Program Modification Proposal

Manufacturing Technology, Applied Quality Science Option, To Become Quality Systems Specialization

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Technology Systems Department
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Program Modification/Proposal
Manufacturing Technology Applied Quality Science Option To Become Quality Systems Specialization

A. THE MODIFICATION

1. Describe briefly what the change will be

The proposed change provides modifications to the existing Applied Quality Sciences (AQS) option, within the Manufacturing Technology Major and Program. This includes:

- Shifts from a four year program to a +2 curriculum for associate degree holders:
- Changing the AQS name to be Quality Systems Specialization (QSS);
- Re-prefixing MFG 326, 327, 426 and 427 to be QSS 326, 327, 426 and 427;
- Changing catalogue descriptions for MFG 326, 327, 426 and 427;
- Re-naming the MFG 326, 327, 426 and 427 courses;
- Changing prerequisites for QSS 326, 327, 426 and 427;
- Creating two emphases within the specialization: Quality Engineering and Quality Services;
- Creating a QSS minor around the core courses;
- Preparing the core courses for possible general education proposal (separately); and,
- Identifying core QSS courses (326, 327, 426 and 426) to reflect electronic delivery.

Although not a formal part of the proposal, the changes are intended to facilitate elements of a model quality system applicable to various levels in the academy. The quality system is seamlessly configured as part of the proposal via the new portfolio planning and assessment checklist for electronic advising and other related components. These help facilitate and expedite outcomes assessment and advisement, using portfolio systems for all students, particularly non-traditional students off campus via a shift to web-based delivery, implicit in the proposal.

The proposal provides a next logical step in the evolution of the QSS at BGSU. Originally designed to be a 2+2 curriculum in the early 1990s, it was approved as a four year offering. The current proposal finalizes what was originally designed into the curriculum, better fitting the needs of non-traditional students holding Associate Degrees, becoming a straight +2 curriculum for transfer.

Simultaneously, this proposal takes a future-look at university infrastructure via preparation for a laptop technology, web-based delivery, facilitating maximum portability and efficiency in the teaching and learning process. The laptop configuration, while not a formal part of the curriculum proposal, is being positioned with QSS. The four QSS core courses being web-based will provide the impetus for what may become the first web-based degree at BGSU.

2. Catalog description (existing option description and newly proposed description provided)

Existing description for the existing AQS Option

This Applied Quality Science option draws heavily upon a wide variety of disciplines to help prepare students to solve industrial problems related to quality of materials, process and human issues, among others. The program offers excellent opportunities for applications of theory obtained from study of management, statistics, operations research, physics and other areas.

Proposed description for the new QSS

Created at BGSU in response to demands from quality professionals in the region, the QSS reflects the American Society for Quality continuous improvement mission based on disciplined analysis of systems in technical environments. The QSS has two emphases, Quality Engineering and Quality Services, each oriented similarly toward different but related quality functions.

The Quality Engineering emphasis focuses professional preparation with quality systems in "high-end" industrial and technological organizations. Technological process analysis for reduction in variation of product, providing high quality, consistently and without defects, is the goal. The less technical Quality Services emphasis focuses preparation toward management and facilitation of ISO and QS 9000 standards registration and maintenance as a service in organizations through training and management functions. The QSS is designed to facilitate new product development and associated robust challenges that accompany new product launch changes in an organizational context.

The QSS serves traditional and non-traditional students, and particularly those who are full time working professionals by facilitating +2 students with a two year associate degree. The QSS has evolved toward having its core courses designed for electronic delivery via web-based technologies for student convenience. All work done in the core QSS courses is team-based in a project context, similar to how quality improvement is pursued in actual professional organizational functions.

3. Courses proposed to be changed as a result of the modification

Four courses constitute the core of quality, and are being changed in various ways, both contextually as an aggregate, and specifically as individual courses. Aggregate changes in courses are:

- Changing the AQS option to be a specialization oriented entirely to the final two BS years;
- Changing the AQS name to be Quality Systems Specialization (QSS);
- Creating two emphases within the specialization: Quality Engineering and Quality Services;
- Creating a QSS minor based primarily on core courses;
- Preparing the core courses for possible general education proposal (separately); and,
- Identifying the core QSS courses as being configured for electronic delivery.

Specific course changes in the new QSS courses include:

- Re-prefixing MFG 326, 327, 426 and 427 to be QSS 326, 327, 426 and 427;
- Changing course catalogue descriptions for QSS 326, 327, 426 and 427;
- Changing prerequisites for QSS 326, 327, 426 and 427; and,
- Re-naming the QSS 326, 327, 426 and 427 courses.

4. Courses to be dropped as a result of the modification

N/A.

5. Courses to be added as a result of the modification

N/A.

6. Sequence and articulation of courses

The newly revised QSS checklist appears later in the proposal.

B. RATIONALE

1. Reason/need for the modification

Several factors collectively focus on the need to have a curriculum attractive to students within and external to our campus, providing a specific rationale for current proposed changes:

- Finalizing +2, addressing the non-traditional student market;
- Portfolio assessment of learner outcomes, other programmatic quality indicators;
- Identity of quality curriculum, graduate and undergraduate relationships;
- Generic interdisciplinarity, service orientation, and;
- Electronic delivery, project and laboratory relationships, non-geographically bound.

Finalizing +2, addressing the non-traditional student market. The AQS curriculum, now identified as the QSS, was originally designed to be a 2+2 program with the last two years being the predominant BGSU area of study. This was not approved in the initial acceptance of AQS in the early 90's and is being done with the current proposal. Moreover, all aspects of the electronic delivery systems for the QSS are designed to provide maximum flexibility for non-traditional working adult students in the field at various locations. The new QSS is designed specifically to be attractive to Associate Degree holders.

Portfolio assessment of learner outcomes, other programmatic quality indicators. The proposal reflects a strong emphasis on assessing learner outcome progress as part of a broader initiative to assure that the QSS program is in fact meeting student needs and doing what was intended. As is reflected on the +2 QSS Portfolio Planning and Assessment Checklist (page 9), and in other ways throughout the proposal, the QSS offers electronic advising, various quality checkpoints along the way to assure student success, electronic portfolio assessments in all core courses, independent student certification, and robust engagement of student professional organization in various ways.

Identity of quality curriculum, graduate and undergraduate relationships. Advent of the Indiana State University Ph.D. in Technology Management, Quality Systems Specialization (QSS), has caused three 700 level doctoral courses to emerge and be committed from BGSU, and for BGSU to become the lead university within the consortium of five universities in the US. The various levels and titles of quality programming need to be consistently identified to bring undergraduate courses, and courses in the Masters level, under one programmatic title consistent with the doctoral QSS. This strengthens identity associated with marketing, attracting external funding, leading in the quality field regionally and nationally, and in other ways, addressing separate but related graduate and undergraduate functions with articulated graduate and undergraduate proposals.

Generic interdisciplinarity, service orientation. While the genesis for creating quality curriculum at BGSU was born in the manufacturing arena originally, the quality field is moving increasingly into other areas. The service sector provides many opportunities to attract new students and strengthen relationships with existing programs such as Applied Statistics and Operations Research. Proposed changes strengthen interdisciplinary appeal to various

constituencies as new markets while continuing to serve manufacturing related students. This acknowledges that the quality system is a service function, in some ways different from the act of manufacturing.

Electronic delivery, project and laboratory relationships, non-geographically bound. The quality systems curriculum has emerged as a front runner in electronic delivery methods, lending itself nicely to web-based project-oriented approaches. The focus of quality core courses has become a project improvement orientation, based on problem solving using quality tools. The web-based electronic delivery, combined with a project orientation has moved the focus of the laboratory away from traditional site-based labs on campus, and into a "industry and organization" as the lab. Service projects have been performed in several organizations, including the university itself, and industrial projects are routinely completed at various sites. Significantly, creation of the QSS provides opportunities to attract and service students at sites other than on campus at BGSU in traditional ways.

2. Student implications

2.1 Prospective student demand

Demand will grow based on changes proposed. It is anticipated that 6-8 new students per year, minimum, will be attracted to the changed QSS. This is expected to result in about 100 students in the year 2010, mostly web-based and non-traditional. If aggressively marketed, particularly based on increased visibility of specialization status, inclusion of a Quality Services emphasis to match growth in service industries, all coupled with electronic delivery, growth potential is virtually unlimited.

2.2 Effect on required hours

The proposed changes provide a total of 62 hours in the +2 portion of a BS degree.

2.3 Number of students affected and in what way

The proposed changes can affect all AQS students in a positive manner, facilitating changes described as part of their curriculum.

2.4 Special fees

Fees will remain similar to fees in existing AQS programs/courses.

2.5 Effect on elective hours of majors

The proposed changes provide additional electives and flexibility in course requirements, primarily in the new Quality Services emphasis and electronic delivery.

