ARCHITECTURE & CONSTRUCTION	
CURRICULUM/CONTENT AREA	**COURSE LENGTH**
Applied Technology & Engineering	*45 days*
GRADE LEVEL	**DATE LAST REVIEWED**
7-8	*August 2022*
PREREQUISITE(s) ***if applicable***	**BOARD APPROVAL DATE**
None	*11/15/2022*
PRIMARY RESOURCE ***if applicable***	

DESIRED RESULTS

COURSE DESCRIPTION AND PURPOSE

Have you ever wondered how architects design homes? How about what is hidden behind the walls in your house or apartment? In this fast paced, engaging course, students will learn basic home design principles and construction techniques. This will be completed through the design of a small home as well as constructing a model home.

ENDURING UNDERSTANDINGS *Students will understand that...*	**ESSENTIAL QUESTIONS** *Students will keep considering...*
Creativity, innovation, and critical thinking are essential for success in a technologically advanced world.	Why is creativity and innovation important? How is creativity and innovation used in Architecture and Construction Career Pathways?
	How do teams efficiently and effectively solve problems in an increasingly complex world?
	What strategies and processes can I use to become a more effective creator, thinker and problem solver?
The ability to communicate and collaborate with people with diverse backgrounds and perspectives is key to participation in a global economic society.	Why is communication and collaboration important? How do positive work behaviors and personal qualities impact communication and collaboration?

	What is effective teamwork? What strategies can I use/teams use to work better together? How can perspectives and experiences of a diverse group develop innovative solutions to a given problem?
Career and technical education provides pathways to high-demand, high-wage career opportunities, and personal fulfillment.	Why is career and life readiness important? What jobs and careers are available to meet individual and societal needs locally, regionally, and nationally?
	How might technical knowledge and skills influence one's employability and advancement opportunities within various work settings?
	What are employability skills? How do I prepare myself for a career that is in demand now and in 5, 10, or 20 years from now?

PRIORITY CAREER & TECHNICAL STANDARDS

Students will be skilled at...

Creativity, Critical Thinking, Communication and Collaboration

4C2: Students will formulate and defend judgments and decisions by employing critical thinking skills.

a: I develop effective resolutions for a given problem, decision or opportunity using available information.

b: I develop and implement a resolution for a new situation using personal knowledge and experience.

Career Development

CD4: Students will identify and apply employability skills.

a: I identify and demonstrate positive work behaviors and personal qualities needed to be employable.

~~b: I demonstrate skills related to seeking and applying for employment to find and obtain a desired job.~~

c: I identify and exhibit traits for retaining employment.

d: I develop positive relationships with others.

Information, Media, Technology

IMT1: Students will access, interpret and evaluate information from a variety of sources in order to inform and support premises, arguments, decisions, ideas and initiatives.

a: I choose appropriate sources of data and information for a given purpose.

b: I determine the relevance, validity, and timeliness of data and information.

c: I select relevant information necessary for making decisions and solving problems

d: I apply data and information to communicate ideas and create new opportunities.

PRIORITY CONTENT STANDARDS

Students will know...

~~**Standard: BB1:** Students will analyze the core concepts of technology.~~
Standard: ENG1: Students will analyze and demonstrate the attributes of design.
Standard: ENG3: Students will demonstrate and analyze the role of troubleshooting, research and development, invention and innovation and experimentation in problem solving.
Standard: ICT1: Students will analyze, select and use information and communication technologies.
Standard: MNF1: Students will be able to select and use manufacturing technologies.

