This document contains a full proposal for a master's degree program within the Department of Industrial and Systems Engineering. This plan is organized in accordance with the guidelines set forth by the Ohio Board of Regents in Guidelines and Procedures for Review and Approval of Graduate Degree Programs (1). In Vision Ohio, the Ohio University strategic plan adopted in 2004, a priority for Distinctive Graduate Education. Since the state of Ohio has no public university with a graduate degree in Engineering Management (2), Ohio University will be able to provide a unique program across the state. In addition, through a formal on-line offering, this program will be available to practicing professionals across the United States and beyond.

DESIGNATION, RATIONALE, DEFINITION AND DESCRIPTION OF THE PURPOSE

The Department of Industrial and Systems Engineering proposes the establishment of a professional degree with the title of Master of Engineering Management (MEM). The rationale of this program is to create a degree which builds upon a student’s existing Bachelors of Science degree and experience to produce an effective engineering manager. Since 1998, we have delivered a track of our Master of Science in Industrial and Systems Engineering via distance education; this new degree would allow us to differentiate and specialize this degree as well.

While Engineering Management is not a traditional engineering discipline, it is an established field of engineering which combines technical aspects of engineering and with management skills. A web search survey of graduate programs across the United States shows that many universities now have degree programs titled Master of Engineering Management, Master of Science in Engineering Management or a very similar name. A large number of universities also offer degrees with a similar focus (e.g. Master of Science in Technology Management) or offer an Engineering Management focus in traditional degrees like Master of Science in Industrial Engineering or Civil Engineering. At Ohio University, we have been offering an Engineering Management focus with our Master of Science in Industrial and Systems Engineering to cohorts of students studying via live video distance education since 1998.

Although MEM may sound similar to an MBA, there are very significant differences. We differentiate the two by the course of study and the student base. The MEM builds on the technical education of students by including mathematics-based courses such as statistics, quality control, and operations research. The target students are practicing engineers (and other technical positions) who seek to build their career, while remaining in their technical field.
Given the broad range of engineering disciplines, the Accreditation Board for Engineering and Technology (ABET) has established accreditation criteria for programs in engineering management. Engineering Management focuses on: 1) the engineering relationships between the management tasks of planning, organization, leadership, control, and the human element in production, research, and service organizations, and 2) an understanding of and dealing with the stochastic nature of management systems (3). These criteria are maintained by the Institute of Industrial Engineers, with support from the professional societies from Chemical, Civil, Mechanical, Electrical, Manufacturing and Petroleum engineering. Under these criteria ABET, which primarily accredits undergraduate programs, has accredited 9 Bachelor of Science degrees in the United States as meeting these criteria. Of note, the AFIT (Air Force Institute of Technology) Master of Science in Engineering Management is the only graduate program receiving accreditation.

DESCRIPTION OF THE PROPOSED CURRICULUM

This degree will provide students with a combination of foundaation courses in statistics, information systems and quality, not typically provided in most engineering and science disciplines. Building on that foundation, advanced courses in project management and operations research will help produce graduates capable of managing technical development projects. The special disciplinary purpose and significance of this program is that it provides a foundation in the practice of management to engineers and scientists who find they are directing teams of other engineers and scientists.

The following curriculum is based on our current academic quarter system and is a projection of the curriculum we intend to offer.

A. **Statistics (12 Hours)** As the stochastic nature of management is highlighted in the ABET criteria, statistics, probability and quality will be a significant part of the curriculum. Specific topics will include: engineering statistics, design of experiments, quality control and six sigma.

B. **Information Systems (8 Hours)** As management and control of systems is now performed via data contained in information systems, students will take courses in information systems and database systems.

C. **Engineering Management (19 Hours)** To add breadth to the foundation, courses in engineering writing, engineering economic analysis, project management, operations research foundations in engineering management, engineering law and policy and management decision making will be delivered.

D. **Engineering (8 Hours)** We expect our students to be engineers as a primary occupation and some may choose to continue graduate study in their discipline. As such, we will allow up to 8 hours of graduate engineering course work from engineering classes distinct from the EM courses. If students choose not to apply courses outside EM, we will provide additional courses which fit within the EM domain.

E. **Project (4 Hours)** Students will complete a four (4) hour individualized project which will culminate in a submitted written report.

With this program, we will replace the current specialization in Engineering Management in our Master of Science in Industrial and Systems Engineering with this cohort-based distance education MEM. We believe that with a professional degree, we can create a more accessible degree for practicing professionals. At present, courses designed to level students with various engineering
and science degrees are very challenging for students. With a non-research based program, courses like statistics and probability theory can be refocused to cover more statistical analysis. And while offering the MS degree has been a success over the last 9 years, a professional degree will reach a broader audience. We have also contracted with Compass Knowledge Group to investigate a nationwide online delivery of this program.

**ADMINISTRATIVE ARRANGEMENTS FOR THE PROPOSED PROGRAM**

Ohio University's Russ College of Engineering and Technology, as well as the Department of Industrial and Systems Engineering, will oversee the degree of Master of Engineering Management. The chief administrative officer will be the Dean of the College. The degree program will adhere to the policies and procedures of the University Curriculum Council and the Graduate Council of Ohio University. The program will function under the Director of Engineering Management, as appointed by the Dean, and under the supervision of the Graduate Chair of the Department of Industrial and Systems Engineering and the Chair of the Department.

**EVIDENCE OF NEED FOR THE NEW DEGREE PROGRAM**

The Department of Industrial and Systems Engineering has been offering a specialized non-thesis track for its existing Master of Science in Industrial and Systems Engineering with a similar curriculum since 1998. Offered through distance education to the Ohio University regional campuses and Lorain County Community College, the program has graduated over 100 students and currently enrolls 20 students.

**NATIONAL NEED**

The Bureau of Labor Statistics' 2006-2007 Occupational Outlook Handbook (4), projects the long term need for employees in most occupations. In their most recent report, they project the employment need, over the next 8 years, for 14 major engineering disciplines, as well as engineering managers (termed Engineering and Natural Sciences Managers). Of those 15 disciplines, many are projected to have employment which remains the same or declines. Only Engineering Managers and the engineering disciplines of Agricultural, Biomedical, Environmental and Industrial are projected to grow at or above the economy (increase by 10% or more). In their November 2004 National Occupational Employment and Wage Estimates, the BLS project Engineering Management as having 188,620 members, which is larger than all but the engineering disciplines of Mechanical, Electrical and Civil (5). The small number of ABET accredited BS Engineering Management programs, combined with fact that most Engineering Management degree programs are at the Masters level makes it clear that programs like the proposed MEM are the primary method for training engineering. In their analysis of market potential for this degree, Compass Knowledge Group (6) identified a population of 750,000 eligible engineers, with another 500,000 eligible technical managers with math and science backgrounds. Based on aggressive marketing, they project an enrolment of over 150 students.

One concern with a practicing discipline relying on a graduate education to produce the workforce is the pedagogical mechanism by which practitioners matriculate. Since engineering managers are
primarily classically trained engineers who advance into management positions, a residential full-time graduate degree program is not feasible. These engineering managers are often mid career and cannot afford professionally or financially to leave their career for a full time educational commitment. Programs such as the MEM provide a professional degree that can be earned during a career.

OHIO NEED

The State of Ohio has no graduate degree specifically titled Master of Engineering Management (2). The University of Akron has a Master of Science in Engineering with an Engineering Management Specialization. The University of Dayton and the Air Force Institute of Technology have Master of Science in Engineering Management degrees, and Case Western Reserve has Master of Science in Engineering and Management. Ohio University offers a Master of Science in Industrial and Systems Engineering with a track in Engineering Management.

In 2007, the BLS estimated that the state of Ohio had 6,080 engineering managers (7). Our successful distance education program offering the Master of Science in Industrial and Systems Engineering with a track in Engineering Management demonstrates a need for graduate engineering management education.

PROSPECTIVE ENROLLMENT

The current distance education program delivering the Master of Science in Industrial and Systems Engineering to the target audience has averaged 20-35 enrolled students since 2000. Run as a cohort, students from all over southern and eastern Ohio have enrolled. The Master of Engineering Management will serve these students via distance education. In this way, we can tailor the degree to the typical student, a full-time employed engineer. We expect the degree in the first year to enroll 15 to 20 students, the typical cohort size, and add an additional 15 to 20 per year, with each cohort taking two years to complete. Through an online offering, partnered with Compass Knowledge Group, this number is projected to increase by an order of magnitude. Compass has helped other programs manage this growth while maintaining academic quality and rigor.

We have also seen interest from recent Ohio University graduates in several engineering disciplines, as well as from applicants outside of Ohio. Several students have been enrolled in Engineering Management track under the Master of Science in Industrial and Systems Engineering. While we have not typically enrolled local campus students into the Engineering Management track, this option is available and a separate degree program may better suit those students. Marketing this program to Athens campus students should increase enrollment by 5-10 per year. However, with a nationally marketed online program, we anticipate over 75 new students per year.

SPECIAL EFFORTS TO ENROLL AND RETAIN UNDERREPRESENTED GROUPS

Many companies and organizations provide accelerated leadership programs which provide engineers from underrepresented groups access to management positions. As with many engineers and scientists, members of these groups many not be prepared for the engineering management
role. The Master of Engineering Management degree will provide engineers and scientists with an applied degree that will help them develop their engineering management skills. It may also be possible to work with companies throughout the region to help with their engineering leadership programs.

Ohio University has a number of special programs dedicated recruiting and retaining graduate students from underrepresented groups. The office of Graduate Studies at Ohio University encourages students from underrepresented groups to attend Ohio University graduate programs through a variety of programs run through the Multicultural Graduate Affairs offices [8]. For example, in 2007, this office sponsored a Multicultural Graduate Students Visitation event that brought prospective multicultural graduate students from a variety of institutions across the U.S. (including a number of historically black colleges and universities) to Ohio University. The Russ College of Engineering and Technology participated in this event by hosting at least 10 students during this 2 day event. The Department of Industrial Systems Engineering will coordinate its efforts to recruit and retain students from underrepresented groups with the Russ College of Engineering and Technology and the office of Multicultural Graduate Affairs at Ohio University.

FACULTY AND FACILITIES AVAILABLE FOR THE DEGREE PROGRAM

The Industrial and Systems Engineering Department has eight full-time faculty members and a department chair. All faculty members possess Ph.D.’s in Industrial Engineering, Systems Engineering or closely related disciplines from respected engineering schools. The current faculty members have doctorates from: Louisiana State, Cincinnati, Oakland, Penn State, University of Southern California, West Virginia University, Wichita State, Tennessee and Soul National University. All are members of the Russ College Graduate Faculty and actively publish and conduct research.

The Industrial and Systems Engineering Department has delivered the Master of Science in Industrial and Systems Engineering degree to the same audience targeted by the MEM program since 1998 using the distance education facilities available at Ohio University. The Ohio University Learning Network maintains two live-video distance education classrooms on each regional campus as well as four classrooms on the Athens campus. Ohio University has contracted with Compass Knowledge, of Orlando, FL to help develop the MEM program into a nationally marketed online degree program. Compass Knowledge has been developing online degree programs since 1993 and has developed over 50 online programs for major public and private universities. Some of their partner schools include: Boston University, Northwestern University and the University of Florida.

NEED FOR ADDITIONAL FACILITIES AND STAFF AND THE PLANS TO MEET THIS NEED.

Since the Industrial and Systems Engineering Department has been offering a track within the Master of Science in Industrial and Systems Engineering degree to a similar audience, we anticipate no additional facilities or faculty will be required. The Russ College has supported the development of a new live-video distance education classroom within the department of Industrial and Systems Engineering.
Engineering to aid in delivery of the proposed program. If on-line classes are offered, a facilitator will be provided to assist faculty in delivering the courses.

**PROJECTED ADDITIONAL COSTS ASSOCIATED WITH THE PROGRAM AND EVIDENCE OF INSTITUTIONAL COMMITMENT AND CAPACITY TO MEET THESE COSTS.**

The current enrollment in the Engineering Management track of the ISE MS program has varied between 10 and 17 students per cohort. The enrollment is expected to remain steady. Currently, six of the 13 courses taught each year are delivered in-load, while the other seven are delivered as overload. Table 1 shows the income and expenses for the current delivery structure. The salaries include the cost of one group I faculty, seven overload contracts and a salary increment for the director. About $5000 is required to maintain the video classroom, and the director uses about $7500 for promotion and travel. A 3% inflationary factor is used for all expenses and income calculations. There will be no incremental cost associated with program.

<table>
<thead>
<tr>
<th>Table 1 Income and Expenses for Traditional Cohort Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of students</td>
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<tr>
<td>--------------------</td>
</tr>
<tr>
<td>Expenses</td>
</tr>
<tr>
<td>Salaries and Benefits</td>
</tr>
<tr>
<td>Promotion and Travel</td>
</tr>
<tr>
<td>Equipment</td>
</tr>
<tr>
<td>Income</td>
</tr>
<tr>
<td>Tuition</td>
</tr>
<tr>
<td>Subsidy</td>
</tr>
<tr>
<td>Income minus Expenses</td>
</tr>
</tbody>
</table>

Table 2 shows the revenue projections if the program is converted to an on-line delivery mode in collaboration with CompassKnowledge. The enrollment projects where taken from the marketing report developed by CompassKnowledge (6), base on a national demand for the degree. It is still expected that six courses will be delivered in-load and seven overload. To assist in the large class enrollments facilitators will be assigned to the aid the faculty. These will either Ph.D. students or Group II faculty. A Group II faculty will be assigned 60 students. Salary and benefits for a Group II faculty is estimated to be $64,000/year. The same cost estimated is used for Ph.D. students, under
the assumption that they would be assigned 30 students to facilitate and would receive $32000/year in stipend and fee waivers. $5000 per course expense is added to account for the conversion of existing courses to an on-line format. CompassKnowledge fees include a $75,000 initial payment in the first year and then 55% of the tuition charged. Once the enrollment exceeds 100 students, the cost of a half-time administrative assistant is included to help manage the paperwork. The major incremental cost is the course conversion and the one-time fee to CompassKnowledge. The cost of the facilitators and administrative assistant is dependent on enrollment and is far less than the increase income due to that enrollment.

<table>
<thead>
<tr>
<th></th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number of students</strong></td>
<td>30</td>
<td>111</td>
<td>162</td>
<td>162</td>
<td>162</td>
</tr>
<tr>
<td><strong>Expenses</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Salaries and Benefits</td>
<td>177,042</td>
<td>182,353</td>
<td>187,824</td>
<td>193,459</td>
<td>199,262</td>
</tr>
<tr>
<td>Compass Fees</td>
<td>230,727</td>
<td>593,476</td>
<td>892,138</td>
<td>918,902</td>
<td>946,469</td>
</tr>
<tr>
<td>Course Development</td>
<td>30,000</td>
<td>35,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Facilitators</td>
<td>32,000</td>
<td>131,840</td>
<td>203,693</td>
<td>209,804</td>
<td>216,098</td>
</tr>
<tr>
<td>1/2 Administrative Assist.</td>
<td>22,500</td>
<td>23,175</td>
<td>23,870</td>
<td>24,586</td>
<td></td>
</tr>
<tr>
<td><strong>Income</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tuition</td>
<td>283,140</td>
<td>1,079,047</td>
<td>1,622,069</td>
<td>1,670,732</td>
<td>1,720,853</td>
</tr>
<tr>
<td>Subsidy</td>
<td>242,667</td>
<td>924,803</td>
<td>1,390,203</td>
<td>1,431,909</td>
<td>1,474,867</td>
</tr>
<tr>
<td><strong>Income minus Expenses</strong></td>
<td>56,038</td>
<td>1,061,180</td>
<td>1,728,618</td>
<td>1,780,476</td>
<td>1,833,891</td>
</tr>
</tbody>
</table>

**ENTRY LEVEL GRADUATE DEGREE / PROFESSIONAL DEGREE JUSTIFICATION**

The Master of Engineering Management degree utilizes graduate coursework from the Department of Industrial and Systems Engineering and the Russ College of Engineering and Technology to provide graduates of engineering and technical bachelor's programs with a set of skills appropriate for managing teams of engineers and directing technical projects. The substantial differences from the Bachelor of Science in Industrial and Systems Engineering degree are the: 1) increased emphasis on probability, statistical analysis and quality, 2) de-emphasis on manufacturing and 3) focus on managing teams and projects. These differences allow an engineer or other trained technical person to develop a better understanding of the variability of the processes they are directing.

As a professional degree, the Master of Engineering Management program will draw the majority of its students from full-time employees. Experience with delivering the Master of Science in Industrial and Systems Engineering degree to a similar audience has shown that students with technical or engineering degrees can successfully complete the courses and graduate. As such, we will restrict admission to applicants holding a bachelor's of science degree. Regardless of
undergraduate degree, all applicants must have earned a GPA of 2.75 to be admitted into the program. Applicants without a degree in engineering or a mathematics intensive discipline will be required to submit GRE test scores. All applicants will be required to submit transcripts, as well as two letters of recommendation. With respect to theory and practice in the curriculum, several courses in the degree (see section I) will focus only on theory (Engineering Statistics, Design of Experiments) or a combination of theory and practice (Quality Control, Six Sigma, Database Information Systems, Engineering Economic Analysis, Operations Research and Foundations in Engineering Management).

As a culminating experience, students will demonstrate in a final project the application of a topic or topics covered in the program.

- Possible Final projects might be:
  - designing a database system to manage engineering change orders,
  - developing a plan to address supplier quality problems, or
  - implementing an ergonomics program.

**CHANGES TO ADDRESS COMMENTS FROM REVIEWERS**

There were several responses we felt should be addressed by changes in the proposal. We have adjusted the course content, admissions requirements and potential audience to address these comments.

A. One comment points out that their specialization in EM contains a portion of courses from their College of Business. In examining our proposed curriculum, we have identified the courses which focus on management topics. Those are formalized into the Information Systems and Engineering Management Areas. In our most recent cohort of the EM track of the MSISE degree, we hired a faculty member from the College of Business to teach a course in Engineering Law and Policy. This course was well received and we will formalize this experimental course as a new course offering. However, we consider this degree to be, fundamentally, an engineering degree, built within the structure of a professional degree. Our intention is to market it primarily to engineers and similar science and technical workers. We believe that a professional degree, with a focus on engineering, provides these individuals with the best opportunity. Beyond that, ABET considers EM an engineering discipline which focuses on management. Our program builds upon their characterization.

B. A related comment asks what differentiates the proposed degree from our existing ISE degree. First, ISE is similar to EM, witnessed by the Institute of Industrial Engineers developing and administering the ABET accreditation of EM. Notwithstanding, the courses in this degree program compose topics beyond the BSISE degree, including courses in management, decision making and law. At the graduate level, students focus on specific areas, including our present EM track. This program will formalize this track and provide a professional degree program.

C. Another comment concerned the vagueness of the admission requirements. To address this, we have added the following requirements to the text. All students must have a
Bachelors of Science degree. Those without a BS degree in engineering, math or a natural science must take the GRE and meet all Russ college guidelines for admission. Also, all students must also have earned a 2.75/4.0 GPA in their undergraduate degree.

D. One comment concerned the structure and order of the courses in the program, as some perceived prerequisite sequences are apparent in the course titles. We envision only two courses serving as prerequisites to other courses. Those courses are engineering statistics and engineering writing. Those courses serve as the foundation in communication and mathematics for all other courses. When appropriate, we will offer those courses more frequently to meet demand for students entering the program.

E. A final comment inquired as to the applicability of engineering coursework from outside EM. On review, we agree that engineers moving into management positions may need to cover more advanced technical topics within their discipline to become more effective. We will give credit towards those courses for a limited number of hours. We believe this will increase the audience for the MEM. However, we will not commit to offering any courses outside of the EM courses we have proposed to offer herein.
BIBLIOGRAPHY

1. **Ohio Board of Regents.** *Regents’ Advisory Committee on Graduates Study (RACGS).* [Online] [Cited: January 21, 2009.]


