University of Texas Bulletin
No. 2719: May 15, 1927

UNIVERSITY OF TEXAS
CATALOGUE

OF THE

COLLEGE OF MINES AND METALLURGY

EL PASO

1926–1927

With Announcements for
1927–1928

PUBLISHED BY
THE UNIVERSITY OF TEXAS
AUSTIN

Publications of the University of Texas

The University publishes bulletins four times a month, so numbered that the first two digits of the number show the year of issue, the last two the position in the yearly series. (For example, No. 2201 is the first bulletin of the year 1922.) These comprise the official publications of the University, publications on humanistic and scientific subjects, bulletins prepared by the Division of Extension, by the Bureau of Economic Geology, and other bulletins of general educational interest. With the exception of special numbers, any bulletin will be sent to a citizen of Texas free on request. All communications about University publications should be addressed to University Publications, University of Texas, Austin.

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PUBLISHED BY THE UNIVERSITY FOUR TIMES A MONTH, AND ENTERED AS SECOND-CLASS MATTER AT THE POSTOFFICE AT AUSTIN, TEXAS, UNDER THE ACT OF AUGUST 24, 1912

The benefits of education and of useful knowledge, generally diffused through a community, are essential to the preservation of a free government.

Sam Houston

Cultivated mind is the guardian genius of democracy. . . . It is the only dictator that freemen acknowledge and the only security that freemen desire.

Mirabeau B. Lamar

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The regular meetings of the Board of Regents are held on the third Tuesday in January, March, May, and October, usually at Austin.

CALENDAR

1927

AUGUST 24, WEDNESDAY. Summer work in surveying and in field geology begins.

SEPTEMBER 14–17, WEDNESDAY–SATURDAY. Examinations for admission.

SEPTEMBER 19–21, MONDAY–WEDNESDAY. Postponed examinations, examinations for advanced standing, and examinations to remove course conditions.

SEPTEMRER 19–22, MONDAY–THURSDAY. Registration.

SEPTEMBER 23, FRIDAY. First semester classes begin.

SEPTEMBER 24, SATURDAY. Examinations in summer work.

NOVEMBER 11, FRIDAY. Armistice Day, a holiday.

NOVEMBER 24, THURSDAY. Thanksgiving Day, a holiday.

DECEMBER 23, FRIDAY. Christmas recess begins.

1928

JANUARY 3, TUESDAY. Classes resumed.

JANUARY 25–31, WEDNESDAY–TUESDAY. Mid-year examinations.

FEBRUARY 1, WEDNESDAY. Second semester classes begin.

FEBRUARY 22, WEDNESDAY. Washington's Birthday, a holiday.

MARCH 2, FRIDAY. Texas Independence Day, a holiday.

APRIL 21, SATURDAY. San Jacinto Day, a holiday.

MAY 18–24, FRIDAY–THURSDAY. Final examinations for the graduating class.

MAY 25–31, FRIDAY–THURSDAY. Final examinations for the freshman, sophomore, and junior classes.

MAY 31, THURSDAY. Commencement exercises.

COLLEGE OF MINES AND METALLURGY

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EDWARD JOHN CHAPIN, *Assistant in Chemistry.*
JOHN FRED PRICE, *Assistant in Metallurgy.*
CLEVE ALEXANDER STOVER, *Power Plant Assistant.*

GENERAL INFORMATION

HISTORY

An announcement of a course in mining appeared in the University catalogue first in 1900-1901. From then until the session of 1910-1911, an arrangement of courses leading to the degree of Mining Engineer appeared annually. The catalogue of that year contained

*Resigned December 1, 1926.
†Appointed January 1, 1927.

a statement that thereafter freshmen would not be enrolled in mining, and the arrangement of courses leading to a degree in that subject was subsequently omitted.

The Thirty-third Legislature, at its regular session in 1913, passed an act creating the State School of Mines and Metallurgy, to be located at El Paso. By the terms of the act, the School of Mines was placed under the control of the Board of Regents of the University. Early in 1919, by act of the Thirty-sixth Legislature, the school was made a branch of the University of Texas.

The location of the school at El Paso was conditioned upon the donation by the city of the former Military Institute buildings and grounds. The necessary funds for this donation were secured through the activity of the Chamber of Commerce, and the school was opened in September, 1914. On October 29, 1916, the Main Building was burned. It was then decided to remove the institution to a more suitable site, on the west side of Mount Franklin, donated for that purpose. The Thirty-fifth Legislature voted an emergency appropriation of $100,000 to erect new buildings.

LOCATION

The location of the College of Mines and Metallurgy is advantageous in several ways. The City of El Paso stands at the crossing of several of the oldest highways established by white men on this continent. With a population of 83,000, it is the most important city, south of Denver, between San Antonio and Los Angeles. Four transcontinental railroads cross the divide at this point.

El Paso's primary resources include mining, agriculture, live-stock, and timber. The United States Government is spending $10,000,000 on a great irrigation project to provide a cheap and unfailing water supply for the Rio Grande Valley above and below El Paso.

Its extreme dryness and medium latitude, combined with a moderately high altitude (4,000 feet), give El Paso a delightful and healthful climate all the year around.

Within a radius of from one to ten miles of El Paso are found in great variety those geological formations that are usually associated with the mining industry, not only in metal mining, but in coal mining as well. In opportunity for geological study, no mining school in the United States is more favorably located.

The second largest custom smelter in the world is situated about a mile from the College of Mines and Metallurgy. It is fully supplied with equipment for the most modern methods of treating such ores as ores of copper, lead, gold, and silver—as are suitable for smelting. Students will find this an exceptional opportunity.

BUILDINGS AND GROUNDS

The campus contains twenty-three acres. There are six buildings: Main Building, two dormitories, Chemistry Building, Power House, and Mill. The Main Building contains the administrative offices, laboratories, the library, and various class rooms. The Chemistry Building contains the laboratories in chemistry and assaying. The Power House contains the heating plant and the engineering laboratory. The Dormitory contains rooms for fifty students, with shower bath and lockers for the athletic teams, a kitchen, and a dining-room. Kelly Hall contains rooms only. The Mill contains machinery for the testing of ores. All the buildings, except the Mill, are of stone, and fireproof.

POLICY OF THE COLLEGE

Emphasis will be placed on the practical or applied side of the instruction. Theory and practice must go hand in hand, so to speak, the one supplementing the other. Every member of the faculty has had, in addition to his collegiate training, at least five years' successful experience in the practice of his profession.

A thorough mastery by the student of the details of each required course offered will be insisted upon. In the future, as the demand may arise, supplementary courses will be offered enabling the student to specialize along various lines. It is the purpose of the college to give the student a good general education, whether he follows the practice of mining and metallurgy as his life work or not.

Athletics are encouraged and play a prominent part in the student activities.

SPECIAL LECTURES

A series of lectures will be delivered before the Mining Club by members of the faculty and other engineers residing in El Paso. The Mining Club is an affiliated student society of the American Institute of Mining Engineers.

OPPORTUNITIES FOR SELF-HELP

To the student who is working his way, a city of the size of El Paso offers a large field of opportunity. A students' labor bureau is maintained by the college, and every effort will be made to assist the student, but the college assumes no responsibility except to the extent of trying to help. No student should come to El Paso without funds sufficient for at least the first semester.

AFFILIATED SCHOOL SCHOLARSHIPS

The Board of Regents offers a scholarship annually to the best student among the young men and one to the best student among the young women in the graduating class of each accredited school having at least thirteen accredited units, provided that the recipient of each scholarship shall have made an average of at least 90 per cent in the senior year. The scholarships entitle the holders to exemption from matriculation fees in all the colleges and schools of the University except in the Medical Branch and in the Law School, so long as their conduct and standing are satisfactory to the faculty, provided they enter the University before the end of the fall term of the second session after their graduation from the high school.

REQUIREMENTS FOR ADMISSION

GENERAL REQUIREMENTS

Age.—Applicants for admission must be at least 16 years old. Applicants who seek admission by individual approval must be at least 21 years old.

Character.—Applicants for admission must furnish evidence of good moral character.

Vaccination.—Applicants for admission must present evidence of proper vaccination at a date sufficiently recent to insure protection against smallpox, or be vaccinated upon matriculation.

Hazing pledge.—Each applicant for admission or readmission must sign the following pledge: "I pledge myself on my honor not to encourage or participate in hazing or rushes during my attendance at the University."

SCHOLARSHIP REQUIREMENTS

For admission to the College of Mines and Metallurgy fifteen units of high-school credit are required, eight being prescribed and seven being elective. The prescribed units are as follows:

Three units must be in English; two in the social sciences, as listed on page 11, at least one of which must be in history; two in algebra; and one in plane geometry. The seven elective units must be chosen from the list below, subject to these restrictions: (1) Not more than four units may be presented in history and civics together. (2) Biology may not be presented by a student who presents either botany or zoology.

