Standards: Next Generation Science Standards, pgs. 72-76, 102 and ISTE Standards for Students, pgs. 3-4
Note: This course is an elective and covers only select content standards from the pages listed.

DC Introduction to Electrical and Computer Engineering BSU: Alignment Table

	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6	Unit 7	Unit 8
HS-PS2-5				x	x			
HS-PS2-6		x		x				x
HS-PS3-1				x	x			
HS-PS3-3		x	x	x	x			x
HS-PS3-5			x	x	x			x
HS-PS4-2							x	
HS-ETS1-1			x					x
HS-ETS1-2						x		x
HS-ETS1-3			x					x
HS-ETS1-4						x		x

1.1.a.	x	x	x		x			x
1.1.b.		x	x		x			x
1.1.c.	x	x		x	x			
1.1.d.	x	x		x		x	x	
1.2.a.			x					
1.2.b.			x					
1.2.c.			x					
1.2.d.			x					
1.3.a.			x		x			
1.3.b.					x			
1.3.c.					x			x
1.3.d.			x		x		x	
1.4.a.					x			x
1.4.b.					x			x
1.4.c.					x			x
1.4.d.					x	x		x
1.5.a.					x			x
1.5.b.				x	x	x		x
1.5.c.					x			x
1.5.d.			x		x		x	x
1.6.a.		x		x	x			x
1.6.b.					x			x

1.6.c.		**x**		**x**	**x**	**x**		**x**
1.6.d.					**x**			**x**
1.7.a.			**x**		**x**			**x**
1.7.b.			**x**			**x**		**x**
1.7.c.						**x**		**x**
1.7.d.			**x**					**x**

DC Introduction to Electrical and Computer Engineering BSU: Course Map
Unit 1: What is Electrical and Computer Engineering?

Idaho Standards	Unit Objectives
ISTE 1.1.a. Set learning goals, develop strategies leveraging technology to achieve them and reflect on the learning process to improve learning outcomes. 1.1.c. Use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways. 1.1.d. Understand fundamental concepts of how technology works, demonstrate the ability to choose and use current technologies effectively, and are adept at thoughtfully exploring emerging technologies.	● discuss the history and foundations of electrical engineering and computer science. ● explain the different specialties in electrical engineering, computer engineering, and computer science. ● discuss your own personal interests and career goals.
Lesson 1: Introduction to Electrical and Computer Engineering	
Lesson Objectives 1. describe the people and things important to engineering and computer science. ○ correlation: 1.1.a. 2. reflect on what important technology is most critical in	Assessments ● Objective 1: U1D1: People and Things of Engineering and Computer Science…And You ● Objective 2: U1D1: People and Things of Engineering and Computer Science…And You

your life. ○ correlation: 1.1.c., 1.1.d.	
Lesson 2: What Do Engineers Do?	
Lesson Objectives 1. distinguish the specialty areas in electrical engineering (EE), computer engineering (CE), and computer science (CS). ○ correlation: 1.1.a. 2. explain what electrical engineering (EE), computer engineering (CE), and computer science (CS) graduates can do. ○ correlation: 1.1.a., 1.1.d.	Assessments ● Objective 1: U1A1: Where Could I Work? ● Objective 2: U1A1: Where Could I Work?
Lesson 3: Charting Your Path	
Lesson Objectives 1. discuss your career values. ○ correlation: 1.1.a., 1.1.c., 1.1.d. 2. identify your “favorite” area of specialization. ○ correlation: 1.1.a., 1.1.c., 1.1.d. 3. assess your values in relation to selecting preferred specializations. ○ correlation: 1.1.a., 1.1.c., 1.1.d.	Assessments ● Objective 1: U1A2: My Perfect Job ● Objective 2: U1A2: My Perfect Job ● Objective 3: U1A2: My Perfect Job

Unit 2: Learning the Basics

Idaho Standards	Unit Objectives
Next Generation Science Standards HS-PS2-6 Communicate scientific and technical information about why the molecular-level structure is important in the functioning of designed materials. HS-PS3-3 Design, build, and refine a device that works within given constraints to convert one form of energy into another form of energy.	● identify basic electrical and electronic components, including the parts of an Arduino board. ● construct a simple Arduino project. ● explain the requirements for a Bachelor of Science (BS) degree in electrical engineering (EE), computer engineering (CE), or computer science (CS) at BSU and other Idaho universities.