3. **Accreditation Board for Engineering and Technology.** CRITERIA FOR ACCREDITING ENGINEERING PROGRAMS. *ABET.* [Online] [Cited: 1 21, 2009.]


APPENDIX A - VITA

The following faculty are currently members of the ISE Department:

- Robert Judd, Ph.D
- David Koonce, Ph.D
- Dale Masel, Ph.D
- Namkyu Park, Ph.D
- Diana Schwerha, Ph.D
- Dusan Sormaz, Ph.D.
- Gursel Suer, Ph.D
- Garry Weckman, Ph.D
- Tao Yuan, Ph.D
ROBERT JUDD, PH.D

Dr. Robert P. Judd
Cooper Industries Professor
Department of Electrical and Computer Engineering
Ohio University
Athens, Ohio 45701
(740) 593-0106

Education

Oakland University, Ph.D. in Systems Engineering, 1981
Dissertation Title: Discrete Time Quantized Data Systems
Oakland University, MS, 1979
Major: Mechanical Engineering
The Cooper Union for the Advancement of Science and Art, BSE, 1978
Majors: Electrical and Mechanical Engineering

Employment

2005-Present: Chair, Industrial and Manufacturing Systems Engineering
1992-Present: Cooper Industries Professor, Ohio University
1987-1991: Associate Professor, Oakland University
1988-1989: Senior Researcher, Industrial Technology Institute
(While on sabbatical leave from Oakland University)
1982-1987: Assistant Professor, Oakland University
1981-1982: Visiting Assistant Professor, Oakland University

Teaching Accomplishments:

Dr. Judd has taught a wide variety of courses at both the graduate and undergraduate level, including: Introduction to Computer Programming, Digital Electronics, Circuits, Lumped Parameter Linear Systems, Automatic Controls, Modern Control Theory, Digital Control Theory, Robotics, Advanced Robotics, CAD/CAM, Computer Integrated Manufacturing, Control of Manufacturing Systems, Discrete Event Systems, and Java with Manufacturing Applications.

Dr. Judd has completely designed and equipped the following laboratories: robotics, industrial controls, computer integrated manufacturing, and large-scale software development. The robot laboratory included an industrial robot and several instructional robots. The industrial controls laboratory consisted of an industrial process control unit and several industrial PLCs connected by computer simulations of manufacturing systems. The CIM lab integrated two CNC machines with a GMF robot and a UNIX workstation to form a completely automated work cell. The work cell was completely integrated to the college's CAD/CAM computers. The large-scale software development laboratory consists of computers configured with about a dozen state-of-the-art software development and manufacturing packages.

Dr. Judd has developed and organized the following short courses and conferences:

1. Three-day short course in robotics for engineers and managers. (The course was successfully taught at five different occasions.)
2. International Symposium on Driving Simulation.
3. Eighth Meeting of the Coordinating Group on Modern Control Theory.
4. Intelligent Control Systems in Manufacturing.
5. One-day seminars in CIM technologies for Goodyear Aerospace engineers and managers.
6. Co-organizer for the Intelligent Manufacturing Conference sponsored by IFAC, IEEE, ASME and SCS.
7. Publication chair of the 1997 American Controls Conference.
8. Publicity Chair for the 2002 American Controls Conference.
9. General Chair for the 2007 American Controls Conference

Dr. Judd has graduated seven Ph.D. students and supervised over 40 Master’s level student theses/projects. Currently, he is advising two Ph.D. students and six Master students. Dr. Judd was twice nominated for the Oakland University’s Outstanding Teacher Award. He also won the EECS department teaching award and was nominated for the Stocker Teaching Award at Ohio University.

Research Accomplishments

Research Projects

COMPEATS Cost Model Development and Maintenance. ($2.1M, on-going) General Electric Aircraft Engines contracted with Ohio University to investigate and update their cost models for jet engines. In recent testing of the new methodologies developed at OU, we have shown that the accuracy of our estimates is double that of GE's current techniques. These techniques are now being transferred to other GE businesses.

Federated Intelligent Product Environment (FIPER). (OU portion $1.1M, 1999-2003) This is a $22M ATP program involving General Electric Aircraft Engines, Parker Hannifin, BF Goodrich, Engineering Software, Ohio University, and Ohio Aerospace Institute. FIPER will integrate design, analysis, optimization, and cost tools to form a more automated environment for engineers to design advance products.

Composite affordability initiative. ($85K, 1998-99) Dr. Judd created an interface that integrated General Electric Aircraft Engines' cost system, COMPEATS, to Gailorath's See DFM cost tool with a plug-in to estimate composite processes. This gave COMPEATS the ability to more accurately estimate composite engine parts.

Integration of CAD, CAPP and MRPI. ($314K, 1996-98) This National Science Foundation project examined the theoretical issues in integration of very diverse software applications, such as CAD, CAPP and MRPI.

Intelligent Machining Workstation. ($130K, 1994-96) Dr. Judd worked with the Ohio Aerospace Institute and General Electric Aircraft Engines to develop an Intelligent Workstation to determine the fixtureing, tooling, tool paths, machining parameters, and costs of manufacturing jet engine components.

Interface of a PLC with Discrete Event Simulation Language. ($45K, 1995 and $47K, 2000) Dr. Judd has developed an interface between an industrial PLC controller and a discrete event simulation tool. Island Fisher Guide, a division of General Motors, and DaimlerChrysler funded this project and continue to use the technology.

The following projects were done during the period 1988-93 for the Industrial Technology Institute. Total funding for the projects was about $255K.

- Design of an integrating framework for diverse simulation tools. Dr. Judd was the chief technical designer of XFaST which integrates several commercially available tools (e.g., SIMAN, RobCAD and Fiecis) into a single system which can concurrently simulate material flow, coordinated control, and 3-d kinematics of a proposed factory system design. Other simulation tools can be added to the XFaST framework. XFaST has been used to identify and correct problems of factory systems before committing the design to hardware. This technology was developed with personnel at the Industrial Technology Institute and has been patented.

- Specification language for diverse simulation tools. Dr. Judd developed a specification language, XSpec, for large complex systems. This language is based on object-oriented techniques. It specifies in a neutral format the interface requirements of the subsystems designed and built by different engineering disciplines.
Integration of Specification and Simulation tools. Dr. Judd developed a data meta-model that is used to store both an IDEF-0 model of a manufacturing system and the simulation models of the same system. Using this model, IDEF-0 models can be translated to discrete event simulation languages.

Design of the control strategies for an automobile gear weld line. Dr. Judd was the chief designer of a control system for a gear weld line for the Saturn Corporation. The improved control strategies increased the efficiency of the line by 40% and simplified some of the mechanical components of the line.

Design of a modular material transportation control system. Dr. Judd was the chief designer of a modular controller for a material transportation system. The control system can be adapted to any system layout and routing by simply reconfiguring data files.

Development of a clay carving system for automobile models. ($167K, 1984-86) Dr. Judd developed a robotic system to carve clay models of automobiles. This system automatically processes a CAD data model of the automobile and converts it to an appropriate robot program. Also, significant effort was devoted to enhancing the accuracy of the robot. Accuracy was increased by a factor of ten.

A new approach for the control of the gun-pointing system for a M1 tank. ($168K, 1984-88) Dr. Judd developed a new control scheme, based on a table lookup technique, to control the gun-pointing system of a military tank system.

Grant:


R. Judd and D. Dhamija, “Intelligent Brik Machining,” Philips Machinefabrieken, 2000, $12,164.


Editor for a Special Edition of the International Journal of CIM


U. S. Patent


Book Chapter


Publications


Wenle Zhang and Robert Judd, "Deadlock avoidance algorithm for flexible manufacturing systems by calculating the effective free space in circuits," Proceedings of the 2005 ACC, June 8-10, Portland Oregon.


Keynote speaker for the Conference on Next Generation Concurrent Engineering, July 25-29, 2005, Fort Worth, Texas. Title of talk: "Data Exchange among legacy codes in a service based environment." This paper was co-authored with Arun Nambiar and Jadah Greenblatt.


**Honors and Awards**

SCS Distinguished Service Award.

Nominated for the Ohio University Presidential Scholar Award.

Cooper Industries Named Professorship.

EECS Teaching Award.

Nominated for the Stocker Teaching Award.

Twice nominated for the Oakland University Teaching Excellence Award.

SCS Senior Member.

Member of Tau Beta Pi and Eta Kappa Nu.

**Professional Service Accomplishments**

Dr. Judd reviewed approximately 75 journal submissions for the IEEE, ASME, SCS and other organizations.
General Chair for the 2007 American Controls Conference.

Associate Editor for Manufacturing Systems of the Journal Simulation, 1994-present.

Publicity chair for the 2002 American Controls Conference.


Publication chair for the 1997 American Controls Conference.

Co-chair of the International Conference on Intelligent Manufacturing Systems sponsored by OFAC, IEEE, ASME, SCS, and SME.

Secretary of SCS, 1994-1996.

Active in organizing short courses and conferences.

Senior Member of both IEEE and SCS.
DAVID KOONCE, PH. D.

David A. Koonce, Ph.D.
Director of Engineering Management and Associate Professor
Department of Industrial and Systems Engineering

Russ College of Engineering and Technology
Ohio University
Athens, OHIO 45701

Email: koonce@ohio.edu
Phone: 740.593.1550

Experience

- Director - Engineering Management Program - 9/2005 to Present
  - Ohio University
    - Manage the delivery of graduate degrees to regional campus students via compressed video
    - Coordinate campuses, students and faculty
    - Lead the proposal effort for a new Masters Degree

- Associate Professor - 9/1999 to Present
  - Ohio University Dept. of Industrial and Manufacturing Systems Engineering.
  - Assistant Chair and Graduate Chair 9/1999 to 6/2005
  - Research, Teaching and Service - Software Integration, Computer Integrated Manufacturing and Data Mining.
    - Associate Dean's Duties - Responsible for approval of theses and dissertations for the Russ College of Engineering and Technology (8/2000 to 6/2002).

- Software Engineer (Sabbatical) - 8/2002 to 11/2002
  - swissinfo / Swiss Radio International - Bern Switzerland
  - Software Engineer: Software design and development

- Instructor of Engineering Management Program - 1999 to Present
  - Ohio University Dept. of Industrial and Manufacturing Systems Engineering.
    - Teaching via compressed video (CV) to students in an off-campus Masters of Science program.

- Assistant Professor - 9/1993 to 8/1999
  - Ohio University Dept. of Industrial and Manufacturing Systems Engineering.

- Assistant Coordinator Advanced Workstation Laboratory - 12/1992 to 8/1993
  - LSU Dept. of Industrial and Manufacturing Systems Engineering.

- Graduate Research Assistant - 1/1989 to 12/1992
  - LSU Dept. of Industrial and Manufacturing Systems Engineering.

  - Louisiana Dept. of Environmental Quality.

Education

- Doctorate of Philosophy in Engineering Science - 8/1993
  - Louisiana State University, Baton Rouge, LA
  - Dissertation: An Integrated Multiple Manufacturing Data Source Blackboard Control Architecture

- Master of Science in Industrial Engineering - 12/1990
  - Louisiana State University, Baton Rouge, LA
  - Thesis: An Expert System Design to Provide Schedule Support

- Bachelor of Science in Industrial Engineering - 12/1988
  - Louisiana State University, Baton Rouge, LA

Extermally Sponsored Research

- NIST (ATP) Federated Intelligent Production Environment, 11/99-11/03, (OU $1.1 million, Team $22 Million)
• State of Ohio ITEC - Network Emulation Testbed for Quality and Service Protocol Studies, 8/02-8/03, $116,500
• NSF (GOLI). Integration of CAD, CAM, and MRP Systems, 1/98-12/99, $345,870
• NSF (REU), Research Experience for an Undergraduate Student, 09/06-06/07, $3,983
• DLA - Apparel Research Network, 12/03 – 11/08, $200,000
• Ace Technical Resources, Development of a Personnel Management Information System, 10/95-12/95, $3,000

Affiliations
• Engineer-in-Training 5/99 – Present (Louisiana)
• Institute of Industrial Engineers
  Vice President for Region 8 2001-2003
• American Society for Engineering Education
• Alpha Phi Mu - Industrial Engineering Honor Society
• Tau Beta Pi - Engineering Honor Society
• Order of the Engineer - Charter member LSU chapter

Publications
• Semantic Breakdown of Functionality of a Matrix of RFID Technology to Support Application Development with Vic Matta. Journal for Computer Information Systems. (Accepted - In Press)

CV: David A. Koonce, PhD


CV: David A. Koonce, PhD

CV: David A. Koonce, PhD


**Presentations**


"Using Distributed Genetic Algorithms To Evaluate Multiple Cell Scheduling Problems", May 2005, Industrial Engineering Research Conference, Atlanta, GA.


"Applying inductive logic programming for knowledge discovery in genetic algorithm’s solutions to a job shop schedule", May 2004, Industrial Engineering Research Conference, Houston, TX.


"Refined Rule Induction for Job-Shop Scheduling", May 2003, Industrial Engineering Research Conference, Portland, OR.


"Data Mining and IMSE", October 2001, Joint meeting Wright State, University of Dayton and Dayton Chapter, Wright State University.

CV: David A. Kooce, PhD


"A Federated Intelligent Product Environment (FIPER)", The 4th International Conference on Engineering Design and Automation, August 2000, Orlando, FL.

"Projects in the Integration of Design Process Tools at Ohio University" – Poster, May, 2000, Collaborations - An Industry/University Partnering Forum, Ohio Aerospace Institute, Cleveland, OH.


"An Integrated Manufacturing Information Environment" – Poster, April 1997, Coalition on National Science Funding, Washington, DC.


"Industrial Engineering and Artificial Intelligence", December 1993, Invited Lecture, University of Stellenbosch, Stellenbosch, South Africa.

CV: David A. Koonce, PhD
Education Enhancements
- Tuffie Workshop on Data Display May, 2007, Washington, DC.
- Ohio Aerospace Institute - Pathfinder Conference, Sept 1995, Cleveland, Ohio.

Courses Taught
- ISE 201 – Data for Management and Display
  - Fundamentals of data, analysis and graphing
- ISE 395/505 – Engineering Statistics I (3 quarter hours)
  - Introductory probability theory, discrete and continuous distributions
- ISE 390/500 – Engineering Statistics II (4 quarter hours)
  - Applied statistics estimation, hypothesis testing, regression, ANOVA
- ISE 330/530 – Engineering Economic Analysis (3 quarter hours)
- Analysis of costs for engineering designs and decisions
- ISE 507/507 – Design of Experiments
  - Classical DOE course up to Fractional Factorials
- ISE 427/527 – Manufacturing Information Systems (3 quarter hours)
  - Relational databases, SQL, relational algebra, integrity
- ISE 438/538 – System Modeling for Manufacturing (3 quarter hours)
- Fundamentals of Data modeling with IDEF0 and IDEF1X
- ISE 439/539 – Information Systems Engineering (3 quarter hours)
  - General MIS topics
- ISE 455/555 – Information Systems Engineering (4 quarter hours)
  - General information systems
- ISE 555 – Systems modeling
- ISE 456/556 – Database Information Systems (4 quarter hours)
  - Classical database systems class with project
- ISE 525 – Stochastic Systems
  - Statistical Analysis for Engineering Management Students
- ISE 630 – Graduate Seminar (1 quarter hours)
  - Quarter long topics ranged include: Professional Skills, Internet Search, Powerbuilder and CASE Tools.
- ISE 727 – Manufacturing Data Integration (3 quarter hours)
  - EXPRESS/STEP and XML based integration

Graduate Students
- Master of Science
  - Sadie Roth (2006) A Model to Predict Ohio University Student Attrition from Admissions and Involvement Data
  - Saket Khajria (2007) A Model to Predict Student Matriculation from Admissions Data
  - Sachin Gandhi (2005) Learning From A Genetic Algorithm With Inductive Logic Programming

CV: David A. Koonce, PhD

Ohio University - Master of Engineering Management
- Alok Innani (2004) Applying Data Mining to Job Shop Scheduling Using Regression Analysis
- Shishir Kantak (2003) Improving the Data Mining Exploration Technique for Job Shop Schedules by Using Multiple Data Sets
- Suporn Chenhansa (2001) XML in Logistics
- Viswanath Majeti (2000) Integration of Milling Operations into the Intelligent Machining Workstation
- Dilip Viswanath (2000) An Interface to Facilitate Data Flow In the Intelligent Machining Workstation
- Shi-Chi Tsai (1997) Using Data Mining to Explore the Regularity of Genetic Algorithms in Job Shop Scheduling Problems
- Chad Johnson (1997) The Integration of CAD/CAM with Virtual Machining Simulation and Cost Estimation
- Chen-Hung Fang (1998) Application for Data Mining in Manufacturing Databases

Doctorate of Philosophy
- Nhar Shah (current) Topic: Development of a hierarchical model for cost estimation

Awards
- Nominated for the Ohio University, Outstanding Graduate Faculty Award (2008)
- Marvin and Ann White IMSE Department Teaching Award (2004)
- Marvin and Ann White IMSE Department Teaching Award (2002)
- Marvin and Ann White IMSE Department Research Award (2001)
- Marvin and Ann White IMSE Department Teaching Award (2000)
- Marvin and Ann White IMSE Department Teaching Award (1999)
- Marvin and Ann White IMSE Department Research Award (1998)
- 1998 Discover Magazine Award for Technological Innovation - Nominee
- LSU College of Engineering Dean's Fellowship (1990 – 1993)

Service
- Ohio University Council for Research, Scholarship and Creative Activity 2006-Present
- Judge – Ohio University Research Fair 2006-Present
- Faculty Advisor - Tau Beta Pi Ohio Delta Chapter 1998 - Present
- Robe Leadership Institute Advisory Board 2004 - Present
- The 1304 Fund - Proposal Reviewer - 2005
- Vice-President, Institute of Industrial Engineers - In charge of US Region 6, 2001 – 2002
- Part-Time Associate Dean's Duties, Russ College of Engineering and Technology 2000 – 2002
- Responsible for approval of all theses and dissertations.
- Graduate Chair, IMSE Department, Ohio University, 1999 – 2005
- Responsible for review and admission of all Masters students.
- Annually allocate stipends for graduate appointments.

CV: David A. Koonce, PhD
- Approve of all graduate (GA, RA, and Fellowship) contracts.
- Member, Conference on Engineering Design and Automation International Advisory Board, 1999 - 2003
- Chair, IMSE Department Promotion and Tenure Committee, 1999 – 2005
  - Annually review of all probationary faculty.
  - Chair Promotion and Tenure meetings for faculty under consideration.
- Chair, IMSE Department, Ohio University EC 2000 Committee, 1999 – 2001
  - Developed methods for collection of data, review and revision.
- Chair, Russ College of Engineering and Technology Computer Advisory Committee, 1997 – Present
  - Special Project: Developed a college position paper on a proposed requirement for all students to purchase a laptop computer.
  - Special Project: Develop a 5-year computer lab plan and budget for the college, which resulted in a significant funding increase to the college and an eventual Technology Fee.
- NSF Unsolicited Proposal Reviewer, DMII, December, 1998
- NSF Unsolicited Proposal Reviewer, DMII, May, 1997
- Faculty Advisor - Alpha Pi Mu Ohio University 12/04 - 3/05
- Numerous Department, College and University Committees

CV: David A. Koonce, PhD
DALE MASEL, PH.D

Dale T. Masel
273 Stocker Center
Ohio University
Athens, Ohio 45701 USA

Office: 740.593.1541
Fax: 740.593.0778
Email: masel@ohiou.edu
Web: http://www.ent.ohiou.edu/~masel

Professional Preparation:
- Penn State University, University Park, Pennsylvania, Ph.D. Industrial Engineering, 1993
- Penn State University, University Park, Pennsylvania, M.S. Industrial Engineering, 1995
- University of Toledo, Toledo, Ohio, B.S. Industrial Engineering, 1993

Work Experience:
- Associate Professor, Industrial and Systems Engineering Department, Ohio University, Athens, Ohio, 2004 – Present
  
  Awards: Outstanding ISE Researcher, 2005 & 2008; Outstanding ISE Teacher, 2007
- Assistant Professor, Industrial and Systems Engineering Department, Ohio University, Athens, Ohio, 1998 – 2004
  
  Awards: Outstanding ISE Researcher, 2002; Outstanding ISE Teacher, 2003
- Instructor, Engineering Design and Graphics & Industrial and Manufacturing Engineering Departments, Penn State University, University Park, Pennsylvania, 1995 - 1998
  
  Courses: engineering graphics, probability, and engineering economy
  
  Responsibilities: Used AutoMod simulation software to develop and analyze models for industrial clients

Journal Publications:

Conference Publications:
  - Selected as Outstanding Paper, IE Division


• Masel, D.T., "Predicting the Performance of a Material Handling System using a Directed Graph Model." 2006 Material Handling Research Colloquium, June 2006, Salt Lake City, UT.


