Florida Department of Education
CURRICULUM FRAMEWORK

Program Title:	Technology Systems
Occupational Area:	Technology Education
Program Numbers:	8600400
CIP Number:	0821.0128PA
Grade Level:	Secondary 9-12, & 30, 31
Standard Length:	0.5 Credits
Facility Design Code:	243 or Existing Technology Education Facilities
CTSO:	Florida Technology Student Association (FL-TSA)
Certification:	See Each Individual Course

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 the applications of technology and its effect upon our lives and the choosing of an occupation. Students will be introduced to the concepts that underlie technological systems and the influence of technological systems at home, school, and the world of work. 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.

Listed below are the courses that make up this program at the secondary level followed by the laboratory design code appropriate for the courses.

8600410 - Communication Systems (242)
8600420 - Power and Transportation Systems (242)
8600430 - Production Systems (242)
8600440 - Drafting/Illustrative Design Systems (242)
8600450 - Electronics Systems (241)
8600460 - Engineering Systems (242)
8600470 - Applied Technology Systems (242)
8600480 - Home Technology Systems (242)

II. **LABORATORY ACTIVITIES:** 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 Student Organization for providing leadership training experiences and reinforcing specific career & technical skills. Career Student Organizations, shall be an integral part of the career & technical 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.floridatsa.com>.

When a secondary student with a disability is enrolled in a career & technical class with modifications to the curriculum framework, the particular outcomes and student performance standards which the student must master to earn credit must be specified on an individual basis. The job or jobs for which the student is being trained should be reflected in the student's desired post school outcome statement on the Transition Individual Educational Plan (Transition IEP).

IV. **INTENDED OUTCOMES:** After successfully completing a course 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's.
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 technology systems and their complex interrelationships.
07.0 Demonstrate the ability to properly identify, organize, plan and allocate resources.
08.0 Demonstrate technological literacy about communications systems.
09.0 Apply communications technology skills.
10.0 Describe sources of energy.
11.0 Describe the application of energy to power and transportation systems.
12.0 Apply technology skills to a selected power or transportation system.
13.0 Demonstrate knowledge of the production systems found in modern industries.
14.0 Define the processes related to materials utilized in manufacturing and production.
15.0 Plan and develop a system to produce a product from available materials.
16.0 Demonstrate proper and safe procedures and technical knowledge and skills in the use and care of drafting instruments, materials equipment.
17.0 Demonstrate technical knowledge skills and applications common to all types of drafting including CAD.
18.0 Demonstrate technical knowledge and skills for making drafting sketches.
19.0 Demonstrate technical knowledge and skills for making three-view orthographic drawings.
20.0 Demonstrate technical knowledge and skills for making oblique pictorial drawings.
21.0 Demonstrate technical knowledge and skills for making isometric pictorial drawings.
22.0 Demonstrate technical knowledge and skills for making aerodynamic drawings.
23.0 Demonstrate technical knowledge and skills for making a CAD drawing.
24.0 Demonstrate technical knowledge and skills for reproducing a CAD drawing on a plotter.
25.0 Apply electricity/electronics technology skills.
26.0 Demonstrate technological literacy about electricity/electronics systems.
27.0 Demonstrate knowledge of the role electronics plays in magnetic, optical, fluid and mechanical control systems.
28.0 Demonstrate the engineering analysis and design methods.
29.0 Communicate through oral, written or graphic means the results of solutions or designs.

30.0 Demonstrate and apply mechanical, fluid, electrical and thermal system principles.
31.0 Demonstrate knowledge of materials and processes.
32.0 Use tools, machines, calculators, and computers necessary for obtaining solutions to design problems.
33.0 Describe the functional characteristics of the engineering design team.
34.0 Discuss the impact of technology on society and the environment.
35.0 Demonstrate and apply mechanical system principles.
36.0 Demonstrate and apply fluid system principles.
37.0 Demonstrate and apply electrical system principles.
38.0 Demonstrate and apply thermal system principles.
39.0 Demonstrate the use of a computer to integrate and control a system composed of mechanical, fluid and electrical systems.
40.0 Demonstrate the use of sensors to control systems.
41.0 Demonstrate the use of fiber optics concepts.
42.0 Demonstrate the use of laser optic concepts.
43.0 Identify and list the different systems found in the new homes under construction today.
44.0 Draw up a bill of materials required to repair a selected component of a unit in a home technology system.
45.0 Apply home maintenance technology skills to a selected system requiring repair.

