

DATE: April 9, 2008

TO: Vice Provost Randy Smith

FROM: Subcommittee B (Barringer, Caron, Robinson, Winer)

RE: Masters of Business Operational Excellence proposal

Recommendation

Subcommittee B recommends approving this proposal.

Comments on this proposal

The Fisher College of Business would like to create a Masters of Business Operational Excellence. It has been approved by the Curriculum Review Committee of the Graduate School. The committee raised a few questions which they responded to. The questions and answers appear below.

Thanks for the opportunity to respond to your questions. Your comment and questions are repeated in bold. Responses are in plain text.

CAA subcommittee B has been evaluating your proposal. The MBOE proposal looks to be more or less straight forward. However, we have a few questions we would like you to reply to:

- 1) Distance Learning: The proposal seems to rely heavily on distance learning.
* How does the amount of distance learning in this proposal compare to the amount for the other programs in Business (e.g. executive MBA)?**

Fisher College does not currently have any graduate programs that are predominantly distance-delivered. The proposed MBOE will be no exception to this. The Executive (EMBA) track of the MBA program is our only current graduate offering with a significant distance learning component. The amount of distance learning in the proposed MBOE is proportionally a little less than the EMBA. Specifically, the EMBA requires 60 credit hours for graduation and students have 360 on-campus contact hours, or 6 on-campus hours per credit. The proposed MBOE requires 48 credits and students will also have about 360 contact hours, or about 7.5 on-campus hours per credit.

It is worth commenting on the nature of the distance learning used in EMBA and proposed for MBOE. The bulk of distance instruction in the EMBA consists of facilitated communication of group-based assignments among geographically separated individuals assigned to groups. Faculty give and receive assignments and provide feedback using web-based communication tools. The MBOE program will be similar but with the important addition of a distance mentoring/coaching component related to student projects. This last aspect will be addressed in point 3 of our next response, below.

*** What are the metrics that will be used to evaluate whether the distance learning is effective? (Perhaps there is a set of metrics that Business already uses for their other programs (e.g. executive MBA))**

It is important to note that all of the distance learning is delivered in a blended distance-classroom form. Thus, lessons learned by students at a distance are integrated into on-campus classroom discussion and faculty will be able to validate the quality of distance learning as they would be in any classroom situation.

Three specific metrics will be used to evaluate the distance component:

1. A pre-test will be given to students prior to beginning each on-campus period. The test will cover the reading and exercises assigned during the off-campus period. The grades on the pre-test will count toward students' course grades.
2. Cases and papers will be assigned, turned in and graded for credit during the off-campus period. This aspect mirrors the EMBA experience.
3. Because a major aspect of off-campus learning in the MBOE will be each student's experience in leading projects in their company it is important to measure the success of the project and its leadership. Projects will be evaluated in four ways. (1) Faculty-coaches will hold phone and web-based project evaluations with each student every 2 weeks. Session reports will be generated by the student and approved by the coach and turned into the capstone course instructor. (2) More thorough "tollgate reviews" will be held at major junctures in the course of the project. These tollgates will be graded by faculty. (3) Projects will be presented by students in class during on-campus periods. Grades will be assigned for these presentations. (4) A final project exam will be given at completion of the overall capstone project and evaluated by a faculty committee.

*** For the five core courses that already exist, have these been taught in the format that will be needed for this program (.i.e. some distance learning and perhaps some intense 1-2 week face-to-face delivery)?**

We have some experience in teaching each of the existing courses in a form that is similar to that required by the MBOE. Much of our experience in developing operational excellence-related classes for our existing degree programs was gained by first offering classes through executive education in week-long courses and then tailoring the material to fit the two hour time-blocks generally used in our degree programs. Thus, adapting to a longer time format is not as problematic as it might appear.

- MGT 810 Six Sigma Principles: We teach a non-credit executive education version of this course that combines the same 140 hour on-line instruction as in the MBA program combined with a one-week on-campus session. We developed our MBA class based on our experience with the non-credit class. The MBA version of this class uses the same 140 hours of on-line instruction but it is assigned in pieces to complement 2 two-hour meetings per week for ten weeks. Both the executive and the MBA versions of the class have been taught multiple times over several years with positive student feedback.
- MGT 811 Six Sigma Project: MBA students work on projects in companies in this class. We use trained coaches to help students solve problems and also to evaluate projects. We have taught this class numerous times with existing faculty. This experience enhances our confidence in our ability to manage student learning through company projects in MBOE.
- MGT 840 and 841 Lean Enterprise I and II: We have extensive experience teaching similar classes in a non-credit executive education setting in week-long sessions. As one might expect, the long in-class times in these classes require lots of student involvement and active learning, but they have proven to be very successful with participants. Again, our experience with the non-credit class served as a model for developing our MBA class and, thus, we believe that moving back to full days of instruction is quite reasonable.
- MGT 870X Data Analysis: This class will be delivered exactly as it is in the EMBA track by the same professor.

2) General Evaluation of the Program: What metrics will be used to evaluate the success of the program? How will this be done for the pilot program? Are there long-term metrics that will be used?

The Fisher College of Business is AACSB accredited. Accreditation of the school involves in-depth evaluation of the quality of its academic programs. AACSB is very much engaged in the assurance of learning methodologies and these expectations are transferred to its member schools. Maintaining accreditation will require that learning outcomes be designated and assessed in accordance with AACSB guidelines, which are quite rigorous. In addition, we have

established student enrollment targets and financial targets for the program and program leaders will be held accountable for hitting those targets. We also expect that national rankings of the operations management group will be improved if the program is successful.

In particular, the initial offering of the program will be scrutinized by the faculty team and a group of non-faculty subject matter experts. Operational excellence requires reflection and continuous improvement so it is only natural that an academic program in operational excellence subject itself to reflection and improvement. Mid-course and end-of-year reviews will be conducted and adjustments will be made where problems are identified in either student learning or the administration of the program.

Dutta, Lakshmi

From: Elliot Slotnick [slotnick.1@gradsch.ohio-state.edu]

Sent: Friday, February 01, 2008 10:15 AM

To: Mangum, Stephen

Cc: Dena Myers; Smith, Randy; Dutta, Lakshmi

Dear Steve,

Just a brief note to let you know that your proposal to create a Master of Business Operational Excellence (MBOE) program was endorsed by our Curriculum Review committee earlier this week. I will be forwarding the proposal and our e-mail correspondence to Randy Smith presently for further processing by CAA. Congratulations on moving this program through to the next stage of the review process. Once Randy has a chance to review the proposal with the CAA Chair, I will seek his assent to our moving forward with the parallel processing of this proposal as a Program Development Plan (PDP) through the State's Board of Regents RACGS processes. I will be back in touch with you regarding the PDP as soon as I have the go-ahead from Randy.

Have a good weekend.

Best,
elliot

2/1/2008

Dutta, Lakshmi

From: Elliot Slotnick [slotnick.1@gradsch.ohio-state.edu]
Sent: Friday, February 01, 2008 10:22 AM
To: Dutta, Lakshmi
Subject: FW: MBOE proposal

From: Elliot Slotnick
Sent: Monday, November 26, 2007 5:22 PM
To: Mangum, Stephen
Subject: MBOE proposal

Dear Steve,

At today's meeting of the Graduate School's curriculum vetting committee the Fisher College's proposal for the creation of a new professional Master's degree, the Master of Business Operational Excellence" was discussed at some length. Committee members raised several questions about the proposal that I will outline below. Some of the questions and concerns raised by committee members might best be handled through revisions and elaborations in the body of the current proposal, an approach that might make more sense than addressing the questions outside of the context of the proposal itself. But, of course, I'll leave that judgment to you. The committee looks forward to returning to the processing of this proposal when its questions and concerns are addressed in whatever fashion you wish to proceed.

1. Your proposal makes reference to operations programs that differ from your proposal in significant ways at places such as MIT, Northwestern, Wisconsin, Stanford, and Michigan. The committee seeks a greater understanding of how your proposed program compares with these as well as some greater information about their operation. Specifically, can you draw more distinctions between your proposed program and the existing programs in terms of the kinds of students you will attract, the course work that the students will take and the "outcomes" for the graduates of these respective program? Will you be competing with them for students? What evidence do you have of the success of these programs?

2. Committee members had somewhat differing concerns about the existing courses and the new courses that constitute the proposal. With regard to the existing courses, it was noted that the syllabi that were submitted were designed for "traditional" in-class, face-to-face delivery. Please elaborate on how these courses will be adapted for the blended in-class/distance learning approach followed in the program proposal. I don't think it necessary to provide new syllabi for each of these courses but, perhaps, an adaptation of one of them for the new delivery approach might be very helpful. More generally, discuss the transition these courses will undergo for a their new delivery format.

3. Regarding the planned new courses, committee members felt that, for a program that you wish to pilot, they were quite underdeveloped and delineated. Could greater documentation be provided for these courses? Again, while formal syllabi may be premature, what is their state of development and could some greater specification be given about their nature?

4. There appear to be some disconnects in the potential student pool being targeted for your program. At one point you note that the program "is expected to attract top students employed by leading organizations from around the world." Other references, however, refer to critical operational excellence professionals shortages here in Ohio and this program's impact in that regard. Are both potential student groups being targeted by the program? Do you have expectations regarding the mix of local and worldwide students in the program?

5. Finally, one committee member noted that one of your letters of support came from the head of OSU's Health System while the program's thrust would be of considerable interest to those in the health care industry. With that in mind, the question was raised of what, if any, exploration there has been in the development of this proposal of interfacing in some way with the School of Public Health here at Ohio State. Does the Public Health program "fit" in any special way with this proposal? It was suggested that the school has both faculty as well as existing courses that might be advantageous for inclusion in the proposed program. Has that avenue been explored in any way?

Thanks, in advance, for your consideration of these questions and concerns and your addressing of them. While several issues

were raised by our committee members, a thorough vetting of and responding to such matters early in the review process usually serves to expedite review in the long run and I hope that turns out to be the case here. Please don't hesitate to contact me with any questions that you might have.

Best,
elliott

Dutta, Lakshmi

From: Elliot Slotnick [slotnick.1@gradsch.ohio-state.edu]
Sent: Friday, February 01, 2008 10:22 AM
To: Dutta, Lakshmi
Subject: FW: MBOE proposal

From: Mangum, Stephen [mailto:mangum_1@fisher.osu.edu]
Sent: Tuesday, November 27, 2007 8:15 AM
To: Elliot Slotnick
Subject: RE: MBOE proposal

Thanks Elliot. The feedback is helpful. I will work with the MBOE development team to revise the proposal to be responsive to these suggestions and requests.

From: Elliot Slotnick [mailto:slotnick.1@gradsch.ohio-state.edu]
Sent: Monday, November 26, 2007 5:22 PM
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2. Committee members had somewhat differing concerns about the existing courses and the new courses that constitute the proposal. With regard to the existing courses, it was noted that the syllabi that were submitted were designed for "traditional" in-class, face-to-face delivery. Please elaborate on how these courses will be adapted for the blended in-class/distance learning approach followed in the program proposal. I don't think it necessary to provide new syllabi for each of these courses but, perhaps, an adaptation of one of them for the new delivery approach might be very helpful. More generally, discuss the transition these courses will undergo for a their new delivery format.
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however, refer to critical operational excellence professionals shortages here in Ohio and this program's impact in that regard. Are both potential student groups being targeted by the program? Do you have expectations regarding the mix of local and worldwide students in the program?