External Funding

• COMPEATS™ Cost Model Development & Maintenance, GE Aviation, 2000-present
  o Development cost estimation methodologies for jet engine components
  o Cumulative funding: $2.1 million (through EOY 2008)

• Development of Cost Models for GE Turbine Components, GE Energy, 2007-present
  o Developed cost estimation methodologies for jet engine components
  o Cumulative funding: $230k (through EOY 2008)

• Cost Modeling Enhancements, GE Infrastructure, 2008-present
  o Adapting cost estimation methodologies for use beyond preliminary design of jet engines
  o Development of cost estimation methodologies for new material technologies
  o Cumulative funding: $175k (through EOY 2008)

  o Grant Total: $7,000

  o Grant Total: $15,000

Ohio University - Master of Engineering Management

External Service Activities:
- Material Handling Industry of America/College-Industry Council on Material Handling Education
  Invited Attendee: Material Handling Teachers' Institute, 1999
  Award: Honorable Mention, CICMHE Student Design Competition, 2002 & 2003
- College-Industry Council on Material Handling Education, Member, 2004 – present
- Warehousing Education and Research Council, Member, 1999 – Present
- American Society on Engineering Education, Member, 2005 – Present
- Institute of Industrial Engineers, Member, 1991 – Present
NAMKYU PARK

RESEARCH INTERESTS

- Entrepreneurship
- Supply chain management
- Applied optimization in service systems
- Technology management and innovation
- Optimization in health care systems
- Financial and economic dynamics

EDUCATION

Post Doctorate, School of Industrial Engineering, Purdue University, West Lafayette, IN, 1995
Ph.D., Industrial Engineering, Seoul National University, Seoul, Korea, 1994
M.S., Industrial Engineering, Seoul National University, Seoul, Korea, 1988
B.S., Industrial Engineering, Seoul National University, Seoul, Korea, 1986

HONORS/AWARDS

Fellowship for doctoral dissertation research, Winner of the research grant competition for doctoral dissertation, The Korean Industry-University Cooperation Foundations (IUCF), 1992

CAREER EXPERIENCES

1. Associate Professor, Department of Industrial & Systems Engineering, Ohio University, Athens, OH, (2008 – present)
2. Associate Professor, Department of Industrial & Manufacturing Engineering, Wayne State University, Detroit, MI, (2004 – 2008)
3. Visiting Assistant Professor (full time), Knmert School of Management and School of Industrial Engineering, Purdue University, W. Lafayette, IN, (2003-2004)
4. Senior Research Scientist, School of Industrial Engineering, Purdue University, W. Lafayette, IN, (2003-2004)
5. Senior Researcher, Manufacturing systems and Information Technology Division, Korea Institute of Industrial Technology (KITECH), Korea, (1996-2003)
   - IntelligentArrays, Inc. is an enterprise computing solution provider for Enterprise Application Integration (EAI) middleware and its application to B2B e-commerce, global supply chain operations, business intelligence, and Enterprise 2.0
8. Faculty, Dept. of Industrial Engineering, Dong Shin University, Korea, (1991-1993)

ACTIVITIES/ PROFESSIONAL AFFILIATION

1. (Former) Asian regional chair of information technology committee in International RosettaNet Initiative on Business-to-Business e-commerce global standard
3. Member of Technical Committee 5.2 on Modeling for Manufacturing and Control in IFAC (International Federation on Automatic Control)
4. (Former) Co-leader of international research program on IT and knowledge management, entitled AIM (acceleration of innovation to the market), with collaborating partners from European Union (Spain, Germany), Australia, Japan, and Korea in The International BMS consortium
SCHOLARLY PUBLICATIONS (Selected)
5. Oduntan Onola, N. Park, Olugbenga Majabi, Enterprise visibility modeling under conditions of turbulence, Computational and Mathematical Organization Theory (under revision).

CONFERENCE PRESENTATIONS AND PAPERS (Selected)
1. N. Park, Service science curriculum development responding to educational goals and field demands, 2008 INFORMS annual meeting, Washington D.C., 2008.

AUTHORING OF BOOKS
1. Park, N., ERP theory and practice (I): University textbook series in e-business, Korea Electronic Commerce Association, June 2001 (This book is accompanied with the full-fledged ERP package developed by Park, N. and a Korean software company)
DIANA SCHWERHA, PH.D

CURRICULUM VITAE

Diana J. Schwerha
7733 Country Club Road
Athens, OH 45701
724-747-6158 (cell)
740-593-1577 (work)
schwerha@ohio.edu

Diana J. Schwerha is an Assistant Professor in the Department of Industrial and Systems Engineering at Ohio University. She earned her doctorate in Industrial and Management Systems Engineering from West Virginia University. Dr. Schwerha’s research interests focus on: 1) improving the safety, productivity, and job satisfaction of older workers and 2) using ergonomics to enable older individuals to live independently. Before coming to Ohio University, she worked as a project officer for NIOSH at the Health Effects Laboratory Division and at the Pittsburgh Research Laboratory.

EDUCATION

West Virginia University, Morgantown, WV
Doctor of Philosophy in Industrial and Management Systems Engineering
May 2004
Dissertation: Impact of Auditory and Visual Distractions Upon Learning a Manual Assembly Task in Older Workers
Interests: The Aging Worker, Distraction, Ergonomics and Home Health Care, WorkLife (integration of health promotion with occupational safety and health)

West Virginia University, Morgantown, WV
Graduate Certificate in Gerontology, Center on Aging
May 2002

West Virginia University, Morgantown, WV
Master of Science in Occupational Hygiene and Occupational Safety
December 1996
Thesis: Objective Evaluations of Different Training Methods for VDT Work

University of Pittsburgh, Pittsburgh, PA
Master of Arts in Fine Arts
May 1993

Duquesne University, Pittsburgh, PA
Master of Arts in History
May 1991

Mary Washington College, Fredericksburg, VA
Bachelor of Science in Chemistry
May 1989
WORK AND TEACHING EXPERIENCE

Ohio University

Athen, OH
Department of Industrial and Systems Engineering
Assistant Professor, starting Fall 2006

Departmental Responsibilities:

IIE Student Advisor, 2006-2007 and 2007-2008 (was awarded Silver award both years)
Person in charge of Recruiting, 2007-2008 and 2008-2009
Member of ISE Faculty Search Committee, 2007-2008
Member of Research Engineer Search Committee, 2008

Engineering Courses Taught at Ohio University:

ISE 305—Engineering Probability
Winter 2007

ISE 306—Engineering Statistics

ISE 435/535—Quality Control and Reliability
Spring 2008, Winter 2009

ISE 448A/548A—Human Factors Engineering
Fall 2007, Fall 2008

ISE 630—Graduate Seminar
Winter 2007

ISE 689—Human Factors in System Design

ISE 799 Aging and Ergonomics
Winter 2009

National Institute for Occupational Safety and Health

Pittsburgh, PA
Mining Injury and Prevention Branch, Pittsburgh Research Laboratory
Associate Service Fellow, August 2003 to June 2006

• Project Officer for the project, Successful Aging for Miners through Ergonomics (SAME): responsibilities include: writing proposals, writing IRIS's for project, writing and managing workplans, writing and managing budgets (FY05 budget was $275,300), writing sole-source justifications (both under and over 100K), writing research papers and protocols; conducting research on injury surveillance, presenting research and training at conferences; designing experiments and conducting research; working with stakeholders to determine priority focus areas; conducting injury analyses to determine priority research topics; managing research contracts, coordinating multi-faceted research efforts that included participants

Schweha CV 2
from industry, academia and government, maintaining all records, and purchasing new equipment for the

ergonomic laboratories

• Assisted in the development of a long-term research plan for the Ergonomics section
• Developed two multi-faceted projects that focused on using personal protective equipment (PPE) and
engineering controls to reduce the potential for knee injuries or injuries from slips, trips, and falls
• Developed research teams from members of academia to focus on certain areas relevant to the mining
industry
• Managed the development of the training program: Age Awareness Training for Miners
• Member of research team on proposed project on senior assemblers
• Served as Acting Section Chief when needed and attended to all necessary administrative duties

Morgantown, West Virginia
Department of Industrial and Management Systems Engineering/ West Virginia University
Doctoral Student, August 1999 to August 2003

Engineering Courses taught at West Virginia University:

IMSE 277—Engineering Economy
Summer 2000

IMSE 314—Advanced Analysis of Engineering Data
Spring 2003

IMSE 493E—Special Topics Course—Ergonomics and the Aging Worker
Fall 2011

Morgantown, West Virginia
Exposure Assessment Branch/ Health Effects Laboratory Division
Research Industrial Hygienist, September 1997 to August 1999

• Project Officer for Project 7144—Direct-on-Filter Analysis of Crystalline Silica Using Photoacoustic
Fourier Transform Infrared Spectroscopy (FTIR), responsibilities include writing budget, writing protocols,
designing experiments, writing sole-source requisitions, conducting research, examining surveillance data
from silica exposures, maintaining all records, purchasing all equipment related to project, writing and
presenting data gathered from project.
• Contributed to the project to develop a silica monitor for field use; responsibilities included conducting
research, purchasing necessary equipment, and maintaining records.

Morgantown, West Virginia
Environmental Investigations Branch/ Division of Respiratory Disease Studies
Visiting Fellow, November 1996 to August 1997

• Conducted a case-control study on the early development of CWP in miners
• Worked on a project with IUOE to screen for silicosis in Chicago area employees
• Worked on database hazard surveillance
• Used SAS and NIOSH databases

Morgantown, West Virginia
Environmental Investigations Branch/ Division of Respiratory Disease Studies
Engineering Technician, May through September 1994

• Conducted experiments using Fourier Transform Infrared Spectroscopy
• Worked on an exposure assessment study of coal miners
• Worked on the development of a portable FTIR for direct-on-filter analysis of crystalline silica
Allegheny Ludlam Steel Corporation  
Pittsburgh, Pennsylvania  
Safety Intern, Summer 1995

- Conducted confined space monitoring; calibrated necessary pumps
- Prepared analyses of total cost for various types of injuries throughout the plants
- Attended to routine safety/ergonomic problems; participated in union-corporate meetings

GRANTS


May 2007. Along with Chang Lin, received a grant from the Ohio Learning Network. Second Life as a Pedagogical Tool for Improving Statistics Homework Sessions. Amount, $10,000.

November 2006. Received a grant from NIOSH (through Johns Hopkins University) to conduct the pilot study, Work Methods and Compensatory Measures for Older Workers in Physically Demanding Jobs. Amount, $9,100.00

INVITED PAPERS


PUBLICATIONS


IN-PROCESS PUBLICATIONS


TRAINING PROGRAMS


CONFERENCE PROCEEDINGS (WITH PRESENTATIONS)


Schwerha, D.J. (2001). The Effect of Some Worker-Related Variables on Work Ability, Work Technique, and Number of Errors in a Packing Job. Given as a presentation at the Human Factors and Ergonomics Society Conference, October 8-12, in Minneapolis, MN.


POSTERS/CONFERENCE PRESENTATIONS


Schwerks, D. J. (2005). Human Factors Implications of the Use of Emerging Technologies by an Aging Workforce. Given at a presentation at the National Coal Show, June 8, Pittsburgh, PA.


Schwerks, D. J. and Steiner, L. (2004). Ergonomic Risk Factors Awareness. Given as a presentation at the 8th Mine Health and Seminar, Penn State University, Allentown, PA.

Schwerks, D. J. and Steiner, L. (2004). What Supervisors Need to Know about Ergonomic Risk. Given as a presentation at the 8th Mine Health and Seminar, Penn State University, Allentown, PA.


Schwerks, D. J. (2002). Current Research on the Relationship between Ergonomics, Quality, and the Older Worker. Given as a presentation at the American Industrial Hygiene Conference and Exhibition, June 1-6 in San Diego, CA.


Schwerks, D. J. (2001). Boomers Aging in 90’s Suburbs: Implications for Home Modification in the Next Few Decades. Given as a presentation at the 2001 West Virginia Conference on Aging, Oct. 4-5 in Morgantown, WV.

Scientific Conference on Prevention of Work-Related Musculoskeletal Disorders, September 30 to October 4 in the Netherlands (accepted but not presented).


HONORS/CREDENTIALS

Member of Alpha Pi Mu
Member Phi Kappa Phi
Graduate Assistant of Dr. Steven Wiker (2002)
NSF Fellowship for Doctoral Work (funded 2000-2001)
Received Fellowship from NIOSH for the academic year 1999-2000
Recipient of a NIOSH service award for work on the NIOSH Silica Prevention Initiative, 1998
Trained Facilitator, 1998
Recipient of an American Industrial Hygiene Association Student Award, Fall 1996
Recipient of NIOSH Grants, 1995-1996
Clinically certified to use the Current Perception Threshold Neurometer

PROFESSIONAL MEMBERSHIPS

Member, Human Factors and Ergonomics Society
Member, American Society for Engineering Education
Member, Institute of Industrial Engineers
Member, Gerontological Society of America
COMMITTEE MEMBERSHIPS

Technical Chair for 2006, Aging Technical Group, Human Factors and Ergonomics Society
Committee Member for Ergonomics Committee, Ohio Bureau of Workers Compensation
Board Member, NIOSH Pilot Research Program (Director: Amit Bhasinshuya)
Board Member, Ohio Learning Network Southeast Region
Industrial Minerals Association-North America, Ergonomics Taskforce, 2005
Co-Chair, WorkLife Ministry, Trinity Episcopal Church, 2005
Committee member, Women Without Walls Ministry, 2005
National Occupational Exposure Survey II, HELD Representative, 1999 (DeLon Hull, Chair)
Derm Interest Group (DIO), 1998, 1999
Derm Policy Working Group, 1998, 1999
DUSAN SORMAZ, PH.D.

DEPARTMENT OF ENGINEERING MANAGEMENT

EDUCATION
December, 1994, University of Southern California, Los Angeles, California
Ph.D. in Industrial and Systems Engineering (GPA 4.0/4.0)

May, 1995, University of Southern California, Los Angeles, California, M.Sc. in Computer Science (GPA 3.72/4.0)

103-228, University of Novi Sad, Novi Sad, Yugoslavia, M.Sc. in Industrial Engineering (GPA 9.6/10)
Thesis title: “Development of procedures for the work-in-progress balancing when using GT-cells”, Advisor: Dr. Dragutin Zelenovic

October, 199, University of Novi Sad, Novi Sad, Yugoslavia, B.Sc. in Mechanical Engineering (GPA 9.56/10)

PROFESSIONAL EXPERIENCE
2003 –
University of Cincinnati, Athens, OH, Associate Professor, Industrial and Systems Engineering
- Taught undergraduate required and elective courses with focus on modeling, simulation and manufacturing
- Taught graduate courses with focus on manufacturing and intelligent systems
- Instructor for off-campus MSc in Engineering Management program
- Performed research in Automated Process Planning and Cost Modeling and Estimation
- Managed Departmental Computer Lab and CIMLab
- Advised undergraduate and graduate masters and doctoral students

2004/3/2005
Cranfield University, Academic Research Visitor (Ohio University sabbatical leave)

1995 - 2003
Ohio University, Athens, OH, Assistant Professor, Industrial and Manufacturing Systems Engineering
- Taught undergraduate and graduate courses with focus on simulation, manufacturing and intelligent systems, and advised undergraduate and graduate students
- Performed research in Automated Process Planning and Manufacturing Planning Models, and Cost Modeling and Estimation
- Participated in the Teaching Scholar Program with Center for Teaching Excellence
- Managed Departmental Computer Lab and CIMLab

1997 - 1999
Adzes Institute, Branch Office Yugoslavia, Novi Sad Consultant (on leave from Ohio University)
- Presented seminars on Manufacturing Planning and Management to industry in Yugoslavia
- Consulted several companies in implementing JIT production planning
- Developed Multimedia CD-ROM of Adzes Methodology and Adzes SEE Web presentation

1994 - 1995
University of Southern California, Postdoctoral Research Associate
- Developed a prototype system for process planning using object-oriented data base

1990 - 1994
University of Southern California, Research and Teaching Assistant
- Taught lab sessions in undergraduate and graduate courses in manufacturing
- Teaching Assistant for undergraduate and graduate courses in manufacturing and statistics
- Organized and led student research teams in the Manufacturing Engineering Seminar Course
- Conducted research on Intelligent Manufacturing and Process Planning Systems
- Applied Object-Oriented Paradigm for design of Computer Aided Process Planning

Cranfield Institute of Technology, Cranfield, UK, Visiting Research Fellow
- Studied simulation methodology and the related software (SEE-WHY, WITNESS, CINEMA, SIMAN, PC-Model, GENETIK)

1980 - 1990
University of Novi Sad, Yugoslavia, Teaching and Research Assistant
- Taught lectures and lab sessions in modeling and simulation of manufacturing systems and operation research
- Worked in research projects on the use of simulation in design of computer integrated manufacturing, design of GT based production systems and procedures for work-in-progress reduction
- Was project manager and project engineer in several industrial projects using GT and developing design and control software for companies

1979 - 1980
University of Novi Sad, Yugoslavia, Design Engineer
- Developed design documentation and built a prototype for a device for mass product labeling

Ohio University, ISIE Department, 284 Stokes Center, Athens, OH 45701-2899
Phone: (740) 593-1547, Fax: (740) 593-0778 E-mail: sor12@ohio.edu, URL: www.eng.ohio.edu/~sormaz
COURSES TAUGHT

- Ohio University
  Graduate only courses: Computer Integrated Manufacturing, Intelligent Engineering Systems, Geometric Modeling in Manufacturing, AI Planning in Manufacturing, PhD Special Studies
- University of Southern California
  Lab sessions: Facilities Analysis and Design, Computer Aided Manufacturing
- University of Novi Sad
  Lecture: Introduction to the Industrial Systems Theory, Operations Research
  Lab sessions: Design of Production Systems, Introduction to the Industrial Systems Theory, Operations research

RESEARCH INTERESTS AND RESULTS

- Interested in research in computer integrated manufacturing and the application of information technologies to the factory of the future.
- Interested in integration of CAD/CAM systems and concurrent engineering.
- Interested in application of various artificial intelligence techniques and simulation methodology in manufacturing.
- Participated in development of FIPER Cost Estimation tool, and developed Cost modeling library
- Developed 3D-PP prototype for intelligent process planning
- Developed a framework for automated process planning and its integration with feature recognition and process scheduling activities.
- Developed algorithms for a feature interaction analysis and machining process selection in hole making and milling for automated process planning.
- Developed and implemented space search-based algorithms for sequencing of operations in process planning.