C. RELATIONSHIP TO EXISTING PROGRAMS

1. Integration and relationship of modification with/to other offerings, including effect on demand for courses in other programs.

1.1 In the Department

Demand for the newly configured curriculum will cause modest increases in course demands over time since this represents new student markets being brought to BGSU.

1.2 In the College

Demand for the newly configured curriculum will cause modest increases in course demands over time since this represents new student markets being brought to BGSU.

1.3 In other University Departments and Colleges

Demand for the newly configured curriculum will cause modest increases in course demands over time since this represents new student markets being brought to BGSU.

2. Individuals contacted

Various individuals have been contacted, primarily at the programmatic, departmental and collegial level, to provide input on the proposed changes.

3. General education core requirements

N/A.

D. STAFFING IMPLICATIONS/QUALIFICATIONS

1. Are faculty and staff with expertise available now?

Faculty and staff with expertise are currently available. Dr. Sinn has been the lead faculty in the QSS development at all levels. Proposed shifts have been under way for several years with existing faculty, documenting what is actually occurring and preparing for new student markets.

2. Effect on faculty work load and staff allocation

As growth occurs it is anticipated that additional faculty resources will be required. Load will be addressed, as always, based on the following projected rollout for delivery, based on a two year repeating cycle. The table provides all courses for all terms, including spring, summer and fall for four years. Considerations to bear in mind while viewing the rollout are:

Course	F 01	Sp 02	Su 02	F 02	Sp 03	Su 03	F 03	Sp 04	Su 04	F 04	Sp 05	Su 05	F 05
TECH 302	X		X										
QSS 326		X			X			X			X		
QSS 327	X			X			X			X			X
QSS 426			X			X			X			X	
QSS 427/QS 527			X			X			X			X	
QSS 616	X			X	X	X	X	X	X	X	X	X	X
QSS 626		X			X			X			X		
QSS 627				X			X			X			X
QSS 702			X						X				
QSS 726		X						X					
QSS 727				X						X			

- TECH 302 currently provides one course, shifting to other faculty as QS 702 begins.
- QSS 627/727, 626/726, and 602/702 are offered simultaneously, during start of ISU QSS.
- Load is based around one faculty, anticipated to expand over the next several years.

E. AVAILABILITY OF SUPPORT SERVICES

1. Space

N/A.

2. Library

Library facilities remain adequate for the emerging QSS.

F. BUDGET IMPLICATIONS

1. Cost of new equipment and supplies

N/A.

2. Student fee for field experiences

N/A.

3. Additional costs

No additional costs are anticipated at this time. Cost savings may result since fewer services are necessary through on-campus offices for traditional on-campus students. As the QSS grows, it is anticipated that additional electronic infrastructure and support may be required but these are not required at the current time. It is also anticipated that a separate proposal will be made at a different time to configure all QSS students with laptop technology, regardless of location.

+2 Quality Systems Specialization (Quality Engineering And Quality Services Emphases)
Portfolio Planning And Assessment Checklist For Electronic Advising

Quality Systems Focus (12 hours)

Advising Note 1 for all QSS students: These four courses are done as portfolios in teams, integrating all project work in the QS curriculum.
Advising Note 2 for all QSS students: Maximum of one of these can be earned via transfer, credit by exam, or portfolio exam.
Advising Note 3 for all QSS students: Portfolios will be electronically posted in webct for review by all, including faculty and other students in the QSS area of study at 90 hours and graduation.

Required	Other?	Date?
QS 326		
QS 327		
QS 426		
QS 427		

Technology Focus (18 hours)

Advising Note 4 for Quality Engineering students: MFG 112, 220, 235, ECT 196, DESN 131, 204 are taken as part of the Associate Degree. All pre-requisites required for 300-400 technical courses must be addressed in Associate Degree or after.
Advising Note 5 for Quality Services students: An appropriate Associate Degree evidencing a technical expertise must be held at time of entry into the program.

QEng Req?	Date?	QSer Req?	Date?	Other?
MFG elective		TECH elective		
MFG 430		TECH elective		
MFG 428		TECH elective		
MFG 438		TECH elective		
ECT 441		TECH elective		
DESN 404		TE 452		

Coop Ed. (8 hours)

Advising Note 6 for all QSS students: Two coop's are required assuming the Associate Degree was completed at time of entry in to the program. Coop's should be designed and completed in consultation with the QSS faculty and Cooperative Education office in the College of Technology.

Required	Other?	Date?
TECH 389		
TECH489		

Gen. Ed. Courses (6 hours)

Advising Note 7 for all QSS students: One upper level course is taken.

Required	Other?	Date?
TECH 302		
Gen Ed Elec		

University Courses (18 hours)

Advising Note 8 for Quality Engineering students: All MGMT/STAT/OR courses require Calculus 131 and STAT 211 and 212. Physics 201 and 202 must be taken as part of the Associate Degree or completed later.
Advising Note 9 for Quality Services: At least one science, statistics and math course must be in the Quality Services emphasis Associate Degree.

QEng Req?	Date?	QSer Req?	Date?	Other?
ENG 388		ENG 388		
MGMT 300		ENG 488		
MGMT 441		MGMT 305		
OR 380		Business Elect.		
STAT 414		Business Elect.		
Elective		Elective		

Advising Note 10: Minimum of 62 hours must be accumulated at BGSU after completion of the Associate Degree.
Advising Note 11: Minimum of 30 semester hours of coursework must be completed from BGSU, regardless of transferred hours.
Advising Note 12: At least 30 semester hours of 300-400 level courses must be taken.
Advising Note 13: All 300-400 level courses are designed to be taken in chronological order, although some variation can occur in levels.
Advising Note 14: Credit by exam, portfolio exam, or transfer credits, can account for no more that 30 hours of the 62 QS hours.
Advising Note 15: All students submit this form, electronically, as a plan for courses to be taken, to faculty at conclusion of first semester.
Advising Note 16: All students are expected to participate in American Society for Quality (ASQ) Student Branch Activities, online.
Advising Note 17: All students do National Association of Industrial Technologist (NAIT) Certified Industrial Technologist (CIT) for Quality Services or American Society for Quality Certified Quality Engineer (CQE) for Quality Engineering emphases.

Quality Indicators are assessed regularly to assure and document student progress. Red indicators are assessed by College Advising Office and blue are assessed by faculty and student in regular electronic advisement and communication functions such as Student Branch activities.

Quality Ind.	*Date*	*Code Initials*	*Quality Ind.*	*Date*	*Code Initials*	*Student Status/Notes*
300-400 Hrs: 90 Hour Rev: Gen Ed Hrs: Last 30 Hrs BG: Post Grad Surv:			Student Plan: 90 Hour Rev: Portfolioed: ASQ Part : Certification:			

Faculty:	Student:	Date Started:	Date Completed:

Change MFG 326 to QSS 326
Technology Systems Department

A. THE MODIFICATION

1. Describe briefly the nature of the change

This proposes changes to MFG 326, shifting to QSS 326. Specific changes are from MFG to QSS, course title and number, changes in prerequisites, and a shift in the catalogue description from a manufacturing base only to a broader manufacturing and non-manufacturing base.

2. Catalog description (current and proposed)

MFG 326. Total Quality Assurance (3) I. Overview and application of modern statistical and other techniques in assuring quality in designing a total quality system for a manufacturing environment. Two hour lecture, two hour lab.* Prerequisites: MFG 220, 235, DESN 204 or 243. Lab fee. *(time allocations vary; some of this occurs electronically and in team work off site).

Catalog description (proposed)

QSS 326. Data-based improvement (3) I. Data-based quality systems for improvement including statistical process control using variable and attribute data, capability indices and gage analysis, and data gathering systems for variation reduction in manufacturing and non-manufacturing. Team-based project configuring portfolio based on ISO/QS 9000 rubrics. Prerequisites: STAT 200 or higher, junior standing.

3. Course syllabus

A draft syllabus reflecting the changed course is attached to this proposal.

4. Courses to be dropped as a result of the modification

N/A

5. Courses to be added as a result of the modification

N/A.

6. Sequence of courses

See attached broader QSS proposal.

B. RATIONALE

1. Reason/need for the modification

Rationale for the proposed changes are found in the broader QSS proposal. The MFG 326 to QSS 326 changes are necessary to be consistent with the broader proposal.

2. Student implications

2.1 Prospective student demand

The course has traditionally served Manufacturing and Mechanical Design majors only, and enrollments have not been maximized. It is anticipated that enrollment will grow, along with the

major, based on changes being proposed, facilitating additional new students and student markets.

2.2 Effect on required hours in major

N/A

2.3 Number of students affected and in what way

This is a positive change for all students. Current Manufacturing and Mechanical Design students will use the proposed course and students from new external markets will be attracted to the course.

2.4 Special fees

Fees for this course will remain similar to fees in existing AQS programs/courses.

2.5 Effect on elective hours of majors

The proposed course change provides no additional course credit hours in the major.

