

Operations and Supply Management

APRC 2006-2007

Section 1 of 2

Operations and Supply Management Program Review

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Section 1: Overview

The Operations and Supply Management (OSM) major has been in existence since the late 1980's. Since its inception, the program has undergone numerous changes both in name and content. The program underwent its most recent name change in spring 2003. Prior to this time period, the OSM program was referred to as the Integrated Resource Management program. Changes in program name and content correspond to the rapid changes that have been observed within the industry over the course of the past several years. In addition, content changes have also reflected the increase expectation by employers to hire students that can compete in a global workforce. Employers are demanding and actively seeking out students who possess the attributes and characteristics indicative of a highly skilled and knowledgeable workforce. For example, recommendations of the 2004 Advisory Board meeting suggested the need for more concentrated program courses. Program changes were subsequently made and went into effect, Fall 2004. To enhance the Operation and Supply Management program, industry leaders have also suggested a closer integration and collaboration between the Manufacturing department in the College of Technology (COT) and the OSM program.

The mission of the Operations and Supply Management (OSM) Program is to prepare students for careers in the highly skilled, technically oriented, continually evolving discipline of supply chain management. This mission is accomplished by offering students a variety of courses within the COB and COT with the breadth and depth of knowledge and information expected of students who must compete in an ever expanding global economy. Required major and minor courses and course descriptions are contained in Appendix A. In addition to these courses, students have the opportunity to gain first hand knowledge and experience in supply chain management by working on projects that have been sponsored by businesses and organizations located throughout the Western Michigan region. Through these first hand experiences, students can apply the knowledge and skills learned in the classroom to critically analyze and problem solve, real life, employer based supply chain management problems.

A. Program Goals

It should be noted that program goals contained in the 2005 OSM Administrative Program Review are slightly different than the goals observed in the last academic program review. The new goals establish and provide a mechanism for evaluating and improving the OSM program through objective measurements. Although these new measures will require a longer time period to assess and evaluate on whether the program is meeting its stated goals; an added feature or program benefit will be having a survey instrument available that will allow future program reviewers an opportunity to more objectively determine whether program goal attainment has been achieved. The goals are both specific to student skills as well as to program capabilities. It is these capabilities that should be reviewed during the annual program review process verses every six years.

The following list contains the 2005 Operations and Supply Management (OSM) Administrative Program Review exit competencies (APR):

- *Expected Outcome:* Apply business concepts: OSM graduates will have knowledge and proven experience in business practices and demonstrate through cases and internships the ability to apply this knowledge in making business decisions.
External Validation t: Survey OSM graduates as part of the APR process.

- Expected Outcome:* OSM graduates will be able to communicate effectively; including, both oral and written assignments incorporated throughout the program. Graduates must be able demonstrate the ability to present ideas and information in a clear, concise, and effective manner.

External Validation: Survey OSM graduates and companies providing internships as part of the APR process.
- Expected Outcome:* Ability to function as a member of a team; both, in the classroom and within a company setting, and demonstrate the ability to work with others and to accomplish tasks.

External Validation t: Survey OSM graduates, companies providing internships, and companies who participate in class projects as part of the APR process.
- Expected Outcome:* OSM graduates will be able to use and apply tools learned in the classroom and in the field, to solve problems and make business decisions. Tools such as Lean, Six Sigma, and other continuous improvement methods will vary by industry and these tools are expected to change over time.

External Validation: Survey OSM graduates, companies providing internships, and companies who participate in class projects as part of the APR process.
- Expected Outcome:* OSM graduates will be able to analyze an environment, draw logical conclusions, and demonstrate the ability to make effective decisions; both independently and as part of a cooperative team.

External Validation t: Survey OSM graduates, companies providing internships, and companies who participate in class projects as part of the APR process.
- Expected Outcome:* Build and maintain good program and institutional relationships with employers and professional student organizations (APICS & NAPM/ISM).

External Validation t: Survey employers and professional organizations as part of the APR process. Conduct annual program reviews as indicated.
- Expected Outcome:* Build and maintain an internship (or cooperative education) program that provides all students an opportunity to participate in and builds upon their work experience.

External Validation: Survey employers and organizations as part of the APR process. Monitor internship opportunities.
- Expected Outcome:* Maximize student learning opportunities by maintaining and enhancing field experiences through special business projects and field trips. This includes job shadowing, field trips, and special projects conducted outside the classroom.

External Validation: Survey employers and organizations as part of the APR process and monitor the number of special projects and field trips offered.

The Operations and Supply Management program goals support the mission and vision of Ferris State University and College of Business. These goals have been updated to reflect changes that have been occurring within the industry and are based on recommendations suggested at the last two OSM Advisory Board meetings. Changes in program goals are also inclusive of advice, feedback, and recommendations received through the following mechanisms: companies providing internships, and related field experiences. As previously indicated, OSM program

goals now include a measurement section that should aid in the long term program evaluation and improvement process.

B. Program Visibility and Distinctiveness

Historically, the OSM program has had limited visibility and success in recruiting potential students. Within the last 3 years, most new students have been exposed to the program through the FSU Association of Operations Management (APICS) Registered Student Organization (RSO) or the introduction course on operations, MGMT 370. Prior to this time period, the RSO and OSM program were either non-existent; or not promoted. More specifically, the OSM program mirrored or looked very similar to the Business Administration program.

Major progress has recently been made in increasing the visibility of the OSM program to companies. This has mainly been achieved through the RSO (FSU-APICS student chapter) and student efforts to interact with companies and professional organizations both locally and regionally. The results of these efforts include four projects involving students and various companies. These student projects include:

- 2004: Hayworth Corp., Big Rapids. Lean manufacturing project conducted to evaluate floor layout for Kanban parts. This project required that students establish inventory levels and evaluate process flow.
- 2004: Wolverine World Wide, Rockford. Evaluate international logistics of in-bound materials from East Coast suppliers through the Dominican Republic to the US (Rockford, MI). Assessment of current practices was conducted to determine effectiveness.
- 2005: Wolverine World Wide, Rockford. Two student teams evaluated Wolverine's Central store operations. Team 1 examined the flow of incoming, inventory placement/storage, and outgoing movement of raw materials. Team 2 examined the process of how sales samples are received and then redistributed to salesman and shows.
- 2006: Bohning Archery Co., Lake City. Two teams will apply value stream mapping to improve operational efficiency.

Without repeated exposure of students and faculty to businesses at professional organization's monthly meetings, none of these opportunities would exist. A goal of the OSM program is to continue to develop, expand upon, and promote outside field experiences, business networking opportunities, and relationships for students and local employers that will eventually distinguish the OSM program from other COB programs.

In addition to the aforementioned projects, active networking and close contact with companies has contributed to developing an active OSM Advisory Board and cultivation of student internship opportunities. The following listing of internships/coops can be directly attributed to the increased visibility and development of collaborative business relationships between FSU's OSM student organization, OSM faculty, and local community business leaders.

- Steelcase: summer intern: 2005-2006.
- National Nail: intern from 2005, internship offered but no student applied.
- Irwin Seating: internship since 2005.
- Grand Haven Stamping: two interns summer 2006.
- Mark Four Automotive: internship from 2005.

It has become increasingly difficult to fill the internship opportunities presented by companies due in part to the fact that specific skills have not been developed in students until late in their academic careers. With so few students in the OSM program, several internship opportunities for FSU students have gone unfilled and often get filled by students from other similar programs at other universities. It is important for students to gain these internships and coop experiences in order to better prepare them for future employment opportunities.

The program's ability to attract quality students is comparable to other programs within the COB. As the rigor, quality, and reputation of the program grows, it should become easier to attract more quality students. Given the demands of the OSM curriculum and that of the marketplace, more technically/math oriented students will actively need to be recruited into the program. Due to past open enrollment policies, some OSM students have had difficulty with several COT courses. These COT course challenges appear to be a lack of quantitative skills.

Institutions that are the main competitors for prospective students in the Operations and Supply Management program are the same as competitors identified by other COB programs. These program competitors include: Michigan State University, Grand Valley State University, Central Michigan University, Eastern Michigan University, Western Michigan University, Baker College, etc.

Most of these competitor programs have curriculum requirements similar to the requirements identified in FSU's Operations and Supply Management program curriculum. One distinctive difference that FSU has is the number of engineering courses required from the COT when compared to other programs. Only Western Michigan University's OSM program offers students a more integrated program with an engineering curriculum. A major disadvantage of FSU's OSM program is the extremely limited number of courses offered in supply management. An additional disadvantage of the OSM program is the limited number of qualified faculty available to teach in the program. These program issues create additional challenges on faculty who aggressively seek to recruit qualified student applicants into the program.

C. Program Relevance

Overall, demand in supply chain management (buyer, logistical, and materials management) and operations (material analysts, master schedulers, and inventory managers) has been steadily growing due to the effects on organizations of increased globalization. Recent trends in the automotive industry, as portrayed by the media, report declining employment in manufacturing and has cast a negative shadow over the OSM program. However, this decline in manufacturing has been offset with the growth and interest of operations and supply management in the service sector. For example, service organizations such as Hotels, Health Care, and Retail are expanding their efforts to improve supply chain management. Currently, two companies (National Nail and Irwin Seating) who offer the OSM students internships are looking to hire OSM students who can speak Chinese. This also points out a deficiency of the current program that will be discussed in section 5.

According to the web site <http://www.collegegrad.com/careers/manag25.shtml> and <http://www.collegegrad.com/careers/manag19.shtml>, future employment opportunities for graduating seniors from this program are likely to include the following: (note: just 2 job titles were used in this search)

“Overall employment of purchasing managers, buyers, and purchasing agents is expected to grow slower than the average for all occupations through the year 2014. Offsetting some declines for purchasing workers in the manufacturing sector will be increases in the services sector. Companies in the services sector, which have typically made purchases on an ad hoc basis, are beginning to realize that centralized purchasing offices may be more efficient. Also, many purchasing agents are now charged with procuring services that were traditionally done in-house in the past, such as computer and IT (information technology) support in addition to traditionally contracted services such as advertising. Demand for purchasing workers will be limited by improving software, which has eliminated much of the paperwork involved in ordering and procuring supplies, and also by the growing number of purchases being made electronically through the internet and electronic data interchange (EDI). Despite slower-than-average growth, some job openings will result from the need to replace workers who transfer to other occupations or leave the labor force.”

“Employment of industrial production managers is expected to grow more slowly than average for all occupations through 2014, as overall employment in manufacturing declines. As more manufacturing plants move abroad and others are able to produce more with fewer people, there will be less need for industrial production managers. Also, new computerized machines are better able to control quality. However, because production managers are so essential to the efficient operation of a plant, they have not been as affected by efforts to flatten management structures. Nevertheless, this trend has led production managers to assume more responsibilities and has limited the creation of more employment opportunities.”

Data from the Bureau of Labor Statistics Employment (Monthly Labor Review, Feb., 2004) projects from 2002 to 2012 show a slightly different prospective. Under Management classification (11-0000) there are listed Purchasing Managers, Buyers, and Industrial Production Managers which shows a below average growth rate at 7.9, 8.6, and 4.8 percent respectively. On the other hand, employment in the area of Logistics (Transportation and Distribution) indicates that there will be an above average growth rate of 19.7 percent. This point has been raised directly in the Advisory Board’s latest meeting where several members recommended that a strong International perspective be part of the OSM program. Additional changes will be presented in Section 5(F).

Given these forecasts, OSM seniors must be flexible in where and what they may do upon graduating. This trend has already been observed by the OSM faculty given where students have obtained positions. This last year, most premium positions were out of state and ironically all students were employed by manufacturing companies.

The program responds to emerging issues in the discipline, development of new technologies and tools, changes in employer needs, and changes in student needs. Program faculty keep current in the field, maintain contacts with practitioners, and are active in professional organizations. When curricular changes are needed program faculty initiate the curriculum revision process.

With the exception of the two freshmen enrolled in the program, students are more likely to transfer into the major or decide to pursue a minor after they find they are interested in the material. This is likely because many students don’t have a good understanding of what operations management involves until they have some exposure in the operations management class.

The program does a good job of meeting student expectations based on the standard university Student Assessment of Instruction (SAI), and the input provided by graduating students and alumni conducted for this program review. A summary of the results for Professor Lyman are included in Appendix A. The results of the surveys of students and alumni conducted for this program review will be covered in Sections 2(D) and (A) respectively.