Florida Department of Education
STUDENT PERFORMANCE STANDARDS

Course Number: 8600410
Course Title: Communication Systems
Course Credit: 0.5
Certification: INDUS ARTS @4 @6
GRAPH ARTS @4
GEN SHOP @4
PRINTING @7G
I ART-TEC 1 @2
ENG 7G

COURSE DESCRIPTION: The purpose of this course is to provide students with a foundation of knowledge and technically oriented experiences in the study of communications systems.

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.
01.04 Follow laboratory safety rules and procedures.
01.05 Demonstrate good housekeeping at work state and 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 fieldwork.
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 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 knowledge of the efficient use of human resources.

08.0 DEMONSTRATE TECHNOLOGICAL LITERACY ABOUT COMMUNICATIONS SYSTEMS--The student will be able to:

08.01 Define communications technology.
08.02 Outline major technological developments and events in the history of communications systems technology.
08.03 Identify recent advances in communications technology.

08.04 Forecast a development or event in communications technology.

09.0 APPLY COMMUNICATIONS TECHNOLOGY SKILLS--The student will be able to:

09.01 Explain the processes of relief, gravure, screen process, and lithographic printing; bindery operations; photographic reproduction; and electronic communications.
09.02 Demonstrate technical knowledge and skills in the preparation of art and copy for printing reproduction.
09.03 Design, layout, and produce a printed product utilizing the above printing processes.
09.04 Express knowledge of the basic theory of photography.
09.05 Produce a photographic negative and print utilizing the tools, equipment, materials, and processes of photography.
09.06 Describe the basic characteristics and specifications of paper, ink, and chemicals used in communications technology.
09.07 List ways in which computers are used in communications systems technology.
09.08 Operate a computer utilizing a program related to communications technology.
09.09 Express a technical knowledge and understanding about electronic communications technology, to include telephone, radio, television, digital data transmission, and satellite communications.
09.10 Apply technical knowledge and skills related to one or more of the above areas of electronic communications.

Florida Department of Education
STUDENT PERFORMANCE STANDARDS

Course Number: 8600420
Course Title: Power and Transportation Systems
Course Credit: 0.5
Certification: INDUS ARTS @4 6
AUTO MECH @7G
TEC MECH @7G
GEN SHOP @4
DESEL MECH @7G
AIR MECH @7G
TRANSPORT @4
AUTO IND @7G
GASENG RPR @7G
I ART-TEC 1 @2
ENG 7G

COURSE DESCRIPTION: The purpose of this course is to provide students with a foundation of knowledge and technically oriented experiences in the study of power and transportation systems.

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.
01.04 Follow laboratory safety rules and procedures.
01.05 Demonstrate good housekeeping at work state and 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 fieldwork.
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 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 knowledge of the efficient use of human resources.

10.0 DESCRIBE SOURCES OF ENERGY--The student will be able to:

10.01 Describe sources of thermal energy.
10.02 Describe sources of radiant energy.

10.03 Describe sources of nuclear energy.
10.04 Describe sources of chemical energy.
10.05 Describe sources of electrical energy.
10.06 Describe sources of mechanical energy.
10.07 Describe sources of fluid energy.

11.0 DESCRIBE THE APPLICATIONS OF ENERGY TO POWER AND TRANSPORTATION SYSTEMS--The student will be able to:

11.01 Explain the uses and applications of thermal energy in generating electrical power.
11.02 Discuss how radiant energy is used in our homes.
11.03 Describe energy and fuel sources for internal combustion engines.
11.04 Identify and define key terms, categories and parts of jet engine power systems.
11.05 Identify and explain the uses of hydraulic power in automotive systems.
11.06 List the kinds of exhaustible, renewable, and inexhaustible energy resources.

12.0 APPLY TECHNOLOGICAL KNOWLEDGE AND SKILLS TO A SELECTED POWER OR TRANSPORTATION SYSTEM--The student will be able to:

12.01 Identify a system.
12.02 Identify an energy source to be used.
12.03 Plan the procedures for designing the system.
12.04 Sketch and present the plan to the class.

