

MINUTES OF THE UNIVERSITY SENATE
February 11, 1935

The University Senate met in the Lecture Room of McVey Hall Monday, February 11, with President McVey presiding.

The minutes of January 14 were approved as read. The minutes of January 25 were approved after some modification.

The Committee on Duplication of Work presented the following new courses and changes in courses which were approved:

College of Arts and Sciences

New Courses:

Anthropology and Archaeology 103a-d. Independent Work in Anthropology and Archaeology. Three credits a semester.

Hygiene 202. Rural and Urban Sanitation. A course dealing with water protection and purification, sewage disposal and the handling of city wastes. For Health Officers only. First Session Summer School. Two credits.

*Chemistry 2a,b. General Inorganic Chemistry for Engineers. One hour lecture, one hour recitation, four hours laboratory a week, each. Four credits per semester.

*Chemistry 6. Qualitative Analysis for Mining and Metallurgical Engineers. One recitation and six laboratory hours a week. Prerequisite, Chemistry 2b. Four credits, both semesters.

*Mathematics 17. College Algebra. Begins with a review of quadratic equations and includes simultaneous quadratics, variations, permutations and combinations, theory of equations, etc. Three credits. Prerequisite: $1\frac{1}{2}$ units of high school algebra.

*Mathematics 18. Plane Trigonometry. A brief course emphasizing solutions of right and oblique triangles. Two credits. Prerequisite: $1\frac{1}{2}$ units of high school algebra.

*Mathematics 19. Plane Analytics. The usual course, including solutions of problems in both rectangular and polar coordinates and consideration of loci of equations and equations of loci. Three credits. Prerequisite: Courses 17,18.

*Mathematics 20a. Differential Calculus. An elementary course covering the usual theory and applications of the derivative. Four credits. Prerequisite: Course 19.

*Courses marked with asterisk are offered to meet the requirements of the new curricula in the College of Engineering.

Minutes of the University Senate - February 11, 1935

College of Arts and Sciences - cont.

*Mathematics 20b. Integral Calculus. Completing the course in Elementary Calculus. An introduction to Solid Analytics will be included. Four credits. Prerequisite: Courses 2, 20a.

Geology 24a,b. Elements of Geography, replacing 18a,b. This course covers essentially the same field covered in Geology 18a, with considerably more work on the surface features of the earth. It is a course dealing with the various types of physical environment and man's relationship to them. The first semester will deal with weather and climate, and the second semester's work with the surface features of the earth. Three credits per semester.

Geology 25a. Regional Physical Geography of North America. This is the same work as we have been giving under Geology 18b. Three credits.

Hygiene 204. Maternal and Child Health. Two credits. (To replace Hygiene 104, three credits.) For health officers only. First session Summer School.

Hygiene 212. Health Administration. Two credits. (To replace Hygiene 212a,b. 1.5 credits per semester). For health officers only. First term Summer School

College of Engineering

Student Assemblies

1a - Introduction to Engineering. Scientific lectures and demonstrations covering all branches of engineering and the allied sciences, study of the curriculum of the College of Engineering to aid the student in choosing the branch of engineering which he wishes to follow. Two hours a week.

0.7 credit; 1st semester.

1b - Introduction to Engineering. Continuation of 1a. Two hours a week.

0.7 credit; 2nd semester.

2 - Engineering Problems. Analysis and solution of basic engineering problems as applied to the particular branch of engineering in which the student is registered, including the use of the slide rule. Two hours a week.

0.7 credit; 1st semester

3 - Class Society. The class societies, affiliated as student branches of the four founder national engineering societies. Lectures on engineering projects of local and national interest. One hour a week.

No credit; 2nd semester,
sophomore year.

*Courses marked with asterisk are offered to meet the requirements of the new curricula in the College of Engineering.

Minutes of the University Senate - February 11, 1935

College of Engineering - cont.

Civil Engineering

C. E. 78 - Stresses. Elementary course in stresses in framed structures. Drawing room four hours a week.

Prerequisite: Physics 2a 1.3 credits; 1st semester

C. E. 172 - Timber Structures. Design and detailing of timber structures. Class work one hour; drawing room four hours a week. (Replaces C. E. 73)

Prerequisite or concurrent: C. E. 171 1.2 credits; 2nd half 1st semester.

C. E. 173a - Steel Structures. Design and detail of steel buildings and highway bridges. Lecture two hours; drawing room eight hours a week.

Prerequisite: C. E. 171 2.3 credits; 1st half 2nd semester.
(Replaces C. E. 75)

C. E. 173b - Steel Structures. Design and detail of steel railway bridges. Lecture two hours; drawing room four hours a week.

Prerequisite: C. E. 173a 3.3 credits; 1st semester
(Replaces C. E. 76)

C. E. 181a - Independent Problems. A complete solution with the necessary details, plans and specifications of a problem, selected by the student with the approval of the instructor, in one of the following fields:

- (a) Reinforced concrete design, (b) Concrete research,
- (c) Structural steel, (d) Hydraulics, (e) Sanitary engineering,
- (f) Highway and railway engineering (g) Geodetic surveying.

Conference, laboratory or drawing room three hours a week.

Prerequisite: Student must show that he is qualified to undertake the proposed problem. 1 credit; 1st semester

C. E. 181b - Independent Problems. Continuation of 181a. Ten hours a week conference, laboratory or drawing room.

Prerequisite: C. E. 181a 4 credits; 2nd semester
(Replaces C. E. 3)

C. E. 262a - Geodetic Surveying. Advanced course in geodetic calculations development and use of formulas used by the U. S. Coast and Geodetic Survey. Modern methods of field practice. Class work three hours; laboratory nine hours a week.

6 credits; 1st semester

C. E. 262b - Geodetic Surveying. Continuation of 262a.

6 credits; 2nd semester

Minutes of the University Senate - February 11, 1935

College of Engineering - New Courses - cont.

Electrical Engineering.

E. E. 11 - Electrical Circuits. The course consists of a study of the National Electrical Safety Code of the National Board of Fire Underwriters; a study of the various types of wiring permissible under the code; practice in setting up the various types of wiring and a study of various types of signaling circuits used in buildings. Laboratory and lectures two hours a week.

0.7 credit; both semesters.

E. E. 101 - Elements of Electrical Engineering Machinery. A study in classroom and laboratory of the more common types of d.c. and a.c. electrical equipment and controls which are to be found in general use. Recitation two hours a week; laboratory three hours a week.

Prerequisite: Physics 2b 3 credits; 1st semester

E. E. 102 - Electrical Engineering Machinery. A study in the classroom of electric power applied to mining machinery and metallurgical processes.

Prerequisite: E. E. 101 2 credits; 2nd semester

E. E. 108 - Industrial Electronics. A study of the application of thermionic and light sensitive tubes to industry in non-communication uses, such as controlling processes, safe-guarding life and property, etc. Included will be light sensitive tubes in illumination rectifiers of various types. The laboratory work will consist of designing, building and studying control circuits. Recitation two hours; laboratory three hours a week.

3 credits; 1st semester

E. E. 136 - Illumination Engineering. Includes the science of seeing, a study of light sources, and photometry, fundamental principles of illumination as applied to home, public building, factory and commercial lighting. The course includes the solution of special problems in the planning and calculation of light distribution. Recitations two hours a week.

Prerequisite: Physics 2b 2 credits; 2nd semester

E. E. 141 - Analytical Electrical Engineering. A study of the complex notation and its use in the vector analysis of electrical machinery and circuit conditions. Recitations two hours a week.

Prerequisite: E. E. 106 2 credits; 1st semester

E. E. 151 - Electrical Engineering Conferences. Round table discussion of Modern trends and practices in electrical engineering. Basis of discussions in current literature on electrical subjects. Two hours a week.

Prerequisite: Senior standing 1 credit; 2nd semester

Minutes of the University Senate - February 11, 1935

College of Engineering - New Courses - cont.

E. E. 205 - Advanced Induction Motor Theory. A study of the theory underlying the characteristics of single phase and polyphase induction motors. Recitation three hours; laboratory 3 hours a week.

4 credits

E. E. 206 - Electric Power Transmission. The theory underlying calculation and operation of long distance transmission circuits. Special attention to relay control. Recitation three hours; laboratory three hours a week.

4 credits.

E. E. 207 - Electric Power Distribution. A study of theory underlying operation and control of various types of distribution network circuits. Recitation three hours; laboratory three hours a week.

4 credits.

E. E. 208 - Electric Traction. An advanced study of electric power application to railways, cranes, elevators, etc. Recitation three hours; drawing room three hours a week.