D. Program Value

The OSM program is part of the business program offerings thus providing student with choices and benefiting the college and the university. This view is supported by a majority of the COB faculty and will be further discussed in Section 2(E) along with other faculty perceptions. The developing relationship with area businesses to provide assistance and aide in student learning provides values for both parties and to the community. Students get the chance to apply the concepts and theory while the businesses get assistance and access to research/consulting services.

Select courses within the program also provide students with hands on experiences that give them an added edge when they are searching for a job. This is just starting to be seen by the last year's graduates of the program.

The program faculty is active participants in the work of the department, college, and university serving on numerous committees. The faculty is also active in trying to bring about the integration of courses and programs between the COB and COT.

The faculty are active in several professional associations. The faculty participate in a variety of conferences, lead in the implementation of WebCT Vista as a faculty trainer, serve on the boards of professional organizations, and advise the student APICS RSO. For a complete list of faculty activities please refer to the vita in Appendix B. This is beneficial to students in that faculty are current in the field and have contacts that are beneficial to students involved in a job search.

Based on input from employers involved in the advisory board and the responses to the employer survey the program personnel conclude that the program is valuable to employers. That said, there are opportunities for improvement that include integration of COT minors/concentrations, internships, and modifications to required course mix. The minutes of the advisory board meeting are included in Appendix C and will be discussed in more detail in Section 2(F). The employer survey will be covered in detail in Section 2(B) of this report.

Section 2: Perceptions

As a part of the program review process; alumni, employers, and COB faculty were surveyed. The surveys were developed in conjunction with, and approved by, Institutional Research and Testing. The objective of the surveys were to gather information from the respondents on their past experiences as well as gain insights on what future students will need and employers want.

A. Alumni Survey Results

The survey instrument and results can be seen in Appendix E and F respectively.

The results from the Alumni Survey will be reviewed question by question. Several questions asked respondents to rate what they feel are critical skills current students should possess as they enter the job market. It is these questions which will be used to shape changes to the OSM program. It is the opinion of the program advisor that the external stakeholders are most aware what industry expectations and requirements and should shape program improvements. It is also the external stakeholders who can influence the employment opportunities for our graduating students.

A total of 240 surveys were sent out resulting in 17 responses, or a 7 percent return. While this is consistent with other similar program review response rates, it is insufficient to draw creditable conclusions.

Alumni Survey Results:

Questions 1 through 14 look at specific information on graduates of the OSM program. The objective was to collect demographics information and to see how FSU graduates are progressing in their careers and what other educational or professional opportunities they have obtained since graduating.

Question 1: The responds ranged in graduation dates from 1978 to 1998.

Question 2: Most respondents identified their program as OSM. Only a few were Business Administration graduates. It should be noted that most graduates graduated from programs similar to OSM but often had different names like Integrated Resource Management or Production Management. This reflects changes that the OSM program has undergone over time.

Question 3: The objective of question three was to see if students had some form of directed work experience like coops or internships. A majority (13 out of 17 or 76.5%) did have related work experience. The OSM program currently requires an internship but there are concerns whether there will be sufficient opportunities. As of Spring 2006, there are more internships/coops then there are students.

Questions 4 to 9 required specific information with limited or no common input. See Appendix F for details.

Question 10: This question seeks to gain insight into the need for computer skills and which programs are most used. Fifteen out of seventeen (88%) respondents indicated they do. On review of their comments, most respondents indicated that Enterprises Resource Planning systems like SAP are the most used. This can aide the program when developing future courses.

Question 11: The range of salaries varies from \$35,000 to over \$90,000, with seven out of seventeen (41%) indicating salaries over \$90,000.

Question 12: A majority (15 out of 17 or 88%) indicate they belong to a professional organization like APICS or NAPM. This result supports the continued effort to work with the FSU APICS RSO chapter. Increased awareness of the student group will be a priority given many of the program majors are not members currently.

Question 13 and 14 look at professional associations and additional education obtained by alumni. One common observation is also all experienced continue education which illustrates the need to educate our students to be lifelong learners.

Question 15: This question seeks to know which skills sets are currently most important in our past graduates. The skill sets are ranked in order of importance with ties indicated in Table 2A-1. Rank ordering assists in defining expected outcomes of the OSM program including adding or eliminating specific courses.

Table 2A-1. Rank Order of skills sets defined by Alumni.

Skill Sets	Rank order
Negotiation skills	1
Lean/JIT principles and tools	2 (tie)
Sourcing Decisions (product costing, make verse buy, single vs. multiple sources, etc.)	2 (tie)
Continuous Improvement Methods	4
Project Management	5
Planning and Scheduling	6 (tie)
Inventory Techniques (JIT, Kanban, Min/Max, ROP, etc.)	6 (tie)
Supplier Development: Relationship, evaluation, and cost management	8
Six Sigma Training	9
ERP systems and databases	10
Purchasing Policies and Regulations (RFQ. RFP, boiler plate requirements, etc.)	11
Quality/supplier Auditing	12 (tie)
Blue Print Reading capability	12 (tie)
Quality Control statistical Tools	14 (tie)
ISO (QS) 9000 Requirements (Baldrige)	14 (tie)
International Logistics Rules and Regulations	16
Transportation Policies and Regulations	17

Question 16: Additional Comments:

Question 17: This question attempts to see how FSU and the OSM program are viewed in the eyes of the respondents. The first four questions look at the program from the past while the last two questions seek to see if they would recommend changes. The last two questions are in

respond to the advisory boards recommended changes to integrate course work with the COT. The mean vales are based on a 1 to 5 Likert scale (5 = highest).

Table 2A-2. Assessment and evaluation by alumni.

	Mean
The academic advising was effective.	3.50
I would recommend the program to others.	4.06
The program prepared me for work.	3.88
The OSM degree/minor/ or related certificates is valuable in my career.	4.07
Would recommend the OSM program be changed to include other business courses.	3.69
Would recommend the program offer concentrations/minors from the College of Technology.	4.19

Of the questions in Table 2A-2, the lowest rating went to academic advising. Clearly advising, while not terrible, could be improved. Most respondents felt that the program prepared them for their careers and would recommend the program to others. The highest rated response was that alumni would recommend students take courses from the COT. Again this support past changes and promotes the movement toward integrating the OSM program with the COT.

B. Employer Survey

Obtaining surveys from business professionals was hampered by the fact that no mailing list was available. Both APICS and NAPM/ISM were contacted with both respectfully declining. A compromise was obtained with both organizations agreeing to allow the Program Advisor to conduct the survey at several Professional Dinner meeting which were held in Grand Rapids. Surveys were handed out from October 2005 until March 2006. The number of returned surveys was disappointing. A copy of this survey can be found in Appendix F.

Employer Survey Results:

Major external stakeholders to the program are the potential and actual employers. This survey was conducted at both the APICS and NAPM meetings. The survey was handed out during the meeting and was collected at the end of the night or was mailed in by the respondent. A total of 300 surveys were handed out with 20 responses, or 6.7% return. This was far less than expected. The survey instrument is provided in Appendix G.

The first questions asked respondents to rate business areas/skill sets most needed or valuable. These are generalized categories which should aid in the program changes. A Likert scale was as follow:

Likert Classification	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Num. value	1	2	3	4	5

This methodology was used to quantify the data and provide an easier means of analysis.

Table 2B-1. Rank order of general skills.

	Rank Order	Mean Values
Communication Skills	1	4.65
Business Ethics	2	4.40
Leadership	3 (tie)	4.05

Strategic Management	3 (tie)	4.05
Information Systems	5 (tie)	3.80
International Business	5 (tie)	3.80
Accounting	7	3.75
Internship or other Field experience	8	3.65
Finance	9	3.63
Economics	10	3.55
Quality Management/Engineering	11	3.50
Statistics	12	3.25
Human Resource Management	13	3.11
Marketing	14	3.10
Engineering	15	2.95

Combining the Alumni data from Table 2A-1 and 2B-1, Table 2B-2 allows side-by-side comparison of skill sets and their rank order. Table 2B-2 will be used to shape changes to the OSM program via course requirements and development.

Table 2B-2. Rank order of OSM student skills.

Skill Sets	Rank order Employer	Mean Employer	Rank order Alumni	Mean Alumni
Supplier Development: Relationship, evaluation, and cost management	1	4.45	8	3.88
Negotiation skills	2	4.35	1	4.63
Project Management	3 (tie)	4.25	5	4.13
Inventory Techniques (JIT, Kanban, Min/Max, ROP, etc.)	3 (tie)	4.25	6 (tie)	4.06
Lean/JIT principles and tools	5 (tie)	4.20	2 (tie)	4.31
Purchasing Policies and Regulations (RFQ, RFP, Terms & Conditions, etc.)	5 (tie)	4.20	11	3.47
Sourcing Decisions (product costing, make versus buy, single vs. multiple sources, global sources, etc.)	5 (tie)	4.20	2 (tie)	4.31
Continuous Improvement Methods	8	4.14	4	4.19
Planning and Scheduling	9	4.10	6 (tie)	4.06
International Logistics	10	3.85	16	3.13
ERP systems and databases	11	3.70	10	3.50
Transportation Policies and Regulations	12	3.65	17	3.06
Quality/supplier Auditing	13	3.50	12 (tie)	3.38
Blue Print Reading capability	14	3.45	12 (tie)	3.38
ISO (QS) 9000 Requirements (Baldrige)	15 (tie)	3.40	14 (tie)	3.25
Six Sigma Training	15 (tie)	3.40	19	3.69
Quality Control statistical Tools	17	3.30	14 (tie)	3.25

C. Graduate Exit Survey

The COB surveys all graduating seniors. However the data is not available by program. This is something that needs to be addressed in the future.

D. Student Survey

A survey was mailed to current students in the OSM program in February 2006. Given no responses by April, the survey was handed out to those students available. This also resulted in no returned surveys. The survey instrument is included in Appendix H. Names and mailing address for the 9 students was obtained from Ferris' Student Information System.

E. Faculty Survey

In Fall of 2005 a survey of 74 fulltime faculty in the College of Business was conducted. A copy of the survey was also set to Gary Ovans for distribution within the College of Technology. A copy of the instrument is included in Appendix J. A total of 26 completed surveys were returned for a response rate of 35.1%. Complete survey results are included in Appendix K.

Faculty Survey Results:

Question 1 is used to group the various faculty respondents into their respective departments. The goal was to allow within group and between group comparisons to questions 2 through 4. Both the College of Business and Technology were surveyed. Response rates were low for the COB and only one response was obtained from the COT.

Question 2:

The results from the survey of faculty and data are listed below in Table 2E-1. Question 2 consists of 7 parts which can be segmented into three groups of 2 questions each plus one single question/group. A Likert scale was as follows:

Likert Classification	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Numerical value	1	2	3	4	5

This methodology was used to quantify the data and provide an easier means of analysis.

The first two questions ask faculty whether they know of the OSM program. The results indicate, from Table 2E-1, that faculty are neutral with respect to how familiar they are with the OSM major and minor. Awareness seems to be an issue with the program.

Table 2E-1. Comparison of Mean Values by Department: Program Awareness

Group 1 a & b	Overall Score	CIS/Acct	Graduate	Management	Marketing	COT:Mfg
I am familiar with the OSM major.	3.14	2.857	4	3.111	4	5
I am familiar with the OSM minor.	3.03	2.857	4	2.778	2.875	5

The second group of questions focuses on whether faculty would recommend the program or encourage students to take the minor. The data from Table 2E-2 show that faculty are clearly negative (disagree) with respect to recommending the OSM program to students. More alarming is the fact that within the management department, 40% of the respondents strongly disagree with recommending the program major and more so the minor. This is a concern given the OSM program resides within the Management department. This may, in part, be due to enrollment or math concerns of the OSM program.

Table 2E-2. Comparison of Mean Values by Department: Faculty Recommendation of Program

Group 2 a & b	Overall Score	CIS/Acct	Graduate	Management	Marketing	COT:Mfg
I have recommended the OSM degree to students who are undecided or thinking of changing their major.	2.22	1.86	1	2.3	2.5	3
I have encouraged my advisees to get a minor in OSM.	2.15	2.14	1	2.2	2.13	3

The next question consists of only one question testing the faculty's familiarity with the RSO (FSU APICS) that is affiliated with the program. Again, the results show a lack of familiarity with either the program or student RSO. Table 2E-3 show respondents were neutral or disagree with knowledge of FSU's APICS chapter. This may be due to the fact that the RSO has not existed for many years and only recently reestablished itself.

