ciples of motion economy; descriptive techniques useful to the methods designer; work measurement; work sampling; special problems in methods engineering. (2 2-hour lecture-labs)

121. Mechanism (3)

Prerequisite: Engr 26, 70, 130. Analytical and graphical solutions of motion problems involving mechanical elements; synthesis of plane and space linkage systems. (2 3-hour lecture-labs)

122. Machine Design (3)

Prerequisite: Engr 70; 130; 139 (or concurrently); Math 81. Analytical study of machinery; applications to design of machines; use of computers in design problems.

123. Advanced Mechanical Design (2)

Prerequisite: Engr 70, 121, 122; Math 81. Analytical study of dynamics of machinery; applications to design problems. (2 2-hour lecture-labs)

124. Vibration (3)

Prerequisite: Engr 70, 130; Math 81. Mathematical and physical basis of vibration theory with applications to engineering; transient and steady state phenomena; distributed and lumped parameters; coupled systems; computer solutions.

130. Engineering Mechanics: Dynamics (3)

Prerequisite: Engr 30. Application of principles of kinematics and kinetics to problems in engineering.

131. Mechanics of Materials (3)

Prerequisite: Engr 30; 32 (or concurrently). Application of principles of mechanics to find stresses and deformations in machine and structural members.

131L. Mechanics of Materials Laboratory (1) (Former Engr 132)

Prerequisite: Engr 32; 131 (or concurrently). Application of the principles and methods of testing to verify theory and determine limitations of principles of mechanics of materials.

133. Steel and Timber Structures (3)

Prerequisite: Engr 135. Steel and timber members for buildings and bridges designed for dead, live, impact, wind, and seismic forces; light gage and plastic steel design. (2 lecture, 3 lab hours)

134. Reinforced Concrete (3)

Prerequisite: Engr 135. Design and investigation of concrete structures by elastic and ultimate design procedures; prestressed concrete. (2 lecture, 3 lab hours)

135. Theory of Structures (3)

Prerequisite: Engr 131. Trusses and frames analyzed by algebraic and graphic procedures; influence lines and Cooper diagrams; rigid frames analyzed by slope deflection and moment distribution.

136. Physical Metallurgy (2)

Prerequisite: Engr 131L. Physical properties of metals as manufactured and affected by heat-treatment and forming processes; correlation of properties with microstructure. (1 lecture, 3 lab hours)

137. Soil Mechanics (3)

Prerequisite: Engr 131L. Physical and mechanical properties of soil as an engineering material; theoretical studies in permeability, compressibility and compression and stress-deformation and strength characteristics. (2 lecture, 3 lab hours; field trips)