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| 0881 | NCCER Carpentry Level 1 - Recommended for Student Grades 9-12-Curriculum features a highly illustrated design, technical hints and tips from industry experts, review questions. Key content includes: Orientation to the Trade; Building Materials, Fasteners, and Adhesives; Hand and Power Tools; Introduction to Construction Drawings, Specifications, and Layout; Floor Systems; Wall Systems; Ceiling Joist and Roof framing; Basic Stair Layout; Layout; Floor Systems; Wall Systems; Ceiling Joist and Roof framing; Basic Stair Layout; Introduction to Building Envelope Systems. Student options available for work ready certification. INSTRUCTORS MUST BE CERTIFIED IN NCCER. certification. INSTRUCTORS MUST BE CERTIFIED IN NCCER. |  | ncCer | Manuacturing |  |  |  |  |  |  |
| 0482 | NCCER Carpentry Level 2 - Recommended for Student Grades $10-12$ - Curriculum features a highly illustrated design, technical hints and tips trom industry experts, and review teatures a a highly illustrated design, technical hints and tips trom industry experts, and review questions. Key content includes: Commercial Drawings, Roofing Applications, Thermal and Moisture Protection, Exterior Finishing, Cold-Formed steel Framing, Drywall Instalataion, <br>  INSTRUCTORS MUST BE CERTIFIED IN NCCER. | $10 \cdot 12$ | NCCER | Manutacuring |  |  |  |  |  |  |
| ${ }^{0483}$ | NCCER Carpentry Level 3-Recommended for Student Grades 11-12-Curriculum features a highly illustrated design, technical hints and tips from industry experts, and review questions. Key content includes: Rigging Equipment, Rigging Practices, Properties of Concrete, Reinforcing Concrete, Handling and Placing Concrete, Trenching and Excavating, Foundations and Slab-On-Grade, Vertical Formwork, Horizontal Formwork, and Tilt-Up Wall Panels. Student options available for work ready certification. INSTRUCTORS MUST BE Panels. Student options CERTIFIED IN NCCER. | 11-12 | NCCER |  |  |  |  |  |  |  |



















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| 0964 | Advanced Career - Energy and Power Foundations 9-12-This course aligns to SREB's Advanced Career Curriculum that engages students in a variety of hands-on, authentic projects to learn about energy and power methods through the design and construction of motors, pumps, heat exchangers, hydraulics and pipeline systems. These are the technologies used in large power plant systems to run and maintain processes in energy generation plants. Through contextual projects, students will learn and apply physics, chemistry, fluid mechanics, thermodynamics, algebra and statistics in learning how these systems interact in the energy and power arena. Students will learn how engineers and technicians use these systems in the real world to optimize efficiency. | (1) | SREB | $\begin{aligned} & \text { Science, Technology, } \\ & \text { Engineering and } \\ & \text { Math } \end{aligned}$ |  |  |  |  |  |  |
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| 0965 | Advanced Career - Energy Transmission and Distribution 9-12-This course aligns to SREB's Advanced Career Curriculum focuses on energy transmission and consumer usage. Through projects, students are introduced to AC and DC power, transformers, the electrical grid, Smart Grid, and consumer load on the electrical system. To complete projects, students will use Ohm's law, Joule's law of heating, root mean square, Pythagorean Theorem and trigonometric principles. Students will learn how energy travels along power lines and is converted from direct current to alternating current to end up, ultimately, in homes and businesses. Students will gain an understanding of how power companies move power stepping it up and down to meet the needs of the end-user - by designing working transformers, capacitors, inverters and a power supply. This course is sequenced after the Advanced Career- Energy and Power Foundations course 0964. | $\underbrace{9-12}$ | SREB | $\begin{aligned} & \text { Science, Technology, } \\ & \text { Engineering and } \\ & \text { Math } \end{aligned}$ |  |  |  |  |  |  |
| 0966 | Advanced Career - Electronics and Control Systems 9-12 - In this aligned course to SREB's Advanced Career Curriculum, students will build on the knowledge and experience gained in the first two foundational courses. Through projects, students will apply their knowledge to more advanced systems and learn how to program and use National Instrument's LabVIEW software and the myDAQ (data acquisition device). Students will study advanced topics in energy and power such as smart-home automation, plant-level process control, natural gas pipeline monitoring, energy storage and wind power. Each project presents students with a design problem that will require them to not only design and build a prototype, but also develop the software program that will test the prototype and gather measurable, quantifiable data. This course is sequenced after the Advanced Career- Energy Transmission and Distribution course 0965. | $\underbrace{}_{0-12}$ | ${ }^{\text {SREB }}$ | $\begin{aligned} & \text { Science, Technology, } \\ & \text { Engineering and } \\ & \text { Math } \end{aligned}$ |  |  |  |  |  |  |
| 0967 | Advanced Career - Advanced Science and Engineering Systems 11-12-Through welldeveloped projects in this advanced course that aligns to SREB's Advanced Career Curriculum, students will assume the roles of building technicians, design engineers, recreational engineers, electrical technicians and CEOs, while learning about real-world energy and power issues. Students will work with industry mentors to independently tackle real-world scenarios in the energy and power field. The projects in this course scaffold to allow students more choice in determining the final product for each project. This course incorporates knowledge of multiple sources of energy, engineered systems, societal impact and "the business of energy" as students engage in projects involving maglev trains, advanced concepts in steam energy, carbon sequestration and coal, hydraulic fracturing, alternative forms of fuel in transportation and environmental compliance. This course is sequenced after the Advanced Career - Electronics and Control Systems 0966. |  | SREB | $\begin{aligned} & \text { Science, Technology, } \\ & \text { Engineering and } \\ & \text { Math } \end{aligned}$ |  |  |  |  |  |  |






































































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