RESEARCH PROJECTS AND PROPOSALS

- Customizable Process Cost Builder (CPCB), NSF STTR, Dec 2007, co-PI, $64,982, not funded (PI: Robert Judd)
- Customizable Process Cost Builder (CPCB), NSF STTR, June 2007, co-PI, $64,982, not funded (PI: Robert Judd)
- Carbon Foam for Aerospace Composite and Stiffeners, OAF, 2005, co-PI, $100,000, not funded (PI: M. Khalirul Alam)
- Ohio Advanced Manufacturing Economics Partnership, NSF, 2003, co-PI, $599,541, not funded, (PI: R. Dennis Irwin)
- Ohio Advanced Manufacturing Enterprise Partnership, NSF, 2004, co-PI, $175,046, not funded (PI: R. Dennis Irwin)
- Integrating Sales, Engineering, and Manufacturing to Achieve Mass Customization, TDCT, Ohio Third Frontier, 2003, PI, Not funded, $337,983
- NIST (ATP) Fedsented Intelligent Production Environment, 11/1999-11/2003, (OU $1.1 million, Team $22 Million), funded, joined research team as co-PI in July 2001. (PI: Mike Pardis, GEAE)
- Development and implementation of IMPlanner modules for feature mapping and process selection, Delphi Automotive Systems, January 2003, funded, $12,000.00
- Generation of manufacturing features and alternative process plans, a case study, Delphi Academic Partnership Master Agreement, PI, 2002, funded, $12,000.00
- Development of Distributed System for Collaborative Solving of Large Optimization Problems, Proposal to NSF STTR Phase I, Research PI, (submitted by Paraster, Wei Tan is PI), not funded, 2001. total $100,000.00

D. N. Sarma - Curriculum Vitae
- Research Challenge program for NSF Proposal Distributed System for Evaluation of Alternative Manufacturing Plans and Systems, Ohio University, 2001, $6500.00
- Distributed & Parallel Optimization for Solving Combinatorial Optimization Problems, PI, Paraster, Inc., funded $14,969.00
- Comparison of Process Sequencing Algorithms in CAPP, Baker Fund, Ohio University, not funded, 2001, $9721.00
- Knowledge-Based Engineering for Intelligent Product Design, co-PI (total four co-Pis), OAI action fund proposal, not funded, $10,000.00
- Development, Calibration and Validation of Design Methods for Complex Engineering Systems Based on Large Data Sets, co-PI (total five co-Pi's), IGERT preproposal to NSF, 2000, not funded, $2,687,582.00
- Stocker faculty summer fellowship, Russ College of Engineering and Technology, 2000, $10,000.00
- Visual modeling of intelligent manufacturing planning on the Web, Ohio University 1804 fund, 2000, not funded, $23,319.00
- Feature interaction modeling and visualization of process planning, Stocker Endowment Fund, Russ College of Engineering and Technology, 2000, funded $24,200.00
- Research challenge program for CAREER: Intelligent Process Planning for Collaborative Manufacturing Integration, Ohio University, 1999/2000, $6,000.00
- CAREER: Intelligent Process Planning for Collaborative Manufacturing Integration, Proposal to NSF, 1999, not funded, $200,000.00
- Intelligent manufacturing planning using case-based reasoning, pilot project on feasibility, OU - IMSE department, 2000
- Stocker faculty summer fellowship, Russ College of Engineering and Technology, 1996, $10,000.00
- Stocker new faculty research initiation support, Russ College of Eng. and Technology, 1995/96, $10,000.00

AWARDS, HONORS AND SCHOLARSHIPS
- Graduate Assistantship at University of Southern California, 1990-1994
- Fulbright Program Grant for Ph.D. studies in USA, 1990/91.
- Province Vojvodina Research Scholarship for study in UK, 1987/88
- Province Vojvodina Scholarship for graduate students, 1980-1983
- University of Novi Sad Scholarship for the best students, 1978-1979
- University of Novi Sad Award for the best student in the class, 1975, 1976, 1977, 1978, 1979

PROFESSIONAL NETWORK
- Senior member of The Society of Manufacturing Engineers
- Senior member of The Institute of Industrial Engineers
- Member of the IEEE
- Member of the ASEE
- Member of AIHM (Alpha Pi Mu) - Industrial Engineering Honor Society

LANGUAGES
Fluent in English and Serbian, substantial knowledge of Russian and German.

PUBLICATIONS
Books (in Serbian):
I. Cosic, D. Sormaz, D. Seslija, "Introduction to the Industrial Systems Theory" (Student's manual), University of Novi Sad, School of Engineering, Novi Sad, 1989.

D. N. Sormaz - Curriculum Vitae
Journal:

Book: Chapters:

Proceeding editor:

Journal: editor:

Conference:
Year 2008:

**Year 2007:**

**Year 2006:**


8. Vic Matta, Dusan Sormaz, Intelligent Information Systems, Quo Vadis?, The International Association for Computer Information Systems, IACIS 2006 Conference, October 4-7, 2006, Reno, Nevada, USA


**Year 2005:**


17. Dusan N. Sormaz, Chandrasekhar V. Ganduri, Framework For Knowledge Based Algorithms In Manufacturing Scheduling, 15th International Conference on Computers and Industrial Engineering, Istanbul, Turkey, June 10-12, 2005


**Year 2004:**


Year 2003:


Year 2002:


Year 2001:


Year: 1996-2000:


Years: 1986-1995:


Also published 35 papers in national journals and conferences in Serbian language.

Technical reports:


PRESENTATIONS


4. Chandrakishor Garduri, Dusan Sormaz, A Derivational Case-based Approach for Job Shop Scheduling, IERC 2007, May 19-23, Nashville, TN


7. Dusan Sormaz, Burzin Khosht, presentation to corrosion board, March 2007, Athens, OH


13. D. Sornaz, “Production Planning, Manufacturing Control and Integrated Manufacturing”, 1-day seminar to industry (22 participants), Belgrade, July 10, 2002. (in Serbian)
15. D. Sornaz, “Modern Methods and Techniques for Production and Manufacturing Control”, 1-day hands-on seminar to industrial participants, Belgrade, Novi Sad, 1998-99 (in Serbian, 6 seminars with around 90 mid and senior level manufacturing managers)
16. D. Sornaz, “Production Planning, Manufacturing Control and Integrated Manufacturing”, 4-hour seminar to industry (100 participants), Belgrade, February 3, 1998. (in Serbian)

REFERENCES
Dr. Behrokh Khoshnavid, Department of Industrial and Systems Engineering, University of Southern California, University Park, Los Angeles, CA 90089-0193, Phone: (213) 740-4880, E-mail: khoshnavi@almasak.usc.edu
Dr. Robert Judd, Department of Industrial and Systems Engineering, Ohio University, 272 Stocker Center, Athens, OH 45701, USA, Phone (740) 593-0106, E-mail: judd@ohio.edu
Dr. Aristides Requicha, Computer Science Department, University of Southern California, University Park, Los Angeles, CA 90089-0781, Phone: (213) 740-4502, E-mail: requicha@lipari.usc.edu
Dr. George Bekey, Computer Science Department, University of Southern California, University Park, Los Angeles, CA 90089-0781, Phone: (213) 740-4501, E-mail: bekey@pollux.usc.edu
GURSEL SUER, PH.D

CURRICULUM VITAE

GÜRSŒL A. SÜER

OFFICE
Industrial and Systems Eng
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HOME
7544 Longmeadow Lane
Phone: (740) 594-6755

PERSONAL
Status: US Permanent Resident
Date and Place of Birth: May 20, 1960; Diyarbakir - TURKEY
Married to Ayse; three children: Yigit Ozan, Roman Efe, Lara Amber
Hobby: Playing Classical Guitar Music, Soccer

EDUCATION
Ph.D. in Industrial Engineering, Wichita State University, Wichita, Kansas, December 1989. 
Dissertation Research: “Schedule-Based MRP: Integration of Production Scheduling Techniques with Material Requirements Planning Systems”.

M.S. in Industrial Engineering, Middle East Technical University, Ankara, Turkey, June 1985. 
Course Work: Production Scheduling-Inventory Control, Simulation with GPSS, Facilities Layout and Location, Linear Optimization, Nonlinear Optimization, Methodology of OR.
Thesis Title: “Scheduling for Flexible Layout”

B.S. in Industrial Engineering, Middle East Technical University, Ankara, Turkey, June 1982.

RESEARCH INTERESTS
PROFESSIONAL EXPERIENCE

Professor, Industrial and Systems Engineering, Ohio University, Ohio. 
*Teaching* undergraduate courses in Probability and Statistics, Engineering Economy, Manufacturing Systems, Production Control and Inventory Management I, Production Control and Inventory Management II, Operations Research, Applications of Mathematical Programming, Project Management; Graduate courses in Manufacturing Scheduling, Genetic Algorithms in Manufacturing, Managerial Decision Making.

*Doing research* in scheduling (particularly non-zero ready times, finite capacity); design of manufacturing cells (shared cells, reminder cell and flexibility, re-design frequency); cell loading and cell scheduling, manpower decisions in labor-intensive manufacturing cells (considering skills and preferences of operators); integration of cell design and control issues; genetic algorithms in cell design, cell loading, and scheduling, non-random mating, non-dominated solutions, multiple performance measures, mixer and feeder strategies, belief space, multiple chromosome crossover; integration of inventory and scheduling decisions, finite-capacity inventory parameter setting, transportation leadtimes in due date setting, vehicle routing with restrictions, master scheduling; fuzzy math modeling, human issues and behavior in manufacturing, tabu search, simulated annealing, ant colonies (September 2001-Current).

**Consultant, General Dynamics-Red Lion Plant, Ordnance and Tactical Systems, Pennsylvania.** Assessment of Performance of Manufacturing Cells, March 2006.


**Acting Associate Director, Industrial Engineering Department, University of Puerto Rico-Mayaguez, Mayaguez, Puerto Rico (January 1998 - July 1998)**


**Professor, IE Department, University of Puerto Rico-Mayaguez, Mayaguez, Puerto Rico. Taught undergraduate courses in Production Planning and Control I (Forecasting, Inventory Control, Modeling), Production Planning and Control II (MRP, JIT, OPT), Engineering Economy, Work Measurement, Operations Research I, Senior Design Project; advanced undergraduate courses in Scheduling and Sequencing, Expert Systems, graduate courses in Genetic Algorithms (as special problems), Advanced Production and Inventory Control, Advanced Issues in MRP and JIT.

**Research in scheduling, scheduling applications in an MRP environment; design of manufacturing cells, cell loading and cell scheduling, manpower decisions in labor-intensive manufacturing cells,**
integration of cell design and control issues; genetic algorithms in cell design, cell loading, and scheduling; integration of inventory and scheduling decisions, finite-capacity inventory parameter setting, inventory parameters for multiple distribution centers, transportation leadtimes in due date setting, master scheduling; (July 1997 - Current).


Associate Professor, IE Department, University of Puerto Rico, Mayaguez, Puerto Rico. Teaching undergraduate courses in Production Planning and Control I (Forecasting, Inventory Control, Modeling), Production Planning and Control (MRP, JIT, OPT), Engineering Economy and Work Measurement, advanced undergraduate courses in Scheduling and Sequencing and Expert Systems, graduate courses in Advanced Production and Inventory Control and Advanced Issues in MRP and JIT (July 1992 - July 1997).


Assistant Professor, IE Department, University of Puerto Rico-Mayaguez, Mayaguez, Puerto Rico. Taught courses in Production Planning and Control, Scheduling and Sequencing, Expert Systems, Advanced Production Planning and Inventory Control, Advanced Issues in MRP and JIT. Directed externally funded research projects (August 1989 - June 1992).

Teaching Fellow, IE Department, Wichita State University, Wichita, Kansas. Taught courses in Information Systems and Engineering Economy (1989).

Consultant, Excel Manufacturing Inc., Wichita, Kansas. Worked on the evaluation of computer information systems, information system analysis and MRP implementation (1989).

Consultant, Vornado Air Circulation Systems, Wichita, Kansas. Determined and planned many IE functions of this newly established manufacturing company, including facilities planning, implementation of MRP software, determining production and materials planning strategies, line balancing (1988 - 1989).
Graduate Research Assistant, IE Department, Wichita State University, Wichita, Kansas. Participated in the application of Group Technology in Vickers Electromech, Wichita, Kansas (1988).


Graduate Research Assistant, IE Department, Wichita State University, Wichita, Kansas. Participated in the implementation of NCR IMCS System (MRP II) in Vickers Electromech, Wichita, Kansas (1985 - 1987).

Senior Industrial Engineer, Anatolian Industrial Group, Istanbul, Turkey. Worked in four different plants of the group; Lombardini (motor), Adel (Faber pencil), AOS (Isuzu trucks), Nasas (Aluminum) and reported their performance to Home Office (1984 - 1985).


Student Assistant, General Engineering Department, Middle East Technical University, Ankara, Turkey. Graded statistics course homework (1981 - 1982).

Engineering Assistant, Beymen Shoe Factory, Istanbul, Turkey. Method Study and LP Model development for Master Scheduling (Summer 1981).


PROPOSALS FUNDED


World Symposium on “Group Technology / Cellular Manufacturing”, with Ronald Ask, National Science Foundation, July 2000, $10,000.


CONFERENCES ORGANIZED

Co-Chair, ANNIE Conference, St. Louis, Missouri, to be held November, 2009.

Co-chair, 4th World Symposium on Group Technology/Cellular Manufacturing-2006, to be held February 16-18, Japan, 2009.

Organizing Committee Member with James Slump, Jan Riezebos and Nallan Suresh, 3rd World Symposium on Group Technology/Cellular Manufacturing-2006, July 3-5, Groningen, Netherlands, 2006.


General Chair, 2nd World Symposium on Group Technology/Cellular Manufacturing, Columbus, Ohio, July 28-30, 2003.

General Chair, 1st World Symposium on Group Technology/Cellular Manufacturing, San Juan, Puerto Rico, March 27-29, 2000.


OTHER ACADEMIC ACTIVITIES

Member, International Advisory Committee, IML 2009, Asia Conference on Intelligent Manufacturing and Logistics, to be held February 16-18, 2009, Kitakyushu, Japan.

Member of ANNIE Conference, St. Louis, Missouri, November 9-12, 2008.

Member, 7th Production Research Conference, Ankara, Turkey, 2007

Member of ANNIE Conference, St. Louis, Missouri, November 11-14, 2007.

Plenary Speaker, "Human-Profile Based Intelligent Systems", ANNIE Conference, St. Louis, Missouri, November 11-14, 2007.


Program Committee Member, Congress on Evolutionary Computation, Singapore, 2007.

Organized and moderated a Plenary Discussion on “How to improve the relevance of scientific research? The role of scientists and practitioners”, 3rd World Symposium on Group Technology/Cellular Manufacturing-2006, Groningen, Netherlands.

Participated in a panel discussion on “Perspectives for GT/CM Research”, 3rd World Symposium on Group Technology/Cellular Manufacturing-2006, Groningen, Netherlands.

Program Committee Member, Congress on Evolutionary Computation, Vancouver, Canada, 2006.

Program Committee Member, Congress on Evolutionary Computation, United Kingdom, 2005.

External Reviewer, ISE Graduate Program, Northeastern University, Boston, February, 2005.


Committee Member, Post-Doctoral Proposal Review, Ohio University, 2003-2005.


Proposal Review Panelist, DMII Program, National Science Foundation, February 2002.

International Advisory Board Member, 2nd International Conference on Responsive Manufacturing, June, 2002, Gaziantep, Turkey.

Program Committee Member, Genetic and Evolutionary Computation Conference (GECCO), San Francisco, July 2001.


Organized two invited sessions (Design of Manufacturing Cells, Control of Manufacturing Cells) and panel session (Integrated Design and Control of Cellular Manufacturing Systems) in Cellular Manufacturing for INFORMS New Orleans October-1995 National Meeting.

Obtained donations, organized and presented in the “Intelligent Manufacturing Planning and Control” workshop for the 1st World Congress on Intelligent Manufacturing Processes and Systems, Mayagüez / San Juan, Puerto Rico, February 13-17, 1995.

On the Editorial Board of
Computers and Industrial Engineering, An International Journal
Journal of Industrial Engineering
Open Industrial and Manufacturing Engineering Journal

Reviewed for
Journal of Computers and Industrial Engineering
Journal of Engineering Design and Automation
International Journal of Management and Systems
IIE Transactions
International Journal of Production Research
International Journal of Smart Engineering System Design
Journal of Manufacturing Systems
Journal of Materials Processing Technology
Journal of Intelligent Manufacturing
Mathematical and Computer Modeling

Ohio University
Chair of:
Departmental Promotion and Tenure Committee (September 2005-Current)
Faculty Search Committee, 2005-2006, 2007-2008
Graduate Chair (September 2008-Current)

Member of:
ISE Recruitment Coordinator (Fall 2006-Fall 2007)
ISE Graduate Committee (January 2002-August 2005, Fall 2006-Fall 2007).
Engineering Faculty Promotion and Tenure Committee (October 2004-Current)
Integrated Engineering PhD Steering Committee (September 2001-Current)
College Scholarship and Recruitment Committee (Fall 2006-Current)
College Academic Honor Council (Fall 2006-September 2008)
Faculty Evaluation Committee (Ad-hoc), 2005.
Departmental Promotion and Tenure Committee, (September 2002-August 2003)
Faculty Search Committee, Ohio University, January 2002.
Departmental Faculty Raise Committee, Ohio University, January 2002.
College Enrollment Management Committee (May 2007- Current).
Faculty Senate (Alternate, September 2007- May 2008).

University of Puerto Rico.
Chairperson Search Committee (2000).
Dean Search Committee (1999-2000).
Engineering Faculty Personnel Committee (1998-2001).
Production Committee (January 1990-December 1998).
Engineering Faculty Research Committee (1993-1996).
Coordinator of Production Committee (January 1999-2001).


GRADUATE STUDENTS ADVISED
Ye Rui, topic: Customer Zones and Delivery Routes (Current).
Satyajit Chakravarty, topic: Due dates vs. Transportation Leadtimes (Current).
Jing Huang (PhD), topic: not defined yet
Larry Henthorn (PhD), topic: not defined yet.
Xiaoze Yang (PhD), topic: not defined yet
Fatih Yarimoglu (PhD), topic: not defined yet
Hao Wu, topic: Cellular design under increasing demand environment thru simulation (Current).
Haibin Tang, topic: Comparison of non-synchronized vs synchronized flow in multi-stage manufacturing systems (Current).
Shi Jie Huang, topic: Global Supply Design with Alternative Locations and Manufacturing Design Options (Current).
Gokhan Egitmez, topic: Defining Inventory Parameters for Finite Capacity Scheduling (Current).
Emre Mese, topic: Cell Loading and Family Scheduling for Jobs with Individual Due Dates in a Shoe Manufacturing Company (Current).


Royston Lobo, Comparison of Connected and Disconnected Cellular Designs through Simulation (2006), Advisor.

Beerval Ravichandra, Scheduling Rotary Injection Molding Machines (2005), Advisor.
Raghu Ram Tummaluri, Operator Assignment in Labor Intensive Cells Considering Operation Time Based Skill Levels, Learning and Forgetting (2005), Advisor.

Joel Ell, Redesign Schedule in a Dynamic and Stochastic Cellular Environment (2005), Advisor.

Sripathi Madisettey, Design of Shared Cells in a Probabilistic Demand Environment (2005), Advisor.

Ananthnarayanan Subramanian, Cell Loading and Scheduling in a Shoe Manufacturing Company (2004), Advisor.


María Julia Castillo, Capacity-Driven Clustering Algorithm for Cellular Manufacturing (1999) Advisor.


Fernando Núñez, Minimizing Number of Tardy Jobs and Total Tardiness in Single Machine Scheduling (1994), Advisor.


Member of graduate committee for Master students:
David Parrott (EECS-current), Sonali (EECS-current), Julian Gonzalez (CE-2007), Housila Titian (ME-2007), Babu Gopalan (ME-2006), David Fleeman (EECS-2006), Andrew Lehnarth
Member of graduate committee for PhD Students:

Erum Erdogun (ME-Integrated PhD, Current), Ming-Yun Chen (ME-Integrated PhD-Current),
Mahmood Al-Hokai (ME-integrated PhD current), Erdinc Oner (ISE-Integrated PhD 2008),
Bashar Taravneh (CE-2003), Fazleena Badurdeen (IMSE-Integrated PhD 2005), Jianhua Wu
(ME-Integrated PhD 2004), Fahd Al-Mufadi (ME-Integrated PhD 2004), Mazyad Almohaleb
(ME-Integrated PhD 2003).

