is taken in this course. The mortgage market picture is presented first, then the acquisition of a mortgage portfolio. Also mortgage plans and procedures, mortgage loan processing and servicing, and obligations of the mortgage loan officer. (AIB)

BUS 75 Savings and Time Deposit Banking / 3 sem. hrs.

Reviewed are the economics of the savings process, clarifying differences between savings by individuals or organizations and real savings that appear as capital formation; and the different types of financial savings. (AIB)

BUS 76 Trust Department Services / 3 sem. hrs.

Designed for personnel of trust departments in commercial banks and trust companies, the course presents a complete picture of services offered by institutions engaged in the trust business. (AIB)

BUS 77 Fundamentals of Bank Data Processing / 3 sem. hrs.

A broad and non-technical explanation of electronic data processing as applied to banks. (AIB)

BUS 78 Agricultural Finance / 3 sem. hrs.

Emphasized are general principles associated with the evaluation of management and the use of capital, rather than land and labor resources. It provides the banker with an understanding of agriculture finance to help satisfy credit needs of modern agriculture. (AIB)

GERMAN**GER 1-2 Beginning German / 4-4 sem. hrs.**

Simple conversations, reading and writing of short composition will introduce the beginner to the German language. Readings and audio-visual materials to be selected for their revelation of the life and culture of German speaking countries. Qualified students may register for GER 2. A language laboratory will be used.

First Year Level.

Prerequisite: GER 1 or one year high school German for GER 2.

GER 3-4 Intermediate German / 4-4 sem. hrs.

Intensive reading, small group discussions, frequent writing assignments, and language laboratory assignments will be combined with individualized instruction to develop a deeper understanding of the German language and culture.

First or Second Year Level.

Prerequisite: GER 2 or equivalent for GER 3. GER 3 or equivalent for GER 4.

GER 5-6 Conversational German / 2-2 sem. hrs.

Extensive and intensive oral use of German to develop a rich vocabulary and fluency. Audio-visual materials, plays, songs, short stories and situational dialogues will be used.

Second Year Level.

Prerequisite: Two years college level German, four years high school German or equivalent. GER 5 is not a prerequisite for GER 6.

HEALTH OCCUPATIONS**HOC 50 Introduction to Health Care / 3 sem. hrs.**

A course designed to acquaint the student with the whole pattern of comprehensive health care. It begins with the patient and explores agencies for health care, history and development of hospitals, and the various professions engaged in health care. Stressed are the importance of a professional philosophy, ethics and successful interpersonal relations.

This course is required in all first semester Health Occupations programs, except Nursing.

First Year Level.

HISTORY**HIS 1-2 Introduction to Western Civilization / 3-3 sem. hrs.**

Surveys the historic development of Western man, going through the prehistoric age, ancient Greece, Rome, early

Middle Ages, Renaissance to the 20th century.
First or Second Year Level.

HIS 3–4 History of the United States / 3–3 sem. hrs.

Review of history from Jamestown to the present, including the founding and development of American democracy, minority participation in making of the country, and the role of the U.S. in world affairs.
First Year Level.

HIS 5 History of Arizona / 3 sem. hrs.

The course moves from the pre-Spanish period, through the Spanish conquest, Arizona becoming a part of independent Mexico to its present statehood. Stress is on intercultural activities.
First or Second Year Level.

HIS 7 Papago History and Culture / 3 sem. hrs.

Where have the Papago people been, who are they, where are they going? In answering these questions, the class will examine the history and culture of the Papago. (Same as Behavioral Science 7.)
First or Second Year Level.

HIS 8 Independent Studies in History / 2 to 4 sem. hrs.

Independent history studies or projects arranged by the instructor.
Second Year Level.
Prerequisite: Consent of instructor.

HIS 9 History and Culture of the Mexican-American in the Southwest / 3 sem. hrs.

Who is the Mexican-American? What is his cultural heritage, and what has happened to it in the United States? (Same as Behavioral Sciences 9.)
First Year Level.

HIS 12 Afro-American History and Peoples / 3 sem. hrs.

What does the Afro-American have to face because he is a Black in American society? His past, present and future are examined. (Same as Behavioral Science 12.)
First or Second Year Level.

HIS 13 History and Peoples of Africa / 3 sem. hrs.

A survey of history, races, languages and cultures of Africa, south of the Sahara, with special emphasis on changes currently taking place. (Same as Behavioral Sciences 13.)
First or Second Year Level.

HIS 14 History and Peoples of Latin America / 3 sem. hrs.

The history of Latin America from the pre-Columbian period to the present with emphasis on the evolution of nationalism through the struggles for economic, cultural, political and social freedoms. (Same as Behavioral Sciences 14.)
First or Second Year Level.

HIS 15 History and Peoples of Asia / 3 sem. hrs.

The development of Asian civilization from its origin to the present, and the cultural importance of Asia to us.

(Same as Behavioral Sciences 15.)
First or Second Year Level.

HIS 16–17 History of Mexico / 3–3 sem. hrs.

The student moves from the pre-Columbian era, through the Spanish conquest, a century of political and social upheaval, to the nation of social and economic stability.
First or Second Year Level.

HIS 16 Historia de México / 3 sem. hrs.

Historia de México. Se muestra en Historia de México una panorámica de la época precolonial, colonial y contemporánea.

HIS 49 Mexican-American Culture and Thought / 3 sem. hrs.

A history of ideas of the Mexican-American from Nahua and Europe to the present. Brings-out the evolution of the two into present day concepts such as "Raza de Bronce" and "Aztlán." (Same as Philosophy and Spanish 49.)
First or Second Year Level.

HOME ECONOMICS

HEC 2 Foods Study I / 3 sem. hrs.

Basic principles related to the selection, care and preparation of foods.

HEC 3 Foods Study II / 3 sem. hrs.

Continuation of HEC 2. Basic principles related to the selection, care and preparation of foods.
Prerequisite: HEC 2.

HEC 5 Clothing Construction / 3 sem. hrs.

Basic construction of simple garments using commercial patterns and fundamental principles of dressmaking; textile study; selection and care of fabrics.

HEC 5 Costura Construcción de Ropa / 3 sem. hrs.

Construcción básica de ropa sencilla usando patrones comerciales y las bases fundamentales para construir ropa, estudio de textiles selección y cuidado de telas.

HEC 6 Home Management / 2 sem. hrs.

Management of family and individual resources, with special emphasis on decision making.
First and Second Year Level.

HEC 7 Human Development and Relations / 3 sem. hrs.

An interdisciplinary and intercultural approach to human development and interpersonal relationships throughout life. (Offered in the Spring.)
First and Second Year Level.

HEC 9 The Home Economics Profession / 3 sem. hrs.

A history of the home economics profession, its purposes, problems and trends. Professional opportunities in the field will be explored. (Offered in the Spring.)



HEC 12 Nutrition / 2 sem. hrs.

The principles of human nutrition and its relationship to diet and health in various cultural groups. (Offered in the Spring.)

HEC 15 Advanced Clothing Construction / 3 sem. hrs.

This course is a continuation of HEC 5 with emphasis on advanced construction techniques, select fabrics, pattern alterations and fitting.

Prerequisite: HEC 5 or proficiency exam.

HEC 17 Child Growth and Development / 3 sem. hrs.

Study of the growth, development and acculturation of the child from conception through early childhood. (Offered both semesters.)

First and Second Year Level.

HEC 17 El Desarrollo del Niño / 3 sem. hrs.

Estudio del crecimiento, desarrollo y aculturación del ser humano desde la concepción hasta la niñez.

HEC 19 Applied Dress Design / 3 sem. hrs.

Experiences in flat pattern drafting; the application of principles of design and color; student design applied to completed construction. Emphasis is on engineering, not designing. (Offered in the Spring.)

HEC 22 Family Meal Management / 3 sem. hrs.

Planning, preparing and serving family meals with special emphasis on cultural patterns and the management of resources. (Offered in the Spring.)

Prerequisite: HEC 3.

HEC 25 Home Furnishings / 3 sem. hrs.

Study of interior design both as a functional environment and a setting which exerts social, aesthetic, economic and psychological effects on people.

First and Second Year Level.

HEC 27 Education for Marriage / 2 sem. hrs.

A study of the various factors and philosophies involved in the relationships between man and woman before and after marriage.

HEC 32 Institutional Meal Management / 3 sem. hrs.

Quality food preparation, quantity food service, and institutional equipment, with special emphasis on management of time and labor. (Offered in the Spring.)

Prerequisite: HEC 3.

HEC 35 Costume Selection / 2 sem. hrs.

The principles of color and design in relationship to clothing selection, trends in fashion, personal appearance, consumer problems in buying, and cultural and social influences. (Offered in the Spring.)

HEC 42 Nutrition in Growth and Development / 2 sem. hrs.

Nutrition in prenatal, infant, preschool and early childhood, later childhood and adolescence.

Prerequisite: HEC 12.

HEC 45 Textiles / 3 sem. hrs.

The study of fibers, yarn, fabric construction and finishes — with emphasis on the relationship of these to the selection, use and care of fabrics. (Offered in the Spring.)

HEC 52 Foods and Nutrition for Children / 3 sem. hrs.

Basic nutrition principles related to the needs of children; principles of serving and introducing new foods in children's diets. Applicable to child care agencies emphasizing a multicultural child involvement approach.

HEC 55 Alterations and Designing / 3 sem. hrs.

Application of the basic principles of alterations and dress designing, using commercial patterns.

HEC 64 Interior Design I / 3 sem. hrs.

The theory and evolution of function and design in interiors and the study of the various cultures and their influence on contemporary society's modes of living.

HEC 65 Personal Finance / 3 sem. hrs.

(Same as General Business 65.)

HEC 67 Creative Activities for Children / 3 sem. hrs.

Creative activities for children in music, art, crafts, science, games and dance.

HEC 69 Communications for Occupational Home Economics / 3 sem. hrs.

Oral and written communications for careers in occupational Home Economics. (Offered in the Spring.)

HEC 74 Interior Design II / 3 sem. hrs.

Practical application of principles in Interior Design I based on coordinated planning of interiors.

Prerequisite: HEC 64.

HEC 75 Psychology of Dress / 3 sem. hrs.

Formal and informal aspects of dress, purposes, forces of society relative to dress. (Offered in the Spring.)

HEC 77 Preschool Education / 3 sem. hrs.

Preschool education with supervised field experience. (Offered in the Spring.)

HEC 79 Community Resources/Agencies / 3 sem. hrs.

A study of the community resources and agencies related to careers in child care. (Offered in the Spring.)

HEC 85 Fashion Design I / 3 sem. hrs.

The student designs, selects fabrics and constructs garments. Emphasis is on designing, not pattern drafting. (Offered in the Spring.)

