

131. Mechanics of Materials (3)

Prerequisite: Engr 30. 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. (3 lab hours)

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)

138. Highway Engineering (2)

Prerequisite: Engr 2; 137 (or concurrently). Feasibility and economic considerations in location, design, construction, and maintenance of streets and highways.

139. Advanced Mechanics of Materials (3)

Prerequisite: Engr 70, 131; Math 81. Advanced topics in mechanics of materials.

141. Irrigation Engineering (2)

Prerequisite: Engr 131, 164. Flow of water in canals, design of canals and canal systems, measurements of water, surveys for irrigation systems. (1 lecture, 3 lab hours; field trips)

142. Water Supply and Sanitation (2)

Prerequisite: Engr 164. Water treatment plants, distribution systems, waste collection systems and disposal facilities; storm drainage systems. (2 lecture; field trips)

143. Concrete Laboratory (1)

Prerequisite: Engr 131L; 134 (or concurrently). Proportioning of concrete mixes; admixtures; test for entrained air; slump test; compressive and flexural strength tests; reinforced concrete. (3 lab hours; field trip)

144. Foundation Design (3)

Prerequisite: Engr 137, 134 (or concurrently). Theory and design of footings, piles, retaining walls, and other structures combining the use of soil mechanics and structural analysis.