PhD Reading Committee, Hong Yue, University of Groningen, Netherlands (2005).
PhD Review Committee, Mika Hupikorpi, University of Turku, Finland (2005).

Post-Doctorate Advisor, Dr. Feyzan Arikun, Department of Industrial Engineering, Gazi
University, Ankara, Turkey (February 2005-June 2005).

SEMINARS, TRAINING, WORKSHOPS, SHORTCOURSES OFFERED

Presentation on “Cell Manufacturing Based Industrial Park”, Shenghun International Industrial
Group, Shi Jiazhugun, China, July, 2008.

Presentation on “Supply Chain-Logistics System Design for Shenghun International Industrial
Group”, Shi Jiazhugun, China, August, 2008.

Presentation on “The direction of Samsung Style Next Generation Production Methods” as a
panel moderator and panel participant, Samsung Manufacturing Innovation Forum, October 17, Korea, 2006 (invited speaker and moderator).


Tutorial on “Genetic Algorithm Applications in Manufacturing”, 14th Annual Neural Networks
and Artificial Intelligence Conference held in St. Louis, Missouri, November, 2004.

Seminar on “Integrated Solutions for a Manufacturing Plant: A Case Study, Observations, and
Future Directions”, Middle East Technical University, Ankara, Turkey, October 2004.

Workshop on “Genetic Algorithms in Manufacturing”, University of Puerto Rico, Mayaguez,

Seminar on “Manpower Allocation Decisions in Labor-Intensive Manufacturing Cells with
Varying Operator Skill Levels”, Faculty of Management and Organization, University of
Groningen, Netherlands (July 2002)

Workshop on “Control Issues in Labor-Intensive Manufacturing Cells”, Faculty of Management
and Organization, University of Groningen, Netherlands (May 2001)

Workshop on “Genetic Algorithm Applications in Cellular Manufacturing”, Faculty of
Management and Organization, University of Groningen, Netherlands (May 2001)

Tutorial on “Genetic Algorithm Applications in Manufacturing”, 10th Annual Neural Networks and Artificial Intelligence Conference, St. Louis, Missouri, November 5-7, 2000.

Seminar on “Manpower Decisions in Labor Intensive Manufacturing Cells”, IE Department, Auburn University, November 9, 2000.


Part-Time Instructor, PhD Program, Human Resources Concentration, Business School, Inter American University, San German, Puerto Rico. (January 2000-June 2001). Teaching Quantitative Methods I & II.

Visiting Professor, Industrial Engineering, PUCMM, Santiago, Dominican Republic. Taught a graduate course in Scheduling and Sequencing (January-May 1999).


Seminar on “Cellular Manufacturing and Flexibility” for Baxter IV Division, Carolina, Puerto Rico, July 1995.

Workshop on “Intelligent Scheduling”, with Cihan Dagli and Juan Martinez, 1st World Congress on Intelligent Manufacturing Processes and Systems, Mayaguez /San Juan, Puerto Rico, February 13-17, 1995.


Seminar on “Control of Manufacturing Cells” in IE Department, Wichita State University, Kansas, October 30, 1992.

Short Course on “Problem Solving Storyboard” for Trainers of World Class Manufacturing Implementation, Bristol Caribbean, Inc., Puerto Rico, June 24, 1992.

Training on “Fixed Time Interval-Based Synchronization Principles in Manufacturing

Seminar on “Introduction to Expert Systems and Case Study” for Computer Science Department, University of Puerto Rico- Bayamon Campus, Puerto Rico, April, 1992.


Seminar on “Synchronization in Manufacturing Cells” for the Vice President of AVON-USA Manufacturing, AVON Lomalinda, Inc., Puerto Rico, October, 1991.


EDITORIAL RESPONSIBILITIES:

Area Editor


Special Issues Edited


Conference Proceedings Edited


Proceedings of the 21st International Conference on Computers and Industrial
PUBLICATIONS and PRESENTATIONS

Book Chapters


Journal Papers


“Minimizing the Number of Tardy Jobs in Multi-period Cell Loading Problems”, Selected


Peer-Reviewed Conference Papers


“Effects of Different Fuzzy Operators on Fuzzy Bi-objective Cell Loading Problem in Labor


“Evolutionary Programming for Part Family Formation”, with Ramon Vazquez, Yolanda


Conference Publications


“Cell Loading in Connected Cells”, *Proceedings of the 36th International Conference on Computers and Industrial Engineering*, pp. 438-441, New Orleans, April, 1999 (Session Chair, presenter).


“Cell versus Machine Utilization Consideration in Designing Overlapping Manufacturing


"Evaluation of Cell Loading Rules to Incorporate with Schedule-Based Material


**Presentations**


“Human-Profile Based Manufacturing Scheduling, 7th International Workshop on Human Factors, Organizational Issues and Modelling in Planning, Scheduling and Control, June 12-14, 2005, Groningen, Netherlands.


“Synchronous Manufacturing: A Way of Generating Executable Schedules”, 6th International


“Scheduling Rotary Injection Molding Machines”, with Beerval Ravichandra, Group Technology / Cellular Manufacturing World Symposium, July 28-30, 2003, Columbus, Ohio, USA.


“A Capacity-Driven Cell Formation Software”, with Jey P, Joel Santos, Ramon Vazquez, Group Technology / Cellular Manufacturing World Symposium, July 28-30, 2003, Columbus, Ohio, USA.


“Evolutionary Programming for Part Family Formation”, with Ramon Vazquez and Yolanda Pena, presentation made in INFORMS, Cincinnati, April 29-May 1, 1999 (Invited Session).

“Evolutionary Programming in Cellular Design”, with Ramon Vazquez and Yolanda Pena, presentation made in INFORMS, Cincinnati, April 29-May 1, 1999 (Invited Session).

“Evolutionary Programming-based Cell Loading”, with Ramon Vazquez and Miguel Cortes, presentation made in INFORMS, Cincinnati, April 29-May 1, 1999 (Invited Session).
“A New Clustering Algorithm” with Angel Cedeno, presentation in INFORMS National Meeting held in New Orleans, October 29-November 1, 1995.


Other Work


MEMBERSHIP
Institute of Industrial Engineers, U.S.A.

HONORS & AWARDS
Baxter Distinguished Professor in Manufacturing, Co-holder (99-00)
Distinguished Professor of the Industrial Engineering Department (96-97).
Baxter Distinguished Professor in Manufacturing, Co-holder (94-95)
Phi Kappa Phi Honor Society
Alpha Pi Mu Honor Society
Teaching Fellow, Wichita State University, 1989
Ph.D. Fellowship Recipient, Wichita State University, 1987-88
Scholarship Recipient, Anatolian Ind. Group, Istanbul, Turkey
High Honor Student, Middle East Technical University

COMPUTER SKILLS
High Level Languages: FORTRAN, BASIC
Simulation: GPSS, SIMAN
Expert Systems: M.I
Robot Programming: Val II
Statistics: SAS, Minitab
Layout: CRAFT, Micro-craft
Mathematical Programming: Storn, OPL
MRP Softwares: SBT, MRP-DSS, Plant Manager, Micro-MAX, NCR IMCS II,
MAC-PAC, Cincom.
GARRY WECKMAN, PH.D

Gary R. Weckman
Associate Professor
Industrial & Systems Engineering
Stocker Center: 275
Ohio University
Athens, Ohio 45701
(740)-593-1548
weckman@ohio.edu

Education:

Ph.D., Industrial Engineering, 1996, University of Cincinnati, Cincinnati, Ohio
M.E., Industrial Engineering, 1980, University of Louisville, Louisville, Kentucky
B.S., Industrial Engineering, 1979, University of Louisville, Louisville, Kentucky

Employment history:

A. Academic:

Ohio University
Industrial & Systems Engineering

Associate Professor 2002 – Present
Graduate Chair 2005 – 2009
Primary responsibilities include teaching, both undergraduate and graduate courses, research and service. Major research interests include occupational safety and health engineering, and intelligent decision support systems utilizing nonlinear modeling with artificial neural networks, forecasting, simulation, and optimization techniques.

Texas A&M University-Kingsville
Mechanical & Industrial Engineering

Associate Professor 2000 – 2002
Assistant Professor 1996 – 2000
Primary responsibilities include teaching, both undergraduate and graduate courses, research and service. Additional duties included Undergraduate Coordinator, recruitment from area schools, development of lab facility, and co-advisor of the IE student chapter.

University of Cincinnati
Mechanical, Industrial and Nuclear Engineering

Graduate Teaching Assistant 1994 – 1996
Responsibilities included planning and teaching of IE courses (Work Measurement and Facility Design) and a Certified Safety Professional Review Course.

77 | Ohio University - Master of Engineering Management
B. Industrial

GE Aircraft Engines, Cincinnati, Ohio 1984-1993

Responsibilities included meeting with representatives from major customer repair shops to collect and analyze maintenance cost data with the goal of controlling costs at an optimum level. Established teams at key locations throughout North America, Europe and Australasia to monitor and model the complex relationships of maintenance costs. Created and implemented an engine maintenance cost database for tracking and analyzing expense trends and aid in solving the airline’s cost problems. Instructor for training new product support engineers for the purpose of using Alldata (Computer reliability database) and maintenance costs concepts.

Airfoils Production Control Analyst: 1986-1989
Responsibilities included development, integration, training and support of shop manufacturing and database systems to improve shop floor control of operations, along with coordinating all material handling and inventory control projects for Airfoils’ section. Developed, programmed and implemented a system (utilizing a relational database) which incorporated existing databases and the production control function to improve short/long range scheduling, inventory tracking and manpower/machine capacity planning. Provided training and support for the MRPII implementation for the Airfoils’ section.

Methods Engineer: 1984-1986
Responsibilities included technical support and training of machine operators, troubleshooting process problems, and coordinating tooling/fixture modifications. Achieved a 30% productivity gain in the EDM classification through the establishment and leadership of a Focus Team.

Kenner Products, Cincinnati, Ohio 1981-1984

Senior Industrial Engineer / Systems Engineer:
Responsibilities included forecasting requirements, and determination of optimal layouts for both domestic and Mexican manufacturing and warehousing facilities. Established a product line database, utilizing mainframe and microcomputer files to aid in facility forecasting/planning of warehousing requirements. Implemented layout proposals for Mexican-domestic warehouse facilities to increase storage capacities while optimizing material flow.


Industrial Engineer I:
Responsibilities included coordinating technicians to establish standard coverage for manufacturing operations in the Consumer Products Division. Maintained and determined machine requirements/utilization for product lines at the Clarksville facility. Implemented in-line Management Science Inc. (MSI) standards for all fabrication operations.
Bibliography of publications:

Refereed journal articles:


Refereed journal articles: Accepted pending revisions

Refereed journal articles: Submitted waiting peer review
• Weckman, G.R., Rangwala, M., Millie, D.F. (USF), Chandrasekhar V. Ganzuri and W. Young II, Knowledge Extraction from the Black Box in Ecological Monitoring” submitted.
• William A Young II, Gary R. Weckman, "Extracting Knowledge From Carbon Dioxide Corrosion Inhibition With Artificial Neural Networks." submitted to
Other Refereed Publications:

- Andrew Snow and Gary Weckman, “What are the chances an availability SLA will be violated?” *Proceedings of the Sixth International Conference on Networking (ICN’07), IEEE 10.11.09/ICN, April 2007*, p.35-50.


• G.R. Weckman, S. Lakshminarayanan, "Identifying Effects of Low Sensitivity Indicators in a Stock Market Forecasting Model", Proceedings of the 2004 Artificial Neural Networks in Engineering Conference (ANNIE ’04), ASME, November 8-10, 2004, St. Louis, Missouri.

• G.R. Weckman, C. Ganduri and D. Koonce, "Rule Driven Job-Shop Derived from Neural Networks", Proceedings of the 2004 Artificial Neural Networks in Engineering Conference (ANNIE ’04), ASME, November 8-10, 2004, St. Louis, Missouri.


• Gary R. Weckman, Srinam Lakshminarayanan, “Short-Term Stock Forecasting Based on a Neural Network Model Incorporating Fuzzy Logic and Fibonacci Ratios”, Proceedings of the 2003 Artificial Neural Networks in Engineering Conference (ANNIE ’03), ASME, November 3-5, 2003, St. Louis, Missouri.


Research/specialties:

- Decision Support and Intelligent Systems
- Nonlinear Modeling and Optimization
  - Neural Networks
  - Hybrid Systems
- Forecasting and Simulation
- Safety Engineering
- Reliability Analysis
- Production and Inventory Management

Sponsored Research Grants and Contracts:

- **Work Compatibility Improvement Framework**: PI (100%)
  WorldTek, Inc: CompatibilityTek: A tool for reduction of health care cost in manufacturing firms ($12,000) 8/08-7/09.
  Key purpose is to increase the competitive capability of manufacturing firms in terms of workforce capability, workforce education and training, and safety and regulatory compliance.

- **Old Woman Creek**: PI (100%)
  National Estuarine Research Reserve Graduate Research Fellowship Program funded by Estuarine Reserves Division, National Ocean Service: A study of nutrient dynamics in Old Woman Creek using Neural Networks and Bayesian Inference ($28,602) 6/08-6/09.
  The artificial intelligence modeling techniques used in industrial engineering present a novel application to modeling estuarine ecology and promotes the development of these techniques as tools for future ecological research.

- **Worker Compatibility**: PI (100%)
  NSF STTR Funded: CompatibilityTek: A Tool for Reduction of Health Care Costs in Manufacturing ($41,100) 1/07-12/07 with WorldTek Inc.
  Key purpose is to increase the competitive capability of manufacturing firms in terms of workforce capability, workforce education and training, and safety and
regulatory compliance. Potential commercial product/system capable of: (a) generating and verifying “integrated”, “customized”, and “smart” algorithm-identified improvement action elements and priorities designed to decrease the risk of WRMSD, (b) translating the improvement actions into interventions, and, (c) verifying this approach via a participative approach consisting of worker and management teams.

- **GEAE**: Co-PI (33%) with Robert Judd and Dale Masel (OU)
  **GE Funded**: Conperate Cost Model Development ($200,000) 1/06-12/06
  Development of cost model for GEAE named Gcalc, which is computer program based on the FIPER cost estimator project. Gcalc estimates jet engine cost based on techniques created from key characteristics of the manufactured part.

- **Michelinas’ Co-PI (50%) with Dale Masel (OU)**
  **Funded**: Finished Goods Warehouse ($15,000 : $7,500) (2003)
  This project was to improve the layout and operations of the finished goods warehouses at Michelina’s in Jackson, Ohio. The improvements would 1) reduce the number of employees needed to perform the putaway and order fulfillment operation, and 2) increase the usable capacity of the warehouses, measured in terms of the number of days of production that can be stored.

- **Texas A&M – Kingsville Co-Researcher**
  **NSF Funded**: Foundation Coalition (1997 – 2000)
  In order to provide a foundation that will ensure student development and lifelong learning in engineering education, the NSF funded the Foundation Coalition at TAMUK, along with six other partner institutions. Responsibilities included the Assessment and Evaluation of all FC activities at TAMUK.

**Pending - Research Grants and Contracts:**

Research: Additional Active Teams

**Lifting Model: with Ash Genaidy (UC)**
Developing (a) a mathematical model based on the laws of mechanics and physics and (b) an associated customized smart algorithm designed to significantly reduce the aforementioned health care costs through a sound scientific approach entrenched in bioengineering/decision management methodologies. The mathematical model is based on the mechanical work required against gravity/friction, supplemented with stress coefficients not traditionally embedded in the dot product of gravity/friction forces and distance, to account for (a) task difficulty and (b) genetically-at-risk individuals. The algorithm transforms the output of the mathematical model into guidelines on the basis of 'smart' decision management advisor inherent in human expertise and customized to organizational needs.

**Ecological Modeling: with David Millie (USF)**
The Saginaw Bay ecological system in Michigan is a function of several physical/chemical indicators. The complexity and variability of ecological systems make it difficult to model the impact of stressors and/or disturbances. The Chlorophyll (Chl) is a typical measure for total phytoplankton biomass to assess the health of the bay. In this research an Artificial Neural Networks (ANN) is developed to predict the output (Chl) level. The knowledge embedded within the trained ANN in the form of weights needs to be extracted and expressed as a set of rules. The rules extracted aid in developing a more usable prediction tool and enhance the understanding of the bay's actual ecological system.

**Telecommunications: with Andy Snow (OU)**
This research uses computer simulation and artificial intelligence to introduce a new approach to measure dependability of wireless networks. The new approach is based on the development of an artificial neural network (NN), which is trained to investigate reliability attributes of a wireless network. Component mean time to failure (MTTF) is used to model reliability, while mean time to restore (MTR) is used for maintainability. The output from the simulation model is used to train the neural network. The NN is used to gain insights not easily apparent from simulation results. Lastly, a variety of reliability/maintainability growth and deterioration scenarios is analyzed with the NN.

**Other Research Accomplishments**
Obtained university membership (starting in 2007) into the Pilot Research Project (PRP) group of universities that is supported in Occupational Health & Safety Program Areas which is supported by NIOSH. This proposed pilot project will help OU build upon a strong foundation firmly in place at the University of Cincinnati, the NIOSH-Supported University of Cincinnati Health and Safety Education and Research (ERC) Center. This Center, encompassing graduate education and research programs in the Colleges of Medicine, Engineering, and Nursing.
OU Graduate Students:

Graduated Theses:
- Suresh Jagirdar, 2008, Investigation into Regression Analysis of Multivariate Additional Value and Missing Value Data Models Using Artificial Neural Networks and Imputation Techniques
- Value Data Models Using Artificial Neural Networks and Imputation Techniques
- John Dowler, 2008, “Using Neural Networks With Limited Data To Estimate Manufacturing Cost”
- Mannuna Rangawala, 2006, “Empirical Investigation Of Decision Tree Extraction From Neural Networks”
- Vishal Ghai, 2006, “Knowledge Based Approach Using Neural Networks For Predicting Corrosion Rate”
- Chandrasekhar V. Ganduri, 2004, “Rule Driven Job-Shop Scheduling Derived From Neural Networks Through Extraction”

Theses/Dissertation Committees:
- Fatih Yarmoglu, 2008, “Cell Loading and Product Sequencing Subject to Manpower Restrictions in Synchronized Manufacturing Cells”
- Farman A. Mosyed (Ph.D.) 2008, Constructing the Function of “Magnitude-of-EffectFor Artificial Neural Network Models and Their Application in Occupational Safety and Health”
- Saket Khajuria, 2006, “A Model to Predict Student Matriculation from Admissions Data”
- Shrvan Urs, 2005, “Scheduling Rotary Injection Molding Machine”
• Preeti Rastogi (OU - School of Communication Management), 2005, “Assessing Wireless Network Dependability Using Neural Networks”
• Alck Inani, 2004, “Applying Data Mining to Job-Shop Scheduling Using Regression Analysis”
• Kavitha Chayanan (McClure School of Communication Systems Management), 2004, “Analysis Of Telecommunications Power Outages”
• Jake Sigal, 2004, “Creating a Market Paradigm Shift with Quality Function Deployment”

Theses/Dissertation under Current Supervision:
• Jerone Anderson
• Vijaya Malleswari
• Aastish Khandelwal
• Will Holland
• Adam Moyer
• Manjeet Singh
• Ryan Young
• Bill Young (Ph.D.)
• Harry Whiting (Ph.D.)
• Tim Henthorn (Ph.D.)
• Magda Rinder (Ph.D.)

Membership in professional societies:
• Professional Engineers License (PE) State of Texas
• American Society of Safety Engineers
• Institute of Industrial Engineers (IIE)
  o Awarded Senior Member Status July, 2001
  o President of IIE Student Chapter: 1978-1979
• Institute of Electrical and Electronics Engineers (IEEE)
• Alpha Pi Mu (Honorary IE Society)
• Tau Beta Pi (Honorary Engineering Society)
• TAMUK Associate Member of Graduate Faculty – College of Graduate Studies: 1997-2002

Honors and Awards:
• University of Louisville (UL) Professional Award in Engineering: an alumnus award for my dedication to students and understanding research. ~2007
• Industrial and Systems Engineering Department Research Award - 2007
• Industrial and Systems Engineering Department Research Award - 2006
• University of Cincinnati: Finalist in the 1996 Graduate Assistant Teaching Award.
• General Electric Aircraft Engines, Airfoils Manufacturing - Outstanding Achievement.
• University of Louisville: Outstanding Senior Award

Other:

OUUC Organizing Committee for the International Conference on Nanotechnology Occupational and Environmental Health & Safety: Research to Practice in Cincinnati, Ohio on December 4-7, 2006.