HUMANITIES**HUM 10–11 Humanities I, II / 4–4 sem. hrs.**

This is an introductory course which explores man's expressions in Art, Architecture, Drama, Music, Religion,

current media. Actual practice, criticism, and field trips.
Second Year Level.
Prerequisite: MAN 53.

MAN 57 Advanced Advertising / 3 sem. hrs.

Management of the advertising function in marketing. Initial analysis of managerial decisions regarding advertising as a problem solving variable in marketing operations.
Second Year Level.
Prerequisite: MAN 53, 56.

MAN 58 Human Relations in Business and Industry / 3 sem. hrs.

Human factors in the field of business, getting along with colleagues and customers. Emphasis will be on improving behavioral patterns and special attention will be paid to minority group attitudes and customs.
(Same as Behavioral Sciences 58.)
First Year Level.

MAN 59 Marketing / 3 sem. hrs.

The basic principles and methods involved in the movement of goods and services from producer to consumer. Functions of market establishments or institutions reviewed.
(Offered both semesters.)
Second Year Level.

MAN 60 Cooperative Mid-Management Training I / 3 sem. hrs.

A supervised cooperative work program is provided for sophomore students in which they are employed in an approved Distributive Education occupation for an average minimum of 15 hours per week.
Second Year Level.
Prerequisite: Mid-Management Core, enrollment in MAN 63 and instructor's consent.

MAN 61 Cooperative Mid-Management Training II / 3 sem. hrs.

A continuation of Cooperative Mid-Management Training I.
Second Year Level.
Prerequisite: MAN 60, enrollment in 64 and consent of instructor.

MAN 63 Management and Leadership Trends I / 3 sem. hrs.

Analysis of current trends in management, marketing, merchandising and sales promotion by case studies, practical student projects and discussions.
Second Year Level.
Prerequisite: Mid-Management Core, enrollment in MAN 60, and instructor's consent.

MAN 64 Management and Leadership Trends II / 3 sem. hrs.

A continuation of Management and Leadership Trends I.
Second Year Level.
Prerequisite: MAN 60, 63, enrollment in MAN 61 and consent of instructor.

MAN 70 Bank Public Relations and Marketing / 3 sem. hrs.

The basis of public relations, internal and external, are discussed.

MAN 71 Business Administration / 3 sem. hrs.

Emphasis is on the managerial responsibility of coordinating the many facets of a business enterprise. Stressed also are the background of administration, financial management, production, labor-management relations, marketing, and public relations problems.

MAN 72 Conference Planning and Leadership / 1 sem. hr.

This course is designed to help management communicate and coordinate ideas in the most effective way possible. Essentials of parliamentary procedure are stressed.

MATHEMATICS

(For student placement in mathematics, those with at least two years recent high school algebra and one year recent high school geometry should take MTH 20 and/or MTH 24. If the student had some analysis, he might take MTH 29. If he had some elementary calculus, he might take MTH 30. If the two years of high school algebra were taken more than a year ago, the student should take MTH 11. If the background is weak, MTH 75 should be taken. If the student never had algebra or had only one year, he should take MTH 70.)

MTH 2 Engineering Graphics / 3 sem. hrs.

Freehand technical sketching and instrument working drawings. Principles of projection will be reviewed and basic descriptive geometry studied in its application to solving engineering space problems. (Same as Engineering 2.)
First Year Level.
Prerequisite: DFT 55 or equivalent.

MTH 11 Intermediate Algebra / 3 sem. hrs.

A thorough grounding in the basic concepts of elementary algebra that includes coordinate systems, polynomials, quadratics, real and complex numbers, relations of numbers, slide rule and systems of equations. Valuable to biology, physical sciences and social sciences. A technology and computer related course.
First Year Level.
Prerequisite: MTH 70 or equivalent.

MTH 12-13 Basic Concepts in Math / 3-3 sem. hrs.

This course covers the math that is usually required for elementary education majors. It is the beginning math course, and one that is required of all elementary education majors.
First Year Level.

MTH 20 College Algebra / 3 sem. hrs.

A review of intermediate algebra. Covers binomial theorem, combinations, complex numbers, conics (De Moivre theorem), determinants, exponential functions, inequalities, logarithmic functions, mathematical induction, matrices, permutations, probability progressions, quadratic and higher degree equations, and theory of equations.
First Year Level.
Prerequisite: MTH 11.

MTH 24 Trigonometry / 2 sem. hrs.

Applications of trigonometry to physics, drawing and analytic geometry-calculus and the use of logarithms in trigonometry.

Should be taken concurrently with or after College Algebra (MTH 20).
First Year Level.
Prerequisite: MTH 11, 71.

MTH 25–26 Math for Social Science and Business / 3–3 sem. hrs.

First course covers some logic, set theory, matrices, probability and number systems. Second course covers some topics from analytic geometry and calculus.
First or Second Year Level.
Prerequisite: MTH 20.

MTH 29 Analysis I / 5 sem. hrs.

This course is intended primarily as a precalculus course. Students should have MTH 20 and MTH 24 or a strong algebra background. It is intended to give students a stronger base before attempting Calculus.
Prerequisite: MTH 20, 24 or consent of instructor.

MTH 30–31–32 Analytical Geometry — Calculus / 5–5–2 sem. hrs.

Calculus will be offered as a combination course, with analytic geometry or separately according to the student's needs, and may be designed for specific programs such as engineering, electronics, mathematics or social sciences. It is recommended to be taken concurrently with or before Physics 4–5, if this course is to be taken.
First or Second Year Level.
Prerequisite: MTH 20, 24 or MTH 29.

MTH 35 Introductory Statistics / 3 sem. hrs.

A study of statistical methods as applied to collecting, tabulating, analyzing, presenting and interpreting data. Includes averages and means, central limit theorem, confidence intervals, correlations, dispersions, frequency distributions, graphs, linear regression, normal curve, probability, standard deviation and tests of hypothesis.
First Year Level.
Prerequisite: MTH 11.

MTH 36 Ordinary Differential Equations / 3 sem. hrs.

A study of ordinary differential equations, boundary problems, La Place transforms, numerical methods and their applications with special attention to their use in physics and engineering programs.
Second Year Level.
Prerequisite: MTH 32.

MTH 40 Computer Science I / 1–3 sem. hrs.

(Same as Computer Science and Machine Technology 40.)

MTH 43 Advanced Computer Science — Mathematics / 3 sem. hrs.

Fundamentals of digital computer programming in Fortran language in an advanced form with applications to problems in such areas as numerical analysis and computer solutions of polynomial equations, transcendental equations, ordinary differential equations and problems in linear algebra.

(Same as Computer Science 43.)
Second Year Level.
Prerequisite: MTH 32.

MTH 60 Introductory Math / 3 sem. hrs.

A course for students having little or no mathematical background, providing skills and practice in their use in daily work or living situations.
High School Level.

MTH 65 Math for Health Occupations / 3 sem. hrs.

This course is designed to provide the necessary mathematical skills for chemistry. It includes the metric system, ratio and proportion, solving equations, slide rule and logarithms. (Equivalent to MTH 60 and 1 unit of MTH 11.)

MTH 70 Elementary Algebra I / 3 sem. hrs.

This course includes material found in a high school algebra course.
High School Level.

MTH 71 Elementary Geometry / 3 sem. hrs.

Course includes material found in a high school geometry course. It is recommended that elementary algebra be taken before this course.
High School Level.

MTH 75 Elementary Algebra II / 3 sem. hrs.

A continuation of MTH 70, along with some of the basic concepts of high school geometry.
Prerequisite: MTH 70.

MTH 80–81 Technical Mathematics I, II / 3–3 sem. hrs.

Practical mathematics for work in the industrial-technical field; geometry, algebra, measuring instruments, trigonometry through the solution of the oblique triangle, slide rule with application to shop problems. (Same as Machine Technology 80–81.)
First Year Level.

MTH 82 Electronics Mathematics I / 3 sem. hrs.

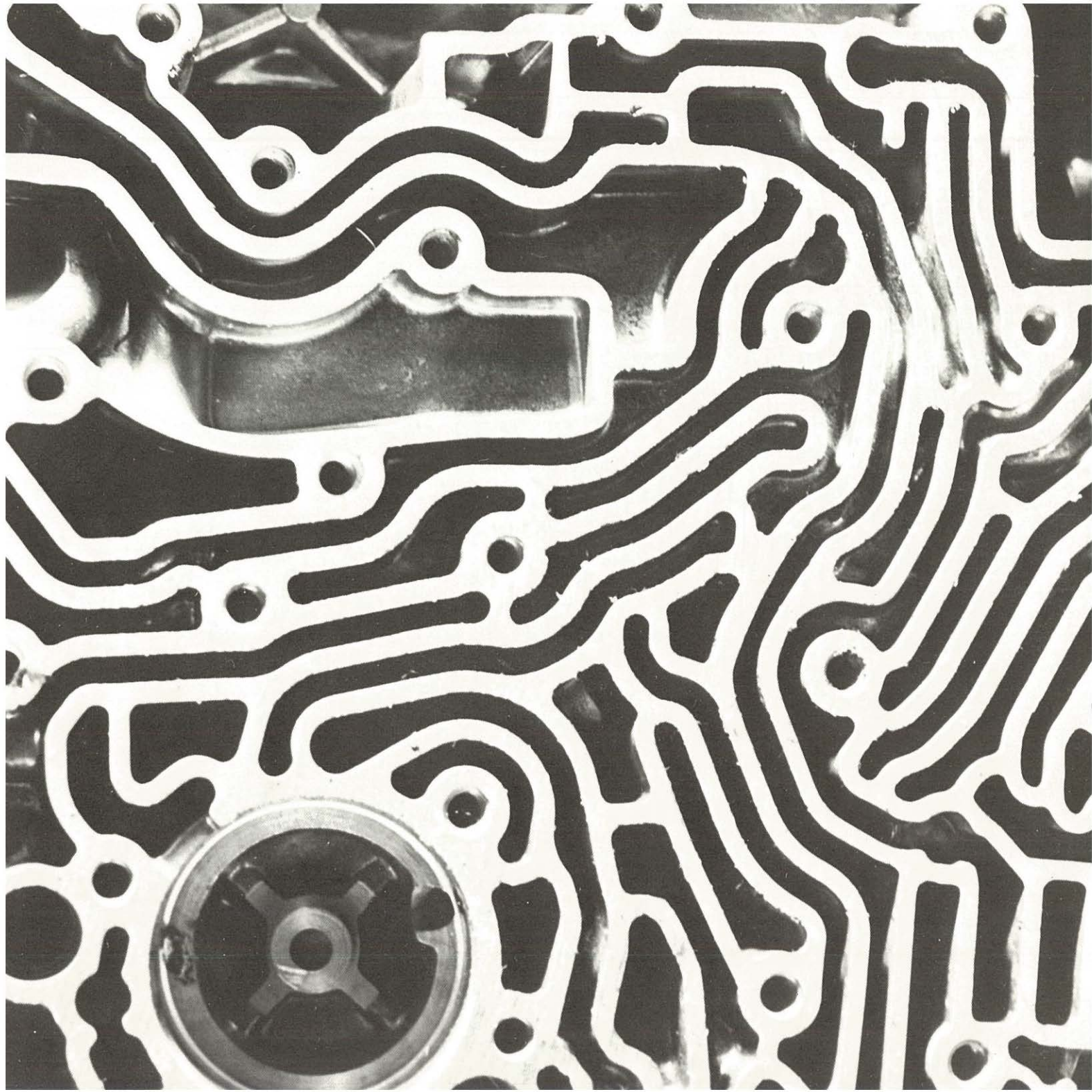
Practical mathematics for work in the industrial-technical field; geometry, algebra, measuring instruments, trigonometry through the solution of the oblique triangle, slide rule with application to shop problems, Kirchoff's laws, vectors and analysis of AC circuits.
First Year Level.

