LSC Use Only No:	LSC Action-Date:	UWUCC USE Only No.	UWUCC Action-Date:	Senate Action Date:
		10-30i	App - 10/19/10	App 11/2/10

Curriculum Proposal Cover Sheet - University-Wide Undergraduate Curriculum Committee

Contact Person	Email Address
Karen Rivosecchi	krivosec@iup.edu
Proposing Department/Unit	**Phone**
Center for Career and Technical Personnel Preparation	724 357 6493

Check all appropriate lines and complete information as requested. Use a separate cover sheet for each course proposal and for each program proposal.

1. Course Proposals (check all that apply)

X New Course _____ Course Prefix Change _____ Course Deletion

_____ Course Revision _____ Course Number and/or Title Change _____ Catalog Description Change

Current Course prefix, number and full title	*Proposed* course prefix, number and full title, if changing
	VOED 301 Integrating Math and Science in Career and Technical Education

2. Additional Course Designations: check if appropriate

_____ This course is also proposed as a Liberal Studies Course.

_____ This course is also proposed as an Honors College Course.

_____ Other: (e.g., Women's Studies, Pan-African)

3. Program Proposals

_____ Catalog Description Change _____ Program Revision

_____ New Degree Program _____ Program Title Change _____ Other

_____ New Minor Program _____ New Track

Current program name	*Proposed* program name, if changing

4. Approvals		**Date**
Department Curriculum Committee Chair(s)	Julie Boyd	3/4/10
Department Chair(s)	Karen Rivosecchi	3/4/10
College Curriculum Committee Chair	Joseph Domaracki TECC	4.27.10
College Dean	Mary Ann Rafoth TECC	4.27.10
Director of Liberal Studies *		
Director of Honors College *		
Provost *		
Additional signatures as appropriate: (include title)		
UWUCC Co-Chairs	Gail S Sechrist	10/19/10

* where applicable

Received
OCT 15 2010
Liberal Studies

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MAY 4 2010
Liberal Studies

1. New Syllabus of Record

I. Catalog Description

VOED 301 Integrating Math and Science in Career and Technical Education (3c-01-3cr)

Prerequisites: completion of coursework for Vocational I certificate

Focuses on the integration of math and science related content in the career and technical classroom. Current Pennsylvania Department of Education mandates and strategies for meaningful integration and assessment will be addressed. Facilitating the academic skill development of secondary career and technical students is emphasized. This is a field-based course with classroom visitations by a university faculty member.

II. Course Outcomes

After the successful completion of this course students will be able to:

1. Recognize the roles and responsibilities of the career and technical teacher for integrating math and science content in the career and technical classroom.
2. Identify math and science concepts which are embedded in their career and technical program.
3. Evaluate student comprehension of prerequisite math and science academic concepts.
4. Plan lessons which integrate math and science content.
5. Use instructional aids and support services for lessons with math and science integrated in the career and technical lesson.
6. Deliver instruction which integrates integrate math, science and/or other academic programs in accordance with PDE guidelines.
7. Reflect on effectiveness of instruction through self-evaluation and collaboration with field resource faculty.

Student Outcomes Assessment Matrix

Danielson's Framework	PDE Standards	Course Standards	Course Assessment Technique Measuring Objectives ***Bold = Key Assessments in KARS**
1.b – f., 3.a-e., 4.a.b.d.e.f.	II.C., II.D., II.E.	1	Class participation **Observation of integrated math lesson** **Observation of integrated science lesson**
1.a.c.d., 4.a.	II.C., II.D., II.E.	2	Matrix
1.a-f.	I.D., II.C., II.D., II.E., II.F.	3	Analysis of student data
1.a – f.,	I.D. II.C., II.D., II.E., II.F.	4	Lesson plan for integrating math Lesson plan for integrating science
1. a – f., 3.a-e.	I.D. II.C., II.D., II.E., II.F.	5	**Observation of integrated math lesson** **Observation of integrated science lesson**
1.a – f., 3.a – e.	I.D. II.C., II.D., II.E., II.F.	6	**Observation of integrated math lesson** **Observation of integrated science lesson**
4.a.	II.C.	7	Mentoring Session with faculty

III. Course Outline

A. Identifying PDE Academic Standards and/or Anchor Assessments (6 hours)
   a. PDE terminology
   b. PDE Programs of study
   c. Developing an academic standards matrix

B. Assess students' math awareness as it relates to the CTE program (6 hours)
   a. Identify a variety of learning activities, methods, and techniques to assess your students' math awareness.

C. Implementing a teaching strategy to enhance math skills for students in the CTE classroom (7 hours)
   a. Math activities in the career and technical education classroom
   b. Review of PDE and other resources to integrate math skills
   c. T-charts
   d. Collaboration

D. Instructional aids to enhance math instruction in CTE (4 hours)
   a. Consideration of standardized testing in math
   b. Bridging the gap – math vocabulary

   Mentoring Session #1 (field-based faculty visit): Observation of teacher. Teacher is to implement a lesson which incorporates math concepts. (2 hours)

E. Assess students' science awareness as it relates to the CTE program (6 hours)
   a. Identify a variety of learning activities, methods, and techniques to assess your students' science awareness.

