Excerpts from the 1946-47 MCMT catalog –

B. PHYSICS

Messrs. Partlo, Service, Longacre, Sermon, and Pratt

Introductory courses in general physics are offered at two levels – the one for medical technologists, etc., and the other for candidates for science and engineering degrees. At both levels every effort is made to provide the student with a broad and understanding knowledge of the fundamentals of physics. Whenever possible, the relationships between the principles being studied and scientific or engineering practices are pointed out. The laboratory demonstrations and educational movies are made use of to supplement the lecture and classroom work.

The intermediate and advanced courses in physics are available to both the engineering and the science students to develop and round out their background in fundamental physics. Here, as in the introductory courses, problems and projects are selected from science and engineering applications whenever possible.

Programs ave available for students wishing to major either in physics or engineering physics. Inquiries from interested persons are welcomed by either the registrar or the department.

B1C-2C-3C. General Physics – 5-0-5, f; 3-0-3, w and s - - - - - 264

The classwork is divided as follows: B1C (Mechanics and Sound), B2C (Heat and Light), B3C (Electricity). Since physics provides a substantial part of the background for a scientist or an engineer, this introductory course is made as rigorous and technical as practicable. To be preceded by A4, and to be preceded or accompanied by A5a, A5b, A5c, and B1L-2L-3L.

B1L-2L-3L. General Physics Laboratory – 0-4-0; f, w, and s - - - 144

These laboratory courses accompany the corresponding class courses in general physics and are conducted at the same level. Insofar as possible, the laboratory work is coordinated with the classroom work. To be preceded or accompanied by B1C-2C-3C.

B6. Electrical Measurements – 2-4-2; f or w - - - - - - - - 96

Detailed consideration is given to the fundamental aspects of electricity and electrical units. In the course are included precise measurements of resistance, inductance, and capacitance. Prerequisites: A5a, A5b, A5c, and B3.

B10. Photography – 2-4-0; s - - - - - - - - - 72

For the benefit of students who which to acquaint themselves with the physics and chemistry of photographic equipment and processes. Special attention is given to a study of cameras, lens systems, manipulation, lighting, photographic chemicals and their reactions, films, papers, and dark-room manipulations. Prerequisites: B2 and E3, Pt. I.

B11-12-13. General Physics – 3-3-6; f, w, and s - - - - - - 432

A course in general physics to familiarize the student with basic physical principles which will make possible his intelligent use of laboratory equipment. Mechanics, heat, light, sound, and electricity are covered. Emphasis is placed upon problems, to the end that a working knowledge of the subject may be had. Prerequisites: A11-12-13.

B101. Theory of Heat Conduction – 3-0-6; f - - - - - - 108

Mathematical analysis of heat flow and temperature distribution, with problems and applications in engineering. Solution by Fourier series and Fourier integral; steady states and periodic flow. Prerequisites: A5a, A5b, A5c, and B2.

B102-103-104. Mathematical Physics – 2-0-4; f, w, and s - - - - 216

Mathematical analysis of physic problems arising in engineering and geophysics. This course may be devoted to any particular branch of mathematical physics, according to the needs of the students. Prerequisites: A5a, A5b, A5c, and B3.

B105. Polarized Light – 3-0-3; f - - - - - - - - - - - 72

A more advanced course continuing the work begun in this subject in B2. The course, designed particularly for those students who desire to take up Petrography, deals chiefly with polarization. The subject is presented mainly by experimental lectures. A very complete outfit of projection apparatus is in the possession of the department for use in this course. Prerequisites: B2 and W1.

B106. Electric and Magnetic Measurements – 3-3-3; s - - - - - 108

A continuation of work begun in B6, intended for those who wish to pursue further the theory and practice of precise electrical measurements. In the classroom the theory is developed and the applications are pointed out. In the laboratory the student applies the theory to the experiment. The course includes the study of circuits containing inductance, capacitance, resistance, and electromotive forces and the measurement of current, potential difference, magnetic field, permeability, etc. Types of all the principal instruments used in modern electrical methods are owned by the institution and are available for work in this course. To be preceded by B6 and preceded or accompanied by A105.

