Industrial Advisory Committee
Technology Department
Meeting Minutes: November 3, 2006
College of Engineering
Carbondale, IL

Present:

1. Ron Milligan (The Boeing Company)
2. Earnie Mulvaney (Nascote Industries)
3. Alex Tapia (Technicolor)
4. Roger Chang
5. Bruce DeRuntz
6. Julie Dunston
7. Mandara Savage
8. Tomás Velasco

The meeting convened at 3:30 p.m.

Agenda

1. Introduction of members
2. Approval of Fall 2005 Minutes of IAC meeting
3. Approval of Spring 2006 Minutes of IAC meeting
4. Review Undergraduate Curriculum
    a. Industrial Technology program curriculum changes
        i. IT 110 Geometric Dimensioning & Tolerancing
        ii. IT 450 Project Management I
        iii. IT 470a, b Six Sigma Green Belt
        iv. IT 480 Six Sigma Black Belt
        v. Review new course syllabi
        vi. Approve new course syllabi
5. Short-/Long-Term Goals
    a. Quality Engineering Technology program
        i. Review proposed curriculum
        ii. Proposal in progress
        iii. Review of proposal (Spring 2007) IAC meeting
    b. Certificate program
        i. Off-campus
        ii. On-campus (Six Sigma?)

Approval of Fall 2005 Minutes

Minutes of the Industrial Advisory Committee meeting held on November 4, 2005, were reviewed. *Motion to approve the minutes was made by R. Milligan, seconded by A. Tapia. Motion was approved unanimously.*

Approval of Spring 2006 Minutes

Minutes of the Industrial Advisory Committee meeting held on April 21, 2006, were reviewed. *Motion to approve the minutes was made by R. Milligan, seconded by E. Mulvaney. Motion was approved unanimously.*

New Business:

Review Undergraduate Curriculum

- The first order of business was to discuss the course syllabi for 5 new courses to be added to the curriculum. These course changes were initiated as a result of recommendations presented by the IAC at past meetings. Each syllabus was reviewed and comments were provided as follows:

  1. *IT 110 Geometric Dimensioning and Tolerancing*
     R. Milligan asked if CAD would be a prerequisite for the course. He expressed concern that students who did not have basic drafting/dimensioning would have difficulty with GD&T. A. Tapia inquired as to the focus of the course. If the focus is to interpret drawings, as opposed to generating drawings, then there wouldn't necessarily be a need for prior CAD experience. J. Dunston and B. DeRuntz commented on the fact that IT students are not designers, but rather need to be able to interpret and communicate information presented in drawings. In general, it was agreed that hands-on experience was necessary to provide students with an understanding of how technical drawings relate to quality issues within a part or assembly of parts.
  2. *IT 450 Project Management*
     R. Milligan suggested the addition of a list of major topics to the syllabus. J. Dunston presented comments e-mailed by T. Bennett regarding visual management (see attached). A discussion ensued on defining what constitutes visual management. R. Milligan mentioned Management Emphasis System (MES) and the use of stoplight charts.
  3. *IT 470 a, b Six Sigma Green Belt*
     E. Mulvaney shared comments provided by a Six Sigma Black Belt within Nascote. The major point was that lean manufacturing topics should be included in the course. Since the department teaches a 3-hour Lean Manufacturing course, this alleviates the concerns addressed. J. Akers had two comments via e-mail (see attached). One was that a project is a must-have for both courses. The second was a suggestion to utilize the ASQ Body of Knowledge. T. Velasco emphasized that this is a source that will be used for the course.
  4. *IT 480 Six Sigma Black Belt*
     Similar comments were made for the Black Belt course relative to including a project, as well as the ASQ Body of Knowledge.

Short-/Long-Term Goals

- J. Dunston announced that the Department will be pursuing approval for a Quality Engineering Technology (QET) program. J. Dunston and T. Velasco are in the processing of preparing a proposal for submission to the IBHE. The proposal will

be presented for review at the Spring 2007 IAC meeting.

- Discussion continued with the department's consideration of offering a certificate program. The idea was brought to the faculty by the Dean in response to students in the military programs who had tuition dollars to take courses beyond their B.S. degrees.

    - R. Chang presented some of his findings on other certificate programs offered through other institutions. He said that the average number of course hours required for a certificate is 18, which would equate to 6 courses in the department.
    - A. Tapia commented that most certification programs are sought due to either the prestige of the company or the prestige of the University offering the certificate. A. Tapia asked what would be unique about SIU offering a certificate program vs. ASQ, for example. Additionally, he asked if there would be a proficiency requirement for the certification.
    - T. Velasco stated that CEUs could be earned through the program. Since the courses would be drawn from the existing curriculum, students would have to show proficiency by performing at a passing level on homework, exams, etc.
    - R. Milligan stated that the certificate program would be appealing to those who wanted additional knowledge. He stated his approval on pursuing a certificate program; it is logical since we are already offering the courses that would be included within the program.
    - A. Tapia mentioned that ASQ offers grant money to ASQ members who participate in city improvement projects; this would be one way to generate projects for Six Sigma.
    - Certificate courses that were suggested included Project Management, Six Sigma Green Belt (2 courses), Six Sigma Black Belt, and Lean Manufacturing.
    - A. Tapia suggested a "systems thinking" approach to the certificate program.
    - R. Milligan recommended offering a certificate in manufacturing processes.

