107. Jewelry (2) S Sch

Techniques and materials used in the designing and fashioning of jewelry; processes and techniques; useful and artistic projects.

108a-b. Handcraft (2-2) F (Former Ind. Arts 8, 108) Gonser-Sch

Ind. Arts 108a is not prerequisite to Ind. Arts 108b. Recommended for ge student as well as industrial arts majors. Creative and recreational experienc craft media; wood carving, plastics, metal tooling, leatherwork, enameling and industrial arts craft areas; historical and industrial related materials.

109a. Advanced Automotive Fundamentals (3) F Al

Prerequisites: Ind. Arts 9, 11. Advanced study of fundamental principles modern refinements in the action and construction of the components studie Ind. Arts 9.

109b. Auto Diagnosis and Repair (3) S Al

Prerequisite: Ind. Arts 109a. Basic diagnosis and service procedures on aut tive repair jobs; motor testing, tune up, and trouble shooting.

110. Advanced Automotive Processes (3) F Al

Prerequisite: Ind. Arts 109a. Shop practice in maintenance and repair in motive specialty areas, automotive machine shop, wheel alignment, body w electrical service, power equipment, and trouble shooting.

111a. Principles of Electrical Motors (3) S New

Prerequisite: Ind. Arts 11. Principles of construction, operation, maintenance, repair of alternating current and direct current motors and generators. Occas field trips.

111b. General Electricity (3) F New

Prerequisite: Ind. Arts 11. Instruction in basic radio; organization and man ment of the public school electricity and radio shop. Laboratory practice in struction of practical projects and teaching aids.

111c. Applied Radio and Television (3) S New

Prerequisite: Ind. Arts 111b. Maintenance and repair in the field of radio television; use of oscilloscope, signal generator, signal tracer, and other radio instruments in service operations; principles of television; frequency modula

111d. Principles of Electrical Wiring (3) F New

Prerequisite: Ind. Arts 11. Principles of electrical power distribution; indus and residential wiring; practical problems in wiring layout and design, installa and repair; local and national electrical code. Occasional field trips.

112. Advanced Machine Shop (3) S (even years) Schr

Prerequisite: Ind. Arts 10a. Design, repair, and construction of machines tools for practical use; making of repair parts for tools, machines.

115. General Machine Shop (3) F (odd years) Schr

Prerequisite: Ind. Arts 10a. Review of fundamental operations; machine s organization, management and ordering of materials and supplies; development teaching devices, projects; care, repair, maintenance of machine shop tools, machi supplementary equipment.

116. Automotive Technical Problems (3) Ald

For industrial arts auto mechanics teaching and technical majors. Prerequis Ind. Arts 109a. Planning, organization and management of an auto mecha laboratory. Occasional field trips.

117a-b. Metal Craft (2-2) S (Former Ind. Arts 7, 117) Schorling

Use of copper, brass, bronze, aluminum, pewter, gar-alloy, and silver in con- ruction of artistic and useful projects; historical and industrial related materials. a) Basic tools of the silver and coppersmith; design, annealing, surface and con- ur enrichment, hard and soft soldering, piercing, high and low raising, etching, pousse, chasing, coloring and finishing. (b) Spinning and precision centrifugal sting of nonferrous metals; lost wax investment; low and high form and sectional inning.

118. Advanced Sheet Metal (3) S Feuches

Pattern drafting and layout; tool operations and techniques through practice make-up of sheet metal work.

119. General Metal (3) F and S Feuches

Development of appreciation and manipulation of metals; metal casting, forging, nench metal, and ornamental iron.

121. Machine Drawing (3) S Dunning

Prerequisite: Ind. Arts 19 or equivalent. Sketching and drawing of machine parts detail and assembly; use of standard tables.

122. Advanced Architectural Drawing (3) S Dunning

Prerequisite: Ind. Arts 22 or permission of instructor. Perspective elements, blique lines and planes, parallel perspective and perspective plan method; per- pective views developed from working drawings in Ind. Arts 22.

123. Methods of Teaching Industrial Arts (3) F and S Grosse

Prerequisite: Educ. 185. Teaching techniques and procedures in industrial arts; rganization of teaching material; literature of the field; professional standards for achers. Observation in public schools.

125. Curriculum Development in Industrial Education (2) F and S Grosse

Prerequisite: Ind. Arts 123. Development of the curriculum for industrial arts in lementary and secondary schools through individual planning and laboratory xperimentation.

126. Teaching Aids in Industrial Education (2) Grosse-Staff

Preparation and use of various teaching aids such as models, mockups, cutaways, harts, motion pictures, slides; application to the planned lesson.

127. Typography (3) McComas

Fundamentals of typographic layout and design, type styles and uses; adaptability, imitations, and peculiarities of hand and machine-set type; photoengraving and ther art reproduction.

128. Graphic Reproduction Fundamentals (2) McComas

Overview of the processes, materials, and personnel of the graphic arts industry; ajor reproduction processes of letterpress, intaglio, and plane surfaces; line, half- one, and process color reproduction; silk-screen and block printing.

129. Printing Management (3) McComas

Problems of production, control, cost, safety, equipment and supplies; bookkeep- ng, ordering, job tickets, organization, and management.

130. Handwork in Elementary Education (3) F and S Gonser-Bliss

For kindergarten-primary and general elementary credential candidates. Not pen to others except by permission of instructor. Developing and fabricating eaching aids and integrated handwork units for elementary schools; basic skills n use of simple construction materials and tools.

Offered when demand warrants.