

OAKTON DUAL CREDIT COURSES

NEW TRIER HIGH SCHOOL

OAKTON COURSE	COURSE NAME	SEMESTER HOUR OF CREDIT	COURSE DESCRIPTION
ATA 102	Introduction to Automotive Technology	4	Course introduces field of automotive technology. Topics include history of transportation, service shop organization, vehicle maintenance and lubricating services. Focus is on job and shop safety.
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 107	Introduction to 3D Printing	2	This course is an introduction to 3D printing with emphasis on operation of 3D printers and design of 3D printed parts. The computer will be used by students to create 3 dimensional models and prepare the models to print using plastic modeling material. Course content covers step by step approach to creating models and setting up a 3D printer.
CAD 116	Basic AutoCAD	3	Course is first of three in drafting and design using AutoCAD software. Content includes setting up a drawing electronically; drawing and editing; construction techniques; display commands; effective layering; dimensioning and detailing; using blocks, and plotting.
CAD 117	Intermediate AutoCAD	4	Course is second of three in AutoCAD. Content includes assigning attributes to blocks; using external references; grouping and filtering entities, and slide shows; three-dimensional (3D) topics cover dynamic viewing, defining coordinate systems, extrusions, wireframe modeling, surface modeling; introduction in to solid modeling. Recommended: CAD 116 or consent of instructor.
CAD 134	Basic AutoCAD for Interior Design	4	Course introduces Computer-Aided Design with emphasis on interior design applications. Students use the computer to draw and plot floor plans, lighting and electrical plans, and elevations. The course covers setting up a drawing electronically, drawing and editing, construction techniques, display commands, effective layering, dimensioning and detailing, using blocks, and plotting.
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.
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.
CAD 224	Advanced Building Information Modeling-Revit	4	This is the second course in BIM Technologies for Revit Architecture. Topics include site development, interoperability, linking and managing projects, advanced modeling methods, design options, phasing, work sharing and 2D and 3D presentation techniques.
ELT 114	Residential Wiring	3	Course provides technical skills and knowledge of residential wiring, to conform to the National Electrical Code. Content includes safe installing, maintaining, replacing and repairing residential wiring and distribution systems. Hands-on labs, using of variety of tools and equipment to complete and troubleshoot residential electrical wiring projects.

ELT 221	Digital Circuit Fundamentals	3	Course involves study of discrete devices and integrated circuits. Content includes application of inverters, AND, OR, NAND, and NOR gates, and all circuits necessary to operation of a computer including microprocessors. Focus is on analysis of functions from a systems and circuit standpoint.
MFG 102	Industrial Drafting and Design	3	The course provides a thorough understanding of industrial drafting and design. It starts with outline of main differences between 2D and 3D design techniques. Main content covers examining the three major components of manufacturing drawings: geometry, dimensions, and drawing annotations required to machine a part or build an assembly according to the specifications. Additional topics include differences between metric (first angle) and standard (third angle) projections and dimensioning; interpreting advanced drawing views, and analyzing detail and assembly drawings. The course concludes with introduction to Geometric Dimensioning and Tolerancing (GD&T). Introduction to three-dimensional Computer Aided Design (CAD) software is integrated throughout the course.