4 credits.

E. E. 210 - Symmetrical Components. A study of the symmetrical component method of analyzing unbalanced conditions on transmission lines and its use in solving relay applications. Recitations three hours; laboratory and design three hours a week.

4 credits.

Engineering Drawing

E. D. 11a - Descriptive Geometry and General Engineering Drawing. Theory of orthographic projection and its application to engineering drafting. Problems on points, lines, and planes, together with freehand lettering and exercises in the use and care of drawing instruments. Two hours recitation; six hours laboratory a week. (Replaces Drawing 3 and 1a)

Prerequisite: Solid Geometry 3 credits; both semesters

E. D. 11b - Descriptive Geometry and General Engineering Drawing. Continuation of Drawing 11a. Theory of orthographic projection applied to surfaces; problems on single and double curved surfaces, intersections; development of surfaces; oblique and single plane projection; problems in general engineering drawing; technical sketching, tracing and the reproduction of drawings for commercial use. Two hours recitation; six hours laboratory a week. (Replaces Drawing 1b)

Prerequisite: Drawing 11a 3 credits; both semesters

Minutes of the University Senate - February 11, 1935

College of Engineering - New Courses - cont.

E. D. 12b - Kinematic Drawing. Continuation of Engineering Drawing 12a together with the introduction of problems and drawing pertaining to Kinematics. Six hours laboratory a week (Replaces Drawing 4b and E.M. 4)

Prerequisites: Drawing 12a, Physics 2a.

Concurrent: E. M. 12

2 credits; both semesters

E. D. 14a - Engineering Drawing. For students in Architectural and Civil Engineering. Topographic mapping, elements of highway, railroad, sewer, structural and architectural drawing. Technical sketching and methods of reproducing drawings for commercial use. Six hours laboratory a week. (Replaces Drawing 4a)

Prerequisite: Drawing 11b

2 credits; both semesters

E. D. 14b - Engineering Drawing. For students in Architectural and Civil Engineering. Continuation of Drawing 14a. Problems in general drafting for architectural and civil engineers developed from notes and sketches. Six hours laboratory a week. (Replaces Drawing 4b)

Prerequisite: Drawing 14a

2 credits; both semesters

E. D. 115 - Photography Fundamental principles of photography. Lectures on the optics and chemistry of photography together with practical demonstrations. Negative making, printing, etc. One hour lecture; one hour recitation; two hours laboratory a week. (Replaces Drawing 5)

3 credits; both semesters.

E. D. 16a - Freehand Lettering. Construction and composition of Roman, English Gothic and Commercial Gothic capitals and lower case letters. Four hours laboratory a week.

1.3 credits; both semesters

E. D. 16b - Advanced Freehand Lettering. Continuation of Drawing 16a. Design and composition of letters with special emphasis given to the choice of styles in advertising design. Four hours laboratory a week.

Prerequisite: Drawing 16a

1.3 credits; both semesters

E. D. 17a - Engineering Drawing. Special course for non-engineering students, comprising freehand lettering, use and care of drawing instruments, elementary principles of orthographic and single plane projection, topographic mapping, tracing and blue printing. Six hours laboratory a week.

2 credits; both semesters

E. D. 17b - Engineering Drawing. Continuation of Drawing 17a. Special problems designed to meet the needs of individual students. Six hours laboratory a week.

2 credits; both semesters

Minutes of the University Senate - February 11, 1935

College of Engineering - New Courses - cont.

Engineering Mechanics

E. M. 14 - Hydraulics. A brief course in the flow of liquids through orifices, venturi meters, nozzles and pipes. This course omits advanced material related to the design of hydraulic structures. Recitation two hours a week for one-half semester.

Prerequisite: Physics 2a

Prerequisite or concurrent: Math. 20b 1 credit; 1st half of 1st semester

E. M. 15a - Machine Design. Similar to E. M. 16 with due regard to electrical features. Lectures one hour; drafting room five hours a week.

Prerequisite: E. M. 12; Drawing 12b

Prerequisite or concurrent: E. M. 13 2 credits; both semesters

E. M. 15b - Machine Design. Continuation of E. M. 15a. Drafting room six hours a week

Prerequisites: E. M. 11, 13, 15a 2 credits; both semesters

E. M. 16 - Machine Design. The design of machine elements with due consideration given to each of the following items: Motion and form, strength, durability and methods of manufacture of construction. The design of structural elements. Lecture one hour; drafting room eleven hours a week.

Prerequisites: Drawing 12b; E. M. 12

Prerequisite or concurrent: E. M. 13 4 credits; both semesters.

E. M. 17 - Machine Design. Proceeding from the design of the simple elements of a machine, the work is progressive in character, culminating in the production of shop drawings of a complete machine. Problems pertaining to reciprocating engines are also introduced. Drafting room twelve hours a week.

Prerequisite: E. M. 13, 16

Concurrent: M. E. 102 4 credits; 2nd semester

Mechanical Engineering

M. E. 101a - Mechanical Design. Individual work on the design or construction of mechanical equipment; selection and layout of power plant or heating and ventilating equipment. Problems assigned according to the interests of the student.

Prerequisites: E. M. 17 M. E. 104b 3.3 credits; 1st semester

Minutes of the University Senate - February 11, 1935

College of Engineering - New Courses - cont.

M. E. 113b - Mechanical Laboratory Continuation of M. E. 113a with the addition of tests on refrigerating machines and internal combustion engines. Lecture one hour; laboratory two hours a week.

Prerequisite: M. E. 113a

Concurrent: M. E. 108, 109 2 credits; 2nd semester

M. E. 114 - Mechanical Laboratory Short course for students taking M. E. 103, following the general outline of M. E. 112 and M. E. 113. Lecture one hour; laboratory two hours a week.

Prerequisite or concurrent: M. E. 103 2 credits; 2nd semester

M. E. 204a. - Advanced Machine Design. The application of the principles of mechanics of materials, dynamics and kinematics to the design of complete machines. This involves a knowledge of shop practice and methods of construction.

6 credits; 1st semester

M. E. 204b. - Advanced Machine Design. Continuation of 204a.

6 credits; 2nd semester

Practical Mechanics

P. M. 11 - Wood Shop. Exercised in bench work, principles and practices in lathe work, cabinet construction, proper use and care of tools. Lectures and demonstrations four hours a week.

1.3 credits; both semesters

P. M. 12 - Pattern Making. Planning and practices in pattern making, principles of molding. Lectures and demonstrations four hours a week.

1.3 credits; both semesters

P. M. 13a - Foundry. Practice in molding, core making, melting and casting of iron and non-ferrous metals. Lectures and demonstrations two hours a week.

.7 credit; both semesters

P. M. 13b - Foundry. Continuation of P. M. 13a. Lectures and demonstrations two hours a week.

.7 credit; both semesters

(Above courses represent a break up of P. M. 7a and 7b)

Minutes of the University Senate - February 11, 1935

College of Engineering - New Courses - cont.

P. M. 14 - Machine Shop. Lectures and demonstrations in the use of various machines, including lathes, drill presses, milling machines, grinders, shapers, planers and screw machines; also machine shop practice, the building of small machines and special equipment. Four hours a week.

1.3 credits; both semesters

P. M. 15 - Forge Shop. Designing, artistic iron work, tempering of steel, heat treatment of metals, study and general practice of forge shop work, operations of trip hammers, electric welders, universal iron worker and other tools. Four hours a week.

1.3 credits; both semesters

P. M. 16 - Elements of the Automobile. A practical course in the study of the principles and construction of the typical automobile. Four hours a week.

1.3 credits; both semesters

(Above courses represent a break up of Prac. Mech. 8a and 8b)

Civil Engineering

Changes in Courses

C. E. 5 - MASONRY CONSTRUCTION. (Formerly C. E. 1). Properties of stone, brick, cement concrete and their uses in engineering structures.

2 credits; 2nd semester

C. E. 12 - PLANE SURVEYING. (Combination of C. E. 61 and C. E. 62). Theory and use of the transit, level and compass in land surveys, leveling municipal and topographical surveys. General use and care of surveying instruments, note keeping, field problems and computations. Class work two hours a week, first or second semester; field work four hours a week, first half of first semester or second half of second semester.

Prerequisite; Mathematics 18

2.7 credits; both semesters

C. E. 13 - ADVANCED SURVEYING. (Combination of C. E. 63 and C. E. 64). Triangulation and base line measurements, precise and trigonometric leveling, hydrographic surveys, map projection and plotting. Topographic mapping by the Stadia method. Class work two hours a week, second semester; field work six hours a week second half of second semester.

