KENT STATE UNIVERSITY
CERTIFICATION OF CURRICULUM PROPOSAL

Preparation Date DECEMBER 4, 2014
~~**November 14, 2012**~~
Curriculum Bulletin

Effective Date ~~**Fall 2013**~~ FALL 2015 Approved by EPC

Department	
College	**AT - Applied Engineering...Technology**
Degree	**Minor (non degree)**
Program Name	**Safety, quality and lean** Program Banner Code SQL
Concentration(s)	Concentration(s) Banner Code(s)
Proposal	**Establish program**

Description of proposal:
We propose to establish a minor in safety, quality and lean IN MANUFACTURING
Does proposed revision change program's total credit hours? ☐ Yes ☒ No
Current total credit hours: **18** Proposed total credit hours

Describe impact on other programs, policies or procedures (e.g., duplication issues; enrollment and staffing considerations; need; audience; prerequisites; teacher education licensure):
None

Units consulted (other departments, programs or campuses affected by this proposal):

REQUIRED ENDORSEMENTS

Department Chair / School Director	12/10/14
Campus Dean (for Regional Campuses proposals)	12/10/14
College Dean (or designee)	___/___/___
Dean of Graduate Studies (for graduate proposals)	___/___/___
Provost and Senior Vice President for Academic Affairs (or designee)	___/___/___

Proposal Summary

Establishment of a minor in CAEST in the area of
Safety, quality and lean ~~enterprises~~ IN MANUFACTURING

Description of Action, Including Intended

Experts in safety, quality improvement and lean enterprises are of increasing importance to a large number of companies. We propose to create a minor in safety, quality and lean enterprises. These are three of the six pillars that collectively characterize the college: quality, sustainability, lean, cost containment, safety and management in the subfield. At present courses in the areas of safety, lean and quality are offered in several concentrations and other courses embody significant aspects of these areas. Thus this is a natural area for CAEST to combine into a minor. Furthermore, CAEST has several applied engineering concentrations. Some of these concentrations have significant room for electives. Thus, creation of safety, quality and lean enterprises minor will complement these existing programs, and require the introduction of only two new courses.

Conformity of action with mission of sponsoring unit – The program conforms well to the mission of the College of Applied Engineering, Sustainability and Technology and the University as a whole which is to enhance technological literacy, education and training essential to the knowledge economy, socio-economic well-being and to the workforce development of the state of Ohio in general and Northeast Ohio in particular. Our vision is to have cutting edge programs that serve the region, country and world and to prepare graduates to be highly productive leaders in the general area of technology. This particular program focuses on addressing the many requests we have received from local companies for students with skills in these areas.

Rationale for action – The constant request from companies for graduates and interns with skills in safety, quality systems and lean enterprises has led to this proposal. The proposed minor addresses this need in a strong, well-focused manner that complements current programs in the college. Many companies have found that a person in HR cannot handle quality and lean issues and is hard pressed on safety issues. This has led companies to an increasing interest in hiring graduates that have both technical skills and knowledge of safety, quality and lean enterprises. This program addresses this need.

Impact on Other Programs, Course Offerings, Students, Faculty, Staff (e.g., duplication issues)

This will make better use of faculty members currently teaching courses in the CAEST concentrations in manufacturing systems and technology management, aeronautics and construction management = by having more students in those courses that overlap the program and the proposed minor.

This program will require the establishment of two (2) new courses in the general area of quality and lean enterprises with a focus on developing graduates that are equipped to enter positions in these areas upon graduation.

We anticipate that this program will have minimal negative effect on current students. In fact, it will provide a wider set of job opportunities for those in many of our programs.

Fiscal, Enrollment, Facilities and Staffing Considerations

By using currently available courses and having the first new course in this program in year two we expect that the initial fiscal effect will be neutral to positive. Clearly, it will be positive if there are new students better filling current courses that have empty seats, should the enrollment be smaller than projected, seats will still be filled, but to a smaller extent because these courses are part of other programs. The first new course will be offered during the third semester of the proposed minor, and at this stage every other year thereafter.

The other new course will come in semester four and like that in semester 3 will need to be developed. This is a new minor; however, it is not in a new area. Safety and quality concerns are part of every modern product. The techniques and applications are evolving, improving and growing at an accelerating rate. The actual numbers when the tire is on the road are difficult to determine. We expect starting with 4-10 students in year 1 and increasing to roughly to 15-20 per year once we are in the steady state. This is a bold-faced guess, based on current interest that is about 20-30 company requests per semester.

