



1500 Fourth Avenue - Altoona, PA 16602

Drafting and Design Technology

Mr. Shane Stoehr

Drafting/Design Technology is directed at preparing senior high school students who will, upon graduation, become employed as technicians, engineering aides, draftpersons, or CAD operators in various fields. Generally, these students will also be qualified for admission to a technical school, junior college, Commonwealth campus, or an accredited four-year college or university. The course is intended to give the student an opportunity to develop essential skills used in engineering drafting and graphics, architectural drawing and materials of construction, demonstrate the application of mathematical tools to problem solutions, acquire a better understanding of industries, manufacture processes, materials of design, and design problem solving; and develop attitudes and work habits relative to the standards of the industry. This course offers the student an important opportunity to begin learning a useable technical trade and also prepare for future educational goals. The student should possess an interest and strength in mathematics, experience with computers, and be able to work well in teams and group settings. Prerequisites: Applied Math, Science & Communications.

CIP#: 15.1301

Duty / Task	Hours	STANDARD	ENGLISH	ANCHOR	MATH ANCHOR	SCIENCE STANDARDS	WORK STANDARDS
Career Investigations Sequence	115						
Career Investigations		1.1.11.A-EG	1.7.11.A-C		M8.A.3.3.1		13.1.11.A-G
Career Planning		1.2.11.A-C	1.8.11.A-C		M11.D.1.1.1,2		13.2.11.A-E
College & Career Preparations		1.4.11.B-E					13.3.11.A-F, G
Co-operative Education (Instructor Permission Req'd)		1.5.11.B,F					13.4.11.A,B
		1.6.11.A-F					
Safety Program Sequence	66						
Fire Evacuation		1.1.11.C,E,H			M8.A.3.3.1	3.1.10.A	
Classroom Safety Procedures		1.2.11.B			M11.D.1.1.1	3.7.10.A	
Sleep & Sleep Deprivation		1.4.11.B			M11.E.1.1.2		
Stress Management		1.6.11.A,E					
Workstation Safety							
Safety Color Codes							
Machine & Power Tool Safety							
Emergency Weather Evacuation Plan							
Substance Abuse							
Sketching & the Design Process	25						
Freehand Sketching & the Design Process		1.1.11.A-H	1.6.11.A,C-F		M8.A.3.3.1	3.1.10.A,B	
		1.2.11.A-C	1.7.11.A-C		M11.D.1.1.1	3.2.10.B	
		1.4.44.B-D	1.8.11.A-C		M11.A.2.1.3	3.7.10.A,B	
		1.5.11.A,C-F			M11.A.3.2.1		
Mechanical Board Drafting Sequence	135						
Geometric Construction		1.1.11.A-H			M8.A.3.3.1	3.1.10.A,B	
Mechanical & Architectural Scales		1.2.11.B,C			M11.C.1.1.1,2	3.2.10.B	
Orthographic Views & Dimensioning		1.4.11.D			M8.B.1.1.1,2	3.7.10.A,B	
Sectional & Auxiliary Views		1.3.11.E			M11.A.1.1.1		
Threads & Fasteners					M11.3.1.2		
Isometric & Oblique					M11.B.2.2.4		
2-point Perspective: Mechanical					M5.B.2.1.1		
					M11.B.2.1.1		

2-point Perspective: Architectural
Final Project (Instructor Permission Req'd)

CADD Fundamentals Sequence 168

- Intro to Autodesk's AutoCAD Fundamentals
- Layer Controls & Object Orientation
- Geometric Construction
- Orthographic Views
- Dimensioning & Notes
- Tolerancing & Fits
- Symmetrical Features
- Auxiliary Views
- Sectional Views
- Threads & Fasteners
- Isometric & Oblique
- Developments & Patterns
- Working (Assembly) Drawings
- 2-point Perspective: Mechanical
- 2-point Perspective: Architectural
- Final Project (Instructor Permission Req'd)