C. RELATIONSHIP TO EXISTING PROGRAMS

1. Integration and relationship of modification with/to other offerings

1.1 In the department

The proposed change provides no negative impact to other programs in the department. Students from other departmental programs are well suited to participate in this course.

1.2 In the college

The proposed course change provides no negative impact to other programs in the college. Students from other departments and colleges are well suited to participate in this course.

1.3 In other university departments and colleges

The proposed change has no perceived impact on other units in the university.

2. Individuals contacted

Numerous individuals have been involved with the development of this proposed change.

D. STAFFING IMPLICATIONS/QUALIFICATIONS

N/A.

E. AVAILABILITY OF SUPPORT SERVICES

N/A.

F. BUDGET IMPLICATIONS

N/A.

QSS 326: Data-based Improvement

Dr. John W. Sinn, Professor. Once enrolled, communicate via jwsinn@bgnet.bgsu.edu and ***ecourse.bgsu.edu***

GENERAL BULLETIN DESCRIPTION

QSS 326. Data-based improvement (3) I. Data-based quality systems for improvement including statistical process control using variable and attribute data, capability indeces and gage analysis, and data gathering systems for variation reduction in manufacturing and non-manufacturing. Team-based project configuring portfolio based on ISO/QS 9000. Prerequisite: STAT 200 or higher, junior standing.

COURSE AIMS AND LEARNING OUTCOMES

Student teams identify a site, or configure a simulated project environment, for a systemic quality evaluation in the course. Teams critique and review information focused on data-based quality tools, comparing to project systems. Course aims are bolded and outcomes follow.

1. **Data-based knowledge.** Students apply data-based principles oriented to ISO/QS 9000 systems:

    - statistical process control (SPC) including variable (X-bar and R) and attribute (Pareto and P-charting) data tools
    - capability indeces including CPK and CPU
    - gage analysis including repeatability and reproducability (R & R)
    - data gathering and inspection, variation reduction in process for improvement

2. **Broad quality systems knowledge.** This includes a primary data-based tool focus in a broader ISO/QS 9000 context:

    - process analysis and improvement based on data gathered
    - total quality, continuous improvement and customer orientation in all functions, systems
    - documentation systems via auditing and assessment in all functions, for improvement
    - reliability in all functions and systems

3. **Total quality systems applications portfolioed.** A portfolio demonstrating total quality systems via team-based improvement is designed and built, documented electronically and grown incrementally, intentionally emphasizing the start of the portfolio process:

    - internal and external performance evaluation oriented to improvement, design and plan of the portfolio toward graduation
    - delegation and management of team functions, including team formation and operation, integrated over multiple courses
    - design and management of a project plan, articulating a problem focus and applied research systems, grown incrementally
    - problem solving and decision-making, ultimately resulting in findings and recommendations for improvement

COURSE CONTENT

Course content integrates total quality assurance and data systems, based on writings by the instructor in the Industrial Technologists' Toolkit. Topics, in written form, are equal to traditional lectures, interdisciplinarily helping all understand and assess a quality system.

17: "Documentation For Quality And Productivity Improvement: Kaizen Foundations"
18: "Statistical Definitions And Concepts For Data Based Improvement And Solutions".
19: "Attribute Data, The Obvious Starting Point"
20: "Variable Data, Comparisons To Attribute Charting And Short Run Systems Introduced"
*21: "Basic Measurement, Geometric Relationships And Broader Issues" .
22: "Gage Repeatability And Reproducibility (R & R): Inspection And Measurement Improvement"
23: "Capability Analysis, Evaluating Charts And Quality Characteristics: SPC In Transition"
*24: "Design Of Experiments (DOE), Finite Element Analysis(FEA): Robust Problem Solving"

*Astericked topics, not required, are extra credit.

INSTRUCTIONAL STRATEGY, WEBCT, PORTFOLIOS

The course, conducted in webct, engages teams in critiquing; major project; chats/quizzes; and, general electronic presence. Six team-based critiques, three before midterm and three after, build an articulated project portfolio completed in two phases using forms provided in the toolkit. All elements used in assessment are identified in checklists to help communicate and understand requirements. University and College level learning outcomes are on the left and further defined horizontally with points in sub assessments. Critique assignments, completed independently, are articulated into project portfolios. Two phases evolve a documentation system in long form and Power Point presentation short form, matured as a project across the course in webct.

Critique Outcome Portfolio Assessment Checklist: Format Starts With Cover Page, TPDST						
Assessment Outcomes	*Sub Assess*	*Sub Assess*	*Sub Assess*	*Sub Assess*	*Sub Assess*	
Analysis; Cultural Global Perspective (RRAA, TCAQAA)	All do relevant assessment, chat questions = 2	RRAA tool articulation, compatible = .5	Abstract synthesis quality, cultural sensitivity = .5	Summary accuracy, lecture details = .5	Assessment questions pros, cons, base = .5	4.00 poss
Points Awarded						
Comments, feedback, explanation:						
Integration; Pragmatic Field Insight (IRAA's, OBACDS)	Project focus, articulation and integration = 1	Source diversity and professional robustness = 1	Bibliography, citations, evolving, integrated = 1	All do a IRAA on team, all engaged = 1	Detail, analysis, robust ideas and issues = 3	7.00 poss
Points Awarded						
Comments, feedback, explanation:						
Disciplinary Knowledge; R & D (SDA's, OPAQAFL)	Tools applied, articulation integration = 2	Robust assessment pros, cons objectivity = 2	All persons engaged on one or more forms = 1	Objective forms used to assess, not opinion = 2	Detail, analysis reflected in form, boxes = 2	9.00 poss
Points Awarded						
Comments, feedback, explanation:						
Communication; Univ. and College Levels (TAA + matrices)	Matrix shows all engaged, self assessment = 1	Matrix for external assessment of all other teams = 1	Team electronic communications posting, chat = 1	Written comment internal, external performance = 1	Numerical ratings match performance =1	5.00 poss
Points Awarded						
Comments, feedback, explanation:						
Interaction; Prob. Solv. Dec-making (TPMA, TPMAF, TPDST)	All work in documentation contents = 1	Team electronic communications posting, chat = 1	Presentation shows good writing, style = 1	Cooperation, leadership, cross functioning = 1	Articulate total documentation system = 1	5.00 poss
Points Awarded						
Comments, feedback, explanation:						
Other opportunities for improvement:						
Team Assessed:		**Assessor: JWS**	**Work Assessed:**		**Date:**	**/30**

Project Outcome Portfolio Assessment Checklist: Format Starts With Cover Page, TPDST					
Assessment Outcomes	*Sub Assess*	*Sub Assess*	*Sub Assess*	*Sub Assess*	
Analysis; Cultural Global Perspective	Assessment questions, chat, articulated = 2	RRAA content, system articulated = 4	Cultural, global views, change perspective = 4	Bibliography, citations as base = 2	12.00 poss
Points Awarded					
Comments, feedback, explanation:					
Integration; Pragmatic Field Information	Articulate, integrate IRAA views = 6	Source diversity, professional view = 6	Link bibliography, citations as base = 6	Details, analysis, ideas, issues = 4	22.00 poss
Points Awarded					
Comments, feedback, explanation:					
Disciplined Knowledge; R & D; Applications	Articulate, integrate decision, solution = 6	No opinion, objective recommendations = 6	SDA documentation show knowledge = 6	Details, analysis, findings in form = 6	24.00 poss
Points Awarded					
Comments, feedback, explanation:					
Communication; Univ. and College Levels	Matrix, views, external internal, numerical = 2	Project management, posts, chats = 2	Historical indicators for improving = 2	Objective ratings, communications = 2	8.00 poss
Points Awarded					
Comments, feedback, explanation:					
Interaction; Prob. Solv. Decision-making	Documentation, RCA, SDA systems = 4	Power Point, executive summary, brief = 10	Improved format typos, style shown = 5	Problem stated, steps objectives, reflect = 5	24.00 poss
Points Awarded					
Comments, feedback, explanation:					
Other opportunities for improvement:					

Team Assessed:	**Assessor: JWS**	**Work Assessed:**	**Date:**	**/30**

PROCEDURES FOR ASSESSING STUDENT PERFORMANCE

All work is assembled and presented as portfolios, electronically in webct, using online SOP's provided by instructor. Mid term and final project portfolio phase reviews and six critiques are assessed based on the "Outcome Portfolio Assessment Checklist" matrices discussed on the previous page. All other course activities including startup, team/large group chats, postings and general electronic functions, generate points and contribute to individual and team grades earned. These are observed as they occur, and feedback given as needed.