Prerequisite: C. E. 12

3 credits; second semester

C. E. 14 - TOPOGRAPHIC SURVEYING. (Formerly C. E. 66) Advanced work in topographic surveying and mapping methods, field information, methods of plotting and calculations. Class work one hour a week, first half of first semester; field work six hours a week, first half of first semester.

Prerequisite: C. E. 12

1.5 credits; 1st semester

Minutes of the University Senate - February 11, 1935

College of Engineering - Changes in Courses - cont.

C. E. 35. HIGHWAY MATERIALS. (Formerly C. E. 33). Methods of testing stone, gravel, sand, brick, culvert pipe, cement, concrete and other highway materials. Laboratory two hours a week.

Prerequisite or concurrent: C. E. 31 0.5 credit; 1st half 2nd sem.

C. E. 36. BITUMINOUS MATERIALS. (Formerly C. E. 34). Testing of asphalts, road oils, coal tars, flux oils and dust layers. Laboratory four hours a week.

Prerequisite or concurrent: C. E. 35 1 credit; 1st half 2nd sem.

C. E. 48. RAILROAD LOCATION, CONSTRUCTION AND MAINTENANCE. (Combination of C. E. 36 and 47). Reconnaissance and preliminary surveys, curves and earth work. Monthly and final estimates for construction. Track layouts, construction and maintenance. Special problems consisting of all necessary field and office work for complete plans for a railroad. Class work four hours a week, second semester; field work ten hours a week, second half of second semester.

Prerequisite: C. E. 12 5.7 credits; 2nd semester

C. E. 81 - TESTING MATERIALS. (Formerly E. M. 2). Experimental investigations and tests of woods, metals, cement, concrete and other construction materials to verify the laws governing their behavior under given conditions. Laboratory two hours a week.

Prerequisite: Math. 20a, Phys. 2a. 1 credit; both semesters

C. E. 102 - REINFORCED CONCRETE. (Formerly C. E. 2). A study of concrete mixtures. Theory and design of beams, slabs, columns, bridges and buildings.

Prerequisite: E. M. 13 3 credits; 1st semester

C. E. 103 - WALLS AND DAMS. (Formerly C. E. 3). Theory and design of retaining walls and dams.

Prerequisite E. M. 13, 101 2 credits; 1st semester

C. E. 104a - REINFORCED CONCRETE DESIGN. (Formerly C. E. 4a). Design of columns, beams, building, bridges, retaining walls, dams and arches. Special problems assigned to each student. Drawing room two hours a week.

^P Prerequisite: E. M. 13 0.7 credit; 1st semester

C. E. 104b - REINFORCED CONCRETE DESIGN. (Formerly C. E. 4b). Design of a reinforced concrete arch. Drawing room two hours a week.

Prerequisite: C. E. 104a 0.7 credit; 2nd semester

Minutes of the University Senate - February 11, 1935

College of Engineering - Changes in Courses - cont.

C. E. 111 - CONTRACTS AND SPECIFICATIONS. (Formerly C. E. 11). Legal forms and provisions of an engineering contract and details for specification writing.

1 credit; 2nd semester

C. E. 113 - GEODESY, PRECISE SURVEYING AND LEVELING. (Combination of C. E. 67 and C. E. 68). Method of making and adjusting observations in triangulation systems, and precise traverses. Observation and calculations for determining time, azimuth, latitude and longitude. Class work two hours a week, first semester; field work four hours a week first half of first semester.

Prerequisites: Math. 11, 12, C. E. 13 3 credits; 1st semester

C. E. 122- WATER POWER ENGINEERING. (Formerly C. E. 22) Investigations, design and operation of water power projects.

Prerequisite: E. K. 101 2 credits; 2nd semester

C. E. 151 - WATER SUPPLY AND WATER WORKS. (Formerly C. E. 51). Sources of supply; rainfall, surface water, rivers, lakes and ground water. Theory of filtration, purification, equipment and distribution. Problems in design and construction.

Prerequisite: E. M. 101 2 credits; 2nd semester

C. E. 152 - SEWERS AND SEWERAGE DISPOSAL. (Formerly C. E. 52). Sanitary and storm sewer systems; theory of design; method of disposal.

Prerequisite: E. M. 101 2 credits; 2nd semester

C. E. 153 - DESIGN OF WATER WORKS AND SEWERS. (Formerly C. E. 53). Design of water supply system, storm and sanitary sewers and disposal plants. Specifications and estimates of cost. Drawing room four hours a week.

Prerequisite or concurrent: C. E. 151, 152 1.3 credits; 2nd semester

C. E. 171 - STRESSES. (Combination of C. E. 71 and 72). Analytical and graphical solution of stresses in framed structures. Class work three hours drawing room four hours a week.

Prerequisite: Physics 2a 4.3 credits; both semesters

C. E. 202a-b - CONSTRUCTION. Advanced work in plain and reinforced concrete, theory, design and experimental work. Class work three hours; laboratory nine hours a week. 6 credits each semester (Change of credit)

Minutes of the University Senate - February 11, 1935

College of Engineering - Changes in Courses - cont.

C. E. 232a-b - HIGHWAY ENGINEERING. Advanced course designed for graduate civil engineers who wish to enter the field of highway engineering. Road laws, organization of highway departments, traffic, cost, contracts and specifications, laboratory investigations on all kinds of surfacing materials. Structures, their design and maintenance. Class work three hours; laboratory nine hours a week. 6 credits each semester (Change of credit)

C. E. 242a-b - RAILROAD ENGINEERING. Advanced course in location, construction, maintenance, economical selection of lines, grade reduction, cost of operation, valuation, structures and their maintenance. Class work three hours; laboratory nine hours a week. 6 credits each semester (Change of credit).

C. E. 252a-b - SANITARY ENGINEERING. Advanced course in sewer design, construction and maintenance. Design, maintenance and operation of sewer construction and maintenance. (Courses in water analysis and bacteriology should be taken in connection with this course). Class work three hours; laboratory nine hours a week. 6 credits each semester. (Change of credit).

C. E. 272a-b - STRUCTURAL ENGINEERING. Advanced course in theory of structures, mill buildings, railroad and highway bridges. The use of influence diagrams and detail drawings. Class work three hours; laboratory nine hours a week. 6 credits each semester (Change in credit).

Electrical Engineering

E. E. 105 - D. C. CIRCUITS AND MACHINERY. A study in classroom and laboratory of the fundamental laws of electrical and magnetic circuits with special attention to direct current equipment, such as generators, motors, batteries and control apparatus. Recitation three hours a week; laboratory three hours a week. (Combination of E. E. 1 and E. E. 9a)

Prerequisite: Physics 2b 4 credits

E. E. 106 - ALTERNATING CURRENTS. The fundamental theory of alternating current circuits and apparatus. Includes study of single phase and polyphase generators, motors and transformers, converters, etc. Recitation three hours; laboratory three hours a week. (Combination of E. E. 3 and E. E. 9b)

Prerequisite; E. E. 105; Math 20a 4 credits; 2nd semester

E. E. 107 - INDUSTRIAL CONTROL. A study of the field of electrical engineering which is concerned with the control of electric motive equipment. It involves a study of the individual types of control equipment as well as the various circuits with which they are tied together into a unit of automatic functioning equipment. Recitation two hours; laboratory three hours a week.

Prerequisite: E. E. 105 or 101 3 credits; 2nd semester

Minutes of the University Senate - February 11, 1935

E. E. 109 - ELECTRICAL POWER EQUIPMENT. A general study of the operation of the more common types of electrical power equipment. Attention is given to power resources, prime movers, generating equipment, switch gear, transformers, meters, reactors, relays, lightning arresters and distribution systems. Recitation four hours a week. 4 credits; 1st semester
Prerequisite: E. E. 106 (No. changed from E. E. 4)

E. E. 111a - ADVANCED ELECTRICAL LABORATORY. Advanced study of electrical machinery and equipment with special reference to alternating current apparatus. Laboratory six hours a week. Prerequisite: E. E. 106 . 2 credits. first semester. (Changed from E. E. 10a - 1 lect. 1 lab.)

