

Construction Practicum

Primary Career Cluster:	Architecture & Construction
Consultant:	Greg Francescon, (615) 532-2835, Gregory.Francescon@tn.gov
Course Code:	6160
Prerequisite(s):	Minimum of 2 credits in an Architecture & Construction program of study.
Credit:	1
Grade Level:	12
Graduation Requirement:	This course satisfies one of three credits required for an elective focus when taken in conjunction with other Architecture & Construction courses.
Programs of Study and Sequence:	This is the fourth course in the <i>Residential & Commercial Construction</i> , <i>Structural Systems</i> , and <i>Mechanical, Electrical, and Plumbing Systems</i> programs of study.
Aligned Student Organization(s):	SkillsUSA: http://tnskillsusa.com/ Tracy Whitehead, (615) 532-2804, Tracy.Whitehead@tn.gov
Coordinating Work-Based Learning:	Teachers who hold an active WBL certificate may offer placement for credit when the requirements of the state board's WBL Framework and the Department's WBL Policy Guide are met. For information, visit https://tn.gov/education/topic/work-based-learning .
Available Student Industry Certifications:	None
Dual Credit or Dual Enrollment Opportunities:	There are no known dual credit/dual enrollment opportunities for this course. If interested in developing, reach out to a local postsecondary institution to establish an articulation agreement.
Teacher Endorsement(s):	501, 502, 522, 523, 524, 527, 532, 553, 554, 555, 556, 567, 575, 580, 584, 585, 592, 598, 701, 702, 703, 705, 706, 707
Required Teacher Certifications/Training:	If students are assigned in work-based learning settings, teachers must attend WBL training and earn the WBL Certificate provided by the Tennessee Department of Education.
Teacher Resources:	https://tn.gov/education/article/cte-cluster-architecture-construction

Course Description

Construction Practicum is a capstone course intended to provide students with the opportunity to apply the skills and knowledge learned in previous Architecture & Construction courses within a professional, working environment. In addition to developing an understanding of the professional and ethical issues encountered by tradesmen and contractors in the workplace, students learn to refine their skills in problem solving, communication, teamwork, and project management in the completion of a course-long project. Due to the importance of on-the-job training in the construction industry, a principle aim of the practicum is to assist students with placements where on-the-job training occurs, if available, so they can begin to log hours on a worksite and gain experience prior to entering the job market, such as in pre-apprenticeships. Additionally, students are exposed to the great range of postsecondary opportunities in today's construction fields as well, in order to prepare them to make an informed decision regarding their post-high school plans.

The course is highly customizable to meet local system needs. Instruction may be delivered through work-based learning arrangements such as internships, cooperative education, service learning, mentoring, and job shadowing or through school laboratory training with industry-driven project-based learning. For all projects undertaken in this course, students are expected to continue building skills related to their chosen program of study (*Residential & Commercial Construction, Structural Systems, or Mechanical, Electrical, & Plumbing Systems*), while also refining skills previously acquired to achieve deeper levels of mastery. In the course, students may pursue additional training and certification in a specialized area such as masonry, concrete, electricity, plumbing, HVAC, or carpentry. Upon completion of the practicum, proficient students will be prepared to pursue further study in architecture or construction, or seek additional training and employment with the aid of a portfolio documenting student work completed throughout high school.

Work-Based Learning Framework

Practicum activities may take the form of work-based learning (WBL) opportunities (such as internships, cooperative education, service learning, and job shadowing) or industry-driven project-based learning. These experiences must comply with the Work-Based Learning Framework guidelines established in SBE High School Policy 2.103. As such, this course must be taught by a teacher with an active WBL Certificate issued by the Tennessee Department of Education and follow policies outlined in the Work-Based Learning Policy Guide available online at <https://tn.gov/education/topic/work-based-learning>. The Tennessee Department of Education provides a *Personalized Learning Plan* template to ensure compliance with the Work-Based Learning Framework, state and federal Child Labor Law, and Tennessee Department of Education policies, which must be used for students participating in WBL opportunities.

Program of Study Application

This is the fourth course in the *Residential & Commercial Construction, Structural Systems, and Mechanical, Electrical, and Plumbing Systems* programs of study. For more information on the benefits and requirements of implementing these programs in full, please visit the Architecture & Construction website at <https://tn.gov/education/article/cte-cluster-architecture-construction>.