Table 2E-3. Comparison of Mean Values by Department: RSO Awareness

Group 3	Overall Score	CIS/Acct	Graduate	Management	Marketing	COT:Mfg
I am familiar with the student chapter of the American Society of Operations Management (APICS)	2.964	2.714	3	3	3	4

The final group of questions looks at how faculty views the OSM program and its role or importance within the COB and university. Generally, Table 2E-4 indicate that the faculty view the OSM program as valuable to university and generally believe that most respect the program. While they have a positive view of the program with respect to the university, comparing Tables 2E-4 with 2E-2 may indicate a contradiction that may require additional study of faculty views and motivations. This might also assist in improving advising of student which was indicated by alumni as an issue (see Section 2 A).

Table 2E-4. Comparison of Mean Values by Department: Program Contribution

Group 4 a & b	Overall Score	CIS/Acct	Graduate	Management	Marketing	COT:Mfg
I generally believe the faculty respect the contributions of the OSM program to the COB.	3.619	3.286	4.5	4.1	3.85714	3
The OSM degree/minor is valuable to the COB.	3.762	4	4.5	4.2	4.125	5

Question 3:

Question 3 of the survey sought faculty input to seeing whether others within the university felt that the OSM program graduate was uniquely different from a Business Administration program graduate who minored in OSM. Appendix K puts the class offering of the two program side-by-side to aide the comparison. The results from faculty are they do agree (mean = 3.62, median = 4) there is a difference. It should be noted that many faculty did not answer this question due to confusion or inability to make the comparison. This last conclusion is based on comments make on the survey (see Appendix L).

Question 4:

Question 4 asks faculty view on whether the OSM program should change to allow minors from other programs. Currently the program has no such provisions. While specific minors were not listed, faculty input into program changes were sought. Minors from the College of Technology have been strongly recommended from the OSM's advisory board as well as from various businesses within Michigan. The results from faculty are they do agree (mean = 3.76, median = 4) that changes should be made to allow for minors. It should be noted that many faculty did not answer this question due to confusion or inability to make an assessment of which minors might be included. This last conclusion is based on comments make on the survey.

F. Advisory Committee Input

The most recent OSM program advisory board meeting was held in FLITE in September 2005. Minutes from the meeting are included in Appendix D. There was a general consensus that students need a broad base of skills with most wanting more technical orientated courses that promotes quantitative skills. The board was also surveyed using the employer survey (see Appendix G) with their results compiled on Appendix H (1). The results mirror that found in the survey conducted on business professionals at APICS and NAPM. The key recommendations from the board is to add substance and depth to the program. Specific course recommendation include a project management course, continued focus on internships, and possible closer integration with the College of Technology in the development of minors for COB students in Plastics, Rubber, and Quality Management to name a few. It was also recommended that course credit or an alignment of courses with the APICS certification would benefit students.

From the advisory board's survey of specific skills, their recommendations of primary skills include knowledge of lean operations (covered in MGFE 354, see Appendix A for course description). This was followed courses on continuous improvement (covered in MGMT420, MGFE 354 and STQM 311) and inventory management (partially covered in MGMT 370). Inventory management, while not a new topic, has limited coverage in COB and because of this MGMT 430: Supply and Materials Management was developed and approved in Winter semester 2006. This coming academic year a project management course will be developed by the newly hired faculty member.

The previous year's advisory board meeting included specific recommendations of adding a minor in OSM plus more technical core courses. Based on the boards recommendations, both the minor and program changes were approved and implemented. Marketing of the program's major and minor are still the paramount problem which has and will continue impacting enrollment numbers.

Section 3: Program Profile

A. Profile of Students

Of the 9 students enrolled in the program in the fall of 2005, 8 are full time with one part time. Currently 7 are males and 2 female students. The ethnic breakdown was as follows: 8 white and 1 black. All students are residence of Michigan with no foreign students in the OSM program. In addition, all students are enrolled in classes on-campus. No data is available regarding on-line or mixed delivery because this will vary by semester and course offerings.

In regards to the quality of students, Table 3A shows that ACT scores of OSM majors have increased consistently since 2003. As for GPA averages, they have fluctuated which may be due to the addition of more rigorous COT courses as recommended by me and later included into the program changes.

Table 3A: Operations & Supply Management Students (Majors)

Term	Enrollment	Avg. GPA	Min. GPA	Max. GPA	Avg. ACT	Min. ACT	Max. ACT
2003f	2	3.171	3.126	3.749	18	18	18
2004f	5	2.691	2.209	3.166	19.8	19	33
2005f	9	2.876	2.215	3.41	20.8	18	23

The increasing quality of the students in the program is likely due in part to the increased admission standards in the COB. It should be noted that the program's course requirements were changed and implemented in Fall 2005. How this will impact the program is still unknown. The only positive impact it has had is the students who graduated in May 2006 had more success in finding employment.

No data is available regarding average salary of OSM but from the Graduate Follow-up Survey Report for 2003-2004, 100% of graduates were employed.

B. Enrollment

Enrollment in the OSM major is provided in column 2 of the table above (Table 3A). The program has shown some growth but is well below my own personal goal of 15. Interest in the field and the program has tended to come from students being exposed during MGMT 370 course or from the RSO.

As for the minor, there has again been limited exposure. Currently only one student is in the minor and the student is from the College of Technology.

C. Program Capacity

Currently there are no caps placed on program enrollment. Should a time come that there are more students than can be handled (i.e. for special project classes (MGMT 420) or internships), then this will be addressed at such time. Currently there are more internships being offered to students than there are students willing to take them.

D. Retention and Graduation

As is the trend in many other programs, fewer students are graduating after four years in college as indicated in the data provided by the Institutional Research and Testing. To address this, when the program underwent the name and course requirement changes the credit hour requirements were reduced from 126/127 credit hours to 121/122 credit hours. The objective was to aid students in graduating from the program in four years while increasing program quality. However due to the large percentage of students who transfer in from other majors, many students still take five years to graduate. It should be noted that according to the Institutional Research and Testing data from 2003-2005, all students were transfers in from other programs and all graduated.

The OSM faculty seek to retain students in the program by building strong relationships with the students. It is through these relationships that over half the students decide to transfer into the program. Faculty are available to students outside of office hours and throughout the year.

From the Institutional Research and Testing data, there has been at 100% retention for the last several years. The reason for this may be that a majority of students transferring into the program are in their junior year. The only time retention was below 100% was back in 1998 when it fell to 67% (IRM program). As the program grows and now that freshmen are entering the program, it is expected that retention rates will change as market demand for students change.

All data provided by Institutional Research and Testing pertain to the various names of the OSM program and relate to the major. No data is available regarding the minor at this point in time.

E. Access

The OSM program strives to be accessible to the greatest number of students possible. In addition to the major, the program also offers a minor. Classes are offered in the summer and at several off-site locations including Traverse City, Grand Rapids, and Flint. The opportunity to offer field project classes like MGMT 420 may limit access due to the time when we have to be at the company. This is dictated by business/operating hours, especially management hours. Offering night courses to accommodate non-traditional students who desire to take classes after work is not likely to occur. The basic Operations Management class (MGMT 370) has been developed for online delivery since summer 2005 and aides both non-traditional students and those on internships. The placement of MGMT 420 on-line is practical but enrollment numbers may limit the possibility.

F. Curriculum

Admission Requirements:

Applicants must present evidence of graduation from high school or the GED. To enter a Bachelor of Science degree (B.S.) Program in Business, applicants are expected to meet two of the following: a minimum high school grade point average of 2.50 (on a 4.00 scale); ACT math score of 19 or higher; an ACT reading score of 19 or higher.

Graduation Requirements:

The OSM program at Ferris leads to a Bachelor of Science degree. Graduation requires a minimum 2.0 GPA in core classes, in the major and overall.

Requirements for the major and minor with course descriptions are included in Appendix A. Sample syllabi can be found in Appendix M. Input from the Advisory Committee discussed in Section 2 (F) will be reviewed and will likely result in changes to individual courses if not the program.

There have been significant revisions to the program since the last program review with the addition of the minor and reengineering of the OSM core courses. In addition, the program name was changed from Integrated Resource Management to its current name. The following includes some of the changes in the curriculum include

- introduction of an Inventory class (MGMT 430)
- recommended modification of an international course (Import/Export to International Logistics)
- adoption and modifications of MGMT420
- Internship requirement
- Addition of STQM 311: Continuous Improvement
- Addition of MFGE 354 and MFGE 422

In addition, there will be several recommendations for future changes that are cover in Section 5. This includes an additional course on international sourcing and more course integration with the COT and possibly Allied Health.

G. Quality of Instruction

The results of the student survey are not available because no surveys were submitted. In Appendix J is a letter from a graduating students which may provide some light on some of the activities the OSM faculty assist students in. Most students in the OSM program are very satisfied with the program. This is based on faculty interaction with students. It should be noted that this assessment is based on those students who participate in class activities and are active within the APICS RSO. Students feel the academic advising is effective because the faculty are available five days a week on campus. Current and recent graduates of the OSM believe the program is preparing them to work in the field and would recommend the program to others. Prior to 2003-2004, this was not the feedback from the students and Professor Lyman would concur with this assessment given the course requirements.

The results of the alumni survey (Appendix F) are encouraging. A common comment was they view the new program course offering as more “Robust” or has depth. Most respondents seemed to feel that the addition of lean principles is critical. While some recommend addition of other materials, like ERP/SAP programs, meeting those are not practical at this time

Program faculty participate in a large number of professional development activities including participating and presenting at national conferences, publishing papers in both research journal and Business magazines. The faculty regularly attend with students the APICS and NAPM monthly professional development meeting in Grand Rapids and northern Michigan. In addition, the faculty participating in Center for Teaching and Learning offerings such as WebCT training. For a complete list of faculty activities please refer to the faculty vita in Appendix C.

Students typically have a number of opportunities to interact with faculty, peers, and business professionals. Some examples include participation in the student chapter of the American Society of Operations Management (APICS) and National Association of Purchasing Managers

(NAPM). The student group participates in a number of activities, which range from attending monthly professional meetings with APICS and NAPM in Grand Rapids to participating in plant tours at such as: Ice Mountain, Mark Four, Hayworth, Yoplait, Steelcase, and Wolverine World Wide. In addition, the student chapter participates in an annual case competition held in Chicago each winter where they compete against 18 to 22 other universities. Feedback from participating students is they found it a great networking opportunity and learned from other students and business professionals attending.

Faculty development efforts increase the quality of teaching and learning in the program by insuring that faculty are current and active in the field. This helps to insure students are getting an education that is relevant for the current market. Such training and conferences can be seen in the vita in Appendix C. Another benefit of the plant tours mentioned above is not only do the students get the opportunity to see the latest technologies and process but this also reinforces materials taught in class.

H. Composition and Quality of Faculty

There is one faculty member in the OSM program, Dr. Steve Lyman. He is terminally qualified, non-tenured, associate professor. Dr. Lyman was promoted to the rank of associate professor in 2004. The professional activities of the program faculty can be found in his vita in Appendix C. In addition to the infield degree, Dr. Lyman maintains certification in his profession. Specifically, he has been recertified in both the National Association of Purchasing Managers (C.P.M.: certified purchasing manager) and Association of Operations Management (CPIM: certified production and inventory manager). In addition, he is trained in Six Sigma from Ice Mountain and is a Certified Lead One Auditor for ISO 9000.

The normal workload for program faculty is 12 credits (four three-credit classes) per semester or 24 credits per year plus an average of 9 credits during summer schedule. Program faculty do not currently teach overloads or receive release time for other activities.

In March 2006, another faculty member was recruited with a start date of August 2006. The process was conducted according to the guidelines established for all other faculty in the COB. The position was advertised, a search committee would be formed, the applicant pool was narrowed down through a review of the application materials and a phone interviews before bringing the top three finalists to campus for interviews. Candidates met with faculty, staff, administrators and students who would be asked to provide input to the search committee. The search committee then voted on the candidates and made a recommendation to the administration who then make the final decision and offer.