Team work is posted at webct, points assigned, and feedback offered, all tracked in Excel as a cumulative numerical indicator of performance. Numerical indicators (not grades) are tracked in the course and posted regularly in webct, ultimately converted to grades based on:

Student/Team Activity	% Weighting		Points
Two phased project	40.5%	=	2 phases @ 90 points each; total 180 points
Critiques	40.5%	=	6 critiques @ 30 points each; total 180 points
Chats, start-up activities	12%	=	7 structured chats; start-up @ 7 points each; total 56 points
General electronic presence	7%	=	sign-ons, uploads, downloads, messages; total 30 points

Top team total points = *446 possible, maximum/curved = 100%

100 - 94 %	=	A
93 - 87	=	B
86 - 80	=	C**

Top team score becomes top of the curve, equal to 100%, and all course grades are calculated based on this. *Extra points can be earned by teams completing one extra critique, astericked in course content (note date below for indicating desire for doing extra credit). **All students are anticipated to earn minimum of a C (or better), assuming satisfactory team performance and all work completed.

REQUIRED READING MATERIALS

Sinn, John W. Industrial Technologists' Toolkit For Technical Management. Obtain at http://www.owlsnet.com as a CD based on procedural steps identified in the online course SOP's provided by the instructor.

QSS 326 COURSE ROLLOUT AND TIMELINES

Week	***Date***	***Student Activities***	***Other, General Information***
1	1-16	Start-up Activities	Assign passwords; Build team; Start-up in webct; Meet online
2	1-22	Start-up Activities	Review examples; Organize teams, systems; Meet online
3	1-29	Present Toolkit 17	Post tool 17 work in webct
4	2-5	Discuss Toolkit 17	Assess team/work and improve; Required assessment chat/agenda prepared
5	2-12	Present Toolkit 18	Post tool 18 work in webct; transition to electronic
6	2-19	Discuss Toolkit 18	Assess team/work and improve; Required assessment chat/agenda prepared
7	2-26	Present Toolkit 19	Post tool 19 work in webct
8	3-5	Discuss Toolkit 19	Assess work, complete phase I; Required assessment chat/agenda prepared
9	3-19	Present Phase I	Post phase I work in webct; Indicate if extra credit, contact instructor
10	3-26	Present Toolkit 20	Post tool 20 work in webct
11	4-2	Discuss Toolkit 20	Assess team/work and improve; Required assessment chat/agenda prepared
12	4-9	Present Toolkit 22	Post tool 22 work in webct
13	4-16	Discuss Toolkit 22	Assess team/work and improve; Required assessment chat/agenda prepared
14	4-23	Present Toolkit 23	Post tool 23 work in webct
15	4-31	Prepare Phase II	Assess team/work and improve; Required assessment chat/agenda prepared
16	5-7	Present Phase II	Final electronic phase presentation in webct

Change MFG 327 to QSS 327
Technology Systems Department

A. THE MODIFICATION

1. Describe briefly the nature of the change

This proposes changes to MFG 327, shifting to QSS 327. Specific changes are MFG to QSS, changes in prerequisites, change in title, and a shift in the catalogue description from a manufacturing base only to a broader manufacturing and non-manufacturing base.

2. Catalog description (current)

MFG 327. Manufacturing Engineering Applications (3) III. Overview and application of modern techniques in assuring productivity in the manufacturing environment. Two hours lecture and two hours laboratory.* Prerequisites: MFG 220, 235, DESN 204 or 243. Lab fee.

Catalog description (proposed)

QSS 327. Process documentation systems (3) III. Documentation-based quality improvement systems applied for variation reduction in manufacturing and non-manufacturing. Team-based project configuring portfolio based on ISO/QS 9000 rubrics. Prerequisites: STAT 200 or higher, junior standing.

3. Course syllabus

A draft syllabus reflecting the changed course is attached to this proposal.

4. Courses to be dropped as a result of the modification

N/A

5. Courses to be added as a result of the modification

NA.

6. Sequence of courses

See attached broader QSS proposal.

B. RATIONALE

1. Reason/need for the modification

Rationale for the proposed changes are found in the broader QSS proposal. The MFG 327 to QSS 327 changes are necessary to be consistent with the broader proposal.

2. Student implications

2.1 Prospective student demand

The course has traditionally served Manufacturing and Mechanical Design majors only, and enrollments have not been maximized. It is anticipated that enrollment will grow, along with the major, based on changes being proposed, facilitating additional new students and student markets.

2.2 Effect on required hours in major

N/A

2.3 Number of students affected and in what way

This is a positive change for all students. Current Manufacturing and Mechanical Design students will use the proposed course and students from new external markets will be attracted to the course.

2.4 Special fees

Fees for this course will remain similar to fees in existing AQS programs/courses.

2.5 Effect on elective hours of majors

The proposed course change provides no additional course credit hours in the major.

C. RELATIONSHIP TO EXISTING PROGRAMS

1. Integration and relationship of modification with/to other offerings

1.1 In the department

The proposed change provides no negative impact to other programs in the department. Students from other departmental programs are well suited to participate in this course.

1.2 In the college

The proposed course change provides no negative impact to other programs in the college. Students from other departments and colleges are well suited to participate in this course.

1.3 In other university departments and colleges

The proposed change has no perceived impact on other units in the university.

2. Individuals contacted

Numerous individuals have been involved with the development of this proposed change.

D. STAFFING IMPLICATIONS/QUALIFICATIONS

N/A.

E. AVAILABILITY OF SUPPORT SERVICES

N/A.

F. BUDGET IMPLICATIONS

N/A.

QSS 327: Process Documentation Systems

Dr. John W. Sinn, Professor. Communicate at jwsinn@bgnet.bgsu.edu, and at web site: ***ecourse.bgsu.edu***

GENERAL BULLETIN DESCRIPTION

QSS 327. Process documentation systems (3) III. Documentation-based quality improvement systems applied for variation reduction in manufacturing and non-manufacturing. Team-based project configuring portfolio based on ISO/QS 9000 rubrics. Prerequisite: STAT 200 or higher, junior standing.

COURSE AIMS AND LEARNING OUTCOMES

Student teams identify a site, or configure a simulated project environment, for a systemic quality evaluation in the course. Teams critique and review information about documentation-based quality tools, comparing to project systems. Course aims are bolded and outcomes follow.

1. **Documentation-based knowledge.** Documentation-based ISO/QS 9000 principles are applied to process for variation reduction:

    - flow charting
    - ongoing process control plan
    - time and motion studies
    - layout analysis
    - standard procedures are written or improved

2. **Broad quality systems knowledge.** This includes a primary documentation-based tool focus in a broader ISO/QS 9000 context:

    - total productive maintenance, safety and ergonomics orientation in all functions, systems
    - economic analysis in all functions, for improvement
    - synchronous and data-based tools used to enhance documentation in selected functions and systems

3. **Quality systems applications portfolioed.** A portfolio demonstrating team-based improvement is built, documented to emphasize:

    - delegation and management of all team functions, including team formation, operation and performance evaluation
    - design and management of a project plan, articulating a problem focus and applied research systems
    - problem solving and decision-making, ultimately resulting in findings and recommendations for improvement

COURSE CONTENT

Course content integrates total quality assurance and data systems, based on writings by the instructor in the Industrial Technologists' Toolkit. Topics, in written form, are equal to traditional lectures, interdisciplinarily helping all understand and assess a quality system.

*25: "Data, Basis For Kaizen, Quality Planning, Systems Development"
26: "Basic Economic Considerations, Cost Related Documentation Kaizen Systems, Quality Relationships"
27: "Ongoing Process Control Plan (OPCP), Standard Operating Procedures (SOP): Infrastructure For Understanding Process"
28: "Kaizen Foundations For Systemic Data Driven Process Variation And Waste Reductions"
*29: "Synchronous Production Introduced: Enhanced Best Practices For Change"
30: "Failure Mode Effects Analysis (FMEA), Quality Functions Deployment (QFD) Introduced"
31: "Total Productive Maintenance, Safety And Ergonomics: Re-engineered Synchronous Work Environment"
32: "Leadership And Supervision For The Future: Change, Strategic Planning, And Evaluation"

*Astericked topics, not required, are extra credit.

INSTRUCTIONAL STRATEGY, WEBCT, PORTFOLIOS

The course, conducted in webct, engages teams in critiquing; major project; chats/quizzes; and, general electronic presence. Six

team-based critiques, three before midterm and three after, build an articulated project portfolio completed in two phases using forms provided in the toolkit. All elements used in assessment are identified in checklists to help communicate and understand requirements. University and College level learning outcomes are on the left and further defined horizontally with points in sub assessments. Critique assignments, completed independently, are articulated into the two phased project portfolios. Two phases evolve a documentation system in long form and Power Point presentation short form, matured as a project across the entire course.

