TITLE: PROFESSIONAL UPDATING FOR CAREER AND TECHNICAL EDUCATION INSTRUCTORS

AUDIENCE: Career and Technical Education Teachers

NUMBER: 1-211-01-00 POINTS TO BE EARNED: 120

GENERAL OBJECTIVE(S):

The objectives of this component are aligned to the Florida Department of Education Curriculum Frameworks for each of the Applied Technology and Career Development programs and courses and include the following:

1. To improve the teaching effectiveness of Applied Technology and Career Development instructors by updating their skills, knowledge, awareness of instructional materials, new equipment, and teaching methods.
2. To improve the quality and relevancy of instruction in the changing technology of business and industry through the participation of advisory committees.
3. To develop technological literacy and improve student achievement.
4. To provide opportunities for high school students to obtain postsecondary credits.

SPECIFIC OBJECTIVES:

At the conclusion of this inservice activity, each participant will:

1. Use, manage, assess, and understand technology in the classroom (technological literacy).
2. Implement a standards-based curriculum based upon the current Florida Department of Education Curriculum Framework, national/state skills standards, industry standards, for the appropriate subject area.
3. Supervise the placement of students enrolled in the cooperative education method of instruction in appropriate training stations in accordance with Florida DOE guidelines and Child Labor Laws.
4. Integrate new materials, equipment, and processes into the existing curriculum for real-world learning.
5. Develop assessment strategies that are multidimensional and respond to students’ abilities.
6. Modify curriculum based on state and national standards.
7. Reinforce specific career and technical skills by implementation of the appropriate Career and Technical Student Organization (CTSO), including student activities, competitive events at both state and national levels, and opportunities for student success and professional growth.
8. Promote, implement, and follow-up postsecondary credit through dual enrollment, assessment testing, or state/national certification.
9. Implement program advisory committees.
DESCRIPTION OF ACTIVITIES:

Classroom activities/instruction will include one or more of the following:

1. Hands-on activities involving the use of various software applications.
2. Demonstration of techniques and methods of teaching.
3. Introduction and use of new curriculum materials.
4. Incorporating capstone projects as an assessment of student progress.
5. Work with business partners on a regular basis through advisory committee meetings.

DELIVERY METHOD: A Workshop

EVALUATION METHOD: D Checklists of student performance

FOLLOW-UP METHOD: P Participant product related to training

EVALUATION CRITERIA:

1. The participant will submit an implementation plan that will identify how specific objectives of this component will impact their teaching style and improve student performance.
2. Follow-up observation(s) by the appropriate subject area supervisor to determine the extent to which specific objectives have been implemented.
3. Participants will evaluate the component by completing the Professional Development Evaluation of Inservice Activity Form.

COMPONENT CONTACT:
Director, Applied Technology and Career Development
Phone: 924-3470
TITLE: CONTEXTUAL TEACHING AND LEARNING (CTL)
(Vocational and academic curriculum integration for middle and high school instruction)

AUDIENCE: Career and Academic Teachers

NUMBER: 1-211-02-00 POINTS TO BE EARNED: 120

GENERAL OBJECTIVE(S):

1. To provide training in contextual teaching and learning (CTL) strategies for career and academic teachers.
2. To improve the quality and relevancy of instruction in the changing technology of business and industry.

SPECIFIC OBJECTIVES:

At the conclusion of this inservice activity, each participant will:

1. Understand and value the nature of the modern workplace and its role in and relationship to K-12 education.
2. Develop strategies to promote learning for understanding rather than simple acquisition of knowledge.
3. Incorporate and model teaching strategies through the application of contextual teaching and learning principles including the utilization of curriculum materials.
4. Develop and implement activities and tasks that involve career and academic teachers in community/workplace practices and settings.
5. Develop and use relevant assessment techniques to evaluate student academic and work-based learning.

DESCRIPTION OF ACTIVITIES:

Classroom activities and related instruction will include one or more of the following:

1. The participant will engage in hands-on activities involving the development, demonstration, and use of contextual teaching and learning techniques and strategies.
2. The participant will attend industry/business tours, job shadowing opportunities, and internships of business and industry.
3. The participant will experience diverse community and work settings where knowledge is used, employment/community issues, and the relation of education to future work roles of students.
4. The participant will collaborate with business and industry for program improvement.
5. The participant will interact with faculty from different disciplines to learn from each other and to connect with colleagues on common teaching and research interests.

6. The participant will brainstorm with peers on ideas about how to assist career and academic teachers to use diverse contexts and to create connections that reach all students in the public schools.