MTH 83 Electronics Mathematics II / 3 sem. hrs.

Course closely parallels mathematics that is generally taken in the first year college level. Analytic geometry includes study of both plane and solid figures and calculus. A good background in mathematics, particularly in algebra and trigonometry is needed.
First Year Level.
Prerequisite: MTH 82.

MTH 84 Math I for Automotive Technology / 3 sem. hrs.

This course is designed to cover the math required



by the automotive technologist.
First Year Level.

MTH 87 Electronics Math III / 3 sem. hrs.

A continuation of MTH 83.
Prerequisite: MTH 83.

MTH 88 Electronics Math IV / 3 sem. hrs.

A continuation of Electronics Math.
Prerequisite: MTH 87.

MEDIA TECHNICIAN

MET 50 Communigraphics I / 3 sem. hrs.

Course covers the fundamentals of basic design in relationship to space, line and layout of elements. Color relationships and typography are dealt with, as well as techniques in the use of equipment designed for commercial graphics. Various methods of printing reproduction will be studied in relationship to the design process. (2 hour lecture, 4 hour lab.)

MET 53 Photography Technology for Media Production / 3 sem. hrs.

The technique of presenting visual material on transparencies and movie film. Includes still copy technique and simple animation.

MET 59 Field Work / 6 sem. hrs.

Field work in Instructional Media Technology will be at specific locations either on or off campus. (Seminar sessions for discussion and evaluation of activities.)
Prerequisite: 14 hours in program with a minimum of 9 hours in optional area or equivalent in general and technology courses, or consent of instructor.

MET 70 Instructional Media Technology Equipment Repair and Maintenance / 3 sem. hrs.

Electrical and mechanical repair and maintenance of Instructional Media Technology equipment including tape recorders, projectors, mechanical graphics arts devices. (1 hour lecture, 6 hours lab.)

MET 80 Media Terminology / 1 sem. hr.

An introduction to the language of the media field. Application of the terminology in verbal and written communications to provide an understanding of these terms for working in the media field as technicians.

MET 81 Instructional Media Technology I / 3 sem. hrs.

Areas covered are still projection, motion picture projection, graphic arts, record players, tape recorders, broadcast sound systems, educational TV, programmed instruction, supporting equipment for instructional media, non-projected instructional media materials.

MET 82 Instructional Media Technology II / 3 sem. hrs.

Development of specific audio-visual skills and understanding their relationship to the learning process, basic psychology of learning, understanding human relations, techniques of problem solving, and the conversion of ideas into audio and /or video materials.

MET 83 Instructional Media Technology III / 3 sem. hrs.

The functions and responsibilities of the media specialist in an industrial or educational audio-visual department. Various procedures in ordering, inventory, maintenance and budgeting for media operation. The responsibilities and opportunities for media specialists are surveyed. Media facilities are designed, and equipment evaluated. Discussed are legal aspects of media production involving copyright.

MET 86 Implications of Media Technology / 3 sem. hrs.

The effects of media technology on the individual and his society covering multi-media, computer-managed instruction, computer assisted instruction, audio-tutorial systems, television, radio, film, programmed instruction, dial-access systems, man-machine relationships in systems approaches to solving teaching-learning problems.

MET 90 Telecommunications — Television Workshop / 4 sem. hrs.

Experience in the production of various types of television programs. Emphasis is on the production of special programs for educational, community and industrial use. The utilization of television equipment in remote and on-location sites as well as in studio operation. (2 hours lecture, 4 hours lab.)

MET 91 Telecommunications — Television Production / 3 sem. hrs.

Students will learn the function as part of television production crews. They will operate in all areas of production and will work with all the basic tools of television production.
Prerequisite: MET 90.

MILITARY SCIENCE

MSC 1 Introduction to ROTC / 2 sem. hrs.

Reviews the history, organization and mission of ROTC, the military, and the civilian obligation of the citizen. There is an introduction to weapons and the leadership laboratory.
First Year Level.

MSC 2 Defense Establishment in National Security / 2 sem. hrs.

The history, mission and organization of the defense establishment. The role of the military in cold, limited and general warfare. Leadership laboratory included.
(Second Semester Course.)
First Year Level.

MSC 3 American Military History / 2 sem. hrs.

Principles of war and a survey of American military history are studied from Colonial times to 1966. Leadership laboratory included.
Second Year Level.

MSC 4 Military Map Reading and Tactics / 2 sem. hrs.

An introduction to maps, map reading and the Lensatic compass. Also an introduction to small unit tactics. Leadership laboratory included. (Second semester course.)
Second Year Level.

MUSIC

MUS 1 History and Literature of Music I / 2 sem. hrs.

A study of music literature with emphasis on structure, period and style. This course is required of all music majors. First or Second Year Level.

MUS 2 History and Literature of Music II / 2 sem. hrs.

A continuation of Music 1.

MUS 3 Music Theory I / 5 sem. hrs.

An integrated study of the rhythmic, melodic and harmonic aspects of music with emphasis on writing, singing and keyboard playing. It is required of all music major students and open to any student who passes the theory placement examination.

MUS 4 Music Theory II / 5 sem. hrs.

A continuation of Music 3. Offered during the second semester.

MUS 5 Music Theory III / 5 sem. hrs.

A continuation of Music Theory with a study of secondary sevenths, altered chords, modulation and additional singing, and keyboard playing. Course includes all clefs, transposition and formal analysis.

Second Year Level.
Prerequisite: MUS 3, 4.

MUS 6 Music Theory IV / 5 sem. hrs.

A continuation of Music 5. Offered during the second semester.

MUS 7 Basic Conducting Techniques I / 2 sem. hrs.

Course develops fundamental conducting skills with emphasis on choral techniques.

First or Second Year Level.
Prerequisite: MUS 4.

MUS 8 Basic Conducting Techniques II / 2 sem. hrs.

A continuation of Music 7 with emphasis on band and orchestral score reading and conducting skills.

MUS 20 Band / 2 sem. hrs.

Participation in regular band rehearsals and performances with membership determined by auditions with the director. Continued development of musical and technical skills through interpretation will be stressed for both credit and non-credit band members.

First or Second Year Level or Non-Credit.

MUS 21 Jazz Band / 2 sem. hrs.

A rehearsal and performance of many styles of music in the jazz idiom. Open to all students and offered both semesters. Membership is determined by audition with the director.

MUS 23 Instrumental Ensemble / 1 sem. hr.

Course offers an opportunity for supervised rehearsal and performance of literature for various instrumental combinations. It is open to all students through a conference and audition with the instructor.

MUS 30 Chorale (SATB) / 2 sem. hrs.

A selected group of mixed voices, chosen by audition for

interpretation of a wide variety of styles of music in frequent concerts throughout the academic year. May be taken for credit or as a non-credit elective.

First or Second Year Level or Non-Credit.

MUS 31 College Singers (SATB) / 2 sem. hrs.

A small choral ensemble chosen by audition. Repertory and performance includes best literature from all styles and periods. There will be various performances throughout the school year. Open to all qualified students in the college.

First or Second Year Level or Non-Credit.

MUS 32 Women's Chorus / 1 sem. hr.

The chorus is chosen from those who wish to participate in choral music but for various reasons are not in chorale. A short audition is necessary for voice placement and there will be a minimum of one performance per semester. Open to all qualified students in the college.

First or Second Year Level or Non-Credit.

MUS 33 Concert Choir (SATB) / 1 sem. hr.

The concert choir is chosen from those who wish to participate in choral music but for various reasons are not in chorale. A short audition is necessary for voice placement. Minimum of one performance per semester. Open to all qualified students.

First or Second Year Level or Non-Credit.

MUS 34 Vocal Ensemble / 1 sem. hr.

Course offers an opportunity for supervised rehearsal and performance of literature for various vocal combinations. It is open to all students through a conference and audition by the instructor.

MUS 38 Voice Class I / 2 sem. hrs.

Beginning instruction; introduction and development of basic skills, breathing, diction, tone, rhythm, sight singing.

Practical training in singing without specialization. Open to all students.

First or Second Year Level.

MUS 39 Voice Class II / 2 sem. hrs.

A continuation of Music 38.

Offered during the second semester.

Prerequisite: MUS 38.

MUS 40-41 Piano Class / 2-2 sem. hrs.

An elementary course in piano playing, employing group and individual techniques. Open to all students.

First or Second Year Level.

MUS 42 Applied Music — Private Instruction / 1 sem. hr.

Course offers a private weekly lesson with an instructor for a maximum of 1 credit each semester.

Section 1 — Woodwinds

Section 2 — Brass

Section 3 — Percussion

Section 4 — Voice

Section 5 — Piano

Section 6 — Guitar

Section 7 — Strings

MUS 50 Exploring Music / 3 sem. hrs.

Introduces the non-major student to music literature and stresses form and style analysis through listening. The relationship of music to cultural and socio-economic elements throughout various historical periods will be reviewed. First or Second Year Level.

MUS 52 Introduction to Music Theory / 2 sem. hrs.

The course is designed to develop sufficient literacy to allow the student to begin work in the field of music. It is for students with little or no background in music, or those who are not able to successfully complete the theory placement examination. Open to all students.

NURSING**NRS 70 Nursing I / 6 sem. hrs.**

The role and responsibilities of the associate degree nurse are presented in this course. Developed are basic knowledge and skills needed to give nursing care to the individual. This course builds upon an understanding of health and man's total needs.

First Year Level.

Prerequisite: Consent of instructor.

NRS 72 Nursing II / 7 sem. hrs.

Nursing skills and knowledges are further developed. Care is related to specific age groups. The nurse's role in assisting mothers and beginning families to maintain health is emphasized.

First Year Level.

Prerequisite: NRS 70.

NRS 80 Nursing III / 10 sem. hrs.

