July 2000

Florida Department of Education
CURRICULUM FRAMEWORK

Program Title:	Construction Technology
Occupational Area:	Technology Education
Program Numbers:	8600700
CIP Number:	0821.010200
Grade Level:	Secondary 9-12, & 30, 31
Standard Length:	3 Credits
Facility Design Code:	243, Related 808, 810, 849, 851, 852
CTSO:	Florida Technology Student Association (FL-TSA)
Certification:	INDUS ARTS @4 @6 WOODWORK @4 GEN SHOP @4 TEC CONSTR @7G CARPENTRY @7G BLDG CONST @7G I ART-TEC 1 @2

I. **MAJOR CONCEPTS/CONTENT:** The purpose of this program is to provide students with a foundation of knowledge and technically oriented experiences in the study of construction technology. This program focuses on transferable skills and stresses understanding and demonstration of the technological tolls, machines, instruments, materials, processes and systems in business and industry.

The content includes, but is not limited to, a study of the tools, materials, processes, and technical skills of construction technology. The content and activities will also include the study of entrepreneurship, safety, and leadership skills.

Listed below are the courses that make up this program. Design Code 243 is the appropriate laboratory facility for this program.

8600710 - Construction Technology I
8600720 - Construction Technology II
8600730 - Construction Technology III

II. **LABORATORY ACTIVITIES:** Instruction and learning activities are provided in a laboratory setting using hands-on experiences with the tools and materials appropriate to the course content.

III. **SPECIAL NOTE:** The Florida Technology Student Association (FL-TSA) is the appropriate Career and Technical Student Organization for providing leadership training experiences and reinforcing specific vocational skills. Career and Technical Student Organizations, shall be an integral part of the vocational instructional program, and the activities of such organizations are defined as part of the curriculum in accordance with Rule 6A-6.065, FAC. FL-TSA information can be obtained from the web site at <http://www.florida-tsa.net>.

Advanced Applications in Technology (AAiT) - course number 8601900 is appropriate to be used for content area continuation in this program after all three credits of this program have been completed. The purpose of this course is to provide students with the opportunity to develop a school based project from "vision" to "reality". Working in teams to design, engineer, manufacture, construct, test, redesign, test again; and then produce a finished

"project". This would involve using ALL the knowledge previously learned, not only in Technology Education but also across the curriculum. See the (AAiT) framework for more information.

Work-Based Experience (WBE) - course number 8601800 is the appropriate course to provide Technology Education students with the opportunity, as Student Learners, to gain real world practical, first-hand exposure in broad occupational clusters or industry sectors through a structured, compensated or uncompensated experience. Work-Based Experience is also designed to give the Student Learners an opportunity to apply and integrate the knowledge, skills, and abilities acquired during their School-Based Experience to actual work situations independent of school facilities. At least one credit of a Technology Education program consisting of three credits must be completed before enrolling in WBE. See the (WBE) framework for more information.

The Intermediate and Advance courses in this program may articulate into postsecondary Tech-Prep 2 + 2 programs when taken in sequence. Tech-Prep 2 + 2 programs require articulation agreements between secondary and postsecondary educational agencies.

When a secondary student with a disability is enrolled in a vocational class with modifications to the curriculum framework, the particular outcomes and student performance standards which the student shall master to earn credit must be specified on an individual basis in each students Individual Educational Plan (IEP).

IV. **INTENDED OUTCOMES:** After successfully completing this program, the student will be able to:

01.0 Demonstrate the ability to work safely with a variety of technologies.
02.0 Demonstrate interpersonal skills as they relate to the workplace.
03.0 Identify and apply methods of information acquisition and utilization.
04.0 Apply basic skills in communications, mathematics, and science appropriate to technological content and learning activities.
05.0 Demonstrate and apply design/problem-solving processes.
06.0 Express an understanding of technological systems and their complex interrelationships.
07.0 Demonstrate the ability to properly identify, organize, plan, and allocate resources.
08.0 Discuss individual interests and aptitudes as they relate to a career.
09.0 Demonstrate employability skills.
10.0 Demonstrate an understanding of entrepreneurship.
11.0 Make an informed and meaningful career choice.
12.0 Demonstrate basic technical knowledge and skills about construction technology.
13.0 Demonstrate technical knowledge and skills about selecting and preparing a construction site.
14.0 Demonstrate technical knowledge and skills about designing and engineering constructed works.
15.0 Demonstrate technical knowledge and skills about contracting, estimating, bidding, and scheduling.