Florida Department of Education
STUDENT PERFORMANCE STANDARDS

Course Number: 8600430
Course Title: Production Systems
Course Credit: 0.5
Certification: INDUS ARTS @4 @6
I ART-TEC 1 @2
ENG 7G

COURSE DESCRIPTION: The purpose of this course is to provide students with a foundation of knowledge and technically oriented experiences in the study of production systems and its effect upon our lives and the choosing of an occupation.

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.
01.04 Follow laboratory safety rules and procedures.
01.05 Demonstrate good housekeeping at work state and 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.
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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 fieldwork.
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 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 knowledge of the efficient use of human resources.

13.0 DEMONSTRATE KNOWLEDGE OF THE PRODUCTION SYSTEMS FOUND IN MODERN INDUSTRIES--The student will be able to:

13.01 List and describe the three major types of production activities.
13.02 Describe resource processing systems.
13.03 Describe product manufacturing systems.
13.04 Describe structure construction systems.
13.05 Identify recent technological advances in production systems.

14.0 DEFINE THE PROCESSES RELATED TO MATERIALS UTILIZED IN MANUFACTURING AND PRODUCTION--The student will be able to:

14.01 Define manufacturing.
14.02 List and describe six types of secondary manufacturing processes.
14.03 List ways in which computers are used in the manufacturing and production systems.

15.0 PLAN AND DEVELOP A SYSTEM TO PRODUCE A PRODUCT FROM AVAILABLE MATERIALS--The student will be able to:

15.01 Sketch, draw and interpret working drawings.
15.02 Use measuring tools and instruments.
15.03 Design and construct one or more individual projects utilizing technical skills and processes of woods, metals and plastics technology.
15.04 Estimate the cost of the job required to produce the project.
15.05 List groups or organizations that represent specialized manufacturing and production skills.

Florida Department of Education
STUDENT PERFORMANCE STANDARDS

Course Number: 8600440
Course Title: Drafting/Illustrative Design Systems
Course Credit: 0.5
Certification: INDUS ARTS @4 @6
GRAPH ARTS @4
GEN SHOP @4
DRAFTING @7G
I ART-TEC 1 @2
ENG 7G

COURSE DESCRIPTION: The purpose of this course is to provide students with a foundation of knowledge and technically oriented experiences in the study of drafting/illustrative and design systems.

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.
01.04 Follow laboratory safety rules and procedures.
01.05 Demonstrate good housekeeping at work state and 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 fieldwork.
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 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 knowledge of the efficient use of human resources.

16.0 DEMONSTRATE PROPER AND SAFE PROCEDURES AND TECHNICAL KNOWLEDGE AND SKILLS IN THE USE AND CARE OF DRAFTING INSTRUMENTS, MATERIALS AND EQUIPMENT--The student will be able to:

16.01 Identify the basic tools and instruments for drafting.
16.02 Interpret a blueprint, working drawing or other type of dimensional technical illustration.

16.03 Produce a working drawing or technical illustration using drafting tools, instruments, and skills.

17.0 DEMONSTRATE TECHNICAL KNOWLEDGE, SKILLS AND APPLICATIONS COMMON TO ALL TYPES OF DRAFTING INCLUDING COMPUTER-AIDED DRAFTING (CAD)--The student will be able to:

17.01 Outline major technological developments in the history of drafting and design tools and equipment.
17.02 Make freehand sketches.
17.03 Produce a drawing using drafting instruments.
17.04 Set up a computer to produce a drawing.

18.0 DEMONSTRATE TECHNICAL KNOWLEDGE AND SKILLS FOR MAKING DRAFTING SKETCHES--The student will be able to:

1.01 Illustrate a technical idea by means of a sketch.

19.0 DEMONSTRATE TECHNICAL KNOWLEDGE AND SKILLS FOR MAKING ORTHOGRAPHIC DRAWINGS--The student will be able to:

19.01 Explain the theory of orthographic projections.
19.02 Identify the six principal views of an object.
19.03 Produce a three-view orthographic drawing.

