

PURDUE UNIVERSITY

Print Form

Office of the Registrar
FORM 40G REV. 7/08

REQUEST FOR ADDITION, EXPIRATION,
OR REVISION OF A GRADUATE COURSE
(50000-60000 LEVEL)

DEPARTMENT CILT

EFFECTIVE SESSION Spring 2010

INSTRUCTIONS: Please check the items below which describe the purpose of this request.

- | | |
|--|--|
| <input checked="" type="checkbox"/> 1. New course with supporting documents (complete proposal form) | <input type="checkbox"/> 7. Change in course attributes |
| <input type="checkbox"/> 2. Add existing course offered at another campus | <input type="checkbox"/> 8. Change in instructional hours |
| <input type="checkbox"/> 3. Expiration of a course | <input type="checkbox"/> 9. Change in course description |
| <input type="checkbox"/> 4. Change in course number | <input type="checkbox"/> 10. Change in course requisites |
| <input type="checkbox"/> 5. Change in course title | <input type="checkbox"/> 11. Change in semesters offered |
| <input type="checkbox"/> 6. Change in course credit/type | <input type="checkbox"/> 12. Transfer from one department to another |

PROPOSED:

EXISTING:

Subject Abbreviation TECH Subject Abbreviation _____
 Course Number 56200 Course Number _____
 Long Title Teaching Engineering Technology Content and Laboratories
 Short Title _____

TERMS OFFERED
Check All That Apply:

Summer Fall Spring

CAMPUS(ES) INVOLVED

Calumet N. Central
 Cont Ed Tech Statewide
 Ft. Wayne W. Lafayette
 Indianapolis

Abbreviated title will be entered by the Office of the Registrar if omitted. (30 CHARACTERS ONLY)

CREDIT TYPE

1. Fixed Credit: Cr. Hrs. 3
 2. Variable Credit Range:
 Minimum Cr. Hrs. _____
 (Check One) To Or
 Maximum Cr. Hrs. _____
 3. Equivalent Credit: Yes No
 4. Thesis Credit: Yes No

COURSE ATTRIBUTES: Check All That Apply

1. Pass/Not Pass Only
 2. Satisfactory/Unsatisfactory Only
 3. Repeatable
 Maximum Repeatable Credit: _____
 4. Credit by Examination
 5. Special Fees
 6. Registration Approval Type
 Department Instructor
 7. Variable Title
 8. Honors
 9. Full Time Privilege
 10. Off Campus Experience

Schedule Type	Minutes Per Mta 160	Meetings Per Week 1	Weeks Offered 16	% of Credit Allocated 100
Lecture	_____	_____	_____	_____
Recitation	_____	_____	_____	_____
Presentation	_____	_____	_____	_____
Laboratory	_____	_____	_____	_____
Lab Prep	_____	_____	_____	_____
Studio	_____	_____	_____	_____
Distance	_____	_____	_____	_____
Clinic	_____	_____	_____	_____
Experiential	_____	_____	_____	_____
Research	_____	_____	_____	_____
Ind. Study	_____	_____	_____	_____
Pract/Observ	_____	_____	_____	_____

Cross-Listed Courses

COURSE DESCRIPTION (INCLUDE REQUISITES/RESTRICTIONS):

Students will learn the fundamental techniques in teaching engineering and technology education. This course will provide students with the skills and knowledge of teaching information and communication systems, construction, manufacturing processes, and energy/power/technologies. This course will develop the skills needed to manage and plan a technology laboratory. The course will cover an overview of the importance of technology content areas and appropriate ways to teach technology.

Calumet Department Head _____ Date _____	Calumet School Dean _____ Date _____	Calumet Undergrad Curriculum Committee _____ Date _____
Fort Wayne Department Head _____ Date _____	Fort Wayne School Dean _____ Date _____	Fort Wayne Chancellor _____ Date _____
Indianapolis Department Head _____ Date _____	Indianapolis School Dean _____ Date _____	Undergrad Curriculum Committee _____ Date _____
North Central Department Head _____ Date _____	North Central Chancellor _____ Date _____	Date Approved by Graduate Council _____
West Lafayette Department Head _____ Date _____	West Lafayette College/School Dean _____ Date _____	Graduate Council Secretary _____ Date _____
Graduate Area Committee Convener _____ Date _____	Graduate Dean _____ Date _____	West Lafayette Registrar _____ Date _____

Supporting Document for a New Graduate Course

To: Purdue University Graduate Council

From: Faculty Member: Charlie Feldhaus
Department: CILT
Campus: Indianapolis

Date: 8/17/2009

Subject: Proposal for New Graduate Course-Documentation
Required by the Graduate Council to Accompany
Registrar's Form 40G