    In conclusion, the certificate program courses will undergo further consideration by the faculty and the proposed program will be presented at the next IAC meeting.

T. Velasco made a motion to approve the 5 new course syllabi and to approve the establishment of a certificate program, R. Change seconded the motion. Motion was approved unanimously.

The meeting adjourned at 5:00 p.m.

Julie,

I was on campus on Tuesday to speak to a class Dr. Velasco is teaching. I let him know that I have a conflict with meeting on the 3rd in the afternoon. Unfortunately I have some personal business to attend to at about 4PM. I did want to make sure you know that I won't be able to join the activities on Friday. I also left with Tomas a card we used to use to introduce our unique technology program to potential employers. It is something we discussed several meetings ago and I wanted to try and get a sample to the group. I am looking forward to the meeting in the spring, especially to hear the progress of the QET curriculum.

I am really excited after looking at the course syllabi to see a lot of the items we have discussed in the past being implemented. One item I wanted to suggest was on the IT450 course. My experience as a senior management member has helped me understand the importance of visual management when reviewing projects. For instance, when we are preparing multiple new projects at once, it is important for management to understand the status of each project quickly. That way upper management knows where they have to become involved. A good program manager always has a good grasp of where she is with a new project, but that doesn't necessarily translate into mgmt understanding. We have struggled at Aisin to present program status efficiently. I think we finally settled on a method we like. I guess my point is that it should be a major point of emphasis. Visual management is important everywhere in the workplace, but never more so than in project management, where the status of programs that are very complex has to be conveyed quickly and effectively. When we have had a train wreck on a new launch, it is usually because the warning signs were lost in a mass of confusing information.

Thanks for letting me give my input. I look forward to meeting with our group again in the future.

Tom Bennett

Julie, Just completed the review of your attached documents. I have input on Project Management I, but all the other courses are very good (detail and worthy subjects). Hope the following will help:

Typical Phases of Project Planning - the AIAG (Automotive Industry Action Group) book on Advanced Quality Planning has a good time line for this activity.

Time Lines - One thing that Honda Motor Company requires from suppliers is to track the "critical path" on each component launch. This allows one to manage changes faster and accurately identify due date slips. If the proposed change does effect the critical path, then countermeasures are required to recover (fully restore) the original plan due date. Students should learn that no matter the source of change (customer, internal, or your supplier) the due date never changes. The customer Shall build their trial vehicles on the dates they plan.

Customer Requirements - Toyota has what they call TPMS (Toyota Part Master Schedule) which is the main input to the project management. No matter what project, in the planning stage, customer deliverables are the primary consideration and are easily lost when the engineer becomes evolved in hundreds of details. I like the Toyota way (concerning focusing engineers) since the customer time line is always the first line of the chart, second is the supplier (our plan on a larger perspective), then all the other fine details follow (supporting details). All your activity rolls up into achieving the customer schedule.

SIU's IT Professor staff is always refreshing to work with, each of you have a lot of positive energy and desire to change and improve. I am sorry that I was not able to participate in person and I hope to make a larger contribution to SIU in the future.

Have a good day,

CWK

IT 110
Geometric Dimensioning & Tolerancing
Fall 2007

Instructor:	TBA
Office:	TBA
Classroom:	TBA
Office Hours:	TBA
E-Mail:	TBA

COURSE OBJECTIVE: This course will present the principles of geometric dimensioning and tolerancing (GD&T) as it applies to industry accepted standards, such as ANSI/SME Y14.5M – 1994. This includes the use and meaning of GD&T symbols on manufactured part drawings. The interpretation of GD&T symbols in feature control frames and the application of GD&T symbology to various working drawings is emphasized.

TEXTBOOK: "Geometric Dimensioning and Tolerancing", David Madsen ?
ISBN- 1-56637-977-6

Good Student Book

MAJOR TOPICS:

- ANSI/ASME Y14.5M standard
- GD&T rules and practices
  - Maximum material conditions (MMC)
  - Least material conditions (LMC)
  - Extreme form variation
- GD&T symbols and terms
  - Feature Control Frame
  - Basic dimensions
  - Geometric characteristic symbol
  - Bonus tolerance
- Datums
  - ANSI/ASME Y14.5M symbols
  - Datum targets
- Form and Profile Tolerances
  - Straightness
  - Flatness
  - Circularity and Cylindricity
  - Profile of a line/surface
- Orientation and runout
  - Parallelism
  - Perpendicularity
  - Angularity
- Location tolerances
  - Position
  - Concentricity
  - Virtual condition

MINIMUM STUDENT COMPETENCIES:

- Interpret dimensioning rules

IT 470a
Six Sigma Green Belt
Fall 2007

Instructor: Dr. Tomas Velasco
Associate Professor
Department of Technology
Southern Illinois University Carbondale
Phone: (618) 453-7842
Fax: (618)453-7455
E-Mail: velasco@engr.siu.edu

COURSE OBJECTIVE: The purpose of this course is to provide the student with a comprehensive coverage of the basic techniques, tools, and applications of the "Six Sigma" methodology at the green-belt level. Real-life data from manufacturing companies will be evaluated (*if available*) and analyzed for better understanding of the concepts to be learned in this course. Topics include: Definition of Six Sigma, Designing for Six Sigma, Definition of teams, customers, projects, tools, and resources utiliced in the first phases of the Six Sigma methodology.

