Grant Title: Accelerated Pathways in Advanced Manufacturing (APAM)

Community College of Rhode Island Author:

Link: http://www.ccri.edu/

Document: Number10 Strategy3 Activity1 Deliverable14k - 10-ETCN-2360-Manufacturing **Quality Control-rev.03**

DOL Disclaimer Statement:



"This workforce product was funded by a grant awarded by the U.S. Department of Labor's Employment and Training Administration. The product was created by the grantee and does not necessarily reflect the official position of the U.S. Department of Labor. The U.S. Department of Labor makes no guarantees, warranties, or assurances of any kind, express or implied, with respect to such information, including any information on linked sites and including, but not limited to, accuracy of the information or its completeness, timeliness, usefulness, adequacy, continued availability, or ownership."



Unless otherwise noted - this work is licensed under the Creative Commons Attribution 4.0 International License. To view a copy of this license, visit http://creativecommons.org/licenses/by/4.0/.

COURSE PROPOSAL APPROVAL TRACKING FORM

Name of Proposal: Manufacturing Quality Control

SIGNATURES REQUIRED PRIOR TO SUBMISSION

	Academic Department	
Proposal Originator(s):		
	Signature	Date
	Signature	Date
Department Vote for Approval: (Departm	# Yes <u>10</u> # No ment members voting "no" may submit a separate repo	# Not Voting
Department Chair:	Signature	Date
Academic Dean:	Signature	Date

Note: All sections of this form must be completed and submitted with all required attachments to the Chair of the Curriculum Committee according to published distribution schedule. Should you have any questions, call the Office of the Dean of Business, Science and Technology, 825-2147.

CURRICULUM REVIEW COMMITTEE MEETING FOLLOW UP				
Meeting Date: Curriculum Committee Chair:	Committee Vote: S	# Yes 10 # No	# Abstentions	
Forward to VPAA	and President	Return to Depar	tment	
V.P. for Academic Affairs:	Si	gnature	Date	
READY FOR IMPLEMENTATION				
President:	Si	gnature	Date	

File: Office of Vice President for Academic Affairs

Community College of Rhode Island

Course	Proposal:
--------	-----------

x New Course Revised Course

Please attach a course syllabus with course topics, textbook titles and evaluation methods.			
Date Submitted:	<u>11 / 2 / 12</u>		
DEPARTMENT:	Engineering and Technology		
DEVELOPED BY:	Philip Miller		
COURSE TITLE:	Manufacturing Quality Control		
COURSE NUMBER:	ETCN-2360		
	CUNTACT HOURS PER WEEK		
	Other: Other: Lecture hours: 2 Lab hours: 2 (Clinical hrs., Practicum, etc.)		
CREDITS: 3	ACTUAL COURSE MEETING TIME HOURS / MINUTES PER WEEK		
	Lecture Lab Other:		
	hours / minutes: hours / minutes: (Clinical hrs., Practicum, etc.)		
Plea If this course	se circle: this is a 1 st year course this is a 2 nd year course will be required in a specific academic program(s), indicate below:		
Manalactaring			
If this course v	will replace another course in a specific academic program, indicate below:		
If this course	ran on an experimental basis, indicate the course number: <u>NO</u>		
Rationale: A course in quality contr	ol is needed to assure that your process is meeting design specifications		

NEW	
	This course will give an elementary approach to the statistical techniques used in the quality control of manufactured parts. Topics covered include introduction to quality concepts and statistical process control (SPC); introduction to variation and statistics; organization of data; introduction to variables control charts; introduction to metrology; introduction to probability and the normal distribution; introduction to attribute (go/no go) charts; control chart interpretation , and gage capability. This course will also include a lab component which will use software along with actual machined parts to develop the proper control charts, and perform other quality control functions
PREREQUISI	TE:
	List course number, title and reading level
CO-REQUISIT	E:
TRANSFERABI	ILITY: Is this course intended for transfer to the following institutions:
RI	C URI Other, please specify May flow into CCRI's ETST Degree.
How does the this proposed	e course align with existing transfer agreements? Please list the specific course(s) at sister institution d course will match.
N/A	

Student Learning Outcomes/Educated Person:

The learning outcomes of specific courses foster multiple perspectives which contribute to the acquisition of desired graduate outcomes as well as to inform and deliver discipline related content.