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Thanks, in advance, for your consideration of these questions and concerns and your addressing of them. While several issues were raised by our committee members, a thorough vetting of and responding to such matters early in the review process usually serves to expedite review in the long run and I hope that turns out to be the case here. Please don't hesitate to contact me with any questions that you might have.

Best,
elliot

**Proposal for a Master of Business
Operational Excellence (MBOE) Program**

**The Ohio State University
Fisher College of Business
Department of Management Sciences**

December 27, 2007

Introduction

The proposed Fisher College Master of Business Operational Excellence will be an innovative program that builds on established strength. The program will prepare high-potential managers for leadership in the emerging continuous improvement environment found in leading service and manufacturing companies. Building on faculty strength in operations management (e.g., MBA operations management program ranked 6th in the world by the Wall Street Journal in 2006; undergraduate operations management program ranked 4th in the US by US News and World Report in 2007) and the reputation developed through fifteen years of growth in the Center for Operational Excellence (28 corporate members), this program is expected to attract top students employed by leading organizations from around the world.

Operational excellence, the ability to manage value creation processes better than competitors year after year, is a common theme in many of the best performing organizations in the world. Executives at companies that are pursuing operational excellence routinely bemoan the shortage of leaders qualified in the tools and the thinking processes required. This proposed program addresses that critical human resource shortage in a unique way, thus attracting top students and great organizations to the university. The delivery is designed to reach high potential working managers rather than traditional full-time graduate students.

Program Designation and Purpose

The degree program proposed here will be designated as the Master of Business Operational Excellence (MBOE). The target date for the first incoming (pilot) class is Summer 2008. The MBOE program will be a professional, terminal degree program and will be marketed as such. Upon completion of this master's degree program, graduates will be prepared to manage continuous improvement programs in service, office, or manufacturing settings.

Although the proposed program is unique in its focus on operational excellence and applicability to both service and manufacturing environments, successful programs that focus on operations do exist at several top universities including MIT, Northwestern, the University of Michigan, University of Wisconsin, and Stanford. These programs are all aimed at manufacturing practice, have an engineering emphasis, and are generally offered to full-time graduate students. (See Appendix A for details.) The proposed OSU MBOE degree program will be different in its application to processes of all types rather than exclusively manufacturing and its emphasis on

achieving operational excellence through management. It will also be different in targeting working managers through a blended program of on-campus and distance learning experience. It will be similar to the other programs mentioned in that the MBOE is a tagged, terminal, master's degree program. To the best of our knowledge, there are currently no Operational Excellence programs available in the United States so that this program will expand the options available to all students in North America including those in Ohio.

This program is designed for high potential managers in manufacturing and service organizations who are, or have been designated to be, leaders in implementing operational excellence in their firms. It is anticipated that most students will be supported by their organizations in terms of tuition and release time. The MBOE program will be a blend of very intense one-week on-campus experiences supplemented by applied project work at home companies and web-based distance learning. The program differs from the FCOB MBA program in intended market, content, and delivery.

The program will be designed so that on-campus sessions occur when the university is not in-session, thus minimizing conflicts for faculty and facilities. (See Appendix B.) The classes will be taught by a combination of regular faculty and lecturers selected for outstanding contributions to practice. The proposed delivery mechanism is ideal to bring such professionals to campus for a week or two at a time as opposed to a few hours a week for 10 weeks. The format also eases teaching arrangement for regular faculty. The faculty will mentor students when the students are working on related projects during the inter-sessions between on-campus experiences.

The program is designed to be attractive both to students and to the executives from the organizations that will fund their studies. The combination of a unique curriculum in operational excellence and the opportunity to earn a master's degree in a first-class program in one year is expected to be compelling. Appendix C contains letters of endorsement from several executives who are likely to nominate, and financially support, potential students.

There are additional benefits resulting from the implementation of the MBOE program. First, several new courses will be developed, extending the range of electives currently available to graduate students. Second, the existence of the MBOE program will build on the strong image of the existing operations management programs available at Ohio State and thus result in better placement for our students. Third, firms will be able to resolve a critical human resource shortage and improve their human capital base and competitive advantage with existing personnel.

Proposed Curriculum

The proposed program requires a minimum of 48 credit hours, which meets the requirements of The Ohio State University and the AACSB for a Master's degree.

The core of the curriculum will be five existing courses: MGT 840 (Lean Enterprise I), MGT 841, (Lean Enterprise II), MGT 810 (Six Sigma Principles), MGT 811 (Six Sigma Projects) and MBA 870X (Data Analysis for Managers). These classes account for 20 credit hours. The remaining credit hours will be achieved via new classes: (1) Managing Innovation; (2) Planning for Operational Excellence; (3) Managing for Critical Thinking; (4) Value Stream Management; and (5) Capstone Course and project. Each of the new classes are described in Appendix D. All classes will be required. As the program evolves, it is expected that a set of elective options will be offered as enrollment allows.

Learning Modes: In-classroom and distance learning components

Teaching professional managers new ways to approach their work requires a constant loop between concepts and practical application. The proposed MBOE program has been designed to take advantage of the opportunities for application that the students have in their own work environments following a week of classroom time.

In-classroom portion: Building on the teaching model developed for the executive MBA program, classroom teaching will be treated as exceptionally high value time. This means that much of the more routine learning will be covered out of class using web-based tutorials and other materials to self-teach assigned topics. The expectation will be that students will arrive at class well prepared and ready-to-learn. Each week of classroom training will be followed by several weeks of distance learning that will reinforce the material learned during the previous week and will introduce material to covered in the subsequent week on-campus.

Distance portion: Distance learning is a major component of the learning model. There are four separate modes of distance learning employed. Each is described briefly below.

1. **Program web site.** Modeled on the website used in the EMBA program, this is the central point of communication with students and provides a means for students to pick up assignments and submit work. There are mechanisms for conversations among the members of the class and the faculty.
2. **Targeted assignments in preparation for future classes.** Students are given substantive assignments in preparation for the next class. These assignments are turned in and graded during the period between class meetings. This helps to assure that in-class time is productive.
3. **Project work.** A number of workplace-related projects are required over the course of the program including an integrative capstone project. Projects are clearly defined and progress is tracked and reported between classes. For example, the following DMAIC scheme is used for project management:

Define:

- Clear definition of project that is agreeable to all parties
- Project charter
- Project measures and how they relate to performance measures
- Process map

Measure:

- Project measures
- Metrics Target: rationale and how it relates to perfection
- Key learning about measurement systems
- Noise factors
- Tools used and why
- Graphical output - what was learned and why

Analyze:

- Environment: stable vs. non-stable; special cause vs. common cause
- Tools used and why
- Graphical output - what was learned and why
- Conclusions of root cause

Improve:

- Summarize root cause discoveries (e.g. non optimal high impact inputs)
- Recommendations for improvement
- Potential implementation Plan - timing/activities
- Suggestions for ownership and transfer of information

Control:

- Suggestion to control and review project/metrics

Impact:

- Describe the benefits attributable to your project in terms of variation reduction
- Describe the benefits attributable to your project in terms of savings after implementation

Students are assigned faculty mentors who are available via phone and e-mail to provide coaching and project monitoring.

- 4 **Web-based instruction.** The six sigma class will utilize the same proprietary black belt program currently used in the MBA program. This program provides 140 hours of on-line instruction and a comprehensive set of back-up documentation and analytical tools. The on-line course is supplemented with 40 hours on in-classroom teaching.

Schedule of classes. A sample schedule is shown in Appendix E.

Capstone project. Successful completion of the MBOE capstone project and examination will be graduation requirements for all MBOE students. The capstone project will be supervised by an MBOE faculty member. The project examination will be given by a committee comprised of faculty teaching in the MBOE program.

Prospective Enrollment

It is proposed that a pilot will be launched during summer 2008 with enrollment of 15 to 20 students. It is expected that the steady state class size will be 40-50 students, with 30 to 40 students enrolled in year 2 and steady state achieved in year 3. The marketing channel will be different from other Fisher College programs in that executives will be targeted to nominate high potential managers to attend the program with company support. Those nominated will then apply and, if accepted, have fees and expenses paid by their employers. The program will be pre-sold to organizations to ensure that seats are filled, thus mitigating the risk associated with offering an ambitious new program. The organizations from which students are drawn will be primarily in three sectors where operational excellence has a strong foothold: manufacturing, health care, and financial services.

The financial breakeven enrollment is approximately 18 students. A pro forma analysis of the financial implications of the program is presented in Appendix F.

The status of the program will be reviewed every five years by the Dean of the Fisher College of Business and by the Department of Management Sciences which is the sponsoring unit for this degree. Should the program fail to meet expectations academically or otherwise, the degree program will be terminated.

Efforts to Enroll and Retain Women and Minority Students

Diversity among students within the Master of Business Operational Excellence program will make the program more robust and dynamic. It is generally acknowledged by executives that women and minority groups are under-represented in operational excellence roles in companies. Thus, targeting women and minority candidates will mesh with the perceived needs of employers. We have targeted several avenues for recruiting women and minority students to the program and for retaining them once they have been accepted into the program.

Recruiting: We will create a marketing and recruitment program that will target organizations, institutions and professional associations that are predominantly women and minority focused. Examples of these types of organizations include:

- The Fisher College of Business's Center for Operational Excellence –The COE has hosted a “Women in Operational Excellence” series for over 5 years. Two times a year, the COE brings in over 80 women in operations to promote their success in the field. Past speakers include: Jan Santerre, VP of Hydraulics, Parker-Hannifin; Donna Demerling, VP of Supply Chain, Timken, Inc.; Cheryl Jones, VP of Manufacturing, Toyota, Inc.; Carol Christobek, VP of Supply Chain, Ashland, Inc.; Mary Ellen Sheets, President, Two Men and a Truck, Inc. Participants in this program are natural candidates for the MBOE.
- National Minority Supplier Development Council – The NMSDC, chartered in 1972 to provide increased procurement and business opportunities for minority owned businesses, provides a direct link between corporate America and minority-owned businesses. The NMSDC Network includes a National Office in New York and 39 regional councils across the country. There are 3,500 corporate members throughout the network, including most of America's largest publicly-owned, privately owned, and foreign-owned companies, as well as universities, hospitals and other institutions. The NMSDC regularly receives grant money from the corporate donors to provide additional educational opportunities for minority owned businesses.
- Diversity Directors of Fortune 500 Companies – The Department of Management Sciences has an existing database of corporate diversity managers. We will specifically target recruiting minority candidates within their organizations.
- Society of Women Engineers – With more than 100 professional chapters and 300 collegiate chapters we believe a marketing program dedicated exclusively for the Society of Women Engineers can help us reach a large audience of potential candidates for the MBOE program.

Retention: While it's important to attract women and minority students to the program, effort must also be given to retain them in a demanding year-long program. We will turn to the resources on campus aimed at ensuring that MBA students have the opportunity to meet and network with other students such as the Black MBA Association; the Latino MBA Student Association; and the MBA Women in Business Association. In addition to utilizing existing organizations, the Center for Operational Excellence will develop a series of programs specifically aimed at MBOE students.