Critique Outcome Portfolio Assessment Checklist: Format Starts With Cover Page, TPDST						
Assessment Outcomes	***Sub Assess***	***Sub Assess***	***Sub Assess***	***Sub Assess***	***Sub Assess***	
Analysis; Cultural Global Perspective (RRAA, TCAQAA)	All do relevant assessment, chat questions = 2	RRAA tool articulation, compatible = .5	Abstract synthesis quality, cultural sensitivity = .5	Summary accuracy, lecture details = .5	Assessment questions pros, cons, base = .5	4.00 poss
Points Awarded						
Comments, feedback, explanation:						
Integration; Pragmatic Field Insight (IRAA's, OBACDS)	Project focus, articulation and integration = 1	Source diversity and professional robustness = 1	Bibliography, citations, evolving, integrated = 1	All do a IRAA on team, all engaged = 1	Detail, analysis, robust ideas and issues = 3	7.00 poss
Points Awarded						
Comments, feedback, explanation:						
Disciplinary Knowledge; R & D (SDA's, OPAQAFL)	Tools applied, articulation integration = 2	Robust assessment pros, cons objectivity = 2	All persons engaged on one or more forms = 1	Objective forms used to assess, not opinion = 2	Detail, analysis reflected in form, boxes = 2	9.00 poss
Points Awarded						
Comments, feedback, explanation:						
Communication; Univ. and College Levels (TAA + matrices)	Matrix shows all engaged, self assessment = 1	Matrix for external assessment of all other teams = 1	Team electronic communications posting, chat = 1	Written comment internal, external performance = 1	Numerical ratings match performance =1	5.00 poss
Points Awarded						
Comments, feedback, explanation:						
Interaction; Prob. Solv. Dec-making (TPMA, TPMAF, TPDST)	All work in documentation contents = 1	Team electronic communications posting, chat = 1	Presentation shows good writing, style = 1	Cooperation, leadership, cross functioning = 1	Articulate total documentation system = 1	5.00 poss
Points Awarded						
Comments, feedback, explanation:						
Other opportunities for improvement:						
Team Assessed:	**Assessor: JWS**	**Work Assessed:**	**Date:**	**/30**		

Project Outcome Portfolio Assessment Checklist: Format Starts With Cover Page, TPDST					
Assessment Outcomes	***Sub Assess***	***Sub Assess***	***Sub Assess***	***Sub Assess***	
Analysis; Cultural Global Perspective	Assessment questions, chat, articulated = 2	RRAA content, system articulated = 4	Cultural, global views, change perspective = 4	Bibliography, citations as base = 2	12.00 poss
Points Awarded					
Comments, feedback, explanation:					
Integration; Pragmatic Field Information	Articulate, integrate IRAA views = 6	Source diversity, professional view = 6	Link bibliography, citations as base = 6	Details, analysis, ideas, issues = 4	22.00 poss
Points Awarded					
Comments, feedback, explanation:					
Disciplined Knowledge; R & D; Applications	Articulate, integrate decision, solution = 6	No opinion, objective recommendations = 6	SDA documentation show knowledge = 6	Details, analysis, findings in form = 6	24.00 poss
Points Awarded					
Comments, feedback, explanation:					
Communication; Univ. and College Levels	Matrix, views, external internal, numerical = 2	Project management, posts, chats = 2	Historical indicators for improving = 2	Objective ratings, communications = 2	8.00 poss
Points Awarded					
Comments, feedback, explanation:					
Interaction; Prob. Solv. Decision-making	Documentation, RCA, SDA systems = 4	Power Point, executive summary, brief = 10	Improved format typos, style shown = 5	Problem stated, steps objectives, reflect = 5	24.00 poss
Points Awarded					
Comments, feedback, explanation:					
Other opportunities for improvement:					
Team Assessed:	**Assessor: JWS**	**Work Assessed:**	**Date:**	**/30**	

PROCEDURES FOR ASSESSING STUDENT PERFORMANCE

All work is assembled and presented as portfolios, electronically in webct, using online SOP's provided by instructor. Mid term and final project portfolio phase reviews and six critiques are assessed based on the "Outcome Portfolio Assessment Checklist" matrices discussed on the previous page. All other course activities including startup, team/large group chats, postings and general electronic functions, generate points and contribute to individual and team grades earned. These are observed as they occur, and feedback given as needed.

Team work is posted at webct, points assigned, and feedback offered, all tracked in Excel as a cumulative numerical indicator of performance. Numerical indicators (not grades) are tracked in the course and posted regularly in webct, ultimately converted to grades based on:

Student/Team Activity	% Weighting		Points
Two phased project	40.5%	=	2 phases @ 90 points each; total 180 points
Critiques	40.5%	=	6 critiques @ 30 points each; total 180 points
Chats, start-up activities	12%	=	7 structured chats; start-up @ 7 points each; total 56 points
General electronic presence	7%	=	sign-ons, uploads, downloads, messages; total 30 points

Top team total points = *446 possible, maximum/curved = 100%

100 - 94 %	=	A
93 - 87	=	B
86 - 80	=	C**

Top team score becomes top of the curve, equal to 100%, and all course grades are calculated based on this. *Extra points can be earned by teams completing one extra critique, astericked in course content (note date below for indicating desire for doing extra credit). **All students are anticipated to earn minimum of a C (or better), assuming satisfactory team performance and all work completed.

REQUIRED READING MATERIALS

Sinn, John W. Industrial Technologists' Toolkit For Technical Management. Obtain at http://www.owlsnet.com as a CD based on procedural steps identified in the online course SOP's provided by the instructor.

QSS 327 COURSE ROLLOUT AND TIMELINES

Week	***Date***	***Student Activities***	***Other, General Information***
1	1-16	Start-up Activities	Assign passwords; Build team; Start-up in webct; Meet online
2	1-22	Start-up Activities	Review examples; Organize teams, systems; Meet online
3	1-29	Present Toolkit 26	Post tool 26 work in webct
4	2-5	Discuss Toolkit 26	Assess team/work and improve; Required assessment chat/agenda prepared
5	2-12	Present Toolkit 27	Post tool 27 work in webct; transition to electronic
6	2-19	Discuss Toolkit 27	Assess team/work and improve; Required assessment chat/agenda prepared
7	2-26	Present Toolkit 28	Post tool 28 work in webct
8	3-5	Discuss Toolkit 28	Assess work, complete phase I; Required assessment chat/agenda prepared
9	3-19	Present Phase I	Post phase I work in webct; Indicate if extra credit, contact instructor
10	3-26	Present Toolkit 30	Post tool 30 work in webct
11	4-2	Discuss Toolkit 30	Assess team/work and improve; Required assessment chat/agenda prepared
12	4-9	Present Toolkit 31	Post tool 31 work in webct
13	4-16	Discuss Toolkit 31	Assess team/work and improve; Required assessment chat/agenda prepared
14	4-23	Present Toolkit 32	Post tool 32 work in webct
15	4-31	Prepare Phase II	Assess team/work and improve; Required assessment chat/agenda prepared
16	5-7	Present Phase II	Final electronic phase presentation in webct

Change MFG 426 to QSS 426
Technology Systems Department

A. THE MODIFICATION

1. Describe briefly the nature of the change

This proposes changes to MFG 426, shifting to QSS 426. Specific changes are MFG to QSS, course title, prerequisites, and shifting the catalogue description from manufacturing only to manufacturing and non-manufacturing.

2. Catalog description (current)

MFG 426. Integrated Measurement Systems (3) Summer. Applications of modern measurement techniques in assuring quality in manufacturing environments. Technical topics include data acquisition and manipulation, coordinate measurement, machine vision, calibration and traceability, and others. Two hour lecture, two hour laboratory. Prerequisites: All but TECH 489 and MFG 427.

Catalog description (proposed)

QSS 426. Quality change services (3) II. Quality environment for change and improvement, emphasizing technological and cultural issues associated with servicing customers from a supplier perspective in both manufacturing and non-manufacturing circumstances. Team-based project configuring portfolio based on ISO/QS 9000 rubrics. Prerequisites: none.

3. Course syllabus

A draft syllabus reflecting the changed course is attached to this proposal.

4. Courses to be dropped as a result of the modification

N/A

5. Courses to be added as a result of the modification

NA.

6. Sequence of courses

See attached broader QSS proposal.

B. RATIONALE

1. Reason/need for the modification

Rationale for the proposed changes are found in the broader QSS proposal. The MFG 426 to QSS 426 changes are necessary to be consistent with the broader proposal.

2. Student implications

2.1 Prospective student demand

The course has traditionally served Applied Quality Science only, and enrollments have not been

maximized. It is anticipated that enrollment will grow, along with the major, based on changes being proposed, facilitating additional new students and student markets.

2.2 Effect on required hours in major

N/A

2.3 Number of students affected and in what way

This is a positive change for all students. Current Quality System students will use the proposed course and students from new external markets will be attracted to the course.

2.4 Special fees

Fees for this course will remain similar to fees in existing AQS programs/courses.

2.5 Effect on elective hours of majors

The proposed course change provides no additional course credit hours in the major.