Changes in overall body functioning which cause specific health problems are the basis for the nursing care discussed in class, and assigned to the student in a clinical setting. Emphasis will be on increasingly complex patient care.

Second Year Level.

Prerequisite: NRS 72.

NRS 82 Nursing IV / 10 sem. hrs.

A continued emphasis on complex patient care and on the individual's reaction to illness provides further experiences for the student with all age groups. Seminars on current trends in nursing and on legal and ethical responsibilities of the nurse prepare the student for her role after graduation.

(To be offered in the Spring.)

Second Year Level.

Prerequisite: NRS 80.

NRS 121 R.N. Refresher Course

This is a course preparing the inactive registered nurse to return to hospital practice. The content reviews the general principles of patient care, and emphasizes the current trends in nursing and responsibilities of the nurse on today's health team. Enrollment is limited.

Non-Credit.

OFFICE EDUCATION**OED 1 Beginning Shorthand / 3 sem. hrs.**

A first course in shorthand, using the Gregg method, designed to develop skills in taking simple dictation and transcribing notes. Practice in transcription will begin the first week.

(Offered both semesters.)

First Year Level.

OED 2 Intermediate Shorthand / 3 sem. hrs.

The object of this course is a review of Gregg shorthand through dictation practice with emphasis on speed and accuracy. (Offered both semesters.)

First Year Level.

Prerequisite: One year high school shorthand or 60 wpm at five minutes.

OED 3 Records Management / 2 sem. hrs.

The principles and procedures of filing and actual practice in the basic systems are covered in this course. It also deals with management aspects of establishing filing systems, transferring and disposing of records and evaluating filing efficiency.

First Year Level.

OED 11 Beginning Typing / 3 sem. hrs.

A beginners' course in theory and practice of touch typing. Emphasis will be on the mastery of the keyboard, speed drills and practice, arrangement of paragraphs, manuscripts and letters. Students with two or more semesters of high school typing may not take this course for credit without permission of the instructor. (Offered both semesters.)

First Year Level.

OED 12 Intermediate Typing / 3 sem. hrs.

Emphasis will be on the keyboard and machine manipulation, typing techniques and mastery of basic principles, introduction to production typing, composition at the machine, and business letters. (Offered both semesters.)

First Year Level.

Prerequisite: One year typing.

OED 21 Business Machines / 2 sem. hrs.

Instruction is given in the operation of business machines, printing calculators, rotary calculators, key-driven calculators, and electronic calculators which are used for arithmetic computation in the modern business world.

(Offered both semesters.)

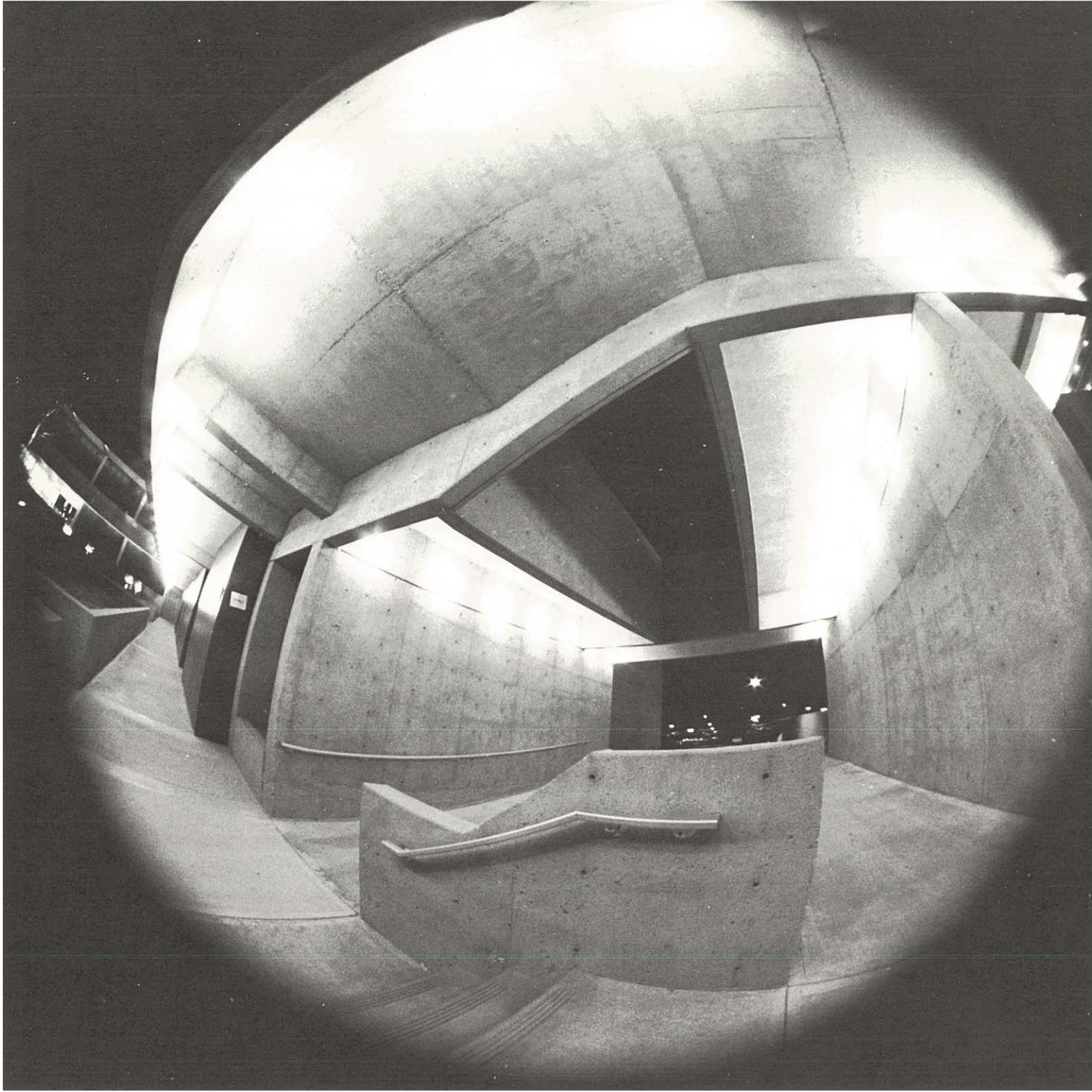
First Year Level.

OED 22 Duplicating Processes / 3 sem. hrs.

Study of methods and processes of multiple copy systems used in business offices. Includes use of fluid duplicator, mimeograph, offset press and various photocopy processes. Operation of proportional spacing and special purpose typewriters. Development of machine transcription skills.

OED 50 Legal Shorthand and Office Equipment / 3 sem. hrs.

Designed to develop skill in writing and transcribing words and



phrases commonly recurring in the spoken and written language of law.

Second Year Level.

Prerequisite: Typing and shorthand.

OED 51 Legal Terms / 3 sem. hrs.

Course is designed to provide an understanding of legal terms for students interested in working in the legal field as legal technicians.

Second Year Level.

Prerequisite: Typing and shorthand.

OED 52 Advanced Typing / 3 sem. hrs.

Emphasis on coordinating typing skills with judgment and reasoning in solving office problems. Simulation of office situations. Review of basic typewriting principles, letter problems, tabulation problems, manuscript problems and office production typing. (Offered both semesters.)

First Year Level.

Prerequisite: Two years high school typing or 40 wpm.

OED 53 Advanced Shorthand / 3 sem. hrs.

Course provides more dictation and transcription practice in correspondence and literary material, minutes and reports. Emphasis will be given to mailable letters, grammar, spelling and punctuation. (Offered both semesters.)

Second Year Level.

Prerequisite: Two years shorthand or 90 wpm at five minutes.

OED 54 Transcription / 3 sem. hrs.

Main emphasis is on building transcription skills for production of mailable copy. Attention is given to transcripts such as memos, letters, minutes and agenda of meetings, telegrams, proxies, news releases, speeches and resolutions. Continued speed building dictation.

Prerequisite: OED 53 or ability to take 100 wpm.

OED 55 Medical Shorthand and Transcription / 3 sem. hrs.

Develops skills in writing and transcribing words and phrases occurring in the spoken and written language of medicine.

(To be offered both semesters.)

Second Year Level.

Prerequisite: Typing and shorthand.

OED 56 Medical Terms / 3 sem. hrs.

This course is designed to provide an understanding of medical terms for students interested in working in the paramedical professions. Emphasis is placed on understanding and ease in the use of medical terminology.

Second Year Level.

OED 57 Office Procedures / 3 sem. hrs.

A study of the functions and procedures used in a wide range of office activities. Includes an analysis of the secretarial profession, techniques to improve office efficiency, and development of a secretarial personality.

Prerequisite: One year typing; knowledge of shorthand desirable.

OED 58 Machine Shorthand I / 3 sem. hrs.

Basic touch shorthand theory with emphasis on reading skills. Speed developed to 80 wpm.

OED 59 Machine Shorthand II / 3 sem. hrs.

Intensive speed building with use of abbreviations and development of transcription skills. Speed developed to 120 words a minute.

Prerequisite: OED 11 or ability to type 40 wpm.

OED 60–61 Cooperative Office Internship I, II / 3–3 sem. hrs.

Course allows students to be placed in an approved training station, earn credits for satisfactory work performance, and earn wages for hours worked. The flexibility of developing individual programs for interested students in any related occupational opening is accomplished on the basis of developing a practical training program in agreement with the training station and college coordinator.

Second Year Level.

Prerequisite: Cooperative office core, enrollment in OED 62–63 and instructor's consent.

OED 62–63 Office Management and Leadership Trends I, II / 3–3 sem. hrs.

Course is designed to improve the performance of secretarial students in top positions. Also a study in common secretarial duties other than dictation. Practice given through a series of projects.

Second Year Level.

Prerequisite: Enrollment in OED 60–62 and instructor's consent.

PAPAGO

PGO 50 Elementary Papago / 4 sem. hrs.

This will be a conversation course with emphasis on listening and repetition. Designed for the non-Papago speaking students.

First Year Level.

PGO 51 Papago for Native Speakers / 4 sem. hrs.

Class needs will be determined, due to different speaking dialects.

Second Year Level.

Prerequisite: Knowledge of Papago.

PHILOSOPHY

PHI 1 Introduction to Philosophy (The Love of Wisdom) / 3 sem. hrs.

This course will introduce students to personal experiences in reflective and critical wisdom-seeking. It also will introduce students to some of those in the history of philosophy whose experiences and reflections have been socially influential. (Offered both semesters.)

First Year Level.

PHI 1 Introducción a la Filosofía / 3 sem. hrs.

En este curso se valdrá de experiencias personales para ayudar al estudiante en búsqueda de sabiduría respecto a

su propio ser, igual que la que concierne al análisis crítico. Servirá también como introducción a los grandes filósofos quienes han influido tanto en el pensamiento social.