TEXTBOOK: CSSGB PRIMER, Quality Council of Indiana, www.qualitycouncil.com, 2006.

EQUIPMENT: A hand-held scientific calculator is required.

EVALUATION:

Exam 1	20%
Exam 2	20%
Exam 3	20%
Quizzes and Homework	20%
Term Project	20%

MUST HAVE

GRADING STANDARDS:

A:	90-100%
B:	80-89%
C:	70-79%
D:	60-69%
F:	<60%

COMPARE AGAINST ASQ BOK

GRADING POLICY: Missed examination will have a 10% penalty unless an appropriate, prior excuse is given to the instructor. The missed examination must be completed on the make-up date set by the instructor.

ACADEMIC CONDUCT: Cheating on examinations, submitting work of other students as your own, or plagiarism in any form will result in penalties ranging from an **F** on the assignment to expulsion from the university, depending on the seriousness of the offense.

MAJOR TOPICS:

- Six Sigma and the organization
- Value of Six Sigma
- Organizational drivers and metrics

IT 470b
Six Sigma Green Belt
Spring 2008

Instructor: Dr. Tomas Velasco
Associate Professor
Department of Technology
Southern Illinois University Carbondale
Phone: (618) 453-7842
Fax: (618)453-7455
E-Mail: velasco@engr.siu.edu

COURSE OBJECTIVE: The purpose of this course is to provide the student with a comprehensive coverage of techniques, tools, and applications of the "Six Sigma" methodology at the green-belt level. Real-life data from manufacturing companies will be evaluated (*if available*) and analyzed for better understanding of the concepts to be learned in this course. Topics include: Probability Distributions, Measurement System Analysis, Process Capability Analysis, Exploratory Data Analysis, Hypothesis Testing, and Statistical Process Control (SPC).

TEXTBOOK: CSSGB PRIMER, Quality Council of Indiana, www.qualitycouncil.com, 2006.

EQUIPMENT: A hand-held scientific calculator is required.

EVALUATION:

Exam 1	20%
Exam 2	20%
Exam 3	20%
Quizzes and Homework	20%
Term Project	20%

MUST HAVE

GRADING STANDARDS:

A:	90-100%
B:	80-89%
C:	70-79%
D:	60-69%
F:	<60%

GRADING POLICY: Missed examination will have a 10% penalty unless an appropriate, prior excuse is given to the instructor. The missed examination must be completed on the make-up date set by the instructor.

ACADEMIC CONDUCT: Cheating on examinations, submitting work of other students as your own, or plagiarism in any form will result in penalties ranging from an **F** on the assignment to expulsion from the university, depending on the seriousness of the offense.

MAJOR TOPICS:

- Discrete Probability Distributions
- Continuous Probability Distributions including Sampling Distributions
- Measurement System Analysis
- Process Capability Studies

IT 480
Six Sigma Black Belt
Fall 2008

Instructor: Dr. Feng-Chang Roger Chang
Associate Professor
Department of Technology
Southern Illinois University Carbondale
Phone: (618)536-3396
Fax: (618)453-7455
E-Mail: chang@engr.siu.edu

Is IT 470 A/B A pre-requisite?

COURSE OBJECTIVE: This course will cover the knowledge areas of six sigma beyond green belt training. Topics include analysis of variance (ANOVA), fractional factorial experiments, Taguchi robustness concepts, response surface methodology, robust design and process, and other advanced six sigma principles and techniques.

TEXTBOOK: CSSBB PRIMER, Quality Council of Indiana, www.qualitycouncil.com, 2001.

EQUIPMENT: A hand-held scientific calculator is required.

EVALUATION:

Exam 1	20%
Exam 2	20%
Quizzes	10%
Homework	10%
Term Project	
Written Report	15%
Oral Presentation	15%
Class Participation and Attendance	10%

GRADING STANDARDS:

A:	90-100%
B:	80-89%
C:	70-79%
D:	60-69%
F:	<60%

GRADING POLICY: Missed exams have a 20% penalty unless an appropriate, prior excuse is given to the instructor. The missed exam must be completed on the make-up date set by the instructor.

ACADEMIC CONDUCT: Cheating on examinations, submitting work of other students as your own, or plagiarism in any form will result in penalties ranging from an **F** on the assignment to expulsion from the university, depending on the seriousness of the offense.