C. RELATIONSHIP TO EXISTING PROGRAMS

1. Integration and relationship of modification with/to other offerings

1.1 In the department

The proposed change provides no negative impact to other programs in the department. Students from other departmental programs are well suited to participate in this course.

1.2 In the college

The proposed course change provides no negative impact to other programs in the college. Students from other departments and colleges are well suited to participate in this course.

1.3 In other university departments and colleges

The proposed change has no perceived impact on other units in the university.

2. Individuals contacted

Numerous individuals have been involved with the development of this proposed change.

D. STAFFING IMPLICATIONS/QUALIFICATIONS

N/A.

E. AVAILABILITY OF SUPPORT SERVICES

N/A.

F. BUDGET IMPLICATIONS

N/A.

QSS 426. Quality Change Services

Dr. John W. Sinn, Professor. Once enrolled, communicate via jwsinn@bgnet.bgsu.edu and ***ecourse.bgsu.edu***

GENERAL BULLETIN DESCRIPTION

QSS 426. Quality change services (3) II. Quality environment for change and improvement, emphasizing technological and cultural issues associated with servicing customers from a supplier perspective in both manufacturing and non-manufacturing circumstances. Team-based project configuring portfolio based on ISO/QS 9000 rubrics. Prerequisites: none.

COURSE AIMS AND STUDENT LEARNING OUTCOMES

QSS 426 integrates perspectives collaboratively via technological systems, facilitating several student outcomes. Aims are bolded and outcomes follow, including indications of how assessment of outcomes occurs:

1. **Change, improvement and people.** Change and improvement in services focused on "human issues" to:

- define quality and technology services, and core values, particularly infrastructural and people functions
- assess change and improvement in services, and technologically oriented change implications on people
- assess ethical and "values oriented" service issues engaging "political correctness and diversity"

2. **Global, local quality and technology service relationships.** Student teams do service projects to assess:

- Cultural service issues for development and technology transfer, growth in knowledge
- Supplier, customer communications, information movement, organization as "real time" quality services
- systems in problem solving and decision-making, adding value in resource and waste oriented services

3. **Auditing ISO/QS 9000 services.** ISO/QS 9000 documentation systems form a course service platform by:

- assessing various data and documentation tools as appropriate to the service environment
- building internal and external supplier evaluation systems of services performed, judging quality
- building a portfolio system which provides evidence of all other requirements being satisfied

COURSE CONTENT

Course content integrates diverse views about technological systems, based on writings by the instructor. Topics, in written form, are equal to traditional lectures, interdisciplinarily helping teams understand and assess technology.

*9: "Core Technological Values And Foundational Cultural Definitions"
10: "Disciplined Culture For Change: Conducting And Managing Projects"
11: "Evolution Of Significant Developments And Core Values Of The Technological Culture"
12: "Data And Documentation For Problem Solving, Decision Making, Change"
13: "Planning And Evaluating Change: Technology Transfer, Global Development"
14: "Political Correctness And Ethical Issues: Core Values And Civility"
*15: "Environmental And Resource Core Values"
16: "Synchronous Leadership: Managing And Servicing Product And Process For Change"

*Astericked topics, not required, are extra credit.

INSTRUCTIONAL STRATEGY, WEBCT, PORTFOLIOS

The course, conducted in webct, engages teams in critiquing; major project; chats/quizzes; and, general electronic presence. Six team-based critiques, three before midterm and three after, build an articulated project portfolio in two phases using forms provided in the toolkit. All elements used in assessment are identified in checklists to help communicate and understand requirements. University and College level learning outcomes are on the left and further defined horizontally with points in sub assessments. Critique assignments, completed independently, are articulated into the two phased project portfolios. Two phases evolve a documentation system in long form and Power Point presentation short form, matured as a project across the entire course in webct (see examples in webct).

Critique Outcome Portfolio Assessment Checklist: Format Starts With Cover Page, TPDST						
Assessment Outcomes	**Sub Ass**	**Sub Ass**	**Sub Assess**	**Sub Assess**	**Sub Assess**	
Analysis; Cultural Global Perspective (RRAA, TCAQAA)	All do relevant assessment, chat questions = 2	RRAA tool articulation, compatible = .5	Abstract synthesis quality, cultural sensitivity = .5	Summary accuracy, lecture details = .5	Assessment questions pros, cons, base = .5	4.00 poss
Points Awarded						
Comments, feedback, explanation:						
Integration; Pragmatic Field Insight (IRAA's, OBACDS)	Project focus, articulation and integration = 1	Source diversity and professional robustness = 1	Bibliography, citations, evolving, integrated = 1	All do a IRAA on team, all engaged = 1	Detail, analysis, robust ideas and issues = 3	7.00 poss
Points Awarded						
Comments, feedback, explanation:						
Disciplinary Knowledge; R & D (SDA's, OPAQAFL)	Tools applied, articulation integration = 2	Robust assessment pros, cons objectivity = 2	All persons engaged on one or more forms = 1	Objective forms used to assess, not opinion = 2	Detail, analysis reflected in form, boxes = 2	9.00 poss
Points Awarded						
Comments, feedback, explanation:						
Communication; Univ. and College Levels (TAA + matrices)	Matrix shows all engaged, self assessment = 1	Matrix for external assessment of all other teams = 1	Team electronic communications posting, chat = 1	Written comment internal, external performance = 1	Numerical ratings match performance =1	5.00 poss
Points Awarded						
Comments, feedback, explanation:						
Interaction; Prob. Solv. Dec-making (TPMA, TPMAF, TPDST)	All work in documentation contents = 1	Team electronic communications posting, chat = 1	Presentation shows good writing, style = 1	Cooperation, leadership, cross functioning = 1	Articulate total documentation system = 1	5.00 poss
Points Awarded						
Comments, feedback, explanation:						
Other opportunities for improvement:						
Team Assessed:		**Assessor: JWS**	**Work Assessed:**	**Date:**		**/30**

Project Outcome Portfolio Assessment Checklist: Format Starts With Cover Page, TPDST					
Assessment Outcomes	**Sub Assess**	**Sub Assess**	**Sub Assess**	**Sub Assess**	
Analysis; Cultural Global Perspective	Assessment questions, chat, articulated = 2	RRAA content, system articulated = 4	Cultural, global views, change perspective = 4	Bibliography, citations as base = 2	12.00 poss
Points Awarded					
Comments, feedback, explanation:					
Integration; Pragmatic Field Information	Articulate, integrate IRAA views = 6	Source diversity, professional view = 6	Link bibliography, citations as base = 6	Details, analysis, ideas, issues = 4	22.00 poss
Points Awarded					
Comments, feedback, explanation:					
Disciplined Knowledge; R & D; Applications	Articulate, integrate decision, solution = 6	No opinion, objective recommendations = 6	SDA documentation show knowledge = 6	Details, analysis, findings in form = 6	24.00 poss
Points Awarded					
Comments, feedback, explanation:					
Communication; Univ. and College Levels	Matrix, views, external internal, numerical = 2	Project management, posts, chats = 2	Historical indicators for improving = 2	Objective ratings, communications = 2	8.00 poss
Points Awarded					
Comments, feedback, explanation:					
Interaction; Prob. Solv. Decision-making	Documentation, RCA, SDA systems = 4	Power Point, executive summary, brief = 10	Improved format typos, style shown = 5	Problem stated, steps objectives, reflect = 5	24.00 poss
Points Awarded					
Comments, feedback, explanation:					
Other opportunities for improvement:					
Team Assessed:		**Assessor: JWS**	**Work Assessed:**	**Date:**	**/30**

PROCEDURES FOR ASSESSING STUDENT PERFORMANCE

All work is assembled and presented as portfolios, electronically in webct, using online SOP's provided by instructor. Mid term and final project portfolio phase reviews and six critiques are assessed based on the "Outcome Portfolio Assessment Checklist" matrices discussed on the previous page. All other course activities including startup, team/large group chats, postings and general electronic functions, generate points and contribute to individual and team grades earned. These are observed as they occur, and feedback given as needed.

Team work is posted at webct, points assigned, and feedback offered, all tracked in Excel as a cumulative numerical indicator of performance. Numerical indicators (not grades) are tracked in the course and posted regularly in webct, ultimately converted to grades based on:

Student/Team Activity	% Weighting		Points
Two phased project	40.5%	=	2 phases @ 90 points each; total 180 points
Critiques	40.5%	=	6 critiques @ 30 points each; total 180 points
Chats, start-up activities	12%	=	7 structured chats; start-up @ 7 points each; total 56 points
General electronic presence	7%	=	sign-ons, uploads, downloads, messages; total 30 points

Top team total points = *446 possible, maximum/curved = 100%

100 - 94 %	=	A
93 - 87	=	B
86 - 80	=	C**

Top team score becomes top of the curve, equal to 100%, and all course grades are calculated based on this. *Extra points can be earned by teams completing one extra critique, astericked in course content. **All students are anticipated to earn minimum of a C (or better), assuming satisfactory team performance and all work completed.