E. E. 111b - ADVANCED ELECTRICAL LABORATORY. Continuation of E. E. 111a. Laboratory three hours a week. 1 credit; 2 semester (Changed from E.E. 10b)

E. E. 121 - D. C. DESIGN. A study of design problems culminating in the design calculation for a generator or motor. Six hours a week. Prerequisite: E. E. 105. 2 credits 2nd semester (Changed from E. E. 7 - credit reduced)

E. E. 122 - TRANSFORMER DESIGN. Design of a distribution transformer. Two hours a week. Prerequisite: E. E. 106 .7 credit; 2nd semester (Changed from E. E. 8)

E. E. 123 - ELECTRICAL EQUIPMENT PROBLEMS. A problem course in miscellaneous design and application of electrical equipment. Economic comparisons as well as engineering considerations are factors studied in making selections in equipment. Four hours a week. Prerequisite, E. E. 106. 1.3 credits; 1st semester. (Changed from E. E. 6)

E. E. 131 - COMMUNICATION ENGINEERING. A general survey of the field of electrical communication from the first Bell telephone to the modern dial telephone and the wireless phone; from the first Morse telegraph to the most modern form of automatic recording telegraph and the commercial wireless of today. Recitations three hours a week. Prerequisite: E. E. 106 3 credits; 2nd semester. (Changed from E. E. 5 - credit increased)

E. E. 152 INDEPENDENT PROBLEMS. A problem approved by the department, forms the background for the student's original study and research. Only students the character of whose previous work warrants it, will be allowed to take this work. Twelve hours a week. 4 credits; 2nd semester (Changed from A. A. 3 - credit reduced from 4.5 to 4.0)

Courses open only to Graduate Students.

E. E. 209a - TELEPHONE ENGINEERING. An advanced study of the theory and operation of modern telephone exchanges. Layouts and designs are made to meet different assumed conditions. Recitation three hours; laboratory and design three hours a week. (Credit reduced*) Four credits.

E. E. 209b - TELEPHONE ENGINEERING. Continuation of 209a. Recitation three hours; laboratory and design three hours a week. Four credits. (Credit reduced.)

Minutes of the University Senate - February 11, 1935

ENG. DRAW. 12a - ENGINEERING DRAWING. For students in mechanical and electrical engineering. Application of Drawing 11a and 11b, comprising working drawings of parts of machines and complete machines, both details and assembly. Technical sketching and tracing. Six hours laboratory a week. 2 credits. Prerequisite: Drawing 11b (Change in Number Formerly 4a.)

Engineering Mechanics

ENG. MECH. 11 - ANALYTICAL MECHANICS. A study of the principles of pure mechanics and the application of these principles to engineering problems. Recitation four hours a week. Four credits; Prerequisites: Physics 2a; Math. 20a. (Credits and number changed. Old Number E. M. 6).

E. M. 12 - KINEMATICS. The application of the fundamental principles of physics to the movements of the different parts of machines such as link work, gears, cams, simple and epicycle trains, rolling and sliding contacts, straight line and quick-return motions. Recitation two hours a week. 2 credits. Prerequisites: Draw. 12a; Phys. 2a. Concurrent: Draw. 12b (Number changed. Old No. E. M. 3 Credit changed from three to two).

E. M. 13 - MECHANICS OF MATERIALS. The properties of materials commonly used in structural engineering and the relations of external loads on structural members (made of these materials) to the stresses and strains caused by the loads. Recitation four hours a week. Prerequisite or concurrent: E. M. 11. Four credits. (Number changed; old number E. M. 1).

E. M. 101 - HYDRAULICS. Principles of hydraulics and hydrodynamic pressure. Flow of water through orifices, nozzles, pipes and open channels, over weirs, against stationary and moving vanes. Loss from friction and other sources. Recitation two hours a week. Two credits. Prerequisite: Phys. 2a. Prerequisite or concurrent: Math. 20b. (Number changed - Old Number C. E. 21)

Mechanical Engineering

M. E. 102 - ELEMENTS OF RECIPROCATING ENGINES. This course involves the solution of problems pertaining to the kinematics and dynamics of the reciprocating steam engine, internal combustion engines and other machinery using the elements of crank, connecting rod and cross-head. Recitation two hours a week. 2 credits. Prerequisites: E. M. 11; 13; 16. Concurrent: E. M. 17 (Replaces M. E. 2)

M. E. 103 - ELEMENTS OF HEAT-POWER ENGINEERING. Brief general courses in heat-power engineering, including elementary principles of thermodynamics and power plant equipment. Intended for architectural, civil, mining and metallurgical engineers. Recitation two hours a week. Two credits. Prerequisites: Phys. 2b (Change in credit and number; Replaces M. E. 1)

Minutes of the University Senate - February 11, 1935

Mechanical Engineering - Continued

M. E. 104a - ENGINEERING THERMODYNAMICS. Fundamental principles of thermodynamics, Carnot cycle, entropy, and thermodynamic equations for gases. To be followed by M. E. 104b. Recitation two hours a week. 2 credits. Prerequisites: Phys. 2a; Math. 20a (Replaces M. E. 13)

M. E. 104b - ENGINEERING THERMODYNAMICS. Thermodynamics of vapors; steam power plant cycles; reciprocating steam engines and turbines. Recitation two hours a week; 2 credits; Prerequisite: M. E. 104a. (Replaces M. E. 14)

M. E. 105 - STEAM POWER PLANT EQUIPMENT. Study of the characteristics and use of steam power plant equipment, including boilers, fuel burning equipment, economizers, feed water heaters, pumps, etc. Recitation two hours a week. 2 credits. Prerequisite: M. E. 104b. (Replaces M. E. 4 - Same total time but changed from one-half semester to full semester).

M. E. 106a - HEATING AND VENTILATION. General course open to all engineers. Elementary heating calculations and description of various types of heating and ventilating systems. Recitation two hours a week. 2 credits. Prerequisite: M. E. 104b or M. E. 103 (Replaces M. E. 10)

M. E. 108 - INTERNAL COMBUSTION ENGINES. A study of internal combustion engine cycles, and the thermodynamic characteristics and performance of actual engines. Recitation three hours a week. 3 credits. Prerequisite: M. E. 104b. (Replaces M. E. 5 - Increase of one credit)

M. E. 112a - MECHANICAL LABORATORY. Practice in the calibration and use of mechanical laboratory instruments and apparatus. Lecture one hour; laboratory two hours a week. Prerequisite or concurrent: M. E. 104a 2 credits. (Replaces M. E. 8)

M. E. 112b - MECHANICAL LABORATORY, Continuation of M. E. 112a with the addition of tests on steam engines, turbines, pumps, air compressors, etc. Lecture one hour; laboratory two hours a week. 2 credits. Prerequisite: M. E. 112a - Concurrent: M. E. 104b (Replaces M. E. 9a)

M. E. 113b - MECHANICAL LABORATORY. Continuation of M. E. 113a with the addition of tests on refrigerating machines and internal combustion engines. Lecture one hour; laboratory two hours a week. 2 credits. Prerequisite: M. E. 113a Concurrent: M. E. 108, 109. (Replaces M. E. 9b - with increase of one credit).

M. E. 201a - AUTOMOTIVE ENGINEERING. An advanced course in the essentials of motor vehicle design, construction and operation. Drafting room, laboratory and lectures by appointment. 6 credits; (Reduced)

M. E. 201b - AUTOMOTIVE ENGINEERING. Continuation of 201 a. 6 credits. (Reduced from 12)

Minutes of the University Senate - February 11, 1935

- M. E. 202a - HEAT-POWER PLANT ENGINEERING. Advanced work in the design, selection, layout and operation of heat-power plant equipment. 6 credits. (Reduced from 12)
- M. E. 202b - HEAT-POWER PLANT ENGINEERING. Continuation of 202a. 6 credits. (Reduced from 12)
- M. E. 203a - HEATING, VENTILATING AND AIR CONDITIONING. Advanced work in the design, selection, layout and operation of heating, ventilating and air conditioning equipment. 6 credits. (Reduced from 12)
- M. E. 203b - HEATING, VENTILATING AND AIR CONDITIONING. Continuation of 203a. 6 credits (Reduced from 12)

Metallurgical Engineering

- MET. E. 30 - METALLURGY OF ALUMINUM AND OTHER NON-FERROUS METALS. This course comprises a study of the principles and processes employed in the production and preparation for use of aluminum and other non-ferrous metals such as gold, silver, zinc, etc., and of their respective alloys. Lectures and recitations two hours a week. 2 credits. Prerequisite: Met. 27 (Replaces Met. 20 - Change in time and credit)
- MET. E. 40. METALLURGY OF NON-METALLICS. This course comprises a study of the more common non-metallic substances utilized in industry such as carbon, lime, clay, nitrogen, etc. Lectures and recitations two hours a week. 2 credits. Prerequisites: Met. 27; Mining 20. (Replaces Met. 24. Change in time and credit).
- MET. E. 50 - INDEPENDENT WORK ON METALLURGICAL PROBLEMS. This course is designed to be elastic enough to allow the individual student to select any feasible metallurgical problem that he may desire. The problem selected must have the approval of the head of the department and be under the direct supervision of one of the instructors in the department. The work will be done primarily outside of the classroom and will be independent in character except for necessary consultations with the instructor in charge. 3 credits. Prerequisites: to be determined in each case by the head of the department. (Replaces C. A. 3, change in time and credit).
- MET. E. 120 - ASSAYING. This course comprises the determination of the constituents of ores and metallurgical products by means of fire methods, primary attention being given to the determination of the precious metals. Laboratory eight hours a week. 2.7 credits. Prerequisites: Chem. 8; Met. 27. (Replaces Met. 1 - Change in credit).
- MET. E. 121 - FUEL AND METALLURGICAL LABORATORY. This course comprises the analytical determination of the constituents of ores and metallurgical products by both wet and dry methods as well as the determinative methods utilized in the analysis of coals and other fuels. Laboratory three hours a week. 1 credit. Prerequisites: Chem. 8; Met. 27. (Replaces Met. c - Change in time).