Evidence of Need and Sustainability if Establishing

There are already courses in these areas and our advisory boards have endorsed the present courses. This proposal combines the current disjointed courses in several disciplines into a single minor that addresses the needs of local companies. The two courses that need to be developed are an excellent fit to many present programs as standalone electives. In fact, we have graduate courses in lean and quantitative methods in technology at present. The proposed minor extends these offerings to the undergraduate level. Four of the six courses are presently offered on a continuing basis and new course will initially be offered in alternating years

Provisions for Phase-Out if Inactivating

NA

Alternatives and consequences:

Lower enrolment growth at KSU, fewer students will benefit from these courses, reduced KSU impact on NEO and region.

Timetable and Actions Required: *a chronology of actions required to approve the proposal with an anticipated implementation date for each action*

Approval by Applied Science and Technology Program Area –December 2014
Approval by College of Applied Engineering, Sustainability and Technology CCC – December 2014
Approval by Kent State University EPC – January, 2015
Effective – Fall 2015

KSU definition: A minor is a secondary field of study used to complement or be in an addition to a major and is represented by a set of department-determined courses, generally between 18 and 24 credit hours. You may select a minor outside your major's department and college.

Quality, Safety, and Lean Download to print

Kent State University 2013 Catalog > College of Applied Engineering, Sustainability and Technology > Minors > Quality, Safety, and Lean minor
College:
College of Applied Engineering, Sustainability and Technology
Department:
College of Applied Engineering, Sustainability and Technology

119 Van Deusen Hall
E-mail: cotinfo@kent.edu
Tel: 330-672-2892
Fax: 330-672-2894
Web: www.kent.edu/caest/

Students in the quality, safety and lean minor study quality techniques, safety in the work[place and accident analysis, and aspects of establishing lean enterprises.

Type Legend: **DD** Diversity Domestic; **DG** Diversity Global; **ELR** Experiential Learning; **KAD** Kent Core Additional; **KBS** Kent Core Basic Sciences; **KCM** Kent Core Composition; **KFA** Kent Core Fine Arts: **KHU** Kent Core Humanities; **KMC** Kent Core Mathematics and Critical Reasoning; **KSS** Kent Core Social Sciences; **WIC** Writing Intensive

Please read the sections in the University Catalog on Kent Core, diversity, writing-intensive and the experiential learning requirements.

I.	MINOR REQUIREMENTS (24 credits)			
Type	**Course**		**Title**	**Credits**
	AERN	45135	Aviation safety theory	3
	CGMT	11044	Construction safety	3
	TECH	43080	Industrial and environmental safety	3
	TECH	33700	Quality Techniques	3
	TECH	33657	Introduction to lean six sigma	3
	TECH	35765	~~Quality improvement~~ Quality and Reliability Engineering	3
			MINIMUM TOTAL	**18**

Description of courses for Safety, quality and lean minor

All are required courses

AERN 45135 - AVIATION SAFETY THEORY
(Cross-listed with AERN 55135) Provides an in-depth study into aviation human safety theories and the basics of risk and safety management. Prerequisite: none.
3.000 Credit hours
3.000 Lecture hours

Levels: Undergraduate
Schedule Types: Lecture

CMGT 11044 - CONSTRUCTION SAFETY
The theories and principles of construction safety and health applied to real-world setting. Upon completion of course materials and required attendance hours, students receive their OSHA 30 certification. Prerequisite: none.
3.000 Credit hours
3.000 Lecture hours

TECH 43080 - INDUSTRIAL AND ENVIRONMENTAL SAFETY
Examines the occupational safety and health act and fundamentals of industrial safety programs. Prerequisite: None.
3.000 Credit hours
3.000 Lecture hours

Levels: Undergraduate
Schedule Types: Lecture

TECH 33700 - QUALITY TECHNIQUES
Introduction to quality management and the tools and techniques including the basic tools identified by ASQ (American Society for Quality) as well as an introduction to Lean and Six Sigma. Information presented helps prepare the student to qualify for the Quality Process Analyst Certification. Prerequisite: none.
3.000 Credit hours
3.000 Lecture hours

Levels: Undergraduate
Schedule Types: Lecture

TECH 33657 Introduction to lean six sigma
An introduction to lean six sigma. Including understanding the systems, measuring and defining performance, analyzing improving and controlling processes, and leading six sigma initiatives.
3.000 Credit hours
3.000 Lecture hours