SUBJECTS AND UNITS ACCEPTED FOR ADMISSION

A unit implies nine months of high-school study of five class periods a week at least 40 minutes long.

Prescribed

English, 3
Social Sciences, 2, at least one of which must be in History.
Algebra, 2
Plane Geometry, 1

Complete List

English, 3 or 4
Social Sciences:
- Ancient and Medieval History, 1
- Modern History, 1
- American History, ½ or 1
- English History, ½ or 1
- Civics, ½ or 1
- Economics, ½

Mathematics:
- Algebra, 2
- Plane Geometry, 1
- Solid Geometry, ½
- Trigonometry, ½
- Advanced Arithmetic, ½

Foreign Languages:
- Latin, 2, 3, or 4
- Greek, 2 or 3
- German, 2 or 3
- French, 2 or 3
- Spanish, 2 or 3

Natural Sciences:
- Biology, 1
- Botany, 1
- Chemistry, 1
- Introduction to Science, 1
- Physics, 1
- Physiography, ½
- Physiology and Hygiene, ½ or 1
- Zoology, 1

Vocational Subjects:
- Agriculture, ½—2
- Bookkeeping, 1
- Commercial Geography, ½
- Commercial Law, ½
- Domestic Art, ½—1½
- Domestic Science, ½—1½
- Drawing, ½—2
- Manual Training, ½—2
- Shorthand and Typewriting, 1

Argumentation and Debating, ½
Music, 1

METHODS OF ADMISSION

Students may obtain credits in one of three ways, or by a combination of two or more of them, as follows:

(1) **By diploma.**—Within the limits of the above list, graduates of schools on the approved list issued by the State Department of Education are credited with the subjects they have completed in which the schools are accredited. In order to determine these credits, they are required to present statements of their work made out by the superintendent or principal on the University's official blank, to be had of the Registrar. It is of the highest importance that the

applicant send this blank, properly filled out, to the Registrar not later than September 10. Valuable time will be lost if he does not do so, and more if he has to send for it after he arrives. Without it he cannot be admitted at all.

No credit is given for work done at an accredited school unless the candidate is a regular graduate of the school.

The University of Texas has no accredited schools outside Texas, but it will usually accept, for work done in a school in another state, credits granted by the state university of that state; or, in the absence of such an institution, by another institution of recognized standing acquainted with the work of the school in question.

(2) By state teachers' certificates.—Applicants holding a state teachers' certificate based on state examinations will receive credit in proportion to the number of acceptable subjects taken for the certificate.

(3) By examination.—Any or all scholarship requirements may be met by passing the admission examinations.

To secure credit in any subject, the applicant must make a grade not lower than *D*. In grading examination papers, whatever the subject, account will be taken of the applicant's use of English. Excellence in one subject will not make up for deficiency in another. Credits are not divisible in any subject.

Every natural science examination paper must be accompanied by a laboratory notebook.

Admission examinations are held twice a year, early in May and in the fall.

By agreement between certain coöperating Texas colleges and universities and the Committee on Inspection, Classification, and Accrediting of Texas High Schools, the May series of examinations is given under the direction of the State Department of Education at accredited schools and other approved centers. Application for these examinations should be made to the State Superintendent of Public Instruction, Austin.

The fall examinations are held only at the College.

The following are the dates and the order of the September series of admission examinations for 1927.

Wednesday, September 14: 9 to 12, English; 2 to 6, American History, Ancient and Medieval History, and Civics.

Thursday, September 15: 9 to 12, English History, Modern History, and Economics; 2 to 6, Algebra and Plane Geometry.

Friday, September 16: 9 to 12, French, German, Latin, Spanish, and Bookkeeping; 2 to 6, Agriculture, Biology, Botany, Chemistry, General Science, Physiography, Physiology and Hygiene, Shorthand and Typewriting, and Zoology.

Saturday, September 17: 9 to 12, Solid Geometry, Trigonometry, and Commercial Geography; 2 to 6, Domestic Art, Domestic Science, Physics, and Advanced Arithmetic.

It is strongly urged that applicants desiring to enter the University in September attempt the May examinations. It is permitted to divide the subjects between the spring and fall examination periods, but credits obtained at the spring examinations lapse unless the applicant passes the deferred examinations the following fall; and credits obtained at the fall examinations, if less than the total number required, are not valid later.

By Individual Approval

At the discretion of the Registrar, an applicant over 21 years old may be admitted without examination, on the following conditions:

(1) He must make application on the official blank (to be had of the Registrar), giving the information there desired.

(2) He must furnish evidence that he has substantially covered the ground of the units required of other candidates, and that he has sufficient ability and seriousness of purpose to do the work desired with profit to himself and to the satisfaction of the University.

(3) He must show, by the writing of a composition, that he has an adequate command of English.

Applicants are advised to send their applications and credentials in advance of their coming to El Paso.

Admission by individual approval contemplates applicants who have not recently attended school and are not, therefore, in a position to pass the admission examinations.

Students so admitted may register for courses other than freshman courses only with the approval of the Dean, given because of evidence of special fitness.

Neglect of work or other evidence of lack of serious purpose on the part of a student thus admitted will cause the withdrawal of the Dean's approval, thus severing the student's connection with the University, and preventing his readmission until he has satisfied all admission requirements.

Students admitted by individual approval cannot become candidates for degrees until they have satisfied the admission requirements. As to how to remove admission conditions, see the following section.

HOW TO ABSOLVE ADMISSION CONDITIONS

Admission conditions may be removed (1) by taking, with the approval of the Dean, the regular admission examination in subjects not studied by the student in the University; (2) by counting work

done in the University. The prescribed admission units must be satisfied by work in the corresponding subjects in the University; the elective admission units may be absolved by any University work. In satisfying admission conditions, a course counts as the equivalent of one and one-half units. Courses used to absolve admission requirements will not count toward a degree. If a student does not satisfy his admission conditions within two years after admission, he must present one additional unit for each year that his conditions remain unsatisfied. Conditions may not be removed by taking admission examinations later than two years after admission. After that time, they may be removed only by work done in the University.

Students admitted by individual approval to English 1 will, on completing that course, be given credit also for three admission units in English. Similarly, students admitted to Mathematics 1 will, on completing that course, receive credit also for two admission units in algebra and one in plane geometry. Further, students admitted by individual approval and making, during their first long session, at least five courses with an average grade of *C* will in addition absolve the admission condition in the seven elective units. If this average is not made, the seven elective units, and the two other prescribed units (see "Scholarship Requirements," page 10), must be made up in one or both of the methods given in the preceding paragraph.

ADVANCED STANDING

Students from secondary schools.—Applicants who, in addition to satisfying the admission requirements, wish to obtain advanced standing in any department, must secure, by examination or otherwise, the consent of the Dean.

Students from other colleges.—A student seeking admission from another college must present: (1) A letter of honorable dismissal; (2) a vaccination certificate; (3) a full statement of the work he has done, including the work credited at entrance. This statement must be made out on the University's official blank (to be had of the Registrar), and must be duly certified by the authorities of the student's college. Much trouble and time will be saved by sending this official record to the Registrar not later than September 10. Students are not allowed to register until the proper certificates are presented.

All credits given students from other colleges are conditional. If their work here is of a low grade, the amount of credit given to individual students may be reduced.

Like other applicants for admission, students from other colleges must sign a pledge to do no hazing.

EXPENSES

FEES

Matriculation fee.—An annual matriculation fee of $15 must be paid, until $30 has been paid. Old students reëntering will pay at once the remainder of the $30 they are still due. If any part of the total amount has been paid in any other branch of the University, that part is not again required in the College of Mines and Metallurgy.

Laboratory fees.—Students who take laboratory courses are required to pay a fee to cover in part the cost of the material consumed. In certain subjects, a deposit also is required to cover breakage of apparatus. Certificates of payment of these fees and deposits must be presented by the students to their instructors before they can be assigned to desks in the laboratories or enrolled in their classes.

The following table shows the fees and deposits due in the several subjects:

LABORATORY FEES AND DEPOSITS

Subject	Fee	Deposit	Total	Subject	Fee	Deposit	Total
Chemistry 1	$10.00	$ 5.00	$15.00	Geology 8	3.00		3.00
Chemistry 2	12.00	8.00	20.00	Geology 10	$ 3.00		$ 3.00
Chemistry 6	15.00	5.00	20.00	Mechanics	3.00	3.00	6.00
Chemistry 7	5.00	5.00	10.00	Mineralogy	5.00	5.00	10.00
Chemistry 8	5.00	5.00	10.00	Mill Work			
Chemistry 9	5.00	5.00	10.00	Course in Ore			
Drawing	2.00	2.00	4.00	Testing	5.00		5.00
Engineering 12	3.00	3.00	6.00	Physics	3.00	3.00	6.00
Geology 1	2.50		2.50	Summer Sur-			
Geology 2	2.50		2.50	veying	3.00		3.00
Geology 3	5.00		5.00				

Each student is required to furnish his own drawing instruments, which cost from $15 to $20.

