

# ENGINEERING (ENGR)

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## Courses

### **ENGR-105 ENGINEERING GRAPHICS 2 Credits**

Engineering Graphics emphasizes computer aided graphical analysis and transmission of information. Study of computer designing and drafting systems is presented using various CAD software applications with specialization in the AUTOCAD program. Included will be freehand and computer generated engineering graphics, 2D, and 3D graphics in orthographic and pictorial projections in sections and various views, graphical analysis of data, and measurements dimensioning. Course Fee.

### **ENGR-108 SEMICONDUCTORS, SCIENCE, AND SOCIETY 4 Credits**

This course covers the foundations of semiconductor science and technology. Students will learn where semiconductors are used in Idaho and beyond, how to build basic circuits, and what careers are possible in the semiconductor industry. They will explore industry innovations and manufacturing, trace paths to reach career goals in the semiconductor industry, and investigate the future of semiconductor science through team challenges and gamified learning explorations.

### **ENGR-110 SOLIDWORKS - COMPUTER AIDED DRAFTING 3 Credits**

An introduction to the concepts commands of parametric solid modeling. Students create sketches and add relationships to the sketch segments, extrude the sketches to create models, add features such as fillets, cut, extrude, chamfers, holes, draft, shell, lofts and sweeps, assemblies and BOM, the use of equations, part configurations and design tables, derived and molded parts.

### **ENGR-115 SURVEYING 3 Credits**

Theory of measurements, basic equations for survey computations, types of distribution of errors, topographical and land surveying introduction to geographic information systems and global positioning systems, coordinate geometry and coordinate transformations, site engineering projects using land development software, application of surveying methods to construction; site engineering, and civil engineering projects surveying instruments. Pre-requisite: MATH-144.

### **ENGR-120 ENGINEERING FUND ANALYSIS & DESIGN 4 Credits**

This course provides both an introduction to the engineering profession through design projects, research, and guest speakers along with development of college success skills for an engineering academic program including time management and study skills, critical thinking, problem solving skills, communication skills, ethics, and an introduction to basic computer programs.

### **ENGR-210 ENGINEERING STATICS 3 Credits**

Engineering application of the principles of mechanics, force systems, equilibrium, structures, distributed forces, moments of inertia, and friction with an emphasis on problem solving. Pre-requisite: Grade of 'C' or better in MATH-170.

### **ENGR-220 ENGINEERING DYNAMICS 3 Credits**

Engineering application of principles of particle and rigid body kinematics, force-mass-acceleration relations, work and energy, impulse and momentum, and moments of inertia and mass with an emphasis on problem solving. Course fee. Pre-requisite: A grade of 'C' or better in MATH-170 and ENGR-210.

### **ENGR-240 ELECTRICAL CIRCUITS 4 Credits**

An introduction to basic electric circuit analysis with lab. Concepts covered include steady-state DC circuits, AC steady-state circuits using phasor analysis, AC power calculation, first order transient, ideal op-amps, ideal transformers, and introduction to balanced 3-phase circuits. Pre-requisite: PHYS-211 or MATH-170.

### **ENGR-292 SPECIAL TOPICS IN ENGINEERING 3 Credits**

### **ENGR-330 MECHANICS OF MATERIALS 3 Credits**

An introduction to the principles and methods of mechanics of materials analyzing stress, strain and displacement fields in mechanically and thermally loaded components. Pre-requisite: ENGR-210.