Typically candidates are expected to have a terminal degree in the field from an accredited university and appropriate industry experience. New faculty are required to participate in the year long CTL new faculty orientation program.

At this point graduate instruction is not applicable and there are two fulltime, non-tenure track faculty in the MBA program. In the winter of 2005, Bruce Cole taught one section of Quality and Operations Management (MGMT 370) on campus. He currently consults part time and holds an MBA degree, which meets the requirements for adjunct faculty. The program faculty feel this is an appropriate use of non-tenure-track adjunct faculty. Review of adjunct faculty on campus is conducted to ensure program integrity and consistency.

I. Service to Non-Majors

The program faculty do not provide any General Education service courses. However, an increasing number of students from other programs and colleges are pursuing specific courses in Operations Management. Specifically, MGMT 370 and MGMT 420 are being taken by COT students and a few from Allied Health. The number of students involved does not have a significant impact on the program. It is expected that this level of service at a minimum will continue and could increase as the classes or activities become more well-known on campus.

J. Degree Program Cost and Productivity Data

One unique attribute to the existing program as it stands today is there are no additional courses unique to the OSM program. MGMT 370 is a business core course and thus required of all business majors. All remaining courses within the OSM program have been adopted for the program and will exist with or without the OSM program. If the program grows, unique courses will be developed specific to this program per the recommendations of the advisory boards and other outside stakeholders.

The 2002-03 Degree Program Costs report shows the OSM degree is a slightly higher cost program. The total average cost per SCH for the OSM program is \$185.94. This compares favorably with the University average of \$211.68, the COB average of \$187.88, but is higher than the Management Department average of \$179.77. The higher cost may be attributed to the courses take from the COT and COB courses in STQM given that they tend to have smaller class sizes. The lone course, MGMT 370, consistently has 40 students per section (excluding on-line).

According to the Ferris Productivity Report Fall 1999 – Winter 2004 SCH/FTEF is a measure of productivity that gives the average number of student credit hours generated per fulltime equated faculty member. The report provides data at the university, college, department, and course prefix levels. Since OSM courses share the MGMT prefix, along with several other management programs, the data reported is for all courses that use the MGMT prefix. Table 3J-1 provides a comparison of the SCH/FTEF for the MGMT prefix courses, the Management department as a whole, the COB, and the university.

Table 3J-1 clearly shows that the MGMT prefix courses have consistently led the department, college, and university in terms of productivity since the 1999-00 academic year. The high productivity of the faculty, combined with the lack of need for special facilities/resources, indicates Operations and Supply Management is a very low investment program for Ferris.

Table 3J-1. SCH/FTEF Comparison from 1999-00 – 2003-04

	1999-00	2000-01	2001-02	2002-03	2003-04
MGMT Prefix	576.25	572.94	621.30	579.66	658.13
Management Dept.	493.59	541.48	580.76	504.51	559.82
College of Business	485.89	497.97	490.67	475.89	522.16
University	454.53	451.32	446.69	439.43	454.22

Specific to the OSM program, data from Institutional Research and Testing, they report the SCH's for the program over the last three years. As Table 3D shows, the SCH's are on the rise which is directly tied to the number of full time students.

Table 3J-2. Comparison of Student Credit Hours (SCH)

SCH's	Fall 2003	Fall 2004	Fall 2005
Freshmen	0	13	25
Sophomore	0	6	28
Junior	0	15	6
Senior	24	28	61
Total	24	64	120

K. Assessment and Evaluation

Data that is used in assessing the effectiveness of the program includes SAI results, Advisory Board input, and alumni, employer, student, and faculty surveys. A summary of SAI results for all classes taught by Steve Lyman since the Summer 2002 are included in Appendix B.

Unfortunately, there are no published averages for the department, college, or university with which to compare. The input from the Advisory Board is detailed in the advisory board meeting minutes found in Appendix D and is discussed elsewhere in this report. The same is true for the alumni, employer, student, and faculty surveys, which are found in Appendix F, H, J, and L, respectively. There are also no independent benchmark standards or student assessment available. This shows a flaw in evaluating and improving programs. It is hoped that this may change by the next program review cycle. With the adoption of new goals specific to the program, it is hoped that program improvements will be ongoing and supported with data.

L. Administration Effectiveness

The administration has been very supportive of the OSM program. When there are needs, the administration does everything possible to see they are met. Clerical support for the program consists of the Management Department Secretary, with occasional assistance from other department secretaries, and a recently hired part time worker. The clerical staff do all they possibly can to provide assistance to all COB faculty.

The program is run in an efficient manner. There is no conflicts given there is one faculty member in the program. With the addition of another faculty member in Fall 2006, workloads and assignments should not be a problem. Class and teaching schedules, while limited in the past, will be developed cooperatively and be available five days a week.

Section 4: Facilities and Equipment

A. Instructional Environment

The OSM program is housed in the College of Business and all classes in the major are taught in the COB building. Overall the classrooms and faculty offices are more than sufficient for the OSM program. Classes are often scheduled in BUS 211 due to the size of each MGMT 370 section which is usually 40 plus. The only problem that has arisen is when faculty require equipment for off-campus courses or activates. Faculty often require and requests the management department's mini projector due to compact size. The projector has on several occasions not been returned on a timely basis causing those who have reserved it to search for alternative resources. This is most troubling given time constraints and travel restrictions faculty must deal with for off-campus courses. My personal recommendation would be to have all the departments within the COB acquire the equipment so that department faculty have equipment available. As for the new updated rooms within the COB, while I have not had an opportunity to use or teach in one of the rooms, they clearly are an improvement and valuable to the COB. I look forward to having my classroom updated.

B. Computer Access and Availability

All classrooms are equipped with a computer with necessary software and a hook-up to a projector, VCR, and standard overhead projector. Faculty offices and computers are more than adequate and provide students with an effective advising environment. With the development and delivery of on-line classes the training and assistance provided regarding WebCT has been superior.

C. Other Instructional Technology

At the present time no other instructional technology is being used and none is needed. As the program progresses and given the recommendation of Alumni, Employers and Advisory Board, additional software systems will be needed to provide students with simulation business environments.

D. Library Resources

The print, electronic, and other resources available through FLITE are adequate for the program. The service and instruction provided by the COB reference librarian, Materials such as DVD's, video tapes, and assorted books have been obtained whenever needed. To date there have been no problems with the budget allocation for the program provided by FLITE.

Section 5: Conclusions

A. Relationship to FSU Mission

The mission of Ferris is to “be a national leader in providing opportunities for innovative teaching and learning in career-oriented, technological, and professional education.” The mission of the COB is: “We in the College of Business are committed to academic excellence, ethical conduct, and a learner-centered environment characterized by quality teaching, outcomes assessment, and continuous improvement. Our students will take pride in their developed competencies and the distinctiveness of the College’s programs. We will be noted for being responsive to changes in workforce needs; building/maintaining good relationships with employers; preparing our students to excel in a global environment; and providing high-quality interns and graduates who meet and exceed employer expectations, deal effectively with change, and are committed to lifelong learning.”

The OSM program provides an excellent fit with the mission of the university and the COB by giving students an education based on the current needs of employers in the workplace. The skills students develop will help them obtain employment in Supply Chain Management or other entry-level management positions upon graduation. OSM faculty must insure that the program remains current. To this end the advisory board meetings should be held on an annual basis along with regular interaction with the business community.

B. Program Visibility and Distinctiveness

While the visibility of the program has increased over the last few years, program faculty need to continue to build the reputation of the program and publicize the successes of the students and the faculty. As relationships with area businesses are developed through special projects as described in Section 1(B), both the students and businesses will see the benefits. Few undergraduate programs offer such opportunities to observe, analyze, and recommend business solutions using the tools developed within this program. With such courses, combine with internships (or cooperatives) and the repeated exposure to business professionals at organizational business meetings, should provided a unique educational experience. The goal of the OSM program is to continue to develop, expand upon, and promote outside field experiences, business networking opportunities, and relationships for students and local employers that will eventually distinguish the OSM program from other COB programs.

C. Program Value

As discussed in Section 1(D) the program is valuable to the COB, University, students, community, and employers. It is part of a well-rounded offering of business programs, a view that is supported by the results of the faculty survey discussed in Section 2(E). The moderate cost of the program means that it is contributing to the financial health of the university while it also promotes course collaboration between the COB and COT. In addition to providing another program major, it also offers students from the COT an option for a minor. As discussed in Section 2(A) alumni overwhelmingly feel the program is valuable in their careers and would recommend the program to others. The business community has already benefited from the projects discussed in Section 1(B). While students benefit from the projects they also benefit from the internships developed by the faculty through the relationships that flourish at the APICS and NAPM professional organizational meeting.

D. Enrollment

As noted earlier enrollment in the major appears to have been increasing slowly over the last several years but remains problematic. While the program changes in the major and introduction of a minor are still relatively new, the enrollment numbers are encouraging. In the winter 2005 semester 9 students represent the OSM program. This breaks down to 8 majoring in OSM with one student in the minor. Additional recruiting at various Dawg Days plus the additional of a web site are the future undertakings planned for the coming year. Given the lack of awareness of the field of operation and/or supply management, seeking to communicate to students entering the business school is necessary, especially to freshmen. Communicating the minor to students and faculty within both the COB and COT is also imperative. The key will be to interact with both groups and to publicize the minor, as well as the program.

E. Characteristics, Quality and Employability of Students

As discussed in Section 3(A), the FSU GPA and ACT scores of students majoring in OSM decline and has risen this last year. Additional time will be needed to see if there is a true improvement trend. Also, there is no data giving placement rates, during this last year (winter 2006) 2 out of 3 students had positions prior to graduating. Based on knowledge of recent graduates from previous years, some are still having difficulty landing their preferred opportunity within the state of Michigan. It should also be noted that most of the students in the program are from Michigan and wish to remain. Those students seeking positions out-of-state are finding greater opportunities and higher rates of compensation. Again, additional data will be needed to verify this trend. To make our graduates even more attractive to employers we need to encourage all students to pursue multiple internships thus gaining relevant experiences.

F. Quality of Curriculum and Instruction

As discussed in Section 3(F) the curriculum is typical of most OSM program, but has the added technical component from the COT. Based on input from the advisory board covered in Section 2(F) and the employer survey covered in Section 2(B), there will likely be changes in the program. The following list recommended OSM program changes and additions:

- Addition of a Project Management Course (3 credits)
- Addition of Supply and Materials Management (3 credits)
- Negotiations (3 credits, note that this will depend on the faculty teaching the course and what they will focus on)
- Global Sourcing (3 credits, course has yet to be modified from the International Program)
- Advancing Planning and Control (3 credits, will require software system)
- Foreign language requirement. The general education program need to be more flexible so that students can take 3 to 5 courses in a language without increasing total credits required to graduate. This is a trend that is coming!

The following list includes some reductions that ensure the program does not exceed 121 credits:

- Human Recourse Management (3 credits)
- Data Base Development (3 credits)
- Electives (6 credits)

Additional changes that are coming in the next several years include the adoption of minors from related programs within the COT. The OSM and Business Administration program faculty (Sherri Bell and myself) have been meeting with the COT to find minors that COB students

could consider. The objective of these meetings is to have COB students take minors in COT, review requirement to limit total credits to 18, and to encourage COT students take business courses. The OSM advisory board has been recommending the integration of the OSM program with COT. Similar integration has recently been undertaken at Oakland University which was encouraged and supported by the business community. This is a growing trend and should benefit both colleges. With the addition of minors from the various COT programs, this will require reengineering the OSM program.

G. Composition and Quality of the Faculty

As noted in Section 3(F) there are only one faculty member in the program. Recent recruiting of another member will greatly enhance and diversify the program. Other faculty members have provided assistance by teaching courses to allow me to offer special classes that are offered only on an annual basis. The new faculty will only improve the quality of the program and adds needed depth and diversity. The new faculty member will be a complement to the existing faculty resulting in program synergies. In addition to teaching, advising, and working with students on a daily basis, I have been involved in service to the department, college, and university, and various professional development activities. The close relationship with professional organizations and the students is a major strength of the program. This is most evident in the development of internship and project opportunities (see Section 1(B)).