16.0 Demonstrate technical knowledge and skills about constructing substructures.
17.0 Demonstrate technical knowledge and skills about constructing superstructures.
18.0 Demonstrate technical knowledge and skills about installing utilities.
19.0 Demonstrate technical knowledge and skills about enclosing superstructures.
20.0 Demonstrate technical knowledge and skills about interior and exterior finishing of a constructed structure.
21.0 Apply advanced technical knowledge and skills about construction technology.
22.0 Demonstrate technical knowledge and skills about selecting and preparing a construction site.
23.0 Demonstrate technical knowledge and skills about designing and engineering constructed works.
24.0 Demonstrate technical knowledge and skills about contracting, estimating, bidding, and scheduling.
25.0 Demonstrate technical knowledge and skills about constructing substructures.
26.0 Demonstrate technical knowledge and skills about constructing superstructures.
27.0 Demonstrate technical knowledge and skills about installing utilities.
28.0 Demonstrate technical knowledge and skills about enclosing superstructures.
29.0 Demonstrate technical knowledge and skills about interior and exterior finishing of a constructed structure.
30.0 Perform advanced study and technical skills related to construction technology.
31.0 Operate a computer utilizing a program related to construction technology.
32.0 Demonstrate technical knowledge and skills about regional planning and the construction of civil or community structures.
33.0 Conduct structural tests on constructed structures and construction materials.
34.0 Conduct a research and experimentation project on a construction technology process or material.

Florida Department of Education
STUDENT PERFORMANCE STANDARDS

Course Number: 8600710
Course Title: Construction Technology I
Course Credit: 1

COURSE DESCRIPTION: This course provides students with an introduction to the knowledge, human relations, and technical skills of construction technology.

01.0 DEMONSTRATE THE ABILITY TO WORK SAFELY WITH A VARIETY OF TECHNOLOGIES--The student will be able to:

- 01.01 Select appropriate tools, procedures, and/or equipment needed to produce a product.
- 01.02 Demonstrate the safe usage of appropriate tools, procedures, and operation of equipment needed to produce a product.
- 01.03 Demonstrate knowledge required to maintain and troubleshoot equipment used in a variety of technological systems.
- 01.04 Follow laboratory safety rules and procedures.
- 01.05 Demonstrate good housekeeping at work station within total laboratory.
- 01.06 Identify color-coding safety standards.
- 01.07 Explain fire prevention and safety precautions and practices for extinguishing fires.
- 01.08 Identify harmful effects/potential dangers of familiar hazardous substances/devices to people and the environment.

02.0 DEMONSTRATE INTERPERSONAL SKILLS AS THEY RELATE TO THE WORKPLACE--The student will be able to:

- 02.01 Perform roles in a student personnel system or in the Florida Technology Student Association (FL-TSA).
- 02.02 Participate as a member of a team.
- 02.03 Teach others new skills.
- 02.04 Identify skills needed to serve clients/customers.
- 02.05 Demonstrate leadership skills.
- 02.06 Describe strategies necessary for negotiating agreements.
- 02.07 Demonstrate the application of skills necessary to work with people of diverse backgrounds.
- 02.08 Form an understanding and appreciation for work after listening to or observing technology workers.
- 02.09 Form an understanding and appreciation for work after participating in a simulated technology group project in the laboratory.
- 02.10 Form an understanding and appreciation for the roles and work of co-workers.

03.0 IDENTIFY AND APPLY METHODS OF INFORMATION ACQUISITION AND UTILIZATIONS--The student will be able to:

- 03.01 Define terms related to computers.
- 03.02 Identify and describe methods of information acquisition and evaluation.

03.03 Discuss advantages and disadvantages in the application of technologies.
03.04 Produce a plan to organize and maintain information relevant to emerging technologies.
03.05 Comprehend and communicate information relevant to emerging technologies.
03.06 Demonstrate the use of computers to process information.

04.0 APPLY BASIC SKILLS IN COMMUNICATIONS, MATHEMATICS, AND SCIENCE APPROPRIATE TO TECHNOLOGICAL CONTENT AND LEARNING ACTIVITIES--The student will be able to:

04.01 Identify and explain the main and subordinate ideas in a written work.
04.02 Distinguish different purposes and methods of writing, identify a writer's point of view and tone, and interpret a writer's meaning.
04.03 Define unfamiliar words by use of structural analysis, decoding, contextual clues, or by using a dictionary.
04.04 Distinguish fact from opinion.
04.05 Read critically by asking pertinent questions, by recognizing assumptions and implications, and by evaluating ideas.
04.06 Select, relate, and organize, ideas using outlining and/or graphic organizers and develop the ideas in coherent paragraphs.
04.07 Improve one's own writing by restructuring, correcting errors, and rewriting.
04.08 Gather and organize information from primary and secondary sources; write a report using this research; quote, paraphrase, and summarize accurately; and cite sources properly.
04.09 Vary one's writing style, including vocabulary and sentence structure, for different readers and purposes.
04.10 Write logical and understandable statements, or phrases, to accurately fill out commonly used forms.
04.11 Compose unified and coherent correspondence, directions, descriptions, explanations and reports.
04.12 Participate critically and constructively in the exchange of ideas, particularly during class discussions and conferences with instructors.
04.13 Conceive and develop ideas about a topic for the purpose of speaking to a group; choose and organize related ideas; present them clearly in Standard English; and evaluate similar presentations by others.
04.14 Use the mathematics of:
- integers, fractions, and decimals;
- ratios, proportions, and percentages;
- roots and powers;
- algebra;
- geometry.
04.15 Make estimates and approximations, and judge the reasonableness of a result.
04.16 Use elementary concepts of probability and statistics.
04.17 Draw, read, and analyze graphs, charts, and tables.
04.18 Ask appropriate scientific questions and recognize what is involved in experimental approaches to the solutions of such questions through familiarity with laboratory and field work.
04.19 Organize and communicate the results obtained by observation and experimentation.