In the summer courses in surveying, the students will be required to pay for any damage to instruments arising from causes other than ordinary wear and use, which are covered by the $2 laboratory fee.

Diploma fee.—A diploma fee of $5 is payable not later than March 1 by each candidate for a degree the following May.

Delayed registration fee.—A student who registers after the last registration day of any semester is required to pay a delayed registration fee of $3.

Student association fee.—The student association fee is $10, payable on the date of registration each scholastic year. This fee is used to assist the student social and athletic activities and the Flow Sheet.

Repayment of fees.—If a student is allowed to drop a laboratory course, one-half of the fee will be refunded for each semester not begun. In no case will the fee be returned for a semester the work of which has been begun.

The matriculation fee is not returnable.

The diploma fee will be returned only in case the student withdraws from candidacy for the degree before the diploma is made out. The fee is barely sufficient to cover the cost of the diploma, and, as all undelivered diplomas are destroyed, it must be paid over again if the student makes another application for the degree.

No fee holds over from one year to another.

BOARD AND ROOM

The College of Mines and Metallurgy maintains two dormitories and a dining-hall. Board cost $25 a month the past year. The rate for the coming session will be based upon the cost of supplies. The corner rooms rent for $9 a month, the other rooms for $6. A student occupying a room to himself will pay three-fourths of the regular charge for the room.

The rooms are heated by steam, lighted by electricity, and furnished. Each student must provide his own mattress (for single bed), pillows, blankets, and bed linen.

Each student is held responsible for any damage to his room or its contents, whether caused by him or not. A dormitory breakage deposit of $5 is required, which is returned if no damage is done to the furniture, building, or fixtures.

Board and room rent must be paid in advance on the first day of each month. A fine of 50 cents a day is charged for each day the student is delinquent.

Rooms will be assigned in the order of application, preference being given to students who are occupying rooms during the current session, provided their applications are received before May 31 and accompanied by a deposit equal to one-half the monthly rental of the rooms for which application is made. All new applications must be accompanied by a deposit of $3 in order to be considered. Rooms thus reserved will be held only until September 24, unless special notice is given of delayed arrival.

REGULATIONS

REGISTRATION

Students are required to register in person for each semester. Those who register after the appointed dates will be required to pay a fine of $3.

After the twelfth working day of any semester, students will be allowed to enter only if, in addition to fulfilling the admission requirements, they pass satisfactory examinations upon the back work of the subjects they desire to take.

DEFINITION OF CREDIT

An hour of credit implies one classroom hour a week for one semester. Three hours of laboratory work are counted as equivalent to one hour of recitation or lecture. Thus, a course consisting of three lectures or recitations a week for one semester is rated as a three-credit subject; one consisting of three lectures or recitations and three laboratory hours a week for one semester, as a four-credit subject.

AMOUNT OF WORK

Freshmen may not register for more than eighteen credit hours for each semester; sophomores and juniors, for more than twenty credit hours; seniors, for more than twenty-one credit hours, except by vote of the faculty.

Students who expect to become candidates for a degree may carry not less than twelve credit hours for each semester.

ADDING AND DROPPING COURSES

After his registration for the session, a student may add a subject only with the approval of the Dean. No subject may be added, however, after the twelfth working day of any semester.

For weighty cause, a student may drop a subject with the consent of the Dean. To drop a subject without permission means to sever one's connection with the College.

On the recommendation of the instructor concerned, approved by the Dean, a student may at any time be required to drop a course because of neglect or for lack of preparation.

CLASS ATTENDANCE AND ABSENCE

Absence from class.—Uniform and punctual attendance upon all exercises at which the student is due is strictly required. Absences are sometimes unavoidable, and a reasonable allowance is made for such possibilities. A student, however, who is absent unexcused during any semester from any subject for more than one-tenth of the total number of exercises in that subject, is dropped from the College rolls for the remainder of the session. Late registration and the payment of a delayed registration fee do not exempt a student from accountability for absences before registration.

When dropped from the rolls for excessive absences in a particular subject, the student may, unless he obtains the Dean's permission to drop the course, gain readmission only by passing a special examination in the subject at a date fixed by the Dean and the instructor concerned.

For prolonged absence due to illness, a student may be excused on application to the Dean. A statement from the attending physician must be presented as evidence of the student's incapacity.

If a student is compelled to be absent from his work on account of business, he should apply to the Dean for temporary withdrawal. No repayment of fees is permissible, but, his instructors being notified, he is not reported absent from his classes. In order to be readmitted to his classes for the remainder of the session, the student must, within two weeks after his return, pass special examinations in all his subjects covering the work missed during his absence. In every case of temporary withdrawal, the parent or guardian is notified.

Absence from quiz.—A student absent from an hour examination or quiz is graded zero on that quiz, unless for urgent reason he is given by the instructor the privilege of taking a postponed examination at a time to be set by the latter.

Tardiness.—Serious or repeated tardiness will be considered as equivalent to absence, and reported as such.

Failure to hand in themes, reports, etc.—Themes, reports, etc., not handed in at the time appointed may be received only in case the delay was due to imperative causes satisfactory to the instructor.

EXAMINATIONS

Term examinations.—The object of examinations being primarily not to find out how much the student knows, but to lead him to secure a general view of the whole subject and readiness in the use of it, the faculty has ruled that exemptions from examinations may not be given. To encourage preparation for examination, the faculty has further ruled that during the last seven days of each semester before examinations, no written examination or review shall be given; and all essays, theses, synopses, and the like, must be handed in before this period begins.

In all examinations, account is taken of the student's use of English and of the form of the paper in general, the grade being lowered because of deficiencies in these regards as well as in the subject-matter proper.

Absence from term examinations.—A student who is compelled to be absent from a term examination on account of sickness or other imperative cause should petition the Dean, beforehand if at all possible, for permission to postpone the examination. If this permission is granted, the postponed examination may be taken within a year on any of the dates appointed therefor, provided the student petitions the Dean on or before the seventh day preceding the first day of the examination period.

A student absent from a term examination without the Dean's excuse is graded *F* or *G*, and required to take the term's work over again if he desires credit for it.

Postponed, advanced standing, and condition examinations.—Postponed and advanced standing examinations and examinations for the removal of conditions are held at the regular examination periods in January and May. Applications for these examinations must be made to the Dean on or before the seventh day preceding the first day of the examination period. Conditions received in the second semester may, at the discretion of the Dean, be removed by a second examination the following September.

A student who fails to pass a condition examination in any subject forfeits thereby the right to ask for another examination in that subject. Absence from an examination, after once a permit has been granted, will have the same effect as failure, unless the student presents to the Dean within a week after the date for the examination a satisfactory excuse for his absence.

Term reports.—Reports are sent out to parents and guardians at the end of each term for all students. Self-supporting students over 21 years of age may receive their reports instead of their parents, if they request it in writing.

GRADES OF SCHOLARSHIP

Grades.—The standing of the student in his work is expressed by grades made up from class work and from examinations. There are seven grades: *A* (excellent), *B* (good), *C* (fair), *D* (pass), *E* (failure), *F* (bad failure, with privilege to continue the course), *G* (the same as *F*, except that the student may not continue the course). To pass in a course, it is necessary to secure a grade of at least *D* both on class work and on term examination, considered separately. Grades are given by semesters, but no subject will count towards a degree until credit has been received for all the semesters covered by it.

Mid-term reports.—About the middle of each semester, reports are sent out for students doing work below the passing grade (*D*) both to the students themselves and to their parents or guardians.

Effect of a term grade of E.—A student who fails to pass in a course but makes a grade of *E* is called "conditioned," and is allowed opportunity to remove the condition by a second examination at the next regular examination period, or the following September, at the discretion of the Dean, in case the condition is received in the second semester.

In a subject continuing beyond one semester, the instructor may, by sending to the Dean the proper credit notice, raise an *E* of an earlier semester to *D* because of good work done in a later semester, but no grade may be altered later than six months after it was handed in, unless further work has been done in the course in the meantime.

Effect of a term grade of F.—A student who receives a grade of *F* for any term, whether by reason of poor work, or absence from the term examination without excuse from the Dean, may continue the course; but he may not obtain credit for the term in which he failed without repeating the work of that term in class.