UNIT 1: ARCHITECTURE		
STAGE 1: Desired Unit Results *What will students understand as a result of the unit?*		**STAGE 2: Assessment Evidence** *By what criteria will performances of understanding be assessed? Through what authentic performance tasks will students demonstrate the desired unit results?*
ESSENTIAL QUESTION (s) *What thought-provoking questions will foster inquiry, understanding, and transfer of learning?*		**Success Criteria with Standards** *The criteria for evaluating performance on standards is constant.*
Why is creativity and innovation important? How is creativity and innovation used in architecture? Why is career and life readiness important? What jobs and careers are available to meet individual and societal needs locally, regionally, and nationally?		CTE standards-based Rubric: Throughout the course, students and teachers use the rubric for communication of success criteria, reflection, goal setting, and feedback. In their portfolio/evidence journal, students will reflect on the essential questions through a quick write, constructed response. .
PRIORITY CAREER & TECHNICAL STANDARDS & Learning Targets		**Performance Tasks Options/ Assessment Strategies by Standard** *Students may be given options to show their learning in varied ways.*
Creativity, Critical Thinking, Communication and Collaboration **4C2: Students will formulate and defend judgments and decisions by employing critical thinking skills.**		
a: I develop effective resolutions for a given problem, decision or opportunity using available information.	C2.a.8.m: I can explain how implementation of a solution or action may affect one or more corresponding systems. C2.a.9.m: I can explain how different resolutions may be appropriate under different circumstances. 4C2.a.10.m: I can explain the process for choosing an action or making a decision.	Students will create blueprints for a residential building. They will apply scale measurements in their drawings. The designs will meet specific criteria and constraints to make the space liveable.
Career Development **CD4: Students will identify and apply employability skills.**		
a: I identify and demonstrate positive work behaviors and personal qualities needed to be employable.	CD4.a.4.m: I can demonstrate flexibility and willingness to learn new knowledge and skills. CD4.a.5.m: I can identify positive workqualities typically desired in each of the career cluster's pathways.	In their portfolio/evidence journal, students will reflect on their understanding and growth in applying employability skills.
c: I identify and exhibit traits for retaining employment.	CD4.c.3.m: I can distinguish between appropriate behaviors in a social vs. professional setting.	
d: I develop positive relationships with others.	CD4.d.3.m: I can interact with others in a respectful and non-judgmental manner. CD4.d.4.m: I can use cooperative behavior in helping peers accomplish goals and tasks.	
PRIORITY CONTENT STANDARDS & Learning Targets		**Performance Tasks Options/ Assessment Strategies by Standard** *Students may be given options to show their learning in varied ways.*

Standard: BB1: Students will analyze the core concepts of technology.	*I can identify and describe basic types of structures.*	*Students will create blueprints for a residential building. They will apply scale measurements in their drawings. The designs will meet specific criteria and constraints to make the space liveable.*
Standard: ENG1: Students will analyze and demonstrate the attributes of design.	I can demonstrate that the design of structures includes a number of requirements.	
Standard: ICT1: Students will analyze, select and use information and communication technologies.	*I can analyze how the use of symbols, measurements and drawings promotes clear communication by providing a common language to express ideas.*	
Standard: MNF1: Students will be able to select and use manufacturing technologies.	*I can explore customary measurement and conversions.*	
SUPPORTING STANDARDS AND LEARNING TARGETS		**Performance Tasks Options/ Assessment Strategies by Standard** *Students may be given options to show their learning in varied ways.*
AC1.a: Analyze construction requirements, materials, structures, techniques and maintenance.	AC1.a.5.m: I can select designs for structures based on factors such as building codes and requirements, style, convenience, cost, climate, culture and function. AC1.b.8.m: I can demonstrate basic dimensioning skills including the use of: dimension, extension, center and leader lines. AC1.b.9.m: I can demonstrate use of the Standard Measuring System to the 1/16" and the Metric Measuring System to millimeters. AC1.e.6.m: I can recognize construction blueprints and specifications. AC1.g.5.m: I can create a drawing for a simple project.	
Stage 3: Learning Activities *A brief summary of the key learning activities- How will students build knowledge & develop skills? How will learning be relevant, accessible, and engaging? How will the learning unforld in a natural flow?*		
GUIDING UNIT QUESTIONS *Using Costas Level of Thinking, what questions will hook and hold students so that they develop a deep understanding of the desired results? The guiding questions are more topic-specific to the particular unit. They guide the exploration of the essential questions and rigor of the standards. This may include questions that guide project based/ problem based learning*	**STRATEGIES/ACTIVITIES** *What learning strategies and experiences will authentically engage students so that they gain understanding the desired results? This includes strategies and activities that help learners acquire targeted knowledge and skills, make meaning of important ideas, and transfer their learning to new situations. Consider how the learning will be tailored and flexible to address the interests and learning styles of all students.*	**RESOURCES/MATERIALS** *This includes an applicable textbooks, software, industry recognized certification software/tools, subcriptions (such asPLTW), etc.*
1.How do the subsystems in a home work together to make it a comfortable living space?	explicit instruction in L.A.U.N.C.H. cycle (design thinking)	L.A.U.N.C.H. Design Thinking by John Spencer resources
2.What factors need to be considered when designing a home?		Defined Learning/Defined STEM

3.How is a design thinking process used to effectively design and construct a home?		PLTW Green Architecture curriculum resources