04.20 Apply the basic principles of biology, physics, and chemistry (properties of matter; structure of compounds; concepts of motion; temperature, pressure and volume; work, power, force and energy; machines; human cell structure).
04.21 Identify problems rooted in basic biology, physics, or chemistry (effects of hazardous materials on health and safety, effects of drugs on health, trouble shooting problems on a machine).

05.0 DEMONSTRATE AND APPLY DESIGN/PROBLEM-SOLVING PROCESSES--The student will be able to:

05.01 Describe and explain steps in the design/problem-solving process.
05.02 Propose solutions to given problems.
05.03 Design and implement the optimal solution to a given problem.
05.04 Document each step of the design/problem-solving process.
05.05 Demonstrate "brainstorming" as a process to solve problems.
05.06 Define "critical thinking" and its value in the problem-solving process.

06.0 EXPRESS AN UNDERSTANDING OF TECHNOLOGICAL SYSTEMS AND THEIR COMPLEX INTERRELATIONSHIPS--The student will be able to:

06.01 Demonstrate a knowledge of how social, organizational, and technological systems work.
06.02 Explore methods used to monitor and correct performance of technological systems.
06.03 Design and implement an optimal solution to a given problem.
06.04 Outline major historical technological developments or events.
06.05 Identify recent advances in technology.
06.06 Explain problem-solving roles of technology.
06.07 Forecast a technological development or event.
06.08 Define technology.

07.0 DEMONSTRATE THE ABILITY TO PROPERLY IDENTIFY, ORGANIZE, PLAN, AND ALLOCATE RESOURCES--The student will be able to:

07.01 Demonstrate the ability to select goal-relevant activities, rank them, allocate time, and prepare and follow schedules.
07.02 Use or prepare budgets, make forecasts, keep records, and make adjustments to meet objectives.
07.03 Demonstrate the ability to acquire, store, allocate, and use materials or space efficiently.
07.04 Display a knowledge of the efficient use of human resources.

08.0 DISCUSS INDIVIDUAL INTERESTS AND APTITUDES AS THEY RELATE TO A CAREER--The student will be able to:

08.01 Describe individual strengths and weaknesses.
08.02 Discuss individual interests related to a career.
08.03 Identify careers within specific areas of technology.
08.04 Explore careers within specific areas of interest.

09.0 DEMONSTRATE EMPLOYABILITY SKILLS--The student will be able to:

09.01 Conduct a job search.
09.02 Secure information about a career.
09.03 Identify documents which may be required when applying for a job interview.
09.04 Complete a job application form correctly.
09.05 Demonstrate competence in job interview techniques.
09.06 Prepare a resume for a job.

10.0 DEMONSTRATE AN UNDERSTANDING OF ENTREPRENEURSHIP--The student will be able to:

10.01 Define entrepreneurship.
10.02 Describe the importance of entrepreneurship to the American economy.
10.03 List the advantages and disadvantages of business ownership.
10.04 Identify the risks involved in ownership of a business.
10.05 Identify the necessary personal characteristics of a successful entrepreneur.
10.06 Identify the business skills needed to operate a small business efficiently and effectively.

11.0 MAKE AN INFORMED AND MEANINGFUL CAREER CHOICE--The student will be able to:

11.01 Make a tentative occupational choice based on the information learned and interest developed in this course.
11.02 Review tentative occupational choices based on the information learned and interest developed in this course.

12.0 DEMONSTRATE BASIC TECHNICAL KNOWLEDGE AND SKILLS ABOUT CONSTRUCTION TECHNOLOGY--The student will be able to:

12.01 Demonstrate basic technical knowledge and skills about student performance standards 14.01 through 21.02.
12.02 Demonstrate basic technical knowledge and skills in the construction of a structure.

13.0 DEMONSTRATE TECHNICAL KNOWLEDGE AND SKILLS ABOUT SELECTING AND PREPARING A CONSTRUCTION SITE--The student will be able to:

13.01 Explain the steps and processes for identifying, negotiating, selecting, and acquiring sites for construction.
13.02 Explain and perform the elementary technical skills for surveying or mapping a construction site.
13.03 Describe the tools, equipment, and technical skills required for excavating a construction site.
13.04 Explain the load bearing importance of the earth and the reason for soils testing at a construction site.

14.0 DEMONSTRATE TECHNICAL KNOWLEDGE AND SKILLS ABOUT DESIGNING AND ENGINEERING CONSTRUCTED WORKS--The student will be able to:

14.01 Read and interpret architectural drawings, blueprints, symbols, and construction plans.

14.02 Describe building codes, permits, and inspection requirements.
14.03 Sketch or draw a plan for a construction project.