7. Incorporate capstone projects as an assessment of student progress.

**DELIVERY METHOD:** A Workshop

**EVALUATION METHOD:** C Portfolios of student work

**FOLLOW-UP METHOD:** P Participant product related to training

**EVALUATION CRITERIA:**

1. The participant will submit an implementation plan that will identify how specific objectives of this component will impact their teaching style and improve student performance.

2. Follow-up observation(s) by the appropriate subject area supervisor to determine the extent to which specific objectives have been implemented.

3. Participants will evaluate the component by completing the Professional Development Evaluation of Inservice Activity Form.

**COMPONENT CONTACT:**
Director, Applied Technology and Career Development
Phone: 924-3470
TITLE: CAREER AND TECHNICAL STUDENT ORGANIZATIONS (CTSO’s)

AUDIENCE: Career and Technical Education (CTE) Teachers

NUMBER: 1-211-03-00 POINTS TO BE EarnED: 120

GENERAL OBJECTIVE(S):
1. To provide students with skills and knowledge to succeed in the new global economy.
2. To enable students to achieve high academic and occupational standards.

SPECIFIC OBJECTIVES:
At the conclusion of this inservice activity, each participant will:

1. To develop school and community leaders.
2. To allow students to see the relationship between academics and the world of work.
3. To motivate youth to become better students and productive citizens.
4. To provide an opportunity for students to gain confidence and knowledge through competition.
5. To allow students to belong to a positive group.
6. To link school-based learning to the real world of work and family.
7. To develop meaningful business partnerships.
8. To enhance student self-esteem and self-confidence.

DESCRIPTION OF ACTIVITIES:
Classroom activities and related instruction will include one or more of the following:

1. Teachers will assume the role of Chapter Advisor and organize a local Career and Technical Student Organization affiliated with their respective local, state, and national parent organization.
2. Teachers will attend a minimum of five local meetings dedicated to implementing Career and Technical Student Organizations in their individual schools.
3. Teachers will attend local/regional/state/national leadership development conferences.
4. Teachers will organize, or assist in the organization, of local/state/national career development student competitions and activities.
5. Teachers will participate in a seminar to share Career and Technical Student Organization best practices.
6. Teachers will, when asked, serve as local District Advisor for their respective Career and Technical Student Organization.
7. Teachers will join, and actively participate in, their specific Career and Technical Education professional organization(s).

**DELIVERY METHOD:**

D Study Group/Learning Community

**EVALUATION METHOD:**

D Checklists of student performance

**FOLLOW-UP METHOD:**

P Participant product related to training

**EVALUATION CRITERIA:**

1. Hands on activities involving the actual organization and implementation of a local Career and Technical Student Organization affiliated with their respective local, state, and national parent organization.
2. Completion of an annual program of work submitted to their District Advisor for approval.
3. Participation by student chapter members in local chapter social, civic, and professional activities.
4. Participation by student chapter members at the local rally/annual meeting and election of officers.
5. Participation in local/state/national leadership activities.
6. Participation in local/state/national competitive events.

**COMPONENT CONTACT:**

Director, Applied Technology and Career Development
Phone: 924-3470
COMPONENT TITLE:  TEACHER EXTERNSHIP PROGRAM  

NUMBER:  1-211-04-00  

POINTS TO BE EARNED:  120  

GENERAL OBJECTIVE(S):  

To gain actual workplace experience directly related to teacher's subject areas leading to higher quality classroom instruction that will result in increased motivation, understanding, and to higher student achievement.  

SPECIFIC OBJECTIVES:  

1. Provide a quality on-the-job experience for selected Duval County Public School teachers.  
2. Partner with the state Teacher Quest program to coordinate the possible reimbursement to employer of up to 40 percent of the teacher's salary.  
3. Partner with the Jacksonville Chamber of Commerce and local business community.  
4. Develop and utilize a Teacher Externship Review Committee for the purpose of selecting applicants for the program and to provide placement assistance in locating summer employment training stations that are subject-area appropriate.  
5. Conduct a Pre-Externship Orientation Meeting/Luncheon at the Jacksonville Chamber of Commerce to provide teachers information on program requirements, due dates and deadlines, inservice points, time cards, daily journal, applied lesson plans, and an opportunity to meet with their Training Station Supervisor to learn more about specific job-related requirements and issues.  
6. Visit each teacher and Training Station at least once during the summer employment period to verify employment and meet with employers/supervisors to maintain close communications.  
7. Conduct a Post-Externship Debriefing Meeting to review specific information regarding the completion of the required applied lesson plans and to establish a deadline date for submission of all required materials.  
9. Award inservice points to teachers for successful completion of the externship program based upon established criteria.  

