

TO: The Faculty of the College of Engineering
FROM: School of Engineering Education
RE: New Graduate Course, ENE 50500

The faculty of the School of Engineering Education has approved the following new course. This action is now submitted to the Engineering Faculty with a recommendation for approval.

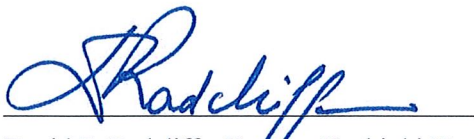
ENE 50500: Theories of Development and Engineering Thinking

Terms offered: Spring
Credit type: Fixed credit, 3 credit hours
Schedule type: 170 minutes/meeting, 1 meeting/week, 16 weeks
Pre-requisites: None
Restrictions: None
Attributes: None

Description: This course examines theories of human development, learning and epistemology in the context of Engineering Education. A broad survey of readings guides an in-depth study of fundamental theories of development and knowledge generation as it relates to pedagogy and research. A rich body of theoretical literature will be studied in order to explore its relation to engineering education. Work in this course aims to construct answers to the following three questions: (1) How do theories of human learning, development, and epistemology help us think about engineering? (2) How do they relate to engineering education? (3) How do they inform research method and practice in engineering education?

Reason: This is a core course in the doctoral program and is required towards fulfillment of a graduate degree in engineering education. The course also contributes towards students' satisfying the following graduate program competencies: think critically and reflectively, synthesize knowledge, communicate knowledge, and teach engineering. The course provides a community of practice culture in which students have opportunities to form their own community as well as participate within the broader community of engineering education via engagement in our practices, methods, and beliefs.

This course has been offered eight (8) times as an ENE 69500 course. Enrollments were 6 (Spring 2006), 11 (Spring 2007), 10 (Spring 2008), 10 (Spring 2009), 13 (Spring 2010), 17 (Spring 2011), 15 (Spring 2012), and 16 (Spring 2013).



David F. Radcliffe, Kamyar Haghighi Head
School of Engineering Education

Approved for the faculty of the Schools
of Engineering by the Engineering
Curriculum Committee

ECC Minutes #3 Date 10-18-16
Chairman ECC [Signature]

PURDUE UNIVERSITY

Print Form

Office of the Registrar
FORM 40G REV. 10/10

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

DEPARTMENT Engineering Education (ENE)

EFFECTIVE SESSION Fall 2013

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 Theories of Dev & Engr Thinking

Subject Abbreviation Theories of Dev & Engr Thinking

Course Number ENE 50500

Course Number ENE 69500

Long Title Theories of Development and Engineering Thinking

Short Title Theories of Dev & Engr Thinkin

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

TERMS OFFERED

Check All That Apply:

- Fall Spring Summer

CAMPUS(ES) INVOLVED

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

CREDIT TYPE

COURSE ATTRIBUTES: Check All That Apply

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

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 170	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):

This course examines theories of human development, learning and epistemology in the context of Engineering Education. A broad survey of readings guides an in-depth study of fundamental theories of development and knowledge generation as it relates to pedagogy and research. A rich body of theoretical literature will be studied in order to explore its relation to engineering education. Work in this course aims to construct answers to the following three questions: (1) How do theories of human learning, development, and epistemology help us think about engineering? (2) How do they relate to engineering education? (3) How do they inform research method and practice in engineering education? No Restrictions.

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 School Dean _____ 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 _____

OFFICE OF THE REGISTRAR

Supporting Document for a New Graduate Course

To: Purdue University Graduate Council

From: Faculty Member: David Radcliffe
Department: School of Engineering Education
Campus: West Lafayette

Date: _____

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)

Reviewer:

Comments:

**Contact for information if
questions arise:**

Name: Cindey Hays
Phone Number: 494-3884
E-mail: isenberg@purdue.edu
Campus Address: ARMS 1321

Course Subject Abbreviation and Number: ENE 50500

Course Title: Theories of Development and Engineering Thinking

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 majors and/or concentrations, 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 | Papers and Projects

- 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 | Lecture

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