Effect of a term grade of G.—A student who receives a grade of *G* for any term, whether by reason of poor work, or absence from the term examination without excuse from the Dean, is dropped from the subject, and must, if he desires to obtain credit for it, take that term's work over again in class.

Higher work after failure.—If a student makes an *F* or *G* in a course, he may not take up a higher course in the same subject until the course is taken again. If a student makes an *E* in a course, he may take up a higher course in the same subject only with the written consent of the instructor concerned, approved by the Dean.

CLASSIFICATION OF STUDENTS

Students are classified as regular and irregular. Under *Regular Students* are grouped those taking twelve or more hours of work prescribed for a degree. Under *Irregular Students* are grouped those taking less than twelve credit hours.

Regular students are divided into freshmen, sophomores, juniors, and seniors. Until the completion of thirty-five credit hours of prescribed work in addition to the full admission requirements, they are freshmen; then, until seventy credit hours are completed, sophomores; then, until 108 credit hours are completed, juniors; then seniors until graduation.

DISCIPLINE

Students are trusted to conduct themselves properly. If, however, it becomes apparent that any student, by misconduct or by neglect of studies, is doing harm to himself or to others, the faculty will use all appropriate means of discipline. The following penalties may be resorted to: Admonition, probation, suspension, and expulsion.

The penalties mentioned above will not necessarily be inflicted in regular graduation, but anyone will be imposed as the circumstances demand.

The University has been remarkably free from such evils as hazing and class rushes; and, in order to insure the continuance of this desirable condition, the faculty has specially forbidden rushes, and announced that students engaging in, instigating, or encouraging them will be liable to suspension.

Probation.—Probation is of two kinds, disciplinary and scholastic. It will be for a definite period, during which the student, while still

in attendance upon his classes, must show marked improvement in conduct or in studies, or in both, in default of which his connection with the College will terminate with the period.

A student on probation who absents himself from any class exercise, or neglects any class work, except for reasons considered imperative by the Dean, will thereby drop his name from the College rolls for the remainder of the session.

Absences and neglect on the part of such student, not explained to the Dean within one day—beforehand, if possible—will be presumed to be without excuse and will effect the dropping above mentioned.

Suspension.—Suspension will be for a definite period, during which the student will not be allowed within the College or upon its grounds, and may be required to satisfy special conditions.

Expulsion.—Expulsion is the severest penalty, and is final separation from the University. No student, however, will be expelled except after a full hearing and by a vote of the faculty.

ATHLETICS

All athletic games, exhibitions, and contests, intercollegiate or otherwise, not prescribed as regular physical training, and all exhibitions or performances of any kind given, in whole or in part, for the benefit of athletics, are under the direction of the Athletic Council, subject only to the Regents, Dean and Faculty.

The following rules govern the participation of all students of the College of Mines and Metallurgy in intercollegiate athletic contests:

Rule I. *Amateur Standing.* SECTION 1. No person shall be allowed to represent the College of Mines and Metallurgy in intercollegiate athletics who has ever competed for money or under a false or assumed name, or who has ever taught or assisted in teaching athletics for money, or pursued any athletic exercise for money or any valuable consideration. An exception shall be made in case of summer baseball.

SEC. 2. No person shall be allowed to represent the College of Mines and Metallurgy in intercollegiate athletics who is competing for money or under a false or assumed name, or who is teaching athletics for money, or who is pursuing any athletic exercise for money or for any valuable consideration. Playing under an assumed name shall include all cases of willful misrepresentation of any name by any contestant, either in the official list or in the published account.

Rule II. *Scholarship Qualifications.* SECTION 1. No student of the College of Mines and Metallurgy shall be permitted to participate in intercollegiate athletics who is not a student in good and regular standing, who is not taking at least twelve hours a week of regular

University work, and who is not making a passing grade in as much as ten hours a week of the regular University work taken.

SEC. 2. No student of the College of Mines and Metallurgy shall be eligible to compete in intercollegiate athletics who, during his last term in attendance, failed to pass in at least ten hours a week of regular University work. When, however, a failure or a condition in a course shall have been removed by passing the work, the previous failure shall not debar the student from participating in intercollegiate athletics during the next fall term. Except for the foregoing provision, by passing the work of the last term in attendance is meant that it shall have been passed at the time the work was regularly offered.

SEC. 3. Withdrawal from the College of Mines and Metallurgy in the course of any term for any cause except sickness or military service shall debar from participation in intercollegiate athletics until the work of that term shall have been successfully completed by the student so withdrawing. In case of withdrawal on account of sickness or military service during any term, the work of the preceding term shall be the basis for participation.

SEC. 4. In order that the scholarship qualification rule may be enforced, reports shall be made at the end of the first month of the session and thereafter at intervals of two weeks during the terms devoted to the several sports.

Rule III. *Time of Entrance.* No person shall be eligible for intercollegiate contests who did not register within thirty days after the opening of the semester. By registering, it is understood that a student was present on the date of his registration and from that date became a resident student taking regular class work.

Rule IV. *Student Compensation.* SECTION 1. No student shall be allowed to compete in intercollegiate athletics if he receives compensation for regular instruction. This rule shall, however, not apply to undergraduate student assistants (other than athletic assistants) who have been appointed by the Board of Regents, who are doing regular undergraduate work, and who are receiving an annual compensation of not more than $500 for their services.

SEC. 2. No student shall receive any money, board, room-rent, clothing, or pay in any form for participating in intercollegiate athletics.

Rule V. *Graduate Rule.* No student who has previously taken a degree from any college of standard rank shall be permitted to participate in intercollegiate athletic contests.

Rule VI. *One-half-year Rule.* No football player who has participated in any intercollegiate football contests as a representative of the College of Mines and Metallurgy and fails to attend for one-half of the college year in which he has played shall be allowed to

participate further until he shall have returned to the College of Mines and Metallurgy and completed one-half of a year's work.

Rule VII. *Eligibility Card.* SECTION 1. No student shall be eligible to participate in an intercollegiate contest until five days after his eligibility card, properly approved, has been forwarded to the Dean of the College of Mines and Metallurgy.

SEC. 2. Any false or intentionally misleading statement made on the eligibility card or any failure to give in full the information required shall be held to be a breach of the honor system and shall be treated accordingly.

Rule VIII. *Parent's Consent.* In order to participate in intercollegiate athletics, a student must, unless he is of age, have the written consent of his parent or guardian, sent directly by mail to the Dean of the College of Mines and Metallurgy.

Rule IX. *Absences.* Absences of College of Mines and Metallurgy representatives on athletic teams, including managers and assistants, shall be governed by the rule stated in the section of the catalogue on "Class Attendance and Absences."

Rule X. *Non-intercollegiate Contests.* All the above rules apply to members of regular teams representing the College of Mines and Metallurgy of the University of Texas, engaging in athletic contests with non-collegiate institutions, organizations, or associations.

Rule XI. *List of Candidates.* Immediately after the training for any team has begun, the director of athletics shall report to the Dean of the College of Mines and Metallurgy the names of the probable candidates for positions on the team in question, in order that the foregoing rules may be promptly enforced.

REQUIREMENTS FOR DEGREES AND CERTIFICATES

BACHELOR OF SCIENCE IN MINING ENGINEERING

The completion of the following four-year curriculum leads to the degree of Bachelor of Science in Mining Engineering.

First Year

First Semester

SUBJECT AND NUMBER OF HOURS A WEEK	NUMBER OF CREDITS
Algebra	3
Trigonometry	3
English	3
Drawing, 6 hours draughting room	2
Chemistry, 3 lectures, 3 hours laboratory	4
Spanish	3
	18

Second Semester

	Number of Credits
Analytical Geometry	2
English	3
Drawing, 9 hours draughting room	3
Chemistry, 3 lectures, 6 hours laboratory	5
Spanish	3
Surveying 2	2
	18

Subject and Number of Hours a Week

Summer Work in Surveying:
Eight hours a day for four weeks 3

Second Year

First Semester

Calculus	3
Analytical Chemistry, 9 hours laboratory	3
Geology	3
Mineralogy, 2 lectures, 3 hours laboratory	3
Physics, 3 lectures, 3 hours laboratory	4
English	2
	18

Second Semester

Calculus	3
Analytical Chemistry, 9 hours laboratory	3
Geology	3
Mineralogy, 2 lectures, 3 hours laboratory	3
Physics, 3 lectures, 3 hours laboratory	4
English	2
	18
Field Geology: Eight hours a day for four weeks	3

Third Year

First Semester

Assaying, 1 lecture, 3 hours laboratory	2
Mining Methods	2
Ore Deposits	3
General Metallurgy	3
Applied Mechanics, 4 lectures, 6 hours laboratory	6
Economics	3
	19