Course Requirements

This capstone course aligns with the requirements of the Work-Based Learning Framework (established in Tennessee State Board High School Policy), with the Tennessee Department of Education's Work-Based Learning Policy Guide, and with state and federal Child Labor Law. As such, the following components are course requirements:

Course Standards

- 1) A student will have a Personalized Learning Plan that identifies their long-term goals, demonstrates how the Work-Based Learning (WBL) experience aligns with their elective focus and/or high school plan of study, addresses how the student plans to meet and demonstrate the course standards, and addresses employability skill attainment in the following areas:
 - a. Application of academic and technical knowledge and skills (embedded in course standards)
 - b. Career knowledge and navigation skills
 - c. 21st Century learning and innovation skills
 - d. Personal and social skills

Safety

- 2) Identify safety hazards on a jobsite and demonstrate practices for safe working. Accurately read, interpret, and demonstrate adherence to safety rules, including but not limited to rules pertaining to electrical safety, Occupational Safety and Health Administration (OSHA) guidelines, and state and national code requirements. Be able to distinguish between the rules and explain why certain rules apply. Recognize and employ universal construction signs and symbols such as colors, flags, stakes, and hand signals that apply to construction workplace situations.
- 3) Maintain safety records and demonstrate adherence to industry-standard practices regarding general machine safety, tool safety, equipment safety, electrical safety, and fire safety to protect all personnel and equipment. For example, when operating tools and equipment, regularly inspect and carefully employ the appropriate personal protective equipment (PPE), as recommended by Occupational, Safety & Health Administration (OSHA) regulations. Incorporate safety procedures when operating tools and equipment, such as hand and power tools, ladders, scaffolding, and lifting equipment. Complete safety test with 100 percent accuracy.
- 4) Follow procedures to work safely around materials. Adhere to responsibilities for employees in material safety as outlined by the Hazard Communication Standard (HazCom), such as locating and interpreting material safety data sheets (MSDS). Demonstrate safe procedures to move materials by planning the movement, properly lifting, stacking, and storing materials, and selecting proper materials-handling equipment.
- 5) Research state and national laws governing workplace injuries, particularly those common to the construction industry. In preparation for a future career in construction, outline the necessary procedures to follow if an injury is sustained on the job; in particular, explain the

responsibilities of managers, supervisors, and the injured parties in the event of an emergency, including incident reporting after the event. Practice explaining the process of securing workers compensation benefits as if assisting a co-worker or subordinate.

Postsecondary and Career Preparation

- 6) Research the range of credentials one can earn with advanced study of construction at the postsecondary level (i.e., apprenticeship, technical certification, BA, BS, MBA, etc.). Investigate both in-state and out-of-state postsecondary programs in a variety of construction fields, including but not limited to construction management, construction science, architecture, landscape design, civil engineering, and more. Synthesize research conducted in previous Architecture & Construction courses to update the portfolio career plan to achieve post-high school goals.
- 7) Research and select a company or organization for a project in a construction field. Cite specific textual evidence from the organization's literature, as well as independent news articles, to summarize:
 - a. The mission and history of the organization
 - b. Headquarters and organizational structure
 - c. Products or services provided
 - d. Credentials required for employment and how they are obtained and maintained
 - e. Policies and procedures
 - f. Reports, newsletters, and other documents published by the organization
 - g. Website and contact information
- 8) Search for the resumes of construction professionals retrieved from the websites of companies, organizations, or professional networks. Discuss what is typically included in the resumes of these professionals, compare and contrast several examples, and create a personal resume modeled after elements identified in the search.
- 9) Simulate the experience of conducting a job search by researching local employment options. In preparation for a future career in construction, complete an authentic job application form and compose a cover letter following guidelines specified in the vacancy announcement.
- 10) Participate in a mock interview. Prior to the interview, research tips on dress and grooming, most commonly asked interview questions, appropriate conduct during an interview, and recommended follow-up procedures. Highlight sample work compiled in the portfolio that illustrates mastery of specific skills attained in the program of study. Upon completion of the interview, write a thank you letter to the interviewer in a written or email format.

Transferring Course Concepts to Practicum

- 11) Apply skills and knowledge from previous courses in an authentic work-based learning internship, job shadow, or classroom-based project. Where appropriate, develop, practice, and demonstrate skills outlined in previous courses.