B107. Electron Tubes – 3-4-3; w - - - - - - - - - - 120

The construction and characteristics of different types of electron tubes and examples of their applications are studied in detail. Stress is laid on uses other than for radio communication. In the laboratory as many as possible of the applications studied in class are examined experimentally. To be preceded or accompanied by B6.

B108. Physical Optics – 3-4-5; s - - - - - - - - - - - 144

Intermediate physical optics and optical instruments. Prerequisites: A5a, A5b, A5c, B2, and B3.

B110. Geophysics – 3-0-3; f and w - - - - - - - - - - - 144

General geophysics. The properties made use of in geophysical prospecting are taken up and the instruments and the methods are studied. Special attention is given to the correlation of the data obtainable with a knowledge of the geological conditions in order that the best possible interpretation may be given to the results. Magnetic, gravitational, elastic, electrical, thermic, and radio-activity methods are studied. Thorough preparation in mathematics, physics, and geology is essential for a proper understanding of the work.

B111. Applied Geophysics - - - - - - - - - - - - 48-150

The amount of time, and the hours, are scheduled to suit the students and the instructor. The course familiarizes the student with the construction and use of instruments used in geophysical prospecting and with methods of interpreting measurements obtained. Prerequisites: B110.

B120. Modern Physics – 3-0-6; f - - - - - - - - - - - 108

A survey of atomic and molecular structure, nuclear physics, and radiation, with emphasis on recent developments. Open to seniors with the consent of the department.

B130. Physics in Industry – 3-0-6; s - - - - - - - - - - - 108

For senior and graduate students specializing in physics. Advanced students not specializing in physics may elect this course only with departmental permission. Special attention is devoted to the literature of applied physics and other sources dealing with contemporary industrial applications of the methods of physics.

B140. Heat and Thermodynamics – 3-0-6; s - - - - - - - - 108

An advanced course dealing with the study of thermal properties of matter, kinetic theory, and physical thermodynamics. Prerequisites: A105 and B1-2-3.

B150. Physics Colloquium I – 1-0-2; f, w, and s - - - - - - - 108

Discussion of current literature and recent advances in the field of physics, under supervision of the departmental staff. Open to juniors with the consent of the department.

B151. Physics Colloquium II – 1-0-2; f, w, and s - - - - - - 108

Same in scope as B150. Open to seniors with the consent of the department.

B201. Physics Research - - - - - - - - - (maximum) 1080

Minimum of ten hours a week and maximum of thirty hours a week during any one term. Fundamental research in applied physics or geophysics. Prerequisites: A105 and B3.

B250. Physics Colloquium III – 1-0-2; f, w, and s - - - - - 108

Same in scope as B150 and B151. Students electing this course are expected to prepare reports and abstracts for presentation to the group, and to act as moderators of the discussions. Open to graduate students only.

C. MECHANICS

Messrs. Partlo, Longacre, and Sermon

To give the student proficiency in applying essential principles to practical as well as theoretical problems, he solves a large number of problems which as far as possible are selected from machines or structures with which he is familiar or which he will subsequently study.

C1a-b. Analytic Mechanics – 3-0-5; w and s - - - - - - - - 192

Statics, flexible cords, and rectilinear and curvilinear motion. To be preceded by A5a and B1 and preceded or accompanied by A5b and A5c.

C2. Analytic Mechanics – 3-0-6; f - - - - - - - - - 108

Moments of inertia, dynamics of rotating bodies, transmission of power, and friction of belts and pivot bearings. Prerequisite: C1a and C1b.

C103. Analytic Mechanics – 3-0-6; w - - - - - - - - - 108

Impulse, momentum, impact, and special topics in kinetics, such as balanceing of rotating masses, pendulums, governors, and gyroscopes. Prerequisite: C2.

C104. Elements of Mechanical Vibrations – 3-0-6; s - - - - - 108

The more elementary phases of vibrations, and their application to practical problems. Prerequisites: B1, B2, B3, and C2.