- M11.A.2.1.3
- M11.C.1.4.1
- M8.A.3.3.1
- M11.C.1.1.1,2
- M8.B.1.1.1,2
- M11.A.1.1.1
- M11.3.1.2
- M11.B.2.2.4
- M5.B.2.1.1
- M11.B.2.1.1
- M11.A.2.1.3
- M11.C.1.4.1
- M11.C.1.2.1
- M11.D.2.1.3
- 3.1.10.A,B
- 3.2.10.B
- 3.7.10.A,B,C

Architecture Overview Sequence 160

- Environmental & Community Considerations
- Architectural Styles
- Residential Construction Basics
- Architectural Materials
- Architectural Drawing Symbols
- Architectural Dimensioning Techniques
- Architectural Scales
- Plans, Elevations & Sections
- Schedules & Titleblocks
- Final Project (Instructor Permission Req'd)

- M8.A.3.3.1
- M11.C.1.1.1,2
- M8.B.1.1.1,2
- M11.A.1.1.1
- M11.3.1.2
- M11.B.2.2.4
- M5.B.2.1.1
- M11.B.2.1.1
- M11.A.2.1.3
- M11.C.1.4.1
- M11.C.1.2.1
- M11.D.2.1.3
- M11.B.2.2.1
- M11.A.3.2.1
- 3.1.10.A,B
- 3.2.10.B
- 3.7.10.A,B,C

Revit Residential Architecture Sequence 168

- Intro to Autodesk's Revit Fundamentals
- Floor Plan (The Basics)
- Overview of Linework & Modify Tools
- Drawing 2D Architectural Objects
- Floor Plan (First Floor)
- Second Floor & Basement Plans
- Roof
- Floor Systems & Reflected Ceiling Plans
- Elevations
- Sections
- Floor Plan Features
- Schedules
- Photo-realistic Rendering
- Construction Documents Set
- Final Project (Instructor Permission Req'd)

- M8.A.3.3.1
- M11.C.1.1.1,2
- M8.B.1.1.1,2
- M11.A.1.1.1
- M11.3.1.2
- M11.B.2.2.4
- M5.B.2.1.1
- M11.B.2.1.1
- M11.A.2.1.3
- M11.C.1.4.1
- M11.C.1.2.1
- M11.D.2.1.3
- M11.B.2.2.1
- M11.A.3.2.1
- 3.1.10.A,B
- 3.2.10.B
- 3.7.10.A,B,C

3D Mechanical Modeling Sequence 180

- Intro to Autodesk's Inventor Fundamentals
- Parametric Modeling
- Constructive Solid Geometry
- Model History Tree
- Parametric Constraints
- Geometric Construction
- Parent/ Child Relationships
- Part Drawings
- Datum Features & Auxiliary Views

- M8.A.3.3.1
- M11.C.1.1.1,2
- M8.B.1.1.1,2
- M11.A.1.1.1
- M11.3.1.2
- M11.B.2.2.4
- M5.B.2.1.1
- M11.B.2.1.1
- M11.A.2.1.3
- M11.C.1.4.1
- M11.D.2.1.3
- M11.B.2.2.1
- M11.A.3.2.1
- 3.1.10.A,B
- 3.2.10.B
- 3.7.10.A,B,C

Duty / Task	Hours	ENGLISH STANDARD	ANCHOR	MATH ANCHOR	SCIENCE STANDARDS	WORK STANDARDS
Symmetrical Features						
Advanced 3D Construction						
Assembly Modeling						
Final Project (Instructor Permission Req'd)						
Civil/GIS Sequence	63					
Intro to Civil Technology/GIS		1.1.11.A-H		M11.B.2.1.1	3.1.10.A,B	
Civil/GIS Technology Basics		1.2.11.B		M11.A.2.1.3	3.2.10.B	
Interpretation of Surveyor's Notes		1.4.11.B,D		M11.C.1.4.1	3.7.10.A,B,C	
Mapping & Plans		1.6.11.B,D-F		M11.C.1.2.1		
Final Project (Instructor Permission Req'd)		1.7.11.A-C		M11.D.2.1.3		
		1.8.11.A-C		M11.B.2.2.1		
				M11.B.2.1.1		

Total Hours: 1080