Admissions

The criteria for admission to the program will be an undergraduate degree in any major, the undergraduate grade point average (a minimum of 3.0), and the score on the Graduate Management Admission Test (GMAT). We will require results that are consistent with the current requirements for the MBA programs. International students will also be required to achieve a 550 or better score on the Test of English as a Foreign Language (TOEFL) in accordance with Graduate School requirements. In addition to these criteria, students will be admitted through a competitive selection process that includes strength of undergraduate preparation, supporting letters of reference, personal essays and relevant work experience. Applications will be processed through normal university channels, evaluated by a departmental committee, working with the Graduate School in the approval process. The process will be managed by Fisher College's Executive Education unit, in a manner similar to Executive MBA admissions. A full-time program coordinator will be designated by Executive Education to manage administrative duties associated with the program, including the application process. A half-time academic director will also be appointed.

Administration, Facility, and Faculty Requirements

Program administration: Fisher College employs a matrix structure for managing its educational programs. Following this structure, Fisher College's Associate Dean for Executive Programs will be responsible for program administration and the Chair of the Department of Management Sciences will be responsible for program content and faculty. Faculty will approve program content and admissions via the MBOE Committee, consisting of three faculty appointed by the chair of Management Sciences. An academic director of MBOE will be appointed. This will be a half time position. The academic director will serve as chair of the MBOE committee. The Associate Dean for Executive programs will be an ex officio member of the MBOE Committee.

The administration of the MBOE program will be under the direction of the Associate Dean for Executive programs and the Director of Executive Education. A full time program administrator will be dedicated to managing administrative aspects of the MBOE program. This arrangement parallels the administrative structure of the Executive MBA program, a model that has been proven to be effective.

Facilities: The on-campus portion of the program will be delivered in the facilities of the Fisher College of Business. The six building Fisher College campus is a state-of-the art business campus and, as such, is expected to help attract top students. The MBOE program is sequenced in order to utilize FCOB facilities during the low demand periods of Summer quarter and "breaks" in the academic calendar. As a consequence, current physical capacity will be sufficient to accommodate the MBOE program even if growth outstrips projections.

An important part of the MBOE program is the off-campus learning that will be accomplished at the students' work site through distance learning. Students will be required to have easy access to a computer that is compatible with the distance learning programs in use. We have a number of years of successful experience in managing distance learning in our executive MBA program and that experience will apply directly to MBOE.

Faculty: Paralleling Fisher College's experience with Executive MBA teaching, it is expected that most faculty compensation will be earned as overload teaching, (i.e., over and above assigned teaching responsibilities), thus obviating the need for additional faculty hires.

Regular faculty will be supplemented by distinguished lecturers with particular expertise. Operational excellence encompasses a body of knowledge that is closely linked to practice. Therefore, it is appropriate that lecturers with executive experience in leading operational excellence be employed to do part of the teaching. In all such cases, grade book responsibility would remain with Fisher College faculty.

One of the benefits of the MBOE program is that it will allow for faculty development. The budget reflects an incremental \$20,000 per year in salary to be used for developing regular faculty expertise in operational excellence. It is expected that this new knowledge will be reflected in teaching across Fisher College's academic programs.

Projected Cost and Funding

A pro forma analysis of the financial implications is presented in Appendix F.

Appendices

Appendix A: Graduate Programs in Manufacturing Management

Appendix B: Proposed on-campus and off-campus schedule for MBOE Program

Appendix C: Letters of endorsement from executives

Appendix D: Course outlines

Appendix E: Proposed schedule of classes

Appendix F: Pro forma analysis of revenue and expenses

Appendices

Appendix A: Graduate Programs in Manufacturing Management

Appendix B: Proposed on-campus and off-campus schedule for MBOE Program

Appendix C: Letters of endorsement from executives

Appendix D: Course outlines

Appendix E: Proposed schedule of classes

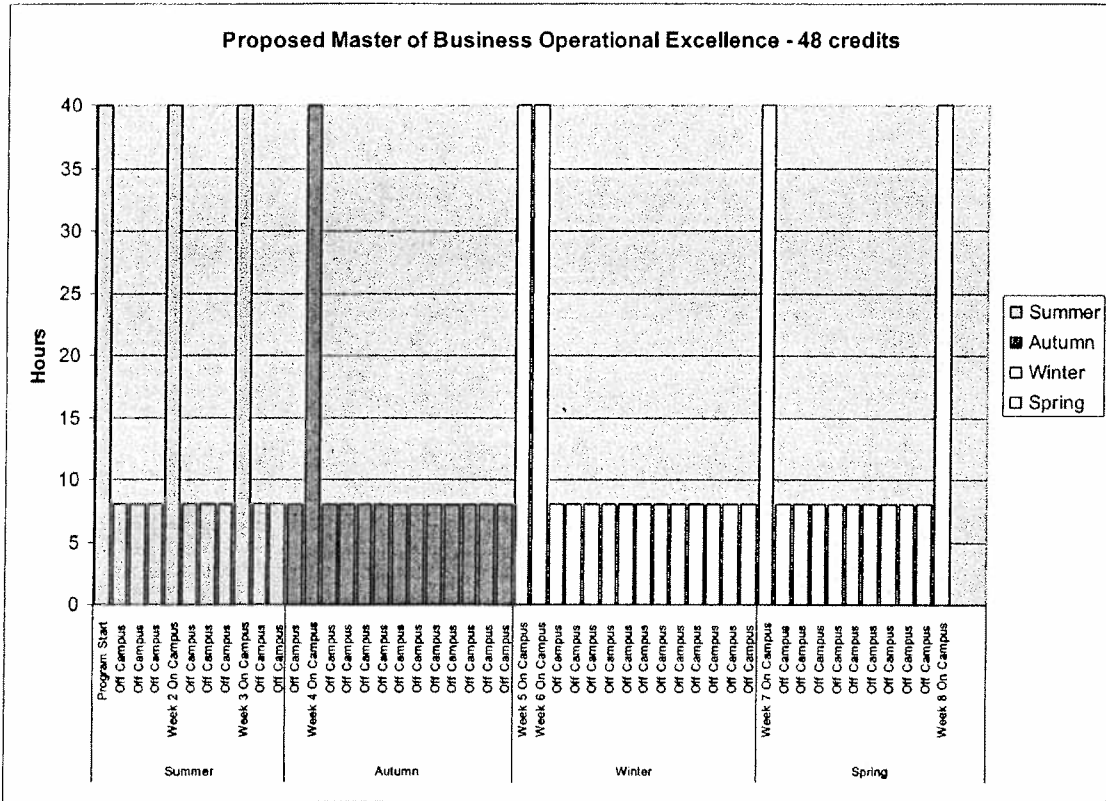
Appendix F: Pro forma analysis of revenue and expenses

Appendix A
Comparisons to Manufacturing Management Programs
December 2007

School	Program Overview	Program Established	# of Enrollees	Average Experience of Student	Approximate proportion of engineering undergrads in Program
Northwestern	Masters of Management and Engineering	Created more than 10 years ago	120 Students, 60 first years, 60 second year	Average student age is 28, with 5 years relevant industry experience	Majority of students have undergrad degree in mechanical, industrial or chemical engineering
University of Michigan	Joint degree – Engineering in Manufacturing/MBA	1995	Information not available	Student is required to have an equivalent of 2 years of full-time relevant industrial experience.	Students needs have already earned a BSE in any field of engineering
Stanford University	Master of Science in Management Science & Engineering (MS&E)	2000	300 – however trying to scale back to 250	Can enter program directly from undergrad	Need strong math background, but does not need to have a specific undergrad degree to apply
MIT	Leaders For Manufacturing (LFM)	1988	90 – 100, with 45 – 50 students per year	Average age 28, LFM applicants need and undergraduate degree in engineering, biology, chemistry, computer science or physics, w/2 years of full-time postgraduate work experience (3-5 years preferred)	Approximately 90% have an undergraduate degree in an engineering field
University of Wisconsin	Master of Science in Manufacturing Systems Engineering (MSE)	1983	70 – accepts approximately 35 per year	Applicants must have an engineering degree from an ABET-accredited program and relevant industry experience	Engineering degree required (a physical sciences degree w/considerable industry experience will be considered)

Appendix B

Proposed on-campus and off-campus schedule for MBOE Program



Tall bars represent (40 hour) weeks on-campus. Shorter bars represent distance learning by students at their work sites.

APPENDIX C

LETTERS OF ENDORSEMENT FROM EXECUTIVES



The Ohio State University Hospital
Richard M. Ross Heart Hospital
Administration

Suite H-1255
452 West 10th Avenue
Columbus, OH 43210
Phone: 614-293-9700 / FAX: 614-293-3535

October 9, 2007

Whom It May Concern:

This letter will serve as my support for the proposed Fisher College Masters in Operational Excellence program. I applaud Ohio State's role in developing an operational excellence masters program. Graduates from high quality programs will be in great demand.

The Ohio State Medical Center will definitely consider supporting our own high potential managers through tuition support and release time. As the OSU Medical Center prepares operational improvements to continue advancement as a top twenty academic medical center, the outstanding developments of the Fisher College of Business become very important.

We look forward to accessing leadership from Fisher College and insights into leading international organizations.

Sincerely,

A handwritten signature in black ink that reads 'Jay Kasey'. The signature is fluid and cursive, with a large initial 'J' and 'K'.

Jay Kasey
Chief Operating Officer
OSU Health Systems

Appendix C



Mr. Peter T. Ward
Dept. Chair & Co-director COE
2100 Neil Avenue
600 Fisher Hall
Columbus, OH 43210

Dear Peter,

Just a short note to let you know how excited I was to hear about the proposed Fisher College Masters in Operational Excellence program. The proposed delivery, which includes experiential learning via specific project assignments and short intensive classroom learning on campus, strikes an excellent balance. My experience instructing our employees in lean principles and tools has taught me that this learning model helps foster a permanent change in mind-set regarding continuous improvement. This mind-set change is absolutely necessary to grow and sustain a continuous improvement culture.

As you know, Greif has been fortunate to recruit several top MBA's for our Operational Excellence Core Team. The core team is our resource group that supports plant-led continuous improvement projects. The core team is also looked at as our bench for future leaders who are experienced in operating within a continuous improvement environment. As you know, operational excellence requires managers to think and act differently about removing waste from our processes. I believe the proposed program will produce a larger pool of recruits possessing these qualities and will provide companies the option of using the program for developmental training of existing high potential managers.

You have a great opportunity to shape a curriculum that provides a blend of both operational excellence skills and more traditional managerial skills. I wish you great success in doing so because you will be producing the future leaders that industry desperately needs. To my knowledge, no such curriculum currently exists.

Best Regards,
Karl Svendsen
VP Center of Excellence
Greif, Inc.

366 Greif Parkway
Delaware, OH 43015
www.greif.com

Appendix C

KAISER
ALUM/NUM

November 14, 2007
Board of Trustees
Fisher College of Business
The Ohio State University

To the Board of Trustees;


As a member company of the Center for Operational Excellence (COE), we recently learned of the proposed masters degree in operational excellence program.

We can envision the benefit to Kaiser by placing high potential, new managers in the program. The nature of the program; one-year duration, short intense periods of learning, and translating the classroom to the company, would prove immensely beneficial to our organization. Operational excellence requires managers to think differently about problems and opportunities. As the body of knowledge expands, it should be possible to develop a curriculum that more systematically prepares such managers for leading an organization in an operational excellence environment. We would definitely consider supporting the curriculum by providing students from (Company Name) to the program, as well as supporting our students through financial support and work release time.

