

materials and costs; plans, specifications, and details.

Mr. Clark.

Second year, second semester, four hours per week. 3 units.

150. Agricultural Mechanics. A course designed to meet the needs of students of agriculture and farm management, comprising study and construction of small farm buildings; poultry, dairy, apiary, and farm house equipment. Apparatus for orchard and garden. Repair of harness and machinery. Introduction to concrete. Text: Robert H. Smith, Agricultural Mechanics.

Mr. Clark.

Second year, either semester, five hours a week. 3 units.

114. Shop Courses and Practices. Lecture series on shop equipment, course of study, and methods of presentation of problems. Students are to gather and compile data on materials, tools, shop furniture; make shop layouts. General review of manual arts work with reference to actual shop practices.

Mr. Clark.

Second year, second semester, three hours a week. 3 units.

200. Pattern Making. A course to include construction of simple patterns and cores and a study of the principles of pattern making and its relation to foundry practice. Text: Hanley, Wood Pattern Making; Wilcox, Notebook for Wood Pattern Making.

Mr. Clark.

Third year, either semester, five hours a week. 3 units

230. Organization and Administration of Industrial Arts. Classification of manual arts and vocations. Organization of material and its value as well as method of presentation. Classification of tools, tool operations, and projects. Planning of courses from fifth grade through high school. Reading reports and discussion of the theory and practice of manual training in education. Text: Homer J. Smith, Industrial Education. Prerequisite: fifteen

hours manual arts or senior college standing.

Mr. Clark.

Fourth year, either semester, three hours a week. 3 units.

120. Mechanical Drawing 1. An elementary course involving free-hand lettering, orthographic projection, cabinet and isometric projection.

Mr. Fairbanks.

First year, either semester, five hours a week. 3 units.

130. Mechanical Drawing 2. An elective course covering sections, intersections, and machine drawing, with shading and technic emphasized. Prerequisite: Ind. Arts 120 or equivalent.

Mr. Fairbanks.

Second year, either semester, five hours a week. 3 units.

106. Sheet Metal Work. Practical intersections and developments as related to sheet metal work. The first quarter is devoted to drawing adapted to sheet metal work. The second quarter is spent in the sheet metal shop where the accuracy of the drawing work is tested by building the articles designed.

Mr. Fairbanks.

First year, second semester, five hours a week. 3 units.

140. Machine Shop. The student is given the fundamental principles of machine shop work which involves a study of materials, shop mathematics, shop formulas, and the care and operation of machines and tools. The student builds small machines and tools, cuts gears, and machines castings. Special work in tool making is also offered to those who are qualified for advanced work.

Mr. Fairbanks.

Second year, either semester, five hours a week. 3 units.

105. Forge and Foundry Practice. The class makes a series of simple forgings which are selected to cover the fundamental principles. Part of the work consists of a study