15.0 DEMONSTRATE TECHNICAL KNOWLEDGE AND SKILLS ABOUT CONTRACTING, ESTIMATING, BIDDING, AND SCHEDULING--The student will be able to:

15.01 Estimate construction costs using various methods including a computer.
15.02 Read and prepare bid invitations for contractors to build a construction project.
15.03 Establish criteria for awarding a construction contract.
15.04 Describe the content of a construction contract and performance bond.

16.0 DEMONSTRATE TECHNICAL KNOWLEDGE AND SKILLS ABOUT CONSTRUCTING SUBSTRUCTURES--The student will be able to:

16.01 Describe the types, parts, and purposes of foundations.
16.02 Describe the tools, materials, and processes for setting foundations.
16.03 Mix, place, and finish concrete for a floor, wall, or footing.
16.04 Perform the masonry technical skills of laying brick or block.

17.0 DEMONSTRATE TECHNICAL KNOWLEDGE AND SKILLS ABOUT CONSTRUCTING SUPERSTRUCTURES--The student will be able to:

17.01 Describe mass, solid wall, frame, and air-supported superstructures.
17.02 Describe the materials used in the construction of superstructures.
17.03 Use technical carpentry skills, tools, and materials in constructing a wood frame superstructure.
17.04 Use technical construction skills in building a steel or concrete frame superstructure.
17.05 Describe factory manufacturing of superstructures and modules.

18.0 DEMONSTRATE TECHNICAL KNOWLEDGE AND SKILLS ABOUT INSTALLING UTILITIES--The student will be able to:

18.01 Describe public utility systems for supplying water, electricity, natural gas, and sewerage.
18.02 Describe the functions and operation of heating, cooling, and ventilating systems.
18.03 Demonstrate a technical knowledge of plumbing and electrical systems in homes or buildings.
18.04 Use the technical tools and skills to install plumbing and electrical systems utilities.
18.05 Diagnose and troubleshoot problems with utility systems.

19.0 DEMONSTRATE TECHNICAL KNOWLEDGE AND SKILLS ABOUT ENCLOSING SUPERSTRUCTURES--The student will be able to:

19.01 Describe the different types of materials and methods for constructing interior and exterior walls.
19.02 Describe the different types of materials and methods for laying floors and for building roofs.

19.03 Describe the different types of methods for constructing or installing windows and doors.
19.04 Describe the purposes, materials, and methods for insulating enclosed superstructures.
19.05 Perform the technical skills of enclosing a superstructure.

20.0 DEMONSTRATE TECHNICAL KNOWLEDGE AND SKILLS ABOUT INTERIOR AND EXTERIOR FINISHING OF A CONSTRUCTED STRUCTURE--The student will be able to:

20.01 Describe the different types of materials and methods for trimming, painting, and decorating a constructed structure.
20.02 Describe the types of accessories and fixtures that are installed to finish completed construction.
20.03 Explain the materials and methods used for the finishing processes of paving and landscaping.
20.04 Participate in processes of finishing a construction project and site.

Florida Department of Education
STUDENT PERFORMANCE STANDARDS

Course Number: 8600720
Course Title: Construction Technology II
Course Credit: 1

COURSE DESCRIPTION: This course provides students with an introduction to the knowledge, human relations, and technical skills of construction technology.

01.0 DEMONSTRATE THE ABILITY TO WORK SAFELY WITH A VARIETY OF TECHNOLOGIES--The student will be able to:

- 01.01 Select appropriate tools, procedures, and/or equipment needed to produce a product.
- 01.02 Demonstrate the safe usage of appropriate tools, procedures, and operation of equipment needed to produce a product.
- 01.03 Demonstrate knowledge required to maintain and troubleshoot equipment used in a variety of technological systems.
- 01.04 Follow laboratory safety rules and procedures.
- 01.05 Demonstrate good housekeeping at work station within total laboratory.
- 01.06 Identify color-coding safety standards.
- 01.07 Explain fire prevention and safety precautions and practices for extinguishing fires.
- 01.08 Identify harmful effects/potential dangers of familiar hazardous substances/devices to people and the environment.

02.0 DEMONSTRATE INTERPERSONAL SKILLS AS THEY RELATE TO THE WORKPLACE--The student will be able to:

- 02.01 Perform roles in a student personnel system or in the Florida Technology Student Association (FL-TSA).
- 02.02 Participate as a member of a team.
- 02.03 Teach others new skills.
- 02.04 Identify skills needed to serve clients/customers.
- 02.05 Demonstrate leadership skills.
- 02.06 Describe strategies necessary for negotiating agreements.
- 02.07 Demonstrate the application of skills necessary to work with people of diverse backgrounds.
- 02.08 Form an understanding and appreciation for work after listening to or observing technology workers.
- 02.09 Form an understanding and appreciation for work after participating in a simulated technology group project in the laboratory.
- 02.10 Form an understanding and appreciation for the roles and work of co-workers.