Ohio State's operations group is uniquely qualified to develop and implement a masters in operational excellence. Their national – and international – reputation would attract the high potential candidates/students.

We have benefited immensely through our membership in the COE. The faculty members are excellent teachers, researchers and mentors and possess a deep understanding of the practical aspects of operational excellence. The world of operational excellence is rapidly growing and by creating this unique program Fisher College of Business and The Ohio State University would take the lead in this exciting field. We are advocating on their behalf to make this proposal a reality.

Sincerely,



David R. Conrow
VP Kaiser Production System

APPENDIX D
Proposed Courses

Course Number	Course Description	Number of Credits	Existing or New Course	Syllabus or Outline Attached
MGT810	Six Sigma Principles	4 credits	Existing	Syllabus
MGT811	Six Sigma Project	6 credits	Existing	Syllabus
MGT840	Lean Enterprise I	4 credits	Existing	Syllabus
MGT841	Lean Enterprise II	2 credits	Existing	Syllabus
MGT870X	Data Analysis	4 credits	Existing	Syllabus
MGTXX1	Managing Innovation	4 credits	New	Outline
MGTXX2	Planning for Operational Excellence	4 credits	New	Outline
MGTXX3	Value Stream Management	4 credits	New	Outline
MGTXX4	Managing for Critical Thinking	4 credits	New	Outline
MGTXX5	Capstone Project	6 credits	New	Outline
MGTXX6	Cornerstone Course	6 credits	New	Outline

The following discussion briefly describes delivery in MBOE for each of the existing courses in the curriculum.

MGT 810—Six Sigma Principles. This is currently offered over one quarter and is a blended on-line, in-classroom course, i.e., students meet twice per week and also complete approximately 140 hours of on-line instruction. However, we have successfully offered the class to practicing managers many times in a condensed format through executive education. This format requires that students complete the on-line portion (140 hours) prior to one week of on-campus learning. In this format, students are provided on-line and telephone support as they work through the on-line instruction. This condensed format will be used in the MBOE program. The class will be offered during the students' fifth on-campus week, thus allowing the entire autumn quarter to work through the on-line instruction prior to their in-class work. On-line quizzes allow students to self-assess their progress. A well-established "black belt" exam assures technical competency.

MGT 811—Six Sigma Projects. This is currently offered over 15 weeks and consists of executing a six sigma project in an organization, thus applying the principles learned in MGT 810. There is a formal protocol for managing six sigma projects. Progress on the projects is measured via periodic "toll gate" reviews and a final review and write-up are required. In MBOE, students will work on six sigma projects during on-campus weeks 6 and 7 and in the period in between those meetings. They will receive coaching via distance checks and toll gate reviews using web-based reporting and telephone coaching.

MGT 840 and MGT 841—Lean Enterprise I and II. These are currently offered as seminars meeting four hours (or more) once per week. The subject is the conceptual basis for operational excellence and seminar leaders are often top experts in the field. Numerous hands-on exercises are used to illustrate important points. A similar format will be used in MBOE. Students will take the classes during in-class weeks 1 (Lean Enterprise I) and 4 (Lean Enterprise II). In each case, students will be given post-class assignments requiring them to apply principles they have learned during the period following their class. Reports on their assignments will be due before their next in-class meeting.

MGT 870X—Data Analysis for Managers. This course is currently delivered as part of the EMBA program and is already delivered as a distance course in six meetings over three months with assignments required in the interterm periods using the website to turn in assignments and to communicate with the instructor. In the MBOE, we will use identical pedagogy. The class will meet the first three in-class periods over six 4-hour periods. Assignments and pre-work will be managed via the web, as is reflected in the syllabus. Three exams are required.

**Fisher College of Business
Bus Mgt 840 Lean Enterprise Leadership, Spring 2007
Friday Section**

Professors

Peter Ward
600 Fisher Hall
e-mail: ward.1@osu.edu

Phone: 292-5294
Fax: 292-1272
Office hours: after class and
by appointment

Peg Pennington

614 Fisher Hall
email: pennington.84@osu.edu

Phone: 292-3081
Office hours: Thursday, 5-6 PM
and by appointment

Although lean management is widely accepted as a new industrial model, little university curriculum exists that addresses developing and managing lean processes. Lean Enterprise Leadership addresses this gap by delivering customized lean enterprise curriculum developed by industrial leaders. A number of internationally recognized experts will share their knowledge and experience with MBA students.

Lean Enterprise Leadership is designed to provide an understanding of how lean processes work and to introduce students to several important tools. Classes are often hands-on and always participative. A desired outcome of the course is that students will be able to participate meaningfully in a continuous improvement environment in an internship or in a full-time job.

Required Course Materials. A small course packet and two books are required.

The course packet is available at Tuttle UniPrint. Please buy the course pack before the first class.

The books:

- (1) David Mann, *Creating A Lean Culture*, New York: Productivity Press, 2005, ISBN 1-56327-322-5
- (2) Rother, Mike and Shook, John, *Learning to See*, 1999. This book is available at the OSU Bookstore at a deep discount. ISBN 0-9667843-8-0

Meeting times

Date	8:30-10:30 AM	10:30-12:20 PM	1:00-4:30 PM
March 30		Welcome: Lean Thinking	Lean Simulation
April 6	<i>David Hoyte – Private equity view of lean mgt.**</i>	David Hoyte: Metrics	
April 13	<i>Intro to Value Stream Mapping**</i>	Value Stream Mapping	
April 20	On Site VSM Exercise	On Site VSM Exercise	On Site VSM Exercise
April 27	<i>Al Yonel, The Toyota Way**</i>	Lean Office – Jack’s Tax	
May 3		Deb Leifer – Standard Work	
May 11	<i>Change-overs**</i>	5s	
May 17		David Mann – Lean Culture	
May 25	<i>TBA**</i>	Accounting for Lean	
June 1		Hoshin: Tom Jackson	

** *Optional sessions Must attend 2.*

Attendance: Because our meetings are few, attendance at each class meeting is critical. Missing more than 1 session requires permission of the instructors.

Course requirements. Lean Enterprise Leadership requires active participation in classroom exercises as well as reading and assigned work outside of class. The course is S/U, i.e. pass-fail. Satisfactory performance requires attendance and active participation in class, completing assignments and passing the final exam.

In addition to the regularly scheduled classroom sessions from 10:30 – 12:20, students must attend at least 2 optional sessions on Friday morning (8:30-10:20 AM) AND the Lean Simulation and off-site Value Stream Mapping event.

Course outline

- | | |
|-------------------------------------|---|
| March 30 | Introduction to Lean Thinking; developing Lean metrics.
Assignment: Read course packet. |
| March 30
1-4:30
(Required) | Simulation of mass production and lean production
Guest Speaker: Lisa Johnson
Note: class will be located in 319 Schoenbaum Hall |
| April 6 | Managing the lean enterprise
Guest speaker: David Hoyte, Executive VP, Castle Harlan Partners
Assignment: <i>Mann</i> , Chapter |
| April 6
8:30-10:30
(Option) | Building value through lean: A private equity view
Guest speaker: David Hoyte, Executive VP, Castle Harlan Partners |
| April 13 | Value stream mapping. Bring “Learning to See” book to class.
Assignment: <i>Learning to See</i> : Parts 1-54 |
| April 13
8:30-10:30
(Option) | Value Stream Mapping Basics. Bring “Learning to See” book to class
Recommended for all who are new to VSM. |
| April 20
8:30-4:30
(Required) | In-plant value stream mapping exercise.
Assignment: <i>Learning to See</i> : Parts IV-VI.
Note: Class will be held at manufacturing site
Bus Leaves Gerlach Hall at 8:30; Return 4:30. Lunch provided. |
| April 27 | Value stream mapping in non-manufacturing workshop.
Assignment: Mann, Ch 2. |
| April 27
8:30-10:30
(Option) | The Toyota Way
Guest Speaker: Al Yonell, Tigerpoly, Inc. |

- May 3 **Standardized work.**
Guest speaker: Deb Leifer
Assignment: Mann, Chapter 3
- May 11 **5S and visual workplace**
Assignment: Mann, Ch 4
- May 11 **Managing change-overs**
8:30-10:30
(Option)
- May 17 **Lean Culture and Redfining Work**
Guest speaker: David Mann, Steelcase
Assignment: Mann, Chapter 5
- May 25 **Lean and accounting.**
Guest Speaker: Prof. Prakash Mulchandani
Assignment: Mann, Chapters 6-8
- May 25 **TBA**
8:30-10:30
(Option)
- May 31 **Production system design: tools for structuring and deploying improvement activities.**
Guest Speaker: Tom Jackson author and consultant
Assignment: Mann, Chapters 9-10

**Fisher College of Business
Bus Mgt 841 (2 credits)
Syllabus
Lean Enterprise Leadership 2
Spring 2004**

Professor Peter Ward
614 Fisher Hall
e-mail: ward.1@osu.edu

Phone: 292-5294
Fax: 292-1272
Office hours: after class and
by appointment

Bus Mgt 841 is a continuation of Bus Mgt 840, which is a prerequisite.

Lean Enterprise Leadership represents a partnership between Ford's Lean Resource Center and Ohio State's Fisher College of Business. Although lean manufacturing is widely accepted as a new industrial model, little university curriculum exists, at Ohio State or elsewhere, that addresses managing lean processes. Lean Enterprise Leadership addresses this gap by delivering customized lean enterprise curriculum developed by industrial leaders. Internationally recognized experts share their knowledge and experience on lean manufacturing with students.

Lean Enterprise Leadership is designed to provide an understanding of how lean processes work and to introduce students to several important tools. Classes are often hands-on and always participative.

Required Course Materials. Course materials will consist of handouts as well materials used in Bus Mgt 840.

Attendance. Classes meetings will occur on the second five Fridays of the spring quarter. All classes will run from 8:30 until 12:30.

Course requirements. Lean Enterprise Leadership requires active participation in classroom exercises as well as reading and project work outside of class. Prerequisite: Bus Mgt 840.

The course is S/U, i.e. pass-fail. Satisfactory performance requires attendance and active participation in class and completing assignments.

Course outline

- May 7 **An investor's view of lean companies and the value of lean turn-arounds.** Class Handouts will be supplied. Guest speaker: David Hoyte.
- May 14 **Lean manufacturing performance management metrics and accounting.** Class Handouts will be supplied. Guest Speaker: Prof. Prakash Mulchandani.
- May 21 **Production system design: tools for structuring and deploying improvement activities.** Class Handouts will be supplied. Guest Speaker: Tom Jackson.

May 28 **Lean Enterprise Leadership in a global corporation.** Ray Keefe, VP
Manufacturing, Emerson Electric.

June 4 **Five S.** In-plant demonstration at Tosoh SMD. Guest speaker: Debra
Hoffman, Lean Implementation Leader, Tosoh SMD. Transportation will
be provided.

MGT 810
Six Sigma Principles & Methods
Fall 2007

Instructor: Peg Pennington
Office: 614 Fisher Hall
Phone: (614) 292-3081 (O)
FAX: (614) 292-1272
E-mail: Pennington.84@osu.edu
Office Hours: Monday and Wednesday 9:30 AM – 10:30 AM. Please make appointment for additional office hours.

Class Time & Location: 10:30 AM – 12:18 PM, 265 Gerlach Hall
8:00 PM – 10:00 PM, 275 Gerlach Hall

On-Line Training: www.moresteam.com

PREREQUISITES

This course is open to candidates who have completed MBA850 and MBA870. Students are expected to be proficient in the use of Minitab or other statistical packages and have access to a Windows-based computer with high-speed internet access.