Minutes of the University Senate - February 11, 1935

MET. E. 130 - METALLURGICAL CALCULATIONS: GENERAL AND NON-FERROUS. This course comprises a study of the calculations involved in the practical application of the principles of general metallurgy and of the metallurgy of copper, lead, aluminum and other non-ferrous metals. Recitations and problems three hours a week. 3 credits. Prerequisites: Chem. 8; Met. 28 (Replaces Met. 114)

MET. E. 131 - METALLURGICAL CALCULATIONS: FERROUS. This course involves a consideration of the metallurgy of iron and steel from the standpoint of the calculations used in figuring charges, slags, heat efficiencies and similar factors. Recitations and problems two hours a week. 2 credits. Prerequisites: Met. 29; Met. 130. (Replaces Met. 105 - change in time and credit).

MET. E. 140 - THE SCIENCE OF METALS. This is a first course in physical metallurgy and involves a consideration of the correlation of the structure of metals and alloys to their physical properties together with the effects of mechanical work and heat. Lectures and recitations three hours a week. 3 credits. Prerequisites: Physics 2b; Chem. 8. Met. 26 or 27. (Replaces part of Met. 22 - change in time and credit).

MET. E. 141 - METALLOGRAPHY LABORATORY. This is primarily a laboratory course in the microscopic investigation of the structure of metals and alloys. Laboratory three hours a week. 1 credit. Prerequisite: Met. 140. (Replaces part of Met. 22; change in time and credit).

MET. 142 - HEAT TREATMENT. This course comprises a study of the methods used and the principles involved in the heat treatment of metals and alloys. Lectures and recitations two hours a week; laboratory two hours a week. 2.7 credits. Prerequisites: Met. 29; Met. 141. (Replaces Met. 115. Change in time and credit).

MET. 160 - ORE DRESSING. This course comprises a study of the principles and practice of ore concentration processes and other processes necessary in the preparation of mineral substances for refining or use. Lectures and recitations three hours a week. 3 credits. Prerequisites: Physics 2b; Geol. 12; Min. 20; Met. 27. (Replaces Met. 25 - Increase in time and credit).

MET. 161. FLOTATION. This course comprises a study of the principles involved in concentration of ores by flotation, with some discussion of the application of these principles in practice, and the preparation of ores for such treatment. Lectures and recitations two hours a week. 2 credits. Prerequisite: Met. 160. (Replaces Met. 25 - Increase in time and credit).

MET. 162. ORE DRESSING LABORATORY. This course comprises laboratory investigation and practice in the use and design of the equipment employed in ore dressing, coal dressing and other mineral preparation processes. Laboratory two hours a week. 0.7 credit. Prerequisite: Met. 160. (Replaces Met. 18 - change in time and credit).

Minutes of the University Senate - February 11, 1935

MET. 211 - ELEMENTS OF OIL SHALE ENGINEERING. This course comprises an elementary study of the destructive distillation of oil shales for the production of oil, gas and by-products, together with the history of the oil shale industry and the economic factors upon which the future development of the industry depends. Lectures and recitations two hours a week. 2 credits. Prerequisites: A sufficient background of Physics, Chemistry, and Geology. (Replaces Met. 101 - same otherwise).

MET. 212 - OIL SHALE TECHNOLOGY. This course involves a detailed study of the principles employed and the methods used in the production of oil from shale. Reference reading and laboratory work are emphasized. It is desirable that the student have some knowledge of physical and organic chemistry. Lectures and recitations two hours a week; laboratory eight hours a week. Prerequisites: Sufficient background in chemistry and physics: Min. 20. 6 credits. (Replaces Met. 206 - Reduction in time and credit).

Mining Engineering

MIN. 20 - PRINCIPLES OF MINING. This course comprises a study of the economic and scientific principles involved in the valuation, development and working of ore deposits. Lectures and recitations four hours a week. 4 credits. Prerequisites: Phy. 2a; Chem. 2b. (Replaces Min. 14 - same otherwise).

MIN. 21 - MINE SURVEYING. This course comprises classroom and field instruction in the use of instruments and in the procedure employed in mine and mineral land surveying. Lectures and recitations two hours a week; field work four hours a week. 4 credits. Prerequisite: C. E. 12. (Replaces Min. 10 - change in time and credit).

MIN. 50 - INDEPENDENT WORK ON MINING PROBLEMS. This course is designed to be elastic enough to allow the individual student to select any feasible mining problem that he may desire. The problem selected must have the approval of the Department and be under the direct supervision of one of the instructors in the Department. The work will be done primarily outside of the classroom and will be independent in character except for necessary consultations with the instructor in charge. 3 credits. Prerequisites: To be determined in each case by the head of the Department. (Replaces C. A. 3 - change in time and credit).

MIN. 100 - MINING OF UNSTRATIFIED MINERAL DEPOSITS. This course comprises a study of the methods used and the equipment involved in the mining and extraction of unstratified mineral deposits and relates particularly to the mining of metals. Lectures and recitation three hours a week. 3 credits. Prerequisite: Min. 20 (Replaces Min. 17 - Same otherwise).

MIN. 110 - MINING OF STRATIFIED MINERAL DEPOSITS. This course comprises a study of the methods used and equipment involved in the mining of coal and other stratified mineral deposits. Lectures and recitations two hours a week. 2 credits. Prerequisite: Min. 20 (Replaces Min. 15 - Change in time and credit).

Minutes of the University Senate - February 11, 1935

MIN. 111 - MINE VENTILATION. This course comprises a study of the principles involved in the ventilation of underground mine workings and of the design of mechanical equipment for such purposes. Lectures and recitations three hours a week. 3 credits. Prerequisites: Phys. 3b; Min. 20. (Replaces Min. 6 - same otherwise).

MIN. 120 - MINING GEOLOGY AND PROSPECTING. This course involves a study of the principles of economic geology, especial emphasis being placed upon the features of interest to the engineer in the economics of mine development and valuation. Lectures and recitations three hours a week. 3 credits. Prerequisites: Geology 12 or its equivalent; Min. 20. (Replaces Min. 18 - same otherwise).

MIN. 121 - OIL FIELD ENGINEERING. This course comprises a study of the methods and general practice usually employed in the prospecting, developing and organizing of petroleum properties for production purposes. Lectures and recitations two hours a week. 2 credits. Prerequisites: None. (Replaces Min. 12 - change in time and credit).

COLLEGE OF COMMERCE

COMMERCE 129 - CREDITS AND COLLECTIONS. Change the name to CREDITS AND STATEMENT ANALYSIS.

COMMERCE 11 - SALESMANSHIP. Reduce the credits from 3 to 2.

COMMERCE 13a-b - SECRETARIAL PRACTICE. Increase the credits from 3 to 5.

The following recommendations of the College of Engineering were approved:

Complete curricula for the College of Engineering leading to the degrees of -

Bachelor of Science in Architectural Engineering
 Bachelor of Science in Civil Engineering
 Bachelor of Science in Electrical Engineering
 Bachelor of Science in Mechanical Engineering
 Bachelor of Science in Metallurgical Engineering
 Bachelor of Science in Mining Engineering

CURRICULUM FOR ALL ENGINEERING FRESHMENFirst Semester

Course	Subject	Hrs. Rec.	Hrs. Lab.	Cr.
Assembly 1a	Introd. to Engineering	2	0	0.7
Chemistry 2a	Gen. Inorg. Chemistry	2	4	4.0
Drawing 11a	Desc. Geom. and Gen. Engr. Drawing	2	6	3.0
English 1a	English Composition	3	0	3.0
Mathematics 17	College Algebra	3	0	3.0
Mathematics 18	Plane Trigonometry	2	0	2.0
Mil. Science 1a	First Year Basic Course	0	3	1.3
Phys. Educa. 1a	Gymnasium Practise	0	2	0.7
Prac. Mech. 11	Wood Shop	0	4	1.3
Prac. Mech. 13a	Foundry	0	2	0.7
		<u>14</u>	<u>21</u>	<u>19.7</u>

Minutes of the University Senate - February 11, 1935

Curriculum for Engineering Freshmen - Cont.