Advisory Board: UC Pilot Research Project (PRP): NIOSH Sponsored

Service Activities (most significant):

OU Committees:

University Committees:
  Graduate Council: 2008 – present
  Sub: Admission Requirements Committee

College Committees:
  Graduate Studies and Research: 2005-2008

Department Committees:
  Graduate Committee: 2005-2008
    CHAIR: 2005-2008
  IIE Student Chapter Advisor: 2002-2006
  Coop Advisor: 2003-2005

TAMUK Committees:

University Committees:
  Undergraduate Program Review Committee: 2001 – 2002
  Graduate Program Review Committee: 2000 – 2002
    CHAIR: 2000-2001
  Dean Search Committee for Business School: 1999-2000
  Recruitment & Retention Committee: 1997-1999

College Committee:
  Curriculum Committee: 1997 - present

Department Committees:
  Curriculum Committee – CHAIR: 1997 - 2002
List of courses taught:

A: OHIO UNIVERSITY

- ET 280: Engineering and Technology: An Overview
- ISE 200: Introduction to Industrial & Systems Engineering
- ISE 432: Inventory and Production Control
- ISE 436/536: Project Management
- ISE 441/541: Introduction to Operations Research
- ISE 445A/B: Senior Design I & II
- ISE 626: Neural Networks in Manufacturing
- ISE 636: Project Analysis and Management
- ISE 650: Foundations of Engineering Management
- ISE 655: Supply Chain Management
- ISE 689: Neural Network Analysis
- ISE 790: Intelligent Decision Making

B: TEXAS A&M UNIVERSITY-KINGSVILLE

- IEEN 2301: Introduction to Industrial & Systems Engineering
- IEEN 3310: Applied Methods in Engineering Statistics II
- IEEN 3312: Work Measurement
- IEEN 3314: Engineering Methods in Quality Assurance
- IEEN 3315: Computer Based Production & Inventory Control
- IEEN 3321: Operations Research Methods in Engineering
- IEEN 3325: Engineering Economy
- IEEN 3331: Manufacturing Processes
- IEEN 4316: Facilities Planning & Plant Layout
- IEEN 5303: Manufacturing System Design
- IEEN 5303: Management of Professionals
- IEEN 5313: Inventory Systems
- IEEN 5314: Activity Scheduling
- IEEN 5328: Reliability Theory
- IEEN 5329: Advanced Engineering Economy
- IEEN 5335: Principles of Optimization

C: UNIVERSITY OF CINCINNATI

- 20-267-342: Work Measurement
- 20-267-452: Facilities Design
- Certified Safety Professional Review Course

89 | Ohio University - Master of Engineering Management
TAO YUAN, PH.D

Tao Yuan  
Assistant Professor  
Stocker Center 279  
Department of Industrial and Systems Engineering  
Ohio University, Athens, Ohio 45701  
Phone: 740.593.1547 Fax: 740.593.0778  
Email: yuana@ohio.edu

Education  
Ph.D. 2007  Industrial and Information Engineering, University of Tennessee, Knoxville  
M.E. 2004  Industrial and Systems Engineering, Texas A&M University, College Station  
M.S. 2003  Aerospace Engineering, Texas A&M University, College Station  
B.E. 2000  Thermal Engineering, Tsinghua University, Beijing, China

Research Interests  
Quality and reliability; applied statistics; stochastic processes; nanoelectronics manufacturing

Experience  
Sep. 2008 – present  Assistant Professor, Department of Industrial and Systems Engineering, Ohio University  
Jan. 2008 – Jul. 2008  Postdoctoral Research Associate, Department of Industrial and Information Engineering, University of Tennessee, Knoxville  
Aug. 2007 – Dec. 2007  Lecturer, Department of Industrial and Information Engineering, University of Tennessee, Knoxville

Refereed Journal Publications  

Refereed Proceedings Papers  
Invited Presentations:

Professional Affiliations:
Institute for Operations Research and the Management Science (INFORMS)
Institute of Industrial Engineers (IIE)

Service:
Reviewer for *European Journal of Operational Research*
Reviewer for *IIE Transactions*
Reviewer for *Computers and Operations Research*

Honors and Awards:
Second Prize, Best Poster Presentation, International Conference on Semiconductor Technology for Ultra Large Scale Integrated Circuits and Thin Film Transistors, 2007
Finalists, INFORMS Quality Statistics and Reliability Section Best Student Paper Competition, 2006
Graduated with Honors, Tsinghua University, 2000

Teaching:
- ISE 441/541 Introduction to Operations Research (Fall 2008-09)
- ISE 316/516 Engineering Probability (Winter 2008-09)
APPENDIX B - COURSE SYLLABI

The MEM program will largely utilize existing ISE graduate courses. We have included syllabi from recent offerings. In some cases, the courses were taught under an experimental course designation (ISE 589 or ISE 689). As part of the creation of the MEM degree, we will apply for official course numbers in the Ohio University system.

The following courses will be offered for MEM students. Those which are required for all students are marked with an asterisk.

ET501 - Engineering Writing*
ISE 589 - Engineering Economic Analysis*
ISE 512 - Six Sigma*
ISE 535 - Quality Control
ISE 525 - Probabilistic Systems Analysis*
ISE 555 - Information Systems Engineering*
ISE 556 - Database Information Systems*
ISE 689 - Management Decision Making
ISE 589 - Engineering Law and Policy*
ISE 689 - Operations Research*
ISE 694 - Engineering Management Project*
ISE 642 - Warehousing and Distribution
Engineering Writing
Course Number: ET 501
Saturday 8:00am to 12:00 pm

Quarter: Winter, 2009
Professor: Stephen M. Flaherty, Ph.D.  Office Hours: Consultations in class and by arrangement
Office: 206 Cuder Hall, Athens
Messages: Regional Higher Education Office
740-593-2551; FAX: 740-593-2867; email: flaherty@ohio.edu

Flaherty, S.F. (2002). Business and Technical Communication: A Reader-Friendly Approach. This text is provided in your Blackboard web site.

Course Description: This course is designed to help you to develop the ability to think critically as a professional communicator by asking appropriate questions that will enable you to understand, develop, and produce effective communication using the following elements of thought:

- Purpose
- Basic Concepts
- Information Sources and Needs
- Underlying Assumptions
- Inferences/Conclusions
- Implications/Consequences
- Points of View
- Questions Raised and Addressed

In addition, you will expected to apply the following universal intellectual standards in continuously assessing your efforts:

- Clarity
- Breadth
- Accuracy
- Logic
- Precision
- Significance
- Relevance
- Fairness
- Depth

Communication Content Areas of Study in this course include:
7 C’s of Communication
Introduction to Report Writing (Title Page, Table of Contents, List of Illustrations, Source Citations:APA, Appendix, Referral to Tables and Figures, Letter of Transmittal, Data Collection, Types of Reports)
Collaborative Writing
Working in Teams: Conflict
Team Presentations: Handling Questions; Using Powerpoint Visuals
Job Search: Resume, Cover Letters
Researching Secondary Sources: Hard Copy, Electronic
Letter Formats
Memo Formats
Positive Messages
Learning Outcomes: Upon Completion of this course students should be able to
- Write both internal and external business correspondence
- Conduct and report business research
- Report information in writing
- Present information orally
- Develop correspondence appropriate to the job search
- Discuss topics relevant to the understanding of communication in a business environment (legal and ethical issues, critical thinking, international/cultural issues)
- Prepare and present effectively

Student Evaluation: Students will be evaluated according to the attached assignment schedule.

Attendance: Attendance will be taken at each required class meeting and a record maintained.

Course Reflections: Active Participation in course reflection exercises is required.

Electronic Research: This class requires that you access the WWW to retrieve class materials and to complete class assignments. An online site for the APA guide for writing research papers is http://www.westwords.com/guffev/apa.html.

How to Succeed in this Course:

1. Follow Directions. Grades will be lowered for failure to follow directions in completing assignments.
2. Allow enough time to complete assignments. Writing assignments done at the last minute without adequate time to edit and proofread will usually result in deducted points.
3. PROOFREAD! Points will be deducted for proofreading errors in spelling, punctuation, grammar, and word choice. You should have the knowledge and skills to correct these errors. Remember that spellchecker and grammar analysis are not foolproof.
4. Follow all University policies in academic conduct:

Plagiarism is
• Taking material from a published source or other source and not citing it
• Using a current or former student’s work

5. **Attend all classes and be punctual.** Students are expected to attend ALL scheduled sessions.

**Performance Standards:** This course is designed to enable students to participate in realistic, goal-oriented experiences, which, taken together with the information provided, will undergird his/her ability to meet expectations of and contribute productively to the future employer. Therefore, student performance will meet at least the following minimal standards:

1. Assignments will be submitted on time (30% penalty for late papers)
2. Worksheets must be completed neatly with careful printing or typing of content—illegible worksheets will receive 0 points and may not be revised. Other assignments must be word-processed to receive credit.
3. Presentations will be planned, attractive and interesting as well as informative.
4. Two worksheets (except 6, 7, and 10) may be revised and resubmitted.
5. Academic dishonesty will result in a failing grade for the course and could lead to expulsion from the University. Academic dishonesty is defined as using another's ideas, words or work as one’s own.

Your grade in this course will be based on the following maximum point totals:

<table>
<thead>
<tr>
<th>Item</th>
<th>Maximum Possible Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ten Worksheets</td>
<td>350 (50 pts. per p)</td>
</tr>
<tr>
<td>Eight Article Reviews</td>
<td>150</td>
</tr>
<tr>
<td>Resume/Cover Letter</td>
<td>50</td>
</tr>
<tr>
<td>One team research report</td>
<td>200</td>
</tr>
<tr>
<td>Team oral presentation of the research report</td>
<td>50</td>
</tr>
<tr>
<td>Citizenship—attendance, participation, conferences, cooperation</td>
<td>200 (100 is a normal grade)</td>
</tr>
</tbody>
</table>

Total 1000

**Grading Scale**

<table>
<thead>
<tr>
<th>GRADE</th>
<th>POINTS REQUIRED</th>
<th>GRADE POINT</th>
<th>QUALITY POINTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>924.6 OR ABOVE</td>
<td>4.00</td>
<td>16</td>
</tr>
<tr>
<td>A-</td>
<td>899.6 TO 924.5</td>
<td>3.67</td>
<td>14.68</td>
</tr>
<tr>
<td>B+</td>
<td>875.6 TO 899.5</td>
<td>3.33</td>
<td>13.32</td>
</tr>
<tr>
<td>B</td>
<td>825.6 TO 875.5</td>
<td>3.00</td>
<td>12</td>
</tr>
<tr>
<td>B-</td>
<td>799.6 TO 825.5</td>
<td>2.67</td>
<td>10.68</td>
</tr>
<tr>
<td>C+</td>
<td>775.6 TO 799.5</td>
<td>2.33</td>
<td>9.32</td>
</tr>
<tr>
<td>C</td>
<td>725.6 TO 775.5</td>
<td>2.00</td>
<td>8</td>
</tr>
<tr>
<td>C-</td>
<td>699.6 TO 725.6</td>
<td>1.67</td>
<td>6.68</td>
</tr>
<tr>
<td>D+</td>
<td>675.6 TO 699.6</td>
<td>1.33</td>
<td>5.32</td>
</tr>
<tr>
<td>D</td>
<td>625.6 TO 675.5</td>
<td>1.00</td>
<td>4</td>
</tr>
<tr>
<td>D-</td>
<td>599.6 TO 625.5</td>
<td>0.67</td>
<td>2.68</td>
</tr>
<tr>
<td>F</td>
<td>599.5 AND BELOW</td>
<td>0.00</td>
<td>0</td>
</tr>
</tbody>
</table>
Individual Meetings

We will meet as a class on most alternate weeks and in addition you are encouraged to consult with me individually and with your team at least once.

Summary of Schedule

1/10/09  Class Meets—Course Introduction—Writing on the Job, Resume, Cover Letter, The Research Paper, Being Reader Friendly, Researching Information for Reports
         Writing on the Job—CHAPTER 1
         CHAPTERS 8 (REPORTS) AND 9 (RESEARCH PROCESS), PARTS B AND C—DOCUMENTATION

1/17/09  Being Reader-Friendly—CHAPTER 2
         Report on Research Paper Topic in Week 1 Course Reflection
         Submit Worksheet 1, Pages 14-16—respond to one audience type;
         submit review of article 1.
         Participate in Course Reflection 1 Discussion Board Assignment.

1/24/09  Defining Purpose and Organization—CHAPTER 3
         Individual Consultations, Oral Presentations, Reports
         Submit Worksheets 2 and 9, Pages 30-31 revise humorous statements
         Submit review of article 2
         Participate in Course Reflection 2 Discussion Board Assignment.

1/31/09  Oral Reports—CHAPTER 10
         Work on Research Paper Projects
         Submit Worksheet 3
         Submit review of article 3
         Participate in Course Reflection 3 Discussion Board Assignment.

2/7/09   Class Meets
         Describing Mechanisms, Reports—CHAPTER 4
         Research topic, thesis, Describing Processes, Reports,
         bibliography and proposal are due
         Submit Worksheet 8
         Submit review of article 4
         Participate in Course Reflection 4 Discussion Board Assignment.

2/14/09  Describing Processes—CHAPTER 5
         Work on Research Paper Projects
         Submit Worksheet 4
         Submit review of article 5
         Participate in Course Reflection 5 Discussion Board Assignment.
2/21/09  Work on Research Paper Projects
Writing Instructions and Manuals, Reports, , Reports
Submit Worksheet 5
Submit review of article 6
Participate in Course Reflection 6 Discussion Board Assignment.

2/28/09  Email, Memos and Letters—CHAPTER 7
Work on Research Paper Projects
Submit Worksheet 6
Submit Worksheet 10
Submit review of article 7
Participate in Course Reflection 7 Discussion Board Assignment.

3/7/09   Class Meets
Research Report Presentations
Submit Worksheet 7
Submit review of article 8
Participate in Course Reflection 8 Discussion Board Assignment.

3/14/09  Participate in Final Course Reflection Discussion Board Assignment.
ISE 589 - ENGINEERING ECONOMIC ANALYSIS

ISE589 Engineering Economy and Decision-making Process

Course:
ISE 589 Engineering Economy and Decision-making Process - 4 hours,

Catalog description:
Economic analysis of engineering projects. Intended to provide both basic theory and practical experience in comparing alternatives for capital expenditures, alternatives for providing needed production or services, and alternatives for income generation.

Sessions:
Monday Night 7:30, Stocker 292, Via Compressed Video

Instructor:
Dr. Dusan Sormaz, Room 277, Stocker Center
Phone: (740) 593-1545
E-mail: sormaz@ohio.edu
URL: http://www.et.ohiou.edu/~sormaz

Office Hours:
MW 3:30-5:00 pm or by appointment

Textbook and Resources:

Class web site: http://www.ent.ohiou.edu/~sormaz/teaching/ise589.htm

Computer usage:
Students will use spreadsheet software (MS Excel) and the textbook supplied software on PC computers to solve homework problems and projects. Branch campus students will use their own computers, while Athens campus students may use ENT and IMSE computer labs.

The course objective:
Objective of this course is to provide students with an in-depth knowledge of an engineering decision process and the economic consequences of engineering decisions. Student will understand time value of money, interest, and cash flow diagrams. Students will learn methods for evaluation of alternatives in terms of cash-flow (before and after tax), rate of return and costs/benefits. Student will understand importance of long term capital management. After the course students will be able to apply the economic analysis techniques in different phases of an engineering project. Students will be able to use software tools to perform economic analysis.
ISE 589 - Syllabus

Winter 06/07

Requirements:
Readings - you are required to read the chapter before the class in which it will be covered
Projects - you are to solve problems from the textbook, 6-8 projects throughout the quarter, using MS Excel and its add-in tools
Final project – students will solve one of the end-of-chapter case studies from the textbook, it will be due on Thursday, 03/15/07 at 5:00 pm

Grading Policy:
Projects 70%
Final project (Case study) 30%

Attendance policy:
Attendance to all sessions is required. No enforcement policy will be in effect, but students are responsible for all material covered in the class.

Academic misconduct:
No collaboration of any kind is permitted during any of the examinations, or homework assignments. All suspected cases will be treated according to the University Policy as stated in the Catalog and the Student Handbook.

Tentative schedule:
1. Week (1/3-5) No class session
2. Week (1/8-12) Engineering Economy and Decision-Making Process (Ch. 1) Cash Flows and the Time Value of Money (Ch. 2)
3. Week (1/15-19) No class session (MLK holiday)
4. Week (1/22-26) Interest Formulas (Ch. 3) Economic Equivalence (Ch. 4)
5. Week (1/29-2/2) Problem or Opportunity Definition (Ch. 5) Generating and Designing Feasible Solutions (Ch. 6), Estimating Cash Flows (Ch. 7)
6. Week (2/5-9) After-Tax Cash Flow (Ch. 8)
7. Week (2/12-16) Deterministic Evaluation for Single Projects (Ch. 9)
8. Week (2/19-23) Considering Risk (Ch. 10) Considering Multiattributes (Ch. 11)
9. Week (2/26-3/2) Deterministic Evaluation for Multiple Projects (Ch. 12)
10. Week (3/5-9) Considering Options in Time (Ch. 13) Considering Multicriteria (Ch. 14)

Thursday, March 15, 2007, Final project is due at 5:00 pm

2
ISE 512 - SIX SIGMA

ISE 512 Principles of Six Sigma
Faculty: Thomas Scott  Office: STKR 123A
Time: Mon/Wed 10:10-12:00  Place: STKR 292B
Email: scottt@ohio.edu  Prereq: none
WebSite: http://www.ent.ohiou.edu/~scott
Off. Hours: MTWTh 3-4 PM and by appointment
Additional Miscellaneous Material: Lecture Overheads, Case Studies, Readings, Homework Questions, Assignments: http://www.ent.ohiou.edu/~tscott/ise512

1. Course General Objective:
Introduction to the six sigma DMAIC problem-solving methodology. Topics covered include tools and techniques for product and process improvement and the application of basic and advanced statistics to problem solving.

Course Specific Objectives:
At the end of this course students should be able to:
1. Describe the managerial process Six Sigma as applied for improved business performance
2. Describe and implement each of the phases of the DMAIC process
   a. Define
   b. Measure
   c. Analyze
   d. Improve
   e. Control
3. Recognize the implications of Six Sigma implementation
4. Describe and formulate management strategies for Six Sigma implementation
5. Recognize problems that would profit from Six Sigma application
6. Provide support as a member of a Six Sigma team

Grade distribution:
- Written reviews of two case studies (15% each) - 30%
- Mid Term - 15%
- Homework questions associated with assigned readings - 15%
- Class participation - 10%
- Final Exam 30%

Late submittals and absence:
Late homework and assignment submittals will result in a grade reduction. Since we will use group activities and exercises as learning aids, it is particularly important that students attend and make timely submittal of assignments. Failure to do so will result in a decrease in grade. There is no mechanism for making up class absence. Final grades will be assigned using the following scale. If necessary, grades will be rounded up. (No student's grade will be rounded down.)

A = 93-100%  A− = 90-92%
B+ = 87-89%  B = 82-86%
B = 80-82%
C+ = 77-79%  C = 73-76%
C = 70-72%
D+ = 67-69%  D = 63-66%
D = 60-62%
Below 60% = F
Attendance policy:
Class attendance is encouraged, and required. Each absence after the first will result in a loss of three (3) points off the final grade.