03.0 IDENTIFY AND APPLY METHODS OF INFORMATION ACQUISITION AND UTILIZATIONS--The student will be able to:

- 03.01 Define terms related to computers.
- 03.02 Identify and describe methods of information acquisition and evaluation.

03.03 Discuss advantages and disadvantages in the application of technologies.
03.04 Produce a plan to organize and maintain information relevant to emerging technologies.
03.05 Comprehend and communicate information relevant to emerging technologies.
03.06 Demonstrate the use of computers to process information.

04.0 APPLY BASIC SKILLS IN COMMUNICATIONS, MATHEMATICS, AND SCIENCE APPROPRIATE TO TECHNOLOGICAL CONTENT AND LEARNING ACTIVITIES--The student will be able to:

04.01 Identify and explain the main and subordinate ideas in a written work.
04.02 Distinguish different purposes and methods of writing, identify a writer's point of view and tone, and interpret a writer's meaning.
04.03 Define unfamiliar words by use of structural analysis, decoding, contextual clues, or by using a dictionary.
04.04 Distinguish fact from opinion.
04.05 Read critically by asking pertinent questions, by recognizing assumptions and implications, and by evaluating ideas.
04.06 Select, relate, and organize, ideas using outlining and/or graphic organizers and develop the ideas in coherent paragraphs.
04.07 Improve one's own writing by restructuring, correcting errors, and rewriting.
04.08 Gather and organize information from primary and secondary sources; write a report using this research; quote, paraphrase, and summarize accurately; and cite sources properly.
04.09 Vary one's writing style, including vocabulary and sentence structure, for different readers and purposes.
04.10 Write logical and understandable statements, or phrases, to accurately fill out commonly used forms.
04.11 Compose unified and coherent correspondence, directions, descriptions, explanations and reports.
04.12 Participate critically and constructively in the exchange of ideas, particularly during class discussions and conferences with instructors.
04.13 Conceive and develop ideas about a topic for the purpose of speaking to a group; choose and organize related ideas; present them clearly in Standard English; and evaluate similar presentations by others.
04.14 Use the mathematics of:
- integers, fractions, and decimals;
- ratios, proportions, and percentages;
- roots and powers;
- algebra;
- geometry.
04.15 Make estimates and approximations, and judge the reasonableness of a result.
04.16 Use elementary concepts of probability and statistics.
04.17 Draw, read, and analyze graphs, charts, and tables.
04.18 Ask appropriate scientific questions and recognize what is involved in experimental approaches to the solutions of such questions through familiarity with laboratory and field work.
04.19 Organize and communicate the results obtained by observation and experimentation.

04.20 Apply the basic principles of biology, physics, and chemistry (properties of matter; structure of compounds; concepts of motion; temperature, pressure and volume; work, power, force and energy; machines; human cell structure).
04.21 Identify problems rooted in basic biology, physics, or chemistry (effects of hazardous materials on health and safety, effects of drugs on health, trouble shooting problems on a machine).

05.0 DEMONSTRATE AND APPLY DESIGN/PROBLEM-SOLVING PROCESSES--The student will be able to:

05.01 Describe and explain steps in the design/problem-solving process.
05.02 Propose solutions to given problems.
05.03 Design and implement the optimal solution to a given problem.
05.04 Document each step of the design/problem-solving process.
05.05 Demonstrate "brainstorming" as a process to solve problems.
05.06 Define "critical thinking" and its value in the problem-solving process.

06.0 EXPRESS AN UNDERSTANDING OF TECHNOLOGICAL SYSTEMS AND THEIR COMPLEX INTERRELATIONSHIPS--The student will be able to:

06.01 Demonstrate a knowledge of how social, organizational, and technological systems work.
06.02 Explore methods used to monitor and correct performance of technological systems.
06.03 Design and implement an optimal solution to a given problem.
06.04 Outline major historical technological developments or events.
06.05 Identify recent advances in technology.
06.06 Explain problem-solving roles of technology.
06.07 Forecast a technological development or event.
06.08 Define technology.

07.0 DEMONSTRATE THE ABILITY TO PROPERLY IDENTIFY, ORGANIZE, PLAN, AND ALLOCATE RESOURCES--The student will be able to:

07.01 Demonstrate the ability to select goal-relevant activities, rank them, allocate time, and prepare and follow schedules.
07.02 Use or prepare budgets, make forecasts, keep records, and make adjustments to meet objectives.
07.03 Demonstrate the ability to acquire, store, allocate, and use materials or space efficiently.
07.04 Display a knowledge of the efficient use of human resources.

08.0 DISCUSS INDIVIDUAL INTERESTS AND APTITUDES AS THEY RELATE TO A CAREER--The student will be able to:

08.01 Describe individual strengths and weaknesses.
08.02 Discuss individual interests related to a career.
08.03 Identify careers within specific areas of technology.
08.04 Explore careers within specific areas of interest.