DESCRIPTION OF ACTIVITIES:  

1. Participants will submit an application for the Teacher Externship Program to the Director, Applied Technology and Career Development, or her designee.  
2. The Teacher Externship Review Committee will evaluate each application and determine the best possible Training Station placement.  
3. All applicants selected will be required to complete an official Teacher Quest Scholarship Application. Those selected by the Teacher Quest program will have up to 40% of their salary reimbursed to their employer.
4. Each participating business will complete an official Teacher Quest Employer Application for possible reimbursement of up to 40% of the teacher's salary.

5. The program administrators will provide teachers assistance in finding appropriate summer employment. In addition, teachers may find their own summer employment provided it be approved by the Teacher Externship Review Committee.

6. Teachers will be required to attend a Pre-Externship Meeting to review all program guidelines.

7. Teachers will follow all company rules, regulations, and policies while employed.

8. Teachers will record the total hours worked on a time card which must be signed and verified by their employer.

9. Teachers will maintain a daily journal of their employment.

10. Teachers should notify the program administrator of any problems associated with their summer employment.

11. The program coordinator will visit each job site at least once during the summer period to verify employment and meet with each employer.

12. Teachers will be required to submit at least two applied lesson plans for each week worked.

13. Applied lesson plans will be posted on the district website for all teachers to access.

14. Inservice points will be awarded upon successful completion of the program based upon the following criteria:
   - 2 weeks (40-80 hours) = 40 inservice points
   - 3 weeks (80-120 hours) = 60 inservice points
   - 4 weeks (120-160 hours) = 80 inservice points
   - 5 weeks (160-200 hours) = 100 inservice points
   - 6 weeks (200-240 hours) = 120 inservice points

   **DELIVERY METHOD:** F Independent Study

   **EVALUATION METHOD:** F Other performance assessment

   **FOLLOW-UP METHOD:** P Participant product related to training

Teachers will be evaluated upon the following criteria:

1. Attend the Pre-Externship Orientation Meeting
2. Teachers will create at least two applied lesson plans for each week worked.
3. 2 weeks (40-80 hours) = 40 inservice points
4. 3 weeks (80-120 hours) = 60 inservice points
5. 4 weeks (120-160 hours) = 80 inservice points
6. 5 weeks (160-200 hours) = 100 inservice points
7. 6 weeks (200-240 hours) = 120 inservice points
8. Attend the Post-Externship Debriefing Meeting
9. Complete at least 2 Applied Lesson Plans for each week worked. These lesson plans will be posted on the district website.
10. Turn in a daily journal of on-the-job experiences
11. Submit a time sheet for each week worked, signed by the employer
12. Complete a written evaluation of the Teacher Externship Program experience
13. Be visited on-the-job by a Teacher Externship staff member

In addition, a follow-up survey of all teacher and business participants will be conducted after the summer session has ended to determine the success of the program.

COMPONENT CONTACT:
Director, Applied Technology and Career Development
Phone: 924-3470
TITLE: Digital Electronics and Instrumentation
(FLDOE approved: Advanced Learning Environment)

NUMBER: 1-211-05-00  POINTS TO BE EARNED: 22

GENERAL OBJECTIVE(S):

The purpose of the Digital Electronics and Instrumentation online modules is to provide participants with an understanding of the basics of digital electronics and fundamentals of instrumentation, including logic circuits, calibration, installation, maintenance and applications. In addition, this component will increase teachers’ understanding and content knowledge related to the Technology Content Standards of the International Technology Education Association, specifically Standard 2, Core Concepts of Technology; and Standard 12, Use and Maintenance of Products/Systems. Specifically, these modules address the knowledge and skills addressed in the Florida Technology Education Curriculum Frameworks for Technology Systems, Program No. 8600400, Engineering Technology, Program No. 8607000, and Electronics Technology, Program No. 8600900. Upon successful completion of this professional development, participants will be able to: understand and connect specific key ideas regarding the basics of digital electronics; the characteristics of logic circuits; the theories, concepts and designs of electronic and mechanical instrumentation; and, understand and be able to teach instrumentation principles with confidence.

SPECIFIC OBJECTIVES:

Upon successful participation in this professional development in-service, participants will be able to:

1. Recognize everyday examples of use of electronic instrumentation.
2. Recognize how digital electronic principles are used in various processes and be able to convey real-world applications to students.
3. Understand fundamentals of control, calibration, and maintenance of instruments.
4. Differentiate between uses of instruments to measure flow, pressure, level, and temperature and be able to name examples.
5. Identify the types of logic circuits and provide examples of their use.
6. Describe the categories and primary functions of various instruments with examples of their applications.
7. Teach instrumentation concepts using real-world applications.
8. Identify online resources for teaching the fundamentals of instrumentation in technology education.
DESCRIPTION OF ACTIVITIES:

1. The participants will engage in interactive, asynchronous learning modules on-line.
2. The participants will have the ability to participate in synchronous facilitator-led, web-based training.
3. The participants will engage in synchronous and asynchronous community collaboration (embedded real-time chat and threaded discussion boards).
4. The participants will develop understanding of concepts through asynchronous assessments.