For Reviewer's comments only (Select One)
<input type="text"/>
Reviewer:
Comments:

Contact for information if questions arise: Name: Charlie Feldhaus
Phone Number: 317-278-1863
E-mail: cfeldhau@iupui.edu
Campus Address: ET 309F

Course Subject Abbreviation and Number: TECH 56200

Course Title: Teaching Engineering Technology Content and Laboratories

A. Justification for the Course:

- Provide a complete and detailed explanation of the need for the course (e. g., in the preparation of students, in providing new knowledge/training in one or more topics, in meeting degree requirements, etc.), how the course contributes to existing fields of study and/or areas of specialization, and how the course relates to other graduate courses offered by the department, other departments, or interdisciplinary programs.
- Justify the level of the proposed graduate course (50000- or 60000-level) including statements on, but not limited to: (1) the target audience, including the anticipated number of undergraduate and graduate students who will enroll in the course; and (2) the rigor of the course.

B. Learning Outcomes and Method of Evaluation or Assessment:

- Describe the course objectives and student learning outcomes that address the objectives (i.e., knowledge, communication, critical thinking, ethical research, etc.).
- Describe the methods of evaluation or assessment of student learning outcomes. (Include evidence for both direct and indirect methods.)
- Grading criteria (select from dropdown box); include a statement describing the criteria that will be used to assess students and how the final grade will be determined.

Criteria

- Identify the method(s) of instruction (select from dropdown box) and describe how the methods promote the likely success of the desired student learning outcomes.

Method of Instruction

C. Prerequisite(s):

- List prerequisite courses by subject abbreviation, number, and title.
- List other prerequisites and/or experiences/background required. If no prerequisites are indicated, provide an explanation for their absence.

D. Course Instructor(s):

- Provide the name, rank, and department/program affiliation of the instructor(s).
- Is the instructor currently a member of the Graduate Faculty? Yes No
(If the answer is no, indicate when it is expected that a request will be submitted.)

E. Course Outline:

- Provide an outline of topics to be covered and indicate the relative amount of time or emphasis devoted to each topic. If laboratory or field experiences are used to supplement a lecture course, explain the value of the experience(s) to enhance the quality of the course and student learning. For special topics courses, include a sample outline of a course that would be offered under the proposed course.

F. Reading List (including course text):

- A primary reading list or bibliography should be limited to material the students will be required to read in order to successfully complete the course. It should not be a compilation of general reference material.
- A secondary reading list or bibliography should include material students may use as background information.

G. Library Resources

- Describe the library resources that are currently available or the resources needed to support this proposed course.

H. Example of a Course Syllabus (While not a necessary component of this supporting document, an example of a course syllabus is available, for information, by clicking on the link below, which goes to the *Graduate School's Policies and Procedures Manual for Administering Graduate Student Programs*. See Appendix K.)

http://www.gradschool.purdue.edu/downloads/Graduate_School_Policies_and_Procedures_Manual.pdf

Supporting Document

TECH 56200 Teaching Engineering Technology Content and Laboratories

Description

Students will learn the fundamental techniques of teaching engineering and technology education. This course will provide students with the skills and knowledge of teaching information and communication systems, construction, manufacturing processes, and energy/ power/ transportation technologies. This course will develop the skills needed to manage and plan technology laboratory. The course will cover an overview of the importance of technology content areas and appropriate ways to teach technology.

A. Justification for the Course:

This course contains an important breath of topics required for all technology teachers certified by the ITEA standards. Teachers in engineering technology education need to cover many different trades and industries and understand the best practices to teach the discipline of engineering and technology. Teachers are expected to teach on a wide range of topics and integrate subject matter from other disciplines such as math and science.

B. Learning Outcomes and Method of Evaluation or Assessment:

Course Objectives

By the end of the course, you should be able to do the following:

1. Demonstrate an in-depth understanding of technology operations and concepts and best practices for teaching these operations and concepts to students.
2. Plan, design, and model effective learning environments and multiple experiences supported by technology that maximize student learning.
3. Apply technology to facilitate a variety of effective assessment and evaluation strategies
4. Use technology to enhance and improve personal productivity and professional practice.
5. Develop an understanding of the development and implementation of technology infrastructure, procedures, policies, plans, laboratories and budgets for secondary schools.
6. Explain the importance of the shared vision for campus integration of technology and foster an environment and culture conducive to the realization of the vision.
7. Describe the proper procedures for planning and managing a technology education laboratory.