PHI 10–11 A History of Philosophy / 3–3 sem. hrs.

This study will enable the student to understand philosophic inquiry, to identify some of the key issues and approaches, and to experience some concentration of study either in the writings of one of two philosophers or with a particular topic. Second Year Level.
Prerequisite: PHI 1.

PHI 15 Art and Culture / 4 sem. hrs.

(Same as Art 15.)

PHI 20 An Introduction to Logic / 3 sem. hrs.

The objective of this course is to increase the student's awareness of the requirements and processes of valid thinking, decision-making and communication. First or Second Year Level.
Prerequisite: PHI 1.

PHI 30 Introductory Studies in Ethics and Social Philosophy / 3 sem. hrs.

This course will enable the student to increase his discernment of some of the traditional as well as present-day discussions involving the question of norms in human relations. First or Second Year Level.
Prerequisite: PHI 1.

PHI 40 Introductory Studies in Religious Philosophy / 3 sem. hrs.

The student is introduced to some of the classic autobiographical and biographical statements of religious experience, and proceeds to a study of some significant efforts to interpret religious experience. (Same as Religion, Comparative 40.) First or Second Year Level.
Prerequisite: PHI 1.

PHI 47 Investigations in Values: Contemporary and Future / 3 sem. hrs.

An interdisciplinary workshop dealing with contemporary issues and thinking, including some futuristic and science-fiction literature. The field of inquiry will be international. (Same as Behavioral Sciences 47.) First or Second Year Level.

PHI 49 Mexican-American Culture and Thought / 3 sem. hrs.

(Same as History and Spanish 49.)

PHI 50 Questions in Philosophy / 1 to 2 sem. hrs.

Informal discussions based on reflective and life-situation concerns of students. An additional unit of credit will be assigned on the basis of directed studies. High School, First or Second Year Level.

PHI 60 Early Chinese Views of Social Change / 3 sem. hrs.

Through close study of I Ching and Taoism, this course will attempt to take an unusual approach to social change.

PHYSICAL ACTIVITIES

PAC 2 Standard First Aid / 3 sem. hrs.

The student will be issued a standard Red Cross certificate upon successful completion of this course.

PAC 9–12 Physical Activities / 1 sem. hr. per sem.

Archery	Marksmanship
Badminton	Modern Dance
Bailes Folkloricos	Modern Social Dance
Baseball (M)	Physical Fitness
Basketball	Recreational Games
Bowling	Rugby (M)
Fencing	Soccer
Field Hockey (W)	Softball
Folklore Dances	Swimming
Football (M)	Tennis
Golf	Track and Field
Gymnastics	Trampoline
Handball (M)	Volleyball
Jogging	Wrestling (M)
Judo Self-Defense	Weight Training
LaCrosse	Yoga

Life Saving
(Activities offered depend upon demand, facilities and staffing.)

First or Second Year Level.

PAC 30 Elementary School Physical Education / 3 sem. hrs.

Upon completion of this course, the student will have gained an understanding of teaching games from grades 1 through 8. Practical teaching experience will be combined with class evaluation. Methods, materials and values of physical education will be included. The course is designed for prospective elementary teachers and physical education majors and minors.

PAC 36 Personal and Public Health / 3 sem. hrs.

(Same as Behavioral Science 36.)

PAC 37 Preparation for Teaching Personal and Public Health / 3 sem. hrs.

(Same as Behavioral Science 37.)

PAC 39 Introduction to Physical Activities / 3 sem. hrs.

Designed for prospective professionals in the field of physical education and recreation. A survey of professional opportunities and an orientation of the field. First Year Level.
Prerequisite: Majoring in program.

PAC 40–43 Development in Basic Skills / 2 to 8 sem. hrs.

Professional preparation for majors and minors who need to master fundamental sports skills.
Prerequisite: Majoring in program.

PAC 50-51 Modern Dance I, II / 2-2 sem. hrs.

The principles of creative awareness and physical fitness through modern dance techniques.

PAC 52-53 Modern Dance III, IV / 2-2 sem. hrs.

Intermediate approach to dance techniques, physical development and creative awareness.

Prerequisite: PAC 50-51.

PAC 54 Dance for Children I / 4 sem. hrs.

Methods and materials for teaching dance to children from preschool through third grade. Two hours spent weekly with theory and two hours weekly with children in the classroom.

PAC 55 Dance for Children II / 4 sem. hrs.

Methods and materials for teaching dance to children from the fourth through sixth grade. Two hours spent weekly with theory and two hours weekly with children in the classroom.

PAC 56 Composition and Choreography / 2 sem. hrs.

Taught are elements of time, space and energy in dance composition. Also, the nature and use of phrasing, thematic material and structure in choreography.

PAC 57 Folk Dance Methods / 3 sem. hrs.

The theory, methods and proficiency in folk dance, social and square dance.

PAC 58 Ballet / 2 sem. hrs.

Introduction to and basic principles of the ballet technique, including beginning steps and terminology.

PAC 59 Improvisation of Dance / 2 sem. hrs.

Course is designed to develop group awareness as well as individual body perception. An experience in free body movement.

PAC 60 Children's Performance / 2 sem. hrs.

Students learn the process of creating choreography for children for the concert stage.

PAC 61 Children's Production and Choreography / 2 sem. hrs.

Course prepares a full children's concert involving selection of music, taping, costume material selection, designing costumes and organizing publicity, tickets and programs.

Prerequisite: PAC 60.

PAC 62 Practice Teaching for Children I / 4 sem. hrs.

Covers supervised teaching in the elementary schools in preparation for the dance specialist program. It includes the first through third grades.

Prerequisite: PAC 54.

PAC 63 Practice Teaching for Children II / 4 sem. hrs.

Similar to PAC 62, covering creative teaching for the fourth through sixth grades.

Prerequisite: PAC 55.

PAC 64 Survey of Dance / 2 sem. hrs.

A general history of dance from primitive man times through

the Greek, Medieval and Renaissance times to the 20th Century.

PAC 65-66 Mexican Folk Dancing I, II / 1-1 sem. hrs.

The best known traditional folk dances from the various regions of Mexico will be taught. The class begins with warm-up exercises and follows with the techniques of the zapateado. Progress will be according to class ability. Classes in modern dance techniques will be given as a complement to the folklore, when necessary. (Offered only in Spanish.)

PAC 65-66 Bailes Folkloricos Mexicanos I, II / 1-1 sem. hrs.

Se enseñará los más celebrados bailes tradicionales de diversas regiones de México. El desarrollo de las clases será desde ejercicios de calentamiento hasta la técnica del zapateado, progresivamente, según las aptitudes de los elementos; y como complemento del folklore, tendrán clases de técnica de danza moderna cuando sea necesario para que los elementos tengan mayor proyección hacia el público.

PAC 69 Cultural History of Sports / 2 sem. hrs.

A study showing that sports are not confined to any one nation or culture and that each culture creates a sport that fits its attitude toward life.

First or Second Year Level.

PAC 70-73 Wilderness Exploration / 1-4 sem. hrs.

The course is unitized into sub-courses. Unit 1 consists of survival; 2 of mountaineering; 3, hiking; 4, camping. A solo hike of about 25 miles will highlight unit 4.

PAC 74 Basic Physiology of Physical Activity / 3 sem. hrs.

The effects of exercises on body structure and function. Includes a program of self study unitized into 6 sub-units; muscles, muscle contraction, sources of energy, respiratory effects, circulation, adjustment and the function of the central nervous system related to exercises.

PAC 83 Exploring Physical Education / 1 sem. hr.

Here is an opportunity to plan your own program in physical activity. Individuals assume the responsibility for planning, implementing and evaluating their own work.

First or Second Year Level.

PAC 84 Exploring Community Resources in Recreation / 2 sem. hrs.

The course is designed to introduce the individual to the wide range of activities available in the community. This includes field trips to get a view of such activities as mountaineering, hiking, camping and spelunking. Field trips to be taken on weekends.

First or Second Year Level.

PAC 86 Recreation for Senior Citizens / 2 sem. hrs.

A survey of physical activity programs now being developed for senior citizens. Includes techniques in exercise. Guest speakers will be scheduled. A discussion of problems of geriatrics and available resources aimed at solving the problems.

First or Second Year Level or Non-Credit.



PAC 88 Water Safety for Non-Swimmers / 1 sem. hr.
Developing of self confidence for water activities with emphasis on water survival for non-swimmers.
First or Second Year Level or Non-Credit.

PHYSICS

PHY 2–3 Introductory Physics / 4–4 sem. hrs.

An introduction to physics through a study of the principles of mechanics, heat, sound, light, electricity and magnetism. Calculus is not required.
First Year Level.
Prerequisite: High School algebra.

PHY 4–5 Introductory Physics with Calculus / 4–4 sem. hrs.

An introduction to physics planned for mathematics and science majors which may be taken concurrently with calculus. Basic principles of mechanics, heat, sound, light, electricity and magnetism will be taught. Emphasis will be on problem solving.
First Year Level.
Prerequisite: Concurrent with MTH 30.

PHY 10 Introductory Mechanics / 4 sem. hrs.

An introduction to mechanics recommended for physics majors and those wishing a strong mechanics background.
First Year Level.
Prerequisite: MTH 30.

PHY 12 General Physics / 3 sem. hrs.

A one-semester course offering an introduction to the subject matter of general physics, mechanics, heat, light, sound, electricity, magnetism and modern physics.
First Year Level.
Prerequisite: High School algebra.

PHY 16 Introductory Electricity and Magnetism / 4 sem. hrs.

Basic principles of electricity and magnetism. This course is planned for prospective physics majors and those wishing a strong background in electricity and magnetism.
First Year Level.
Prerequisite: PHY 10 or 4–5, MTH 30, 31.

PHY 21 Introduction to Waves and Heat / 3 sem. hrs.

Studies in heat, sound, and light, including optics and optical instruments. Recommended for physics majors.
First Year Level.
Prerequisite: PHY 10, 16 or 4–5, MTH 30, 31.

PHY 30 Introduction to Modern Physics / 3 sem. hrs.

An introduction to atomic and nuclear physics, relativity, radioactivity, quantum physics, and elementary particles.
Second Year Level.
Prerequisite: MTH 30–31, PHY 4–5 or PHY 10, 16, 21.

PHY 50 Technical Physics / 3 sem. hrs.

Designed for the automotive technologist to give the student an understanding of physical principles and their application to the automotive industry. The course includes: Precision Measurements; Properties of Solids, Liquids, and Gases; Work, Energy, and Power; Force and Motion; Vectors; Basic

Machines; Heat and Temperature. This course is for technical students and is not intended as a college transfer course.
Prerequisite: 1 year high school algebra or math.

PHY 51 Physics for Electronics / 2 sem. hrs.

An introduction to the basic principles of matter and energy important to the understanding of electronics.