Second Semester

Subject and Number of Hours a Week	Number of Credits
Assaying, 1 lecture, 3 hours laboratory	2
Mining Machinery	2
Petrology, 2 lectures, 3 hours laboratory	3
General Metallurgy	3
Mine Surveying, 1 lecture, 3 hours laboratory	2
Economics	3
Railroad Surveying, 1 lecture, 3 hours laboratory	2
Hydraulics	2
	19

Fourth Year

MINING OPTION

First Semester

Ore Dressing, 3 lectures, 3 hours laboratory	4
Leaching, 3 lectures, 3 hours laboratory	4
Management	2
Electrochemistry, 1 lecture, 3 hours laboratory	2
Electricity, 3 lectures, 3 hours laboratory	4
Hygiene and Sanitation	2
	18

Second Semester

Seminar in Ore Deposits	2
Accounting	1
Power Plants	3
Ore Dressing, 2 lectures, 3 hours laboratory	3
Leaching, 3 hours laboratory	1
Mining Law	2
Mill Design, 3 hours laboratory	1
Coal	2
Hygiene and Sanitation	2
Metallurgy of Copper	2
	19

METALLURGY OPTION

First Semester

Subject and Number of Hours a Week	Number of Credits
Ore Dressing, 3 lectures, 3 hours laboratory	4
Metallurgical Analysis, 6 hours laboratory	2
Leaching, 3 lectures, 3 hours laboratory	4
Management	2
Electricity, 3 lectures, 3 hours laboratory	4
Hygiene and Sanitation	2
	18

Second Semester

Ore Dressing, 2 lectures, 3 hours laboratory	3
Metallurgy of Copper	2
Accounting	1
Leaching, 6 hours laboratory	2
Power Plants	3
Metallography, 1 lecture, 3 hours laboratory	2
Hygiene and Sanitation	2
Metallurgy of Lead or Electro-metallurgy	3
	18

GEOLOGY OPTION

First Semester

Oil and Gas	3
Advanced Geology	3
Paleontology, 3 lectures, 3 hours laboratory	4
Microscopic Petrology, 2 lectures, 3 hours laboratory	3
Structural and Metamorphic Geology, 1 lecture	1
Rare Minerals, 1 lecture, 3 hours laboratory	2
Hygiene and Sanitation	2
	18

Second Semester

Coal	2
Advanced Geology	3
Paleontology, 3 lectures, 3 hours laboratory	4
Microscopic Petrology, 2 lectures, 3 hours laboratory	3
Rare Minerals, 1 lecture, 3 hours laboratory	2
Hygiene and Sanitation	2
Structural and Metamorphic Geology	1
	17

MINING ENGINEER

The degree of Mining Engineer will be conferred upon graduates of the College of Mines and Metallurgy who have done at least two years of successful professional work in mining or metallurgy subsequent to receiving the bachelor's degree and have presented an acceptable thesis.

MINE FOREMAN'S CERTIFICATE

To meet the demand for special instruction for coal-mine foremen, the Mine Foreman's Certificate is offered. This certificate requires one year's attendance and covers fully the proposed course recommended by the State Mining Board. The mathematics is covered by the first semester of the regular freshman work. The work in geology, physics, and coal mining is the same as that offered as Geology 1, Physics 14 and 15, and Coal Mining. The course in Economics of Mining will be a briefer course than that offered under that head in "Mining." No special scholastic admission requirement will be demanded, except a common-school education and sufficient maturity. No student will be admitted who does not present a statement signed by former employers certifying to at least two years of actual working experience in a coal mine. This statement will be filed for record with the student's registration card. A certificate will not be issued unless the student, upon completion of his course, is 21 years of age or over. The cost of the course is the registration fee, students' association fee, and the laboratory fee in physics.

Course of Instruction

(ATTENDANCE REQUIRED)

First Semester

Subject and Number of Hours a Week	Number of Credits
Algebra	3
Geology 1	3
Physics	4
Mining Methods	3
Trigonometry	3

Second Semester

Surveying	2
Geology 1	3
Physics	4
Coal Mining	3
Economics of Mining (Special Course)	3
First Aid and Mine Rescue Work	1

PIT BOSS CERTIFICATE

There are in every coal mining section of Texas and the Southwest ambitious men who desire better training to fit them for their occupation as coal miners, but for whom a year at college is practically impossible. For the benefit of these men, the College of Mines and Metallurgy offers a special reading course leading to a Pit Boss Certificate. The subjects covered are practical mathematics, mining methods, mining equipment, transportation methods, mine organization and safety, boilers, engines, elementary economics, etc. On receipt of $1.50 as a registration fee, printed instructions will be sent. The student will pay for his own books. As each section of the work is completed, a short set of examination questions and problems will be sent. On completion of the whole course, a final examination will be sent to the student's county superintendent of schools to be taken under his direction. On receipt of the student's answers, with the county superintendent's signed statement that the examination has been properly conducted, the student will be given a Pit Boss Certificate, provided he has correctly answered at least 75 per cent of the questions, is at least 18 years old, and has had at least twelve months in actual coal-mine work. The only preparation necessary to carry on this work successfully is an elementary education; that is, the ability to read and write English easily. A student under 18 will not be accepted unless he has had one year in high-school work.

Course of Instruction

(ATTENDANCE NOT REQUIRED)

Practical Mathematics, Palmer, Parts 1, 2, and 3.
Mining Methods and Shaft-Sinking.
Mining Equipment, Management, and Ventilating Equipment.
Boilers and Engines.
Elementary Economics.

COURSES OF INSTRUCTION

CHEMISTRY

PROFESSOR F. H. SEAMON

1. General Inorganic Chemistry.—The laws and theories of chemistry, with a study of the chemical elements and their compounds with special reference to their production and industrial uses. A comprehensive course is given in the solution of practical chemical

problems. Freshman year; lectures and recitations; three hours, both semesters; six credits.

1a. Laboratory Course.—Laboratory processes; preparation and study of the properties of gases; simple inorganic preparations and experiments in general chemistry; chemical problems. Freshman year; one afternoon, first semester; one credit.

1b. Qualitative Analysis.—A detailed study of pure salts and of various complex ores and alloys. The student is trained to detect the presence of the more important bases and acids in solids and solutions. Freshman year; two afternoons, including frequent lectures, second semester; two credits.

NOTE.—Courses 1, 1a, and 1b, although listed separately, form one integral course. The laboratory courses must be taken with the class work.

2. Analytical Chemistry.—Gravimetric analysis of pure chemical salts, acidimetry and alkalimetry; volumetric analysis covering all classes of work usually done in a mine or smelter laboratory. Prerequisite: Chemistry 1, 1a, and 1b. Sophomore year; three laboratory periods, including frequent lectures, both semesters; six credits.

6. Assaying.—The determination of gold, silver, and lead, by furnace methods, in ores and products of mills and smelters. Instruction is given in the sampling of ores. The student is encouraged to work out his own assay charges based upon his knowledge of fundamental principles, aided by a study of typical examples. Prerequisite: Chemistry 2. Junior year; one lecture and one laboratory period, both semesters; four credits.

7. Chemistry and Mineralogy of the Rare Minerals.—A course in advanced chemistry and mineralogy including the occurrence, use, and economic importance of the rare elements. Special attention is given to the study of the minerals of molybdenum, tungsten, uranium, and vanadium. Prerequisite: Chemistry 2. Senior year; one lecture and one laboratory period, both semesters; four credits.

8. Electrochemical Analysis.—A course designed to give the student a practical knowledge of the methods of analysis and the more important chemical reactions obtained by the use of the electric current. Prerequisite: Chemistry 2. Senior year; one lecture and one laboratory period, first semester; two credits.

9. Metallurgical Analysis.—A course in advanced chemical analysis covering the analysis of metals, alloys, fuels, boiler feed water, and flue gases. Prerequisite: Chemistry 2. Senior year; two laboratory periods and frequent lectures, first semester; two credits.

ECONOMICS, ENGLISH, AND HISTORY

ASSOCIATE PROFESSOR DRAKE; ADJUNCT PROFESSOR KELLY

Economics

1. Principles of Economics.—A study of the principal branches of economic theory and current economic problems. Emphasis is placed upon problems concerning money, banking, trade, labor, taxation, trusts and other combinations, and railroads, and especially upon economic problems connected with the mining industry. Prerequisite: Sophomore standing. Three hours, both semesters; six credits. Associate Professor DRAKE.

English

1. Composition and Rhetoric.—A study of the rhetoric of the whole composition of the paragraph, and of the sentence, and the analysis of masterpieces of English prose, with abundant practice in writing. Three hours, both semesters; six credits. Associate Professor DRAKE.