ISTE 1.1.a. Set learning goals, develop strategies leveraging technology to achieve them and reflect on the learning process to improve learning outcomes. 1.1.b. Build networks and customize their learning environments in ways that support the learning process. 1.1.c. Use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways. 1.1.d. Understand fundamental concepts of how technology works, demonstrate the ability to choose and use current technologies effectively, and are adept at thoughtfully exploring emerging technologies. 1.6.a. Choose the appropriate platforms and digital tools for meeting the desired objectives of their creation or communication. 1.6.c. Use digital tools to visually communicate complex ideas to others.	
Lesson 1: Electronic Devices and Their Connection	
Lesson Objectives 1. identify basic electrical and electronic components. ○ correlation: 1.6.a. 2. describe how electricity flows in a circuit using the water analogy and basic terminology. ○ correlation: 1.6.c.	Assessments ● Objective 1: U2L1: Electronic Devices and Their Connection–Drawing the Circuit interactive ● Objective 2: U2A1: Electronic Devices and Their Connections Quiz
Lesson 2: First Arduino Project	
Lesson Objectives 1. complete the Arduino setup process for your device. ○ correlation: 1.6.a. 2. demonstrate the first LED blinking light and modify the code slightly to change behavior. ○ correlation: HS-PS2-6	Assessments ● Objective 1: U2A2: Arduino Setup ● Objective 2: U2A2: Arduino Setup

Lesson 3: Building a Simple Circuit	
Lesson Objectives 1. construct a simple Arduino project on the breadboard and show it behaves correctly. ○ correlation: HS-PS3-3	Assessments ● Objective 1: U2D1: Circuit Building Reflections
Lesson 4: EE, CE, and CS in College	
Lesson Objectives 1. compare and contrast the requirements for electrical engineering (EE), computer engineering (CE), and computer science (CS) degrees at Idaho universities. ○ correlation: 1.1.a., 1.1.b., 1.1.c., 1.1.d	Assessments ● Objective 1: U2D2: Comparing Program Requirements

Unit 3: Becoming an Engineer

Idaho Standards	Unit Objectives
Next Generation Science Standards HS-PS3-3 Design, build, and refine a device that works within given constraints to convert one form of energy into another form of energy. HS-PS3-5 Develop and use a model of two objects interacting through electric or magnetic fields to illustrate the forces between objects and the changes in energy of the objects due to the interaction. HS-ETS1-1 Analyze a major global challenge to specify qualitative and quantitative criteria and constraints for solutions. HS-ETS1-3 Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs. **ISTE** 1.1.a. Set learning goals, develop strategies leveraging technology to achieve them and reflect on the learning process to improve learning outcomes.	● identify major issues in ethics that might be experienced as an engineer. ● describe ways to improve your current study habits and explain some of the theory behind how we learn. ● complete a more advanced Arduino UNO R3 project and report your experience.

1.1.b. Build networks and customize their learning environments in ways that support the learning process. 1.2.a. Manage their digital identity and understand the lasting impact of their online behaviors on themselves and others and make safe, legal and ethical decisions in the digital world. 1.2.b. Demonstrate empathetic, inclusive interactions online and use technology to responsibly contribute to their communities. 1.2.c. Safeguard their well-being by being intentional about what they do online and how much time they spend online. 1.2.d. Take action to protect their digital privacy on devices and manage their personal data and security while online. 1.3.a. Use effective research strategies to find resources that support their learning needs, personal interests and creative pursuits. 1.3.d. Build knowledge by actively exploring real-world issues and problems, developing ideas and theories and pursuing answers and solutions. 1.5.d. Understand how automation works and use algorithmic thinking to develop a sequence of steps to create and test automated solutions. 1.7.a. Use digital tools to connect with peers from a variety of backgrounds recognizing diverse viewpoints and broadening mutual understanding. 1.7.b. Use collaborative technologies to work with others, including peers, experts or community members, to examine issues and problems from multiple viewpoints. 1.7.d. Explore local and global issues and use collaborative technologies to work with others to investigate solutions.	
Lesson 1: Ethics in Engineering	
Lesson Objectives 1. describe the differences and similarities between ethics and morals. ○ correlation: HS-ETS1-1 2. identify issues of ethics that are critical for professional engineers and computer scientists. ○ correlation: HS-ETS1-1, 1.7.a., 1.7.b., 1.7.d.	Assessments ● Objective 1: U3L1: Ethics in Engineering–What Are Ethics? interactive ● Objective 2: U3D1: An Ethical Dilemma Example ● Objective 3: U3D1: An Ethical Dilemma Example

