

“EXCELLENCE THROUGH COLLABORATIVE COMMUNITIES OF LEARNERS”

AURORA UNIVERSITY SYLLABUS

Course Number: OEDS 5249

Course Title: Problem-Solve Strat in CTE

3 Semester Hours Graduate Credit

1. Catalog Description

Middle and high school teachers of Career and Technical Education and content subjects will examine practical instructional strategies, develop lesson plans based on the Problem-Based Learning Format model, and utilize online tools to improve students’ achievement across the curriculum. Ways to connect problem solving scenarios to help prepare students for the world of work and develop career awareness will be explored.

2. Course Overview

This course is designed for high school and middle school Career and Technical Education and content area teachers. They will examine strategies to improve student academic performance and achievement. Practical strategies, specific lessons, and activities will be developed to improve classroom performance and increase workplace employability skills.

Participants will learn academic thinking and problem solving strategies to embed into existing curricula. Instructional strategies will include incorporating online technology tools to develop career awareness and learning problem solving skills for the world of work.

3. Student Learning Objectives

As a result of this course participants will:

- 3.1 Deepen understanding of the need to develop high level problem solving skills as critical to considering career pathway opportunities.
- 3.2 Develop problem-scenarios based on text book information that will engage students as they utilize problem solving as a learning opportunity.
- 3.3 Provide students with reading strategies to assist them in learning to locate information from prose and graphics of their content textbooks.
- 3.4 Broaden understanding of CTE vocabulary and reading structures, i.e., seeing unifying ideas, learning to reason and justify, solving problems strategically, and making connections among ideas in multiple format – ex: graphic representations.
- 3.5 Craft strategies to promote student transfer of knowledge as they apply what they learn from CTE texts; make it meaningful through problem/solution, writing and reasoning.
- 3.6 Link instructional strategies to support KeyTrain “Locating information strategies” to classroom application for text book understanding.

- 3.7 Implement a lesson plan based on Problem-Based Learning Format model from Illinois CTE website.
- 3.8 Collaboratively demonstrate the ability to design instructional units or lessons.
- 3.9 Identify online instructional tools and resources.
- 3.10 Align assessments with instruction and course objectives.

4. Teaching Method/Class Format

Course time will be divided into lectures, discussions, student presentations, group work, on-site visitation, internet integration, and research/practice.

5. Texts, Websites, and Required Readings:

www.careerclusters.org

DeFelice, C.L. "Mapping the Chapter: One Way to Tackle the CTE Textbook" *Techniques*. Retrieved April 5th, 2010 from <http://www.acteonline.org>. April 2010.

www.ilcte.org/

Key Train / Work Keys. ACT. www.keytrain.com;
www.act.org/workkeys/assess/reading/levels.html

McCain, Ted. *Teaching for Tomorrow: Teaching Content and Problem-Solving Skills*. (2005). Thousand Oaks, CA: Corwin Press.
(Course text - will be provided by VALEES)

Torp, L., & Sage, S., *Problems as Possibilities*. (1998). Alexandria, VA :Association for Supervision and curriculum Development.

6. Units of Work

Units of study will be integrated within each course session and will progress through the following topics:

- Read and discuss pertinent text materials and professional articles dealing with strategic reading instruction for CTE classrooms to support KeyTrain locating information strategies.
- Develop problem-based scenarios, to expand and enhance learning from CTE textbooks.
- Conduct on-site visitation of business, manufacturing, or service provider to develop basis for problem-based learning creation to enhance real-world scenario.
- Explore information location strategies to help students develop pre-reading, vocabulary, and writing strategies to engage students in CTE texts.
- Examining online tools, i.e. Key Train, Career Cruising
- Collaborative unit design
- Reflective practice activities

7. Class Assignments

- **Read and discuss text:** *Teaching for Tomorrow: Teaching Content and Problem-Solving Skills*.
- Read and discuss professional articles containing instructional strategies such as: “Mapping the Chapter: One Way to Tackle the CTE Textbook,” and Chapter 5 from *Problems as Possibilities*.
- View and discuss www.ilcte.org website and view the various PBL lesson plans and formats.
- Develop problem scenarios based on text information.
- Develop lesson plan based on scenarios using the Designing Units of Study in a Problem based Learning Format from ilcte website.
- Plan an on-site visit to a business, manufacturing or service sector firm to learn about problem-creation and solutions in the work-place.

