MECHANICAL DESIGN (MECH)

MECH 101. Machine Tools. (3 Credits)
Basic principles, capabilities and limitations of machine tools, theory of single and multiple point cutting tools and metal removal. Machine operations and setup, measuring devices, safety and use of hand tools. Co-requisite: MAGN 101 and MFG 110 or permission of instructor 3 credits (2 lecture hours, 3 laboratory hours), spring semester

MECH 103. Machine Shop Practices. (1 Credit)
Types of tools used in machine shops, with hands-on experience. Machining of several simple small parts, with methods of machining being more important than accuracy, surface finish, etc. 1 credit (1 lecture hour, 3 laboratory hours), 8 weeks, fall semester

MECH 120. Engineering Materials. (3 Credits)
A study of material properties, limitations, processing, testing, and specification. Course includes plastics, metals, ceramics, composites, cements and other important engineering materials. 3 credits (2 lecture hours, 3 laboratory hours), fall semester This course satisfies the Liberal Arts and Sciences requirement and the SUNY General Education Requirement for Natural Science

MECH 211. Analytical Mechanics (Statics). (3 Credits)
Development of the various analytical methods to determine force acting on a particle of rigid body at rest, in a plane or in space. Determination of forces in transmission lines, cables, trusses, machine components and structures. Forces introduced as a result of friction and location of first and second moments. Spreadsheet of software applications. Prerequisite: PHYS 107 (C or better required) Co-requisite: MATH 103 3 credits (2 lecture hours, 1 recitation hour), fall or spring semester This course satisfies the Liberal Arts and Sciences requirement and the SUNY General Education Requirement for Natural Science

MECH 212. Mechanical Design. (4 Credits)
Study of translation and rotation plane motion of machine elements. Graphical kinematic analysis including absolute and relative velocities, with CAD and spreadsheet applications. Mechanical component analysis and selection to include cams, gears, chain drives, and belt drives. Prerequisites: CAD 186, MECH 211 4 credits (3 lecture hours, 2 laboratory hours), spring semester

MECH 213. Strength of Materials. (4 Credits)
Physical properties of engineering materials including relationships between stress and strain, beam design, riveted joints, torsion of shafts, column buckling and the impact loading of mechanical elements. Laboratories in tensile, shear and bending tests as well as the use of electrical strain gages. Prerequisite: MECH 211 (C or better required) 4 credits (3 lecture hours, 2 laboratory hours), fall or spring semester This course satisfies the Liberal Arts and Sciences requirement and the SUNY General Education Requirement for Natural Science

MECH 233. Fluid Power and Control. (4 Credits)
A study of incompressible power systems. Including topics in power transmission, controls, circuit design and efficiency, applications, as well as electrohydraulic control of discrete components and programmable systems. Prerequisites: MATH 103, CAD 184 and PHYS 107 4 credits (3 lecture hours, 3 laboratory hours), spring semester