3. apply personal or professional ethics to example cases. ○ correlation: HS-ETS1-3, 1.7.a., 1.7.b., 1.7.d.	
Lesson 2: Having a Growth Mindset	
Lesson Objectives 1. identify strategies to help you be successful in college. ○ correlation: 1.1.a., 1.1.b., 1.2.a., 1.2.b., 1.2.c., 1.2.d. 2. describe the research into the science of learning. ○ correlation: 1.3.a., 1.3.d.	Assessments ● Objective 1: U3A1: Growth Mindset and Study Habits Notes ● Objective 2: U3A1: Growth Mindset and Study Habits Notes
Lesson 3: Effective Study Habits	
Lesson Objectives 1. identify strategies to help you be successful in college. ○ correlation: 1.1.a., 1.1.b., 1.2.a., 1.2.b., 1.2.c., 1.2.d. 2. describe the research into the science of learning. ○ correlation: 1.3.a., 1.3.d.	Assessments ● Objective 1: U3A1: Growth Mindset and Study Habits Notes ● Objective 2: U3A1: Growth Mindset and Study Habits Notes
Lesson 4: Intermediate Arduino Project	
Lesson Objectives 1. explain the role of sensors in Arduino projects. ○ correlation: HS-PS3-3, HS-PS3-5, 1.5.d. 2. complete an Arduino project that uses an LCD display as an output device. ○ correlation: HS-PS3-3, HS-PS3-5, 1.5.d.	Assessments ● Objective 1: U3A2: Thermometer Project Reflection ● Objective 2: U3A2: Thermometer Project Reflection

Unit 4: Circuit Analysis Basics

Idaho Standards	Unit Objectives
Next Generation Science Standards HS-PS2-5 Plan and conduct an investigation to provide evidence that an electric current can produce a magnetic field	● identify various circuit topologies. ● analyze series and parallel resistor networks. ● analyze electronic circuits using simple measurement

and that a changing magnetic field can produce an electric current. HS-PS2-6 Communicate scientific and technical information about why the molecular-level structure is important in the functioning of designed materials. HS-PS3-1 Create a computational model to calculate the change in the energy of one component in a system when the change in energy of the other component(s) and energy flows in and out of the system are known. HS-PS3-3 Design, build, and refine a device that works within given constraints to convert one form of energy into another form of energy. HS-PS3-5 Develop and use a model of two objects interacting through electric or magnetic fields to illustrate the forces between objects and the changes in energy of the objects due to the interaction. **ISTE** 1.1.c. Use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways. 1.1.d. Understand fundamental concepts of how technology works, demonstrate the ability to choose and use current technologies effectively, and are adept at thoughtfully exploring emerging technologies. 1.5.b. Collect data or identify relevant data sets, use digital tools to analyze them, and represent data in various ways to facilitate problem-solving and decision-making. 1.6.a. Choose the appropriate platforms and digital tools for meeting the desired objectives of their creation or communication. 1.6.c. Use digital tools to visually communicate complex ideas to others.	equipment.
Lesson 1: Circuit Topologies	
Lesson Objectives 1. differentiate between series and parallel elements in a	Assessments ● Objective 1: U4L1: Circuit Topologies–Knowledge