2. English.—A general survey of English literature from the early Anglo-Saxon period to the present time. This includes a study of masterpieces in both prose and poetry. Original essays are required from students each term. Prerequisite: English 1. Three hours, both semesters; six credits. Associate Professor DRAKE.

3. Technical Writing.—A course designed as a preparation for technical writing. The principal object is to train the student in outlining and writing upon technical subjects for private reports and for publications. Reports upon assigned topics are required. Prerequisite: English 1. Two hours, both semesters; four credits. Associate Professor DRAKE.

History

History 74 is open to freshmen. History 2 and 5 are open to sophomores and upper class students, but 5 is strongly advised for all who have not sound reasons for taking another course.

74. History of England.—Survey of the social, economic, political, and intellectual development of Britain. Three hours, both semesters; six credits. Adjunct Professor KELLY.

2. History of Medieval Europe, 395–1500.—Development of Western Europe from the final division of the Roman Empire, in 395, to and including the period of the Renaissance. Special emphasis on the gradual evolution of the civilization of the Germanic people. Three hours, both semesters; six credits. Adjunct Professor KELLY.

5. History of the United States.—History of the United States from the discovery of America to the present time. Three hours, both semesters; six credits. Adjunct Professor KELLY.

Psychology

1. Introductory Psychology.—A somewhat detailed survey of the general field of psychology, designed for those who desire a full course in psychology and for those who plan subsequently to register for advanced courses. Prerequisite: Sophomore standing. Three hours, both semesters; six credits. Adjunct Professor KELLY.

Sociology

25. Introduction to the Study of Society.—Human nature; society and the group; the nature and effects of communication; social forces; competition and the location of the individual in the community; conflict; social control; collective behavior; social progress. Prerequisite: Economics 1. Three hours, both semesters; six credits. Adjunct Professor KELLY.

ENGINEERING AND MATHEMATICS

PROFESSOR KIDD; ADJUNCT PROFESSOR NELSON; INSTRUCTORS *POWELL, †PEARSON

Drawing

1. Mechanical Drawing.—The course includes lettering, geometrical constructions, isometric projection, sketching of machine parts, complete working drawings from sketches and copy, traces, and blueprinting. Two afternoons, first semester; three afternoons, second semester; five credits. Adjunct Professor NELSON.

Engineering

14. Physics: Mechanics and Heat.—The course includes a thorough grounding in kinematics, dynamics, statics, kinetics, properties of matter, thermometry, and expansion. Particular attention is given to composition and resolution of forces, accelerations, and velocities, to simple harmonic motion, and to the moment of inertia. Prerequisite: Mathematics 6 and 7. Three recitations and one laboratory period, first semester; four credits. Instructor PEARSON.

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*Resigned December 1, 1926.
†Appointed January 1, 1927.

15. Physics: Heat, Electricity, and Magnetism.—A continuation of Physics 14. The subjects treated are calorimetry, heat and work, change of state, vaporization, condensation of gases, radiation, magnetism, the magnetic field, magnetic induction, electrostatics, electrodynamics and radioactivity. Prerequisite: Mathematics 6 and 7. Three recitations and one laboratory period, second semester; four credits. Instructor PEARSON.

3. Plane Surveying.—The theory of plane surveying including the care and adjustment of instruments; land surveying; traverses; leveling; determinations of meridian; topographic surveying; mapping; the different systems of note keeping; and the usual computations used in plane surveying. Prerequisite: Mathematics 6. Two hours, second semester; two credits. Adjunct Professor NELSON.

4. Field Surveying.—A practical field course covering the topics outlined in the preceding course. Accurate and rapid work will be insisted upon. Prerequisite: Engineering 3. Eight hours a day during September; three credits. Adjunct Professor NELSON.

5. Mine Surveying.—Underground surveying, mapping of underground connections, surface surveying in connection with mineral claims, and all ordinary surveying operations that the mining engineer may be called upon to perform. Prerequisite: Engineering 4. One hour and one laboratory period, second semester; two credits. Adjunct Professor NELSON.

6. Thermodynamics.—A study of the fundamental equations of gases and their application to the steam engine; the heating values of different fuels; the practical construction and operation of steam boilers; boiler feed pumps; methods of firing boilers; different types of steam engines as regards speed, valves, steam consumption, comparative cost, and relative economy; actual adjustment of valves, and determination of horsepower by the use of the indicator; steam turbines; and a large number of practical problems. Prerequisite: Mathematics 8. Three hours, second semester; three credits. Professor KIDD.

8. Hydraulics.—A brief course of hydrostatics; fluids in motion; flow of liquids through pipes, orifices, and over weirs; fluid friction and loss of head; Bernoulli's theorem; flow of water in canals and rivers; Kutter's formula; and graphical methods. Prerequisite: Mathematics 8 and Engineering 14 and 15. Two hours, second semester; two credits. Professor KIDD.

9. Applied Mechanics.—Center of gravity, moment of inertia, radius of gyration; bending moments; shear, torsion; resilience; flexure of beams; theory of long columns; strength of materials. The funicular polygon; moment diagram; shear diagram; determination of stresses in various types of roof and bridge trusses; completed

designs in steel and timber; comparisons as to weight and cost. Prerequisite: Drawing 1 and Mathematics 8. Four recitations and two laboratory periods, first semester; six credits. Professor KIDD.

12. Direct and Alternating Currents.—Theory of direct and alternating current circuits and machinery; comparison of direct with alternating current for various uses in mining, metallurgical, and electrochemical work. Prerequisite: Mathematics 8 and Engineering 15. Three recitations and one laboratory period, first semester; four credits. Professor KIDD.

13. Railway Surveying.—Exercises in simple, reverse, transition curves; turn-outs; cross-sections; and estimates. Prerequisite: Engineering 4. One recitation and one laboratory period, second semester; two credits. Adjunct Professor NELSON.

Mathematics

A. Solid Geometry.—A course in solid geometry for students deficient in entrance credits. Three hours, first semester; one-half unit entrance credit. Instructor PEARSON.

5. College Algebra.—A rapid review of quadratic equations; radical expressions; logarithms; choice; chance; series; the binomial theorem; and the theory of limits. Three hours, first semester; three credits. Instructor PEARSON.

6. Plane Trigonometry.—The general formulas of plane trigonometry; inverse functions; identities; trigonometric equations; goniometry; solution of triangles; and proficiency in the use of the tables. Three hours, first semester; three credits. Adjunct Professor NELSON.

7. Analytic Geometry.—Cartesian coördinates of the point; polar coördinates; graphs of algebraic and transcendental functions; loci in general; and a careful consideration of the plane curves. Prerequisite: Mathematics 6. Two hours, second semester; two credits. Instructor PEARSON.

8. Calculus.—In differential calculus, special attention is given to the derivation of formulas and to the application of derivatives to the solution of problems in maxima, minima, rates, velocity, acceleration, and geometrical applications. The work in integral calculus drills the student in the integration of forms occurring in mechanics and physics; in evaluating areas, moments, moments of inertia, and volumes, in finding the center of gravity and center of stress; and in the derivation and application of the fundamental formulas of hydrostatics and hydraulics. Prerequisite: Mathematics 7. Three hours, both semesters; six credits. Professor KIDD.

GEOLOGY AND MINING

PROFESSOR W. H. SEAMON; ADJUNCT PROFESSOR QUINN; LECTURER JENNESS

Geology

1. Physical Geology.—A careful study of the facts and principles of dynamic and structural geology. Prerequisite: Chemistry 1. Three hours and one afternoon, first semester; three credits. Professor SEAMON.

2. Historical Geology.—The history of the earth as preserved in its strata, with elementary instruction in geologic mapping and making geological sections. Prerequisite: Physical Geology 1. Three hours and one afternoon, second semester; three credits. Professor SEAMON.

3. Field Geology.—A summer course lasting four weeks is given each alternate year. A camp at some suitable place is selected; the area is carefully mapped and all geological features marked. Plane tables, transits, and Army Sketch Boards are used. Students provide their own bedding and transportation, and bear their proportion of the camp expenses for food. The expense has never exceeded $30 for the trip, exclusive of railway fare. This course is required of all candidates for a degree. Prerequisite: Engineering 3, Geology 2, and Mineralogy 5 and 6. Three credits. Professor SEAMON; Adjunct Professor QUINN.

4. Ore Deposits.—An exhaustive study of the occurrence and origin of all of the useful deposits of gold, silver, lead, copper, zinc, tin, iron, nitrates, salts, gypsum, clays, cement materials, coal petroleum, and natural gas is made. Prerequisite: Geology 1 and 2 and Mineralogy 5 and 6. Three hours, first semester; three credits. Adjunct Professor QUINN.

