

**LUMPKIN COLLEGE OF BUSINESS AND APPLIED SCIENCES
EASTERN ILLINOIS UNIVERSITY**

TO: Council on Graduate Studies

FROM: Mahyar Izadi, Dean

**Carla Honselman, Chair
LCBAS Curriculum Committee**

SUBJECT: Curriculum Proposal

DATE: October 13, 2010

The School of Technology recently approved the following curriculum proposal which I support:

Effective Summer 2011 – see attached document

New Course Proposal – AET 4753, Lean Manufacturing

Att.

c. D. Woodley, Interim Chair, School of Technology

Eastern Illinois University
NEW/REVISED COURSE PROPOSAL FORMAT
(Approved by CAA on 4/13/06 and CGS on 4/18/06, Effective Fall 2006)

This format is to be used for all courses submitted to the Council on Academic Affairs and/or the Council on Graduate Studies. (See <http://www.eiu.edu/~eiucaa/Directions.pdf> for directions on completing this form.)

Please check one: ☒ New course ☐ Revised course

PART I: CATALOG DESCRIPTION

1. **Course prefix and number, such as ART 1000:** AET 4753
2. **Title (may not exceed 30 characters, including spaces):** Lean Manufacturing
3. **Long title, if any (may not exceed 100 characters, including spaces):**
4. **Class hours per week, lab hours per week, and credit [e.g., (3-0-3)]:** (3-0-3)
5. **Term(s) to be offered:** ☐ Fall ☐ Spring ☐ Summer ☒ On demand
6. **Initial term of offering:** ☐ Fall ☐ Spring ☒ Summer **Year:** 2011
7. **Course description (not to exceed four lines):** A course in the fundamental concepts, principles, and tools involved in Lean Manufacturing, including utilizing lean across industries as well as its implementation.
8. **Registration restrictions:**
 - a. **Identify any equivalent courses** (e.g., cross-listed course, non-honors version of an honors course).
 - b. **Prerequisite(s)**, including required test scores, courses, grades in courses, and technical skills. Indicate whether any prerequisite course(s) MAY be taken concurrently with the proposed/revised course.
Junior Status and AET 1323: Computer Applications for Applied Engineering and Technology with a grade C or higher or equivalent course.
 - c. **Who can waive the prerequisite(s)?**
☐ No one ☒ Chair ☐ Instructor ☐ Advisor ☐ Other (Please specify)
 - d. **Co-requisites** (course(s) which MUST be taken concurrently with this one):
 - e. **Repeat status:** ☒ Course may not be repeated.
 ☐ Course may be repeated to a maximum of _____ hours or _____ times.
 - f. **Degree, college, major(s), level, or class** to which registration in the course is restricted, if any:
 - g. **Degree, college, major(s), level, or class** to be excluded from the course, if any:
9. **Special course attributes** [cultural diversity, general education (indicate component), honors, remedial, writing centered or writing intensive]
10. **Grading methods** (check all that apply): ☒ Standard letter ☐ C/NC ☐ Audit ☐ ABC/NC ("Standard letter"—i.e., ABCDF—is assumed to be the default grading method unless the course description indicates otherwise.)

- 11. Instructional delivery method:** ☒ lecture ☐ lab ☐ lecture/lab combined ☐ independent study/research
☐ internship ☐ performance ☐ practicum or clinical ☐ study abroad ☐ other

PART II: ASSURANCE OF STUDENT LEARNING

1. List the student learning objectives of this course:

After successfully completing this course, the student will be able to:

1. Identify the difference between traditional and lean manufacturing systems
2. Define lean principles and tools
3. Apply lean principles and tools to any system (including manufacturing, service, and more)
4. Apply lean tools in a variety of situations
5. Analyze the waste within a company
6. Develop a strategy to eliminate the waste within a company

- a. If this is a general education course, indicate which objectives are designed to help students achieve one or more of the following goals of general education and university-wide assessment:

- Not a general education course

- b. If this is a graduate-level course, indicate which objectives are designed to help students achieve established goals for learning at the graduate level:

- Objectives 3 – 6 will be designed to help students achieve established goals for learning at the graduate level.

2. Identify the assignments/activities the instructor will use to determine how well students attained the learning objectives: Midterm, homework, quizzes, project, and comprehensive final

3. Explain how the instructor will determine students' grades for the course:

OBJECTIVES	Quizzes and homework 20%	Midterm 25%	Project 30%	Final Exam 25%
1	X	X		X
2	X		X	
3	X	X		X
4	X	X	X	X
5	X	X	X	X
6	X		X	

4. For technology-delivered and other nontraditional-delivered courses/sections, address the following:
 Not a technology-delivered or other nontraditional-delivered course

5. **For courses numbered 4750-4999, specify additional or more stringent requirements for students enrolling for graduate credit. These include:**

Students enrolling for graduate credit will be required to complete additional work on the project, midterm, and final exam.