8. Develop techniques for planning and organizing laboratory tools, supplies, and equipment for efficient and educationally sound laboratory operation.
9. Develop a realization of the importance of safety in technology education facilities and become familiar with prescribed methods of rendering facilities safe for student activities.
10. Perform a facility safety inspection, identifying hazards and noting methods of abatement.
11. Develop an awareness of government requirements and mandates as they relate to the technology education laboratory.
12. Develop systems for inventory, purchase, and maintenance of equipment and supplies for an instructional facility.
13. Design a technology education laboratory.

These objectives meet ITEA Standards 1, 2, 3, 4, 5, and 6.

Evaluation

Grading Standards

Letter grades will be assigned in accordance with the following scale:

- 100% to 98 = A+
- 97.99 to 93 = A
- 92.99 to 91 = A-
- 90.99 to 88 = B+
- 87.99 to 83 = B
- 82.99 to 81 = B-
- 80.99 to 78 = C+
- 77.99 to 73 = C
- 72.99 to 70 = C-
- 70 and lower = F

Evaluation Method

Your grade for the course will be determined by the following items:

1. Papers, Presentations, and Other Assignments (25% of Final Grade)
 - Classroom Management Presentation
 - Position Paper (Facility Design Proposal and Give Presentation of Paper)
 - Professional Development Paper
 - Observation Reflections
 - Case Studies on Technology Lab safety & Management

2. Peer Teaching (Includes Lesson and Unit Plans and Course Outlines Based on State Standards) (30% of Final Grade)
 - Technology education—4 lessons
 - Technology education —4 lessons
 - Unit Plan
 - Course Outline
3. Evaluation Materials (a notebook) (15% of Final Grade)
 - Technology education —8 Evaluation Resources
4. Technology education —8 Evaluation ResourcesResource Materials (organized into files) (15% of Final Grade)
 - Trends in Construction Technology
 - Trends in Design Technology (including parametric modeling)
 - Trends in Manufacturing Technology (including computer-numerical-controlled machining)
 - Trends in Power and Energy (including digital electronics)
 - Trends in Transportation Technology
 -
5. Literature Review (15% of Final Grade)
 - 10-15 Pages in Length

Based on an Area of Interest in lab safety and management that warrants inquiry

C. Prerequisite(s):

Graduate status in the School of Engineering and Technology

D. Course Instructor(s):

Charlie Feldhaus Associate Professor: Department of Organizational Leadership and Supervision
 Phone: 317-278-1863
 Office: ET 309F
 E-mail: cfeldhau@iupui.edu

E. Course Outline:

1. Teaching Communications Technology (including computer-aided-drafting)
2. Teaching Construction Technology
3. Teaching Design Technology (including parametric modeling)
4. Teaching Manufacturing Technology (including computer-numerical-controlled machining)

5. Teaching Power and Energy (including digital electronics)
6. Teaching Transportation Technology
7. Designing effective education facilities laboratories
8. Organizing laboratory and classroom resources for technology education
9. Managing technology education facilities
10. Best practices for laboratory requirements related to safety.
11. Developing management skills related to students, equipment, and supplies are addressed.
12. Students design a technology education laboratory.

Week	Topic
1	Classroom Management (Developing Personal Model)
2	Lesson Planning & Unit Planning
3	Assessment Techniques & Strategies
4	Teaching Construction Technology
5	Teaching Design Technology (including parametric modeling)
6	Teaching Manufacturing Technology (including computer-numerical-controlled machining)
7	Teaching Power and Energy (including digital electronics)
8	Teaching Transportation Technology
9	Designing effective education facilities laboratories
10	Organizing laboratory and classroom resources for technology education
11	Managing technology education facilities
12	Best practices for laboratory requirements related to safety.
13	Design a technology education laboratory.
14	Design a technology education laboratory.
15	Wrap-Up—Professional Issues (Getting a Job)

F. Reading List (including course text):

- Scott, J.L. & Sarkees-Wircenski, M. (2001). *Overview of Career and Technical Education*. Homewood, IL: American Technical.
- International Technology Education Association. (2000). *Standards for Technological Literacy: Content for the Study of Technology*. Reston, VA: Author.
- Campbell, D.M. & Cignetti, P.B. (2000). *How to Develop a Professional Portfolio: A Manual for Teachers*. Boston: Allyn & Bacon.

G. Library Resources

Students will be required to complete a literature review. Journal articles & other necessary media can be found at the University Library at IUPUI.

H. Example Course Syllabus

See attached.