Scholastic dishonesty policy:
Cheating on written submittals, submitting work from other students as your own, or plagiarism will result in an automatic F on the assignment and possible further action from the university.

Course topics & Calendar

<table>
<thead>
<tr>
<th>Week</th>
<th>Lecture Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Six Sigma Overview</td>
</tr>
<tr>
<td>2</td>
<td>DMAIC Process</td>
</tr>
<tr>
<td>3</td>
<td>Define</td>
</tr>
<tr>
<td>4</td>
<td>Measure</td>
</tr>
<tr>
<td>5</td>
<td>Analyze</td>
</tr>
<tr>
<td>6</td>
<td>Improve</td>
</tr>
<tr>
<td>7</td>
<td>Control</td>
</tr>
<tr>
<td>8</td>
<td>Case Study 1</td>
</tr>
<tr>
<td>9</td>
<td>Case Study 2</td>
</tr>
<tr>
<td>10</td>
<td>Case Study 3</td>
</tr>
<tr>
<td></td>
<td>Final Paper Submittal</td>
</tr>
</tbody>
</table>

ISE 512 Homework Assignments
- Homework will involve providing written analysis of case studies, written answers to study questions associated with reading assignments, and preparation for class participation

ISE 512
- A Final written paper will be required in addition to the above for Graduate credit. This will be in addition to the Final Exam. Both the paper and the exam will contribute to 15% of the final grade.
ISE 535 - QUALITY CONTROL

ISE535 – Quality Control and Reliability  Winter 05/06

Course:
ISE 535 – Quality Control and Reliability. 3 credit hours
Call number: Chillicothe 66321, Athens/Lorain County 57013, Southern 71295
Class web site: http://www.ent.ohiou.edu/~sormaz/teaching/ise535.htm

Catalog description:
Application of statistics to control of quality and reliability in products and services. Design of
acceptance sampling and process control systems, including attention to inspection and test
methods. Design and implementation of quality assurance programs, including non-statistical
dimensions of quality systems. 3 lectures

Sessions:
Sa 8:10am – 11:00am RTV 455, via Compressed video

Instructor:
Dr. Dušan Šormaz, Room 277, Stocker Center
Phone: (740) 593-1545
E-mail: sormaz@ohio.edu
URL: http://www.ee.ohiou.edu/~sormaz/

Office Hours:
MW 11:00 – 12:30 pm (by phone, e-mail, yahoo IM, dsormaz@yahoo.com) or by appointment

Textbooks:
Douglas C. Montgomery, Introduction to Statistical Quality Control, 5th edition, John Wiley,

The Course Objective:
The objective of this course is to teach students statistical methods for quality control. The focus
will be on control charts for variables and attributes. Student will have opportunities to apply the
methods and software on several processes.
By the end of the quarter students will master these methods and be able to decide the most
appropriate method for practical application. They will have sufficient knowledge to design and
implement statistical process control charts in their companies.

Computer usage:
Students will be using MS Excel or 00 to perform homework assignments.

Requirements:
Readings - Please read the chapters before the class in which they will be covered.
Homework - There will be 5-7 weekly homework assignments in which you will use paper and
pencil and Minitab/Excel to solve problems from the textbook.
Midterm exams - Exams will be problems from the book that should be solved electronically and
submitted via the course web site (uploaded into web site).
Final project – Individual project in which students will perform a process monitoring study and
perform statistical analysis and statistical process control of the process.
Grading Policy:
Homeworks 35%
Midterm exams 30%
Final project 35%

Attendance Policy:
Attendance to all sessions is required. No enforcement policy will be in effect, but students are responsible for all material covered in the class.

Academic Misconduct:
All assignments will be individual work of each student. No unauthorized collaboration of any kind is permitted during any of the examinations, or modeling projects. All suspected cases will be treated according to the University Policy as stated in the Catalog and the Student Handbook.

Tentative Schedule:
1. Week (1/7) Quality Improvement in the Modern Business Environment (Chapter 1) Modeling Process Quality (Chapter 2)
2. Week (1/14) Inferences About Process Quality (Chapter 3)
3. Week (1/21) Methods and Philosophy of Statistical Process Control (Chapter 4)
4. Week (1/28) Control Charts for Variables (Chapter 5)
5. Week (2/4) Control Charts for Variables (Chapter 5), midterm 1 due electronically
6. Week (2/11) Control Charts for Attributes (Chapter 6)
7. Week (2/18) Process and Measurement Systems System Capability Analysis (Chapter 7)
8. Week (2/25) Cumulative Sum and EWMA Control Charts (Chapter 8)
9. Week (3/4) Cumulative Sum and EWMA Control Charts (Chapter 8), midterm 2 due electronically
10. Week (3/11) Engineering Process Control and SPC (Chapter 11)

Saturday 3/18/06 Final projects due at 12:00pm
ISE 525 Probabilistic Systems Analysis Fall 2007

Faculty: David Koonce  
Office: 283 Stocker Center
Time: T 7:30 P.M. - 10:30 P.M. 
Place: CV Classroom
Email: koonce@ohio.edu  
Prereq:
Off. Hours: Phone (740-593-1550) and email (koonce@ohio.edu)

Course General Objective:

This course is intended to prepare engineering management students to design statistically valid experiments and to analyze the results of those experiments to draw conclusions about a population. Analysis methods covered include hypothesis testing and regression.

Course Specific Objectives:

At the end of this course, students should be able to:

- Determine the permutations and combinations of a sample space and probabilities.
- Assess conditional probabilities for dependent and independent events.
- Distinguish between discrete and continuous random variables.
- Use probability functions and cumulative probability functions of discrete and continuous variables to compute distribution parameters (expected value and variance).
- Describe the parameters and the application of common probability distributions:
  - Uniform, discrete and continuous.
  - Binomial.
  - Normal.
- Use tables to calculate probability and its inverse from the following distributions:
  - Normal (standard normal Z).
  - t distribution.
  - F distribution.
  - Z (chi-square) distribution.
- Describe an unknown population using statistics from a random sample.
- Determine the best sample measure of central tendency and variation for a sample from a known population distribution.
- Utilize sampling distribution tables to estimate confidence intervals of population parameters (mean and variance).
- Compare two populations, for both mean and variation, using random samples.
- Estimate population proportions using binomial tables and normal approximations to the binomial, for small and large samples respectively.
- Conduct hypothesis tests on population parameters utilizing point estimates from random samples.
- Adjust Type I and Type II error terms within hypothesis tests.
- Determine sample sizes for hypothesis tests of population means.
- Plot X, Y data and identify linear and transformable patterns.
- Use least squares regression methods for single and multiple X variables.
- Use ANOVA techniques to identify weak regression models.
- Use sequential model selection techniques, like stepwise regression, to build prediction models.
- Use ANOVA techniques to test for single randomized one-factor experiments.
- Use techniques for minimizing experimental error in comparing multiple populations with ANOVA.
- Block out error in randomized complete block ANOVA analysis.
- Utilize spreadsheet software for basic statistical analysis.

Grade Distribution:
- Homework 50%
- 1 Mid-term Examination 25%
- Final Examination 25% - Take home during Exam week

A=93-100%  A-=90-92%
B+=87-89%  B=83-88%
B=77-79%  C+=70-77%
C=67-69%  D+=63-69%
D=60-62%
Below60%=F

Homework, Make Up Quizzes, Midterms, and Final Policy:
Missed homework submissions and exams may only be made up when a legitimate class absence occurs. Final grades will be assigned using the following scale. If necessary, grades will be rounded up. (No student's grade will be rounded down.)

Attendance Policy:
None

Scholastic Dishonesty Policy:
Cheating on examinations, submitting work from other students as your own, or plagiarism will result in an automatic F on the assignment and possible further action from the university.

Course Topics & Calendar

<table>
<thead>
<tr>
<th>Date</th>
<th>Day</th>
<th>Topic</th>
<th>Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>09/04/07</td>
<td>T</td>
<td>Introduction / Permutations / Combinations / Conditional Probabilities</td>
<td>2 - 1,2,3,4</td>
</tr>
<tr>
<td>09/11/07</td>
<td>T</td>
<td>Discrete &amp; Continuous Distributions</td>
<td>3 - 1,2,4,5,6</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4 - 1,2,3,4,5,6</td>
</tr>
<tr>
<td>09/18/07</td>
<td>T</td>
<td>Data Description</td>
<td>6 - 1,3,4</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>7 - 1,2,3</td>
</tr>
<tr>
<td>09/25/07</td>
<td>T</td>
<td>Single Sample Tests</td>
<td>8 - 1,2,3,4,5,6</td>
</tr>
<tr>
<td>10/02/07</td>
<td>T</td>
<td>Hypothesis Testing</td>
<td>9 - 1,2,3,4,5</td>
</tr>
<tr>
<td>10/09/07</td>
<td>T</td>
<td>Exam 1 Goodness of Fit-Test/Two Samples</td>
<td>9 - 6</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>10 - 1,2,3</td>
</tr>
<tr>
<td>10/16/07</td>
<td>T</td>
<td>Two Sample Tests and Regression</td>
<td>10 - 4,5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>11 - 1,2,3,4</td>
</tr>
<tr>
<td>10/23/07</td>
<td>T</td>
<td>Linear Regression, Multiple Regression</td>
<td>11 - 5,6,7,9</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>12 - 1,2,3,4</td>
</tr>
<tr>
<td>10/30/07</td>
<td>T</td>
<td>Multiple Regression</td>
<td>12 - 5,6</td>
</tr>
<tr>
<td>11/06/07</td>
<td>T</td>
<td>ANOVA</td>
<td>13 - 1,2,3,4</td>
</tr>
<tr>
<td>11/13/07</td>
<td>T</td>
<td>Review – Final Exam</td>
<td></td>
</tr>
</tbody>
</table>

ISE 525 Homework Assignments
- All homework is due before the start of class on the day they are due.
- All homework is to be neat and done on the computer.
- No more than 2 problems to a page.
- All work is to be shown.
- No group work is allowed.
  (However, you may seek help from other students for difficult problems. But, you must list the names of those students on your submission.)
ISE 555 Information Systems Engineering

Course Code: 81031, 81032, 81035, 81033, 81034
Faculty: David Koonce
Office: 283 Stocker Center
Time: 5:30 A.M. → 12:00
Place: CV Classroom
Email: koonce@ohio.edu
Phone: 740-593-1550

Prereq:

Course General Objective:
Information systems provide a primary source of information for industrial engineers. This course introduces to students to information systems. Students will also learn about the design and implementation of information systems.

Course Specific Objectives:
At the end of this course students should be able to:
1. Model a system, incorporating feedback
2. Identify steps in the Systems Lifecycle Model
3. Explain the advantages and disadvantages of developing a system using a database management system
4. Describe common methods for data communications
5. Describe activities in common business information systems including
   a. Accounting Information Systems
   b. Management Information Systems
   c. Decision Support Systems
   d. Knowledge Based Systems
   e. Executive Information Systems
   f. Manufacturing Information Systems

Grade distribution:
- Homework: 50%
- Mid-term Examination: 20%
- Student presentation: 10%
- Final Examination: 20%

Homework, Make up quizzes, midterms, and final policy:
Missed homework submissions and exams may only be made up when a legitimate class absence occurs. Final grades will be assigned using the following scale. If necessary, grades will be rounded up. (No student's grade will be rounded down.)

<table>
<thead>
<tr>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>A=93-100%</td>
</tr>
<tr>
<td>B+=87-89%</td>
</tr>
<tr>
<td>B=77-79%</td>
</tr>
<tr>
<td>D=67-69%</td>
</tr>
<tr>
<td>Below60%=F</td>
</tr>
</tbody>
</table>

Attendance policy:
Class attendance is encouraged.
Scholastic dishonesty policy:
Cheating on examinations, submitting work from other students as your own, or plagiarism will result in an automatic F on the assignment and possible further action from the university.

Course topics & Calendar

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Chapter</th>
<th>Assignment</th>
<th>Mini-Case</th>
</tr>
</thead>
<tbody>
<tr>
<td>12-Jan-08</td>
<td>IT supports the business</td>
<td>1</td>
<td></td>
<td>1.2</td>
</tr>
<tr>
<td>19-Jan-08</td>
<td>IT across the organization</td>
<td>2</td>
<td>Memo</td>
<td>2.2</td>
</tr>
<tr>
<td>26-Jan-08</td>
<td>Data Management</td>
<td>3</td>
<td>Memo</td>
<td>3.1</td>
</tr>
<tr>
<td>2-Feb-08</td>
<td>Networking</td>
<td>4</td>
<td>Memo</td>
<td>4.1</td>
</tr>
<tr>
<td>9-Feb-08</td>
<td>Functional IT - Transaction Processing</td>
<td>7</td>
<td>Memo</td>
<td>7.1</td>
</tr>
<tr>
<td>16-Feb-08</td>
<td>Organizational IT - ERP</td>
<td>8</td>
<td>Memo</td>
<td>8.1</td>
</tr>
<tr>
<td>23-Feb-08</td>
<td>Interorganization IT</td>
<td>9</td>
<td>Memo</td>
<td>9.1</td>
</tr>
<tr>
<td>1-Mar-08</td>
<td>Decision Support</td>
<td>10, 11, 12</td>
<td>Memo</td>
<td>12.1</td>
</tr>
<tr>
<td>8-Mar-08</td>
<td>Strategic IT and Acquisition</td>
<td>13, 15</td>
<td>Memo</td>
<td>13.2</td>
</tr>
<tr>
<td>15-Mar-08</td>
<td>Presentations</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ISE 555 Homework Assignments
There will be three types of assignments in ISE 555.

1) A blog has been setup for this class [http://cypress.ent.ohiou.edu/wordpress/](http://cypress.ent.ohiou.edu/wordpress/)
   You should make 1 post per week which is relevant to the week’s reading and comment on at least two of the posts that week.

2) A memo to me (approx one page) which describes your experience, professional or through research on the week’s topic. This is due on Wed noon, following the lecture.

3) A mini-case assigned from the book. Each week, I will assign a mini case and you should answer the questions that follow the case. This is also due on Wed noon, and may be attached to the memo.

All homework is due at the start of the first class after we finish covering the chapter.
- All homework is to be neat and done on the computer.
- All assignments must be emailed to koonce@ohio.edu with the subject: ISE 555 Assignment...
- No group work is allowed
ISE 556 - DATABASE INFORMATION SYSTEMS

ISE 556 Database Information Systems - Fall 2008
Course Code: 81655 (Zanesville), 81057 (LCCC)
Faculty: David Kooce Office: 283 Stocker Center
Time: 8 AM – 12:00 PM Place: CV Classroom
Email: kooce@ohio.edu Prereq:
Off. Hours: Email and Phone
Text: Database Processing: Fundamentals, Design, and Implementation - 10th Ed

Course General Objective:
Methods and procedures for storing and retrieving data in large computerized databases, in support of manufacturing information. Also covers ER modeling of database systems, using IDEF1X and Crows foot notation. Topics include: database design, normalization, SQL and a database development project. Students will build a Linux/Apache/MySQL/PHP for their project.

Course Specific Objectives:
At the end of this course students should be able to:
- Design a set of relations for storing data.
- Normalize a set of relations to 3rd normal form.
- Develop a set of SQL DML statements to create a set of tables.
- Determine what check constraints may be required for a table.
- Determine the locking requirements for concurrent access.
- Develop a SQL query to retrieve required data.
- Develop an IDEF1X data model.

Grade distribution:
- Homework and labs 50%
- Mid-term Examination 20%
- Final Project 10%
- Final Examination 20% - Take Home

Homework, Make up quizzes, midterms, and final policy:
Missed homework submissions, homework not submitted correctly cannot be made up. All students will be allowed one missed assignment without penalty. Exams may only be made up when legitimate class absence occurs. Final grades will be assigned using the following scale. If necessary, grades will be rounded up. (No student's grade will be rounded down.)

A=63-100%  B=90-92%
B+=87-89%  B=80-82%
C+=77-79%  C=73-78%
C=70-72%
D+=67-69%  D=63-66%
D=60-62%
Below60%=F

Attendance policy:
Class attendance is encouraged, and required, each student is allowed one (2) absences. Each absence after the first two will result in a loss of one (1) point off the final grade.
Scholastic dishonesty policy:
Cheating on examinations, submitting work from other students as your own, or plagiarism will result in an automatic F on the assignment and possible further action from the university.

Course topics & Calendar

<table>
<thead>
<tr>
<th>Week</th>
<th>Chapter/Topic/Lab</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Chap. 1 / Intro / Microsoft Tutorials</td>
</tr>
<tr>
<td>2</td>
<td>Chap. 3 / Relational Model/ Build an Access DB</td>
</tr>
<tr>
<td>3</td>
<td>Chap. 3&amp;4/ Normalization / Make Forms</td>
</tr>
<tr>
<td>4</td>
<td>Chap. 2 / SQL DML / Interactive Forms</td>
</tr>
<tr>
<td>5</td>
<td>Chap. 5 / ER Modeling / Reports</td>
</tr>
<tr>
<td>6</td>
<td>Exam 1 / Building an Application</td>
</tr>
<tr>
<td>7</td>
<td>Appx. B / Linking Databases</td>
</tr>
<tr>
<td>8</td>
<td>Chap 7 / SQL DDL / Locking</td>
</tr>
<tr>
<td>9</td>
<td>Chap 8 / Project Design</td>
</tr>
<tr>
<td>10</td>
<td>Project Development/Catch up</td>
</tr>
</tbody>
</table>

Classes in red may not have Saturday class meetings.
ISE 689 ENGMAN
Managerial Decision Making

Winter 2009

Credit Hours: 4, Prereq: None, Call Number: 81067/81072

Description:
Discussion of various tools managers/decision makers may need to solve the difficult problems they are working on. Topics include Meta-heuristics in solving problems (Tabu Search, Simulated Annealing, Genetic Algorithms, etc.); Decision Making Techniques (Single Objective, Multiple Objectives, Deterministic or Stochastic, Single Person Decision Making, Group Decision Making, etc.); and Globalization and Economy and their impact in the organizations.

Sessions:
Saturdays 8:00am-12:00noon.

Instructor:
Dr. Gürsel A. Süer, Room 274, Stocker Center.
Phone: (740) 593-1542
Fax: (740) 593-0778
E-mail: gser@ohio.edu

Office Hours:
MW 3:00pm-4:00pm or by appointment.

Textbook:
None.

Reference Books:
David L. Bleikorn and Craig Fleisher (Editors), Competitive Intelligence and Global Business, Praeger, 2005.
Course Objective:
To prepare students to recognize recent emerging issues in managerial level decision making. The course is organized around 3 main issues; 1) recent developments in computational techniques typically not covered in other courses, 2) decision making under various different conditions and finally 3) the impact of globalization in organizations (business related issues, business strategies, social issues, cultural issues, etc.) To explore/discuss an understanding of interrelations among all three main areas whenever possible.

After the course, students will be able to recognize various tools available to them, identify potential applications for them and address the consequences of globalization as it relates to the success of the organizations.

Computer Usage:
Students may use spreadsheets (Excel, etc.) to solve some homework problems. Software is available in Ohio University computer labs. If you don't have an account, please see the lab administrator. The instructor may also make some specialized software available during the quarter.

Homeworks:
Homework assignments will be made every Saturday. They will be due the following Friday.

Report:
A report is required from each student in relation to globalization and economy. Students will also make a presentation based on their report.

Exams:
One midterm exam (Takehome) will be given. The exam will be announced at least one week in advance. Students must take the exam on the date and the time scheduled. Exceptions can only be made if the student submits a written request before the exam with valid reasons and if it is approved by the instructor. A bonus question can also be asked in some exams. Final exam is comprehensive.

Readings:
You are recommended to read the material to be covered before the class.

Grading:

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Midterm I</td>
<td>25%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>25%</td>
</tr>
<tr>
<td>Homework</td>
<td>20%</td>
</tr>
<tr>
<td>Report</td>
<td>20%</td>
</tr>
<tr>
<td>Presentations</td>
<td>10%</td>
</tr>
</tbody>
</table>
Attendance Policy:
Attendance to all sessions is strongly recommended. Students are responsible for all of the material covered in the class.