PHY 52 Solids / 2 sem. hrs.

A basic introduction to the physics and chemistry of the solid state of matter; applications to electronics.

PHY 55 Fundamental Physics / 1–3 sem. hrs.

This course offers a brief introduction to the phenomena occurring in the physical world. Units (topics) will be chosen according to the special interests of the students.
Prerequisite: High School algebra.

PHY 60 Science and Society / 3 sem. hrs.

What is and what should be the role of science and technology in our contemporary world. This will form the basis of this course.

PHY 62 How Things Work / 1–3 sem. hrs.

How does your iron work? Or a thermometer? Or a telephone? The course will review over 75 common (or perhaps mysterious) objects that surround us.

PHY 70 Topics in Physical Science / 1–3 sem. hrs.

The course will involve independent projects.

POLITICAL SCIENCE

POL 1 Introduction to Political Science / 3 sem. hrs.

Politics. What is it? What is its significance in daily life? How do political systems change?
First Year Level.

POL 3 Ethics for Public Service / 3 sem. hrs.

An examination of professional codes of ethics in the fields of public management, corrections, health services, law enforcement and government.
First Year Level.

POL 10 American National Government and Politics / 3 sem. hrs.

A survey of the institutions of American government and the evolution of our political system. Included will be a study of the Constitution and exploration of the roles of political parties, interest groups, public opinion and voting behavior. Special attention is given to positions of economic, ethnic and religious minorities in American society.
First Year Level.

POL 11 American State and Local Government and Politics / 3 sem. hrs.

Survey of state and local government and politics with particular emphasis on the political culture of Arizona, the state's politically relevant economic and ethnic groups, and its current political trends.
First or Second Year Level.

POL 20 Introduction to Comparative Politics / 3 sem. hrs.

An examination of the basic concepts and methods of comparative political analysis and their application to the political systems of Western Europe, the Soviet Union, Eastern Europe, and the developing areas.
Second Year Level.

POL 30 Introduction to International Relations / 3 sem. hrs.

A general examination of international relations including the elements of national power; the economic, social and psychological determinants of international political behavior; formation of foreign policy; international law; and international and regional organizations.
Second Year Level.

POL 40 Minority Groups and the Political Process / 3 sem. hrs.

An investigation of the position of various minority groups in the American political system, including their general political attitudes and voting behavior, patterns of political organization, party activity, and their role in the formation of public policy.
Second Year Level.

POL 49 Independent Study / 2 to 4 sem. hrs.

Independent readings or special projects to be arranged with the instructor.
Second Year Level.

POL 50 Immigration Law and Practices / 3 sem. hrs.

Legal and political status of immigrants from Mexico; the process of immigration, counseling for the immigrant.
First Year Level.

POL 50 Derecho, Conceptos y Procesos de Imigración / 3 sem. hrs.

Se estudiará el derecho de inmigración a los Estados Unidos, sus procesos y ramificaciones legales.

POL 100 Political Revolution and Violence / 3 sem. hrs.

An examination of the causes of political revolution and violence, using historical, psychological and sociological data to explain how violent changes in political power come about.

RADIOLOGIC (X-RAY) TECHNOLOGY

RAD 71 Introduction to Radiography / 3 sem. hrs.

An introduction to x-ray technology and its applications in allied health professions. Included are definitions of the professional and legal responsibilities in the field, a history of the technique and its terminology, and demonstration and use of x-ray and film processing equipment.
First Year Level.

RAD 72 Radiographic-Photographic Chemistry and Techniques / 4 sem. hrs.

Designed to help students understand the causes of x-ray image formation. An indepth study and application of radiographic techniques, the effects of film processing chemicals, cine film, photographic principles, infra-red photography, radiation chemistry, and biological effects of radiation exposure.

First Year Level.

Prerequisite: RAD 71.

RAD 73 Radiographic Positioning I / 4 sem. hrs.

Demonstration and practice of routine and special radiographic positioning for visualization of the bones of the skeleton, exclusive of those of the skull. Radiographic phantoms are used to relate only the principles of exposures. Group process is used to evaluate all films.

First Year Level.

Prerequisite: RAD 71.

RAD 81 Radiographic Positioning II / 4 sem. hrs.

Demonstration and practice of routine and special radiographic positioning for visualization of the bones of the skull and routine visceral studies. Radiographic phantoms are used to relate only principles of exposure. Group process is used to evaluate all films.

Second Year Level.

Prerequisite: RAD 73.

RAD 82 Radiographic Physics / 4 sem. hrs.

Designed to help the students understand the function of all x-ray machine components and special accessory units. Demonstration and application of x-ray equipment. Emphasis is on radiographic principles and on methods of protection against ionizing radiations.

Second Year Level.

Prerequisite: RAD 72.

RAD 83 Clinical Procedures I / 3 sem. hrs.

Students will apply their acquired skills of routine and emergency positioning in clinical situations under the direct supervision of the staff radiologists and/or registered radiologic technologists of affiliated hospitals.

Second Year Level.

Prerequisite: Completion of second semester courses.

RAD 84 Radiographic Position III / 4 sem. hrs.

Demonstration and practice of special radiographic procedures in such specialties as contrast media studies, pediatrics and in relationships with nursing and surgical procedures.

Second Year Level.

Prerequisites: RAD 81.

RAD 85 Radiation Therapy and Nuclear Medicine / 4 sem. hrs.

Use of radiation in treatment. The theory of radioactivity, nuclear isotope production and their medical applications will be introduced. Use of measuring and monitoring instruments will be demonstrated and practiced under the supervision of a radiologist or registered radiation therapist in an affiliated radiotherapy clinic.

Second Year Level.

Prerequisite: RAD 82.

RAD 86 Clinical Procedures II / 3 sem. hrs.

A continuation of RAD 83. Designed for students to apply advanced skills in emergency and specialized radiological procedures in clinical situations under the direct supervision

of staff radiologists and/or registered radiologic technologists of affiliated hospitals.

Second Year Level.

Prerequisite: RAD 83.

RAD 87 Radiation Biology / 4 sem. hrs.

Examination of the effects of radiation upon living tissue. Emphasis will be given to x-ray and gamma ray effects from diagnostic and therapeutic exposures.

Second Year Level.

Prerequisite: RAD 85.

READING

(All reading courses will meet five hours a week for eight weeks. A student, if he so desires, will be able to complete two Reading courses — for a total of four units — in one semester.)

REA 50 Basic Skills I / 3 sem. hrs.

For non-native speaking students. Course covers individual and group instruction in vocabulary development, general comprehension, study skills and word attack. Spanish will be used when required by the student. Intensive lab work. Students are required to take COM 15, Intensive English, simultaneously.

First Year Level.

REA 51 Basic Skills II / 3 sem. hrs.

A continuation of Reading 50 for non-native speakers. There will be individual and group instruction in vocabulary development, contextual clues, techniques for reading various types of material. Students are required to take COM 16, Intensive English II, simultaneously.

First Year Level.

Prerequisite: REA 50 or consent of instructor.

REA 52 Bilingual Reading — Spanish and English / 3 sem. hrs.

This is for students desiring to improve their backgrounds either in Spanish or English, or both. Readings in the original Spanish will be coincided by their Spanish translations. Finally, English writings, not yet translated, will be compared with Spanish writings on the same subject. There will be group and individual work in a lab set-up. (Same as Spanish 52.)

Prerequisite: Reading ability in English and Spanish.

REA 52 Lectura Bilingüe — Español e Inglés / 3 sem. hrs.

Para estudiantes que desean mejorar su habilidad en el uso del español o inglés, o los dos idiomas. Escritos originales en español coincidirán con su traducción en inglés; escritos en inglés coincidirán con su traducción en español. Finalmente, escritos en inglés, todavía no traducidos, serán comparados con escritos en español del mismo tema. El laboratorio permitirá trabajos individuales además de en grupo. (Es igual a Spanish 52.)

Requisite: Habilidad de leer en inglés y español.

REA 60 Basic Reading Improvement / 3 sem. hrs.

For English speaking students. Individual and group instruction in techniques for improving basic skills to all reading. Intensive skills with vocabulary, comprehension, word attack and study skills. There will be progressive testing to determine areas of

strength and weaknesses as well as progress.

(Meets four days a week.)

First Year Level.

REA 61 Developmental Reading / 3 sem. hrs.

For English speaking students. Individual and group instruction in theory and practice of reading skills appropriate to various reading situations, discovering main ideas, reading for details, skimming, locating information and reading for recreation.

(Meets four times a week.)

First or Second Year Level.

Prerequisite: REA 60 or consent of instructor.

REA 62 Advanced Reading / 3 sem. hrs.

For English speaking students. Theory and practice of reading skills needed for effective academic performance. Emphasis on comprehension, flexibility of reading rate, vocabulary development, and continuing critical evaluation of printed material. (Meets four days a week.)

First or Second Year Level.

Prerequisite: REA 61 or consent of instructor.

RELIGION, COMPARATIVE

REL 30 Comparative Religions: Oriental / 3 sem. hrs.

Hinduism, Buddhism, Zoroastrianism, Confucianism, Taoism, Shintoism, and Zen Buddhism will be explored through readings, discussions and movies. Christianity will be compared through student knowledge and opinion in discussions.

REL 40 Introductory Studies in Religious Philosophy / 3 sem. hrs.

(Same as Philosophy 40.)

REL 41 Comparative Religions: Western / 3 sem. hrs.

Judaism, Christianity, Islam and more recent religious developments in the Middle East, Africa, Europe and the Americas.

RESPIRATORY THERAPY

RTH 71 Equipment and Procedures I / 3 sem. hrs.

A brief history of respiratory therapy, handling of medical gases, safety practices and general equipment used in the administration of gases are covered in this introductory course.

First Year Level.

Prerequisite: Admission to Respiratory Therapy program.

RTH 73 Clinical Medicine and Health / 3 sem. hrs.

This course covers specific principles of nursing related to the care of patients with respiratory problems. Emphasis is on the interpersonal relationships between patient and therapist, pharmacological classification of medications, and the study of microorganisms and control of pathogens related to cardiopulmonary disorders.