- 12) As part of a course project, develop a comprehensive project plan, appropriate to the project type, to guide all work. The plan should include at minimum the following:
- a. Material list
 - b. Cost estimation/Mock bid package
 - c. Criteria and constraints
 - d. Project schedule
 - e. Inspection checklist
 - f. Applicable contracts
 - g. Minutes from project meetings and other documentation
 - h. Contingency plan in case of delay or emergency
 - i. Justification for major design and budgeting decisions made
- Collaboratively update the plan to reflect unexpected changes in conditions or capacity. For example, demonstrate the ability to reschedule an activity if there is a delay in the arrival of materials.
- 13) Create and continually update a personal journal to document skills learned during the practicum and draw connections between the experience and previous course content by reflecting on:
- a. Tasks accomplished and activities implemented
 - b. Positive and negative aspects of the experience
 - c. How challenges were addressed
 - d. Team participation in a learning environment
 - e. Comparisons and contrasts between classroom and work environments
 - f. Interactions with colleagues and supervisors
 - g. Personal career development
 - h. Personal satisfaction

Business Skills and Project Management

- 14) In teams, develop and successfully implement a suite of project management tools and processes to aid in the completion of the course project. (If participating in a work-based learning experience, apply tools and processes to satisfy placement requirements.) Demonstrate the ability to divide roles and responsibilities among team members, track progress toward goals, and satisfy client specifications as would a construction manager or contractor. For example, assign tasks and monitor deliverables using a Gantt chart or other tracker.

Portfolio

- 15) Update materials from coursework to add to the portfolio started in *Fundamentals of Construction* to illustrate mastery of skills and knowledge outlined in the previous courses and applied in the practicum. The portfolio should reflect thoughtful assessment and evaluation of the progression of work involving the application of project management skills specific to the construction industry. The following documents will reside in the career portfolio:
- a. The career plan developed and revised in prior courses
 - b. Resume

- c. List of responsibilities undertaken through the course
- d. Examples of visual materials used during the course (such as diagrams, schematics, and site plans) and artifacts of project outcomes (such as photographs of various stages of a construction project)
- e. Periodic journal entries reflecting on tasks and activities
- f. Feedback from instructor and/or supervisor based on observations
- g. Transcripts or other evidence of certifications obtained throughout the program of study

Communication of Project Results

- 16) Apply all steps of the construction process to successfully build a structure and/or install a system(s) as outlined in the course project plan. Demonstrate the ability to communicate results over the course of the project's duration. Produce a technical report documenting the progress of the project and evaluating the final product.
- 17) Upon completion of the practicum, develop a technology-enhanced presentation showcasing highlights, challenges, and lessons learned from the experience. The presentation should be delivered orally, but supported by relevant graphic illustrations, such as diagrams, drawings, videos, photographs, and/or guided tours of the finished structure or product. Throughout the presentation, justify construction decisions and assess the quality of the work. Prepare the presentation in a format that could be presented to both a technical and a non-technical audience, as well as for a career and technical student organization (CTSO) competitive event.

Standards Alignment Notes

*References to other standards include:

- P21: Partnership for 21st Century Skills [Framework for 21st Century Learning](#)
 - o Note: While not all standards are specifically aligned, teachers will find the framework helpful for setting expectations for student behavior in their classroom and practicing specific career readiness skills.



Advanced Interior Design

Primary Career Cluster:	Architecture & Construction
Consultant:	Greg Francescon, (615) 532-2835, Gregory.Francescon@tn.gov
Course Code(s):	6121
Prerequisite(s):	<i>Commercial Interior Design</i> (6122)
Credit:	1
Grade Level:	12
Graduation Requirements:	This course satisfies one of three credits required for an elective focus when taken in conjunction with other Architecture & Construction courses.
Programs of Study and Sequence:	This is the fourth and final course in the <i>Interior Design</i> program of study.
Aligned Student Organization(s):	Family, Career and Community Leaders of America (FCCLA): http://www.tennesseefccla.org/ Pamela Grega, (615) 532-6270, Pamela.Grega@tn.gov
Coordinating Work-Based Learning:	Teachers who hold an active WBL certificate may offer placement for credit when the requirements of the state board's WBL Framework and the Department's WBL Policy Guide are met. For information, visit https://tn.gov/education/topic/work-based-learning .
Available Student Industry Certifications:	None
Dual Credit or Dual Enrollment Opportunities:	There are no known dual credit/dual enrollment opportunities for this course. If interested in developing, reach out to a local postsecondary institution to establish an articulation agreement.
Teacher Endorsement(s):	050, 051, 154, 450
Required Teacher Certifications/Training:	None
Teacher Resources:	https://tn.gov/education/article/cte-cluster-architecture-construction

Course Description

Advanced Interior Design is an applied-knowledge course intended to prepare students for careers in the interior design industry. This course places special emphasis on an internship opportunity and a hands-on capstone project. Upon completion of this course, proficient students will create a design for a specific space and purpose, either residential or commercial, applying skills and knowledge from previous courses and industry-specific technologies.