Second Semester

Course	Subject	Hrs. Rec.	Hrs. Lab.	Cr.
Assembly 1b	Introd. to Engineering	2	0	0.7
Chemistry 2b	Gen. Inorganic Chemistry	2	4	4.0
Drawing 11b	Descrip. Geom. and Gen. Engr. Draw.	2	6	3.0
English 1b	English Composition	3	0	3.0
Hygiene 1	Personal and Community Health	2	0	1.0
Mathematics 19	Analytical Geometry	3	0	3.0
Military Science 1b	First Year Basic Course	0	3	1.3
Phys. Education 1b	Gymnasium Practice	0	2	.7
Prac. Mech. 12	Pattern Making	0	4	1.3
Prac. Mech. 13b	Foundry	0	2	.7
		12	21	18.7

ARCHITECTURAL AND CIVIL ENGINEERINGSophomore
First Semester

Assembly 2	Engineering Problems	2	0	0.7
Civil Engin. 12	Plane Surveying	2	2	2.7
Civil Engin. 31	Highway Location, Construction and Maintenance	2	0	2.0
Drawing 14a	Engineering Drawing	0	6	2.0
English 10a	Public Speaking	2	0	2.0
Mathematics 20a	Differential Calculus	4	0	4.0
Military Science 6a	Second Year Basic Course	0	3	1.5
Physics 2a	General College Physics	3	4	5.0

Second Semester

Assembly 3	Class Society	1	0	1.0
Civil Engin. 13	Advanced Surveying	2	3	3.0
Civil Engin. 35	Highway Materials	0	1	0.5
Drawing 14b	Engineering Drawing	0	6	2.0
Engin. Mech. 11	Analytical Mechanics	4	0	4.0
Mathematics 20b	Integral Calculus	4	0	4.0
Military Science 6b	Second Year Basic Course	0	3	1.5
Physics 2b	General College Physics	3	4	5.0
		14	17	20.0

MECHANICAL AND ELECTRICAL ENGINEERINGSophomore
First Semester

Assembly 2	Engineering Problems	2	0	0.7
Civil Engin. 12	Plane Surveying	2	2	2.7
Drawing 12a	Engineering Drawing	0	6	2.0
English 10a	Public Speaking	2	0	2.0
Mathematics 20a	Differenital Calculus	4	0	4.0
Military Sc. 6a	Second Year Basic Course	0	3	1.5
Physics 2a	General College Physics	3	4	5.0
Prac. Mechanics 14	Machine Shop	0	4	1.3
Prac. Mefhanics 16	Elements of the Automobiæ	0	4	1.3
		13	23	20.5

Minutes of the University Senate - February 11, 1935

Mechanical and Electrical Engineering - Cont.
Sophomore
Second Semester

Course	Subject	Hrs. Rec.	Hrs. Lab.	Cr.
Assembly 3	Class Society	1	0	0
Drawing 12b	Kinematic Drawing	0	6	2.0
Elec. Engin. 11	Electrical Circuits	0	2	0.7
Engin. Mech. 11	Analytical Mechanics	4	0	4.0
Engin. Mech 12	Kinematics	2	0	2.0
Mathematics 20b	Integral Calculus	4	0	4.0
Military Sc. 6b	Second Year Basic Course	0	3	1.5
Physics 2b	General College Physics	3	4	5.0
Prac. Mech 15	Forge Shop	0	4	1.3
		14	19	20.5

MINING AND METALLURGICAL ENGINEERING

Sophomore
First Semester

Assembly 2	Engineering Problems	2	0	0.7
Chemistry 6	Qualitative Analysis	1	6	4.0
Civil Enig. 12	Plane Surveying	2	2	2.7
English 10a	Public Speaking	2	0	2.0
Mathematics 20a	Differential Calculus	4	0	4.0
Military Sc. 6a	Second Year Basic Course	0	4	1.5
Physics 2a	General College Physics	3	4	5.0
		14	15	19.9

Second Semester

Assembly 3	Class Society	1	0	0
Chemistry 8	Quantitative Analysis	1	8	5.0
Mathematics 20b	Integral Calculus	4	0	4.0
Metallurgy 27	General Metallurgy	2	0	2.0
Military Sc. 6b	Second Year Basic Course	0	3	1.5
Physics 2b	General College Physics	3	4	5.0
Prac. Mech 14	Machine Shop	0	4	1.3
Prac. Mech. 15	Forge Shop	0	4	1.3
		11	23	20.1

ARCHITECTURAL ENGINEERING

Junior

First Semester

Art	History of Architecture	3	0	3.0
Art 61a	Drawing	0	6	3.0
Assembly 4a	Class Society	1	0	0.0
Civil Engin. 14	Topographic Surveying	0.5	0	1.5
Civil Enign. 81	Testing Materials	0	2	1.0
Civil Engin. 171	Stresses	3	4	4.3
Civil Engin. 172	Timber Structures	0.5	2	1.2
Engin. Mech. 13	Mechanics of Materials	4	0	4.0
	Non-Technical Elective	3	0	3.0
		15.0	17	21.0

Minutes of the University Senate - February 11, 1935

Architectural Engineering - cont.
Junior
Second Semester

Course	Subject	Hrs.	Hrs.	Cr.
		Rec.	Lab.	
Art	History of Architecture	3	0	3
Art 61b	Drawing	0	6	3.0
Arch. Engin. 1	Architectural Rendering	0	6	2.0
Assembly 4b	Class Society	1	0	1.0
Civil Engin. 5	Masonry Construction	2	0	2.0
Civil Engin. 173a	Steel Structures	1	4	2.3
Mech. Engin. 103	Elements of Heat-Power Eng.	2	0	2.0
Mech. Engin 111	Engineering Reports	2	0	2.0
	Non-Technical Elective	3	0	3.0
		<u>14</u>	<u>16</u>	<u>19.3</u>

Senior
First Semester

Arch. Engin. 2	Order Problems	0	4	1.3
Arch. Engin. 3	Sanitation, Acoustics, Fire Prevention	3	0	3.0
Arch. Engin. 4a	Architectural Design	0	8	2.7
Assembly 5a	Class Society	1	0	0
Civil Engin. 102	Reinforced Concrete	3	0	3.0
Civil Engin. 104a	Reinforced Concrete Design	0	2	0.7
Elec. Engin. 101	Elements of Elec. Engin. Mach.	2	3	3.0
Mech. Engin. 106a	Heating and Ventilation	2	0	2.0
Art 17a	Art Appreciation	1	0	1.0
	Non-Technical Elective	3	0	3.0
		<u>15</u>	<u>17</u>	<u>19.7</u>

Second Semester

Arch. Engin. 4b	Architectural Design	0	8	2.7
Arch. Engin. 5	Building Equipment	2	0	2.0
Arch. Engin. 6*	Independent Problems	3	6	5.0
Assembly 5b	Class Society	1	0	0.0
Civil Engin. 111	Contracts and Specifications	1	0	1.0
Elec. Engin. 11	Electrical Circuits	0	2	0.7
Elec. Engin. 136	Illumination Engineering	2	0	2.0
Mech. Engin. 110	Heating and Ventilating Design	0	4	1.3
Metallurgy 26	Engineering Metallurgy	2	0	2.0
Art 17b	Art Appreciation	1	0	1.0
Prac. Mech. 15	Forge Shop	0	4	1.3
		<u>12</u>	<u>24</u>	<u>19.0</u>

*This may be replaced by Technical Elective

Minutes of the University Senate - February 11, 1935

CIVIL ENGINEERING

Junior

First Semester

Civil Engin. 14	Topographic Surveying	0.5	3	1.5
Civil Engin. 81	Testing Materials	0.0	2	1.0
Civil Engin. 171	Stresses	3.0	4	4.3
Civil Engin. 172	Timber Structures	0.5	2	1.2
Assembly 4a	Class Society	1.0	0	0
Elec. Engin. 101	Elements of Elec. Engrg. Mach.	2.0	3	3.0
Engin. Mech. 13	Mechanics of Materials	4	0	4.0
Engin. Mech. 101	Hydraulics	2	0	2.0
	Non-Technical Elective	3	0	3.0
		<u>16</u>	<u>14</u>	<u>20.0</u>

