

DRAWING AND WOOD CARVING

INSTRUCTOR *.....

DRAWING

Free hand drawing is offered to all students as an elective during several terms of the course, and it is commended to all as a valuable exercise.

WOOD CARVING

This industrial study is offered as an elective during several terms of the course, but it must be preceded by a certain amount of free hand drawing. The exercise is commended as especially valuable for training the hand and eye.

SHOP WORK

PROF. R. E. CHANDLER

In the Agricultural course two terms of practice in the shops are required, two in wood or two in iron, or one in each. The object is to familiarize the student with the use and care of tools and to give him some skill in ordinary work.

DOMESTIC ECONOMY

INSTRUCTOR *.....

SPECIAL HYGIENE

To the young women of the Sophomore year a course of daily lectures is given upon the laws of life and health. The course extends over a period of one term, and covers questions pertaining to personal health and the health of the household—such as food, air, exercise, clothing, temperature of rooms and care of sick-room.

HOUSEHOLD ECONOMY

A term of lectures covering the subjects of marketing, value of food-stuffs, and order and neatness in housekeeping, is offered during one term of the Freshman year.

COOKING

One term of practical lessons in cooking and serving food is required of each young woman.

During one term of the Junior year, a second term in cooking is offered. During this term, making pickles, jellies, preserves and various fancy and dainty dishes, together with talks upon the Chemistry of Cooking, form the principal part of the work.

SEWING

One term of sewing is required during the Sophomore year. The work is carefully laid out and graded according to the capabilities of the student. To more advanced students are taught all the ordinary forms of sewing with needle and machine. This work can be utilized by the student in making her own clothing.

HOUSEHOLD MANAGEMENT AND SANITATION

A term of lectures is given during the Junior year, covering the proper care of the home and its inmates.

ENGLISH STUDIES

PROF. B. F. MAIDEN

The aim in this department is to secure accurate, vigorous and graceful expression; to teach what good literature is, and how to study it. The work is distributed as follows:

COMPOSITION

This study is pursued during the first term of the Freshman year. It comprises thorough drills in the use of punctuation marks and capitals, and in sentence and paragraph structure. Numerous exercises in paraphrase and reproduction will lead the student up to original composition.

RHETORIC

The study of Rhetoric occupies the second and third terms of the Freshman year. The design of this course is to cultivate a critical taste in the use of language and in the study of literature, and also to afford constant exercise in composition work. Literary style is carefully analyzed, and extensive selections from standard authors, illustrative of the various qualities and elements, are studied critically. Four original essays are required in connection with this work.

LITERATURE

The first two terms of the Sophomore year will be devoted to a careful, critical study of American authors. Here the principles of Rhetoric are applied to literary criticism. The style, subject matter and personality of the author are examined and each student is required to investigate independently along some line of criticism assigned to him. The results of his investigation are embodied in a thesis which is read before the class. One thesis each term is required.

The last term of the Sophomore year will be devoted to a historical study of the early growth and development of English up to the time of the Norman Conquest. One thesis on some assigned subject will be required during this term.

The outline of English literature will be concluded during the Junior year and especial attention given to class readings from eight or ten of the best English Classics from Chaucer to Tennyson.

In the first term of the Senior year the masterpieces of Shakespeare will be studied. During the second term a further historical study, will be required tracing the laws of literary growth and showing the relation of literature to the various other elements of civilization.

In all literary studies, accurate and scholarly methods are encouraged in the student. Numerous practical exercises, such as preparing paragraphs of fifty or an hundred words on some current subject within an assigned time, will be a feature of the advanced work in English.

Suggestion will also be given to guide the student in selecting and pursuing a helpful course of collateral reading, that valuable time and energy may not be dissipated in indiscriminate reading.

RHETORICAL EXERCISES

Public rhetorical exercises will be required throughout the course in Declamations, Essays and Orations.

LATIN

PROF. B. F. MAIDEN

Latin will not be required in any of the regular courses, but students desiring to pursue the study with a view to preparing for a classical course will be allowed to take it as an optional.

