YEAR THREE

Energy Efficiency and Infrastructure of the Future

This course will identify ways to conserve resources in construction; select alternative tools and tool maintenance for use in green building; identify alternative practices and methods that take natural resources into account; recycle reduce or dispose of construction materials.

Students will gain an understanding of what sustainability means, what drives it and how it impacts the built environment and recognize relevant national and international policy, legislation and governance issues, and expected future direction. They will also understand the latest evidence and thinking on climate change, energy, water, pollution, waste, biodiversity and efficient use of materials within the built environment and appreciate how businesses are changing in order to address sustainability and explore the risks and opportunities this can bring.

Students begin to perceive the development of housing from the planning stages; land development and procurement, optimal placement for construction and working with natural elements as resources to become zero-net energy.
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YEAR 3: Scope and Sequence

Lessons are designed for a 50-minute class period. Depending on student progress towards mastery of learning objectives, lessons may need to be extended or shortened. This is up to teacher discretion.

UNIT 1: SAFTEY AND ORIENTATION
2 class periods

Learning Objectives:
• Understand student expectations for the school year and what they will learn throughout the year.
• Identify general shop safety practices/expectations and demonstrate knowledge of a safe attitude.

UNIT 2: TITLE 24 ENERGY STANDARDS
9 class periods

Learning Objectives:
• Understand the history and intent of the California Energy Code.
• Understand the future goals for California’s Energy Code and its impact on the construction industry.
• Describe the difference between Mandatory, Prescriptive, and Performance requirements.
• Define the mandatory wall and attic assembly requirements.
• Identify key strategies for meeting or exceeding the prescriptive HPW requirements.
• Define and illustrate a high-performance wall and attic assembly.

UNIT 3: SOLAR
_____ class periods

Learning Objectives:
• Understand contributing factors to layout placement/design
• Read and interpret solar array layout design documents
• Develop and apply basic skills in roof penetration, flashing, and waterproofing
• Locate center of rafter/top-cord, pilot drilling, roof attachment, and torque verification
• Racking assembly, adjustability, leveling and planning for array uniformity
• Maximize teamwork to assist in module placement and attachment
• Name and identify all racking components and connectors
• Name and identify micro inverter wiring components
• Layout and install modules from permit sets/engineering drawings
• Identify the tools and equipment used by solar installers today
• Lay out trunk cables and install with accessories for proper operation
• Demonstrate safe working procedures in a construction and shop/lab environment
• Complete rooftop wore management
• Complete project documentation
• Work cooperatively as a member of a team
• Identify hazards and how to avoid or minimize them in the workplace

UNIT 4: Finish Carpentry
______ class periods

Learning Objectives:

PROJECT #1: CAREER EXPLORATION RESEARCH PROJECT
17 class periods

Learning Objectives:
• Create a career roadmap where they choose a career they would like to pursue.
• Research what requirements (educational and personal) they need in order to reach their career goal.
• Present their career they “can’t not do” and their interview with someone that has their career they are seeking.
• Create and present their short term, midterm, and long-term career goals.
PROJECT #2: CAREER PORTFOLIO

15 class periods

Learning Objectives:
- Create and compile resources for obtaining employment such as sample job application, resume, cover letter, LinkedIn profile, elevator pitch, and sample response to interview questions.