Levels: Undergraduate
Schedule Types: Lecture

TECH 35765 Quality Improvement

Introduction to quality improvement techniques. Includes statistical process control, control charts, sampling, reliability, experimental design and quality engineering.
3.000 Credit hours
3.000 Lecture hours

Levels: Undergraduate
Schedule Types: Lecture

Kellogg, Jennifer

From: NETTEY, ISAAC RICHMOND
Sent: Thursday, January 08, 2015 7:14 PM
To: Kellogg, Jennifer
Cc: FISCH, MICHAEL; URIBE-RENDON, ROBERTO; Stringer, David; Sines, Robert
Subject: RE: Safety, Quality and Lean minor proposal

Hello, Jennifer,

After conferring with Mike Fisch, the full and proper name should read "Safety, Quality and Lean in Manufacturing." The preceding name provides the necessary and proper boundaries in terms of course coverage and emphasis thus possibly eliminating the potential for any serious concerns about encroachment. Best of the New Year with

Cheers,

I. Richmond Nettey

I. Richmond Nettey, Ph.D.,
Associate Dean, College of Applied Engineering,
Sustainability and Technology, 202J ATB,
P. O. Box 5190, Kent State University,
Kent, Ohio 44242 U.S.A.
330.524.9693 - Mobile
330.672.9476 - Office
330.672.7494 - Fax

"Aviation is proof, that given the will, we have the capacity to achieve the impossible."
--Captain Eddie Rickenbacker

From: NETTEY, ISAAC RICHMOND
Sent: Thursday, January 08, 2015 11:37 AM
To: Kellogg, Jennifer
Cc: FISCH, MICHAEL
Subject: RE: Safety, Quality and Lean minor proposal

Hello, Jennifer,

A very happy New Year to you and thank you very much for the preceding e-mail. Compliments on detecting and flagging the inconsistency in the name(s) of the minor as well as the absence of a non-encroachment letter.

Mike Fisch had initiated and submitted the proposal for the minor and it was signed off by Bob Sines so will check with Mike to confirm the name. Roberto is contacting M&IS on securing the non-encroachment letter.

Best and cheers,

I. Richmond Nettey

I. Richmond Nettey, Ph.D.,
Associate Dean, College of Applied Engineering,
Sustainability and Technology, 202J ATB,
P. O. Box 5190, Kent State University,
Kent, Ohio 44242 U.S.A.
330.524.9693 - Mobile
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Kellogg, Jennifer

From: OFFODILE, O. FELIX
Sent: Tuesday, January 20, 2015 3:45 PM
To: FISCH, MICHAEL
Cc: NETTEY, ISAAC RICHMOND; Kellogg, Jennifer; Sinclair, Elizabeth
Subject: RE: New basic data sheet for TECH 35765

Dear Mike,

We have reviewed your proposed course in **Quality and Reliability Engineering** (TECH 35765). Although the course is somewhat similar to **Quality Assurance** (MIS 34065), it is substantially different in focus that we do not consider it an encroachment. Therefore, we are in support of your proposal to create this course.

Best.

Felix

From: FISCH, MICHAEL
Sent: Tuesday, January 20, 2015 3:13 PM
To: OFFODILE, O. FELIX
Cc: NETTEY, ISAAC RICHMOND; Kellogg, Jennifer
Subject: New basic data sheet for TECH 35765

Dr. Offodile,
I have redone the basic data sheet. The major changes include:

1) The course title has been changed to Quality and Reliability Engineering. Thank you for the suggestion.
2) I have added several more hours on reliability and integrating reliability and quality. Thus, the course content has been changed.
3) I emphasized manufacturing in the course description.
4) I added a textbook on reliability engineering to the textbooks so there is a well-defined reliability thread to the course.
5) I added case studies as a written expectation since many companies have problems in these areas and it is a natural source of material.

This will have go back to the faculty and the rest of the approval process so this is not in stone. Of course, it must meet your approval. I have attached the new BDS in pdf format.

Finally, I would like to personally thank you for your collegiality in suggesting a different course title and your wiliness to work with CAEST and me on this proposal.