MENTAL AND MORAL SCIENCE

PROF. B. F. MAIDEN

The work in this department, necessarily confined to the Senior year, aims to introduce the student to an acquaintance with the nomenclature, definitions, methods, great problems and aims of philosophical study. The transition by the young student from studies mainly objective, as is the greater part of the curriculum, to studies chiefly reflective and subjective, is often to the average student a difficult and unwelcome experience. Any course of preliminary instruction, therefore, calculated to smooth the way for this transition by familiarizing the student's thought with the terms, definitions, method and easier problems, must be as valuable as welcome to the student. Suitable elementary texts in Logic, Psychology and Ethics will be chosen to perform this important office, supplemented by a course of lectures especially prepared as an introduction to a more comprehensive study of Philosophy.

LOGIC

The work in this "science of sciences" will occupy the first term of the Senior year. Of the interest and value of the study of Logic both as a mental gymnastic and as a special training of the faculties for the discovery of truth and the detection of error, nothing need be urged.

Our method of instruction includes thorough study of the text-book and a practical application of the principles of Logic to the student's habits of thinking and expression, and to the detection of logical fallacies in examples chosen from standard literature.

PSYCHOLOGY

Two full terms are devoted to this study. Careful attention will be given to the double aspect of this

science, approaching it from the standpoints of consciousness and physiology. Class discussion and debate on the many interesting and practical questions that constantly present themselves in pursuing this study will be encouraged, and thesis work assigned to develop such questions more fully.

ETHICS

During the last term of the senior year a course of lectures will be given on the Nature of Volition and Human Responsibility, and two lessons per week in some standard text, as Dr. Robinson's Theory and Practice of Morals.

DEPARTMENT WORK

IN THE

COURSE OF APPLIED SCIENCE

ENGINEERING

PRES. A. M. RYON

INSTRUCTOR *

CIVIL ENGINEERING

Instruction in Civil Engineering will extend through the second, third and fourth years.

During the second year, attention will be directed to the following subjects: First, Materials—building stone, limes, cements, mortar, concrete, wood, metals, paints and varnishes. Second, Masonry—its construction, retaining walls, arches, chimneys, foundations above and below water. Third, Framing—wooden structures and carpentry. Fourth, Bridges—stone, wooden and cast iron, arched, trussed, tubular, suspension, movable and aqueduct bridges. Fifth, Common Road Construction—methods for laying out roads, determination of proper grades and preparation of road surfaces, construction of canals, general principles governing the improvement of rivers, harbors and shores in general.

The line of work indicated above will be carried on partly with the aid of text books and partly by lectures.

During the third and fourth years the students will study the methods used for determining the stresses which given loads will impose upon arches, trusses,

pillars, etc. They will also consider the resistance of materials and be given in this connection many practical problems to solve. Hydraulic Engineering, including water supply, reservoirs and dams, will be taken up during the fourth year.

SANITARY ENGINEERING

Lectures will be given on house drainage, sewers, land drainage, heating and ventilation.

MINING ENGINEERING

During the third year lectures will be given on the methods of mining the various classes of deposits which occur in nature. The topics considered will be somewhat as follows: prospecting, exploratory workings, comparison of the methods of opening up a deposit, timbering, sinking and drifting in quick sand, tunneling, methods of exploitation, drift running, hydraulic mining, driven wells, boring in rock, drainage of mines, underground and surface transportation, ventilation, blasting and quarrying, methods of paying mines, keeping accounts and stocking mines.

During the fourth year students are requested to hand to the Professor a memoir which will contain an accurate account of visits made to mines during the preceeding vacation. The memoir must be illustrated by drawings made to scale of the various mine appliances used at the properties visited. These memoirs become the property of the Engineering Department and are kept for reference purposes.

During the fourth year a course of lectures will be given on Ore Dressing, including general principles, preliminary cleansing and sizing, screens, concentration by jigs, buddles, tables, etc., also on the mechanical preparation of coal.

ENGINEERING DESIGN

This work will be carried on in the Drawing Room during the fourth year and consists in the preparation

of designs for mine pumps, bridges, roof trusses, cranes, etc. Efforts will be made to submit such problems to the student as will give him practice in applying the theoretical knowledge which he has acquired during the previous years.