Key Assessment:

Develop two- three problem scenarios in collaboration with another instructor, based on content from 2-3 different text chapters. Problem design must be developed to cover curriculum content but also to provide opportunities for students to engage collaboratively to develop and present solutions. Although participants will work with partners, each individual will only submit **one scenario** for grading. Scenarios should be approximately 1 – 2 pages. **(Total: 30 points)**

Create a unit of Study in a Problem-based learning format based on the one presented at ilcte.org, illustrating the intersection of Career and Technical Education (CTE) course content, real-world problem applications, and reading strategies; **(TOTAL points – 50 points)** Unit format will contain:

- Synopsis of the scenario/ Pivotal Question **(5 points)**
- Problem presentation **(5 points)**
- Content Objective: Standards and Benchmarks Select 2 – 3 appropriate lessons aligned with the Learning Standards. State text website, and outside reading assignments. **(15 points)**
- Create a list of viable hypothesis; Develop supporting material that will be used for problem information **(10 points)**
- Develop a list of Research Questions / Action Plan/Resources **(10 points)**
- Create and authentic final product/performance and culminating activity that requires students to share learning. A written product - chart, Powerpoint, memo, letter, estimate, explanation, needs to accompany the solution. **(5 points)**

Write a 2-3 page reflection on your professional growth based on: (20 points)

- gaining factual knowledge (instructional strategies, rationale, and trends in problem-development and solution.)
- applying instructional strategies learned (to improve thinking, problem solving, and instructional decision making) in the CTE classroom

- describing student’s own deepening understanding of the need to develop high level problem solving skills as critical to considering career pathway opportunities.
- developing specific skills, competencies and points of view needed by professionals in the field most closely related to this course as based on your on-site visits.

Attendance and class participation during each course session are expectations. Participate actively and collaboratively in group work by offering ideas and asking questions. Listen respectfully when others talk, both in groups and in the class. Be a prompt; regular attendant; put cell phone on vibrate. A full day of a missed course session will lower your score by **10 points**.. A half day absence of a course session will lower the grade by **5 points**.

8. Evaluation and Procedures

Grading

COURSE REQUIREMENTS	POINTS POSSIBLE
2 Collaboratively Written Problem scenarios based on curriculum content	40
Unit of Study in Problem based Learning Format	50
Reflection on learning	10
TOTAL	100

Grading Scale:

- A - 93 – 100%
- B - 85 – 92%
- C - 77 – 84%
- F - 76% and below

Aurora University
College of Education
Graduate Grading System

The graduate grading system was reviewed by Deans’ Council and forwarded to the Academic Standards Committee for deliberations. This was approved by the Academic Standards Committee as of 5 May 1992 for presentation to the Faculty Senate on 12 May 1992.

At the end of the course, letter grades are awarded as defined:

- A (4 quality points per course unit) Excellent. Denoted work that is consistently at the highest level of achievement in a graduate college or university course.

- B (3 quality points per course unit) Good. Denotes work that consistently meets the high level of college or university standards for academic performance in a graduate college or university course.
- C (2 quality points per course unit) The lowest passing grade. Denotes work that does not meet in all respects college or university standards for academic performance in a graduate college or university course.
- F (0 quality points per course unit) Failure. Denotes work that fails to meet the graduate college or university standards for academic performance in a course.

Revised 5 May 1992

Approved 12 May 1992

9. Bibliography

www.careerclusters.org

DeFelice, C.L. “Mapping the Chapter: One Way to Tackle the CTE Textbook” *Techniques*. Retrieved April 5th, 2010 from <http://www.acteonline.org>. April 2010.

www.ilcte.org/

Key Train / Work Keys. ACT. www.keytrain.com;
www.act.org/workkeys/assess/reading/levels.html

Marzano, Robert J., *What Works In Schools: Translating Research Into Action*. (2003). Alexandria, VA: Association for Supervision and Curriculum Development.

McCain, Ted. *Teaching for Tomorrow: Teaching Content and Problem-Solving Skills*. (2005). Thousand Oaks, CA: Corwin Press. (class text - will be provided by VALEES)

Pink, D. *Drive: The Surprising Truth About What Motivates Us*. (2009). New York: Riverhead Books.

Torp, L., & Sage, S., *Problems as Possibilities*. (1998). Alexandria, VA : Association for Supervision and curriculum Development.