REQUIRED READING MATERIALS

Sinn, John W. Industrial Technologists' Toolkit For Technical Management. Obtain at http://www.owlsnet.com as a CD based on procedural steps identified in the online course SOP's provided by the instructor.

QSS 426 ROLLOUT AND OTHER GENERAL INFORMATION

Week	***Date***	***Student Activities***	***Other, General Information***
1	1-16	Start-up Activities	Assign passwords; Build team; Start-up in webct; Meet online
2	1-22	Start-up Activities	Review examples; Organize teams, systems; Meet online
3	1-29	Present Toolkit 9	Post tool 9 work in webct
4	2-5	Discuss Toolkit 9	Assess team/work and improve; Required assessment chat/agenda prepared
5	2-12	Present Toolkit 10	Post tool 10 work in webct; transition to electronic
6	2-19	Discuss Toolkit 10	Assess team/work and improve; Required assessment chat/agenda prepared
7	2-26	Present Toolkit 11	Post tool 11 work in webct
8	3-5	Discuss Toolkit 11	Assess work, complete phase I; Required assessment chat/agenda prepared
9	3-19	Present Phase I	Post phase I work in webct; Indicate if extra credit, contact instructor
10	3-26	Present Toolkit 13	Post tool 13 work in webct
11	4-2	Discuss Toolkit 13	Assess team/work and improve; Required assessment chat/agenda prepared
12	4-9	Present Toolkit 14	Post tool 14 work in webct
13	4-16	Discuss Toolkit 14	Assess team/work and improve; Required assessment chat/agenda prepared
14	4-23	Present Toolkit 15	Post tool 15 work in webct
15	4-31	Prepare Phase II	Assess team/work and improve; Required assessment chat/agenda prepared
16	5-7	Present Phase II	Final electronic phase presentation in webct

Change MFG 427 to QSS 427
Technology Systems Department

A. THE MODIFICATION

1. Describe briefly the nature of the change

This proposes changes to MFG 427, shifting to QSS 427. Specific changes are MFG to QSS, course title, prerequisites, and shifting the catalogue description from manufacturing only to manufacturing and non-manufacturing.

2. Catalog description (current)

MFG 427. Quality In Design (3) Summer. Design of experiments (DOE), Taguchi design methods and finite element analysis (FEA) applied for robust problem solving through experimentation and computer modeling techniques, oriented to enhancements and innovations in quality and reliability. Two hour lecture, two hour laboratory. Prerequisites: all courses in AQS option but MFG 426, TECH 489.

Catalog description (proposed)

QSS 427. Synchronous quality planning (3) II. Planning and developing new product while doing existing quality responsibilities via mature data and documentation. Culminates in designed experiment, reliability improvements or other manufacturing or non-manufacturing change plans. Team-based project configuring portfolio based on ISO/QS 9000 rubrics. Prerequisites: QSS 326, 327, 426.

3. Course syllabus

A draft syllabus reflecting the changed course is attached to this proposal.

4. Courses to be dropped as a result of the modification

N/A

5. Courses to be added as a result of the modification

NA.

6. Sequence of courses

See attached broader QSS proposal.

B. RATIONALE

1. Reason/need for the modification

Rationale for the proposed changes are found in the broader QSS proposal. The MFG 427 to QS 427 changes are necessary to be consistent with the broader proposal.

2. Student implications

2.1 Prospective student demand

The course has traditionally served Applied Quality Science students only, and enrollments have not been maximized. It is anticipated that enrollment will grow, along with the major, based on

changes being proposed, facilitating additional new students and student markets.

2.2 Effect on required hours in major

N/A

2.3 Number of students affected and in what way

This is a positive change for all students. Current Quality System students will use the proposed course and students from new external markets will be attracted to the course.

2.4 Special fees

Fees for this course will remain similar to fees in existing AQS programs/courses.

2.5 Effect on elective hours of majors

The proposed course change provides no additional course credit hours in the major.

C. RELATIONSHIP TO EXISTING PROGRAMS

1. Integration and relationship of modification with/to other offerings

1.1 In the department

The proposed change provides no negative impact to other programs in the department. Students from other departmental programs are well suited to participate in this course.

1.2 In the college

The proposed course change provides no negative impact to other programs in the college. Students from other departments and colleges are well suited to participate in this course.

1.3 In other university departments and colleges

The proposed change has no perceived impact on other units in the university.

2. Individuals contacted

Numerous individuals have been involved with the development of this proposed change.

D. STAFFING IMPLICATIONS/QUALIFICATIONS

N/A.

E. AVAILABILITY OF SUPPORT SERVICES

N/A.

F. BUDGET IMPLICATIONS

N/A.

QSS 427: Synchronous Quality Planning

Dr. John W. Sinn, Professor. Once enrolled, communicate via jwsinn@bgnet.bgsu.edu and ***ecourse.bgsu.edu***

GENERAL BULLETIN DESCRIPTION

QSS 427. Synchronous quality planning (3) II. Planning and developing new product, while doing existing quality responsibilities via mature data and documentation. Culminates in designed experiment, reliability improvements or other manufacturing or non-manufacturing change plans. Team-based project configuring portfolio based on ISO/QS 9000 rubrics. Prerequisites: QSS 326, 327, 426.

COURSE AIMS AND LEARNING OUTCOMES

Student teams identify a site, or configure a simulated project environment, for a quality improvement project. Teams critique and review information focused on synchronous quality tools applied to project systems. Course aims are bolded and outcomes follow.

1. **New product synchronous platforms.** Students apply synchronous quality planning principles oriented to ISO/QS 9000 systems:

   - robust statistical tools evidencing variation reduction and knowledge over time, as a basis for long term relationships
   - data and documentation to reflect customer demands, communicate new product development opportunities, issue

2. **Primary planning tools and quality systems.** This is a data and documentation-based focus in a mature ISO/QS 9000 context:

   - ongoing process control plan (OPCP), based on past history, oriented to future planning issues
   - failure mode and effects analysis (FMEA), based on past history, oriented to future planning issues
   - work instructions and standard procedures in all functions, for new product systems, alongside existing production
   - quality function deployment (QFD) systems, applications matured, evidencing past and future product
   - identifying and configuring product performance levels and factors for analysis and improvement, based on mature data

3. **Quality systems applications portfolioed.** A portfolio demonstrating team-based improvement is built, documenting the final work of the student, in teams, clearly demonstrating growth and learning:

   - delegation and management of all team tasks and functions, including team formation, operation and performance evaluation
   - design and management of a project plan, articulating a problem focus and applied research systems for improvement
   - incremental growth and maturation relative to the first QSS course, QSS 326, clearly documenting individual and team work

COURSE CONTENT

Course content integrates synchronous quality planning systems, based on writings by the instructor in the Industrial Technologists' Toolkit. Topics, in written form, are equal to traditional lectures, interdisciplinarily helping all understand and assess quality systems.

33: "Growing Talent, Knowledge Workers And The Technological Learning Organization"
34: "ISO And QS 9000, Quality Launch Systems: Supplier Relationships Guiding Our Synchronous Future"
*35: "Technical Material And Process Considerations: Innovation, Change, And Applied Research For Launch Systems"
36: "Launch Data And Documentation For Advanced Quality Planning: Emphasis On Production Qualification"
37: "Robust Design, Reliability And New Product Development"
*38: "Automation, Enhanced Communication Systems For Data Acquisition, Documentation, Changing Quality Relationships"
39: "OPCP, FMEA, QFD: Synchronizing Broad Documentation Systems For Advanced Problem Solving"
40: "Advanced SPC, Reduced Variation And DOE As An Improvement System"

Astericked topics, not required, are extra credit.

INSTRUCTIONAL STRATEGY, WEBCT, PORTFOLIOS

The course, conducted in webct, engages teams in critiquing; major project; chats/quizzes; and, general electronic presence. Six team-based critiques, three before midterm and three after, build an articulated project portfolio completed in two phases using forms provided in the toolkit. All elements used in assessment are identified in checklists to help communicate and understand requirements. University

and College level learning outcomes are on the left and further defined horizontally with points in sub assessments. Critique assignments, completed independently, are articulated into the two phased project portfolios. Two phases evolve a documentation system in long form and Power Point presentation short form, matured as a project across the entire course in webct.

