

BITA 4: EMERGING CONSTRUCTION ADVANCES & CHANGES

INDUSTRY SECTOR: Building and Construction Trades Sector
PATHWAY: Residential and Commercial Construction
CALPADS TITLE: Advanced Residential and Commercial Construction (Capstone)
CALPADS CODE: 7342

HOURS:

Total	Classroom	Laboratory/CC/CVE
180	90	90

JOB TITLE	O*NET CODE	JOB TITLE	O*NET CODE
Electricians	47-2111.00	Roofers	47-2181.00
Insulation Workers, Floor, Ceiling, and Wall	47-2131.00	Construction Carpenters	47-2031.01
Plumbers, Pipefitters, and Steamfitters	47-2152.00	Cement Masons and Concrete Finishers	47-2051.00

COURSE DESCRIPTION:

Students move to a higher level of competency and are tasked to complete a capstone project which can include an independent research paper on a question or problem of their choice with the guidance of a faculty mentor, or participate in an internship. Some samples of previous projects include designing and building tiny houses for our veterans and homeless, playhouses that are donated to local children’s non-profits, sheds for neighborhoods, doghouses for local rescue organizations, and special projects such as snack-shacks and benches for their campuses. While learning a trade, students are making our communities a better place to live.

A-G APPROVAL: G
ARTICULATION: None
DUAL ENROLLMENT: None

PREREQUISITES:

Prerequisite
BITA 1: FOUNDATION OF RESIDENTIAL AND COMMERCIAL CONSTRUCTION
BITA 2: STUDY OF MODERN CRAFTSMANSHIP AND INFRASTRUCTURE
BITA 3: ENERGY EFFICIENCY AND INFRASTRUCTURE OF THE FUTURE

METHODS OF INSTRUCTION

- Direct instruction
- Group and individual applied projects
- Multimedia
- Demonstration
- Field trips
- Guest speakers

STUDENT EVALUATION:

- Student projects
- Written work
- Exams
- Observation record of student performance
- Completion of assignments

INDUSTRY CERTIFICATION:

- None

RECOMMENDED TEXTS:

- None

PROGRAM OF STUDY

Grade	Fall	Spring	Year	Course Type	Course Name
9, 10, 11, 12			✓	Introductory	Building Industry Technology Academy (BITA) 1
10, 11, 12			✓	Concentrator	Building Industry Technology Academy (BITA) 2
10, 11, 12			✓	Concentrator	Building Industry Technology Academy (BITA) 3
12			✓	Capstone	BITA 4: EMERGING CONSTRUCTION ADVANCES & CHANGES

I.	ORIENTATION AND SAFETY	CR	Lab/ CC	Standards
	<ul style="list-style-type: none"> • Demonstrate awareness of course objectives and competencies • Demonstrate an understanding of course requirements and student expectations • Demonstrate awareness of the industry standards and career opportunities • Identify general shop safety practices/expectations and demonstrate knowledge of a safe attitude • Demonstrate ability to safely use and care for construction tools and equipment 	3	2	Academic: LS: 11-12.6 CTE Anchor: Career Planning and Management: 3.1, 3.2 Health and Safety: 6.1, 6.3, 6.4, 6.6 Technical Knowledge and Skills: 10.2 CTE Pathway: D1.1
II.	WHAT IS A CAPSTONE PROJECT	CR	Lab/ CC	Standards
	<ul style="list-style-type: none"> • Define capstone project • Identify possible choices for a capstone project, such as shelters for the homeless, playhouses for nonprofits serving children, doghouses for local shelters, sheds for parks, projects that assist public schools, and other community service projects • Identify requirements for choice of a capstone project: must meet an identified need and must require construction skills across the complete range of skills acquired in BITA 1-3 • Identify documentation requirements and timelines • Recognize the importance of teamwork in completing capstone projects 	5	0	Academic: LS: 11-12.6 CTE Anchor: Problem Solving and Critical Thinking: 5.1 Leadership and Teamwork: 9.2, 9.7 CTE Pathway: D1.1
III.	PROJECT RESEARCH AND PITCH	CR	Lab/ CC	Standards
	<ul style="list-style-type: none"> • Conduct research on community needs • Identify a specific problem and a project (or internship) to address that need • Write a research paper on the problem with feedback from a faculty or industry mentor • Recognize environmental considerations that impact project choice • Present project pitch in a persuasive essay and/or Powerpoint • Identify action steps to complete the project, with timelines 	10	10	Academic: LS: 11-12.6 RSIT : 11-12.7 RLST : 11-12.7 WS : 11-12.2, 11-12.4, 11-12.5, 11-12.6, 11-12.7 WHSST : 11-12.1, 11-12.4, 11-12.5, 11-12.6, 11-12.7 CTE Anchor: Communications: 2.4 Technology: 4.1 Problem Solving and Critical Thinking: 5.1 Leadership and Teamwork: 9.7 CTE Pathway: D1.2
IV.	CAPSTONE PROJECT: PRODUCT	CR	Lab/ CC	Standards