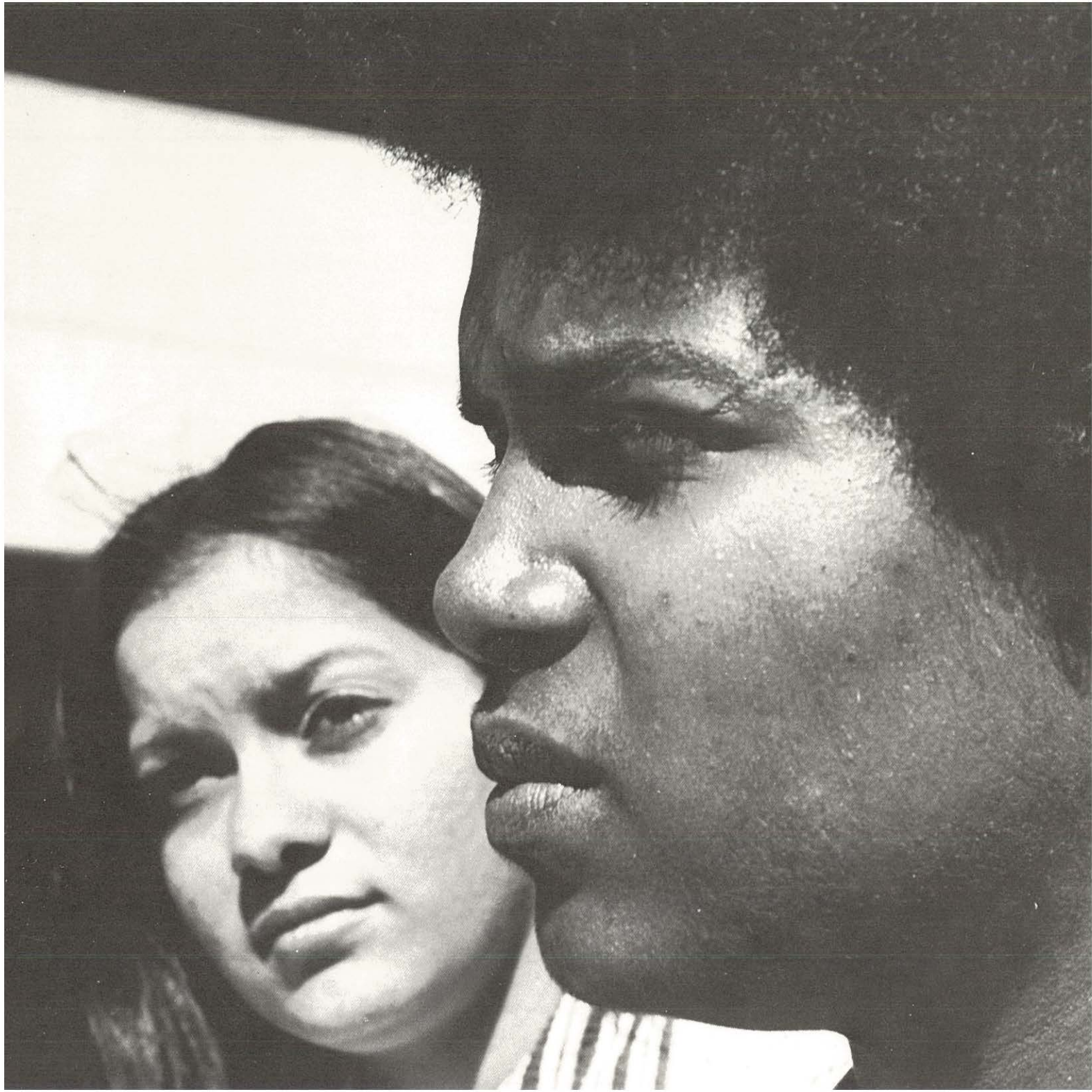
Prerequisite: RTH 71.

RTH 80 Equipment and Procedures II / 3 sem. hrs.

The student is introduced to the study of humidity-aerosol relationships, and methods of medical gas administration. The theory of construction of specific equipment used is studied.

First Year Level.

Prerequisite: RTH 71.



SPA 117 Mexican-American Literature / 3 sem. hrs

Contemporary Mexican-American thought will be examined through the writings of Mexican-Americans. Other literary works concerning the Mexican-American also will be studied. The class will be conducted in Spanish.

(Same as Literature 117.)

Upper Level.

Prerequisite: A firm reading knowledge of Spanish.

SPA 117 Literatura México-Americana / 3 sem. hrs.

En este curso se estudiará el pensamiento méxico-americano y fenómenos sociales através de autores de actualidad. Se examinará el importante movimiento literario del méxico-americano.

SPA 118 Mexican-American Literature (in Translation) / 3 sem. hrs.

Contemporary Mexican-American thought will be examined through the writings of Mexican-Americans. Other literary works concerning the Mexican-American also will be studied. This class will be conducted in English.

(Same as Literature 118.)

Upper Level.

SPA 120 Novel of the Mexican Revolution / 2 sem. hrs.

Students will analyze, from a literary perspective, representative novels of the Mexican Revolution. They also will gain insights into contemporary Mexican and Mexican-American life as influenced by the Mexican Revolution of 1910.

(Same as Literature 120.)

Upper Level.

Prerequisite: A firm reading knowledge in Spanish.

SPA 120 Novela de la Revolución Mexicana / 3 sem. hrs.

En la Novela de la Revolución Mexicana se lee a los autores más importantes de la Revolución. Paralelamente se muestra el panorama histórico de la Revolución. Se estudiarán los motivos y hechos más sobresalientes de la época revolucionaria.

SPEECH**SPE 2 Introduction to Oral Communication / 3 sem. hrs.**

An introduction to speech, with emphasis on developing confidence and effectiveness in ways in which people most frequently communicate among and between various cultures. First Year Level.

SPE 5 Voice and Diction / 2 sem. hrs.

The study and practice of articulation, pronunciation, and effective voice production. First or Second Year Level.

SPE 10 Public Speaking / 3 sem. hrs.

An introduction to public speaking with emphasis on effective composition, and delivery in a variety of situations to various audiences with varied cultural, political, and economic orientation.

First Year Level.

Prerequisite: SPE 2 or equivalent.

SPE 15 Voice and Articulation for the Stage / 2 sem. hrs.

Voice production is studied with emphasis on the practice of standard American and southern British dialects.

First or Second Year Level.

SPE 20 Business and Professional Communication / 3 sem. hrs.

Study of communication problems found in business and organizations, with emphasis on business media and special applications such as interviewing, dictation and telephone use.

First Year Level.

SPE 24 Beginning Forensics / 1 sem. hr.

Basic techniques of debate and experience in debate of current issues. To be taken with BHS 31, Current United States Social Problems, for a total of 4 credits. Neither course may be taken without the other.

First Year Level.

SPE 25 Forensics / 1 sem. hr.

The debate of current issues with emphasis on preparation for intercollegiate debate. May be repeated once for the maximum of 2 credit hours.

First or Second Year Level.

Prerequisite: BHS 31, SPE 24.

SPE 30 Small Group Discussion / 3 sem. hrs.

An introduction to the theory and practice of small group communications.

First or Second Year Level.

SPE 36 Oral Interpretation of Literature / 3 sem. hrs.

Classroom and public readings to different groups to provide practice in understanding and evaluating poems, plays, stories and essays. Selections will emphasize cultural variety and dramatic possibilities.

First or Second Year Level.

SWAHILI**SWA 50-51 Elementary Swahili / 4-4 sem. hrs.**

Basic patterns and structures of Swahili and sufficient vocabulary to communicate will be taught through conversation, reading and writing. An advanced course in Swahili will be offered if enrollment is sufficient

First Year Level.

TOOL AND MACHINE TECHNOLOGY**MAC 40 Computer Science I / 1 to 3 sem. hrs.**

(Same as Computer Science and Mathematics 40. A recommended elective under Tool and Machine Technology.)

MAC 51 Introduction to Numerical Control / 2 sem. hrs.

This course introduces the student to numerical control and its application to the control of machines, processes and manufacturing operations. Occupational opportunities in the field are reviewed. (Same as Computer Science 51.)

First Year Level.

Prerequisite: High School algebra or equivalent.

MAC 52 Machine Shop for Technicians I / 4 sem. hrs.

Aimed to help persons now in machine shops to get a solid working knowledge of over-all practices, and to provide those not working in machine shops with a broad understanding of machine tools, shop practices and set-up.

First Year Level.

Prerequisite: High School or equivalent.

MAC 62 Machine Shop for Technicians II / 4 sem. hrs.

General shop practice will provide a thorough training in the selection of proper metals and cutting tools. Experience in machining and fixture making, following an operator's document, setting up numerical control centers and hands-on operation of numerical control machines will be included.

First Year Level.

Prerequisite: MAC 51, MTH 80 or equivalent.

MAC 64 Numerical Controlled Machines I / 3 sem. hrs.

The course includes basic numerical control hand programming, steps for the execution of a numerical control job and system components. (To be offered in the Spring.)

(Same as Computer Science 64.)

First Year Level.

Prerequisite: MAC 51, 52, MTH 80, DFT 55.

MAC 72 Manufacturing Processes I / 3 sem. hrs.

Provides a background of knowledge about various manufacturing materials and fundamental types of manufacturing methods. Automation is introduced to acquaint the student with modern practice of numerical control.

Second Year Level.

Prerequisite: MAC 62.

MAC 73 Jig and Fixtures Designing I / 4 sem. hrs.

Design and machining of tools, fixtures and jigs are studied. Application of drill jigs, special work holding devices, indexing work holders, templates for form turning and other applications. Laboratory time is devoted to designing fixtures for production runs.

Second Year Level.

Prerequisite: MAC 62, 77, MTH 81 or consent of instructor.

MAC 74 Quality Control I / 1 sem. hr.

Students get practical working knowledge of quality control methods and an opportunity to become familiar with various types of machine tools, tooling, measuring and inspection procedures.

Second Year Level.

Prerequisite: Consent of instructor.

MAC 77 Numerical Controlled Machines II / 3 sem. hrs.

This course starts continuous path programming and computer aided programming. Calculations are made manually and by computer for two and three axis numerical control machines. Numerical control languages are taught. (Same as Computer Science 77.)

Second Year Level.

Prerequisite: MAC 62, 64, DFT 55, 56 and concurrent with DFT 58.

MAC 80–81 Technical Mathematics I, II / 3–3 sem. hrs.

(Same as Mathematics 80–81.)

MAC 82 Manufacturing Processes II / 3 sem. hrs.

A background in casting and foundry practices is offered.

Through demonstrations and discussion, the student becomes familiar with the production of simple molds, core and casting and in basic heat treatment inspection and testing, using both destructive and non-destructive methods.

Second Year Level.

Prerequisite: MAC 72.

MAC 83 Jig and Fixture Designing II / 4 sem. hrs.

Course enables the technician to lay out design of machine parts, working with government standards and the preparation of drawings for numerically controlled machines.

Second Year Level.

Prerequisite: MAC 73.

MAC 84 Quality Control II / 3 sem. hrs.

Course offers the technician detailed instruction in inspection and quality control methods used by modern industry.

Capabilities of numerical control drafting machines used for inspection are studied deeply.

Second Year Level.

Prerequisite: MAC 74.

MAC 90 Properties of Materials / 2 sem. hrs.

A study of materials of industry and construction, their uses, properties, machining and fabrication methods, strengths, durability and testing methods. One hour lecture with three hours laboratory.

First Year Level.