Critique Outcome Portfolio Assessment Checklist: Format Starts With Cover Page, TPDST						
Assessment Outcomes	***Sub Assess***	***Sub Assess***	***Sub Assess***	***Sub Assess***	***Sub Assess***	
Analysis; Cultural Global Perspective (RRAA, TCAQAA)	All do relevant assessment, chat questions = 2	RRAA tool articulation, compat = .5	Abstract synthesis quality, cultural sensitivity = .5	Summary accuracy, lecture details = .5	Assessment questions pros, cons, base = .5	4.00 poss
Points Awarded						
Comments, feedback, explanation:						
Integration; Pragmatic Field Insight (IRAA's, OBACDS)	Project focus, articulation and integration = 1	Source diversity and professional robustness = 1	Bibliography, citations, evolving, integrated = 1	All do a IRAA on te all engaged = 1	Detail, analysis, robust ideas and issues = 3	7.00 poss
Points Awarded						
Comments, feedback, explanation:						
Disciplinary Knowledge; R & D (SDA's, OPAQAFL)	Tools applied, articulation integration = 2	Robust assessment pr cons objectivity = 2	All persons engaged one or more forms = 1	Objective forms used to assess, not opinion = 2	Detail, analysis reflected in form, boxes = 2	9.00 poss
Points Awarded						
Comments, feedback, explanation:						
Communication; Univ. and College Levels (TAA + matrices)	Matrix shows all engaged, self assessment = 1	Matrix for external assessment of all other teams = 1	Team electronic communications posting, chat = 1	Written comment internal, external performance = 1	Numerical ratings match performance =1	5.00 poss
Points Awarded						
Comments, feedback, explanation:						
Interaction; Prob. Solv. Dec-making (TPMA, TPMAF, TPDST)	All work in documentation contents = 1	Team electronic communications posting, chat = 1	Presentation shows good writing, style = 1	Cooperation, leadership, cross functioning = 1	Articulate total documentation sys = 1	5.00 poss
Points Awarded						
Comments, feedback, explanation:						
Other opportunities for improvement:						
Team Assessed:	**Assessor: JWS**	**Work Assessed:**	**Date:**			

Project Outcome Portfolio Assessment Checklist: Format Starts With Cover Page, TPDST					
Assessment Outcomes	***Sub Assess***	***Sub Assess***	***Sub Assess***	***Sub Assess***	
Analysis; Cultural Global Perspective	Assessment questions, cha articulated = 2	RRAA content, system articulated = 4	Cultural, global views, change perspective = 4	Bibliography, citations a base = 2	12.00 poss
Points Awarded					
Comments, feedback, explanation:					
Integration; Pragmatic Field Information	Articulate, integrate IRAA views = 6	Source diversity, professional view = 6	Link bibliography, citations as base = 6	Details, analysis, ideas, issues = 4	22.00 poss
Points Awarded					
Comments, feedback, explanation:					
Disciplined Knowledge; R & D; Applications	Articulate, integrate decis solution = 6	No opinion, objective recommendations = 6	SDA documentation show knowledge = 6	Details, analysis, findings in form = 6	24.00 poss
Points Awarded					
Comments, feedback, explanation:					
Communication; Univ. and College Levels	Matrix, views, external internal, numerical = 2	Project management, posts, chats = 2	Historical indicators for improving = 2	Objective ratings, communications = 2	8.00 poss
Points Awarded					
Comments, feedback, explanation:					
Interaction; Prob. Solv. Decision-making	Documentation, RCA, SDA systems = 4	Power Point, executive summary, brief = 10	Improved format typos, style shown = 5	Problem stated, steps objectives, reflect = 5	24.00 poss
Points Awarded					
Comments, feedback, explanation:					
Other opportunities for improvement:					
Team Assessed:	**Assessor: JWS**	**Work Assessed:**	**Date:**		

PROCEDURES FOR ASSESSING STUDENT PERFORMANCE

All work is assembled and presented as portfolios, electronically in webct, using online SOP's provided by instructor. Mid term and final project portfolio phase reviews and six critiques are assessed based on the "Outcome Portfolio Assessment Checklist" matrices discussed on the previous page. All other course activities including startup, team/large group chats, postings and general electronic functions, generate points and contribute to individual and team grades earned. These are observed as they occur, and feedback given.

Team work is posted at webct, points assigned, and feedback offered, all tracked in Excel as a cumulative numerical indicator of performance. Numerical indicators (not grades) are tracked and posted regularly in webct, ultimately converted to grades based on:

Student/Team Activity	% Weighting		Points
Two phased project	40.5%	=	2 phases @ 90 points each; total 180 points
Critiques	40.5%	=	6 critiques @ 30 points each; total 180 points
Chats, start-up activities	12%	=	7 structured chats; start-up @ 7 points each; total 56 points
General electronic presence	7%	=	sign-ons, uploads, downloads, messages; total 30 points

Top team total points = *446 possible, maximum/curved = 100%

100 - 94 %	=	A
93 - 87	=	B
86 - 80	=	C**

Top team score becomes top of the curve, equal to 100%, and all course grades are calculated based on this. *Extra points can be earned by teams completing one extra critique, astericked in course content (note date below for indicating desire for doing extra credit). **All students are anticipated to earn minimum of a C (or better), assuming satisfactory team performance and all work completed.

REQUIRED READING MATERIALS

Sinn, John W. Industrial Technologists' Toolkit For Technical Management. Obtain at http://www.owlsnet.com as a CD based on procedural steps identified in the online course SOP's provided by the instructor.

QSS 427 COURSE ROLLOUT AND TIMELINES

Week	***Date***	***Student Activities***	***Other, General Information***
1	1-16	Start-up Activities	Assign passwords; Build team; Start-up in webct; Meet online
2	1-22	Start-up Activities	Review examples; Organize teams, systems; Meet online
3	1-29	Present Toolkit 33	Post tool 33 work in webct
4	2-5	Discuss Toolkit 33	Assess team/work and improve; Required assessment chat/agenda prepared
5	2-12	Present Toolkit 34	Post tool 34 work in webct; transition to electronic
6	2-19	Discuss Toolkit 34	Assess team/work and improve; Required assessment chat/agenda prepared
7	2-26	Present Toolkit 36	Post tool 36 work in webct
8	3-5	Discuss Toolkit 36	Assess work, complete phase I; Required assessment chat/agenda prepared
9	3-19	Present Phase I	Post phase I work in webct; Indicate if extra credit, contact instructor
10	3-26	Present Toolkit 37	Post tool 37 work in webct
11	4-2	Discuss Toolkit 37	Assess team/work and improve; Required assessment chat/agenda prepared
12	4-9	Present Toolkit 39	Post tool 39 work in webct
13	4-16	Discuss Toolkit 39	Assess team/work and improve; Required assessment chat/agenda prepared
14	4-23	Present Toolkit 40	Post tool 40 work in webct
15	4-31	Prepare Phase II	Assess team/work and improve; Required assessment chat/agenda prepared
16	5-7	Present Phase II	Final electronic phase presentation in webct

Create Minor In Quality Systems Specialization
Technology Systems Department

A. THE MODIFICATION

1. Describe briefly the nature of the change

This proposes creation of a minor in Quality Systems Specialization (QSS), consistent with the newly revised QSS.

2. Catalog description (current)

No minor currently exists.

Catalog description (proposed)

The QSS minor exists to provide an opportunity for students with related majors at BGSU to gain expertise in the area of quality systems. Total commitment, depending on nature of the current major, will be a maximum of 24 hours or eight courses.

3. Course syllabus

N/A.

4. Courses to be dropped as a result of the modification

N/A

5. Courses to be added as a result of the modification

NA.

6. Sequence of courses

The sequence of courses for the QS minor proposal is as follows:

MFG 112 taken during the freshmen or sophomore year.
STAT 200 or higher STAT course taken during the sophomore year.
QSS 326 and 327 taken during the junior year.
QSS 426 and 427 taken during the senior year.
Take any two electives from MFG, DESN or ECT majors

B. RATIONALE

1. Reason/need for the modification

Rationale for the proposed changes are found in the broader QSS proposal. The minor is necessary to be consistent with the broader proposal.

2. Student implications

2.1 Prospective student demand

It is anticipated that enrollment will grow in the new minor, along with the specialization, based

on changes being proposed, facilitating additional new students and student markets.

2.2 Effect on required hours in major

N/A

2.3 Number of students affected and in what way

This is a positive change for all students. Current Quality System students will use the proposed minor courses and students from new external markets will be attracted.

2.4 Special fees

Fees for this course will remain similar to fees in existing AQS programs/courses.

2.5 Effect on elective hours of majors

N/A.

C. RELATIONSHIP TO EXISTING PROGRAMS

1. Integration and relationship of modification with/to other offerings

1.1 In the department

The proposed change provides no negative impact to other programs in the department. Students from other departmental programs are well suited to participate in this minor.

1.2 In the college

The proposed change provides no negative impact to other programs in the college. Students from other departments and colleges are well suited to participate in this minor.

1.3 In other university departments and colleges

The proposed change has no perceived impact on other units in the university.

2. Individuals contacted

Numerous individuals have been involved with the development of this proposed change.

D. STAFFING IMPLICATIONS/QUALIFICATIONS

N/A.

E. AVAILABILITY OF SUPPORT SERVICES

N/A.

F. BUDGET IMPLICATIONS

N/A.