H. Input from the Department Chair, William Boras

The OSM program is viable and getting better. The cooperative initiative that incorporates COT concentrations/minors in the OSM major is value added for students and fulfills advisory board expectations. The composition of the OSM program utilizing an array of cross discipline COB courses minimizes program cost. With the refocused model, OSM program enrollment will increase. Perhaps the greatest strength of the OSM program is two relatively recent OSM additions to the faculty. These individuals are in touch with industry needs both philosophically and technically. We are just beginning to realize the vision and possibilities for this program and our students. The future is bright for this program.

Appendices

Appendix A – Checksheets: Major, minor, and certificate

Required Courses for OSM Major

Ferris State University-College of Business Operations & Supply Management – 121/122 Credits

Required		Course Title – Prerequisites Shown in Brackets ()	S.H.	Grade	Gr. Pts.
Communication Competence – 12 Credits Required					
COMM	105 121	COMM 105 Interpersonal Comm. OR COMM 121 Fundamentals of Public Speaking	3		
ENGL	150	English I	3		
ENGL	250	ENGL 250 English II (ENGL 150 or equivalent)	3		
ENGL	311 325	ENGL 311 Advanced Technical Writing OR ENGL 325 Advanced Writing for Business (ENGL211/250)	3		
Scientific Understanding – 7-8 Credits Required Select two courses from the following subject areas (one must be a lab course): ASTR, BIOL, CHEM, GEOG 111, GEOG 121, GEOL, PHSC, PHYS					
		Scientific Understanding Elective (PHSC, PHYS, CHEM Recommended)	4		
		Scientific Understanding Elective (PHSC, PHYS, CHEM Recommended)	3-4		
Quantitative Skills – 3 Credits Required					
MATH	115 116	MATH 115 Intermediate Algebra OR MATH 116 Intermediate Algebra & Num Trig (MATH 110) if MATH ACT score is 24 or higher, substitute a free elective.	3-4		
Cultural Enrichment – 9 Credits Required Complete the courses listed below and select one course from the following subject areas. (One 200 level or above): ARCH 244, ARTH, ARTS, COMM 231, ENGL 322, FREN, GERM, HIST, HUMN, LITR, MUSI, SPAN, THTR.					
		Cultural Enrichment	3		
		Cultural Enrichment	3		
		Cultural Enrichment Elective Global Consciousness (HIST Recommended)	3		
Social Awareness – 9 Credits Required					
ECON	221	Principles of Economics 1 (Math 110 or Proficiency)	3		
ECON	222	Principles of Economics 2 (ECON 221)	3		
		Social Awareness 300+ (PLSC Recommended)	3		
General Education Electives – 9 Credits Required					
		If needed MATH110 may be used as a free elective	3		
			3		
			3		

Students who return to the university after an interrupted enrollment (not including summer semester) must normally meet the requirements of the curriculum which are in effect at the time of their return, not the requirements which were in effect when they were originally admitted.

Ferris State University – College of Business

Operations & Supply Management Major

Required		Course Title-Prerequisites Shown in Brackets	S.H.	Grade	Gr. Pts.
0					
Operations & Supply Management Major – 36 Credits Required					
ACCT	205	Managerial Accounting (ACCT 202)		3	
INTB	320	International Logistics (INTB 310 or permission of professor)		3	
ISYS	200	Database Design & Implementation (ISYS 105 or course competency)		3	
MFGE	322	Production Processes		3	
MFGE	351	Introduction to Industrial Engineering		3	
MFGE	354	Lean Manufacturing: Concepts and Practices		3	
MGMT	302	Organizational Behavior(MGMT301) OR		3	
MGMT	373	Human Resource Management (MGMT301)		3	
MGMT	491	Cooperative Education		3	
MKTG	466	Purchasing (MKG321)		3	
MKTG	472	Supply Chain Management (MGMT370)		3	
MGMT	420	Small Business Consulting OR		3	
STQM	311	Continuous Improvement Tools and Techniques		3	
STQM	351	Quality Control for Management (STQM260)		3	
Business Core – 30 Credits Required					
ACCT	201	Principles of Accounting 1 (MATH110 with a grade of C- or better)		3	
ACCT	202	Principles of Accounting 2 (ACCT201 with a grade of C- or better)		3	
BLAW	321	Legal Environment of Business		3	
FINC	322	Financial Management 1 (ACCT 202, MATH 115)		3	
ISYS	321	Business Information Systems		3	
MGMT	301	Applied Management (Junior standing or permission of professor)		3	
MGMT	370	Quality/Operations Management (STQM 260)		3	
BUSN	499	Interdisciplinary Integrating Experience (FINC 322, ISYS 321, MGMT 301 & 370 & BLAW 321 OR 301)		3	
MKTG	321	Principles of Marketing (ECON 221)		3	
STQM	260	Introduction to Statistics (MATH 115)		3	
Additional – 6 Credits Required					
Free Elective				3	
Free Elective				3	

Note: A 2.00 cumulative GPA is required for completion of the Operations & Supply Management degree.

Course Description:

COMM105 INTERPERSONAL COMMUNICATION

Face-to-face communication and how it affects interpersonal relationships. Topics include perception, self-concept; listening, and conflict management.

COMM121 FUNDAMENTALS OF PUBLIC SPEAKING

Training and experience in preparation and delivery of short speeches with emphasis on the clear, concise, logical communication of ideas. Emphasis will be placed on informative and persuasive speaking.

ENGL150 ENGLISH 1

Organize and develop papers for diverse audiences and purposes; including how to discover and focus on a topic, develop ideas, gather support, and draft and revise papers effectively. Fundamental language skills and introduction to library research and argumentation.

ENGL250 ENGLISH 2

The second of a two course sequence. Focuses on research. Students will learn how to use the library resources to produce a longer documented paper, how to evaluate conflicting claims and evidence to write an extended argument, and how to write papers based on primary research. Stresses problem solving and reasoning skills, but also includes grammatical structure, diction, and style appropriate to professional writing situations.

ENGL311 ADVANCED TECHNICAL WRITING

An advanced course designed to train the student as a technical communicator. The student is taught to present technical concepts, facts, data analysis and evaluation to both a scientific or technical audience. Included are skills in editing, organization, and development of technical articles for publication, abstracting, proposals, memorandum reports, project/progress reports, technical descriptions, professional and technical letters, and the protocols of formal research reporting.

ENGL325 ADVANCED BUSINESS WRITING

Continues skills begun in ENGLISH 2, with focus on typical types of problems and documents used in Business. Emphasis on audience and rhetorical analysis, working with multiple documents, primary and secondary research skills, and completion of a major analytical report.

MATH115 INTERMEDIATE ALGEBRA

A study of complex fractions, first and second degree equations and inequalities, exponents, radicals, and introduction to complex numbers, logarithms, and systems of equations.

MATH116 INTERMEDIATE ALGEBRA & NUM TRIG

Special factoring forms, exponents, roots and radicals, scientific notation, fractions, first and second degree equations and inequalities, functions and graphs, logarithms, and solutions of logarithmic and exponential equations, systems of equations up to 3x3 and Cramer's Rule, numerical trigonometry including vectors, Law of Sines and Cosines, and graphs of trigonometric

ECON221 PRIN OF MACROECONOMICS

Scope and meaning of economic principles basic to a free market economy. Equilibrium price formation and the efficiency of resource allocation in a market economy. National income accounting; determination of equilibrium national income, recession, and expansion. Government policy toward economic fluctuation; unemployment and inflation. The role of money and banking in recession and inflation. This course meets General Education requirement: Social Awareness, Social Foundations.

ECON222 PRIN OF MICROECONOMICS

Markets and equilibrium price formation. The theory of consumer demand, price elasticity of demand, productivity and the firm's costs of production. Market structure, price and output determination. Market

structure, resource allocation, and economic efficiency. Resource demand, supply and pricing. The functional distribution of income. This course meets General Education requirements: Social Awareness, Social Foundation.

ACCT205 **MANAGERIAL ACCOUNTING**

Designed for non-accounting majors who need or desire an understanding of how financial information is used in management decision making. Emphasis is on the uses of accounting data rather than its preparation. Not open to accounting majors.

INTB320 **INTERNATIONAL LOGISTICS**

Concepts and elements involved in international business in general and of commerce in particular, standard organizations within private business and government for conducting and controlling exports and imports and transportation and banking procedures for facilitating those procedures.

ISYS200 **DATABASE DESIGN AND IMPLEMENTAT**

Introduces database concepts, design methodologies, and implementation procedures. Stresses the importance of sound database design to insure data integrity and flexibility. Common data structures, normalization techniques, integrity constraints, security features, query and report facilities are discussed. One or more popular commercial database management systems will be used to implement the designs.

MFGE322 **PRODUCTION PROCESSES**

A survey course covering production machining, metal casting, powder metallurgy, bulk deformation, pressworking, and non-traditional machining.

MFGE351 **INTRO TO INDUSTRIAL ENGINEERING**

Basic principles and techniques for work design and evaluation, and the fundamentals of developing manufacturing cost in industry. A brief history of motion and time study, work methods design, work measurement techniques, and basic cost estimating techniques used to arrive at manufacturing cost for piece parts and assemblies.

MFGE354 **LEAN MANUFACTURING**

This course is designed to familiarize the manufacturing student with the concepts and practices of lean manufacturing as currently applied in industry, and develop in them rudimentary skill in applying those principles, with the overall goal of enabling them to reduce waste in the workplace. Topics include push vs. pull systems, kanban, continuous flow production, take time, SMED, TPM, TQM, TOC, 5S, poka yoke, and kaizen. Plant tours (if available) will help illustrate applications of concepts.

MGMT302 **ORGANIZATIONAL BEHAVIOR**

Fundamentals of individual and group behavior in organizational settings and the processes and skills essential for the success of individuals as members of contemporary organizations; the changing makeup of organizations with increases in the numbers of women, minorities in the work place, and diverse backgrounds that made up the changing work place and how the manager must deal with these cultural differences.

MGMT373 **HUMAN RESOURCE MANAGEMENT**

Covers the objectives, functions, and organization of personnel programs; discusses such topics as selection training and development, job analysis, wage and salary administration, performance appraisal, disciplinary systems, employee safety and health, and the collective bargaining process.

MGMT 420 **SMALL BUSINESS CONSULTING**

Students participate in the Small Business Institute assisting entrepreneurs and small business owners in solving business problems. Assignments involve a wide array of business problems including marketing, cost analysis, organization, facilities planning, product line, profitability, and business start-up. Students are assigned to a business based on their academic pursuits and areas of interest. A comprehensive report and presentation of student recommendations are provided to the business owner. This course

can be taken multiple times for credit. Practicum Hours: 1 credit hour granted for each 45 hours of consulting.

MGMT491 **COOPERATIVE EDUCATION**

Work experience with cooperating employer organizations in business, industry, government, and education. The work experience is designed to be relevant to the students' academic pursuits, personal development, and professional preparation.

MKTG466 **PURCHASING**

Purchasing functions and procedures; organization and operation of the purchasing department, selecting and managing sources of supply, control of quality, inventory, delivery, legal aspects of purchasing, contracts, international procurement, understanding the role of the buyer within the firm.

MKTG472 **SUPPLY CHAIN MANAGEMENT**

Introduction to logistics management as a process of value added activities that synchronize supply and demand. Extensive review and analysis of transportation and physical distribution issues including channel management. Additional topics include warehousing operations, packaging and regulatory laws.

STQM311 **CONTINUOUS IMPROVEMENT TOOLS**

Basic statistical tools necessary for successful implementation of a Total Quality Management (TQM) system. Topics include: continuous improvement; process improvement tools; group and team tools; and other topics distinctive to TQM, including: organizational mission and vision statements, HOSHIN planning, quality function deployment, P-D-C-A cycle, and benchmarking. Also, practical applications in team settings on real problems in manufacturing, health engineering, and education.

STQM351 **QUALITY CONTROL FOR MANAGEMENT**

An introduction to modern quality control techniques, with emphasis on Juran, Deming, and Japanese enhancements. In-depth coverage of quality costs, basic statistical tools, control charts and process capability, with use of quality control software.

ACCT201 **PRINCIPLES OF ACCOUNTING 1**

Introduction to accounting principles with an external reporting emphasis on the preparation and use of financial statements. Includes recording and adjusting accounts, the accounting cycle, accounting for merchandising operations, internal control and cash, receivables, inventories, assets, liabilities, corporate organization, stock transactions, dividends, and retained earnings and investments.