circuit. ○ correlation: HS-PS2-6, 1.1.c., 1.1.d. 2. calculate the effective resistance of networks of resistors. ○ correlation: HS-PS3-1, 1.1.c., 1.1.d.	Check: Series and Parallel Resistor interactive ● Objective 2: U4A1: Ohm's Law and Equivalent Resistance
Lesson 2: Drawing Circuits in Tinkercad	
Lesson Objectives 1. create a simple circuit using Tinkercad. ○ correlation: HS-PS3-3, HS-PS3-5, 1.1.c., 1.6.a., 1.6.c. 2. draw a circuit with more components in Tinkercad. ○ correlation: HS-PS3-3, HS-PS3-5, 1.1.c., 1.6.a., 1.6.c.	Assessments ● Objective 1: U4A2: RGB LED Circuit Drawing ● Objective 2: U4A2: RGB LED Circuit Drawing
Lesson 3: Test and Measurement in Tinkercad	
Lesson Objectives 1. measure current and voltage in a circuit. ○ correlation: HS-PS2-5, 1.1.c., 1.1.d., 1.5.b. 2. describe what a diode is and how it behaves in a circuit. ○ correlation: HS-PS2-6, 1.1.c., 1.1.d.	Assessments ● Objective 1: U4A3: Tinkercad Drawing Analysis ● Objective 2: U4A3: Tinkercad Drawing Analysis

Unit 5: Success as an Engineer

Idaho Standards	Unit Objectives
Next Generation Science Standards HS-PS2-5 Plan and conduct an investigation to provide evidence that an electric current can produce a magnetic field and that a changing magnetic field can produce an electric current. HS-PS3-1 Create a computational model to calculate the change in the energy of one component in a system when the change in energy of the other component(s) and energy flows in and out of the system are known.	● identify opportunities for experiential learning during college. ● discuss how experiential learning could be part of your college plan. ● draw simple circuit schematics from an English-language description of the circuit. ● measure more complex circuit behavior.

HS-PS3-3 Design, build, and refine a device that works within given constraints to convert one form of energy into another form of energy. HS-PS3-5 Develop and use a model of two objects interacting through electric or magnetic fields to illustrate the forces between objects and the changes in energy of the objects due to the interaction. **ISTE** 1.1.a. Set learning goals, develop strategies leveraging technology to achieve them and reflect on the learning process to improve learning outcomes. 1.1.b. Build networks and customize their learning environments in ways that support the learning process. 1.1.c. Use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways. 1.3.a. Use effective research strategies to find resources that support their learning needs, personal interests and creative pursuits. 1.3.b. Evaluate the accuracy, validity, bias, origin, and relevance of digital content. 1.3.c. Curate information from digital resources using a variety of tools and methods to create collections of artifacts that demonstrate meaningful connections or conclusions. 1.3.d. Build knowledge by actively exploring real-world issues and problems, developing ideas and theories and pursuing answers and solutions. 1.4.a. Know and use a deliberate design process for generating ideas, testing theories, creating innovative artifacts or solving authentic problems. 1.4.b. Select and use digital tools to plan and manage a design process that considers design constraints and calculated risks. 1.4.c. Develop, test and refine prototypes as part of a cyclical design process. 1.4.d. Exhibit a tolerance for ambiguity, perseverance and the capacity to work with open-ended problems. 1.5.a. Formulate problem definitions suited for	

technology-assisted methods such as data analysis, abstract models and algorithmic thinking in exploring and finding solutions. 1.5.b. Collect data or identify relevant data sets, use digital tools to analyze them, and represent data in various ways to facilitate problem-solving and decision-making. 1.5.c. Break problems into component parts, extract key information, and develop descriptive models to understand complex systems or facilitate problem-solving. 1.5.d. Understand how automation works and use algorithmic thinking to develop a sequence of steps to create and test automated solutions. 1.6.a. Choose the appropriate platforms and digital tools for meeting the desired objectives of their creation or communication. 1.6.b. Create original works or responsibly repurpose or remix digital resources into new creations. 1.6.c. Use digital tools to visually communicate complex ideas to others. 1.6.d. Publish or present content that customizes the message and medium for their intended audiences. 1.7.a. Use digital tools to connect with peers from a variety of backgrounds recognizing diverse viewpoints and broadening mutual understanding.	
Lesson 1: Experiential Learning	
Lesson Objectives 1. describe the various opportunities available to learn more about an engineering career while you are in college. ○ correlation: 1.1.a., 1.1.b., 1.1.c., 1.7.a. 2. identify resources from the State of Idaho to help you going forward. ○ correlation: 1.3.a., 1.3.b., 1.3.c., 1.3.d.	Assessments ● Objective 1: U5D1: My Future Career Priorities Poster ● Objective 2: U5D1: My Future Career Priorities Poster
Lesson 2: Drawing Schematics	