	<ul style="list-style-type: none"> • Identify steps to project completion, with timelines • Generate a materials list with costs • Identify team roles and responsibilities • Rotate leadership roles • Elicit regular feedback from faculty and/or industry mentor • Demonstrate critical thinking and research skills to solve problems • Provide documentation of each step (blueprints, photos, journal notes, etc.) in a timely fashion • Adhere to all safety standards to create a safe work environment • Demonstrate safe use and proper care of all tools and equipment • Demonstrate advanced skills in construction 	35	78	<p>Academic: LS: 11-12.6 RSIT : 11-12.7 RLST : 11-12.3, 11-12.4, 11-12.7 WS : 11-12.2, 11-12.7 WHSST : 11-12.4 G-MG: 1 G-SRT: 8 N-Q: 2, 3 CC: 3</p> <p>CTE Anchor: Communications: 2.3, 2.4 Problem Solving and Critical Thinking: 5.1, 5.2, 5.3, 5.4 Health and Safety: 6.1, 6.2, 6.3, 6.4, 6.6, 6.8, 6.12 Responsibility and Flexibility: 7.2, 7.3, 7.4, 7.5, 7.7 Leadership and Teamwork: 9.2, 9.3, 9.7 Technical Knowledge and Skills: 10.1, 10.3, 10.4 Demonstration and Application: 11.1</p> <p>CTE Pathway: D1.2, D2.3, D3.1, D3.5, D3.7, D4.1, D6.3, D6.4, D6.5, D6.6, D6.7, D6.8, D6.10, D6.11, D6.12, D6.13, D6.15, D6.16, D7.1, D7.2, D7.4, D7.5, D7.6, D7.7, D8.3, D8.4, D8.5, D8.7, D8.8, D8.9, D8.10, D9.6</p>
V.	PROJECT PORTFOLIO	CR	Lab/ CC	Standards
	<ul style="list-style-type: none"> • Assemble a portfolio that includes all project documentation • Develop a multimedia presentation that identifies the problem, explains steps in the construction process, and presents the final project • Present projects to industry and/or faculty mentors, and receive feedback/answer questions 	15	0	<p>Academic: LS: 11-12.6 WS : 11-12.2, 11-12.4, 11-12.5, 11-12.6 WHSST : 11-12.2, 11-12.4, 11-12.6</p> <p>CTE Anchor: Communications: 2.4, 2.5</p>

				Career Planning and Management: 3.1 Technology: 4.2 Technical Knowledge and Skills: 10.1 CTE Pathway: D1.1
VI.	EMPLOYMENT LITERACY	CR	Lab/CC	Standards
	<ul style="list-style-type: none"> Identify available positions in the industry through the use of networking or the Internet Revise resume and portfolio from BITA 3 to include capstone project 	10	0	Academic: RLST : 11-12.3 WS : 11-12.4 SEP: 3, 4, 8 CTE Anchor: Communications: 2.2, 2.4 CTE Pathway: D1.1
VII.	PERSONAL SKILLS RELATED TO EMPLOYMENT	CR	Lab/CC	Standards
	<ul style="list-style-type: none"> Demonstrate promptness, attend class regularly, and follow absence notification procedures Develop and maintain acceptable working relations Demonstrate the ability to manage time wisely Demonstrate a positive and cooperative attitude Demonstrate values of honesty and integrity Demonstrate respect for others Demonstrate appropriate personal hygiene/grooming, and dress Demonstrate responsibility by exerting a high level of effort and working toward a goal 	3	0	Academic: LS: 11-12.6 CTE Anchor: Responsibility and Flexibility: 7.2, 7.3, 7.4, 7.5, 7.7 Ethics and Legal Responsibilities: 8.2, 8.3, 8.7 CTE Pathway: D1.1
VIII.	INTERPERSONAL SKILLS AND GROUP DYNAMICS	CR	Lab/CC	Standards
	<ul style="list-style-type: none"> Utilize problem-solving techniques Demonstrate the ability to work as a member of a team Identify proper procedures for handling harassment Demonstrate leadership skills by working independently, making appropriate decisions, working well with others, and accepting constructive criticism Demonstrate the ability to accept and work with individuals from various cultures 	3	0	Academic: LS: 11-12.6 RSIT : 11-12.7 WS : 11-12.2 CTE Anchor: Leadership and Teamwork: 9.2, 9.3 CTE Pathway: D1.1
IX.	THINKING AND PROBLEM SOLVING SKILLS	CR	Lab/CC	Standards
	<ul style="list-style-type: none"> Describe problem-solving techniques Understand logical reasoning Demonstrate creative thinking Participate in decision-making Demonstrate the ability to interpret information correctly 	3	0	Academic: LS: 11-12.6 WHSST : 11-12.2 SEP: 1, 4, 6 CTE Anchor: Problem Solving and Critical Thinking: 5.1, 5.2, 5.3, 5.4 CTE Pathway:

X.	COMMUNICATION SKILLS	CR	Lab/ CC	Standards
	<ul style="list-style-type: none"> • Demonstrate effective verbal and written skills • Read technical journals, and write technical reports using appropriate terminology • Listen attentively, follow directions, and relay directions to others <p>Demonstrate the ability to research and retrieve information</p>	3	0	<p>D1.1</p> <p>Academic: LS: 11-12.6 RLST : 11-12.2 WS : 11-12.2</p> <p>CTE Anchor: Communications: 2.4, 2.5</p> <p>CTE Pathway: D1.1</p>