ACCT202 **PRINCIPLES OF ACCOUNTING 2**

Continuation of ACCT 201. Introduction to management decisions in reliance on systems that provide historical and projected data to guide present and future operations. Includes managerial accounting, job-order costing, process costing, cost behavior, cost-volume-profit relationship, variable costing, activity based costing, profit planning, standard costing, flexible budgets, segment reporting, profitability analysis and decentralization, capital budgeting, service department costing, statements of cash flows and financial statement analysis.

BLAW301 **LEGAL ENVIRONMENT OF BUSINESS**

Develops an understanding of the interaction between law and business through a survey of public and private law. Emphasis on understanding business regulation in the areas of competition, labor law, securities regulation, consumer protection, and environmental law. A brief overview of contracts and business organizations is included along with a review of the court system and the constitutional rights of business.

FINC322 **FINANCIAL MANAGEMENT 1**

The environment, goals, and techniques of financial management; emphasizes both investment and financing decisions; incorporates control techniques including ratio analysis, budgeting, and forecasting;

includes time value of money, bond and stock values, the use of operating and financial leverage, capital budgeting techniques, cost of capital, and basic information concerning international financial management.

ISYS321

BUSINESS INFORMATION SYS

Introduction to strategic information systems functions. Provides an integrating experience that enables a student to demonstrate the capacity to synthesize and apply knowledge from an organizational perspective. Included are the uses of information technology to grow, expand, and efficiently and profitably manage an organization. Of particular focus are the interrelationships between information systems. An interdisciplinary team project(s) is required.

MGMT301

APPLIED MANAGEMENT

A description and analysis of business activities designed to manage an organization to efficiently serve employees, customers, and the community. Topics studied include planning, organizing, leading, and controlling; the business environment, business institutions, government regulations, organizational structure, human resources, human behavior, and current practices. Designed to meet the needs of graduates and employers in the global economy.

MGMT370

QUALITY/OPERATIONS MGMT

The philosophy of continuous quality improvement, basic process improvement tools, basic management and planning tools, teaming, and models for improvement. Maximizing customer service and satisfaction, optimizing inventory investment, and maximizing operations efficiency. Principles of operations management; dependent and independent demand, forecasting; work measurement; work standards. Practical application of these techniques (in team settings) on a variety of business-related problems will enhance the ability to carry out the operations aspect of a business.

BUSN499

INTEGRATING EXPERIENCE

Introduces the basics of business strategy and policy and moves to use of a computer simulation with students functioning in multidisciplinary teams. The teams have the challenge of developing and executing a strategy that involves production operations, procurement, distribution and marketing, pricing, research and development, employment levels and compensation, financing the operations, and other aspects of a business competing in a global environment.

MKTG321

PRINCIPLES OF MARKETING

Introduction to the basic functions of marketing. Included as topics of study are: consumer behavior, marketing research, marketing planning, physical distribution, selling, promotion, retailing, pricing, wholesaling, purchasing, international marketing, and e-commerce.

STQM260

INTRO TO STATISTICS

Practical aspects of sampling, data presentation, measures of central tendency and dispersion, basic probability theory, the normal probability distribution, the sampling distribution of sample means and sample proportions, confidence intervals and hypothesis tests for one-sample designs, simple linear regression and correlation.

Required Courses for OSM Minor

NAME: _____ **SS#:** _____ **MAJOR:** _____

REQUIRED		COURSE TITLE - PREREQUISITES SHOWN IN BRACKETS ()	S.H.	GRADE
18 Credits Required				
MFGE	351	Introduction to Industrial Engineering (None)	3	
MFGE	354	Lean Manufacturing: Concepts and Practices (Jr. status)	3	
MGMT	370	Quality/Operations Management (STQM 260)	3	
MKTG	466	Purchasing (MKTG 321 or instructor approval)	3	
MKTG	472	Supply Chain Management (MKTG 321)	3	
STQM	351	Quality Control for Management (STQM 260)	3	
PROCEDURES				

1. The completed minor checksheet will be forwarded to the Management Department Head for approval. The approved checksheet will then be forwarded to Student Records in the College of Business.
2. Grades of the completed courses for this minor will be posted on the student's checksheet.
3. Upon completion of the Operations & Supply Management minor, the student will notify the Graduation Secretary in the College of Business, BUS 200. Upon verification that the student has completed the minor requirements, the Dean's Office will then notify the Registrar who will note completion of the minor on the student's official transcript.
4. No more than 50% of the credits in this minor may be transferred from another institution, nor, will this minor be granted if more than 6 of the minor credits are specifically required in the students major.

NOTICE REGARDING WITHDRAWAL, RE-ADMISSION AND INTERRUPTION OF STUDIES
Students who return to the university after an interrupted enrollment (not including summer semester) must normally meet the requirements of the curriculum which are in effect at the time of their return, not the requirements which were in effect when they were originally admitted.

NOTE: A 2.00 GPA is required for completion of the Operations & Supply Management minor.

Student: _____

Date: _____

Operations/Supply Advisor: _____

Date: _____

Management Dept. Head: _____

Date: _____

Appendix B – Faculty SAI Summaries

Results from the Student Assessment Instruments (SAI) indicate a grand mean average of 4.0 out of 5.0. The table listed below shows performance by semester for the courses taught.

Table 1. Summary of Student Assessment of Instruction by Class and Semester: Overall values for Steve Lyman

	MGMT 301	MGMT 302	MGMT 371	MGMT 371	MGMT 370	MGMT 370	BUSN 499	Semester Average
Fall-02	4.1		3.7					3.9
Winter-03			4.2	3.9				4.05
Summer-03		4.6	4.2					4.4
Fall-03					4.2	4.0		4.1
Winter-04					3.7	4.1		3.9
Summer-04					4.2	3.9		4.15
Fall-04					4.2	4.0		4.1
Winter-05					4.0	4.0		4.0
Summer-05					4.0	4.1	4.4	4.17

Appendix C – Faculty Vita: COB format

Name: Steven B. Lyman

Rank: Associate Professor

Tenure Status: Third year of tenure track

Teaching Experience:

Ferris State University, Management Department
May 2002 to Current

Eastern Michigan University, Interdisciplinary Technology (Industrial Distribution)
August 1999 to May 2002

Middle Tennessee State University, Management and Marketing Department,
January 1, 1994 to August 18, 1995

Michigan State University, Eli Broad Graduate School of Management,
August 1987 to December 1993

Educational Background:

Doctor of Philosophy: Michigan State University
Major: Operations Management, Minor Supply Chain Management

Master of Science: Michigan State University

Bachelor of Science: Michigan State University

Prior Experience not in Education:

TRW Commercial Steering Division, Portland, Michigan
Purchasing & Materials Manager, August 1995 – August 1999

General Motors Corporation, Lansing, Michigan
Material Handling Engineer, March 1982 - July 1988

Chivas Products Limited, Sterling Heights, MI.
Assistant Plant Manager & Materials Controller, March 1979 – March 1982

Motor Wheel Corporation, Lansing MI
Quality Control Engineer and Inspector, Summer 1976, 77, & 78

Professional Membership:

American Production and Inventory Control Society (APICS), CPIM Certified
National Association of Purchasing Management (NAPM), C.P.M. Certified
American Society of Quality (ASQ), CQA Certified,

Registered ISO 9000 Lead Auditor
Decision Sciences Institute
The Society for Case Research

Professional Meeting Attended:

2004-2005

Attended the 2nd Annual Midwest Supply Chain Management Conference held at Steelcase University on March 23rd, 2005. Took 5 students to the all day conference.

Professional Development Meeting (PDM) for Grand Rapids APICS Chapter, 2003-2005.

- Attended 8 meetings and brought an average of 4FSU students to the meetings in 2004-2005.

Started attending Professional Development Meeting (PDM) for Grand Rapids NAPM Chapter, 2004-2005.

- Attended 5 meetings and brought an average of 3FSU students to the meetings in 2004-2005.

Professional Development Meeting (PDM) for Grand Rapids APICS Chapter, 2003-2004.
Attended 8 meetings and brought an average of 5 FSU students to the meetings.

2003-2004

Attended the 1st Annual Midwest Supply Chain Management Conference held at Steelcase University on April 28th, 2004. Took 6 students to the all day conference.

Professional Development Meeting (PDM) for Grand Rapids APICS Chapter, 2003-2004.
Attended 10 meetings and brought an average of 9 FSU students to the meetings.

Attended the Region 14 meeting at Chicago from February 6th to 8th, 2004. Had 6 students attend the case competition during the meeting.

2002-2003

Lansing Chapter of APICS from 9/2002 to 5/2003. Attended the monthly meetings of both the PDM's and Board of Direct planning meetings. .

Papers Presented:

2004-2005

Lyman, S.B., Taylor, D., and D. Jackson, "VMI at Airmaster", Annual case writers workshop for the Society of Case Research, Rockhurst University, Kansas City, MO, July 17-19th, 2004

Pre-2002

Lyman, S.B., "Learning to Use Simulation in a Manufacturing Plant: A Case Study."
Proceeding: Thirty First Annual Decision Sciences Institute Meeting, Las Vegas, NV, April 2002

Lyman, S.B., "Value Stream Mapping, A New Technique for Process Charting."
Proceeding: Thirty First Annual Decision Sciences Institute Meeting, Las Vegas, NV, April 2002

Lyman, S.B., "Moving Beyond Flow Charting to Value Stream Mapping, Adopting New Tools for the Classroom", Proceeding: Thirty Second Annual Institute Meeting, San Francisco, CA Nov., 2002.

Lyman, S.B. and Yee, S., "Using Simulation to Model Library Operations: A Case", Proceeding: Twenty Sixth Annual Midwest Decision Sciences Institute Meeting, Dearborn, MI April 26-April 28, 2001.

Lyman, S.B. and Hatch, M., "Use of Simulation To Evaluate Changes in a Manufacturing Plant: A Case Study," Proceeding: Thirty First Annual Decision Sciences Institute Meeting, Orlando, Florida, Nov. 18-21, 2000.

Lyman, S.B. and Hatch, M., "Changing a Companies Environmental Conditions to Support Lean Manufacturing: A Case Study.", Proceeding: Twenty Fifth Annual Midwest Decision Sciences Institute Meeting, Chicago, IL March 31- April 1, 2000, pp 118-121.

Lyman, S.B. and Tan, K.C., "The Analysis of Stochastic Tool Life Distributions on Dispatching Procedures", 39th Mountain Plains Management Conference, Grand Junction, CO, pp. 78-93, October 2-4, 1997.

Lyman, S.B. and Kannan, V.J., "A Comparison of Scheduling Heuristics in a Dual Resource Constraint Job Shop with Stochastic Tool Life", Proceeding: Twenty Fifth Annual Southeast Decision Sciences Institute Meeting, Wilmington, North Carolina, Feb. 23-25, 1995.

Lyman, S.B. "An Analysis of a Dual Resource Constraint Job Shop with a Stochastic Tool Life Constraint," Proceeding: Twenty Fifth Annual Decision Sciences Institute Meeting, Honolulu, Hawaii, Nov. 20-22, 1994.

Melnyk, S. and Lyman, S.B., "Tool Management and Control: Developing an Integrated "Top Down" Control Process", Proceeding: Thirty Sixth International Conference of the American Production and Inventory Control Society, San Antonio, TX, Oct. 10-15, 1993, pp. 510-514.

Lyman, S.B. and Melnyk, S., "An Analysis of Finite Tool Life and Scheduling Heuristics in a Dual Resource Constraint Job Shop", Proceeding: Twenty Fourth Annual Midwest Decision Sciences Institute, Lansing, Michigan, April 6-8, 1993, pp. 174-176.

Lyman, S.B., "A Comparison of Family and Job Based Priority Schemes in Group Scheduling", Proceeding: Twenty Third Annual Decision Sciences Institute Meeting, San Francisco, California, November 22-24, 1992.

Kannan, V.J. and Lyman, S.B., "An Analysis of the Effects of Lot Splitting in Group Scheduling." Proceeding: Twenty Third Annual Midwest Decision Sciences Institute, Kansas City, Missouri, May 1992. Awarded the best student paper of the conference.