Academic Misconduct:
No collaboration of any kind is permitted during any of the examinations, homework, or quizzes. All suspected cases will be treated according to the University Policy as stated in the Catalog and the Student Handbook.

Tentative Schedule:
1. January 9  Introduction, Review.
2. January 16  Metaheuristics
3. January 23  Metaheuristics
4. January 30  Metaheuristics
5. February 7  Decision Making
6. February 14  Decision Making
7. February 21  Decision Making
8. February 28  Globalization + Economy
9. March 7    Globalization + Economy
10. March 14   Globalization + Economy
ISE 689 - Operations Research

Course:
ISE 689 Operations Research - 4 hours,
Call number: Lorain 57007, Eastern 60322, Lancaster 58936
Class web site: http://www.ent.ohiou.edu/~sormaz/teaching/ise541.htm

Catalog description:
Basic methodology of operations research. Applications and mathematical structure of linear models, linear, integer, and dynamic programming, queuing theory, and other modeling techniques.

Sessions:
Sa 8:10-12:00, McCracken 108, Via Compressed Video

Instructor:
Dr. Dan Sormaz, Room 277, Stocker Center
Phone: (740) 593-1545
E-mail: sormaz@ohio.edu
URL: http://www.ett.ohiou.edu/~sormaz

Office Hours:
MW 9:00-11:00am or by appointment

Textbook:

Computer usage:
Students will use spreadsheet software (MS Excel) and the textbook supplied software on PC computers to solve homework problems and projects. Branch campus students will use their own computers, while Athens campus students may use ENT and IMSE computer labs.

The course objective:
The objective of this course is to teach students methods for operations research and their applications in various areas. Deterministic methods for optimization (linear programming, network programming, and integer programming) and probabilistic methods (simulation, queuing theory) will be covered. The students are expected to understand optimization methods in industrial, manufacturing, and service systems. By the end of the course students will be able to formulate optimization problems, implement the optimization models, and utilize software for solving optimization problems.
ISE 541 - Syllabus

Spring 05/06

Requirements:
Readings - you are required to read the chapter before the class in which it will be covered,
Projects - you are to solve problems from the textbook, 6-8 projects throughout the quarter, using
MS Excel and its add-in tools
Final project – students will solve one of the end-of-chapter case studies from the textbook, it
will be due on Thursday, 06/08 at 5:00 pm

Grading Policy:
Projects 70%
Final project (Case study) 30%

Attendance policy:
Attendance to all sessions is required. No enforcement policy will be in effect, but students are
responsible for all material covered in the class.

Academic misconduct:
No collaboration of any kind is permitted during any of the examinations, or homework
assignments. All suspected cases will be treated according to the University Policy as stated in
the Catalog and the Student Handbook.

Tentative schedule:
2. Week (4/3-7): Introduction to Optimization Modeling (chapter 3)
3. Week (4/10-14): Linear Programming Models (chapter 4)
10. Week (5/29-6/2): Queueing Models (chapter 14)

Thursday, June 8, Final project is due at 5:00 pm
ISE 694 - ENGINEERING MANAGEMENT PROJECT

ISE 689
Engineering Management Project

Dr. Gürsel A. Sürer

Summer 2008

**Topic Selection:**
I would recommend you to pick a topic from the organization you are working for. However, it is not required and a student may work on a topic of his/her choice and/or interest. If needed, I can also suggest a list of topics for students consideration as well.

**Course Requirements:**
Reports and Deadlines:
2. Progress Report 1, Nov 10, 2008, Monday
3. Progress Report 2, March 2, 2009, Monday

I'll return my feedback within 2 weeks.

The above dates are the latest submission dates. However, a student may choose to complete the work earlier. Obviously, if you submit the final report before Nov 10, you don't have to submit any progress report. Similarly, if you would like to submit final report before March 2, you must submit progress report 1 but not progress report 2. As the project progresses, it is not unusual to have small to moderate changes in the work/project proposed.

**Project Report Requirements:**
The project report must contain at least the following sections

1. Organization description
2. Project description
3. Solution techniques used
4. Analysis performed
5. Results obtained and discussion
6. Conclusions

**Requirements for Project Content:**
Each project should contain the following:
1. Technical Aspects
   - How was the project selected? (Significance, etc.)
- What techniques were available to solve the problem(s)?
- What techniques did you use? Why?
- Can you tie these techniques to the courses you have taken? What courses? What material in those courses?
- How did you analyze the problem? (computations performed, statistical analysis, software used, etc.)
- Results obtained
- Sensitivity analysis (robustness of the solution, etc., when applicable)
- Benchmarking (comparison with similar projects in the same company or elsewhere, if applicable)
- What worked and what didn’t work?
- Future work (what has not been finished? what would you have done differently now?)
- Critique of your work (successes/failures, etc.)

2. Management Aspects
   - How was the project selected? (cost/benefit, team members, schedule, work schedule, etc.)
   - What was the impact of project on the organization?
   - Were there any cost considerations? What is the financial impact of the project?
   - Was this an individual work or team work?
   - If team work, what was you role in the project? What % of the work did you do?
   - How other team members were selected?
   - Was project completed on time? If not, what were the reasons? How could delays be avoided?
   - Did you attempt to implement the project?
   - Any human issues/concerns during the project implementation?
   - Comments on higher level management support
   - Performance of the team?

Course Requirements and Report Content:
The following are minimum requirements for report contents.
Number of pages does not include appendix. The reports should be typed double spaced, 12 point, Times New Roman.

   Company Description
   Project Description

   Company Description
   Project Description
   Solution Techniques
3. Progress Report 2, March 2, 2009 (5-10 pages)
   Company Description
   Project Description
   Solution Techniques
   Analysis Performed

   Project description
   Solution techniques used
   Analysis performed
   Results obtained and discussion
   Conclusions

**Grading:**
Grading will be based on the amount of work involved in the project, student’s contribution to the project, quality of the work and also the report. Please note that all final reports have to go thru plagiarism check before a student can graduate.
ISE 642 – Warehousing and Distribution

Course: ISE 642 – Warehousing and Distribution - 4 credit hours

Sessions: Saturday, 8:10-12:00

Catalog description:
Quantitative and operational approach to the design of the total receiving, storage, and retrieval system including packaging, palletizing, storage, material handling, order picking, shipping, facility sizing and layout, information systems, and operating policy.

Instructor: Dale Masel masel@ohio.edu
273 Stocker Center, 593-1541

Office hours: Detailed schedule available at http://imse.ent.ohiou.edu/

Textbook:

Course objectives:
This course will focus on the design of warehouse facilities and the management of warehouse operations. By the conclusion of the quarter, students should be familiar with all activities that are performed in a warehouse and how to manage those operations to achieve outstanding performance in the warehouse.

Attendance policy:
Attendance will not be taken for lecture classes, but students are expected to be present for all class periods and are responsible for all material covered in class.

Note: There will not be a class held on Saturday, September 29. Students will be assigned articles to review in lieu of this class time. In addition, the midterm will be take-home, to be completed outside of the class time.
Grading policy:

Assignments:
- Homework assignments (≤1 per week) .................................................. 30%
- Project ........................................................................................................... 15%
- Midterm — Assigned end of class October 6
  — Due before start of class October 13 ...................................................... 25%
- Final exam — Assigned end of class October 10
  — Due 9:00 am Monday October 19 ......................................................... 30%

Grading Scale:
- A+ 94% - 100%  A- 90% - 93%
- B+ 87% - 89%  B  84% - 86%
- C+ 77% - 79%  C  74% - 76%
- D+ 67% - 69%  D  64% - 66%
- D  60% - 63%  F  0% - 59%

Academic misconduct:
Cheating will not be tolerated. You may discuss class material and assignments with other students or use materials from the textbook or found on-line as references. However, the work you submit you represent your own work and analysis.

If you copy from another person, plagiarize, turn in someone else's work as your own, or otherwise fail to maintain a high standard of academic honesty, you will receive a 0 on the assignment and the case will be referred to the university judiciary office.

Tentative schedule:

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topic</th>
<th>Chapter(s)</th>
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<tbody>
<tr>
<td>1</td>
<td>9/8</td>
<td>Introduction to warehouses and warehouse operations</td>
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<tr>
<td>2</td>
<td>9/15</td>
<td>Material handling equipment</td>
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<td>3</td>
<td>9/22</td>
<td>Warehouse design and layout</td>
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<td>4</td>
<td>9/29</td>
<td>NO CLASS</td>
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<td>5</td>
<td>10/6</td>
<td>Management of order picking</td>
<td>MIDTERM ASSIGNED</td>
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<td>6</td>
<td>10/13</td>
<td>Quantitative models for order picking</td>
<td>MIDTERM DUE</td>
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<td>7</td>
<td>10/20</td>
<td>Order profiling</td>
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<td>8</td>
<td>10/27</td>
<td>Non-traditional warehouse operations</td>
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<td>9</td>
<td>11/3</td>
<td>Auto identification systems</td>
<td></td>
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<tr>
<td>10</td>
<td>11/10</td>
<td>Interfacility logistics</td>
<td>FINAL EXAM ASSIGNED</td>
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</table>
APPENDIX C - RESPONSES TO PDP

FW: OU, M Engineering Management

Subject: FW: OU, M Engineering Management
From: Robert Judd <judd@ohio.edu>
Date: Tue, 27 May 2008 12:03:41 -0400
To: David Koone <koone@ohio.edu>

From: "Angerstien, Cynthia S" <csanger@uakron.edu>
To: "RACGS@regents.state.oh.us" <RACGS@regents.state.oh.us>
Date: Tue, 27 May 2008 12:57:27 -0400
Subject: OU, M Engineering Management

May 27, 2008

Dr. A. Harry Andrist
Director, Research and Graduate Programs
Ohio Board of Regents
30 East Broad Street, 36th Floor
Columbus, Ohio 43266-0417

Dear Harry:

Re: Program Development Plan, Masters of Engineering Management, Ohio University

Included below are the comments from The University of Akron reviewer regarding the above-named proposal. I have no comments of my own to add to those of the reviewer.

With best regards, I remain

Sincerely,
George R. Newkome
Vice President for Research and Dean, Graduate School
Oelschigler Professor of Science and Technology

cc: RACGS members

Masters of Engineering Management Proposal from Ohio University

In general, there appears to be a need for such a program. Historically, Ohio University averages about 10 graduates each year from the Master of Science in Industrial and Systems Engineering program. As such, there appears to be a basis for the proposed graduate level program. However, there are a couple of items that should be addressed in the final version of the proposal.

As described, the name for the program and degree should be changed. A more appropriate title would be „Masters of Industrial Engineering Management“. Beyond the baccalaureate level, graduate education is designed to deepen the knowledge base of an individual in a specific discipline. Graduate level, engineering, discipline-specific courses are missing from the proposal. It should be recognized that those in engineering management positions, responsible for teams of engineering personnel, need a basis for making technical decisions. Those graduating from such a program would have to develop technical skills solely from on-the-job experience. Certain engineering disciplines believe that the traditional four year engineering degree is insufficient in technical content, and have started to push for an MS degree as the first „professional“ degree.

In addition, the proposal should address the tie between the statistics and computer science group of courses with the engineering management classes. Do these classes build on each other? If so, there should be some discussion of course sequence. Further, several of the classes may or may not be at the graduate level. For example, engineering writing is not described, and may be construed to be something on the order of technical report writing, often considered an undergraduate course.

The University of Akron has an Engineering Management specialization at the Master of Science level. In general, the program allows for students to increase their knowledge in their specific discipline by providing for 21 credits hours of graduate level engineering course work. In addition, it requires 15 credits of management and business classes. Further, it ties the courses together by requiring a 2 credit engineering report. Students benefit by increasing knowledge in both areas.

Further, the proposal writers may want to consider including a course in product development in the curriculum. This would help round out the program somewhat, and provide the students a means to apply the management skills developed during their educational experience.
Greeting,

Following are our reviewer's comments on the proposed Master of Engineering Management at Ohio University. We hope they are helpful.

Lee W. Jeffres, Ph.D.
Interim Dean, College of Graduate Studies

Reviewer's Comments:

With respect to Admissions requirements, this proposal is extremely vague. The stated criteria in the proposal are: For applicants with engineering or mathematics intensive discipline degrees, a transcript and two letters of recommendation are all that are apparently required to be admitted. Students without an engineering or mathematics intensive discipline degree will be required to submit GRE scores. And that is it. From the OU website for the MS in ISE, admissions requirements are stated for the program this proposal would replace as ALL applicants (except for recent OU ISE graduates) must take the GRE and achieve "satisfactory scores." And "generally, it takes a 3.75 undergraduate GPA + (the undefined) "satisfactory" GRE score to be admitted, with consideration to the grades in the junior and senior years. There is no mention of how any background deficiencies, if any, would be handled. Any proposal which is what I can only call "lax" in entrance requirements disturbs me greatly. Why this proposed program would have less stringent standards than the program it is intended to replace (and which, frankly, aren't all that stringent either) is a mystery to me. I would hope that a full proposal will be much more specific (and, frankly, much more rigorous) in this matter.

Some other items, while hardly damming, are confusing. Under section III.A, the PDP states that the Bureau of Labor Statistics in 2004 projected Engineering Management as having 188, 620 members. In section III.B, the PDP quotes the BLS estimate in 2005 that "Ohio had 6,500 engineering managers". One of these two data points cannot be right! Under section IX, explaining the differences between the B.S. in ISE and the MEM degree, the PDP says that the MEM "de-emphasizes manufacturing". The demise of manufacturing in this country has been greatly exaggerated. Probably more to the point, manufacturing technology (Lean, Six Sigma, etc.) can easily be adapted to both manufacturing and service. I'm not sure that this direction is a very logical one, given that remaining competitive in global markets still requires us to be nimble and manage the rest of the world when we can.

The curriculum also lacks much specificity. I have reviewed the present MS in ISE curriculum on the OU website, and I cannot match the subject matter in the PDP very well to the present curriculum. No mention is made of new courses for the proposed program. Based upon a review of the OU MS in ISE web site, there must be new courses being proposed. However, I did note that there are presently two statistics courses in the MS in ISE curriculum totaling 7 credit hours (the MEM envisions 8 credit hours) that are taught as 300/500 level courses. The Information Systems component of the PDP calls for 8 hours of credit, but I only see one course (ISE 456); in that subject on the current web site. Since the web site does not provide a description of ISE 456, I cannot tell if this course is also carrying a 500 or 600 level cross listing. Engineering Management courses totaling 23 credit hours have similar cross listings (300/500 or 400/500) for those courses on the present books that would seem to be covering the subject matter. Bottom line: the curriculum is not well articulated either and much of the curriculum appears to be cross listing undergraduates and graduate students in the same section of the course (which is not an ideal situation).
While the PDF proposes no new faculty/resources, it does suggest that some courses outside of the normal boundaries of an Industrial Engineering Department might be offered. These include "marketing for engineers", "engineering law and policy", and "scheduling in health care". No mention in the PDF is given to any cooperative boundary spanning collaboration such as with law, business or health sciences.

Finally, the PDF makes it a point to observe that there are only 11 undergraduate programs in engineering management accredited by ABET, and only one graduate program in engineering management accredited by ABET (Air Force Institute of Technology, Wright Patterson AFB in Dayton). Since I found nothing on the OU website to suggest that OU's undergraduate program is ABET accredited, I'm assuming it is not. I did review AFIT's web site. Apart from the fact that AFIT is for military engineering students, it is absolutely obvious that there is good reason why AFIT's program is accredited, including much more stringent entrance requirements. To me, it is equally obvious from that review why this PDF, if the goal is to become ABET accredited, will not get OU to that goal.

Is there a need for more highly educated engineering managers? Yes. Is this program a good way to provide that education? Perhaps. But I think there needs to be a great deal of additional work done to shore up what I see are problems in the admissions criteria and the curriculum.

I must note that since this entire degree is proposed to be offered on line at the various Ohio University satellite campuses and at Lorain County Community College. Thus, it does impact the Cleveland State marketplace somewhat.
Subject: OU MEM PDP
Date: Mon, 19 May 2008 10:55:27 -0400
From: "Elliot Slotnick" <slotnick.1@gradsch.ohio-state.edu>
To: "RACGS" <racgs@regents.state.oh.us>

Dear RACGS Colleagues,

Copied below are the comments I have solicited from both our Fisher College of Business and our College of Engineering regarding Ohio University's Program Development Plan for the offering of a Master's of Engineering Management degree. As you will note, the Fisher College raises no concerns about the degree proposal, while several important issues are raised by my colleagues in Engineering.

Specifically, our Engineering review commentary points out that:

1) This is a Master's program proposal that does not appear to be well differentiated from the existing Bachelor's program.
2) The proposed program satisfies the existing requirements of OU's MS ISE requirements.
3) The program purports to educate engineering managers who may not have ever been engineers.
4) The program does not include sufficient managerial content.

In a separate correspondence with OSU colleagues, some concern was also raised regarding the relatively small faculty in OU's program and the prospective workload that could be created by an aggressive distance-learning component for this degree offering.

We hope that these comments prove helpful to OU as they continue to develop this proposal. For now, based on the concerns raised, we will have some difficulty supporting this program for approval unless significant changes are made in the revised Full Planning Proposal.

Best,
Elliot

OSU REVIEW #1:

The proposal does not conflict with any thing that we are currently offering in the Fisher College of Business. I cannot speak to overlap with offerings in the College of Engineering.

My understanding is that professional associations in engineering have called for a broadening of the skill base of professional engineers. Because of this I would expect many if not most engineering programs, especially at the master degree level, to be launching new program initiatives in the domain of engineering management, broadly defined. Since this is likely to be a system wide change I think that with time there may be a fair amount of overlap across programs occupying this space. Because of this my own perspective is that the criteria for judging these programs should not be whether the proposals "conflict with anything that is currently offered" but whether the market for students is deep enough to sustain multiple programs in this space. In principle the statewide market for these engineering degrees may sustain a similar number of programs as exist at the undergraduate level.
I do not have any strong substantive concerns with the program proposal. Similarly, I do not have suggestions for its improvement.

OSU REVIEW #2:

Program Development Plan: Master of Engineering Management (Ohio Univ.)

Ohio University proposes to develop a program entitled “Master of Engineering Management (MEM)”, to be offered through the Department of Industrial and Systems Engineering (ISE). The department currently offers the program as a non-thesis track within its Master of Science in Industrial and Systems Engineering program. Approximately 100 students have graduated from this track, which has been offered since 1998. The proposed program uses coursework drawn primarily from the Department of Industrial and Systems Engineering.

The stated goal of the program is to “build upon a student’s existing technical degree and experience to produce an effective engineering manager.” A BS in Engineering does not appear to be required for admission into the program. Close inspection of the proposed program and course offerings associated with it suggests that this is essentially an Industrial Engineering program. The vast majority of the proposed curriculum is contained within most Industrial Engineering programs. As indicated in the plan, this proposed program satisfies the degree requirements for the MS ISE at Ohio University. In that sense, the program is redundant— even within the department offering it.

It appears that many of the program courses are jointly convened with their undergraduate counterpart— sharing a common syllabus without any differentiation between the “graduate” and “undergraduate” requirements. The lack of differentiation between graduate and undergraduate courses is cause for concern. It is not clear if a student who was simply following the BS program would satisfy the MEM requirements through an appropriate choice of elective courses. If there are barriers to this, they are not obvious.

The proposed program appears to lack significant managerial content. With the exception of “Foundations in Engineering Management”, the topics that are listed under “Engineering Management” are ISE courses, as are most of the specialized courses.

In summary, the proposed program does not appear to be sufficiently differentiated from the MS ISE. It has been offered and marketed as an MS ISE program for more than a decade. The need for the new degree program is not clear at all. The proposal could be strengthened by more
clearly differentiating the program from the existing MS ISE and BS ISE programs. The proposed program could be strengthened by requiring that candidates for the Master in Engineering Program would be “engineers” and ensuring that the program contains significant managerial content.