

Proposal for Graduate Certificate in Lean Systems
Initial Date: 12-11-07
Revised Date: 3-21-2011

The faculty of the Electrical Engineering Department requests the establishment of a Graduate Certificate in Lean Systems.

Justification

The Electrical Engineering Faculty offer a number of courses related to Lean Systems. The first such course (MFS 503) was taught in Fall of 1994. Subsequent to 1994, the curriculum was extended to six courses by 1997. The six manufacturing courses (which are also cross listed with ME and EE) include:

1. MFS 503 Lean Manufacturing Principles and Practices (3-hrs)
2. MFS 526 Operations Management in Lean Systems (3-hrs)
3. MFS 525 Organizational Learning for Lean Enterprise (3-hrs)
4. MFS 612 Design of Lean Manufacturing Systems (3-hrs)
5. MFS 603 Management of a Lean System (3-hrs)
6. MFS 609 Leadership for a Lean Enterprise (3-hrs)

Since then, the curriculum has grown to include six regularly taught courses, and several other courses that have been taught either occasionally or on an experimental basis. The curriculum has drawn significant interest from various engineering degree programs and has attracted many industries which view knowledge of lean manufacturing as important for new hires. The number of request from students to enroll in such a program varies; however, faculty estimates that the Lean Program receives approximately 50 requests per semester. The Lean Graduate Certificate is targeting approximately 25 certificates per semester.

Background

The lean program was originally developed based on TMMK's (Toyota Motor Manufacturing Kentucky) request to teach engineering students the Toyota Production System (TPS). Toyota initially funded the lean program and the development of a curriculum that could assist engineering students to be walk on ready and productive within in their first few years. Since then, Toyota has made countless contributions and donations across the university in the support and development of undergraduate and graduate level education. One of Toyota's most recent contributions is the establishment of the Executive in Residence program. This initiative, like others, encourages knowledge sharing between Toyota and the university so that our students can stay current with the most up to date lean practices. The Graduate Certificate in Lean Systems represents the ongoing commitment to Toyota and the continued effort to better train students in the knowledge and application of lean systems.

Perspective Students

Students are expected to come from various backgrounds ranging from engineering to non-engineering fields. The certificate program should be attractive to students who are employed in industry and seeking further knowledge in Lean Manufacturing methods, and to traditional students who may be supplementing their degree programs with focused courses in lean manufacturing.

The objective is to promote:

1. Students in the EE degree program (or other programs) who have completed a core set of courses in Lean Systems.
2. Students who are interested in Lean Systems knowledge and complete the courses in post-baccalaureate status (non-degree status) but are not yet committed to a particular degree

Admission Requirements

The admission requirements will be the same as those in effect for admission to the Graduate School. Students with the following status are welcome to apply:

- University scholars status
- Post-baccalaureate status
- Conditional status

All admittance into the certificate program is by approval by the Graduate Certificate Director. Students are also required to apply and be admitted to the certificate program prior to taking any classes that will be counted towards completion of the certificate.

Faculty Associates

As per the Graduate School's Certificate Gridlines, a graduate certificate requires a group of faculty "associates" who will participate in delivering the courses in the curriculum or who are otherwise associated with the curriculum or its topical area.

The initial list of faculty associates will be as follows:

1. Dr. Bruce Walcott (Elec. Engr.)(Professor)
2. Dr. Larry Holloway (Elec. Engr.)(Professor)
3. Dr. Arlie Hall (Elec. Engr.)(Assistant Professor)
4. Dr. Fazleena Badurdeen (Mech. Engr.)(Assistant Professor)
5. Dr. Phillip Marksberry (Mech. Engr.)(Lecturer)

The initial list meets the minimum requirement of three members of the Graduate Faculty. The mechanism used to add faculty members to the program will be by a majority vote from the core faculty list.

Graduate Certificate Director

The proposed Lean Graduate Certificate Director will be Dr. Arlie Hall. The advocate from the Electrical Engineering department will be Dr. Bruce Walcott.

Academic Home

The academic home of the Graduate Certificate in Lean Systems will be in the Electrical Engineering department.

Certificate Curriculum

The curriculum will be focused on lean systems and will require 12 credit hours. It will consist of the following courses:

Core for certificate (all required)

1. MFS 503 Lean Manufacturing Principles and Practices (3-hrs)
2. MFS 526 Operations Management in Lean Systems (3-hrs)

All core courses will be offered at least once per year. Additionally, MFS 503 and MFS 526 are offered yearly in the Lean Certificate option.