I. HEADER:

Course Number: TECH 56200

Course Title: Teaching Engineering Technology Content and Laboratories

Instructor: Charlie Feldhaus

Prerequisites: Graduate status in the School of Engineering and Technology

II. COURSE DESCRIPTION AND RATIONALE:

Description

Students will learn the fundamental techniques of teaching engineering and technology education. This course will provide students with the skills and knowledge of teaching information and communication systems, construction, manufacturing processes, and energy/ power/ transportation technologies. This course will develop the skills needed to manage and plan technology laboratory. The course will cover an overview of the importance of technology content areas and appropriate ways to teach technology.

Rationale

This course contains an important breath of topics required for all technology teachers certified by the ITEA standards. Teachers in engineering technology education need to cover many different trades and industries and understand the best practices to teach the discipline of engineering and technology. Teachers are expected to teach on a wide range of topics and integrate subject matter from other disciplines such as math and science.

III. EDUCATIONAL OBJECTIVES:

By the end of the course, you should be able to do the following:

1. Demonstrate an in-depth understanding of technology operations and concepts and best practices for teaching these operations and concepts to students.
2. Plan, design, and model effective learning environments and multiple experiences supported by technology that maximize student learning.
3. Apply technology to facilitate a variety of effective assessment and evaluation strategies
4. Use technology to enhance and improve personal productivity and professional practice.
5. Develop an understanding of the development and implementation of technology infrastructure, procedures, policies, plans, laboratories and budgets for secondary schools.

6. Explain the importance of the shared vision for campus integration of technology and foster an environment and culture conducive to the realization of the vision.
7. Describe the proper procedures for planning and managing a technology education laboratory.
8. Develop techniques for planning and organizing laboratory tools, supplies, and equipment for efficient and educationally sound laboratory operation.
9. Develop a realization of the importance of safety in technology education facilities and become familiar with prescribed methods of rendering facilities safe for student activities.
10. Perform a facility safety inspection, identifying hazards and noting methods of abatement.
11. Develop an awareness of government requirements and mandates as they relate to the technology education laboratory.
12. Develop systems for inventory, purchase, and maintenance of equipment and supplies for an instructional facility.
13. Design a technology education laboratory.

IV. COURSE CONTENT:

1. Teaching Communications Technology (including computer-aided-drafting)
2. Teaching Construction Technology
3. Teaching Design Technology (including parametric modeling)
4. Teaching Manufacturing Technology (including computer-numerical-controlled machining)
5. Teaching Power and Energy (including digital electronics)
6. Teaching Transportation Technology
7. Designing effective education facilities laboratories

8. Organizing laboratory and classroom resources for technology education
9. Managing technology education facilities
10. Best practices for laboratory requirements related to safety.

Developing management skills related to students, equipment, and supplies are addressed. Students design a technology education laboratory.

V. REQUIRED AND RECOMMENDED TEXTS:

- Scott, J.L. & Sarkees-Wircenski, M. (2001). *Overview of Career and Technical Education*. Homewood, IL: American Technical.
- International Technology Education Association. (2000). *Standards for Technological Literacy: Content for the Study of Technology*. Reston, VA: Author.
- Campbell, D.M. & Cignetti, P.B. (2000). *How to Develop a Professional Portfolio: A Manual for Teachers*. Boston: Allyn & Bacon.

VI. EVALUATION AND GRADING:

Grading Standards

Letter grades will be assigned in accordance with the following scale:

- 100% to 98 = A+
- 97.99 to 93 = A
- 92.99 to 91 = A-
- 90.99 to 88 = B+
- 87.99 to 83 = B
- 82.99 to 81 = B-
- 80.99 to 78 = C+
- 77.99 to 73 = C
- 72.99 to 70 = C-
- 70 and lower = F

Evaluation Method

Your grade for the course will be determined by the following items:

1. Papers, Presentations, and Other Assignments (25% of Final Grade)
 - Classroom Management Presentation
 - Position Paper (Facility Design Proposal and Give Presentation of Paper)
 - Professional Development Paper
 - Observation Reflections
 - Case Studies on Technology Lab safety & Management
2. Peer Teaching (Includes Lesson and Unit Plans and Course Outlines Based on State Standards) (30% of Final Grade)