SURVEYING

Instruction in the theory of surveying will be given during the third and fourth years; practical work in the field will be carried on during the fall of the third and fourth years, and will include pacing, chaining, ranging with poles, reading compass bearings, compass survey, adjustment and use of the hand level, topographical surveys with hand level, adjustments of the transit, exercise in reading of angles with the transit, determination of the true meridian by an observation on polaris with the transit and also with the solar attachment, traverse with the transit and steel tape, adjustment of the telemeter wires and measurement of distances by telemeter and gradienter, azimuth traverse with telemeter and gradienter measurements, city survey, adjustment of the wye level, line of levels run with wye level and N. Y. rod, railroad surveying and earthwork calculation.

Lectures will also be given on the use of the plane table, solar compass and solar attachment for the transit.

MECHANICAL ENGINEERING

MECHANICAL DRAWING

PROF. R. E. CHANDLER

During the first year the students will be given practice in the use of the instruments and water colors. The plates will include work in perspective, topographical and conventional signs, gearing, house plans, various parts of machines, etc.

During the third year students will be engaged in the Drawing Room working out practical problems in descriptive geometry, shades and shadows, machine design, topographical work, etc.

STEAM BOILERS

PROF. R. E. CHANDLER

Under this head will be considered the materials used in the construction of boilers, the relative advantages and disadvantages of such materials, methods of construction, strength and tests of boilers, different types of boilers, heaters and economizers, safety apparatus, regulators, incrustation and corrosion, care of boilers, etc. This subject will be taken up during the second year.

DESCRIPTIVE GEOMETRY

PROF. R. E. CHANDLER

During the first year recitations will be held in Descriptive Geometry three times a week throughout the year. The work in the Draughting Rooms during the third and fourth years will afford the student opportunities for applying practically the principles acquired in the Class Room.

SHOP WORK

PROF. R. E. CHANDLER

Shops will be constructed and furnished with machinery and tools for carrying on carpentry, machine and forge work as soon as practicable. In the meanwhile the students will be given extra work in the Draughting Room, in place of the shop practice.

MECHANICAL ENGINEERING

PROF. R. E. CHANDLER

Lectures will be given on the general principles of mechanism and prime movers which will include the general theory of motion, calculation of the relative velocities of moving pieces of machinery, transmission of motion, valve gearing, types and construction of machinery in practice, steam engines, hot air engines, and water wheels.

FREE-HAND DRAWING

INSTRUCTOR *.....

The morning periods of the second year, not otherwise taken, will be devoted to practice and instruction in Free-Hand Drawing. Special attention will be given to sketches of machines, fittings, tools, etc.

GENERAL CHEMISTRY

DR. F. W. TRAPHAGEN

Chemistry, inorganic and organic, occupies the entire first year and is developed with especial reference to the periodic law. As success in the more advanced work depends so closely upon a mastery of the principles of the science, we aim to that end. Attention is directed during the year to the relations of the elements and their compounds and to their properties and uses. The preparation of the various metals and

useful compounds for the market is dwelt upon, and later in the course special attention is given them under the subjects of Chemical Technology, Metallurgy, etc.

Courses of lectures, supplemented by text-book work wherever possible, and references to current literature, are given on the following subjects:

CHEMICAL PHYSICS

In which attention is especially directed to the chemical effects of light, heat, electricity, etc.

CHEMICAL PHILOSOPHY

Second year, when Mathematical Chemistry is studied.

CHEMICAL TECHNOLOGY

The order of topics is:

- 1st. Compounds of metals having industrial application.
- 2nd. Crude materials and products of chemical industry.
- 3rd. Glass and ceramic ware.
- 4th. Gypsum, limes, mortars and cements.
- 5th. Vegetable fibres.
- 6th. Animal substances, wool, silk, tanning, glue, phosphorus, matches, meat, milk, etc.
- 7th. Dyeing and calico printing.
- 8th. Artificial illumination.
- 9th. Fuel and heating.



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