✓ On the next page entitled "Student Learning Outcomes"

- Please delineate the major learning outcomes for the proposed course. Each learning outcome should be written in a format that follows the statement "as a result of this course, a student will be able to:"
- Indicate what techniques/methods will be used to achieve these student learning outcomes?
- List how will the student learning outcomes be assessed?

Community College of Rhode Island

Learning

Student Outcomes

Course Title: Manufacturing Quality Control

The learning outcomes of specific courses are to foster multiple perspectives that contribute to the acquisition of desired graduate outcomes as well as to inform and deliver discipline related content.

Please delineate below the major learning outcomes for the proposed course. Learning Outcomes should be written in a format that follows the statement: "as a result of this course, a student will be able to..."

			TYPE(S) OF ASSESSMENT
ltem		TECHNIQUES/METHODS USED TO	USED TO DETERMINE THE
#	STUDENT LEARNING OUTCOMES	ACHIEVE OUTCOMES	DEGREE TO WHICH THE
			OUTCOMES ARE ACHIEVED
	As a result of this course the student will acquire a working	Class lectures, team work, class demonstrations,	
	understanding of quality and statistical process control (SPC)	lab exercises, textbook, PowerPoint and web	
1	application problem	support material	rubrics class exams and quizzes
	As a result of this class the student will acquire a basic	Class lectures, team work, class demonstrations,	
	understanding of the various tools of SPC and their	lab exercises, textbook, PowerPoint and web	Lab exercises rubrics class exams
2	applications	support material	and quizzes
	As a result of this class the student will be able to identify the	Class lectures team work class demonstrations,	
	value of tolerances and dimensions used in industrial	lab exercises textbook, PowerPoint and web	Lab exercises rubrics class exams
3	blueprint for precision machining	support material	and quizzes
	As a result of this class the student will acquire a basic		
	understanding of the concepts of statistics and their	Class lectures, class demonstrations, lab	Lab exercises rubrics class exams
4	application to quality control	exercises textbook,	and quizzes
	As a result of this course the student will acquire a basic		
	understanding of the concepts of probability and their	Class lectures, class demonstrations, lab	Lab exercises rubrics class exams
5	application to quality control	exercises textbook,	and quizzes
	As a result of this class the student will acquire an		
	understanding of problem solving techniques and their	Class lectures, class demonstrations, lab	Lab exercises rubrics class exams
6	application to quality control	exercises textbook,	and quizzes
	As a result of this class the student will be able to perform		
	process capability studies, and gage reproducibility and	Class lectures, class demonstrations, lab	
7	repeatability studies(Gage R and R)	exercises textbook,	Lab exercises rubrics

I

CCRI Definition of an Educated Person: Four Abilities

The Community College of Rhode Island recognizes four critical areas that define the learning outcomes of a CCRI graduate. These four abilities can be applied in many contexts and are critical skills that must be developed not only at CCRI, but over the course of a lifetime. These core abilities guide students, faculty and staff in establishing educational goals and assessing learning within and across the primary domains of knowledge: arts and humanities, science and mathematics, and the social sciences.

Since individual courses provide the opportunity to gain knowledge in these four critical areas, it is essential to understand which areas are to be covered in each course. In each of the four areas below, please indicate in the <u>Item(s) #</u> box next to each critical element, the <u>Item #(s)</u> from the previous page (Student Learning Outcomes) which supports the Educated Person Ability that is covered.

		ltem(s)
1.	Effective Communication	
	a. Use standard English grammar and mechanics	
	b. Create work that addresses a given purpose and	
	context and responds to the target audience	
	c. Present a central idea, supported by concrete,	X
	relevant details	r
	d. Establish a clear and consistent sequence of ideas	
2.	Critical Thinking	
	a. Identify and analyze complex ideas	x
	b. Determine a research focus and the nature and scope	
	of information needed	
	c. Locate, evaluate, and use information effectively	x
	d. Draw logical conclusions from information	x
	e. Express well-reasoned or innovative perspectives	
3.	Quantitative, Mathematical and Scientific Reasoning	
	a. Demonstrate an understanding of mathematical,	
	quantitative or scientific principles.	
	b. Apply a scientific approach in asking questions	x
	Apply mathematical, quantitative, or scientific	X
	principles in solving problems	
	d. Interpret numeric information in graphical forms	x
4.	Social Interaction	
	a. Evaluate ethical dimensions of decisions	
	b. Use teamwork to accomplish tasks in groups	
	c. Demonstrate an understanding of global, cultural and	
	historical perspectives.	L

Note: With respect to the four abilities listed above, the level of attainment achieved should reflect the needs of the specific program. It is not necessary that individual courses address each outcome, yet, in total, all courses required by a program of study must together meet these goals.