Lyman S.B. and Melnyk, S., "Analysis of Varying Labor Efficiency and Capability in a Dual-Constrained Job Shop: A Simulation Experiment", Proceeding: Twenty-Second Annual Midwest Decision Sciences Institute, Indianapolis, Indiana, May 1-3, 1991, pp. 291-294.

Lyman, S.B., "Plastic Returnable/Reusable Containers in the Automotive Industry: A Case Study." Council of Logistics Management, Conference Proceedings, Oct. 1988, Volume II, pp. 195-206.

Publications:

2002-2003

Lyman, S.B., "Supplier Classification Systems", Inside Supply Management, Vol. 14, No. 7, pp. 10-11, July 2003.

Lyman, S.B., "How the Distributor Fits into Lean." APICS – The Performance Advantage, Vol. 12, No. 8, p. 20 September 2002.

Lyman, S.B., Jackson, D., & Taylor, D.K., "Making SMI a Cost-Effective Initiative", Inside Supply Management, Vol. 13, No. 8, p. 18, August 2002.

Lyman, S.B., Jackson, D., & Taylor, D.K., "SMI for the Little Guy", Inside Supply Management, Vol. 13, No. 7, p. 24, July 2002.

Pre-2002

Tan, K.C., Lyman, S.B., and Wisner, J.D., "Supply Chain Management : A Strategic Perspective," International Journal of Operations & Production Management, Vol. 22, No. 6, pp. 614-631, April 2002.

Lyman, S.B. and Dajalos, R.C., "Slaying the Stockout Monster." APICS – The Performance Advantage, Vol. 11, No. 7, July 2001, p. 12.

Lyman, S.B. and Dajalos, R.C., "The Stockout Syndrome." APICS – The Performance Advantage, Vol. 11, No. 6, June 2001, p. 25.

Lyman, S.B., "Nothing Runs Like A Deere", National Association of Purchasing Management 2001 Case Book.

Lyman, S.B., Tan, K.C., and Wisner, J.D., "The Impact of Stochastic Tool Life on Shop Performance: A Simulation Study." Simulation, Vol. 74, No. 4, pp 207-218, 2000.

Lyman, S.B. and Kannan, V.J., "The Impact of Transfer Batching on Family Based Scheduling in a Job Shop Manufacturing Cell." International Journal of Production Research, Vol. 32, No. 12, pp 2777-2794, 1994.

Other Research Activities:

2004-2005

Airmaster Fan Company. A case study submitted 10/1/2003 to case research conference. See above on presentations.

Supply Chain Management Strategies, Regional Perspectives. Paper in draft format.

Consulting: None

Professional Growth Activities:

2004-2005

Training in Inventory Methods and Cycle Counting at a one day seminar, Grand Rapids, September 13, 2005.

Attended two separate training seminars for WebCT and online teaching conducted in June and August 2005 (summer semester). Kim Carlson, Bill Knapp and Randy Vance conducted the course to aid the development of full online and mix-mode delivery. Topics covered include extensive review of how to conduct on-line treaded discussion, proper syllabus, quizzes and other mechanics of on-line teaching.

Attended on-line web cast training seminar with the FSU Purchasing Group regarding Governmental and Educational Institution application of Reverse Auctions.

Participated in a five week training seminar for academic advising held at FSU during the winter semester, 2005.

Attended a 30 hour training seminar on Six Sigma at Ice Mountain Plant conducted by Jose Pires in December 2004. Also assisted in setting up training for faculty and students at Ice Mountain that included Sharon Bell, Brenda McCarthy, Nate Tymes, Mike Cooper, Carol Rewers and Megan Lawe.

2002-2003

Trained in Value Steam Mapping at the 2 day seminar in Detroit, September 28-29th, 2004. The material taught will be used this winter semester in MGMT 420, small business consulting.

Attended the New Faculty Training seminars conducted by Terry Doyle held weekly for both fall and winter semesters.

Received training in WebCT from July to August, 2002 .

Seminars, Training Programs, conducted for Business and Industry:

Training Program for Tubelite, Inc. of Reed City in February, 2003.

Instructor for APICS Certification Modules through BCI (Lansing Community College).

Professional Presentations, Speeches:

2004-2005

Lyman, S.B., Taylor, D., and D. Jackson, "VMI at Airmaster", Annual case writers workshop for the Society of Case Research, Rockhurst University, Kansas City, MO, July 17-19th, 2004

Presented the topic: "Capstone Model: Learning Community for Continuous Improvement", at the 4th Annual North Lilly Conference on College Teaching, September 25th, 2004

2002-2003

Presenting the topics: "The Theory and Reality of Supplier Development", at the joint meeting of the Saginaw Chapters of National Association of Purchasing Managers and APICS in November 12th, 2002 (see attached e-mail).

Institutional Service Performed:

2004-2005

Developed and conducted the advisory board meeting for the Operations and Supply Management Program on September 30th, 2005. Had 7 participating companies in attendance plus 5 faculty from both the COB and COT.

Served as management faculty representative for the Off-campus (Macomb Campus) Faculty Search Committee during Summer Semester, 2005.

Served as Co-Chair of the Faculty Search Committee during Winter Semester, 2005.

Developed and obtained department approval for MGMT 430: Inventory and Supply Management to enhance Operations and Supply Management Program.

Modified the MGMT 420: Small Business Consulting, which included two student project teams. Team One processed mapped raw material flow through Wolverines Central Stores while Team 2 processed mapped the Salesman samples from manufacturing to central stores to final shipment.

Modified the Operations and Supply management Program to coincide with recommendations of program advisory recommendations. This required attending departmental meetings at the College of Technology to aid selection of classes for the OSM program. Also recommend the development of minors for business students. All changes have been approved by Senate.

2003-2004

Developed and have obtained approval through the University for the Minor in Operations and Supply Management, April 2004.

Modified the MKTG 472 to include two projects for the students. One team went to Wolverine Worldwide to study material flow and logistical costs. The second team went to Haworth (Big Rapids Components) and work on inventory placement and calculating Kandan requirements for a new product launch.

Member of the faculty team for the rollout of the College of Business Capstone Simulation held in winter semester, 2003 (see letter in attachment B) for BUSN 499. Improved the fact pack used by students to aid their ability to analyze and make decisions.

Changed MGMT 370 to reflect requirements and skill sets necessary for BUSN 499. Have modified MGMT 370 for the Hospitality and Golf Management programs so that the students will focus on service operations.

Developed and conducted the advisory board meeting for the Operations and Supply Management Program on June 4th, 2004. Had 10 participating companies in attendance. First time held since 1999.

Developed and have obtained approval through the University for the Minor in Operations and Supply Management, April 2004.

Team leader of the faculty team for the College of Business Capstone Simulation held in winter semester, 2004.

Organized four plant tours for students and APICS member to: Ice Mountain, Hayworth (Big Rapids), Wolverine Worldwide, and Mark Four Automotive.

2002-2003

Member of the faculty team for the rollout of the College of Business Capstone Simulation held in winter semester, 2003.

Faculty Advisor from 9/2002 to current for FSU APICS student chapter. Organized two fund raising seminars. The first was held on November 16th, 2002 covering the Basics of Supply Chain Management. The speaker was Dan Braun, V.P. of Region 14 and Materials Manager for National Nail in Grand Rapids. The second seminar was held on April 9th, 2003 and covers Benchmarking Issues and was presented by Dan Braun.

Operations and Supply Management program Chair since September 2002. Chairing Program review for the 2005-2006 calendar year.

Obtained name change from Integrated Resource Management to Operations and Supply Management on 24th of February, 2003.

Assisted in the FSU Dawg Days held at the College of Business on April 19th, 2003.

Helped setup for the PBO day on September 10th, 2003. Also assisted with Student Information at the FSU APICS Table.

Recognition and Honors:

Promoted to Associate Professor beginning Fall 2004.

Recertified C.P.M. with ISM/NAPM summer 2004.

Recertified CPIM with APICS winter 2004.

Nominated by the Student-Athlete Advisory Committee, 2005

Awarded Outstanding RSO Campus Advisor, 2003

Certifications: (APICS), CPIM Certified, (NAPM), C.P.M. Certified, (ASQ), CQA Certified

Professionally Related Community Activities:

Case reviewer for the Society for Case Research for annual workshop, since 2004.

Reviewer for Mid-West Decision Sciences Annual Meetings, since 2002.

Date of Current Vita Submission: 10/18/2005

Operations and Supply Management

APRC 2006-2007

Section 2 of 2

Appendix D – Advisory Board Meeting Minutes

Operations & Supply Management Advisory Committee Meeting

September 30, 2005

Present: Sheri Bell, Jill Braendle, Dan Braun, Glenn Cathey, Laura Dix, John Drzik, Philip Hughes, Steve LaBarge, Steve Lyman, David Nicol, Gary Ovans, Bill Smith, and Tom Zahrt.

The meeting was started at 12:15 p.m. with lunch.

Introductions & Thanks

Steve thanked everyone for coming and asked them to introduce themselves.

Program Overview

Steve explained the changes he completed in the program using suggestions from the last advisory meeting. He added more beef (engineering courses) versus the electives. The core can't be changed and general education is a university requirement, so he changed the major and the minor. The minor is close to the major for students who need a minor but not a new major.

Enrollment

The current enrollment is nine students. Most are in the early stages. Once both the major change and the new minor are on the website, there should be more student interest. He wondered if he needs to do something different, more interesting.

Program Review

Every program at the university is on a five year cycle for program review. Steve explained the process to the committee.

The Dean explained that the program review looks at competencies, what should students have and how can we measure this for improvement? The COB really needs this done for accreditation purposes.

The Dean told members that they are our external voice. We need information now for both the administrative program review done yearly and academic program reviews done every five years. He asked for their input.

Steve encouraged members to mention anything that jumps out at them. Also, if there is something more that needs to be added. He wants input on the major and minor.

Surveys

Steve explained the employer surveys enclosed in the packets and asked for input on them. He needs to know the skills a business student needs for this area. Steve LaBarge thought that Steve needs to quiz the students to find more interest in the program. Most students have never heard of it. Steve explained that marketing and marketability is a problem. He will survey the students. But he isn't sure how to get the word out about the program even to the students on campus.

Recruiting

Tom Zahrt thinks that we need to do a better job with recruiting and advertising because students don't know the program exists. He would hire a person with an operations bachelors first.

Jill Braendle believes that Steve needs to tie the program to something tangible for students – what direction will it put me in.

Dan Braun thinks that educating the students is important, but people have to wear different tasks for different businesses. You have to take young adults and teach them. He could work with either a Business Administration or Operations person.

John Drzik thinks that TRW would hire our operations students.

The Dean mentioned that with the skills the students get in the major our students are very valuable.

Purchasing, planning and operations are all in the same area.

Steve doesn't see students until their jr/sr year. How can he get the word out about his program? He knows we need more push, but.... He explained that the COB is going to hire another operations person this year and that will help.

Also, the new minor hasn't started filling up yet, it isn't well known.

Phil Hughes mentioned that students don't know what the program is unless a parent has worked in the industry or taught it. He thought we should look at what Western does to promote their program.

Tom Zahrt thinks we need to survey our past students about what course helped them the most. Businesses define competencies needed for positions.

The Dean asked Tom to share with Steve his competencies. They need to be the same, and then look at measurements for a company. He thinks they need to grow interest in the whole university. He admitted that we aren't giving the programs the help they need.

Phil asked about the different majors and how we promote them.

Sheri Bell explained the BUSN 122 – Introduction to Business, a class made up of mostly freshman. She speaks to each of the students in the class as to what they want. She can only touch on each area with the time she has. She does welcome visitors to speak to the students.

Dan Braun believes that the freshman are the ones we need to concentrate on. Many students change their minds after getting to college. They are looking for an area to fit into. The COB needs to assist these students so they find their area.

The Dean explained that many of our faculty aren't sure about operations and what it is themselves.

Steve invites people into the classroom to speak to the students. Companies look at the students skills. Steve can tell the students the same thing that a speaker does, but when he says it, they look at him like he is speaking strange words. Students are given a lot of program material to look over. He tries to push the COB programs to the students, but not all are interested. He asked if he should visit Sheri's classes.