COURSE DESCRIPTION

This course is designed to familiarize students with the Six Sigma process improvement methodology and to provide them an opportunity to practice using Six Sigma Black Belt tools. A Six Sigma Black Belt is an individual who is skilled in applying basic and advanced process improvement and project management methods in order to complete projects that will result in significant, sustainable improvements within an organization. Originally developed by Motorola to improve quality in their manufacturing processes, Six Sigma has been adopted by companies throughout the world to improve all types of processes.

When applied in business environments, Six Sigma programs have been used to dramatically increase an organization's ability to improve quality and customer satisfaction while reducing overall costs. Companies such as AlliedSignal and General Electric have used Six Sigma to significantly increase productivity, operating income and cash flow.

In this course, students will gain an understanding of the strategy and deployment of Six Sigma Black Belt methods. The classroom sessions will combine lectures with group discussions, outside speakers and hands-on exercises.

To compliment the Monday and Wednesday sessions, students will be required to complete online coursework at www.moresteam.com and other assignments during non-classroom hours.

WHO IS A GOOD BLACK BELT CANDIDATE?

The job description for a Black Belt is one that requires application of Six Sigma tools to achieve a process improvement. The desirable qualities of a Black Belt candidate include a mix of technical aptitude, project management, leadership skills and “soft skills” such as coaching. Of these, the leadership skills and the ability to deliver results are typically weighted the highest. In short, the ideal candidate will be a respected “go-getter” with a technical foundation and a team player.

REQUIRED COURSE MATERIALS

All students will be required to purchase MoreSteam.com’s web-accessed Six Sigma training program. The cost is \$400.00. Please make checks payable to The Ohio State University.

PERFORMANCE EVALUATION

Grading:

Classroom attendance/participation	10%
2 Case Studies @ 5% each	10%
√ Timely completion of MoreSteam.com coursework and quizzes	20%*
Midterm I	25%
Final Exam	30%
Peer Evaluation	5%

Additional assignments/quizzes may be added at the instructor’s discretion.

* Students will be graded on the successful completion of the Moresteam.com material and quizzes every Monday (8 AM). This is identified with a √ on the syllabus. No collaboration of any kind is allowed on Moresteam quizzes.

Examinations:

Examinations will be multiple choice (much like the quizzes at the end of the sessions) and be based on the content from Moresteam.

No make-up, late or early exams will be given, except in the case of medical emergency. Business related absences are not excused. Students should make arrangements now to avoid time conflicts.

Classroom Performance

The value of the class discussions is directly related to the amount of quality student participation.

- evidence of careful preparation of the on-line course work
- clarity and conciseness of your comments and recommendations

I will grade your contribution to the class discussion after every class meeting. You are encouraged to check with me periodically to find out about your participation grade.

This class is generally aided by the use of laptop computers. However, your participation is greatly reduced by checking emails and other non-related internet websites during class. The computer is to be used for data analysis only during class.

DISABILITY ACCOMMODATION

If you need an accommodation based on the impact of a disability, arrange an appointment with me as soon as possible. We need to discuss the course format and explore potential accommodations. I rely on the Office for Disability Services for assistance in verifying need and developing accommodation strategies. You should start the verification process as soon as possible.

ACADEMIC MISCONDUCT

Material submitted for course grade credit **must** be your own work. I will report any suspected case to the University Academic Misconduct Committee for investigation. Past cases have typically resulted in a failing grade for the course. Academic misconduct is a serious threat to the integrity and value of the Fisher College diploma. Such behavior is intolerable.

COURSE OUTLINE

<u>Date</u>	<u>Moresteam Material</u>	<u>Additional Readings/Cases</u>	<u>Topics Covered</u>
<u>1. Wed., Sept. 19</u> <i>10:30AM -265GH</i> <i>8:00PM – 275GH</i>	Session 1 – Introduction to Lean/Six Sigma		- Introduction to Six Sigma and Moresteam - Course Overview - Lean and Six Sigma - Affinity Diagram - Green Belt Certification
<u>2. Mon., Sept. 24</u> <i>10:30AM -265GH</i> <i>8:00PM – 275GH</i>	√ Session 2 – Define 1, The Value Stream	Case: SigmaBucks (Carmen)	- Project Charter - Voice of the Customer - CTQ's - SIPOC - Project Selection
<u>3. Wed., Sept. 26</u> <i>10:30AM -265GH</i> <i>8:00PM – 275GH</i>	Session 3 – Define 2, Voice of the Customer	Case: SigmaBucks (Carmen)	-Data Collection Plan -Cost of Quality Analysis -Sigma Level/DPMO
<u>4. Mon., Oct. 1</u> <i>10:30AM -265GH</i> <i>8:00PM – 275GH</i>	√ Session 4 – Measure 1, Introduction to Measurement		-Attribute Measurement System Analysis, In-Class Activity
<u>5. Wed., Oct. 3</u> <i>10:30AM-345MH</i> <i>8:00PM - 345MH</i>	Session 5 – Measure 2, Charting Process Behavior	Case: SigmaBucks (Carmen)	- Discrete vs Continuous - Implementing SPC - Xbar/ R Chart - p and np Chart
<u>6. Mon., Oct. 8</u> <i>10:30AM -265GH</i> <i>8:00PM – 275GH</i>	√ Sessions 1-5	Case Study: DAV (course packet) <i>Case is due at the beginning of class.</i>	- Implementing SPC in a Service Organization
<u>7. Wed., Oct. 10</u> <i>10:30AM-345MH</i> <i>8:00PM - 345MH</i>	Sessions 1-5	Read: Supplier Capability (Carmen)	- Gage R&R - Process Capability Analysis - Review
<u>8. Mon., Oct. 15</u> <i>10:30AM-345MH</i> <i>8:00PM - 345MH</i>	Sessions 1-5	Quiz I	- Quiz to cover Moresteam Sessions 1-5

<u>Date</u>	<u>Moresteam Material</u>	<u>Additional Readings/Cases</u>	<u>Topics Covered</u>
<u>9. Wed., Oct. 17</u> <i>10:30AM-345MH</i> <i>8:00PM - 345MH</i>	Session 6 – 6.9 Identifying Root Cause	Case: Pronto Pizza (Carmen) Case: Cranston Nissan	- Data Analysis - Histogram - Sampling Plan - Box Plots - Correlation - Fishbone Diagram
<u>10. Mon., Oct. 22</u> <i>10:30AM -265GH</i> <i>8:00PM – 275GH</i>	√	Guest Speaker: Jamie Lenhoff Vice President, Six Sigma, Jacobsen, a division of Textron, Inc.	- Six Sigma at Textron, Inc. - Corporate Deployment - Project Management
<u>11. Wed., Oct. 24</u> <i>10:30AM 345MH</i> <i>8:00PM - 345MH</i>	Session 6.9 – 6.14, Identifying Root Cause		- Regression Analysis
<u>12. Mon., Oct. 29</u> <i>10:30AM-345MH</i> <i>8:00PM - 345MH</i>	√ Session 7 – Analyze 2, Hypothesis Testing	Case: Galarris Marketing Research (Carmen)	- Hypothesis Testing
<u>13. Wed., Oct. 31</u> <i>10:30AM-345MH</i> <i>8:00PM - 345MH</i>	Session 8 – Analyze 3, DOE, 8.1 – 8.7		- ANOVA - Design of Experiment
<u>14. Mon., Nov. 5</u> <i>10:30AM-345MH</i> <i>8:00PM - 345MH</i>	√ Session 8 – Analyze 3, DOE, 8.8 – 8.12		-Design of Experiment - 2 Factor DOE
<u>15. Wed., Nov.7</u> <i>10:30AM-345MH</i> <i>8:00PM - 345MH</i>	Session 8 – Analyze 3, DOE, 8.13 – 8.20		-Helicopter Exercise, In class activity
<u>16. Mon., Nov. 12</u> <i>10:30AM-345MH</i> <i>8:00PM – 345MH</i>	√ Analyze Overview	Case Study: Store 24 (A): Managing Employee Retention (course packet) Case Study: Store 24(B): Service Quality and Employee Skills (course packet)	—Applying data analysis techniques to performance measures.

<u>Date</u>	<u>Moresteam Material</u>	<u>Additional Readings/Cases</u>	<u>Topics Covered</u>
<u>17. Wed., Nov. 14</u> <i>10:30AM -265GH</i> <i>8:00PM – 275GH</i>	Session 9 - Improve		- Brainstorming - FMEA
<u>18. Mon., Nov. 19</u> <i>10:30AM -265GH</i> <i>8:00PM – 275GH</i>	√ Session 11 – Leading Teams and Leading Change	Case Study: John Smithers (Course Packet) <i>Case is due at the beginning of class</i>	- Leading Change - Deployment - Developing and Effective Team
<u>19. Wed., Nov. 21</u> <i>10:30AM -265GH</i> <i>8:00PM – 275GH</i>	Review Session		
<u>20. Mon., Nov. 26</u> <i>10:30AM -265GH</i> <i>8:00PM – 275GH</i>	√ All Sessions (excluding 10)		- Six Sigma Round Table
<u>21. Wed., Nov. 28</u> <i>10:30AM -265GH</i> <i>8:00PM – 275GH</i>	Session 10 - Control		-Control Plan - 5 S - TPM - Standard Work

Cumulative Final Exam – To be announced

CASE DISCUSSION QUESTIONS

DAV

1. What are the primary challenges in applying Statistical Process Control to a service industry compared with manufacturing?
2. The first 12 weeks of the data in Exhibit 4 represent the diagnostic period for the Policy Extension Group. What are the 3-sigma control limits for the process? In which of the subsequent weeks is the process out of control (if any)?
3. Develop specific implementation plans for solving the problems facing Annette Kluck that are described on page 9 of the case.
4. Provide a detailed action plan for improving the performance of the operation.

Store24 A

1. Is employee tenure a driver of store level financial performance?
2. How important is tenure relative to site location factors, in explaining financial performance?
3. Does the relationship between tenure and performance vary with tenure level?

Store24 B

1. Think, conceptually, about how managerial skill, service quality, and profit are related. State your thoughts in hypothesis form, then look for support for your hypotheses in the data.
2. Recognizing that there is often a tradeoff between service quality and productivity, if you were designing a training program for Store24 employees would it emphasize delivering a higher quality service experience to customers or making employees more productive and efficient?

John Smithers at Sigtek

1. Analyze the approach to change taken at this company.
2. Was Smithers effective?
3. What should he have done differently?
4. What are the future prospects for this quality initiative?

PERFORMANCE EVALUATION

CASE WRITE-UPS

TWO group written reports will be turned in (DAV and John Smither's). The written reports are due at the start of the class for which they are assigned.

Each written report should be a maximum of 5 one and half spaced pages, plus exhibits, using no smaller type font than an 11 font size. It is recommended that the case assignment questions for each case (included in this course outline) be analyzed first. These questions have been constructed as an aid in preparing the case analysis. After all of the assignment questions have been analyzed, the written report should be prepared which includes a response to each question.

Each report should begin with a short executive summary (1/2 page). The executive summary should be a short synopsis of the entire paper. It should contain a brief introduction, problem statement and recommendation. Prepare the Executive Summary as if you had to hand this to your boss' boss and he/she was reading it as they were walking into a meeting; brief, but very meaningful.