ADMINISTRATIVE PLANNING

Indicate the campus(es) where the course will be offered: Knight X Flanagan Liston Newport
Indicate: Days x Evenings x TV Internet Satellites Specify:
Indicate semester(s) the course will be offered: Fall Spring Summer
Indicate the course scheduling format: 15 weeks 5 week module Other
Requested start date:08 / _30 / _2016_
FINANCIAL:
Will this course necessitate purchasing new capital equipment? Yes No x
If yes, type and source of funding for purchase:
Specify amount and type of additional operating funds required to support this course, including any software:
opeony amount and type of additional operating funds required to support this obdrise, mondaring any software.
Will students be required to use a lab as part of the course? Yes x No
If yes, specify lab characteristics and lab preference (e.g., public computer lab, electronic classrooms, specific science lab, etc.):
CAD labs on the ground floor on the Warwick campus rooms 076 and 074,0100
Will course require a lab fee? Yes No
Explain the reasons for requesting a lab fee. List specific items requiring replacement each semester/year.

ADMINISTRATIVE PLANNING continued:

Do current full-time or adjunct faculty possess requisite education/experience? Specify additional/unique training that may be required.

Yes	
Will additional staff hiring he required to implement this secure proposal?	
will annitional staff nition of fontition to immonitions this course brooksal?	
will additional start niring be required to implement this course proposal?	
will additional start hiring be required to implement this course proposal?	
will additional start hiring be required to implement this course proposal?	
If ves, specify requirements/skills:	
If yes, specify requirements/skills:	

What additional books, periodicals, data bases or other resources are needed in the Library to support the course?

If another department(s) will be impacted by this course offering, indicate the department(s) involved, the potential impact, and the principals involved in these discussions.

N/A

Instructor: Philip N. Miller, PhD ---Professor of engineering and technology

Office: Room 2186

Phone: 825-2064

E-Mail: pmiller@ccri.edu

Office hours:

Course learning objectives:

- The student will acquire a working understanding of quality and statistical process control (SPC).
- The student will acquire a basic understanding of the tools of SPC and their applications.
- The student will acquire a basic understanding of the concepts of statistics and their application to quality engineering.
- The student will acquire a basic understanding of the concepts of probability and their application to quality engineering.

b)

- The student will develop an understanding of problem solving concepts and their application to quality engineering.
- The student will acquire a basic understanding of software used in quality systems

Text: Quality Improvement Ninth Edition

Dale H. Besterfield

Pearson, Prentice Hall

Reference texts:

- Quality ---Summers
- Statistical Process Control and Quality Improvement --- Smith
- Statistical quality control ---Grant and Leavenworth
- Probability and statistics for engineers and scientists ---Walpole and Myers
- Excel
- SQC pack
- Gage pack

Week Chapter/Topic

- a) 1/ Introduction to quality
- 2/ Lean Enterprise

1

2	a) 2 b) 3/Six Sigma		
3	a) 3		
4	a) 4/ Statistical Pro	cess Control (SPC)	
5	a) 4		
Course Prop	osal Form REV. 6-11	Page 10 of 11	

6	a) 5/ Fundamentals of Statistics	
7	b) 6/Control Charts for Variables	
8	a) 6/	
9	a) 7/ Additional control charts for Variables	
10	8/Fundamentals of Probability	
11	a) 8/	
12	a) 9/ Control Charts for Attributes	
13	a) 9/	
14	a) 12/ Management and Planning tools	
15 Cou	FINAL EXAMINATION e evaluation: Homework Labs Three semester examinations Final examination	

All home works are to be submitted on time and neat, or they will be penalized.