20.0 DEMONSTRATE TECHNICAL KNOWLEDGE AND SKILLS FOR MAKING OBLIQUE PICTORIAL DRAWINGS--The student will be able to:

20.01 Define types of pictorial drawings.
20.02 Produce an oblique pictorial drawing.

21.0 DEMONSTRATE TECHNICAL KNOWLEDGE AND SKILLS FOR MAKING ISOMETRIC PICTORIAL DRAWINGS--The student will be able to:

19.01 Discuss the isometric drawing procedures.
19.02 Produce an isometric pictorial drawing.

22.0 DEMONSTRATE TECHNICAL KNOWLEDGE AND SKILLS FOR MAKING AERODYNAMIC DRAWINGS--The student will be able to:

22.01 Discuss aerodynamic designs of aircraft and automobiles.
22.02 Produce an aerodynamic scale drawing.

23.0 DEMONSTRATE TECHNICAL KNOWLEDGE AND SKILLS FOR MAKING A COMPUTER-AIDED DRAWING (CAD)--The student will be able to:

23.01 List the major components of a computer-aided drafting system and their functions.
23.02 Demonstrate technical knowledge and skills in setting up a CAD system.

24.0 DEMONSTRATE TECHNICAL KNOWLEDGE AND SKILLS FOR REPRODUCING A COMPUTER-AIDED DRAWING ON A PLOTTER--The student will be able to:

24.01 Produce a computer-aided drawing, which can be displayed by means of a computer.

Florida Department of Education
STUDENT PERFORMANCE STANDARDS

Course Number: 8600450
Course Title: Electronics Systems
Course Credit: 0.5
Certification: INDUS ARTS @4 @6
ELECTRONIC @7G
TEC ELEC @7G
GEN SHOP @4
ELECTRICAL @4 @7G
I ART-TEC 1 @2
ENG 7G

COURSE DESCRIPTION: The purpose of this course is to provide students with a foundation of knowledge and technically oriented experiences in the study of electronics systems.

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.
01.04 Follow laboratory safety rules and procedures.
01.05 Demonstrate good housekeeping at work state and 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.
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05.01 Describe and explain steps in the design/problem-solving process.
05.02 Propose solutions to given problems.
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06.01 Demonstrate knowledge of how social, organizational, and technological systems work.
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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 knowledge of the efficient use of human resources.

25.0 APPLY ELECTRICITY/ELECTRONICS TECHNOLOGY SKILLS--The student will be able to:

25.01 Identify and use the basic tools used in electricity/electronics.
25.02 Identify and use the basic instruments used in electricity/electronics.
25.03 Interpret electricity/electronics wiring diagrams and schematics.

25.04 Identify electricity/electronics components.
25.05 Explain the use of electricity/electronics components.
25.06 Explain the difference between electricity and electronics.
25.07 Describe and construct the following electricity circuits: switch controlled lamp holder, three-way switch, four-way switch, split wired receptacle, door buzzers, thermostat, timer, dimmer, photocell, and fluorescent lamp.

26.0 DEMONSTRATE TECHNOLOGICAL LITERACY ABOUT ELECTRICITY/ELECTRONICS SYSTEMS--The student will be able to:

26.01 Outline major technological developments and events in the history of electricity/electronics.
26.02 Identify recent advances in electricity/electronics.
26.03 Explain the problem-solving roles of electricity/electronics.
26.04 Forecast a development or event in electricity/electronics technology.
26.05 Make a technical decision related to electricity/electronics.
26.06 Define electricity/electronics technology.
26.07 Define solid state, analog and digital systems.
26.08 Explain the basic components of electrical/electronics systems.

27.0 DEMONSTRATE KNOWLEDGE OF THE ROLE ELECTRONICS PLAYS IN MAGNETIC, OPTICAL, FLUID AND MECHANICAL CONTROL SYSTEMS--The student will be able to:

27.01 Identify examples of each type of control system.
27.02 Explain the role electronics plays in systems feedback giving examples of everyday use.
27.03 Identify by brainstorming new possible applications of control systems to satisfy a need or extend human capabilities.

Florida Department of Education
STUDENT PERFORMANCE STANDARDS

Course Number: 8600460
Course Title: Engineering Systems
Course Credit: 0.5
Certification: INDUS ARTS @4 @6
I ART-TEC 1 @2
ENG 7G

COURSE DESCRIPTION: The purpose of this course is to provide students with a foundation of knowledge and technically oriented experiences in the study of engineering systems and its effect upon our lives and the choosing of an occupation.

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.
01.04 Follow laboratory safety rules and procedures.
01.05 Demonstrate good housekeeping at work state and 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.
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- 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 fieldwork.
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 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.
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06.05 Identify recent advances in technology.
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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 knowledge of the efficient use of human resources.