09.0 DEMONSTRATE EMPLOYABILITY SKILLS--The student will be able to:

09.01 Conduct a job search.
09.02 Secure information about a career.
09.03 Identify documents which may be required when applying for a job interview.
09.04 Complete a job application form correctly.
09.05 Demonstrate competence in job interview techniques.
09.06 Prepare a resume for a job.

10.0 DEMONSTRATE AN UNDERSTANDING OF ENTREPRENEURSHIP--The student will be able to:

10.01 Define entrepreneurship.
10.02 Describe the importance of entrepreneurship to the American economy.
10.03 List the advantages and disadvantages of business ownership.
10.04 Identify the risks involved in ownership of a business.
10.05 Identify the necessary personal characteristics of a successful entrepreneur.
10.06 Identify the business skills needed to operate a small business efficiently and effectively.

11.0 MAKE AN INFORMED AND MEANINGFUL CAREER CHOICE--The student will be able to:

11.01 Make a tentative occupational choice based on the information learned and interest developed in this course.
11.02 Review tentative occupational choices based on the information learned and interest developed in this course.

21.0 APPLY ADVANCED TECHNICAL KNOWLEDGE AND SKILLS ABOUT CONSTRUCTION TECHNOLOGY--The student will be able to:

21.01 Apply advanced technical knowledge and skills about student performance standards 14.01 through 21.02.
21.02 Apply advanced technical knowledge and skills in the construction of a structure.

22.0 DEMONSTRATE TECHNICAL KNOWLEDGE AND SKILLS ABOUT SELECTING AND PREPARING A CONSTRUCTION SITE--The student will be able to:

22.01 Explain the steps and processes for identifying, negotiating, selecting, and acquiring sites for construction.
22.02 Explain and perform the elementary technical skills for surveying or mapping a construction site.
22.03 Describe the tools, equipment, and technical skills required for excavating a construction site.
22.04 Explain the load bearing importance of the earth and the reason for soils testing at a construction site.

23.0 DEMONSTRATE TECHNICAL KNOWLEDGE AND SKILLS ABOUT DESIGNING AND ENGINEERING CONSTRUCTED WORKS--The student will be able to:

23.01 Read and interpret architectural drawings, blueprints, symbols, and construction plans.

23.02 Describe building codes, permits, and inspection requirements.
23.03 Sketch or draw a plan for a construction project.

24.0 DEMONSTRATE TECHNICAL KNOWLEDGE AND SKILLS ABOUT CONTRACTING, ESTIMATING, BIDDING, AND SCHEDULING--The student will be able to:

24.01 Estimate construction costs using various methods including a computer.
24.02 Read and prepare bid invitations for contractors to build a construction project.
24.03 Establish criteria for awarding a construction contract.
24.04 Describe the content of a construction contract and performance bond.

25.0 DEMONSTRATE TECHNICAL KNOWLEDGE AND SKILLS ABOUT CONSTRUCTING SUBSTRUCTURES--The student will be able to:

25.01 Describe the types, parts, and purposes of foundations.
25.02 Describe the tools, materials, and processes for setting foundations.
25.03 Mix, place, and finish concrete for a floor, wall, or footing.
25.04 Perform the masonry technical skills of laying brick or block.

26.0 DEMONSTRATE TECHNICAL KNOWLEDGE AND SKILLS ABOUT CONSTRUCTING SUPERSTRUCTURES--The student will be able to:

26.01 Describe mass, solid wall, frame, and air-supported superstructures.
26.02 Describe the materials used in the construction of superstructures.
26.03 Use technical carpentry skills, tools, and materials in constructing a wood frame superstructure.
26.04 Use technical construction skills in building a steel or concrete frame superstructure.
26.05 Describe factory manufacturing of superstructures and modules.

27.0 DEMONSTRATE TECHNICAL KNOWLEDGE AND SKILLS ABOUT INSTALLING UTILITIES--The student will be able to:

27.01 Describe public utility systems for supplying water, electricity, natural gas, and sewerage.
27.02 Describe the functions and operation of heating, cooling, and ventilating systems.
27.03 Demonstrate a technical knowledge of plumbing and electrical systems in homes or buildings.
27.04 Use the technical tools and skills to install plumbing and electrical systems utilities.
27.05 Diagnose and troubleshoot problems with utility systems.

28.0 DEMONSTRATE TECHNICAL KNOWLEDGE AND SKILLS ABOUT ENCLOSING SUPERSTRUCTURES--The student will be able to:

28.01 Describe the different types of materials and methods for constructing interior and exterior walls.
28.02 Describe the different types of materials and methods for laying floors and for building roofs.

28.03 Describe the different types of methods for constructing or installing windows and doors.
28.04 Describe the purposes, materials, and methods for insulating enclosed superstructures.
28.05 Perform the technical skills of enclosing a superstructure.

29.0 DEMONSTRATE TECHNICAL KNOWLEDGE AND SKILLS ABOUT INTERIOR AND EXTERIOR FINISHING OF A CONSTRUCTED STRUCTURE--The student will be able to:

29.01 Describe the different types of materials and methods for trimming, painting, and decorating a constructed structure.
29.02 Describe the types of accessories and fixtures that are installed to finish completed construction.
29.03 Explain the materials and methods used for the finishing processes of paving and landscaping.
29.04 Participate in processes of finishing a construction project and site.

