## Architecture & Engineering

### Drafting II: Architecture

**Organizing Theme/Topic:** Styles of Architecture
- Basic house designs.
- Advantages and disadvantages of various house designs.
- Traffic circulation in a floor plan.

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<th>Time Frame: 3 Weeks</th>
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**Focus Standards & Skills:**
- **KS 21103.2** Identify historical styles of architecture and types of structural designs.
  - Identify four basic house designs.
  - Explain the chief advantages and disadvantages of house designs as they apply to home construction.
  - Develop an efficient traffic pattern in a house design.

**Theme/Topic:** Site and Plot Planning
- Site considerations, restrictions, zoning, and codes
- Topography symbols
- Land elevations

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**Focus Standards & Skills:**
- **KS 21103.9** Develop Plot Plan with house, out buildings, trees, utility supply lines and communications supply lines identified.
  - Describe site considerations, restrictions, zoning, and codes and how they impact placement of structures on the site.
  - Identify the various features shown on a typical plot plan.
  - Recognize typical topographical symbols and apply them to site considerations.
  - Draw a plot plan using correct symbols and conventions.
  - Interpret land elevations from contour lines.

**Theme/Topic:** Floor Plan
- Floor plan specifications.
- Construction materials and the architectural symbols

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**Focus Standards & Skills:**
- **KS 21103.4** Design and draw a residential floor plan using accepted symbols and techniques and properly identify walls, doors, windows, and stairs.
  - Dimension a floor plan in a clear and precise manner.
  - Interpret architectural symbols that represent construction materials.

**Theme/Topic:** Foundation Plan
- Residential foundations
- Footings

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**Focus Standards & Skills:**
- **KS 21103.6** Draw a foundation plan for a single family dwelling.
  - Analyze a typical floor plan to determine the appropriate foundation.
  - Draw and dimension a foundation plan.
  - Identify all parts of a foundation plan.
  - Discuss the foundation design considerations for wood, concrete, and masonry walls.

**Theme/Topic:** Wall Section
- Types of building wall sections
- Regulations, guidelines and pre-design
- Manual and CAD techniques

| Time Frame: 2 Weeks |

**Focus Standards & Skills:**
- **KS 21103.8** Dimension and draw a wall section with all components identified.
  - Describe the three main types of building wall sections.
  - List information that must be obtained before a section can be drawn.
  - Utilize industry standard terms associated with a wall section.
| THEME/TOPIC: Doors and Window Schedules | KS 21103.4 Use accepted symbols and techniques and properly identify doors and windows.  
• Compare the types of doors used in a residential dwelling.  
• Draw proper door and window symbols on a typical floor plan in CAD or Manual.  
• Prepare window and door schedules in CAD or Manual drafting.  
• Label and identify different types of doors and windows. |
| --- | --- |
| • Residential doors  
• Residential windows | Time Frame: 2 Weeks |
| THEME/TOPIC: Electrical and Plumbing | KS 21103.5 Draw plumbing and electrical layers.  
• Draw a residential plumbing plan using manual drafting techniques and identify required elements of water supply and waste removal system.  
• Draw a residential plumbing plan using CAD techniques.  
• Describe how electricity is delivered to and distributed through residential structures.  
• Identify the three types of branch circuits used in a residential structure.  
• Draw an electrical plan for a residential structure using manual drafting and CAD techniques. |
| • Residential water supply system.  
• Residential water and waste removal system.  
• Delivery and distribution of electricity through residential structures.  
• Branch circuits used in a residential structure | Time Frame: 2 Weeks |
| THEME/TOPIC: Roofs | KS 21103.11 Draw a roof framing plan for a single family dwelling.  
• Draw a roof that has a typical roof slope (pitch) with CAD or Manual drafting.  
• Explain the purpose of a roof plan.  
• Identify and sketch 12 different types of basic roof designs. |
| • Roof plan  
• Construction of a typical frame roof. | Time Frame: 3 Weeks |
| THEME/TOPIC: Elevations | KS 21103.7 Draw elevations and pictorial presentations e.g. exterior, interior, etc.  
• List methods commonly used to increase the degree of realism in an elevation plan.  
• Explain the purpose of a presentation drawing.  
• Create elevations using CAD or Manual Drafting techniques. |
| • Degree of realism in an elevation plan.  
• Presentation drawing. | Time Frame: 3 Weeks |
| THEME/TOPIC: Culminating Project | Integration of architectural concepts and skills  
• KS 21103.2 Design a functional structure suitable for a particular site.  
• KS 21103.7 Draw elevations and pictorial presentations e.g. exterior, interior, etc.  
• KS 21103.3 Calculate/estimate building costs for a particular structure and develop brief specifications for the project.  
• KS 21103.15 Create an exterior two-point perspective view.  
• KS 21103.12 Draw interior elevations with fixtures, built-ins, trims, utilities and openings.  
• KS 21103.13 Construct an interior finish schedule.  
• KS 21103.14 Draw an interior one-point perspective drawing.  
• KS 21103.10 Create a physical or virtual 3D model using appropriate tools and mediums. |
| • Functional and suitable  
• Comprehensive plan  
• Architectural models | Time Frame: 9 Weeks |

Career and college readiness  
• Present project using digital media.  
• Demonstrate time and project management.