Sincerely,
Mike

Michael Fisch
College of Applied Engineering, Sustainability, and Technology
The Kent State University
(V) 330 672 9388

Name: Michael R. Fisch Submission Date: 1/20/2015

Organization: Dean AEST

Course Catalog Update

<< Go back to Course Catalog Update form

Print

Course Catalog UpdateInformation: STU0004

Reference Number: CCU008235 **Date:** 26-NOV-14

Level: 2.00 **of** 2.00 **Currently On The Worklist Of:** Robert Sines, Jr.,rsines

Owner: Office of Curriculum Services, 330-672-8558 or 330-672-8559, curriculum@kent.edu

Basic Course Data		
Change type: Establish		
Faculty member submitting this proposal:M Fisch		
Requested Effective Term:201580		
Campus: Kent		
College:AT-College of Applied Engineering, Sustainability and Technology		
Department:TECH-Technology		
Course Subject:TECH-Technology		
Course Number:35765		
Course Title: Quality and Reliability Engineering		
Title Abbreviation:quality and reliability		
Slash Course and Cross-list Information:		
Credit Hours		
Minimum Credit/Maximum Credit:3to3		
Contact Hours: Lecture - Minimum Hours/Maximum Hours:3to3		
Contact Hours: Lab - Minimum Hours/Maximum Hours:		
Contact Hours: Other - Minimum Hours/Maximum Hours:		
Attributes		
Is this course part of the LER, WIC or Diversity requirements: No		
If yes, course attributes: 1. 2. 3.		
Can this course be repeated for credit: No Repeat	**Course Limit:**	**OR Maximum Hours:**
Course Level: Undergraduate	**Grade Rule:**B-Standard letter	
Rationale for an IP grade request for this course (if applicable):		
Schedule Type(s): 1. LEC-Lecture 2. 3.		
Credit by Exam:N-Credit by exam-not approved		
Prerequisites & Descriptions		
Current Prerequisite/Corequisite/Catalog Description:		
Catalog Description (edited): Introduction to reliability and quality engineering with an emphasis on manufacturing and techniques for improving quality and reliability. Includes reliability, reliability prediction, quality techniques, modeling statistical process control, control charts, sampling, experimental design, and designing and manufacturing for quality and reliability.		
Prerequisites (edited): Math 11010 Algebra for Calculus		
Corequisites (edited): None		
Registration is by special approval only: No		
Content Information		
Content Outline:		

Content Hours per Course Topic	Topic Description
3	Introduction to reliability
3	Introduction to quality improvement, lean, and six sigma

8	Statistical process control. Introduction to statistics.
4	Introduction to probability
3	Control charts and their uses.
3	Modeling reliability
6	Acceptance and reliability sampling
6	Design for reliability and reliability of mechanical parts
4	Experimental design
3	combining quality and reliability
2	planning and implementation tools

Display/Hide Delimited Course Outline

Total Contact Hours:45

Textbook(s) used in this course: Quality Improvement, Dale H. Besterfield. Practical Reliability Engineering, 5th Ed, Patrick O'connor and Andre Kleymer.

Writing Expectations: Written homework, case studies, and exams

Instructor(s) expected to teach: Approved CAEST faculty members

Instructor(s) contributing to content:M. Fisch

Proposal Summary

Explain the purpose for this proposal:

This proposes a new course in quality improvement. This course will be part of a proposed minor in CAEST.

Explain how this proposal affects program requirements and students in your unit:

No change in any program. Provides an opportuinity to obtain a minor in an area that many companies need expertiese. There is room in many programs for this minor.

Explain how this proposal affects courses, program requirements and student in other units:

Passage of the proposal will allow students to minor in an area that broadens their employment options. No prerequisites except MATH 11010 allows minor to be taken by a students in other units.

Explain how this proposal affects enrollment and staffing:

Possibly a part time faculty member will be needed.

Units consulted (other departments, programs or campuses affected by the proposal):

College of Business. Dr. F. Offodile RE M&IS 34065.

Comments:

Date	User	Comment
1/20/2015	Jennifer S Kellogg	Please return the workflow to Michael Fisch.
11/26/2014	Michael R. Fisch	Roberto, the course number is a fiction. This is for the proposed minor. Mike

History:

Date	User	Status
1/20/2015	Robert G. Sines	Returned For Edit
1/20/2015	Jennifer S Kellogg	Returned To Final Approver
12/9/2014	Robert G Sines	Approved
12/9/2014	David B Stringer	Approved
11/26/2014	Michael R. Fisch	Submitted

Comments (500 Character Maximum):

NOTE: Please do not use the following restricted characters: (~ * / \ --)