6. **If applicable, indicate whether this course is writing-active, writing-intensive, or writing-centered, and describe how the course satisfies the criteria for the type of writing course identified. (See Appendix *.)** Not a writing intensive course

PART III: OUTLINE OF THE COURSE

Provide a week-by-week outline of the course's content. Specify units of time (e.g., for a 3-0-3 course, 45 fifty-minute class periods over 15 weeks) for each major topic in the outline. Provide clear and sufficient details about content and procedures so that possible questions of overlap with other courses can be addressed. For technology-delivered or other nontraditional-delivered courses/sections, explain how the course content "units" are sufficiently equivalent to the traditional on-campus semester hour units of time described above.

Weeks	Topic(s)
0.5	History of Lean Manufacturing
2.0	Founding concepts of Lean Manufacturing
1.0	Lean principles
2.5	Value stream mapping
2.0	5S and visual management
2.0	Standard work
1.0	Flexible work systems
1.0	Single minute exchange of die (SMED)
1.0	Jidoka (automation with a human touch)
1.0	Total productive maintenance
1.0	Heijunka (level production)
15	Total

PART IV: PURPOSE AND NEED

1. **Explain the department's rationale for developing and proposing the course.**

With increased global competition comes the need for companies to find methods of reducing costs in order to remain competitive. Lean Manufacturing has become one of the foremost production systems in the world today for removing inefficiencies and processes/procedures that do not add value in the eyes of the consumer. This course provides students with the base knowledge to understand and begin implementing Lean Manufacturing.

- a. **If this is a general education course, you also must indicate the segment of the general education program into which it will be placed, and describe how the course meets the requirements of that segment.**
- b. **If the course or some sections of the course may be technology delivered, explain why.**

2. **Justify the level of the course and any course prerequisites, co-requisites, or registration restrictions.**

A senior-level course is suitable for students who are preparing to become managers in industry. The proposed course will provide undergraduate students with the knowledge and skills to effectively evaluate systems and identify, analyze, and remove wastes from the system.

This course will extensively use word processing and spreadsheets for homework and the project, and presentation software for the student's final presentation of the project. AET 1323: Computer Applications for Applied Engineering and Technology provides the knowledge required to effectively use these applications.

3. If the course is similar to an existing course or courses, justify its development and offering.

This course content is not similar to any other course content.

- a. **If the contents substantially duplicate those of an existing course, the new proposal should be discussed with the appropriate chairpersons, deans, or curriculum committees and their responses noted in the proposal.**
- b. **Cite course(s) to be deleted if the new course is approved. If no deletions are planned, note the exceptional need to be met or the curricular gap to be filled.**

4. Impact on Program(s):

- a. **For undergraduate programs, specify whether this course will be required for a major or minor or used as an approved elective.** This course will be used as an approved elective.
- b. **For graduate programs, specify whether this course will be a core requirement for all candidates in a degree or certificate program or an approved elective.**

If the proposed course changes a major, minor, or certificate program in or outside of the department, you must submit a separate proposal requesting that change along with the course proposal. Provide a copy of the existing program in the current catalog with the requested changes noted.

PART V: IMPLEMENTATION

1. Faculty member(s) to whom the course may be assigned: Dr. Thomas McDonald or other qualified faculty.

If this is a graduate course and the department does not currently offer a graduate program, it must document that it employs faculty qualified to teach graduate courses.

2. Additional costs to students: There will be no additional cost to students.

Include those for supplemental packets, hardware/software, or any other additional instructional, technical, or technological requirements. (Course fees must be approved by the President's Council.)

3. Text and supplementary materials to be used (Include publication dates):

Tapping, Luyster, and Shuker (2002). *Value Stream Management: Eight Steps to Planning, Mapping, and Sustaining Lean Improvements*. New York, NY. Productivity Press.

Nicholas, J. (2010). *Lean Production for Competitive Advantage: A Comprehensive Guide to Lean Methodologies and Management Practices*. New York, NY. Productivity Press.

PART VI: COMMUNITY COLLEGE TRANSFER

If the proposed course is a 1000- or 2000-level course, state either, "A community college course may be judged equivalent to this course" OR "A community college course will not be judged equivalent to this course." A community college course will not be judged equivalent to a 3000- or 4000-level course but may be accepted as a substitute; however, upper-division credit will not be awarded.

PART VII: APPROVALS

Date approved by the department or school: March 1, 2010

Date approved by the college curriculum committee: October 13, 2010

Date approved by the Honors Council (*if this is an honors course*):

Date approved by CAA: CGS:

*In **writing-active courses**, frequent, brief writing activities and assignments are required. Such activities -- some of which are to be graded -- might include five-minute in-class writing assignments, journal keeping, lab reports, essay examinations, short papers, longer papers, or a variety of other writing-to-learn activities of the instructor's invention. Writing assignments and activities in writing-active courses are designed primarily to assist students in mastering course content, secondarily to strengthen students' writing skills. In **writing-intensive courses**, several writing assignments and writing activities are required. These assignments and activities, which are to be spread over the course of the semester, serve the dual purpose of strengthening writing skills and deepening understanding of course content. At least one writing assignment is to be revised by the student after it has been read and commented on by the instructor. In writing-intensive courses, students' writing should constitute no less than 35% of the final course grade. In **writing-centered courses** (English 1001G, English 1002G, and their honors equivalents), students learn the principles and the process of writing in all of its stages, from inception to completion. The quality of students' writing is the principal determinant of the course grade. The minimum writing requirement is 20 pages (5,000 words).

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