UNIT 2: RESIDENTIAL CONSTRUCTION		
STAGE 1: Desired Unit Results What will students understand as a result of the unit?		**STAGE 2: Assessment Evidence** By what criteria will performances of understanding be assessed? Through what authentic performance tasks will students demonstrate the desired unit results?
ESSENTIAL QUESTION (s) What thought-provoking questions will foster inquiry, understanding, and transfer of learning?		**Success Criteria with Standards** The criteria for evaluating performance on standards is constant.
How do teams efficiently and effectively solve problems in an increasingly complex world?		CTE standards-based Rubric: Throughout the course, students and teachers use the rubric for communication of success criteria, reflection, goal setting, and feedback.
Why is communication and collaboration important? How do positive work behaviors and personal qualities impact communication and collaboration?		
What is effective teamwork? What strategies can I use/teams use to work better together? How can perspectives and experiences of a diverse group develop innovative solutions to a given problem?		In their portfolio/evidence journal, students will reflect on the essential questions through a quick write, constructed response. .
What are employability skills? How do I prepare myself for a career that is in demand now and in 5, 10, or 20 years from now?		
How might technical knowledge and skills influence one's employability and advancement opportunities within various work settings?		
PRIORITY CAREER & TECHNICAL STANDARDS & Learning Targets		**Performance Tasks Options/ Assessment Strategies by Standard** Students may be given options to show their learning in varied ways.
Creativity, Critical Thinking, Communication and Collaboration **4C2: Students will formulate and defend judgments and decisions by employing critical thinking skills.**		
a: I develop effective resolutions for a given problem, decision or opportunity using available information.	4C2.a.7.m: I can identify problems that became worse due to poorly thought out or poorly informed solutions	Students will lay out and construct sample floor and wall systems following industry standards accepted in the construction trades. The importance of accuracy is stressed so the customer gets what they pay for as well as so the building meets municipal codes. Incorrectly laid out samples need to be remedied by the team prior to construction. If construction has already taken place, the team needs to determine the best method to remedy the situation.
	C2.a.8.m: I can explain how implementation of a solution or action may affect one or more corresponding systems.	
	C2.a.9.m: I can explain how different resolutions may be appropriate under different circumstances.	
Career Development **CD4: Students will identify and apply employability skills.**		
a: I identify and demonstrate positive work behaviors and personal qualities needed to be employable.	CD4.a.4.m: I can demonstrate flexibility and willingness to learn new knowledge and skills.	Students will work in teams to lay out and construct sample floor and wall systems. Students will communicate with their teammates and work cooperatively with them accomplish their tasks. Students will reflect on employability skills as it relates to productive
	CD4.a.5.m: I can identify positive workqualities typically desired in each of the career cluster's pathways.	

c: I identify and exhibit traits for retaining employment.	CD4.c.2.m: I can demonstrate the behavior and etiquette appropriate to interactions with adults.	Students will retlect on employability skills as it relates to productive teamwork and collaboration.
d: I develop positive relationships with others.	CD4.d.3.m: I can interact with others in a respectful and non-judgmental manner.	
	CD4.d.4.m: I can use cooperative behavior in helping peers accomplish goals and tasks.	
PRIORITY CONTENT STANDARDS & Learning Targets		**Performance Tasks Options/ Assessment Strategies by Standard** Students may be given options to show their learning in varied ways.
Standard: BB1: Students will analyze the core concepts of technology.	I can use appropriate tools to measure and layout a piece of material (e.g., length, width, thickness, angles, etc.) within tolerances.	Students will lay out and construct sample floor and wall systems following industry standards accepted in the construction trades. The importance of accuracy is stressed so the customer gets what they pay for as well as so the building meets municipal codes. Incorrectly laid out samples need to be remedied by the team prior to construction. If construction has already taken place, the team needs to determine the best method to remedy the situation.
Standard: ENG1: Students will analyze and demonstrate the attributes of design.	I can stay within the requirements for a design that are made up of criteria and constraints.	
Standard: ENG3: Students will demonstrate and analyze the role of troubleshooting, research and development, invention and innovation and experimentation in problem solving.	I can identify a problem then communicate with others to develop the best solution. Then, implement that solution.	
Standard: ICT1: Students will analyze, select and use information and communication technologies.	I can comprehend and engage in communication methods to convey ideas, concepts and requirements to other individuals and teams.	
Standard: MNF1: Students will be able to select and use manufacturing technologies.	MNF1.a.4.m: I can discuss health and safety procedures in the workplace that keep workers safe. MNF.1.b.3.m: I can practice appropriate problem-solving approaches and critical thinking skills to on-the-job issues and tasks. MNF.1.b.4.m: I can comprehend and engage in communication methods to convey ideas, concepts and requirements to other individuals and teams. MNF1.c.3.m: I can learn how to cooperate with others in ways to exhibit respect for individual and cultural differences and for the attitudes and feelings of others.	
SUPPORTING STANDARDS AND LEARNING TARGETS		**Performance Tasks Options/ Assessment Strategies by Standard** Students may be given options to show their learning in varied ways.