In all instances, reports should identify major issues, analyze those issues, and make clear recommendations. Be sure that the recommendations that you make follow from your analyses. Written cases are evaluated on both the quality of the analysis and the presentation. Simply put, case write-ups should not only reflect good thinking but should also be professional in style and appearance. The quality of the writing counts.

No formal presentation of results will be required although teams are encouraged to prepare overhead transparency exhibits which might be shared with the class to support a point of view during the case discussion.

Please include all team members' names on the front page of the report in alphabetical order. Teams should consist of 4-5 students.

Peer Evaluation – Group Projects

Peer evaluations will count for a maximum of 5% of the total points. Your peer evaluation points will be awarded as follows: the quality and timeliness of your submission and the rating by your peers.

When you are evaluating the efforts of yourself and your peers you should take the following actions into account; quality of effort, quantity of effort, working relationship with group members, and completion of assignments in a timely fashion. **Peer evaluations are due to the instructor by Monday, November 26th.**

Your Name: _____

Team #/Letter _____

Group Members (including yourself):

**Weight
(out of 100%)**

Name: _____

Name: _____

Name: _____

Name: _____

Name: _____

Name: _____

TOTAL

100%

COMMENTS:

BUS-MGT 811: Six Sigma Projects Syllabus Autumn 2007 through Winter 2008

Professor: John Current	Office: 632 Fisher Hall
Home Phone: 262-2607 (preferred)	Office Hours: By Appointment
Office Phone: 292-3166	E-mail: current.1@osu.edu

BUS-MGT 811 allows teams of students to apply six sigma principles and concepts. The course builds on the material in BUS-MGT 810, which is a prerequisite or co-requisite for BUS-MGT 811.

Class Meetings (There will be two mandatory class meetings for the entire class):

The first of these will occur during the fourth week of autumn quarter. The exact date of this meeting will be announced in BUS-MGT 810 and by email. During this meeting, students will select a project and form a team. It will last about one hour.

The second will occur near the end of winter quarter. At this meeting, each team will give a 15-20 minute executive presentation of its project.

Team Meetings with Professor Current:

These meetings will be held with individual teams as needed (typically, once every 3-4 weeks for 30-60 minutes) at a time arranged in accordance with the schedules of your team and Professor Current. The schedule of these meetings will be based upon your project schedule and progress. The primary purpose of these meetings is to report progress and discuss issues that need to be addressed to successfully complete the project.

In addition, teams will submit a weekly project update to me via email. In general, teams with more complete and timely email reports need fewer in-person meetings with me.

Team Meetings with Firm:

MBA Team members will meet regularly with their Firm's counterparts. Plan to meet at least once per week (on average). **The frequency of these direct contacts may vary among projects.**

Tollgate Reviews with Firm:

These are more formal presentations to the firm that will be attended by more people from the firm. In general, they will be conducted at the end of each phase of the project. The timing of these reviews should be discussed and scheduled through your coach.

Projects:

Each team of students will undertake a substantive project in a company that uses six sigma methods to reduce variation and achieve measurable benefits for the sponsoring company. The bare structure of the project will be arranged with sponsoring companies but the team is responsible for developing a project plan and managing that plan to completion. Each team will be assigned an experienced six sigma coach to support the team's efforts.

Projects will generally consist of the following elements:

EMBA 870X
Data Analysis for Managers
2007

Professor David Schilling

Course Overview

This course develops the quantitative thinking and skills needed for managerial data analysis. Large quantities of data are routinely available in all disciplines of business, from direct marketers analyzing databases to identify targets for new promotional material and cross-selling activities, to investment firms that rely on security prices to identify the optimal composition of portfolios, to manufacturers evaluating production processes to reduce error and eliminate waste. The analysis of data in accounting, finance, marketing, operations and human resources is based on the same underlying principles, and this course exposes students to these principles and the methods for their application.

Effective learning in this course requires students to be both conceptual and concrete – conceptual in understanding how to go about conducting data analysis, and concrete in being able to draw inferences that shed light on specific problems. Students will develop an intuition about concepts like conditional probability and independence as it applies to various business problems, and will learn to manipulate, graph and learn from data using computer-based tools.

The purpose of this class in data analysis is to:

- Give students hands-on experience with real problems and challenge them to develop their intuition, logic and problem-solving skills.
- Expose students to the use of data analysis across business disciplines.
- Help students develop practical skills in data analysis using spreadsheets that will add value in other courses and in their careers.

Given these goals, students will get immediate exposure to graphing and describing the data with summary measures, including measures of variability and association. Probability and distributions are then introduced to formalize the story behind the data, and the concept of an estimator is introduced as a means of making inferences about the broader population. Confidence intervals and hypothesis tests follow, with the last weeks spent on the topic of regression analysis.

Textbook and Software

The textbook for the course is Data Analysis for Decision Making, by Albright, Winston and Zappe, 3rd Ed. Thomson South-Western, ISBN 0-324-40082-9.

There is no notepacket for this course. Handouts, notes and other materials will be distributed either in class or via the course web site.

Your primary reference is your textbook. It is, in effect, your primary notes for the class. If you know the material in the textbook, you should be well prepared for the exams.

All analysis in the class will use Excel complemented by the statistics add-on, **StatTools**, provided on the disk included with the textbook. You can also find the software and instructions for installing it on the course web site, under "CONTENT".

Excel

If your Excel skills are a bit rusty (or even non-existent), there are numerous books on the market to give you a little boost up the learning curve. One (free) option is the tutorial on the CDROM accompanying our textbook. It is a Word document embedded with Excel worksheets that guide you through some of the basic skills you will need. To make it easier to find, I've also posted it on the course web site (under "CONTENT").

Course Web Site

We will use the EMBA course web site extensively. It is an important source of course information (e.g. a copy of this syllabus and the schedule are there.) Any changes to the syllabus or schedule will appear there as well. You should check it regularly (e.g. at least once if not twice weekly.) The web site will also contain Excel data files, handouts, homework answers, etc. It is accessed at: <http://emba.osu.edu>

Getting Help

I realize that this material can be challenging (frustrating) at times, so there are several methods to seek help outside of class:

- You can post questions on the course web site. Click on Ask Questions - Get Answers. Your question is likely to be one that others have as well and it may even be answered by one of your fellow learners. (I will also monitor this regularly.)
- The best way to contact me is via email (schilling.1@osu.edu). I check this often (far more frequently than my office voicemail) and try to respond promptly. If your question raises an issue that should be communicated to the rest of the class, I will post an announcement on the course web site. If you have an issue you would like to discuss face-to-face or over the phone, just let me know so we can arrange a time to connect.

In the past, students have found these methods very effective in communicating with me. However, if you ever have difficulty reaching me, I want to know, so I can make it easier!

Course Requirements and Grading

There are three exams, all of which will use a computer for analysis. The exams are non-comprehensive in the sense that they focus on the material since the last exam. The subject matter, however, often builds on prior material and thus requires an understanding of that material. Finally, exams are closed book and closed notes. There is no need to memorize formulas, however, since formula sheets will be provided for you. (I will give you copies ahead of time so you will see what they contain.)

Your grade will be determined by your performance on the three exams:

Exam-1	33%
Exam-2	33%
Exam-3	34%
TOTAL	100%

Interim Assignments

In the course schedule on the web site are links to the reading assignments and homework problems to work on during each interim. They are bundled into bi-weekly "chunks" to make the workload more manageable. I realize you have many other demands on your time, but, to avoid the all-to-common *4th week crunch*, I strongly recommend trying to complete the assignments according to the schedule indicated.

The homework problems provide important practice for the material being covered. This homework will not be graded, but I may ask you to submit your attempt at a solution to the web Drop Box in order to see how you are doing and to identify any problem areas I can help clarify.

Study Strategies

Our textbook is structured as a series of examples. A good approach for using it is:

- Read the chapter and do the examples on your computer. In this way you will both reinforce the concepts presented as well as practice the needed Excel skills.
- After going through the chapter examples, try the assigned homework problems.
- Then, compare your work with the posted solutions.
- Finally, review the "Summary of Key Terms" at the end of each chapter.

Do not be (too) frustrated if you don't "get it" the first time through. Statistics takes time and repeated effort. That is why it is vitally important to go through the assigned material before the on-campus sessions. That initial exposure to the terms, concepts and techniques will make our time together in the classroom much more effective.

Academic Misconduct: Material submitted for course grade credit must be your own work. Please be informed that I must follow Faculty Rule 3335-5-54, which requires that requires "all instances of what he or she believes may be academic misconduct" be reported to the University Academic Misconduct Committee. Academic misconduct is a serious threat to the integrity and value of your diploma.

Disability Accommodation: If you need an accommodation based on the impact of a disability, arrange an appointment with me as soon as possible. I rely on the Office for Disability Services for assistance in verifying need and developing accommodation strategies. You should start the verification process as soon as possible.

COURSE SCHEDULE

		Dates	Topic	Chapters
Interim 1	1st half	Mar 18 to	Describing Data: Graphs and Summary Measures	Ch. 2 & Ch. 3
		Mar 31	Probability and Probability Distributions	Ch 5.1-3 & 5.6-9
	2nd half	Apr 01 to Apr 11	Normal Distribution Binomial Distribution	Ch 6.1-4 & Examples 6.8 & 6.10
On Campus		Apr 12/14		
Exam		Apr 15-22	Chapters 2, 3, 5, 6	
Interim 2	1st half	Apr 15 to Apr 28	Sampling Sampling Distributions	Ch 8 (skip 8.4.5)
	2nd half	Apr 29 to May 09	Confidence Interval Estimation	Ch 9 (skip 9.6)
On Campus		May 10/12		
Exam		May 13-20	Chapters 8, 9	
Interim 3	1st half	May 13 to May 26	Hypothesis Testing	Ch. 10.1-4
	2nd half	May 27 to Jun 06	Regression Analysis: Estimating Relationships Regression Analysis: Statistical Inference	Ch. 11 & Ch. 12.1-3 & 10
On Campus		Jun 7/8		
Exam		June 10-17	Chapters 10, 11, 12	

MGTX1: **Managing Innovation** (4 credit hrs) –

Course Overview: New products and services are critical to successful growth and increased profits in all industries. This course will take students through the “fuzzy front end” of new product development (NPD) to the successful launch of a new product. The pedagogy will cover (1) linking NPD strategy to corporate strategy, (2) integrating voice of the customer, (3) decreasing time to market, (4) improving the interface between marketing, (5) R&D engineering and operations, and (6) reducing waste in the value stream through the Production Preparation Process (3P). Students will be expected to apply their learning in their organizations. Specifically, they will be expected to plan and facilitate a 3P workshop.

The overall objectives of the course are to:

1. Develop strategic thinking, planning and managing abilities throughout the entire new product development process.
2. To learn to implement a 3P (Production Preparation Process) and apply that learning at a sponsoring organization.
3. Understand the interface of the operations function with the functions of R&D, design engineering, and marketing.

Texts: Toyota’s Product Development System, Jeff Liker and James Morgan

Off Campus Project: Students will work in teams with faculty to develop a working prototype product and business plan over the course of their on-campus experience. Students must submit the following tollgates to the instructor for grading. Key elements include:

Market Feasibility and Voice of the Customer. The key objective in this phase is to screen the new product with the anticipated customer for level of interest, frequency of purchase, price point, etc. (It is anticipated that the idea generation phase is completed). Key deliverables will include a project team, champion, and market feasibility study. Additionally, the students must show how the product will fit within a case company’s overall mission and strategy.