Lesson Objectives 1. draw schematics using a schematic capture tool. ○ correlation: HS-PS3-1, 1.6.a., 1.6.b., 1.6.c. 2. apply circuit analysis to schematics. ○ correlation: HS-PS3-1, 1.6.a., 1.6.b., 1.6.c.	Assessments ● Objective 1: U5A1: LED Schematic and Circuit ● Objective 2: U5A1: LED Schematic and Circuit
Lesson 3: Tinkercad Project	
Lesson Objectives 1. create a Tinkercad design for testing. ○ correlation: HS-PS2-5, HS-PS3-3, HS-PS3-5, 1.4.a., 1.4.b., 1.5.d., 1.6.a., 1.6.b., 1.6.c. 2. measure current in a circuit for a combination of voltage and resistor values. ○ correlation: HS-PS3-1, 1.4.c., 1.5.a., 1.5.b. 3. write in order to report on your experiment. ○ correlation: 1.4.d., 1.5.c., 1.6.d.	Assessments ● Objective 1: U5A2: LED Circuit Project Lab Data ● Objective 2: U5A2: LED Circuit Project Lab Data ● Objective 3: U5A2: LED Circuit Project Lab Data

Unit 6: Digital Logic

Idaho Standards	Unit Objectives
Next Generation Science Standards HS-ETS1-2 Design a solution to a complex real-world problem by breaking it down into smaller, manageable problems. HS-ETS1-4 Use a computer simulation to model the impact of proposed solutions to a complex real-world problem with numerous criteria and constraints on interactions within and between systems relevant to the problem. **ISTE** 1.1.d. Understand fundamental concepts of how technology works, demonstrate the ability to choose and use current technologies effectively, and are adept at thoughtfully exploring emerging technologies. 1.4.d. Exhibit a tolerance for ambiguity, perseverance and the	● convert between binary, decimal, and hexadecimal number systems. ● describe simple logic gates including schematic representation, truth tables, and functionality. ● simplify logic expressions using Boolean algebra.

capacity to work with open-ended problems. 1.5.b. Collect data or identify relevant data sets, use digital tools to analyze them, and represent data in various ways to facilitate problem-solving and decision-making. 1.6.c. Use digital tools to visually communicate complex ideas to others. 1.7.b. Use collaborative technologies to work with others, including peers, experts or community members, to examine issues and problems from multiple viewpoints. 1.7.c. Contribute constructively to project teams, assuming various roles and responsibilities to work effectively toward a common goal.	
Lesson 1: Logic Gates	
Lesson Objectives 1. convert between binary, decimal, and hexadecimal number systems. ○ correlation: 1.1.d., 1.4.d., 1.5.b., 1.6.c. 2. describe the fundamental operations of digital logic gates. ○ correlation: 1.1.d., 1.4.d., 1.5.b., 1.6.c.	Assessments ● Objective 1: U6A1: Binary Conversions ● Objective 2: U6A2: Logic Gate Truth Tables
Lesson 2: How Are Logic Gates Made?	
Lesson Objectives 1. create truth tables to describe the function of logic gates. ○ correlation: 1.1.d., 1.4.d., 1.5.b., 1.6.c. 2. create more complex functions from basic gates. ○ correlation: 1.1.d., 1.4.d., 1.5.b., 1.6.c.	Assessments ● Objective 1: U6A2: Logic Gate Truth Tables ● Objective 2: U6A2: Logic Gate Truth Tables
Lesson 3: Boolean Algebra	
Lesson Objectives 1. identify the rules of Boolean algebra. ○ correlation: HS-ETS1-2, HS-ETS1-4, 1.7.b., 1.7.c. 2. draw simple logic schematics with Scheme-it.	Assessments ● Objective 1: U6D1: Logic Gate Challenge ● Objective 2: U6D1: Logic Gate Challenge ● Objective 3: U6D1: Logic Gate Challenge

○ correlation: HS-ETS1-2, HS-ETS1-4, 1.7.b., 1.7.c. 3. simplify Boolean algebra expressions. ○ correlation: HS-ETS1-2, HS-ETS1-4, 1.7.b., 1.7.c.	