Work-Based Learning Framework

Optional internship** standards outlined below may take the form of work-based learning (WBL) opportunities (such as internships, cooperative education, service learning, and job shadowing) or industry-driven project-based learning. These experiences must comply with the Work-Based Learning Framework guidelines established in SBE High School Policy 2.103. As such, this course must be taught by a teacher with an active WBL Certificate issued by the Tennessee Department of Education and follow policies outlined in the Work-Based Learning Policy Guide available online at <https://tn.gov/education/topic/work-based-learning>. The Tennessee Department of Education provides a Personalized Learning Plan template to ensure compliance with the Work-Based Learning Framework, state and federal Child Labor Law, and Tennessee Department of Education policies, which must be used for students participating in WBL opportunities.

Program of Study Application

This is the fourth and final course in the *Interior Design* program of study. For more information on the benefits and requirements of implementing this program in full, please visit the Architecture & Construction website at <https://tn.gov/education/article/cte-cluster-architecture-construction>.

Course Requirements

This capstone course aligns with the requirements of the Work-Based Learning Framework (established in Tennessee State Board High School Policy), with the Tennessee Department of Education's Work-Based Learning Policy Guide, and with state and federal Child Labor Law. As such, the following components are course requirements:

Course Standards

- 1) A student will have a Personalized Learning Plan that identifies their long-term goals, demonstrates how the Work-Based Learning (WBL) experience aligns with their elective focus and/or high school plan of study, addresses how the student plans to meet and demonstrate the course standards, and addresses employability skill attainment in the following areas:
 - a. Application of academic and technical knowledge and skills (embedded in course standards)
 - b. Career knowledge and navigation skills
 - c. 21st Century learning and innovation skills
 - d. Personal and social skills

Safety

- 2) Demonstrate the ability to comply with personal and environmental safety practices associated with interior design applications, such as the use of adhesives, hand tools, machines, and appropriate handling and storage methods in accordance with local, state, and federal safety and environmental regulations.
 - a. Inspect, maintain, and employ safe operating procedures with tools and equipment.
 - b. Adhere to responsibilities, regulations, and Occupational Safety & Health Administration (OSHA) policies regarding reporting of accidents and observed hazards, and regarding emergency response procedures.

- c. Maintain a portfolio record of written safety examinations and equipment examination for which the student has passed an operational checkout by the instructor.

Professional Practices of Interior Design

- 3) Research job descriptions, career information, and online job boards such as the IIDA Career Center for the general employability skills and character traits most often mentioned or desired for interior design professionals. Compile a class list of those skills and attributes. For each item on the class list, define the characteristic, state why it is important for people working in the interior design field, and list at least two ways to build that skill. Possible skills include:
 - a. Collaboration
 - b. Honesty
 - c. Respect
 - d. Communication
 - e. Responsibility
- 4) Collect Codes of Ethics from various interior design professional organizations such as the American Society of Interior Designers (ASID) and the International Interior Design Association (IIDA), and compare them for areas of commonality. Discuss the significance of incorporating ethical standards into professional practice. Synthesize principles from the codes investigated to create a personal code of ethics for use as a designer; include the code in the design portfolio.
- 5) Access electronic resources, including the websites of professional organizations, to identify voluntary and required credentials and licensing requirements for interior designers. Create a brochure that lists the credentials available and the requirements for obtaining and maintaining the credential. Determine the licensing requirements to become a certified interior designer.

Resource Management

- 6) Perform an Internet search, interview local professionals, or consult industry journals to identify common principles of successful project management. Drawing on the project management templates developed in previous courses, estimate a detailed project plan for a potential interior design project. The project plan should include at minimum the following: a schedule or Gantt chart outlining deliverables; a tracker for progress toward goals; a time management component to log hours worked for those involved; a spreadsheet for analyzing cost and performance; and a document to coordinate tradesmen and other labor.
- 7) Research interior design budget sources from company websites or textbooks to create a list of the components of a project budget. Estimate a budget for a potential project in a spreadsheet program. Each budget should include at minimum columns for estimated costs, actual costs, and difference.