Lean Electives (pick two)

Two additional courses related to lean manufacturing are required. These can include the following:

1. MFS 525 Organizational Learning for Lean Enterprise (3-hrs)
2. MFS 612 Design of Lean Manufacturing Systems (3-hrs)
3. MFS 603 Management of a Lean System (3-hrs)
4. MFS 609 Leadership for a Lean Enterprise (3-hrs)
5. Other courses, approved in writing by the Graduate Certificate Director

MFS 525 and MFS 612 are offered yearly in the Lean Certificate option program.

Maintenance of the Certificate Program

The Lean Systems Graduate Certificate Director will prepare review of the program's status, operations and certificate awardees every six years.

Award of the Certificate

Students that have completed two core courses and two elective courses with an average GPA of 3.0 for the certificate curriculum are eligible to graduate. The Graduate Certificate Director shall send a Graduate Certificate Completion Form to the Dean of the Graduate School upon completion of the last course. The form is accompanied by the student's certificate for signature by the dean and the Graduate School will notify the university Registrar for posting to the permanent transcript.

Brothers, Sheila C

From: Arlie Hall [hall@engr.uky.edu]
Sent: Thursday, November 05, 2009 11:18 AM
To: Brothers, Sheila C
Cc: walcott@engr.uky.edu; sekulicd@engr.uky.edu
Subject: The Senate Program Committee meeting on October 30th, 2009

Sheila,

Subject: Graduate Certificate in Lean Manufacturing Systems

RE#2: Demand:

The projected demand, within a two academic years is estimated to be about 30 or more students per academic year. This demand could reach as many as 45 students, given that we are planning to offer at least one course per semester using the medium of distance learning. The College of Engineering has experience faculty and facilities to offer distance learning course work

Dr. Arlie Hall
Assistant Professor
Center for Manufacturing
859-257-6262 ex 434
Cell: 859-333-6329
e-mail: arliehall@aol.com.

Brothers, Sheila C

From: Menciondo, Marta
Sent: Tuesday, November 03, 2009 3:12 PM
To: Brothers, Sheila C
Cc: Menciondo, Marta; Barnes, Thomas G; Jane Hayes; Schoenberg, Nancy E; Arrington, Michael; Wermeling, Daniel; Wasilkowski, Greg
Subject: The Senate Programs Committee meeting on October30th 2009

Sheila,

The Senate Programs Committee met on Friday October 30th at 1 PM.

Our recommendations are:

Master of Science in Manufacturing Systems Engineering Graduate Certificate Ooption:

Approval provided that:

- 1) They include a paragraph about the demand for this program
- 2) The routing sheet is available

Graduate Certificate in Vocal Pedagogy:

Approval

Master of Science in Agricultural Economics University Scholars Program:

We need the following:

- 1) Some form of communication (letter/ email/ etc) from Georgetown College stating that they agree.
- 2) A paragraph on Demand.
- 3) A paragraph on their plans to offer the same option to UK students or students from other universities?
- 3) Is there a precedence for this kind of arrangement at our University? Sheila, you may be able to answer this for us.

Please let me know if I should communicate with Mike Mullen about the additional information needed or if you will do it.

Tx,
Marta

Marta S. Menciondo

University of Kentucky College of Public Health - Biostatistics Department

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SIGNATURE ROUTING LOG

General Information:

Proposal Type: Course Program Other

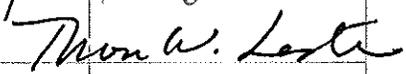
Proposal Name¹ (course prefix & number, pgm major & degree, etc.): Graduate Certificate in Lean Manufacturing Systems

Proposal Contact Person Name: Dr. Arlie Hall Phone: 257-6262 x 434 Email: hall@engr.uky.edu

INSTRUCTIONS:

Identify the groups or individuals reviewing the proposal; note the date of approval; offer a contact person for each entry; and obtain signature of person authorized to report approval.

Internal College Approvals and Course Cross-listing Approvals:

Reviewing Group	Date Approved	Contact Person (name/phone/email)	Signature
Director of Graduate Studies	11-5-09	Dr. Dusan Sekulic / 257-2972 / sekulic@engr.uky.edu	
Director, Center for Manufacturing	11-5-09	Dr. Bruce Walcott / 257-1182 / walcott@engr.uky.edu	
Dean, College of Engineering	11-5-09	Dean Thomas Lester / 257-1687 / lester@engr.uky.edu	
		/ /	
		/ /	

External-to-College Approvals:

Council	Date Approved	Signature	Approval of Revision ²
Undergraduate Council			
Graduate Council			
Health Care Colleges Council			
Senate Council Approval		University Senate Approval	

Comments:

¹ Proposal name used here must match name entered on corresponding course or program form.

² Councils use this space to indicate approval of revisions made subsequent to that council's approval, if deemed necessary by the revising council.