Junior

Second Semester

Civil Engin. 5	Masonry Construction	2	0	2.0
Civil Engin. 48	Railroad Location, Construction and Maintenance	4	5	5.7
Civil Engin. 173a	Steel Structures	1	4	2.3
Assembly 4b	Class Society	1	0	0
Mech. Engin. 111	Engineering Reports	2	0	2.0
Geology 12	Elem. Geol. for Engineers	3	0	3.0
Mathematics 11	Spherical Trigonometry	1	0	1.0
Mathematics 12	Least Squares	1	0	1.0
	Non-Technical Elective	3	0	3.0
		<u>18</u>	<u>9</u>	<u>20.0</u>

Senior

First Semester

Civil Engin. 102	Reinforced Concrete	3	0	3.0
Civil Engin. 103	Walls and Dams	2	0	2.0
Civil Engin. 104a	Reinforced Concrete Design	0	2	.7
Civil Engin. 173b	Steel Structures	2	4	3.3
Civil Engin. 181a	Independent Problems	1	2	1.0
Assembly 5a	Class Society	1	0	0
Art	History of Architecture	1	0	1.0
Mech. Engin. 103	Elements of Heat-Power Engin.	2	0	2.0
Geology 7	Engineering Geology	2	0	2.0
Civil Engin. 113	Geodesy, Precise Surveying and Leveling	2	2	3.0
		<u>19</u>	<u>10</u>	<u>21.0</u>

Second Semester

Civil Engin. 32	Streets and Pavements	2	0	2.0
Civil Engin. 36	Bituminous Materials	0	2	1.0
Civil Engin. 104b	Reinforced Concrete Design	0	2	.7
Civil Engin. 111	Contracts and Specifications	1	0	1.0
Civil Engin. 122	Water Power Engineering	2	0	2.0
Civil Engin. 151	Water Supply and Water Works	2	0	2.0
Civil Engin. 152	Sewers and Sewerage Disposal	2	0	2.0
Civil Engin. 153	Design of Water Works and Sewers	0	4	1.3
Civil Engin. 181b	*Independent Problems	1	9	4.0
Assembly 5b	Class Society	1	0	0

Minutes of the University Senate - February 11, 1935

Civil Engineering - Second Semester Senior - Continued

Course	Subject	Hrs.	Hrs.	Cr.
		Rec.	Lab.	
Art	Histry of Architecture	1	0	1
Metallurgy 26	Engineering Metallurgy	2	0	2
		<u>14</u>	<u>17</u>	<u>19.0</u>

*This may be replaced by Technical Elective

ELECTRICAL ENGINEERING

Junior

First Semester

Elec. Engin. 105	D. C. Currents and Machinery	3	3	4.0
Assembly 4a	Class Society	1	0	0
Engin. Mech 13	Mechanics of Materials	4	0	4
Engin. Mech. 15a	Machine Design	0	6	2.0
Engin. Mech. 101	Hydraulics	2	0	2.0
Civil Engin. 81	Testing Materials	0	2	1.0
Mech. Engin. 104a	Engineering Thermodynamics	2	0	2.0
Mech. Engin. 112a	Mechanical Laboratory	1	2	2.0
	Non-Technical Elective	3	0	3.0
		<u>16</u>	<u>13</u>	<u>20.0</u>

Second Semester

Elec. Engin. 106	Alternating Currents	3	3	4.0
Elec. Engin. 107	Industrial Control	2	3	3.0
Elec. Engin. 121	D. C. Design	0	6	2.0
Assembly 4b	Class Society	1	0	0.0
Engin. Mech. 15b	Machine Design	0	6	2.0
Mech. Engin. 104b	Engineering Thermodynamics	2	0	2.0
Mech. Engin. 111	Engineering Reports	2	0	2.0
Mech. Engin. 112b	Mechanical Laboratory	1	2	2.0
	Non-Technical Elective	3	0	3.0
		<u>14</u>	<u>20</u>	<u>20.0</u>

Senior

First Semester

Elec. Engin. 108	Industrial Electronics	2	3	3.0
Elec. Engin. 109	Electrical Power Equipment	4	0	4.0
Elec. Engin. 111a	Advanced Electrical Lab.	0	6	2.0
Elec. Engin. 123	Electrical Equipment Problems	0	4	1.3
Elec. Engin. 141	Analytical Electrical Engin.	2	0	2.0
Assembly 5a	Class Society	1	0	0.0
Mech. Engin. 105	Steam Power Plant Equipment	2	0	2.0
Mech. Engin. 106a	Heating and Ventilation	2	0	2.0
	Non-Technical Elective	3	0	3.0
		<u>16</u>	<u>13</u>	<u>19.3</u>

Minutes of the University Senate - February 11, 1937

Electrical Engineering - Cont.

Senior

Second Semester

Course	Subject	Hrs. Rec.	Hrs. Lab.	Cr.
Elec. Engin. 111b	Advanced Electrical Lab.	0	3	1.0
Elec. Engin. 122	Transformer Design	0	2	0.7
Elec. Engin. 131	Communication Engineering	3	0	3.0
Elec. Engin. 136	Illumination Engineering	2	0	2.0
Elec. Engin. 151	Electrical Engin. Conferences	0	2	1.0
Elec. Engin. 152*	Independent Problems (Elective)	0	(12)	(4.0)
Assembly 5b	Class Society	1	0	0.0
Metallurgy 26	Technical Elective	6	0	6.0
	Non-Technical Elective	3	0	3.0
		<u>17</u>	<u>7</u>	<u>18.7</u>

*Those electing Independent Problems course are not required to take Advanced Electrical Laboratory 111b.

MECHANICAL ENGINEERING

Junior

First Semester

Mech. Engin. 104a	Engineering Thermodynamics	2	0	2.0
Mech. Engin. 112a	Mechanical Laboratory	1	2	2.0
Assembly 4a	Class Society	1	0	0.0
Elec. Engin. 105	D. C. Circuits and Machinery	3	3	4.0
Engin. Mech. 13	Mechanics of Materials	4	0	4.0
Engin. Mech. 16	Machine Design	0	12	4.0
Civil Engin. 81	Testing Materials	0	2	1.0
	Non-Technical Elective	3	0	3.0
		<u>14</u>	<u>19</u>	<u>20.0</u>

Second Semester

Mech. Engin. 102	Elements of Reciprocating Engines	2	0	2.0
Mech. Engin. 104b	Engineering Thermodynamics	2	0	2.0
Mech. Engin. 111	Engineering Reports	2	0	2.0
Mech. Engin. 112b	Mechanical Laboratory	1	2	2.0
Assembly 4b	Class Society	1	0	0.0
Elec. Engin. 106	Alternating Currents	3	3	4.0
Engin. Mech. 17	Machine Design	0	12	4.0
	Non- Technical Elective	3	0	3.0
		<u>14</u>	<u>17</u>	<u>19.0</u>

Senior

First Semester

Mech. Engin. 105	Steam Power Plant Equipment	2	0	2.0
Mech. Engin. 101a	Mechanical Design	0	10	3.3
Mech. Engin. 106a	Heating and Ventilation	2	0	2.0
Mech. Engin. 107	Flow of Gases	1	0	1.0
Mech. Engin. 113a	Mechanical Laboratory	1	2	2.0
Assembly 5a	Class Society	1	0	1.0
Elec. Engin. 109	Electrical Power Equipment	4	0	4.0
Elec. Engin. 123	Hydraulics	1	0	1.0
	Non-Technical Elective	3	0	3.0
		<u>15</u>	<u>16</u>	<u>19.6</u>

Mechanical Engineering - Cont.
Senior
Second Semester

Course	Subject	Hrs. Rec.	Hrs. Lab.	Cr.
Mech. Engin. 101b	Mechanical Design	0	15	5.0
Mech. Engin. 106b	Heating and Ventilation	2	0	2.0
Mech. Engin. 108	Internal Combustion Engines	3	0	3.0
Mech. Engin. 109	Refrigeration	2	0	2.0
Mech. Engin. 113b	Mechanical Laboratory	1	2	2.0
Assembly 5b	Class Society	1	0	0.0
Metallurgy 26	Engineering Metallurgy	2	0	2.0
	Non-Technical Elective	3	0	3.0
		<u>14</u>	<u>17</u>	<u>19.0</u>

