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Minnesota State University, Mankato HOLD and CLEAR buttons only compatible with Acrobat V. 4 and 5 Curriculum Proposal

Please type or select the requested information. Print completed forms, add appropriate paper attachments, and route through MSU's curricular process for recommendations and decisions.

(Check all that apply):

College: Science, Engineering and Technology Undergraduate

Department: Automotive and Manufacturing Engineering Graduate

Program: MET CIP # _____

Type of Change: COURSE PROPOSALS

Proposed: Change in Course—Other

Title Current: Quality Management Systems

Title Proposed: Quality Management Systems

24-Char. Abbrev: _____

Proposal #	<u>192</u>
Effective Date of Change:	
Academic Year	
(For Office Use Only)	

Course Designator and Number	Number of Credits
MET 427	3

(if applicable)



Include a course or program description for the Bulletin (30-40 words maximum for courses, 100 for programs):

This course is focused on quality assurance systems, management philosophies, methodology, function, and application of quality systems in production operations. Development and application of key statistical process control tools. *Pre: Basic manufacturing and design knowledge for industry sector discipline and elementary statistics.*

AP 2-28-06

Rationale or Justification for change:

The old pre-requisite restricts other majors or industry learners from taking this course even though they have the background program or industry knowledge to take this course.

For General Education or Cultural Diversity Courses Only

GE Category #	GE Category Name (Maximum of 3 Categories)
N/A	
N/A	
N/A	

General Education Course: _____

Cultural Diversity Course: _____

(Please check one.)

Core (At least 75% devoted to topics of race, gender, sexual orientation, age, class, and disabilities as they occur in United States Society.)

Related (At least 25% devoted to the above topics or to a global perspective on topics related to African American, Asian, Hispanic, and Native American inhabitants of the United States.)

? For Writing Intensive Courses, attach a description of the kind and quantity of writing.

? For Upper Division Courses, include a description of the respects in which it is broad and general rather than narrow and specific, and so suitable as GE.

Attach paper copies of the following:

- Syllabus or course outline.
- Course's student learning outcomes associated with each GE competency or CD designation.
- List of strategies to be used to assess students' achievement of each GE competency or CD designation.

For New Courses

(Check all that apply):

Instructional Type: Lecture

Grading Format: Grade P/N

Course will be offered:

Fall Semester

Spring Semester

Summer Session

Course is an elective.

Course is required for program

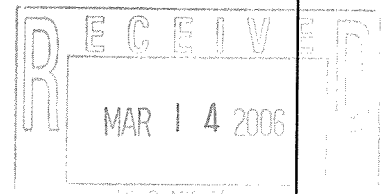
Pre- or Co-requisites: _____

Other courses are being changed or eliminated. (Explain.) _____

Course content or title is similar to courses in other departments. (Attach copy of letter of agreement with other program(s) contacted. Indicate the nature of the discussions and/or resolution of differences or potential conflicts.)

Attach paper copies of the following:

- Syllabus or course outline.
- Course's student learning outcomes.
- A list of resources required to offer and support this course.
- A description of how teaching this course will affect department staffing.
- If 400/500 level course, an explanation of added expectations of graduate students.





Minnesota State University, Mankato
Curriculum Proposal

*****For Program Proposals*****

Attach paper copies of the following:

- a. Student learning outcomes for the program.
- b. Minutes from department and college curriculum meetings in which action was taken on this proposal.
- c. Program Assessment Plan. Forms are available on the Academic Affairs Web site:
http://www.mnsu.edu/acadaf/words/PRA_SampSLOAssessPlan.doc
- d. List of program requirements for **New** programs, or a list of **Current** and **Proposed** program requirements for **Redesigned** programs.
- e. A list of resources required to offer and support this program.
- f. A description of how offering this program will affect department staffing.
- g. A list of additional library holdings required for this program.