28.0 DEMONSTRATE ENGINEERING ANALYSIS AND DESIGN METHODS--The student will be to:

28.01 Define the terms: analysis, design, and applications.
28.02 Define the experimental method as it is applied to design.
28.03 Describe a design methodology.
28.04 Describe simulation.
28.05 Prepare a model of a design solution to an engineering problem.

28.06 Prepare a graphical solution to an engineering problem.
28.07 Prepare a mathematical solution to an engineering problem (using either a calculator or computer).

29.0 COMMUNICATE THROUGH ORAL WRITTEN, OR GRAPHIC MEANS, THE RESULTS OF SOLUTIONS OR DESIGNS--The student will be able to:

29.01 Understand and interpret basic engineering drawings.
29.02 Measure quantities and conduct basic tests according to published procedures.
29.03 Use precision measuring tools and instruments to layout, measure and inspect parts or articles.
29.04 Sketch objects using multi-view and pictorial principles.
29.05 Prepare drawings using basic technical drawing instruments for orthographic and isometric projections.
29.06 Use engineering design graphics and descriptive geometry in the solution of design problems.
29.07 Describe graphic communications principles.

30.0 DEMONSTRATE AND APPLY MECHANICAL, FLUID, ELECTRICAL AND THERMAL SYSTEM PRINCIPLES--The student will be able to:

30.01 Assemble, operate, and identify the parts of a system that demonstrates mechanical systems principles.
30.02 Assemble, operate, and identify the parts of a system that demonstrates fluid system principles.
30.03 Assemble, operate, and identify the parts of a system that demonstrates electrical system principles.
30.04 Assemble, operate, and identify the parts of a system that demonstrates thermal system principles.

31.0 DEMONSTRATE KNOWLEDGE OF MATERIALS AND PROCESSES--The student will be able to:

31.01 Describe the physical and chemical properties of engineering materials in terms of their structure.
31.02 List the causes of failure in materials and give procedures to prevent such failure.
31.03 Experiment with processes used with metal, woods, polymers, composite materials and adhesives.

32.0 USE TOOLS, MACHINES, CALCULATORS, AND COMPUTERS NECESSARY FOR OBTAINING SOLUTIONS TO DESIGN PROBLEMS--The student will be able to:

32.01 Demonstrate the use of various graphs to categorize and display data.
32.02 Make decisions using graphical data presentations.
32.03 Demonstrate the use of a number graph in solving equations.
32.04 Use a numerical calculator to solve complex equations either by direct solution or iteration (trial and error).
32.05 Use a computer and applications software to solve a design problem by simulation.
32.06 Demonstrate graphical vector analysis.

33.0 DESCRIBE THE FUNCTIONAL CHARACTERISTICS OF THE ENGINEERING DESIGN TEAM--The student will be able to:

33.01 Describe work breakdown organization.
33.02 Describe the function of management in general and project management in particular.
33.03 Outline a research methodology.
33.04 Describe brainstorming.

Florida Department of Education
STUDENT PERFORMANCE STANDARDS

Course Number: 8600470
Course Title: Applied Technology Systems
Course Credit: 0.5
Certification: INDUS ARTS @4 @6
I ART-TEC 1 @2
ENG 7G

COURSE DESCRIPTION: The purpose of this course is to provide students with a foundation of knowledge and technically oriented experiences in the study of applied technology systems and its effect upon our lives and the choosing of an occupation.

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.
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- 01.04 Follow laboratory safety rules and procedures.
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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).
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- 03.01 Define terms related to computers.

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06.01 Demonstrate knowledge of how social, organizational, and technological systems work.
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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 knowledge of the efficient use of human resources.

34.0 DISCUSS THE IMPACT OF TECHNOLOGY ON SOCIETY AND THE ENVIRONMENT--The student will be able to:

34.01 Discuss the impact of technology, now and in the future.
34.02 Discuss the impacts of technology on work, job opportunities and careers.
34.03 Identify the scope of technological impacts.
34.04 Identify means of controlling the world impacts of technology.
34.05 Discuss expected and unexpected impacts of technology.
34.06 Discuss desired and undesired impacts of technology.
34.07 Prepare a report on the impact of technology.

