101. Route Surveying (2)

Prerequisite: Engr 2, 2L. Computation and field work covering surveys for highway, irrigation, construction and other kinds of engineering projects. (1 lecture, 3 lab hours; field trips)

102. Geodetic Surveying (2)

Prerequisite: Engr 2, 2L; Math 6. Triangulation; adjustment of geodetic figures; base line measurement, map projection; precise leveling. (1 lecture, 3 lab hours; field trips)

103. Photogrammetry (2)

Prerequisite: Math C, Engr 1, or permission of instructor. Terrestrial and aerial photography applied to surveying and mapping; stereoscopy; application of aerial surveying to specific engineering problems. (1 lecture, 3 lab hours; field trips)

111. Methods Analysis (2)

Prerequisite: senior standing or permission of instructor. Survey and measurement of factors concerning the human element in its relationship to standards of performance and production; use of motion and time studies and work sampling techniques. (2 2-hour lecture-labs)

121. Mechanism (3)

Prerequisite: Engr 25 or 26; 130 (or concurrently). Elementary principles of mechanism; gears, cams, and other mechanical linkages; graphical solution of motion problems. (2 3-hour lecture-labs)

122. Mechanics of Machines (3)

Prerequisite: Engr 121, 130, 131. Analytical study of machinery; application of principles covered in courses on mechanism, mechanics of materials and materials of engineering construction courses.

123. Machine Design (2)

Prerequisite: Engr 122. Design of machine elements and complete machines; preparation of detail and assembly drawings and specifications. (2 2-hour lecture-labs)

130. Analytical Mechanics Dynamics (3)

Prerequisite: Engr 30. Mathematical treatment of the principles of kinematics and kinetics with applications to problems in engineering.

131. Mechanics of Materials (4)

Prerequisite: Engr 30; 32 (or concurrently). Application of the principles of mechanics to design of structural and machine members; stress analysis of beams and columns. (3 lecture, 2 lab hours)

132. Materials Laboratory (2)

Prerequisite: Engr 32; 131 (or concurrently). Instruction and practice in making standard tests of iron, steel, cement, concrete, brick, and other engineering materials. (1 lecture, 3 lab hours)

133. Steel and Timber Structures (2)

Prerequisite: Engr 135. Design of trusses and building frames; structural detailing in steel and timber. (1 lecture, 3 lab hours)

134. Reinforced Concrete (2)

Prerequisite: Engr 135. Design in reinforced concrete; detail drawing of reinforced concrete structures. (1 lecture, 3 lab hours)