Unit 7: What is a Computer?

Idaho Standards	Unit Objectives
Next Generation Science Standards HS-PS4-2 Evaluate questions about the advantages of using a digital transmission and storage of information. **ISTE** 1.1.d. Understand fundamental concepts of how technology works, demonstrate the ability to choose and use current technologies effectively, and are adept at thoughtfully exploring emerging technologies. 1.3.d. Build knowledge by actively exploring real-world issues and problems, developing ideas and theories and pursuing answers and solutions. 1.5.d. Understand how automation works and use algorithmic thinking to develop a sequence of steps to create and test automated solutions.	● describe the functions that make up a modern computer including memory, storage, processing, and input/output devices. ● compare and contrast different types of memory and their advantage/disadvantages. ● explain the techniques used to perform high-speed addition in a modern CPU.
Lesson 1: How Does a Computer Compute?	
Lesson Objectives 1. identify hardware and software components of a computer. ○ correlation: 1.1.d., 1.3.d.	Assessments ● Objective 1: U7A1: Hardware and Software
Lesson 2: Memory and Storage	
Lesson Objectives 1. describe different types of computer memory (DRAM,	Assessments ● Objective 1: U7A2: Types of Memory

SRAM, registers, Flash, ROM, etc.). ○ correlation: HS-PS4-2, 1.1.d., 1.3.d., 1.5.d. 2. compare performance and cost of different memory types. ○ correlation: HS-PS4-2, 1.1.d., 1.3.d.	● Objective 2: U7A2: Types of Memory
Lesson 3: The Brains of the Computer (CPU)	
Lesson Objectives 1. describe the flow of instructions and data through the CPU of a computer. ○ correlation: HS-PS4-2, 1.1.d., 1.3.d., 1.5.d. 2. explain how and why computers can do arithmetic so quickly. ○ correlation: HS-PS4-2, 1.1.d., 1.3.d., 1.5.d.	Assessments ● Objective 1: U7A3: The CPU Flow ● Objective 2: U7A3: The CPU Flow
Lesson 4: Simple Computer Programming	
Lesson Objectives 1. identify the primary constructs used in most high-level programming languages. ○ correlation: 1.5.d.	Assessments ● Objective 1: U7A4: Computer Programming

Unit 8: What's Next?

Idaho Standards	Unit Objectives
Next Generation Science Standards HS-PS2-6 Communicate scientific and technical information about why the molecular-level structure is important in the functioning of designed materials. HS-PS3-3 Design, build, and refine a device that works within given constraints to convert one form of energy into another form of energy. HS-PS3-5 Develop and use a model of two objects interacting through electric or magnetic fields to illustrate the forces between objects and the changes in energy of the objects due	● present the final Arduino project. ● identify future objectives and plans for education and career success. ● describe the hardware and software tools that engineers use.

