

# Computer Aided Drafting Class Syllabus 2016-17

## CAD (High school)

**Instructor:** Julie Wiles (email: [jwiles@mail.kana.k12.wv.us](mailto:jwiles@mail.kana.k12.wv.us))

**Website:** [WilesCad.com](http://WilesCad.com)

### Textbooks:

<i>Technical Drawing 101 with AutoCAD 2017</i>	SDC Publications
<i>Autodesk Inventor 2017 and Engineering Graphics</i>	SDC Publications
<i>Design Integration Using Autodesk Revit 2017</i>	SDC Publications

### Program Outline (ONE YEAR PROGRAM)

<b>SEMESTER ONE</b>	<b>SEMESTER TWO</b>
<p><b><u>1<sup>ST</sup> NINE WEEKS</u></b>            Careers            Manual Drafting Intro            CAD Basics            Drawing with CAD            Intro to AutoCad &amp; Inventor 2017</p>	<p><b><u>3<sup>rd</sup> NINE WEEKS</u></b>            Architectural/Styles            Floor Plans            Site and Foundation Plans            Elevations and Section Layouts            Residential Utilities            3d CAD - Revit Architecture 2017</p>
<p><b><u>2<sup>ND</sup> NINE WEEKS</u></b>            Sectional Drawing            Pictorial Drawing            Auxiliary and Revolutions            Patterns and Developments            Rules of Dimensioning            AutoCAD &amp; Inventor 2017</p>	<p><b><u>4<sup>TH</sup> NINE WEEKS</u></b>            Dimensioning techniques            Assembly and Detail drawings            Threads and Fasteners            Cams and Gears            Welding            Advanced Solid Modeling – Inventor 2017            Portfolio            AUTODESK CERTIFICATION            TESTING</p>

**Attendance:** Kanawha Co. Schools Attendance Policy – see website

## Bell Schedule:

### PM TECH

PERIOD	TIME	TOTAL TIME (minutes)
1	8:00-8:45	45
2	8:45-9:30	45
3	9:30-10:15	45
4	10:15-11:00	45
ELECTIVE	11:00-11:30	30
Lunch	11:30-12:00	30
TECH AREA 5,6,7,8	12:00-1:55 GW, SC and Sissonville	115
	12:00-2:15 Nitro and St. Albans	135

### AM TECH

PERIOD	TIME	TOTAL TIME (minutes)
TECH AREA 1,2,3	8:00-10:15	135
4	10:15-11:00	45
5	11:00-11:45	45
LUNCH	11:45-12:15	30
6	12:15-1:00	45
7	1:00-1:45	45
	1:55 GW, SC and Sissonville	
8	1:45-2:15	30
	2:15 Nitro and St. Albans leave	

## Grading: Kanawha County Schools Grading Policy

Attendance & Participation: **5%**

Drawings: **50%**

Text Chapter Review Exercises: **15%**

Tests: **30%**

**Calendar Schedule:** Kanawha County Schools Regular Schedule (See my website for current schedule)

## **Course Outline**

### **Fundamentals of Drafting (1729) – 1<sup>st</sup> Nine Weeks**

**Text:** *Technical Drawing 101 with AutoCAD 2017*

#### **I. Introduction**

- A. School policy
- B. Classroom policy
- C. Safety (20 question test, 100% correct required)

#### **II. Careers**

- A. Variety of careers available
- B. Attitudes needed to succeed
- C. Sources of information

#### **III. Drafting (1729.1)**

- A. Tools and Equipment (1729.2)
- B. Measurement (1729.3)
- C. Math conversions (1729.2)
- D. ANSI line styles (1729.3)
- E. Lettering (1729.3)
- F. ANSI Title Blocks (1729.3)
- G. Basic geometric constructions (1729.18)
- H. Freehand Technical sketching (1729.4)