Zwiers, Jeff. *Developing Academic Thinking Skills in Grades 6 – 12*. (2004). Newark: DE: International Reading Association.

10. Attendance Policy

Attendance is mandatory for all scheduled course sessions and **will be considered in determination of the final grade**. Course participants are required to attend all course sessions and to participate in class discussions, small group activities, and experiential group exercises and projects. A participant missing more than 20% of the scheduled course time is encouraged

to withdraw from the course. Withdraw from a course due to absence will not normally result in a tuition refund.

11. Academic Honesty and Integrity Statement

Students are expected to maintain academic honesty and integrity as students at Aurora University by doing their own work to the best of their ability. Academic dishonesty (cheating, fabrication, plagiarism, etc.) will result in the student's receiving a zero for that test, assignment, or paper.

12. Final Examination Policy

In lieu of a final examination, a two – three page written reflection is required that synthesizes the learning acquired as a result of the readings, assignments, experiences and activities of the course.

13. American Disability Act Compliance

In compliance with ADA guidelines, students who have any condition, either permanent or temporary, which might affect their ability to perform in this course, are encouraged to inform the instructor at the beginning of the term. Adaptations of teaching methods, class materials, including text and reading materials or testing, may be made as needed to provide for equitable participation.

Rubrics

Real World Role-Play scenarios - 30 points

Points	14 – 15 points	10 – 13 points	1 – 9 points
Write up of real world problem -	Real world problem scenario is clearly written. EX: It can link to business, service, manufacturing, social/recreational, personal finance, local or national politics, or a pressing global issue, etc. Authentic assessment parameters for final project outcomes are incorporated into scenario. Collaboration between colleagues is clearly evident in write up.	Real world problem scenario is generally written. EX: It can link to business, service, manufacturing, social/recreational, personal finance, local or national politics, or a pressing global issue, etc. General assessment parameters for final project outcomes are incorporated into scenario. Collaboration between colleagues is somewhat evident in write up.	Real world problem scenario is vaguely written. EX: It can link to business, service, manufacturing, social/recreational, personal finance, local or national politics, or a pressing global issue, etc. Vague assessment parameters for final project outcomes may be incorporated/or missing from scenario. Collaboration between colleagues is not evident in this project.
Connecting problem to specific CTE curriculum content	Written learning goals are specific and clearly delineated to target course curriculum content. Inquiry information that might be needed by student is well-designed by teacher. Incorporation of technology use is naturally worked into task objectives. Assessment parameters of project are clearly stated. (Written product - chart, Powerpoint, memo, letter, estimate, explanation, needs to accompany solution.)	Written learning goals are general and generally focus on course curriculum content. Inquiry information that might be needed by student is designed by instructor. Incorporation of technology use might be worked into task objectives. Assessment parameters of project are general. A written product - chart, Powerpoint, memo, letter, estimate, explanation, needs to accompany the solution.)	Written learning goals are unclear and are vaguely connected to course curriculum content. Inquiry information that might be needed by student is lacking. Incorporation of technology use is not necessary to complete task objectives. Assessment parameters of project are vague. A written product - chart, Powerpoint, memo, letter, estimate, explanation, needs to accompany the solution.

Unit of Study in a Problem-Based Learning Format (50 points)

<p>Synopsis of the scenario/ Pivotal Question</p>	<p>Clearly states synopsis scenario AND pivotal question. 5 points</p>	<p>Clearly states synopsis scenario OR pivotal question. 3 – 4 points</p>	<p>Vaguely states synopsis scenario and pivotal question. 1 -2 points</p>
<p>Problem presentation.</p>	<p>Is clearly presented in document. 5 points</p>	<p>Is generally presented in document 3 – 4 points</p>	<p>Is presented incompletely. 1 – 2 points</p>
<p>Content Objective: Standards and Benchmarks. Select/modify 2 – 3 appropriate lessons aligned with the Learning Standards. Include outside reading assignments and websites for reference.</p>	<p>Clearly identifies concepts, objectives that support curricular content. Select and modify 2 – 3 lessons to use with Problem based scenarios. Include 2- 3 suggestion readings for students. Provide a list of 2 – 3 websites that might be beneficial. 14 – 15 points</p>	<p>Generally identifies concepts, objectives that support curricular content. Select and modify one lesson to use with Problem based scenarios. Include one suggested reading for students. Provide a website that might be beneficial. 10 – 13 points</p>	<p>Vaguely identifies concepts, objectives that support curricular content. Select and modify one lesson to use with Problem based scenarios. No suggested reading or website resources are listed. Include suggestion readings for students. 1 – 9 points</p>
<p>Create a list of viable hypothesis Develop supporting material that will be used for problem information</p>	<p>List at least 4 -5 ideas you want students to suggest. Inquiry information that might be needed by student is well-designed by teacher. 9 – 10 points</p>	<p>List at least 2 – 3 ideas you want students to suggest. Inquiry information that might be needed by student is designed by instructor. 6 – 8 points</p>	<p>List 1 idea you want students to suggest. Inquiry information that might be needed by student is lacking. 1 – 5 points</p>
<p>Develop a list of Research Questions / Action Plan/Resources</p>	<p>Develops a list of 5 – 7 well-stated, real world research questions that will help steer students when they become “stuck.” Develops a strong action plan for the research questions. 9 – 10 points</p>	<p>Develops a list of 3 – 4 real world research questions that will help steer students when they become “stuck.” Develops an action plan for the research questions. 7 – 8 points</p>	<p>Develops a list of 1 -2 real world research questions that will help steer students when they become “stuck.” Develops a vague action plan for the research questions. 0 – 6 points</p>