Please include rationale for any proposed changes in number of program credits:

*****For Programs Requiring MnSCU Approval*****

If any of the following changes are proposed, please fill out and attach MnSCU Program Approval Forms, which are available on the Academic Affairs Web site:

<http://www.mnsu.edu/acadaf/html/currformsprocesses.htm>

1. **Creation** of an entirely new program.
2. **Redesign** of existing programs, which takes any of the following forms:
 - ? Addition or deletion of a program option. Options are part of program design in which 30-50% of the courses are required as part of a common core for all students, and which offers curriculum alternatives greater than 30% of the total number of credits in the major. Options are appropriate to baccalaureate or masters programs.
 - ? Addition or deletion of a program emphasis. Emphases are part of program design in which more than 50% of the courses are required as part of a common core for all students, and which offers curriculum alternatives with a minimum of nine credits. Emphases are appropriate to associate and baccalaureate programs.
 - ? Change in program name.
 - ? Change in program CIP #.
 - ? Change in TOTAL program credits.
 - ? Change in degree award. For example, changing a B.A. to B.S.
 - ? Creation of a new degree award in a related academic area. Examples include creation of a certificate program from an existing degree program, or a new degree program from an existing degree program (e.g., Art History BA from Art BA.)
3. **Relocation** of an existing program. This is a proposal to move an existing program from one site to be exclusively offered at another site, and requires closing the program offered at the original site. For example, a program offered both on-campus and through extended campus is to be offered only at the extended campus site.
4. **Replication** of an existing program. This is a proposal to offer an existing program at a new site, which may be an existing MnSCU-approved site, or another campus of the same institution. Replicated programs are offered at both the original site and the new location.
5. **Suspension or reinstatement** of a program. This proposal suspends admission of students into an existing program, and is good for three years. Reinstatement proposals request the reopening of student admissions into a given program.
6. **Closure** of a program. This proposal requests closure of an existing program and its removal from an institution's official inventory of academic programs. Unless a department seeks to re-open a suspended program, it should be closed within three years of suspension.



Minnesota State University, Mankato
Curriculum Proposal

Signature Page

Department

Recommended (Category/ies _____)
 Not Recommended (Category/ies _____)

Ann Jacobel 10-18-05
 Department Chair Date

Comments:

College Curriculum Committee

Recommended (Category/ies _____)
 Not Recommended (Category/ies _____)

Alvin Maloney 3-1-06
 Committee Chair Date

Comments:

College Dean

Recommended (Category/ies _____)
 Not Recommended (Category/ies _____)

[Signature] 3/13/06
 Dean Date

Comments:

General Education Subcommittee

Recommended (Category/ies _____)
 Not Recommended (Category/ies _____)

General Education Subcommittee Chair Date

Comments:

Undergraduate Curriculum and Academic Policy Committee

Recommended (Category/ies _____)
 Not Recommended (Category/ies _____)

Ma Kromij 4/21/06
 UCAR Faculty Chair Date

Comments:

Faculty Association Graduate Committee

Recommended
 Not Recommended

Faculty Association Graduate Chair Date

Comments:

Graduate Dean

Recommended
 Not Recommended

Graduate Dean Date

Comments:

Academic Affairs Council

Recommended (Category/ies _____)
 Not Recommended (Category/ies _____)

[Signature] 4/20/06
 Assistant Vice President Date

Comments:

Senior Vice President and Vice President for Academic Affairs

Approved (Category/ies _____)
 Not Approved (Category/ies _____)

[Signature] 4/26/06
 Sr. Vice President / Vice Pres. Academic Affairs Date

Comments:

**MINNESOTA STATE UNIVERSITY, MANKATO
MANUFACTURING ENGINEERING TECHNOLOGY
QUALITY MANAGEMENT SYSTEMS, 3 CREDITS
MET 427**

2004-05 BULLETIN DATA: This course is focused on quality assurance systems, management philosophies, methodology, function, and application of quality systems in production operations. Development and application of key statistical process control tools.

REQUIRED TEXTBOOK: *Quality Management; Creating and Sustaining Organizational Effectiveness*, Fourth Edition, Summers, Pearson Prentice Hall, 2006.