- 8) Create a name for an original interior design company. Design a logo for the company. Apply concepts and templates from word processing programs to create one or more of the following business necessities: business stationery, invoices, sample rates, specific project cost estimates, and business cards.
- 9) Research different types of business structures, including but not limited to sole proprietorship, partnership, s-corporation, and limited liability company. Write a business plan explaining the type of business, organizational design, the steps in establishing the business, and the legal parameters affecting the business. Identify the target market; describe in the plan how the particular suite of design services offered by the proposed company will be marketed to the intended consumers.

Communication

- 10) Practice effective verbal, nonverbal, written, and electronic communication skills for working with clients while demonstrating the ability to: listen attentively, speak courteously and respectfully, discuss client's ideas/vision, resolve obstacles in design, and respond to client objections or complaints to the client's satisfaction.
- 11) Select two distinctly different designs for an interior design project and present them to a client, supported by graphic renderings and written appraisals of the work. Justify why each would be appropriate given the client's specifications, while also noting the drawbacks and compromises to each one based on client needs.
- 12) Presented with two alternative designs for a given project, highlight the design features of each. Make a written case for selecting one design over another, or for integrating features from each to come up with a design that will suit the venue and satisfy the client. Demonstrate the ability to pitch the idea to the client in a mock bid, defending the design by pointing to specific features that meet the client's specifications.

Obstacles in Design

- 13) Define design obstacles and prepare a list of potential obstacles encountered in residential or commercial venues, such as environmental concerns, budget constraints, or marketability. Use research from design magazines and technical manuals to suggest design solutions that effectively deal with these obstacles.
- 14) Create a proposed design narrative and presentation board to share with a client. Integrate multiple sources of information, such as original field verification analyses, to make informed design decisions, solve design obstacles, and present the findings in a clear and coherent manner as a verbal or written report.

Internship (Optional)**

- 15) If available, participation in an interior design internship is encouraged. Internship placements are approved at the discretion of the instructor, based on local availability and the instructor's own assessment of the internship's quality.

- 16) Maintain a professional image by applying the employability skills and attitudes explored in Standard 2. Keep a journal/log of the assignments completed on the job. Near the end of the internship, work with the intern supervisor to discuss strengths and weaknesses.
- 17) Upon conclusion of the internship, produce a technology-enhanced class presentation showcasing highlights, challenges, and lessons learned from the experience. The presentation will be included in the student's portfolio.

Capstone Project

- 18) Create a comprehensive design for a specific space and purpose, either residential or commercial, applying skills and knowledge from previous courses. Students should be able to visit the site to make measurements and complete field verification. Create a client presentation to include:
 - a. A project plan
 - b. Statement of how the design meets applicable codes and regulations
 - c. Presentation board(s) and 3-D models of the project
 - d. Drawings that incorporate principles and elements of design correctly
 - e. Select appropriate finishing and materials
 - f. A comprehensive cost estimate based on researched prices

Portfolio

- 19) Create a career and professional growth plan outlining the steps needed to progress in a specific career pathway, including postsecondary education, potential paid and unpaid jobs that will build experience, and additional opportunities for development. Include the plan in the student portfolio.
- 20) Research formats and styles of resumes commonly used by interior design professionals. Use templates or online resume builders to create a personal resume. Write a short narrative describing why the current format was chosen, presenting a plan for keeping the resume up-to-date, and describing how it can be tailored for specific situations. Include the resume in the student portfolio.
- 21) Update the portfolio to reflect the cumulative total of all portfolio projects undertaken across the program of study. Compile information, sketches, and photographs from each course project work. Include floor plans, drawings, and materials used. Include technical drawings that demonstrate ability to use industry-specific technology such as such as Photoshop, SketchUp, Revit, or AutoCAD. Select projects from course work that showcase qualifications as an interior design student.

Upon completion of this course, the following artifacts will reside in the student portfolio:

- o Resume
- o Career and professional growth plan
- o Personal code of ethics
- o Communication exercises
- o Example sketches showing best work from any course

- Residential interior design project board
- Commercial interior design project board
- Capstone project

Standards Alignment Notes

*References to other standards include:

- P21: Partnership for 21st Century Skills [Framework for 21st Century Learning](#)
 - Note: While not all standards are specifically aligned, teachers will find the framework helpful for setting expectations for student behavior in their classroom and practicing specific career readiness skills.