Financial Feasibility. The key objective at this stage is to obtain useful forecasts of market size (e.g., overall demand), operational costs (e.g., production costs) and financial projections (e.g., sales and profits). Much effort is directed at both internal research, such as discussions with production and purchasing personnel, and external marketing research, such as customer and distributor surveys, secondary research, and competitor analysis. Key deliverables include: Financial feasibility study, ROI, NPV, sales forecast, breakeven analysis.

MGTXX1: Managing Innovation (continued)

Production Preparation Plan (3P): Teams that will plan and implement a simulated 3P event. Student team will work to develop multiple alternatives for each process step and evaluate each alternative against design criteria (e.g., designated takt time) and a preferred cost. The goal is typically to develop a process or product design that meets customer requirements with the least waste.

Off campus project deliverable: Each student will be required to plan and facilitate a 3P workshop or event in their home organizations during the inter-term period. Students will document their using photographs and post their results on the course web-page. There will be a 3P project review during the subsequent in-class period.

MGT XX2 – Planning for Operational Excellence (4 credit hrs)

The objective of this course is to teach the state-of-the-art theory and methods used in the definition and systematic planning of long-range and short-range organizational objectives and managing the improvement of complex operating systems.

The course will focus on the systematic planning methodology used to define key objectives and the measures required to run the business successfully. The plan-do-check-act process improvement cycle enters repeatedly in the plan's development, implementation and review. This PDCA cycle insures that plans are developed systematically, the planning process is standardized, progress against plans is carefully monitored, breakthrough objectives are attained, and organization learning occurs.

Materials:

1. *Getting the Right Things Done*, Pascal Dennis
2. *Operations Planning and Control*, Vollmann, Berry, Whybark, and Jacobs
3. Web-based modules on operations planning and control (These modules have already been developed and used in executive and MBA classes.)

Three major topics are covered:

1. **Policy deployment or *Hoshin Kanri*.** This planning technique is used by many of the top organizations in the world to link goals, measures, and projects across organizational levels (e.g., Toyota, Hewlett Packard, Texton). Policy deployment processes are used to assure that each project is linked to higher level organizational goals. This approach allows for annual organizational plans to cascade through the organization.
2. **Project Management.** Much of the improvements made through operational excellence programs are achieved through a series of projects. Although the tools of project management are familiar to many managers, a specialized set of management and short-term planning tools that includes A3 project planning. This approach will be taught via a hands-on workshop. Students will be asked to develop A3s for there own projects.
3. **Operations Planning and Control.** Operations planning and control is a specialized discipline within operations management. However, leading operational excellence efforts requires that managers understand several how to integrate planning systems with just-in-time control systems. Students will be required to complete 10 existing modules prior to arriving for this on-campus session.

MGT XX2 – Planning for Operational Excellence (continued)

Off campus project deliverable: Each student will be required to report out on his or her project using A3 methods during the subsequent in-class period.

MGTXX3 – Value Stream Management (4 credit hrs)

The objective of this course is to present students with the state-of-the-art strategic and operational approaches to planning and implementing effective change across an enterprise. Students will be taught to identify and analyze strategic core enterprise-wide concerns and implement solutions to achieve operational excellence. The following topics will be introduced in the course:

- Value Stream Mapping – Data Capture and Analysis
- Continuous Improvement
- Managing Change
- Leadership
- Performance Metrics
- Flow Management

Today, more and more companies are finding that Value Stream Management is fundamental to value creation. Value Stream Management is a systematic approach to visually communicating product flow and the process waste associated with its transformation. From our Value Stream Map we gain insight into improvement opportunities, the design of our future state and the measurements necessary to monitor overall operational performance. Value Stream Management deals with the practical realities of enterprise-wide waste identification and elimination. It allows employees at all levels to see the value chain, employ the tools of waste elimination to focused improvement projects and realize the gains that translate to value for the customers. The Value Stream Management technique will allow you to (1) focus on the critical elements specific to each value stream; (2) implement lead time and cost reduction techniques using a structured approach; (3) use value stream mapping to identify and share critical issues and improvement opportunities; and (4) use value stream mapping to identify and share critical issues and improvement opportunities.

Objectives

Learn a systematic structured approach and the supporting techniques for managing product flows in order to:

- see and visualize constraints and inefficiencies of current flows (current state)
- apply a structured approach to the implementation of Lean
- create an improvement plan and develop an optimized flow (future state)
- identify priority actions

Texts:(1) *Learning to See* by Rother and Shook

MGTXX3 – Value Stream Management (continued)

(2) *The Complete Lean Enterprise* by Keyte and Locher

Off campus project deliverable: Each student will be required to facilitate a workshop to produce current and future value stream maps for a key value stream in their organization. This workshop must be held during the inter-term period following the on-campus period with a report-out held during the subsequent on-campus period. The resulting maps and a report on the workshop will be presented at that time.

MGTX 4 – Managing Critical Thinking (4 credit hrs)

Course Overview: The Toyota Production System creates a “community of scientists.” Toyota uses a rigorous problem-solving process that is, in effect, an experimental test of any proposed changes. In this class we will explain Toyota’s powerful approach to problem solving and the Four Rules that underlie it. We will practice using actual case studies and explain what the Four Rules and the problem solving method mean for management systems and behavior. We will illustrate underlying mental models. Finally, we will discuss infrastructure required to develop and sustain problem solvers, and make explicit the link between problem solving and core lean activities such as strategy deployment, standardized work, visual management and human resources practices.

To create and sustain problem solvers at all levels we need to link problem solving to core management systems and behavior. The explicit link between problem solving and lean activities such as policy management, standardized work, visual management, human resources management and “go see” (gemba) activities are explained. You will learn how to do this simply and effectively.

Course Outline:

In this hands-on class, you will use interactive case studies and exercises to learn proven approaches to solving both production and administrative problems. You will also learn how to link problem solving to core management systems in your journey towards a learning culture.

Problem solving has been called the “DNA of the Toyota Production System.” The world’s most successful companies are those that develop problem solvers at every level. Specific topics include:

- The lean problem solving process
- Four critical questions (of PDCA problem solving) and common pitfalls
- Use of SQDC check sheets and other data gathering and analysis documents
- The five levels of management capability
- Infrastructure needed to sustain problem solving
- Role and activities of the leader
- Relating problem solving and core lean activities

Learning Objectives:

- Follow the steps of the lean problem solving process (PDCA)

MGTX 4 – Managing Critical Thinking (continued)

- Know how to use different problem solving templates in different circumstances
- Develop concise problem solving A3s
- Understand and be able to explain management processes and infrastructure needed to sustain problem solving at all levels

Assigned Reading:

- "Lean Thinking", by James P. Womack and Daniel T. Jones
- "Decoding the DNA of the Toyota Production System" (Harvard Business Review Sept-Oct 1999), by Steven Spear and H. Kent Bowen
- "Learning to Lead at Toyota" (Harvard Business Review May 2004), by Steven Spear
- Lean Production Simplified, by Pascal Dennis (Productivity Press 2002)
- The Toyota Way (McGraw-Hill New York: 2004) by Jeffrey Liker
- Getting the Right Things Done, by Pascal Dennis (Lean Enterprise Institute 2006)

Off Campus Activities: Students are required to lead a problem solving workshop and submit results to the instructor. This workshop must be held during the inter term period following the on-campus period with a report-out held during the subsequent on-campus period. The workshop must include the following elements:

Problem Statement

Business Case

Current State

Root Cause Analysis

Future State

Goal/Metric for Improvement

Gantt Chart for Process Improvement

MGTXX5 – Capstone Project (6 credit hrs)

This objective of this course is to provide the student with the opportunity to lead a major improvement project in her or his own business setting: The project will necessarily include managing a team to accomplish the project goals. Each student will be assigned a faculty mentor who will provide advice through out the project and conduct periodic project reviews to assure that the project is on-track. A post project examination will be devised and given by a committee comprised of faculty teaching in the MBOE program.

The project will be defined by the student with input from their company management under the guidance of faculty. The project will be broken into four segments designed to take approximately 10 weeks each. Students will be provided faculty mentoring throughout the project using distance methods (WebEx, Carmen, telephone) when off-site supplemented by project reviews during on-campus sessions.

Students are expected to use the capstone project as a medium for applying what they have learned in the program as they learn it. A key element of adult learning is the learn-apply cycle and the capstone project is intended to assure multiple opportunities to complete that cycle.

The following criteria and selection guidelines apply to capstone projects.

Master's in Operational Excellence Project Criteria and Selection Guidelines	
Criteria	Considerations
1. The project should be business unit relevant.	<ul style="list-style-type: none">• Projects should be identified in consultation with the business unit leader and the instructor. The issue addressed should be significant to the business unit.• The project results will be applied in the workplace.
2. The project deliverable should be well defined before the project team is selected.	<ul style="list-style-type: none">• The student is responsible and accountable for the project scope and measurement.• The expected results are measurable and identified as part of the project.• Measurements can be financial (risk, cost savings, ROI, etc)• Measurements can be operational (customer satisfaction measures, quality, delivery)• Measurements must be specified on the Project Submission form. The project will not be accepted without adequate measurements.

MGTXX5 – Capstone Project (continued)

<p>3. The project team should be selected and assigned to maximize project success.</p>	<ul style="list-style-type: none"> • Once the project objective and metrics have been determined then a team should be selected to work on the project. • The teams should be a size and composition appropriate to complete the project. It is recommended that project teams be between four and six people. Maximum size is eight people. Minimum size is two people. • The teams should have the ability to communicate as needed to complete the project. • Teams should be comprised of people who are interested in and involved with the topic area of the scope of the project. • Teams are strongly encouraged to be cross-functional. For example, a planner, scheduler, and operations supervisor from one value stream may make up a team.
<p>4. The project requires a Business Unit Leader to be actively involved in providing direction on the project.</p>	<ul style="list-style-type: none"> • A BU Leader (typically the VP of Operations) will be the project champion. • The BU Leader will provide support and assistance as needed, meeting with the team periodically. Faculty mentor will be in communication with the BU leader. <ul style="list-style-type: none"> ○ Team kick-off meeting will include BU leader and faculty mentor (using WebEx when necessary). ○ Friday report-outs are the norm. A debrief will occur during each on-campus period. ○ 12 week report-outs
<p>5. Project proposals will be approved by Ohio State University faculty.</p>	<ul style="list-style-type: none"> • Selection committee reviews projects to assure proposal meets the project criteria. • If project proposal is not complete, there will be a second feedback and review cycle within 2 business days. • If a project doesn't meet project criteria, then it will be sent back to the student for reworking and resubmission.
<p>6. Team coordination prior to class.</p>	<ul style="list-style-type: none"> • The student coordinates all activities for the team project. • The student is responsible for preparing debrief documents prior to each on-campus period.
<p>7. The project must be one that can have a major milestone completed within twelve weeks and must have a measurable business impact.</p>	<ul style="list-style-type: none"> • The project plan must be developed with a major milestone set for twelve weeks. • The project must have a defined business impact measurement. This measurement must be included in the following deliverables: <ul style="list-style-type: none"> ○ Project Submission form ○ Friday morning report-out ○ 12 week report-out
<p>8. Students will present their project to business unit leaders.</p>	<ul style="list-style-type: none"> • The Business Unit Leader is invited to attend the Friday report-outs to hear about progress made during the week. • Upon completion of the 12 week review, and as directed by the faculty, the student and his or her team will present project results and recommendations to business unit leaders.