F. Implementing a teaching strategy to enhance science skills for students in the CTE classroom (7 hours)
   a. Science activities in the career and technical education classroom
   b. Review of PDE and other resources to integrate science skills
   c. Collaboration

G. Instructional aids to enhance science instruction in CTE (4 hours)
   a. Consideration of standardized testing in science
   b. Bridging the gap – science vocabulary

   Final exam activity during final exam week.

   Mentoring Session #2 (field-based faculty visit): Observation of teacher. Teacher is to implement a lesson which incorporates science concepts. (2 hours)

IV. Evaluation Methods

The final grade will be determined as follows:

10% Assessment/Reflection on CTE students math skills – Intern teachers will assess the level of math skills of the students in their CTE classroom and reflect on the implications of those skill levels for the development of CTE lessons integrating math

15% One (1) Lesson plan and supporting materials which document the integration of math standards

10% Assessment/Reflection on CTE students science skills – Intern teachers will assess the level of science skills of the students in their CTE classroom and reflect on the implications of those skill levels for the development of CTE lessons integrating science

15% One (1) Lesson plan and supporting materials which document the integration of science standards

20% Faculty observation - intern teacher will be observed by field-based faculty member; lesson will integrate and connect relevant math and CTE content

20% Faculty observation - intern teacher will be observed by field-based faculty member; lesson will integrate and connect relevant science and CTE content

10% Class participation

V. Grading Scale

A: 90-100% B: 80-89% C: 70-79% D: 60-69% F: Below 60%

VI. Attendance Policy

Although there is not formal attendance policy for this class, student learning is enhanced by regular attendance and participation in class discussions.

VII. Required Textbooks, Supplemental Books, and Readings

"CTE's Role in Science, Technology, Engineering & Math" Association of Career and Technical Education Issue Brief, June 2009 www.acteonline.org/uploadedFiles/...and.../STEM_Issue_Brief.pdf retrieved February 25, 2010

"The Seven Elements of A Math Enhanced CTE Lesson" http://136.165.122.102/mambo/index.php?option=com_content&task=view&id=68 retrieved February 28, 2010

"The Math in CTE Lessons" http://136.165.122.102/mambo/index.php?option=com_content&task=view&id=69 retrieved February 28, 2010

"Math Council T Charts" http://www.careertechpa.org/content/view/91/65 retrieved February 1, 2010

Additional assigned readings for this course are captured on the department's website content management system located at www.voced.iup.edu/student. Readings are reviewed and updated annually by the faculty member teaching the course to reflect the most current and relevant content.

Readings are collected under the following specific topics:

DE 510 Integrating Academic Skills: Math http://www.voced.iup.edu/cms.asp?id=de510

VIII. Special Resource Requirements

Remote internet access to connect to IUP/department resources and email

Recommended Hardware: Microsoft Windows PC including office suite software and printer

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Southern Regional Education Board, High Schools That Work (Program). (2004). *Using rigor, relevance and relationships to improve student achievement: How some schools do it: 2004 outstanding practices.* Atlanta, GA: Southern Regional Education Board.

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Course Analysis Questionnaire

Section A: Details of the Course

A1 This course will be a major requirement for students in the department's vocational teacher certification and degree programs. This is one in a series of courses that will replace the existing 15 credits of VOED 400 -- Preparation of the Vocational Professional I. The department has offered 15 credits of VOED 400 as a repeatable topic for a number of years. It was originally designed in this manner to facilitate individualized, personalized instruction to reflect students' particular classroom situations. These requested changes will facilitate the documentation of course standards and certification requirements that are required by more specific guidelines from the Pennsylvania Department of Education. IUP, along with Temple University and PSU, are the only institutions in Pennsylvania approved to offer this program. Similar changes to coursework at Temple and PSU have been made. The PDE-BCTE requires transferability among the three institutions; this change will facilitate that transferability as well.

A2 This course is part of a program revision to reflect new Pennsylvania Department of Education guidelines for vocational teacher certification. All course changes are included in the program revision proposal that is being submitted

A3 This course has not been offered on a trial basis previously.

A4 This is not a dual-level course.

A5 This course cannot be taken for variable credit.

A6 Similar courses are offered at Pennsylvania State University and Temple University. These two institutions and IUP are the only institutions in Pennsylvania approved for vocational teacher certification.

A7 The content of the course and the delivery method are prescribed by the Pennsylvania Department of Education Bureau of Career and Technical Education. See attached.

Section B: Interdisciplinary Implications

B1 This course will not be taught by more than one department.

B2 This course is specific to the preparation of vocational teachers seeking Pennsylvania teacher certification.

B3 This course will not be cross-listed with other departments.

Section C: Implementation

C1 Faculty resources are adequate. As indicated above, this is a restructuring of currently delivered coursework.

C2 No other resources will be needed to teach this course.

C3 The resources to teach this course are funded by a grant from the Pennsylvania Department of Education – Bureau of Career and Technical Education. This vocational teacher certification program as those at Pennsylvania State University and Temple University is funded through PDE. Funding has been received from PDE for this program at IUP for over 30 years.

C4 This course will be offered each fall and spring semester.

C5 We anticipate offering one section of this course in a semester.

C6 We plan to accommodate up to 30 students in a section of this course.

C7 No recommended enrollment limits or parameters.

C8 N/A

Section D: Miscellaneous

No additional information is necessary.