AC1.a: Analyze construction requirements, materials, structures, techniques and maintenance.	AC1.b.7.m: I can calculate the required materials for simple structures. AC1.b.9.m: I can demonstrate use of the Standard Measuring System to the 1/16" and the Metric Measuring System to millimeters. AC1.c.3.m: I can demonstrate proficiency in the use of simple hand tools such as hammers, screwdrivers, handsaws, planes, sandpaper, nail sets, tin shears, framing squares, utility knives, chalk lines, etc. AC1.c.4.m: I can demonstrate proficiency in obtaining and storing simple hand tools. AC1.d.2.m: I can demonstrate the safe and proper use of power tools. AC1.d.4.m: I can demonstrate proficiency in the proper care of all tools used in a class or lab. AC1.e.6.m: I can recognize construction blueprints and specifications. AC1.g.6.m: I can identify the common processes and materials used to construct a structure.	

Stage 3: Learning Activities

A brief summary of the key learning activities- How will students build knowledge & develop skills? How will learning be relevant, accessible, and engaging? How will the learning unforld in a natural flow?

GUIDING UNIT QUESTIONS Using Costas Level of Thinking, what questions will hook and hold students so that they develop a deep understanding of the desired results? The guiding questions are more topic-specific to the particular unit. They guide the exploration of the essential questions and rigor of the standards. This may include questions that guide project based/ problem based learning	**STRATEGIES/ACTIVITIES** What learning strategies and experiences will authentically engage students so that they gain understanding the desired results? This includes strategies and activities that help learners acquire targeted knowledge and skills, make meaning of important ideas, and transfer their learning to new situations. Consider how the learning will be tailored and flexible to address the interests and learning styles of all students.	**RESOURCES/MATERIALS** This includes an applicable textbooks, software, industry recognized certification software/tools, subcriptions (such asPLTW), etc.
1.How do the subsystems in a home work together to make it a comfortable living space?	explicit instruction in L.A.U.N.C.H. cycle (design thinking)	L.A.U.N.C.H. Design Thinking by John Spencer resources
2.What factors need to be considered when designing a home?		Defined Learning/Defined STEM
3.How is a design thinking process used to effectively design and construct a home?		PLTW Green Architecture curriculum resources

Priority Standards	Unit 1	Unit 2
Creativity, Critical Thinking, Communication and Collaboration **4C2: Students will formulate and defend judgments and decisions by employing critical thinking skills.** a: I develop effective resolutions for a given problem, decision or opportunity using available information. b: I develop and implement a resolution for a new situation using personal knowledge and experience.	x	x
Career Development **CD4: Students will identify and apply employability skills.** a: I identify and demonstrate positive work behaviors and personal qualities needed to be employable. b: I demonstrate skills related to seeking and applying for employment to find and obtain a desired job. c: I identify and exhibit traits for retaining employment. d: I develop positive relationships with others.	x	x
Information, Media, Technology **IMT1: Students will access, interpret and evaluate information from a variety of sources in order to inform and support premises, arguments, decisions, ideas and initiatives.** a: I choose appropriate sources of data and information for a given purpose. b: I determine the relevance, validity and timeliness of data and information. c: I select relevant information necessary for making decisions and solving problems d: I apply data and information to communicate ideas and create new opportunities.		
Standard: BB1: Students will analyze the core concepts of technology.	x	x
Standard: ENG1: Students will analyze and demonstrate the attributes of design.	x	x
Standard: ENG3: Students will demonstrate and analyze the role of troubleshooting, research and development, invention and innovation and experimentation in problem solving.	x	x

Standard: ICT1: Students will analyze, select and use information and communication technologies.	x	x
Standard: MNF1: Students will be able to select and use manufacturing technologies.	x	x