METALLURGICAL ENGINEERING

Junior

First Semester

Metallurgy 28	Metallurgy of Copper and Lead	2	0	2.0
Assembly 4a	Class Society	1	0	0
Mining 20	Principles of Mining	4	0	4.0
Elec. Engin. 101	Elements of Elect. Engin. Mach.	2	3	3.0
Engin. Mech. 11	Analytical Mechanics	4	0	4.0
Mech. Engin. 103	Elements of Heat-Power Engin.	2	0	2.0
Chemistry 131a	Physical Chemistry	2	4	4.0
Geology 109a	Mineralogy	0	4	2.0
		<u>17</u>	<u>11</u>	<u>21.0</u>

Second Semester

Metallurgy 29	Metallurgy of Ferrous Metals	3	0	3.0
Metallurgy 140	Science of Metals	3	0	3.0
Assembly 4b	Class Society	1	0	0.0
Civil Engin. 81	Testing Materials	0	2	1.0
Elec. Engin. 102	Elect. Engin. Machinery	2	0	2.0
Engin. Mech. 13	Mechanics of Materials	4	0	4.0
Mech. Engin. 111	Engineering Reports	2	0	2.0
Chemistry 131b	Physical Chemistry	2	4	4.0
Geology 12	Elementary Geology for Engineer	2	2	3.0
		<u>19</u>	<u>8</u>	<u>22.0</u>

Senior

First Semester

Metallurgy 30	Metallurgy of Aluminum and Other Non-Ferrous Metals	2	0	2.0
Metallurgy 120	Assaying	0	8	2.7
Metallurgy 130	Metallurgical Calculations (General and Non-Ferrous)	3	0	3.0
Metallurgy 141	Metallography Laboratory	0	3	1.0
Metallurgy 160	Ore Dressing	3	0	3.0
Assembly 5a	Class Society	1	0	0.0
Mining 120	Mining Geology and Prospecting	3	0	3.0
Engin. Mech. 14	Hydraulics	1	0	1.0
Mech. Engin. 107	Flow of Gases	1	0	1.0
	Non-Technical Elective	3	0	3.0
		<u>17</u>	<u>11</u>	<u>19.7</u>

Minutes of the University Senate - February 11, 1935

Metallurgical Engineering - Cont.

Senior

Second Semester

Course	Subject	Hrs. Rec.	Hrs. Lab.	Cr.
Metallurgy 40	Metallurgy of Non-Metallics	2	0	2.0
Metallurgy 50*	Independent Work on Metallurgical Problems	3	0	3.0
Metallurgy 121	Fuel and Metallurgical Lab.	0	3	1.0
Metallurgy 131	Metallurgical Calculations (Ferrous)	2	0	2.0
Metallurgy 142	Heat Treatment	2	2	2.7
Metallurgy 161	Flotation	2	0	2.0
Metallurgy 162	Ore Dressing Lab.	0	2	0.7
Assembly 5b	Class Society	1	0	0.0
Civil Engin. 78	Stresses	0	4	1.3
	Non-Technical Elective	3	0	3.0
		15	11	17.7

*This may be replaced by Technical Elective

MINING ENGINEERING

Junior

First Semester

Mining 20	Principles of Mining	4	0	4.0
Mining 21	Mine Surveying	2	4	4.0
Assembly 4a	Class Society	1	0	0.0
Metallurgy 28	Metallurgy of Copper and Lead	2	0	2.0
Elec. Engin. 101	Elements of Elec. Eng. Mach.	2	3	3.0
Engin. Mech. 11	Analytical Mechanics	4	0	4.0
Mech. Engin. 103	Elements of Heat-Power Engin.	2	0	2.0
Geology 109a	Mineralogy	0	4	2.0
		17	11	21.0

Second Semester

Assembly 4b	Class Society	1	0	0.0
Metallurgy 29	Metallurgy of Ferrous Metals	3	0	3.0
Metallurgy 140	Science of Metals	3	0	3.0
Civil Engin. 81	Testing Materials	0	2	1.0
Elec. Engin. 102	Elect. Eng. Machinery	2	0	2.0
Engin. Mech. 13	Mechanics of Materials	4	0	4.0
Mech. Engin. 111	Engineering Reports	2	0	2.0
Mech. Engin. 114	Mechanical Engineering Lab.	1	2	2.0
Geology 12	Elem. Geology for Engineers	2	2	3.0
Geology 109b	Mineralogy	0	4	2.0
		18	10	22.0

Senior

First Semester

Mining 100	Mining of Unstratified Min. Dep.	3	0	3.0
Mining 120	Mining Geology and Prospecting	3	0	3.0
Assembly 5a	Class Society	1	0	0.0
Metallurgy 120	Assaying	0	8	2.7
Metallurgy 141	Metallography Laboratory	0	3	1.0
Metallurgy 160	Ore Dressing	3	0	3.0
Engin. Mech. 14	Hydraulics	1	0	1.0
Mech. Engin. 107	Flow of Gases	1	0	1.0
	Technical Elective	3	0	3.0
	Non Technical Elective	3	0	3.0
		18	11	20.7

Mining Engineering - Cont.
Senior
Second Semester

Course	Subject	Hrs. Rec.	Hrs. Lab.	Cr.
Mining 50*	Independent Work on Mining Problems	3	0	3.0
Mining 110	Mining of Stratified Mineral Dep.	2	0	2.0
Mining 111	Mine Ventilation	3	0	3.0
Mining 121	Oil Field Engineering	2	0	2.0
Assembly 5b	Class Society	1	0	0.0
Metallurgy 162	Ore Dressing Laboratory	0	2	0.7
Metallurgy 161	Flotation	2	0	2.0
Civil Engin. 78	Stresses	0	4	1.3
Hyg. 7	First Aid	1	0	0.5
	Non-Technical Elective	3	0	3.0
		<u>17</u>	<u>6</u>	<u>17.5</u>

*This may be replaced by Technical Elective.

The College of Commerce presented a proposed curriculum in Industrial Administration, which was approved as follows:

INDUSTRIAL-ADMINISTRATION CURRICULUM

Freshmen Year

First Semester		Second Semester	
English Composition 1a	3	English Composition 1b	3
Econ. Hist. of Europe 2	3	Econ. Geog. 8 or 12	3
College Algebra 17	3	Plane Analytics 19	3
Plane Trigonometry 18	2	Gen. Inorganic Chemistry 1b	5
Gen. Inorganic Chemistry 1a	5	Hygiene 1	1
Physical Ed. 1a	.7	Physical Ed. 1b	.7
Mil. Science 1a	1.3	Mil. Science 1b	1.3
	<u>18.0</u>		<u>17.0</u>

Sophomore Year

Prin. of Econ. 1	3	Forms of Bus. Org. 9	3
Prin. of Accounting 7a	4	Prin. of Accounting 7b	4
American Government 51	3	Physics 1b	5
Physics 1a	5	Drawing	2
Drawing	2	Business English 30	2
Mil. Science 6a	1.5	Mil. Science 6b	1.5
	<u>18.5</u>		<u>17.5</u>

Junior Year

Statistical Method 107	3	Modern European History 4b	3
Marketing 10 or		Corporation Finance 117	3
Salesmanship 11	3 Or 2	Transportation 103	3
Cost Accounting 118	3	Personnel Adm. Psy. 112	3
Psychology 10	3	*Electives in Physics, Geology Chemistry or Theoretical	
*Electives in Physics, Geology, Chemistry or theoretical courses in Engineering	6	courses in Engineering	6
	<u>18 or 17</u>		<u>18</u>

Minutes of the University Senate - February 11, 1935

Industrial Business Curriculum - Cont.

Senior Year

Business Law 109a	3	Business Law 109b	3
Econ. of Pub. Util. 126	3	Problems in Mgt. 137	3
Money and Banking 105	3	Labor Problems 102 or	
Public Finance 104	3	Labor Legislation 130	3
*Electives in Physics, Geology,		*Electives in Commerce	3
Chemistry of theoretical		Electives in Physics, Geology	
courses in Engineering	6	Chemistry of theoretical courses	
		in Engineering	6
	<u>18</u>		<u>18</u>

Total minimum credits - 142

The language rule requiring one year in college if less than two units were taken in high school is not applicable to this curriculum.

*Students will select courses under the joint guidance of the Head of the Department involved and the Dean of the College of Commerce.

Members of the University Senate who have attended association meetings this year made reports as follows:

Dean Evans - meeting of the Association of American Law Schools - Chicago, December 27-29.

Doctor Vandenbosch- American Political Science Association - Chicago, December 27-29.

President McVey announced that the University Council would meet immediately following the adjournment of the Senate.

Eppa G. Gilbr
Secretary