REFERENCES: *Quality Function Deployment*, Lou Cohen, Prentice Hall PTR, May 1995
ISO 9001:2000 Quality management systems – Requirements, ANSI/ISO/ASQ

Q9001-2000

Goldratt's Theory of Constraints: A Systems Approach to Continuous Improvement, Dettmer, ASQ Quality Press, March 1997
General Electric's Six Sigma Revolution: How General Electric and Others Turned Process Into Profits, Eckes Wiley, November 2000
Gemba Kaizen: A Commonsense, Low-Cost Approach to Management, Imai, McGraw-Hill, March 1997
Lean Six Sigma : Combining Six Sigma Quality with Lean Production Speed, George, McGraw-Hill, April 2002
Quality Is Free, Crosby, McGraw Hill, 1979
Lean Six Sigma Pocket Tool Book, George, McGraw Hill, 2005
The New Economics, Deming, MIT CAES, 1993

BODY OF KNOWLEDGE (BOK)

SOURCE (text not required): "Fundamentals of Manufacturing (CMfgE) Criteria", Society of Manufacturing Engineers (SME), Second Edition and 2005 Supplement

INSTRUCTOR: Ann Goebel, Chair and Assistant Professor
Department of Automotive & Manufacturing Engineering Technology
Office Hours: TBD
Office Location: Trafton **E-205**
Office Phone: (507) 389-2154 **E-mail:** ann.goebel@mnsu.edu

PREREQUISITES BY TOPIC:

1. Understanding of basic design and manufacturing processes for respective industry discipline of the student
2. Elementary statistics

COMPUTER USAGE:

Internet, Desire to Learn (D2L), Word, Powerpoint, Excel, or related software for a variety of quality assurance and control tools development.

PROJECTS/ASSIGNMENTS:

1. Homework assignments and in class exercises/cases studies.
2. Graduate Students – Project and teaching element required (200 point value)

For all students, homework must be turned in on the due date. Late homework will be reduced in point value based on date received. All coursework assigned must be completed to receive a grade for the course.

MET 427 UNDERGRADUATE EVALUATION:		POINTS:	% TOTAL GRADE
1.	Exams (75 pts, 75 pts, 150 pts)	300 points	43%
2.	10 Quizzes (Each 10 pts)	100 points	14%
3.	15 Assignments/Activities (each 20 pts)	300 points	43%
Undergraduate		700 points	100%

CLASS MEETINGS: TBD

FINAL EXAM DATE: TBD

STUDENT LEARNING OUTCOMES: (Linked to ABET TAC criteria a – i)

Students will:

- 1) Develop perspectives in historical phases of quality control, quality assurance development, and significant global quality management systems.
- 2) Master an applied knowledge of key global quality requirements and organizational integration based on industry scope.
- 3) Applied product and process evaluation, selection, and analysis for continuous improvement.
- 4) Learn how to create, execute, and assess:
 - a. A Quality Plan for product design and process
 - b. The 7 Basic Tools of Quality (Scatter Diagram, Cause and Effect Diagram, Flowchart, Check Sheet, Pareto Chart, Histogram, Control Chart)
 - c. Quality Control Charts for Variables
 - d. Quality Control Charts for Attributes
 - e. Reliability (Series and Parallel) for Product Life Cycle Curves through failure rate, mean life, and availability
 - f. Failure Mode Effects Analysis in Design and Process
 - g. Root Cause Analysis and Corrective Action
 - h. Design of Experiments
 - i. Cost of Quality study
 - j. Six Sigma applied project
 - k. Quality System Audits

COURSE TOPICS PRESENTATION STRUCTURE: 48 hours

1. History and Quality Foundations (4 hrs)
2. Globally Significant Quality Systems (4 hrs)
3. ISO 9001 Integration for Continuous Improvement (2 hrs)
4. Qualitative Root Cause Analysis (4 hrs)
5. SPC Diagnostics and Analysis (2 hrs)
6. Process and Design Variation (2 hrs)
7. Design and Process Capability (2 hrs)
8. Control Charts (4 hrs)
9. Quality Function Deployment and Reliability (4 hrs)
10. Design of Experiments (4 hrs)
11. Failure Modes and Effects Analysis (2 hrs)
12. Cost of Quality (2 hrs)
13. Six Sigma (4 hrs)
14. Benchmarking (2 hrs)
15. Tests (4 hours)

GRADING SCALE:

Points earned will be graded at a target scale: A > 92%; B at 82% to 91%; C at 72% to 81%; D at 62% to 71%; F < 62%
Incompletes (I) or In Progress (IP) grades will be given only within the Academic Policies and Procedures.