5. Mineralogy.—This course is designed to familiarize the student with all of the ore minerals and the most common rock making minerals. Only the elements of crystallography are taught, but much attention is given to the study of descriptive mineralogy and the frequent and regular handling of minerals. Prerequisite: Chemistry 1, 1a, and 1b. Two hours, both semesters; four credits. Professor SEAMON.

6. Determinative Mineralogy.—Each student is required to determine the species of 200 different and important minerals, using streak plate, scale of hardness, and the ordinary blowpipe tests employed in such work. This course must be taken in conjunction with Mineralogy 5. Three hours of laboratory work, both semesters; two credits. Professor SEAMON; Adjunct Professor QUINN.

7. Petrology.—The design is to qualify the student to recognize in the field the important rocks connected with ore deposits and their chief identification minerals so far as that can be done with the limited testing facilities available on such occasions. The student handles a large and varied collection of type specimens in connection with the lecture work on descriptive petrology. Some knowledge of the methods employed in petrography is secured by a study of a collection of 150 thin sections of type rocks with a microscope, and the student is required to make at least one good thin section of a rock specimen for study under microscope. Prerequisite: Chemistry 1, 1a, 1b, and Mineralogy 5 and 6. Two recitations and one laboratory period, second semester; three credits. Adjunct Professor QUINN.

8. Petrography.—This course and the two following, 9 and 10, are open to those taking the Geology option in the senior year of the work. Petrography is gone into minutely with the use of the microscope in the study of rocks. Lectures twice a week and laboratory one afternoon a week, both semesters; six credits. Adjunct Professor QUINN.

9. Advanced Geology.—Intensive study of structural and historical geology. Prerequisite: Preceding courses 1 to 7 inclusive. Three lectures a week, both semesters; six credits. Professor SEAMON.

10. Paleontology.—Study of fossil plants and animals by lectures and laboratory work. Drawing of fossil specimens. After a general course is completed, students are assigned special groups of fossils which they take up in minute detail. Three lectures and one laboratory period a week, both semesters; eight credits. Adjunct Professor QUINN.

11. Seminar in Ore Deposits.—Discussions and original papers on new developments in the field of Ore Deposits. Laboratory work on the construction and interpretation of geologic maps consisting of methods of geologic examinations; problems in the interpretation of geologic maps using U. S. Geologic Survey topographic and geologic maps and folios as illustrative material. Prerequisite: Geology 1 and 2, Ore Deposits 4. One lecture, second semester and one laboratory period; two credits. Adjunct Professor QUINN.

12. Structural and Metamorphic Geology.—The conditions, processes and results of metamorphism; structural features resulting from deformation under varying conditions of load. Prerequisite: Preceding courses 1 to 7 inclusive. One hour a week, both semesters; two credits. Adjunct Professor QUINN.

Mining

1. Mining Methods.—Prospecting, exploration, development, exploitation, explosives, breaking ground, drifting, stoping, timbering, drainage, and ventilation of mines, metal and coal. Prerequisite:

Completion of courses in chemistry, physics, mineralogy, and geology. Two hours, first semester; two credits. Professor SEAMON.

2. Mining Machinery.—The methods employed in rock and placer mining are studied with reference to the various forms of machines employed in such operations. Prerequisite: Mining 1. Two hours, second semester; two credits. Professor SEAMON.

3. Coal Mining.—The extraction, cleaning, and marketing of coal and the manufacture of coke and collection of all the by-products are considered. Prerequisite: Mining 1. Two hours, second semester; two credits. Adjunct Professor QUINN.

4. Oil and Gas Mining.—This course is an exhaustive study of the origin, distribution, migration, and accumulation of oil and gas. The methods of locating and drilling oil and gas wells; bringing wells in; their management; piping, transportation, and refining of oil; marketing and valuation of oil properties; the possibilities of development in utilization of oil shales. Prerequisite: Geology 1, 2, and 3. Three hours, first semester; three credits. Adjunct Professor QUINN.

5. Practice Mine.—Practical instruction in driving tunnel, sinking shaft, use of machine drill, timbering, and use of explosives is given on the school campus. The course must be taken in conjunction with Mining 1 and 2, and is given one afternoon a week during the second semester; one credit. Adjunct Professor QUINN.

6. Management.—Mine examination, sampling, reporting, welfare, financing, and other interesting problems are considered in a lecture course given only to students of senior standing. Two hours, first semester; two credits. Professor SEAMON.

7. Mining Law.—The principles governing contracts, liabilities of mine operators, compensation and insurance of workmen, and the laws and court decisions of the United States, Texas, and Mexico, so far as they relate to locations and acquirement of titles to mines are carefully considered in a course of lectures given to seniors. Two hours, second semester; two credits. Professor SEAMON.

10. Hygiene and Sanitation.—Lectures and recitations. Prevention of communicable diseases, personal hygiene, public health, food, air, water, soil, ventilation and heating, sewage disposal, garbage disposal, disinfection, camp sanitation, mine sanitation, prevention of industrial diseases. The course is supplemented by field work in sanitary surveys, and drawing of apparatus. The course also includes work in first aid and rescue work. Open to juniors. Two hours, both semesters; four credits. Lecturer JENNESS.

11. Accounting.—A study of the technic of accounts; analysis of the balance sheet and income statement; a study of costs, charges upon investments, reserves, sinking funds, maintenance, depreciation, salvage values, and similar subjects. Open only to seniors. One hour, second semester; one credit. Adjunct Professor QUINN.

METALLURGY

PROFESSOR GRAHAM

1. General Metallurgy.—An introductory course covering a description of the various processes for treating all the metals, with a calculation of slags and furnace charges. Prerequisite: Chemistry 2, Physics 14 and 15. Three hours, both semesters; six credits. Professor GRAHAM.

2. Metallurgy of Leaching Processes.—A study of the chemical and physical properties of the precious metals and of such of their compounds as are of importance in connection with the leaching processes; the cyanide process; chlorination; hyposulphite leaching; the Russell process; etc. Prerequisite: Chemistry 2. Three lectures and one laboratory period, first semester; two laboratory periods, second semester; five credits. Professor GRAHAM.

NOTE.—The course in assaying must either precede Metallurgy 1 and 2, or be taken at the same time.

3. Ore Dressing and Milling.—A study of the principles of amalgamation, concentration, and ore dressing. Three lectures and one laboratory period, first semester; two lectures and one laboratory period, second semester; seven credits. Professor GRAHAM.

4. Mill design.—A course in laying out flow sheets and in designing plants from data obtained in the preceding course. Lectures and laboratory, second semester; one credit. Professor GRAHAM.

5. Metallurgy of Copper.—The underlying principles of copper smelting are given particular attention. Lectures twice a week, second semester; two credits. Professor GRAHAM.

6. Metallurgy of Lead.—This and the following courses are for students taking the Metallurgy Option. The metallurgy of lead is taken up in minute detail. Drawing of furnaces and calculations for building furnaces are made. Lectures three times a week, second semester; three credits. Professor GRAHAM.

7. Electro-Metallurgy.—The electric furnace, with its present day applications and possible future uses, is the subject of this study. It will be given alternate years with Metallurgy of Lead. By making a selection in the junior year the student taking the Metallurgy Option may take either course. Lectures three times a week, second semester; three credits. Professor GRAHAM.

8. Metallography.—The microscopic study of alloys and metals is carefully made. One lecture and one laboratory period, second semester; two credits.

MODERN LANGUAGES

French

INSTRUCTOR LORENZ

A. Beginners' French.—The essentials of grammar with exercises in speaking and writing. Reading of easy stories. Three hours, both semesters; six credits. Instructor LORENZ.

1. Composition and Reading.—Composition and rapid reading of modern fiction and drama with practice in speaking. Prerequisite: French A. Three hours, both semesters; six credits. Instructor LORENZ.

2. Composition and Reading.—Continuation of French 1. Composition and reading of modern French authors. Prerequisite: French 1. Three hours, both semesters; six credits. Instructor LORENZ.

Spanish

A. Beginners' Spanish.—Conducted in Spanish. Drill on pronunciation. Conversation stressed. Essentials of grammar. Easy reading. Three hours, both semesters; six credits. Instructor LORENZ.

1. Grammar. Reading and Composition.—The method of Spanish A is continued. Prerequisite: Spanish A. Three hours, both semesters; six credits. Instructor LORENZ.

2. Contemporary Literature.—Reading of modern Spanish dramas, novels, and lyrics. Collateral reading to be assigned. Outline of Spanish literature; composition, conversation. Prerequisite: Spanish 1. Three hours, both semesters; six credits. Instructor LORENZ.