The three parts of the professional development curriculum and the associated modules are as follows:

**Introduction to Digital Electronics (5 hours)**
Consistent with instruction developed for a major electrical workers’ trade union, this curriculum provides an introduction to theories, concepts and designs associated with digital electronics. It requires a Macromedia Authorware plug-in to run. Each module includes pre- and post test assessments.

Modules:
- Introduction to Digital Electronics
- Introduction to Boolean Algebra
- Characteristics of Logic Circuits
- ‘AND’ Logic
- ‘OR’ Logic
- Buffer and Inverter Amplifiers
- ‘NAND’ Logic
- ‘NOR’ Logic
- Exclusive ‘OR’ Logic

**Fundamentals of Instrumentation Part 1 (8.5 hours)**
Consistent with instruction developed for a major electrical workers’ trade union, this curriculum provides an introduction to theories, concepts and designs associated with electronic and mechanical instrumentation. It requires a macro media Authorware plug-in to run. Each module includes pre- and posttest assessments.

Modules:
- Definitions
• Fundamentals of Control
• Understanding Instrument Symbols
• Instrument Calibration
• Understanding Instrument Calibration Procedures
• Flow
• Pressure
• Level
• Temperature
• Control Valves
• Pneumatics
• Controllers

**Fundamentals of Instrumentation Part 2 (8.5 hours)**

This curriculum expands upon Part 1 with more complex concepts and instruction. It requires a Macromedia Authorware plug-in to run. Each module includes pre- and posttest assessments.

Modules:
• Control (Part 1)
• Control (Part 2)
• Smart Instrument Calibration
• Smart Instrument Calibrators
• Instrument Installation (Part 1)
• Instrument Installation (Part 2)
• Instrument Maintenance
• Control Valve maintenance
• Instrument Tubing
• Documentation
• Application
DELIVERY METHOD:  B  Electronic, Interactive

EVALUATION METHOD:  C  Portfolios of student work

FOLLOW-UP METHOD:  P  Participant product related to training

1. **Mentorship.** Select one or more concepts from this professional development and assume the role of mentor to a colleague who was not a participant. Assist the colleague in designing, developing, and implementing a particular activity from this professional development component.

2. **Lesson Study/Lesson Development.** Work with colleagues to design an instructional unit. The lesson is taught by one of the team members to a group of students while the other team members observe the lesson. Team members work together to critique the lesson and revise it. Share with others at your school when the lesson is perfected. Research lesson plan databases online. Develop a lesson plan based on the concepts you have learned in this component. Submit your lesson plan to one of the juried databases such as Beacon Learning Center, [www.beaconlearningcenter.com](http://www.beaconlearningcenter.com) or GEM, [www.gemininfo.org](http://www.gemininfo.org) for inclusion on the database.

3. **Peer Coaching.** Work with a colleague to practice a new skill. Observe each other and provide feedback that is specific and non-evaluative. Use this process as a collaborative problem-solving activity.

4. **Modeling/coaching.** Contact the professional development provider and schedule a school visit for a specific purpose, such as to seek assistance with further planning to observe classroom interaction based on a particular lesson you have designed, or to model teach a lesson with you as the observer. Do a demonstration lesson based on the concepts you have learned in this component to pre-service students in an education course.

5. **Examining Student work.** With a colleague, review student work based assignments related to this professional development. Discuss how the lesson could be improved to elicit the expected student performance.

6. **Video/Audiotape Analysis.** Work independently or with a colleague, record your use of new strategies, review your work to learn what works or needs to be adapted to support student achievement.

7. **Internet Search.** Use the Internet to further research and locate additional resources on this professional development topic.

8. **Conferencing.** Schedule a time with one of your school administrators to discuss what you learned from this professional development and how you plan to implement concepts in your classroom.

9. **Professional Book Study/Video Study.** Select a book or professional video on a related topic to read/view and discuss with colleagues. Identify concepts and ideas to implement in the classroom to support student achievement. Identify further resources available from industries and design student assignments to utilize these resources.
EVALUATION CRITERIA:

1. The participant will submit an implementation plan that will identify how specific objectives of this component will impact their teaching style and improve student performance.
2. Follow-up observation(s) by the appropriate subject area supervisor to determine the extent to which specific objectives have been implemented.
3. Participants will evaluate the component by completing the Professional Development Evaluation of Inservice Activity Form.

COMPONENT CONTACT:
Director, Applied Technology and Career Development
FSRI Kennedy Space Research Institute   Kennedy Space Center (www.space-education.org)