to the interaction. HS-ETS1-1 Analyze a major global challenge to specify qualitative and quantitative criteria and constraints for solutions. HS-ETS1-2 Design a solution to a complex real-world problem by breaking it down into smaller, manageable problems. HS-ETS1-3 Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs. HS-ETS1-4 Use a computer simulation to model the impact of proposed solutions to a complex real-world problem with numerous criteria and constraints on interactions within and between systems relevant to the problem. **ISTE** 1.1.a. Set learning goals, develop strategies leveraging technology to achieve them and reflect on the learning process to improve learning outcomes. 1.1.b. Build networks and customize their learning environments in ways that support the learning process. 1.3.c. Curate information from digital resources using a variety of tools and methods to create collections of artifacts that demonstrate meaningful connections or conclusions. 1.4.a. Know and use a deliberate design process for generating ideas, testing theories, creating innovative artifacts or solving authentic problems. 1.4.b. Select and use digital tools to plan and manage a design process that considers design constraints and calculated risks. 1.4.c. Develop, test and refine prototypes as part of a cyclical design process. 1.4.d. Exhibit a tolerance for ambiguity, perseverance and the capacity to work with open-ended problems. 1.5.a. Formulate problem definitions suited for technology-assisted methods such as data analysis, abstract models and algorithmic thinking in exploring and finding solutions. 1.5.b. Collect data or identify relevant data sets, use digital tools to analyze them, and represent data in various ways to facilitate problem-solving and decision-making. 1.5.c. Break problems into component parts, extract key	

information, and develop descriptive models to understand complex systems or facilitate problem-solving. 1.5.d. Understand how automation works and use algorithmic thinking to develop a sequence of steps to create and test automated solutions. 1.6.a. Choose the appropriate platforms and digital tools for meeting the desired objectives of their creation or communication. 1.6.b. Create original works or responsibly repurpose or remix digital resources into new creations. 1.6.c. Use digital tools to visually communicate complex ideas to others. 1.6.d. Publish or present content that customizes the message and medium for their intended audiences. 1.7.a. Use digital tools to connect with peers from a variety of backgrounds recognizing diverse viewpoints and broadening mutual understanding. 1.7.b. Use collaborative technologies to work with others, including peers, experts or community members, to examine issues and problems from multiple viewpoints. 1.7.c. Contribute constructively to project teams, assuming various roles and responsibilities to work effectively toward a common goal. 1.7.d. Explore local and global issues and use collaborative technologies to work with others to investigate solutions.	
Lesson 1: What It Means to Study Electrical and Computer Engineering	
Lesson Objectives 1. list education and career goals. ○ correlation: 1.1.a. 2. identify education paths for electrical and computer engineering. ○ correlation: 1.1.b., 1.3.a. 3. describe computer science education opportunities. ○ correlation: 1.1.b., 1.3.a.	Assessments ● Objective 1: U8A1: My Perfect Job, Take Two ● Objective 2: U8A1: My Perfect Job, Take Two ● Objective 3: U8A1: My Perfect Job, Take Two

Lesson 2: Tools of Engineering and Computer Science	
Lesson Objectives 1. describe several pieces of lab equipment seen in a BSU ECE lab. ○ correlation: 1.3.c. 2. describe some of the software tools used by engineers and computer scientists in school and in the workforce. ○ correlation: 1.3.c.	Assessments ● Objective 1: U8A2: Engineering and Computer Science Tools ● Objective 2: U8A2: Engineering and Computer Science Tools
Lesson 3: Presenting Your Arduino Project	
Lesson Objectives 1. create a presentation describing your final Arduino project. ○ correlation: HS-PS2-6, HS-PS3-3, HS-PS3-5, HS-ETS1-1, HS-ETS1-2, HS-ETS1-3, HS-ETS1-4, 1.4.a., 1.4.b., 1.4.c., 1.4.d., 1.5.a., 1.5.b., 1.5.c., 1.5.d., 1.6.a., 1.6.b., 1.6.c., 1.6.d., 1.7.a., 1.7.b., 1.7.c., 1.7.d. 2. provide feedback for your fellow classmates' Arduino project presentations. ○ correlation: HS-PS2-6, HS-PS3-3, HS-PS3-5, HS-ETS1-1, HS-ETS1-2, HS-ETS1-3, HS-ETS1-4, 1.4.a., 1.4.b., 1.4.c., 1.4.d., 1.5.a., 1.5.b., 1.5.c., 1.5.d., 1.6.a., 1.6.b., 1.6.c., 1.6.d., 1.7.a., 1.7.b., 1.7.c., 1.7.d.	Assessments ● Objective 1: U8A3: Arduino Project Presentation, U8D1: Arduino Presentation Peer Celebrations ● Objective 2: U8D1: Arduino Presentation Peer Celebrations