#### **IV. CAD (1729.19)**

- A. Graphics display (1729.20)
- B. Setup (1729.20)
- C. Coordinate system (1729.22)
- D. Drawing commands (1729.21)
- E. Edit and Modify Commands (1729.22)
- F. Viewing commands (1729.20)
- G. Plot (1729.23 & 24)

#### **V. Drawing with CAD**

- A. Orthographic projection (1729.25)
- B. Multi-view Projection (1729.26)
- C. Dimensioning (1729.29)

# **Course Outline**

## **Drafting Techniques (1727) – 2<sup>nd</sup> Nine Weeks**

**Text:** *Autodesk Inventor 2017 and Engineering Graphics*

### **1. Sectioning**

- a. Sectional Rules (1727.3)
- b. Views (1727.2)
- c. Conventional Breaks (1727.3)

### **2. Pictorial**

- a. Types (1727.7)
- b. Create (1727.8)
- c. Isometric 1727.9)

### **3. Auxiliary and revolutions**

- a. Primary auxiliary (1727.4)
- b. Secondary auxiliary (1727.4)
- c. Revolutions (1727.4)

### **4. Patterns and developments (1727.10)**

- a. Prisms, cylinders, etc. (1729.11)
- b. Transition pieces (1729.11)
- c. Development techniques (1729.12)

### **5. Dimensioning (1729.29)**

- a. Unidirectional and aligned
- b. Axonometric techniques
- c. Techniques for holes, countersink, etc.

### **6. Working Drawings**

- a. Working drawings (1727.13)
- b. Working Drawing techniques (1727.14)
- c. Construct W. Drawings (1727.15)
- d. Symbol Libraries (1727.13)
- e. Plotting procedures 91727.13)

# Course Outline

## Architectural (1721) – 3<sup>rd</sup> Nine Weeks

**Text:** *Design Integration Using Autodesk Revit 2017*

**Project:** Student, with approval of teacher will complete a special project package which will include all necessary drawings. This will account for 25% of course grade.

**1. Architectural Styles** (ALL standards are ADDA endorsed and can be accessed via KCS CTE website)

- a. House styles
- b. Roof Styles
- c. Construction Methods
- d. Differentiate between single and multi-story dwellings

**2. Floor Plans**

- a. Design
- b. Purposes
- c. Materials

**3. Dimensioning and Annotation**

- a. Using scales
- b. Dimensions
- c. Schedules

**4. Site and Foundation Plans**

- a. Site Plans
- b. Foundation Plans

**5. Elevation and Section Layouts**

- a. Roof components
- b. Exterior materials
- c. Views
- d. Wall sections

**6. Residential Utilities**

- a. Electrical
- b. Plumbing

# Course Outline

## Mechanical (1725) – 4<sup>th</sup> Nine Weeks

**Text:** *Autodesk Inventor 2017 and Engineering Graphics*

1. **Advanced dimensioning** (ALL standards are ADDA endorsed and can be accessed via KCS CTE website)
  - a. Tolerance Dimensions
  - b. GD&T symbols
  - c. Fit selection
2. **Assembly and Detail drawings**
  - a. Assembly drawings with dimensions
  - b. Revision blocks and bill of materials
  - c. Sectional and Detailed working drawings
3. **Threads and Fasteners**
  - a. Screw threads and nomenclature
  - b. Thread notes
  - c. Thread representations
  - d. Fasteners
4. **Gears and Cams**
  - a. Types of Gears
  - b. Cam and follower
5. **Welding**
  - a. Welding symbols
  - b. Using welding symbols
6. **Solid Modeling using Autodesk Inventor**
  - a. 3D Tools
  - b. Creating 3D models
  - c. Generate a 3D model from a 2D model
  - d. Rendering and shading
  - e. 3D Printing
7. **PORTFOLIO** (50% OF FINAL GRADE FOR NINE WEEKS)
8. **AUTODESK CERTIFICATIONS** (AUTOCAD, INVENTOR, & REVIT)