Florida Department of Education
STUDENT PERFORMANCE STANDARDS

Course Number: 8600730
Course Title: Construction Technology III
Course Credit: 1

COURSE DESCRIPTION: This course provides students with an introduction to the knowledge, human relations, and technical skills of construction technology.

01.0 DEMONSTRATE THE ABILITY TO WORK SAFELY WITH A VARIETY OF TECHNOLOGIES--The student will be able to:

- 01.01 Select appropriate tools, procedures, and/or equipment needed to produce a product.
- 01.02 Demonstrate the safe usage of appropriate tools, procedures, and operation of equipment needed to produce a product.
- 01.03 Demonstrate knowledge required to maintain and troubleshoot equipment used in a variety of technological systems.
- 01.04 Follow laboratory safety rules and procedures.
- 01.05 Demonstrate good housekeeping at work station within total laboratory.
- 01.06 Identify color-coding safety standards.
- 01.07 Explain fire prevention and safety precautions and practices for extinguishing fires.
- 01.08 Identify harmful effects/potential dangers of familiar hazardous substances/devices to people and the environment.

02.0 DEMONSTRATE INTERPERSONAL SKILLS AS THEY RELATE TO THE WORKPLACE--The student will be able to:

- 02.01 Perform roles in a student personnel system or in the Florida Technology Student Association (FL-TSA).
- 02.02 Participate as a member of a team.
- 02.03 Teach others new skills.
- 02.04 Identify skills needed to serve clients/customers.
- 02.05 Demonstrate leadership skills.
- 02.06 Describe strategies necessary for negotiating agreements.
- 02.07 Demonstrate the application of skills necessary to work with people of diverse backgrounds.
- 02.08 Form an understanding and appreciation for work after listening to or observing technology workers.
- 02.09 Form an understanding and appreciation for work after participating in a simulated technology group project in the laboratory.
- 02.10 Form an understanding and appreciation for the roles and work of co-workers.

03.0 IDENTIFY AND APPLY METHODS OF INFORMATION ACQUISITION AND UTILIZATIONS--The student will be able to:

- 03.01 Define terms related to computers.
- 03.02 Identify and describe methods of information acquisition and evaluation.

03.03 Discuss advantages and disadvantages in the application of technologies.
03.04 Produce a plan to organize and maintain information relevant to emerging technologies.
03.05 Comprehend and communicate information relevant to emerging technologies.
03.06 Demonstrate the use of computers to process information.

04.0 APPLY BASIC SKILLS IN COMMUNICATIONS, MATHEMATICS, AND SCIENCE APPROPRIATE TO TECHNOLOGICAL CONTENT AND LEARNING ACTIVITIES--The student will be able to:

04.01 Identify and explain the main and subordinate ideas in a written work.
04.02 Distinguish different purposes and methods of writing, identify a writer's point of view and tone, and interpret a writer's meaning.
04.03 Define unfamiliar words by use of structural analysis, decoding, contextual clues, or by using a dictionary.
04.04 Distinguish fact from opinion.
04.05 Read critically by asking pertinent questions, by recognizing assumptions and implications, and by evaluating ideas.
04.06 Select, relate, and organize, ideas using outlining and/or graphic organizers and develop the ideas in coherent paragraphs.
04.07 Improve one's own writing by restructuring, correcting errors, and rewriting.
04.08 Gather and organize information from primary and secondary sources; write a report using this research; quote, paraphrase, and summarize accurately; and cite sources properly.
04.09 Vary one's writing style, including vocabulary and sentence structure, for different readers and purposes.
04.10 Write logical and understandable statements, or phrases, to accurately fill out commonly used forms.
04.11 Compose unified and coherent correspondence, directions, descriptions, explanations and reports.
04.12 Participate critically and constructively in the exchange of ideas, particularly during class discussions and conferences with instructors.
04.13 Conceive and develop ideas about a topic for the purpose of speaking to a group; choose and organize related ideas; present them clearly in Standard English; and evaluate similar presentations by others.
04.14 Use the mathematics of:
- integers, fractions, and decimals;
- ratios, proportions, and percentages;
- roots and powers;
- algebra;
- geometry.
04.15 Make estimates and approximations, and judge the reasonableness of a result.
04.16 Use elementary concepts of probability and statistics.
04.17 Draw, read, and analyze graphs, charts, and tables.
04.18 Ask appropriate scientific questions and recognize what is involved in experimental approaches to the solutions of such questions through familiarity with laboratory and field work.
04.19 Organize and communicate the results obtained by observation and experimentation.

04.20 Apply the basic principles of biology, physics, and chemistry (properties of matter; structure of compounds; concepts of motion; temperature, pressure and volume; work, power, force and energy; machines; human cell structure).
04.21 Identify problems rooted in basic biology, physics, or chemistry (effects of hazardous materials on health and safety, effects of drugs on health, trouble shooting problems on a machine).