- Technology education—4 lessons
 - Technology education —4 lessons
 - Unit Plan
 - Course Outline
3. Evaluation Materials (a notebook) (15% of Final Grade)
 - Technology education —8 Evaluation Resources
 4. Technology education —8 Evaluation Resources Resource Materials (organized into files) (15% of Final Grade)
 - Trends in Construction Technology
 - Trends in Design Technology (including parametric modeling)
 - Trends in Manufacturing Technology (including computer-numerical-controlled machining)
 - Trends in Power and Energy (including digital electronics)
 - Trends in Transportation Technology
 -
 5. Literature Review (15% of Final Grade)
 - 10-15 Pages in Length

Based on an Area of Interest in lab safety and management that warrants inquiry

VII. BIBLIOGRAPHY

VIII. CHEATING AND PLAGIARISM

Indiana University has adopted a code that applies, with only minor differences, to students on all Indiana University campuses. The code, which is available in the Office of the Dean of Students and in all school office, spells out what constitutes unacceptable behavior and the procedures to be followed when there are alleged cases of misconduct. The dean of students also has some very brief pamphlets on key areas of the code. What follows is not the code but rather abbreviated and paraphrased statements on key elements of the code: academic and personal misconduct as well as a section on what students should do if they believe that other students, faculty, or staff have violated their rights. The code also explains the procedures employed and how students may appeal decisions. For more information, consult the Code of Student Rights, Responsibilities, and Conduct as well as brochures located in the Office of the Dean of Students.

Indiana University Purdue University Indianapolis Code of Conduct

Cheating of any kind will be grounds for failure. You are allowed to discuss your assignments with others. However, you are expected to submit your own work for grading. You are expected to create your own assignments independent of others except when directed to work in teams. Do not cheat. The submission of false computer output is also considered to be cheating.

Cheating will not be tolerated. Cheating and/or plagiarism will be immediately punished with a grade of zero for the assignment in question, reported to the Chairman of the Department of Computer and Information Technology and a letter describing the infraction will be placed in your student file. Further disciplinary action will be pursued according to university policy as described in Part III of the Code of Student Rights, Responsibilities, and Conduct (Issued August 15, 1997).

Instructors using software to detect plagiarism are encouraged to investigate whether or not the student's permission is needed.

IX. AMERICANS WITH DISABILITIES ACT

If you need any special accommodations due to a disability, please contact Adaptive Educational Services at (317)-274-3241. The office is located in CA 001E.

New Course Request

Indiana University

Indianapolis

Campus

Check Appropriate Boxes:

Undergraduate credit

Graduate credit

Professional credit

1. School/Division Purdue School of Engineering and Technology 2. Academic Subject Code TECH

3. Course Number 56200 (must be cleared with University Enrollment Services) 4. Instructor Charlie Feldhaus

5. Course Title Teaching Engineering Technology Content and Laboratories

Recommended Abbreviation (Optional) _____

(Limited to 32 Characters including spaces)

6. First time this course is to be offered (Semester/Year): Spring 2010

7. Credit Hours: Fixed at 3 or Variable from _____ to _____

8. Is this course to be graded S-F (only)? Yes _____ No

9. Is variable title approval being requested? Yes No

10. Course description (not to exceed 50 words) for Bulletin publication: Participants will learn the fundamental techniques in teaching engineering and technology education. This course will provide students with the skills and knowldege of teaching information and communication systems, construction, manufacturing processes, and energy/power/transportation technologies.

11. Lecture Contact Hours: Fixed at 3 or Variable from _____ to _____

12. Non-Lecture Contact Hours: Fixed at _____ or Variable from _____ to _____

13. Estimated enrollment: 10 of which 100 percent are expected to be graduate students.

14. Frequency of scheduling: every spring Will this course be required for majors? yes

15. Justification for new course: Part of Area of Concentration for Engineering Technology Education

16. Are the necessary reading materials currently available in the appropriate library? yes

17. Please append a complete outline of the proposed course, and indicate instructor (if known), textbooks, and other materials.

18. If this course overlaps with existing courses, please explain with which courses it overlaps and whether this overlap is necessary, desirable, or unimportant.

19. A copy of every new course proposal must be submitted to departments, schools, or divisions in which there may be overlap of the new course with existing courses or areas of strong concern, with instructions that they send comments directly to the originating Curriculum Committee. Please append a list of departments, schools, or divisions thus consulted.

Submitted by:

Charlie Feldhaus Date 8/19/09
Department Chairman/Division Director

Approved by:

Ande D. Allen Date 9/18/09
Dean

Date _____
Dean of Graduate School (when required)

Date _____
Chancellor/Vice-President

Date _____
University Enrollment Services

After School/Division approval, forward the last copy (without attachments) to University Enrollment Services for initial processing, and the remaining four copies and attachments to the Campus Chancellor or Vice-President.