Letter Grade Equivalent	Rubric (Evaluation Criteria) Rational
For Assignments, Activities, and Projects with variable points possible	
A	Work is of exceptional quality, organization, and content presentation. Shows a desire to pursue the intended learning at a deep level. Work shows evidence of personal reflection and synthesis of discipline studied. Uses an array of quality resources to add to the scope and depth of assignment.
B	Work is completed with attention to detail, is sequential, and is logical. Shows evidence of thoughtful analysis of the assignment. Work shows that adequate time and planning were allocated. Seeks new resources and additional information to complete work.
C	Assignments completed correctly and with accuracy. Work shows basic grasp of the assignment's intent. Meets assignment deadlines adequately. Makes use of basic course resources provided to complete work.
D	Work completed with little attention to accuracy or content quality. May be sloppy and/or contain errors. Emphasis is on getting work done rather than learning. Assignments are sometimes late or missing. Uses current knowledge rather than additional resources to complete work. Procrastinates.

		F	Work is incomplete, not completed accurately or at all. Illegible or difficult to read or comprehend. Uses direct language or copies from text or other resources inappropriately or without citing references when allowed.
			For Quizzes and Exams
		A	Responses are right or wrong through True/False, Multiple Choice, or summary judgment answers.
		B	
		C	
		D	
		F	

Attendance in class is critical to your success in this course. You are responsible to make-up any work or notes missed. All homework, assignments, exercises, case studies, tests and quizzes *must be completed* in order to receive a grade. Late work will be penalized. Only in extreme documented emergencies will make-up dates be given for tests.

ADA: Every attempt will be made to accommodate students with disabilities. If you are a student with a documented disability, please see the instructor as early in the semester as possible to discuss necessary accommodations. You are also encouraged to contact the Disability Services Office at (507) 389-2825 (MRS 1-8000-657-3789 TTY).

PREPARED BY: Ann Goebel DATE: 10/12/05

AMET Department
Minutes of September 30, 2005

The meeting started at 10:05 a.m. with all department members present following the agenda distributed earlier by A. Goebel.

1. Spring Schedule: The Spring Schedule was distributed to the faculty. Each of the faculty assignments were discussed and changes noted. P. Haney will teach AET 364, Chassis Design and Emission/Performance Testing, Spring 2006. K. Ready has shown interest in teaching AET 366, Automotive Thermodynamics and Engine Design, if it will be offered on a Tuesday evening. J. Willaert will redo the schedule with changes and send to the faculty.
2. Summer Schedule: A. Goebel asked faculty members if they wished to teach a summer course. H. Petersen, A. Markowski and A. Goebel will be teaching summer courses.
3. Deadlines and Reminders: A. Goebel distributed a sheet with deadlines and reminders.
4. Faculty Search Update and Planning: B. Jones has met with the Dean and will be drafting a Notice of Vacancy. There is a contact at SCC that may be interested in teaching some of the courses next year.
5. Industrial Advisory Board Meeting: A. Goebel reminded faculty that the Industrial Advisory Board meeting will be held Thursday, October 13. A. Goebel will be gone that day for a meeting, but will be present with web-cam. All faculty are encouraged to attend if their schedule allows.
6. Curriculum Proposal Changes: H. Petersen and A. Markowski drafted syllabi to change the content of MET 141 and MET 245. Discussion followed (PS/GM – M/S/P). There will be an additional curriculum proposal change for MET 427; where as, the prerequisite of MET 427 will be changed to read “prerequisite course STAT 154, MET 277 or EET 241” (HP/PS – M/S/P).

Amended #6: MET 427/MET 527 prerequisites will be basic manufacturing and design knowledge for industry sector discipline and elementary statistics.

The meeting adjourned at 10:57 a.m.

Respectfully submitted,

Jean Anne Willaert
Administrative Secretary