MGTXX6 – Cornerstone Course (6 credit hrs)

This is a continuing course that runs over the entire four quarters of the program. It has three essential elements.

1. A “cornerstone” element of the program that provides a “global” overview of the goals, processes, and successful/failed applications of Business Operational Excellence. This part will essentially be a “seminar class” consisting of “guest lectures” by leading scholars and practitioners in operational excellence who will address students at OSU or via the internet.
2. Reinforcement of the management aspects of operational excellence. It will consist of a major simulation of a business situation. Students will work in teams and run a computer simulated business value stream that faces problems that must be addressed using the tools of operational excellence. The evaluation of the student teams will be based on the financial and operational business metrics achieved. Values that will be reinforced are: (1) Teamwork; (2) Understanding of performance metrics and how they are achieved; (3) Cross-functional management; (4) Leadership; (5) Value stream management; and (6) Financial value of operational excellence.
3. Presentations of project work. Students present their project-oriented accomplishments from each inter-term period.

Materials: (1) Materials required in other courses
(2) *Real Numbers* by Fiume and Cunningham
(3) *Creating a Lean Culture* by David Mann
(4) Notes on simulation

Appendix E

Proposed schedule of classes

<i>Session</i>	<i>Hours</i>
<u>Session 1</u>	
Statistics	8
Lean Enterprise	32
Cornerstone Course	5
Subtotal	45
<u>Session 2</u>	
Statistics	8
Value Stream Management	16
New Product Innovation	16
Cornerstone Course	5
Subtotal	45
<u>Session 3</u>	
Statistics	8
Value Stream Management	16
New Product Innovation	16
Cornerstone Course	5
Subtotal	45
<u>Session 4</u>	
Lean Enterprise II	16
Critical Thinking	24
Cornerstone Course	5
Subtotal	45
<u>Session 5</u>	
Six Sigma Principles	32
Critical Thinking	8
Cornerstone Course	5
Subtotal	45
<u>Session 6</u>	
Planning for Operational Excellence	16
Cornerstone Course	7
Six Sigma Projects	22
Subtotal	45
<u>Session 7</u>	
Planning for Operational Excellence	16
Six Sigma Projects	22
Cornerstone Course	7
Subtotal	45
<u>Session 8</u>	
CapStone Project	45
Subtotal	45
Total	360

Appendix F
MBOE Proposal

	# of Students					
	20	30	35	40	45	50
Tuition	\$ 39,000	\$1,170,000	\$1,365,000	\$1,560,000	\$1,755,000	\$1,950,000
OSU Overhead	24%	\$280,800	\$327,600	\$374,400	\$421,200	\$468,000
FCOB Overhead	20%	\$156,000	\$234,000	\$273,000	\$312,000	\$351,000
Revenue after tax	\$436,800	\$655,200	\$764,400	\$873,600	\$982,800	\$1,092,000
Program Coordinator	\$ 80,000	\$ 80,000	\$ 80,000	\$ 80,000	\$ 80,000	\$ 80,000
Academic Director	\$ 80,000	\$ 80,000	\$ 80,000	\$ 80,000	\$ 80,000	\$ 80,000
Instructor Fee's/week * 8	\$ 12,000	\$ 96,000	\$ 96,000	\$ 96,000	\$ 96,000	\$ 96,000
Instructor Travel and Lodging						
- Hotel Nights*	70 nights @ 150					
- Travel	\$ 20,000	\$ 20,000	\$ 20,000	\$ 20,000	\$ 20,000	\$ 20,000
- Meals	\$ 3,000	\$ 3,000	\$ 3,000	\$ 3,000	\$ 3,000	\$ 3,000
Marketing	\$ 30,000	\$ 30,000	\$ 30,000	\$ 30,000	\$ 30,000	\$ 30,000
Other - gifts, notebooks	\$ 5,000	\$ 5,000	\$ 5,000	\$ 5,000	\$ 5,000	\$ 5,000
Total Fixed Expenses	\$ 324,500	\$ 324,500	\$ 324,500	\$ 324,500	\$ 324,500	\$ 324,500
Project Supervision Fees	\$ 20,000	\$ 30,000	\$ 35,000	\$ 40,000	\$ 45,000	\$ 50,000
Food	\$ 35,000	\$ 52,500	\$ 61,250	\$ 70,000	\$ 78,750	\$ 87,500
Web expenses	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000
Total Variable Expenses	\$ 65,000	\$ 92,500	\$ 106,250	\$ 120,000	\$ 133,750	\$ 147,500
Net Income	\$27,300	\$238,200	\$333,650	\$429,100	\$524,550	\$620,000
One Time Expense						
Web Component (kevin giver)	\$ 20,000	\$ -	\$ -	\$ -	\$ -	\$ -
Fixed Costs:						
Variable Expense/student	\$ 344,500					
CM/Student	\$ 3,250					
	\$ 21,840					
Breakeven	18.53	students				

* one night per instructor with overlapping days.

MBOE Proposal
Responses to graduate school questions
January 2008

1. Your proposal makes reference to operations programs that differ from your proposal in significant ways at places such as MIT, Northwestern, Wisconsin, Stanford, and Michigan. The committee seeks a greater understanding of how your proposed program compares with these as well as some greater information about their operation. Specifically, can you draw more distinctions between your proposed program and the existing programs in terms of the kinds of students you will attract, the course work that the students will take and the “outcomes” for the graduates of these respective programs? Will you be competing with them for students? What evidence do you have of the success of these programs?

Each of these programs is a joint program between business and engineering. In general, the primary emphasis is on augmenting core MBA curriculum with engineering management courses. As such, the programs prepare students to manage in engineering environment. Each of the programs has been in existence for a number of years and they appear to be successful. They are two-year, full-time programs. Appendix A in the revised proposal provides specifics on each of the programs.

The MBOE program is a management program that is aimed at practicing, high potential managers as opposed to technical contributors. The aspirations of the MBOE applicants will be to lead operational excellence programs in their organizations. We believe that the MBOE program will occupy a unique niche among terminal master's programs. We believe that there will be little competition with existing programs for students. Typically, applicants for these programs are interested in a dual degree in which the generalist MBA degree plays an integral part. The proposed MBOE focuses on high potential leaders who seek the specific skills to transform and sustain operational excellence in their organizations. We believe that many organizations will value this education because it is targeted and specifically aimed at high potential employees, thus creating new demand for education rather than taking students from other programs.

2. Committee members had somewhat differing concerns about the existing courses and the new courses that constitute the proposal. With regard to the existing courses, it was noted that the syllabi that were submitted were designed for “traditional” in-class, face-to-face delivery. Please elaborate on how these courses will be adapted for the blended in-class/distance learning approach followed in the program proposal. I don't think it necessary to provide new syllabi for each of these courses but, perhaps, an adaptation of one of them for the new delivery approach might be very helpful. More generally, discuss the transition these courses will undergo for their new delivery format.

A revised Appendix D clarifies the way in which existing courses will be delivered in MBOE. For the committee's convenience, the following discussion briefly describes delivery for each of the existing courses.

MGT 870X—Data Analysis for Managers. This course is currently delivered as part of the EMBA program and is already delivered as a distance course in six meetings over three months with assignments required in the interterm periods using the website to turn in assignments and to communicate with the instructor. In the MBOE, we will use identical pedagogy. The class will meet the first three in-class periods over six 4-hour periods. Assignments and pre-work will be managed via the web, as is reflected in the syllabus. Three exams are required.

MGT 810—Six Sigma Principles. This is currently offered over one quarter and is a blended on-line, in-classroom course, i.e., students meet twice per week and also complete approximately 140 hours of on-line instruction. However, we have successfully offered the class to practicing

managers many times in a condensed format through executive education. This format requires that students complete the on-line portion (140 hours) prior to one week of on-campus learning. In this format, students are provided on-line and telephone support as they work through the on-line instruction. This condensed format will be used in the MBOE program. The class will be offered during the students' fifth on-campus week, thus allowing the entire autumn quarter to work through the on-line instruction prior to their in-class work. On-line quizzes allow students to self-assess their progress. A well-established "black belt" exam assures technical competency.

MGT 811—Six Sigma Projects. This is currently offered over 15 weeks and consists of executing a six sigma project in an organization, thus applying the principles learned in MGT 810. There is a formal protocol for managing six sigma projects. Progress on the projects is measured via periodic "toll gate" reviews and a final review and write-up are required. In MBOE, students will work on six sigma projects during on-campus weeks 6 and 7 and in the period in between those meetings. They will receive coaching via distance checks and toll gate reviews using web-based reporting and telephone coaching.

MGT 840 and MGT 841—Lean Enterprise I and II. These are currently offered as seminars meeting four hours (or more) once per week. The subject is the conceptual basis for operational excellence and seminar leaders are often top experts in the field. Numerous hands-on exercises are used to illustrate important points. A similar format will be used in MBOE. Students will take the classes during in-class weeks 1 (Lean Enterprise I) and 4 (Lean Enterprise II). In each case, students will be given post-class assignments requiring them to apply principles they have learned during the period following their class. Reports on their assignments will be due before their next in-class meeting.

3. Regarding the planned new courses, committee members felt that, for a program that you wish to pilot, they were quite underdeveloped and delineated. Could greater documentation be provided for these courses? Again, while formal syllabi may be premature, what is their state of development and could some greater specification be given about their nature?

We provide much greater documentation for new courses in Appendix C. We also provide more specifics on the distance delivery of each class.

4. There appear to be some disconnects in the potential student pool being targeted for your program. At one point you note that the program "is expected to attract top students employed by leading organizations from around the world." Other references, however, refer to critical operational excellence professionals shortages here in Ohio and this program's impact in that regard. Are both potential student groups being targeted by the program? Do you have expectations regarding the mix of local and worldwide students in the program?

We acknowledge the disconnects that you point out and believe that we have resolved them in the revised proposal. Those disconnects resulted from our perception that Ohio Regents require discussion specific to Ohio and our trying to address that requirement. It is indeed our intention that we attract top students employed by leading organizations from around the world. However, during the first year or two we will market heavily to executives in companies that are members of the Center for Operational Excellence. Thus, we expect that executives in these companies will identify and support a greater proportion of high potential employees from Ohio than will be the case in future years. Long term, it is our intention that this program draw top students from a national pool.

5. Finally, one committee member noted that one of your letters of support came from the head of OSU's Health System while the program's thrust would be of considerable interest to those in the health care industry. With that in mind, the question was raised of what, if any, exploration there has been in the development of this proposal of interfacing

in some way with the School of Public Health here at Ohio State. Does the Public Health program “fit” in any special way with this proposal? It was suggested that the school has both faculty as well as existing courses that might be advantageous for inclusion in the proposed program. Has that avenue been explored in any way?

We shared the revised proposal with the dean of the School of Public Health. He indicated that initial reactions were that there appeared to be little overlap between the MBOE program and School of Public Health activities and thus anticipates no objections. He did ask about the possibility of incorporating an existing health care operations management class from the School of Public Health's curriculum into MBOE. We are currently in discussion with the faculty member who teaches the course about how we might include aspects of the class in the MBOE curriculum.