MAC 91 Industrial Processes / 2 sem. hrs.

Modern processing techniques are pre-studied with practical demonstrations in the multi-purpose shop. Course includes machining, hot metal casting, welding (gas and arc), sheet metal cutting, bending and fabrication. One hour lecture with three hours laboratory.

First Year Level.

WELDING**WLD 51–52 Arc Welding / 4–4 sem. hrs.**

Study of joining metals by electric arc either with or without the use of filler rod; the sequence of operations and selecting equipment and material to be used according to specifications or blueprints; and performance of arc welding in conjunction with inert gas.

First or Second Year Level.

WLD 56–57 Oxy-Acetylene Welding / 3–3 sem. hrs.

Students learn set-up and operation of oxy-acetylene welding equipment; how to weld flat, horizontal, vertical and overhead on standard alloys of steel; and to braze and solder non-ferrous and ferrous metals and their alloys.

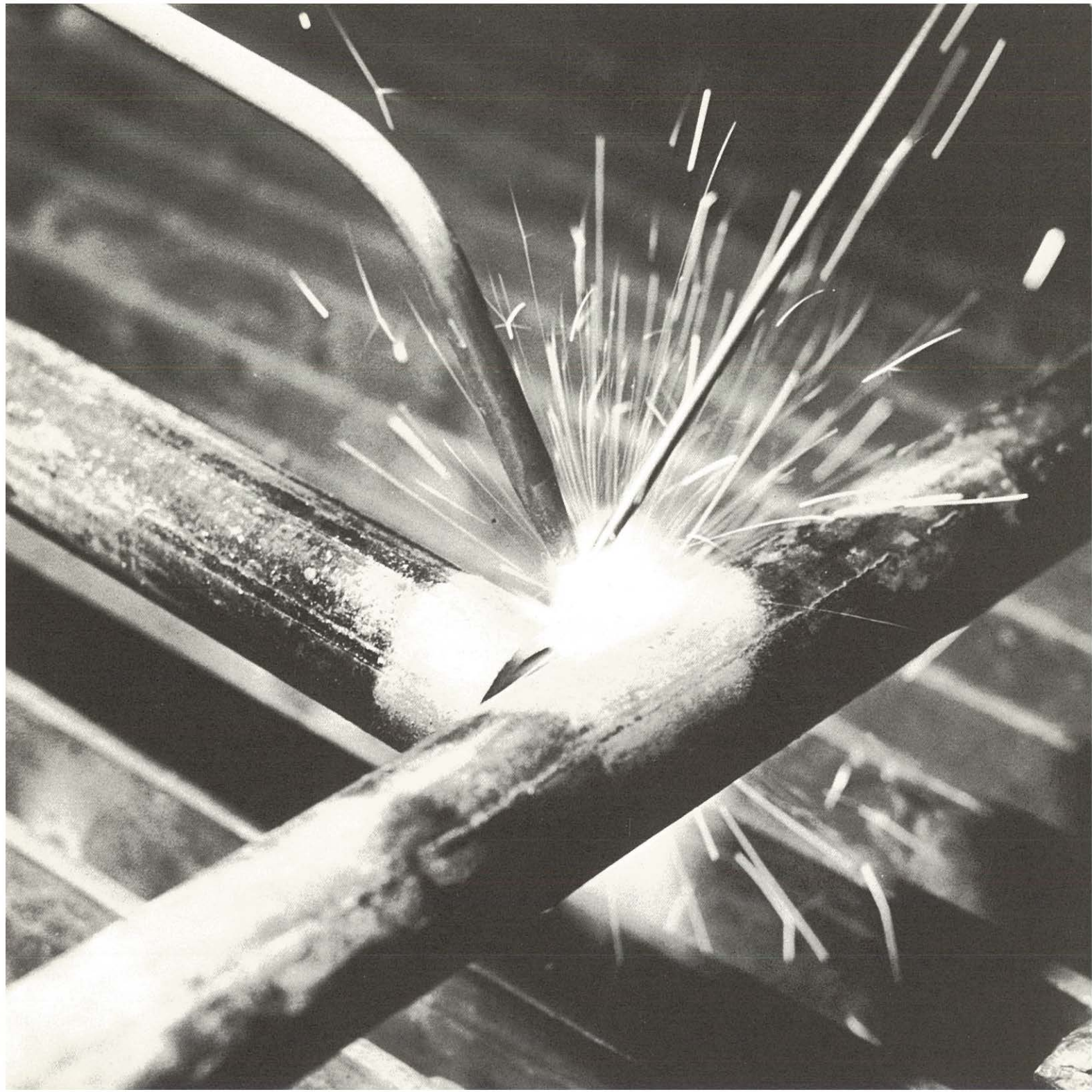
First or Second Year Level.

WLD 60 Automotive Welding / 3 sem. hrs.

Basic arc and gas welding for automotives.

WLD 81 Blueprint Reading for Welders / 3 sem. hrs.

The student, after successfully completing the course, will be able to interpret blueprints as applied to the welding trade, and be familiar with welding symbols and their significance.



Administration

Kenneth E. Harper, *President*

A.B. — Asbury College

B.D. — Asbury Theological Seminary

M.A. — University of Kentucky

Ph.D. — University of Kentucky

Rudolph J. Melone, *V.P. Academic Affairs*

A.B. — University of Portland

M.A. — University of Portland

Ph.D. — University of California

Robert F. Murdock, *Admissions*

B.D. — Eden Seminary

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Henry Oyama, *Bilingual Institute*

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M.Ed. — University of Arizona

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James O. Sarrels, *Comptroller*

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M.Ed. — University of Arizona

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B.S. — University of Maine

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M.Ed. — University of Maine

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M.Ed. — University of Southern California

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Coordinator*

(Pima-Santa Cruz Counties)

B.S. — West Virginia University

M.S. — West Virginia University

Ph.D. — Ohio State University

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B.S. — Kent State University

Conan A. Mooney, *Purchasing*

B.S. — Cornell University

Joseph W. Cosentino, *Registrar*

B.A. — Mt. Union College

M.Ed. — Kent State University

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B.A. — University of Arizona

M.A. — University of Arizona

Don Allen, *Security*

Grover Banks, *Special Services*

B.S. — Heidelberg College

Diego A. Navarrette, *Student Activities*

B.A. — University of Arizona

M.Ed. — University of Arizona

Christine F. Scharf, *Student Health*

B.S. — University of Arizona

M.A. — University of Arizona

Faculty

Robert F. Agrella, *Mathematics*

B.S. — Purdue University

M.A.T. — Purdue University

Gerardo M. Aguilar, *Business*

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B.S. — Nebraska State Teachers College

M.A. — University of South Dakota

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B.S. — University of Arizona

Naomi Antelman, *Respiratory Therapy*

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Ph.D. — Black Mountain College

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M.A. — Sacramento State Teachers College

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B.A. — University of Nebraska

M.A. — University of Iowa

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Jose Barron, *Intercultural Committee*

B.A. — University of Texas

M.A. — University of Arizona

Jerold W. Bestol, *Psychology*

B.A. — University of Colorado

M.A. — University of Arizona

Johnny W. Bowens, *Student Activities*

B.A. — Dillard University

Aristeo Brito Jr., *Spanish*

B.A. — Sul Ross State College

M.A. — University of Arizona

A.B.D. — University of Arizona

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M.A. — University of Florida

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M.S. — North Dakota State University

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B.A. — California State College

M.S. — California State College

Nicholas C. Busch, *Life Sciences*

B.A. — Sonoma State College

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M.A. — Colorado College

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Ph.D. — University of Arizona

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Shirley J. Chann, *Computer Science*

B.A. — Wellesley College

David C. Coleman II, *Mathematics*

B.S. — Bluefield State College

M.S. — Western Reserve University

Jeffrey M. Coles, *English & Humanities*

B.A. — Brooklyn College

Ronald D. Crabtree, *English*

B.A. — Washington University

M.A. — Washington University

Walter E. Crump, *Automotive*

Michael B. Curry, *Mathematics*

B.S. — Wheeling College

M.S. — Utah State University

Layton J. Cutforth, *Computer Science*

Ruben Denna, *Art*

B.T.H. — Spanish Am. Baptist Seminary

Larry Dredge (Sgt.), *Military Science*

Edward M. Duperret, *Student Development*

B.A. — Seton Hall University

B.Ed. — Sacramento State

M.A. — New York University

Michael Enis, *Welding & Building Trades*

Wesley S. Fee, *Radiation Therapy*

M.D. — Washington University

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B.S. — California State College

M.A. — Arizona State University

Susan Finch, *Computer Science*

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B.S. — UCLA

M.B.A. — University of Arizona

Marshall I. Franks, *Language Arts*

B.A. — Houston Tillotson

M.Ed. — University of Arizona

Millan Freeman, *Communications*

B.A. — Eastern Nazarene College

M.Ed. — University of Arizona

Sotero V. Fuentesvilla, *Accounting*

B.A. — University of Havana

M.A. — University of Havana

Pamela K. Gefke, *English & Humanities*

B.A. — University of Arizona

M.Ed. — University of Arizona

Daniel P. Giaquinto, *X-ray Technology*

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C. Barclay Goldsmith, *Drama & Communications*

B.A. — Stanford University

M.F.A. — Carnegie-Mellon University

Raquel Goldsmith, *Social Science*

B.A. — National University of Mexico

Licenciado en Law & Social Science — Nat. U. of Mexico

Elizabeth Gonzalez, *Secretarial Studies*

B.A. — University of Arizona

Max J. Gottschalk, *Drafting & Art*
B.A. — Washington University

Christopher K. Graeff, *Fine Arts*
B.A. — Syracuse University

Adalberto Guerrero
B.A. — University of Arizona

Anthony S. Guglielmino, *Industrial Technology*

Ysidro L. Gutierrez, *Airframe*

Mary Jane Hattstaedt, *Nursing*
B.S. — Incarnate Word College
M.A. — New York University

Louise Haugh, *Reading*
B.A. — University of Kentucky
M.Ed. — University of Arizona

Constance Howard, *Home Economics*
B.A. — Mt. St. Mary's College

Patricia Hruby, *Physics*
B.S. — College of Mt. St. Vincent
M.S.T. — Cornell University

Roger Irwin, *Behavioral Science*
B.A. — Wichita State University
M.S. — Kansas State College

Philip E. Johnson, *Behavioral Science*
B.S. — University of Maine
M.S. — Penn State University
M.Ed. — University of Maine

Pauline J. Kelzer, *Behavioral Science*
B.A. — University of California
M.A. — University of California

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B.S. — Georgetown University
M.A. — Georgetown University

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A.B. — Fairmont State College
M.Ed. — University of Arizona

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B.S. — Indiana State University
M.A. — Arizona State University

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M.A. — Arizona State University

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M.A. — University of Arizona

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