35.0 DEMONSTRATE AND APPLY MECHANICAL SYSTEM PRINCIPLES--The student will be able to:

35.01 Assemble, operate, and identify the parts of a system that demonstrates mechanical system principles.
35.02 Demonstrate and apply principles of force, work, rate, resistance, energy, power, and force transformers relating to mechanical systems.

36.0 DEMONSTRATE AND APPLY FLUID SYSTEM PRINCIPLES--The student will be able to:

36.01 Assemble, operate and identify the parts of a system that demonstrates fluid system principles.
36.02 Demonstrate and apply principle of force, work, rate, resistance, energy, power, and force transformers, relating to fluid systems.

37.0 DEMONSTRATE AND APPLY ELECTRICAL SYSTEM PRINCIPLES--The student will be able to:

37.01 Assemble, operate, and identify the parts of a system that demonstrates electrical system principles.
37.02 Demonstrate and apply principles of force, work, rate, resistance, energy, power, and force transformers relating to electrical systems.

38.0 DEMONSTRATE AND APPLY THERMAL SYSTEM PRINCIPLES--The student will be able to:

22.01 Assemble, operate, and identify the parts of a system that demonstrates thermal system principles.
22.02 Demonstrate and apply principles of force, work, rate, resistance, energy, power, and force transformers relating to thermal systems.

39.0 DEMONSTRATE THE USE OF A COMPUTER TO INTEGRATE AND CONTROL A SYSTEM COMPOSED OF MECHANICAL, FLUID AND ELECTRICAL SYSTEMS--The student will be able to:

39.01 Diagram an integrated system incorporating input, monitoring, controlling, output and feedback components.
39.02 Perform experiments using mechanical, fluid and electrical components in an integrated system.
39.03 Assemble, operate and identify the parts of computer-controlled mechanical, fluid, and electrical systems.

40.0 DEMONSTRATE THE USE OF SENSORS TO CONTROL SYSTEMS--The student will be able to:

40.01 Perform experiments using electronic sensors.
40.02 Assemble, operate and identify the types of sensors used in technology.
40.03 Write a report on the applications of sensors used in technology.

41.0 DEMONSTRATE THE USE OF FIBER OPTICS CONCEPTS--The student will be able to:

41.01 Write a report on the application of fiber optics used in technology.
41.02 Perform fiber optics experiments.
41.03 Assemble, operate and identify the parts of a fiber optics system.

42.0 DEMONSTRATE THE USE OF LASER OPTICS CONCEPTS--The student will be able to:

42.01 Write a report on the applications of laser optics used in technology.
42.02 Perform laser optics experiments.
42.03 Assemble, operate and identify the parts of a laser optics system.

Florida Department of Education
STUDENT PERFORMANCE STANDARDS

Course Number: 8600480
Course Title: Home Technology Systems
Course Credit: 0.5
Certification: INDUS ARTS @4 @61
I ART-TEC 1 @2
ENG 7G

COURSE DESCRIPTION: The purpose of this course is to provide students with a foundation of knowledge and technically oriented experiences in the study of home technology systems and its effect upon our lives and the choosing of an occupation.

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.
01.04 Follow laboratory safety rules and procedures.
01.05 Demonstrate good housekeeping at work state and 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 fieldwork.

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 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 knowledge of the efficient use of human resources.

43.0 IDENTIFY AND LIST THE DIFFERENT SYSTEMS FOUND IN NEW HOMES UNDER CONSTRUCTION TODAY--The student will be able to:

43.01 Identify systems used and install in home construction.
43.02 Develop a schedule of routine home system preventative maintenance.
43.03 Identify recent advances in home maintenance technology.

44.0 DRAW UP A BILL OF MATERIALS REQUIRED TO REPAIR A SELECTED COMPONENT IN A HOME TECHNOLOGY SYSTEM--The student will be able to:

44.01 Identify a system component requiring repair.
44.02 Identify the problem and parts required to make repairs.
44.03 Estimate the cost of repair.

45.0 APPLY HOME MAINTENANCE TECHNOLOGY SKILLS TO A SELECTED SYSTEM REQUIRING REPAIR--The student will be able to:

45.01 Identify and assemble the tools required to perform the repair.
45.02 Demonstrate knowledge of problem-solving approaches to handle home maintenance needs.
45.03 Demonstrate consumer technical knowledge about home maintenance tools, materials and equipment.
45.04 List ways in which a personal computer may be used for home maintenance purposes.