05.0 DEMONSTRATE AND APPLY DESIGN/PROBLEM-SOLVING PROCESSES--The student will be able to:

05.01 Describe and explain steps in the design/problem-solving process.
05.02 Propose solutions to given problems.
05.03 Design and implement the optimal solution to a given problem.
05.04 Document each step of the design/problem-solving process.
05.05 Demonstrate "brainstorming" as a process to solve problems.
05.06 Define "critical thinking" and its value in the problem-solving process.

06.0 EXPRESS AN UNDERSTANDING OF TECHNOLOGICAL SYSTEMS AND THEIR COMPLEX INTERRELATIONSHIPS--The student will be able to:

06.01 Demonstrate a knowledge of how social, organizational, and technological systems work.
06.02 Explore methods used to monitor and correct performance of technological systems.
06.03 Design and implement an optimal solution to a given problem.
06.04 Outline major historical technological developments or events.
06.05 Identify recent advances in technology.
06.06 Explain problem-solving roles of technology.
06.07 Forecast a technological development or event.
06.08 Define technology.

07.0 DEMONSTRATE THE ABILITY TO PROPERLY IDENTIFY, ORGANIZE, PLAN, AND ALLOCATE RESOURCES--The student will be able to:

07.01 Demonstrate the ability to select goal-relevant activities, rank them, allocate time, and prepare and follow schedules.
07.02 Use or prepare budgets, make forecasts, keep records, and make adjustments to meet objectives.
07.03 Demonstrate the ability to acquire, store, allocate, and use materials or space efficiently.
07.04 Display a knowledge of the efficient use of human resources.

08.0 DISCUSS INDIVIDUAL INTERESTS AND APTITUDES AS THEY RELATE TO A CAREER--The student will be able to:

08.01 Describe individual strengths and weaknesses.
08.02 Discuss individual interests related to a career.
08.03 Identify careers within specific areas of technology.
08.04 Explore careers within specific areas of interest.

09.0 DEMONSTRATE EMPLOYABILITY SKILLS--The student will be able to:

09.01 Conduct a job search.
09.02 Secure information about a career.
09.03 Identify documents which may be required when applying for a job interview.
09.04 Complete a job application form correctly.
09.05 Demonstrate competence in job interview techniques.
09.06 Prepare a resume for a job.

10.0 DEMONSTRATE AN UNDERSTANDING OF ENTREPRENEURSHIP--The student will be able to:

10.01 Define entrepreneurship.
10.02 Describe the importance of entrepreneurship to the American economy.
10.03 List the advantages and disadvantages of business ownership.
10.04 Identify the risks involved in ownership of a business.
10.05 Identify the necessary personal characteristics of a successful entrepreneur.
10.06 Identify the business skills needed to operate a small business efficiently and effectively.

11.0 MAKE AN INFORMED AND MEANINGFUL CAREER CHOICE--The student will be able to:

11.01 Make a tentative occupational choice based on the information learned and interest developed in this course.
11.02 Review tentative occupational choices based on the information learned and interest developed in this course.

30.0 PERFORM ADVANCED STUDY AND TECHNICAL SKILLS RELATED TO CONSTRUCTION TECHNOLOGY--The student will be able to:

30.01 Select an individual or group project in cooperation with the teacher.
30.02 Develop a written plan of work to carry out the project.
30.03 Show evidence of technical study in support of the project.
30.04 Perform skills related to the project.
30.05 Complete the project as planned.

31.0 OPERATE A COMPUTER UTILIZING A PROGRAM RELATED TO CONSTRUCTION TECHNOLOGY--The student will be able to:

31.01 Collect or produce data on construction technology through the operation of a computer.

32.0 DEMONSTRATE TECHNICAL KNOWLEDGE AND SKILLS ABOUT REGIONAL PLANNING AND THE CONSTRUCTION OF CIVIL OR COMMUNITY STRUCTURES--The student will be able to:

32.01 Discuss community and regional planning needs and processes for the construction of roads, parks, dams, airports, seaports, warehouses, shopping centers, factories, and skyscrapers.
32.02 Develop a scale model of one of the above structures and give a report on the need

33.0 CONDUCT STRUCTURAL TESTS ON CONSTRUCTED STRUCTURES AND CONSTRUCTION MATERIALS--The student will be able to:

33.01 Perform scientific and technical tests on the strength, life, and uses of structures.
33.02 Perform scientific and technical tests on a variety of construction materials.

34.0 CONDUCT A RESEARCH AND EXPERIMENTATION PROJECT ON A CONSTRUCTION MATERIAL OR PROCESS--The student will be able to:

34.01 Identify a problem.
34.02 State a need to research the problem.
34.03 Form a hypothesis about the problem.
34.04 Plan the procedures for researching the problem.
34.05 Conduct the research following the planned procedures.
34.06 Present the research findings in a seminar.
34.07 State conclusions based on the research findings.