ORE TESTS, ASSAYS, AND ANALYSES

ORE TESTING MILL

An appropriation was made by the Thirty-fourth Legislature for the erection of a mill for ore-treating at the College of Mines and Metallurgy. This mill is now completed. The construction has followed a definite idea, that idea being a mill for continuous operation and flow of ore as far as possible. The basis of capacity is 200 pounds of ore an hour, and lots of less than 1,000 pounds will not be treated. No "miniature plants" have been installed, nor any machine whose normal capacity under full loads is in excess of 250 pounds an hour.

MILL RUN TESTS ON ORE

Mill run tests on ore will be made free of charge to mine owners desiring tests for process of treatment, regardless of the location of the mine, whether within or without Texas. The mine owner will be required to prepay all freight charges and the cost of the necessary assays. This work will be done by students under the personal direction of the professors in charge of the work, and will be carefully checked to insure that the work is accurate for the lot tested. Beyond this, the College can assume no responsibility. It is the function of the shipper to see to it that the lot shipped for treatment is a representative or average sample of his ore body. If he fails to do this, the test will be worthless, except for purposes of student instruction. All ore shipped to the College of Mines and Metallurgy must be regarded as a gift to the College, and becomes the property of the College when it enters the mill building. The shipper will be expected to sign a statement that he has a body of ore developed of sufficient size to justify a treatment process test. The purpose of the work is to give instruction to students, assist in the development of the Southwest, and help to prevent the installation of processes not adapted to the ore treated. No mill runs will be made during June, July, August, or September.

ANALYSES OF ORE

The College of Mines and Metallurgy has no desire to undertake analyses of ores in competition with professional assayers. Those who for special reasons wish their work to be done at the College should write to the Dean for a statement of the conditions under which this is possible. Control work and sampling for ore shippers to the smelter will not be undertaken. Inquiries about coal should be sent to the Bureau of Economic Geology, about water to the Industrial Chemistry Experiment Station, University of Texas, Austin.

Identification, i.e., information as to what a mineral is, is made free of charge, regardless of the nature of the mineral or from what state it comes. All samples or specimens sent to the College become its property, and will either be kept or thrown away, at the discretion of the authorities of the College. Supposed gems or precious stones should be sent for identification or valuation, not to the College of Mines and Metallurgy, but to a jeweler or a lapidary.

DEGREES CONFERRED IN 1926

Bachelor of Science in Mining Engineering

Samuel Duff Hendricks
Helland Valdemar Olsen
Eugene McRae Thomas
DeWitt Clinton DeWitt

REGISTER OF STUDENTS

Session of 1926–1927

Akard, Hunter E.....El Paso
Allen, Dorothy Mae.....El Paso
Anderson, Joe S .....El Paso
Araujo, Arnulfo....Juarez, Mex.
Arnold, Robert M.....Tiro, Ohio
Aronstein, Margaret.....El Paso
Arroyo, Felipe.....El Paso
Arroyo, Genaro.....El Paso
Baker, James S.....El Paso
Beaston, Tom.....Fort Bliss
Bevan, Horace Dean.....El Paso
Bevan, Jacquelen Stanley.....
.....El Paso
Boykin, Claud.....Taft
Brogneiz, Fernand .....El Paso
Bromberg, Anna O.....El Paso
Brooks, Fred J....Corpus Christi
Brown, H. E., Jr.....El Paso
Brown, Phil B.....Marathon
Brown, Wendell T.....*Marathon*
Brown, Woodlief F.....El Paso
Bryant, Louis.....El Paso
Byrne, J. Weldon.....Smithville
Cady, Edwin.....El Paso
Camacho, Jose T.....El Paso
Carlisle-McGhee, Mary....El Paso
Cass, Henry G.....El Paso
Chambers, Lee C..Baltimore, Md.
Chapin, Edward J .....
..... *New Britain, Conn.*
Cole, James Kirk.....El Paso
Collinson, Vincent A.....El Paso
Consolation, F. T.....
.....Santo Domingo, P. I.
Cope, William D.....El Paso
Crosby, Carrie.....El Paso
Daggett, E. B.....Decatur
Davis, Charles W....San Antonio
Dismukes, J. Sam.....Liberty
Douglas, Edwin Bryan....El Paso
Dunaway, Alton.....Ranger
Ewald, Margaret.....El Paso
Finley, Howard.....El Paso
Fischer, Gideon L.....Austin
Fleming, Forney W., Jr..El Paso
Flores, Jose A.....San Antonio
Foster, Frances Hubbard.....
.....El Paso
French, Edwin Charles....El Paso
Gates, Phil .....El Paso
Gay, *Jord Leeper*....Santa Anna
Gifford, Jane.....El Paso
Gish, Elon Calvin.....El Paso
Grant, Oliver.....Fort Worth
Greene, John Reade .....
.....Deming, N. M.
Green, Louis Fisher.....
.....San Antonio
Hall, Arthur Curtis.....El Paso
Hatfield, Gene Paul.....
.....Newcastle, Ind.
Hawley, Abraham Lincoln, Jr.
.....El Paso
Hawley, Mrs. Florence Farr..
.....El Paso
Hayes, Charlotte C.....El Paso
Herbert, Hugh M.....El Paso
Huitron, Salvador.....El Paso
Hutchins, G. L.....El Paso
Jackman, Royal B.....El Paso
Johnson, James A.....El Paso
Johnson, John R.....El Paso
Jolly, Herman.....El Paso
Jones, Clifford.....El Paso
Jones, Eloise May.....El Paso
Kelly, Charlee.....El Paso
Kemerer, Elizabeth.....El Paso
Kennedy, H. Holcombe ...El Paso
Kersey, Harold.....Brownwood
Kingelin, Walter G.....
.....Milwaukee, Wis.
Knotts, Margaret.....El Paso

Lawrence, Lucile Lee.....San Antonio
Loustaunau, Cuauhetemoc T.....Douglas, Ariz.
Lozano, Carlos C.....El Paso
McCord, Frank E.....El Paso
McDaniel, Lulu Frances..El Paso
McDaniel, Roger.....El Paso
McGaw, Hugh Delvin.....Hastings, Neb.
McGowan, Herbert.....Smithville
MacLeod, Graham.....Sydney, Novia Scotia, Can.
Madera, Malcolm R.....Culberson County
Madrid, Lorenzo F..San Elizario
Maese, Arthur J.....El Paso
Meyer, Merwin.....Flatonia
Morones, Ramon.....El Paso
Mustain, Marshall G.....El Paso
Mustain, Paul P.....El Paso
Mustain, Ula.....El Paso
Nagle, Wesley M.....El Paso
Nelson, Jack H.....Greenville
Nelson, Lloyd A.....El Paso
Norman, Lavora Ennes..El Paso
O'Bryan, J. E.....El Paso
O'Connor, Thomas Laurence..El Paso
O'Hara, Howard L.....El Paso
Ormsbee, Dorothy.....El Paso
Orndorff, Buford.....El Paso
Paden, Kenneth.....Ysleta
Pearcy, Martha.....El Paso
Placencia, Ricardo.....El Paso
Powell, Eugene Roland.....Megargel
Powers, Kathalee.....El Paso
Price, John Fred, Jr....El Paso
Rangel, Rafael.....El Paso
Rigdon, Malcolm E.....El Paso
Roberts, Ben David.....El Paso
Roberts, C. H.....El Paso
Ruiz, Agustin A.....El Paso
Russell, John.....El Paso
Russell, Sam.....El Paso
Rutledge, Charles.....Amarillo
Sadler, Erline.....El Paso
Sanders, Arthur Richard, Jr.....El Paso
Seale, Robert.....Dallas
Seidel, Gertrude.....Fort Bliss
Sexton, John C.....El Paso
Sinclair, James.....El Paso
Smith, Lee Cherry.....Clark
Smith, Thomas Devine....Austin
Stampp, Robert.....Houston Heights
Stansel, Farrell H.....El Paso
Stover, Cleve A.....Smithville
Taylor, Robert W.....Ocean Springs, Miss.
Semple, Carl.....Port Arthur
Terrell, Frances Elizabeth.....El Paso
Trumbull, Wendall.....El Paso
Viescas, Alberto.....El Paso
Waldo, Olivia.....El Paso
Ward, Fred N.....Yoakum
Wheeling, Forrest.....El Paso
Williams, John.....El Paso
Woodul, Lewis.....El Paso
Worthington, Hugh.....El Paso
Yaffe, Charles.....El Paso
Zlabovsky, Ada Reba.....El Paso

The following students registered for the sessison of 1925–1926 after the Catalogue for that year was published.

Arroyo, Felipe
Arroyo, Genaro
Beavers, Virgil
Bleick, William Clifton
Douglas, Edwin
Goldsmith, John H.
Hawley, Anna
Kingelin, Walter G.
Kipp, Rex
Maese, Arthur
Nelson, Harve P.