Authentic assessment	Creates an authentic venue for the final product/ culminating activity that requires students to share learning and personal reflection on the process. 5 points	Creates a general venue for the final product /culminating activity that requires students to share learning but not personal reflection on the process. 3 – 4 points	Creates a vague process for students to report their solutions. Personal reflection on the process is not required. 1- 2 points
TOTAL:			50 points

Professional Reflection (20 points)

	4 - 5 points	2 – 3 points	1 point
Gaining factual knowledge (instructional strategies, rationale, and trends in problem-development and solution.) Applying instructional strategies learned (to improve thinking, problem solving, and instructional decision making) in the CTE classroom	Well-written section states clearly how information presented increased candidate’s personal knowledge base using specific examples from class. Written reflection explains candidate’s specific plan to use this new information in the planning of lessons to improve thinking and problem solving for students.	Well-written section states generally how information presented increased candidate’s personal knowledge base. Written reflection also explains candidate’s general plan to use this new information in the planning of lessons to improve thinking and problem solving for students.	Written section vaguely states generally how information presented increased candidate’s personal knowledge base. Written reflection vaguely explains candidate’s general plan to use this new information in the planning of lessons to improve thinking and problem solving for students.
Describing student’s personal deepening understanding of the need to develop high level problem solving skills as critical to considering career pathway opportunities.	Specifically describes, using examples, how the candidate views the need to develop high level problem solving skills as a critical element to helping students develop career pathway opportunities.	Generally describes, how the candidate views the need to develop high level problem solving skills as a critical element to helping students develop career pathway opportunities.	Vaguely describes, using no examples, how the candidate views the need to develop high level problem solving skills as a critical element to helping students develop career pathway opportunities.

<p>Developing specific skills, competencies and points of view needed by professionals in the field most closely related to this course as based on your on-site visits.</p>	<p>Clearly describes the personal learning experienced as a result of the on-site visit and makes specific connections to classroom content and how to make changes that are reflected in real world work experiences.</p>	<p>Describes the personal learning experienced as a result of the on-site visit and makes general connections to classroom content and how to make changes that are reflected in real world work experiences.</p>	<p>Vaguely describes the personal learning experienced as a result of the on-site visit and makes no connections to classroom content and how to make changes that are reflected in real world work experiences.</p>
<p>Quality of Reflection Synthesizing course content. Organization and Conventions</p>	<p>1. Well written reflection clearly evaluates personal growth; 2. Analyzes thinking and problem solving process and clearly reflects how the course topics were applicable to the content of the learner's setting. Information is well organization with logical flow using appropriate writing conventions.</p>	<p>1. Reflection generally evaluates personal growth; 2. Analyzes thinking and problem solving process OR reflects how the course topics were applicable to the content of the learner's setting. (not both) Information is generally organized, but it is not easy to follow the flow. Writing contains 3 – 5 spelling, punctuation, and/or grammar errors.</p>	<p>1. Reflection provides a statement of opinion or reaction but lacks evaluation of personal growth or thinking and problem solving process. 2. Does not include analysis of thinking that indicates this process will be used in future planning. Information lacks organization and contains more than 6 errors in spelling, punctuation, and/or grammar.</p>