

OAKTON DUAL CREDIT COURSES

EVANSTON TOWNSHIP HIGH SCHOOL

OAKTON COURSE	COURSE NAME	SEMESTER HOUR OF CREDIT	COURSE DESCRIPTION
ART 115	Beginning Photography	3	Course explains basic photography. Student, using their own cameras, explore basics of film exposure, development and printing. Focus is on realizing camera's ability to record fine delineation of tone and detail using black and white materials. Content includes use of studio cameras, studio lighting, brief history and basic aesthetics of photography.
CAD 105	Industrial Design Engineering	4	Course introduces industrial design, and its place in the manufacturing process. Content includes design visualization, creation, and application of 3-D computer-generated models in today's manufacturing, communication, and publishing industries; creating a 3-D computer model component design from original idea, pencil sketching, and concept analysis, to use of surface and solid modeling software; use of Boolean operations in model construction and editing, display commands, detailing, geometric translation, rendering and presentation.
CAD 210	Industrial Design Engineering Techniques	4	Course continues CAD 105, to increase skills for creating prototypes of computer models using 3-D modeling software. Hands-on lab course involves critical thinking skills related to industrial design and manufacturing. Content includes industrial techniques such as extrusions, laser cutting, fasteners, welding, sheet metal production, injection molding, and stereo lithography; production process utilizing computer controlled machining centers and prototyping equipment. Recommended: CAD 105.
CAD 220	CAD Introduction to Building Systems-Revit	4	Revit enables students to create full 3D architectural project models and place them in working drawings. Class focuses on the basic tools that the majority of users will need to work with. Topics include creating floor plans, adding views, adding various building components, and creating sheets for plotting.
GRD 101	Introduction to Visual Communication	3	Course covers the fundamental principles of design and how these relate to effective communication. It explores the media and tools that create imaging and how these tools are integrated into the image-making process. Topics include conceptual design, critical thinking in the creation of practical design, how design relates to industry, human perception and the visual process, and the history of visual communication, from the symbols of the cave man to modern-day advertising.
MAT 125	General Education Mathematics	4	Course focuses on mathematical reasoning and the solving of real-life problems. Topics include: counting techniques and probability, logic, set theory, and mathematics of finance. Calculators/ computers used when appropriate. IAI General Education: M1 904
MAT 140	College Algebra	3	Topics discussed in this course include functions and their graphs, polynomial and rational functions, exponential and logarithmic functions, systems of linear and nonlinear equations, matrices, sequences and series, and study skills. Applications and technology are integrated throughout. Prerequisite: MAT 095 or MAT 110 or the equivalent with a minimum grade of C, or appropriate score on the Mathematics Placement Test; and MAT 080 or geometry proficiency.
MAT 252	Calculus III	4	Course surveys topics of calculus for multivariable functions. Content focus is on vectors, functions of several variables, curves and surfaces, differentiation, partial derivatives, multiple integrals, and line integrals. Technology is integrated throughout. IAI General Education: M1 900-3
MAT 260	Linear Algebra	3	Course covers matrices and the algebra of linear systems. Content includes equations, vector spaces, real inner product spaces, linear transformations, determinants, eigenvalues, eigenvectors, diagonalizability, quadratic forms and symmetric matrices. Calculators/computers used when appropriate. IAI Major: MTH 911
MFG 111	Introduction to Computer Integrated Manufacturing	3	Course introduces students to the concepts of Computer Integrated Manufacturing (CIM) systems used to automate manufacturing processes. The course starts with outline of main differences between hard and flexible automation. Main content provides introduction to basic electricity, electric motor types, hydraulics and pneumatics used for motion control, sensors and vision systems, industrial robotics, and programmable controllers. The course concludes with students composing an advanced manufacturing CIM cell.