Dan Braun tells that he hated math, but now uses it all the time. He thinks Steve needs to talk to kids. He agrees that the speakers are good; the students need the real world experience. He believes the challenges in this curriculum are fun and students need to know about it.

Program Changes

Steve explained the changes he put forth since the last meeting. He removed the electives from the old program, an internship was added.

Gary Ovens from the College of Technology suggested getting a company behind our program. Also, math is really algebra, more statistics and trig are needed, not calculus.

Dan Braun believes that algebra is needed. Sometimes less electives are good, tell them what to take.

Tom Zahrt suggested pushing the minor for Business Administration students. It helps those grads to have a focus in their area.

Steve instructs students to have a direction. He had a bank look for Japanese speaking students, many businesses have special needs.

Laura explained the new tracks in the marketing degree. This way, there are several specialty areas to choose from. She wondered if this wasn't something we should do with Business Administration. Students like it.

The Dean explained that CIS is doing this also. Our challenge is to serve the student. Is total number of credits important or having a direction? Internships are only required in 25% of our programs. We have 400-500 internship positions available, and only 40 students do one. By requiring them, students will benefit despite themselves.

Steve is surveying the current students about what they feel the differences in the programs are. Skill sets are questions asked on the surveys. He changed the survey after input from Institutional Research.

Faculty would have to push the minor and an internship is required in the minor.

Glenn Cathey mentioned that it was his involvement with APICS that pushed him in towards operations with Business Administration.

Gary Ovens added that the end user needs to give us this information. Are their tangible rewards for this curriculum?

Steve is trying to figure out the important things. He wants to survey 300-400 companies. This will help him decide what to do in the end. One of the things the review board asks is how we make our decisions in regards to the curriculum.

Jill Braendle thinks that Steve should go after the Business Administration students with the Operations Minor.

Steve mentioned that the old program was called Integrated Resource Management. Student knowledge wasn't there. Steve changed the name and that hasn't generated much more interest. Maybe if we focus on the minor the major will grow.

Dan Braun thinks the minor would be sufficient. He focused on the major himself. Maybe two different tracks, a multitude of opportunities. This way it could be tailor made for each student.

But, he would hire Business Administration students and push them through. He can direct them which way to go if the student knows his stuff, he can learn any new job. He can apply what he learned anywhere, because he has a little of everything in the core.

Phil Hughes thinks that it is better than a broad degree.

Tom Zahrt asked for the differences in Business Administration with the Operations Minor and the Operations & Supply Management program. He wondered how flexible we could be. He thinks more statistics might be better than international business.

Steve made the direct comparison, which tells him he needs clarity in his survey.

Jill Braeldle thinks he needs to add logistics to the minor. She believes that students give up about three classes to do the Business Administration degree with the Operations Minor, rather than the Operations & Supply Management major that we should just add an internship and logistics to the minor.

Steve explained the resent change in the International Logistics class from the old Import/Export as to why he didn't place it in the minor when he developed it.

Tom Zahrt hired all of the students that did internships at his company.

Steve asks students all the time how many want to do internships and most don't. Also, the Management Faculty aren't crazy about them and getting them through the department might not be easy.

Dan Braun played student advocate – students don't want to search, how many people would do it? It is the fear factor for students. We need to convince the students of the importance of an internship.

The Dean explained that is why they need internships required. Students assume it will work out. Internships are great opportunities for our students. Most that do internships get positions. He explained how his internship was when he did it.

Dan Braun explained what he does with interns. People are surprised to see students get paid. He uses it to see what the person is like. It is a form of a job interview. He finds students through APICS.

The Dean explained that almost all of our internships are paid. Employers need to invest in the students and they will get something in exchange. Pay should be enough so students can support themselves. PGM has five internships in a four and a half year program. He wants all programs to require an internship in their area. Do students know the expectations, some students do it on their own. We like students on the same page with us. There are students and faculty who don't like the level of learning experience – this is a continuous improvement thing.

Employer Survey

Steve asked members to look at the employer surveys, are they clear. What is wrong, anything you think would help to clarify.

Goals and Objectives for Program Review

We have a student chapter in APICS, there is some interest in the purchasing area. Steve wants to give credit for an APICS certification. He thought about developing a minor or major with that in it.

Dan Braun thinks that CSCMP, any of these ways might work. Some colleges give credit for APICS certification. It also may be who is teaching the class and pushing it. CPIM is also a hiring thing. It doesn't matter who teaches it as long as they can be certified. He could talk to them and they will understand. They would know the process instead of doing it.

Phil Hughes agrees with Dan, APICS has a new certification which would be good. He did mention not to use the newest ones.

Dan thinks that it would give students a foot up to have the certification.

Steve believes that math is important, but not as much as problem solving. Certification will show that students can problem solve, build teams, and see if they are a leader. These aren't industry specific, their interviews weed them out. A professional certification is a good way.

The Dean said it is consistent with the COB needing to measure. To be able to say you completed the competencies. He thinks the certification would be important also.

Steve went to an APICS convention. He thinks he needs more depth in his program, maybe down the road add the certification. Student awareness is a hot issue right now.

Students love to have speakers come in rather than field trips. Special presentations are great.

Dan Braun thinks that APICS is a foot in the door, students are getting jobs through APICS.

Laura and Steve are thinking about getting a group of students and speakers to talk to the students about that area. Laura explains that speakers make it real, students believe them easily. It is tough to get speakers from the area, people in industry are busy.

Steve LaBarge thinks that most companies have a stewardship thing, speaking to students is important. He would love to come and speak, it is a priority for most companies.

Dan Braun also said he or his boss would be glad to speak to students.

Meeting adjourned at 3:00 pm.

Operations & Supply Management Advisory Committee Meeting

June 4, 2004

Present: Perry Abbs, Jill Braendle, Glenn Cathey, Jim Dehlinger, Philip Hughes, Megan Lawe, Steve Lyman, Wendy Michalski, David Nicol, Bill Smith, Brian Smith, Drew Swymeler, and Mike Suman.

The meeting was started at 12:10 p.m. with lunch.

Introductions

Steve thanked members for attending and explained what he is looking for. The first thing he did after coming here was to change the name to Operations & Supply Management. Now, he wants to know what we can do better and if he should be teaching everything new he sees in the plants.

Dave Nicol introduced himself and also thanked members for attending as well as giving us their opinions. He believes that our challenge is to keep up with a changing environment. Education isn't like it was 10-20 years ago. It is important for us to grow. One of the most important aspects is getting internships for our students. Students gain in a variety of ways, but internships more importantly give them a reality of what they want to do. This type of arrangement could be beneficial for both sides. It shows students why we do what we do in the classroom.

He used the example of PGM, it was the first program like it in the nation. The students in that program do five internships. Also, it shows students what they will be doing or what they may not want to do.

Another area that the College of Business is starting to work on is outcomes. What are we really trying to do and are we there? What will the students gain from their courses? These are just a couple of reasons why we need outcomes.

Members were asked to introduce themselves.

Program Overview

There are 5 to 7 students in the program right now, a non-critical mass. If we make changes to the program, it may increase enrollment. We want to marry up with engineering.

Recruiting

The APICS Group may help with recruiting. A group of students is taken each week to the APICS Meetings in Grand Rapids.

Perry Abbs mentioned that we need to inform students, both on line and through our brochures where they will be working if they choose that degree. We don't have it on the internet or on our brochures.

Steve explained PBO day – students selling to student's works. Students don't always want to talk to the old guy. Steve explained that he uses a lot of speakers and students listen differently for speakers.

Members suggested that Steve use this same method for recruiting, let other students talk about the program.

One of the problems is that the Operations Program isn't pre-sold like accounting or marketing.

Members were asked if they had any other recommendations on recruiting. Several of the members mentioned that the COB needs to get together with technology, they are known for their injection molding, they think we need to pull from Technology for this area. The feelings were that Business and Technology need to work together, going both ways. It was also felt that we need a person at the top who pushes the program.

Steve explained that he had been talking to Technology and they think our students couldn't do their classes. They don't think our students have enough Math.

Brian Smith works for Whirlpool and from their perspective, they recruit students from MSU, Michigan, and Arizona because they mix technology and business. He feels that we need to do this to get more companies looking at our graduates.

Dean Nicol mentioned that technology hasn't had a real leader for 9 or 10 years and this could have an effect on their willingness to work with us. Collaboration is important. We need to build on this and enhancing what technology has while helping the COB to grow. We will take your comments to heart.

Jim Dehlinger asked what our goal for enrollment is. Steve would like to double it within four years and try to double it again every 3 or 4 years.

New Minor

Steve just developed a minor in Operations and Supply Management and it is approved. The hope is that this will be a good way to get students interested and help the program to grow. We also have certificates in Logistics and Manufacturing.

The students think the minor is a good idea because many students don't want to change their major, but would like to study in another area.

Steve gets students late, many are seniors and there isn't much flexibility. This is why the minor will work. He would like to get something in place and work on it.

The Dean added that with 7 to 15 majors – we have to have at least 15 in a class to run it. We are working on section management.

As it is right now, Steve teaches four sections of MGMT 370-Quality/Operations Management. All business students take it and also, many technology students take it. Steve modified the course for service related curriculums like PGM so it isn't just manufacturing.

Jill Braendle believes that top performers or managers have a bachelor's degree in engineering with a MBA which marries the two together. She thinks the minor could work with a strong engineering background.

Bill Smith explained that the technology programs were so full, that most students don't have the time or flexibility to add a minor. Maybe Steve adding the manufacturing classes will help this problem.

Phil Hughes thinks we need to sell this minor to the students, how will this make them more employable. Students don't understand how important this field is. Even a minor would make them more marketable.

Jim Dehlinger mentioned that the technical side is important, but in his classes he sees students who can do the technical side, but not the business side. Students don't understand cash flow. He also thinks that human resources needs to be in the minor. An engineering or technical student needs HR. It was explained that HR is part of all of our majors.

The programs like this in other universities have a variety of specific courses to take. What is our scope and where do we want to be. We don't have enough of the courses needed.

Brian Smith thinks we have to start somewhere, and getting students in the program as seniors could work. He didn't get into the major until his senior year. He thinks we need to tell the students what they can do with this degree. Other colleges have a strong knowledge base. The broad knowledge base will help to push this to technical students.

The dean believes that FSU does an excellent job with students who can hit the ground running. This minor could make you an assistant manager. It would make a better degree.

Other members thought that we can't lose with the technical designators in the minor and to build on it. The minor with any curriculum will make them strong. Additional strengths will help students move ahead.

Steve asked them if we are better offering a minor or a major. He doesn't know what we can do yet. The department is looking at changing Business Administration to do some things.

Brian Smith thinks that we have an internal struggle going after the students. FSU is one institution, our students shouldn't be either technical or business strong, should be both. You need to build this and use it. We want FSU students to be the best in the country.

The dean believes that academia is very structured. Stepping away from the major might break down walls. A minor enhances employability. We can go back and make changes. Brian's comments may bring direction.

Jim Dehlinger suggested that a cost accounting class is important; it is in the major, but not the minor.

Steve thinks it could be added to the minor as a choice. He also explained the differences between the purchasing class of quality control, operations class has a lot of tools for students to learn. They spend a couple of chapters on quality.

Steve thinks that by making the suggested changes, the minor would support the programs both at Business as well as Technology.

Perry Abbs thinks the minor is more in support of the College of Technology, which would make it better. He thinks we need to push technology since that is what FSU is known for. He feels that it needs to be broad based and to make sure students are aware of it when they encounter it..

Steve thinks by making those changes it can support both colleges.

The Dean thinks we need both ways for a minor, two tracks, either business or technology. He would like the students to make the choice depending on what their major is.

Mike Suman has a different perspective, this curriculum is good. He thinks the operations degree is much more viable for his company. He thinks that if students are too structured it is harder for them to find employment. He also believes the minor would be great for technology students.

Steve will modify the minor or add another track. He will also add international logistics for quality control.

Improvements

Steve asked if there are any changes in what we are doing that members would recommend.

Mike Suman believes that we need more global added. With outsourcing and protection getting so big, global is important.

Steve plans on adding International Logistics to the curriculum. He would also like students to take a whole year of math.

Drew Swymeler believes students need to understand how and where things are coming from. It is advantageous to know how to complete forms.

Brian Smith mentioned that if there was an opportunity, students should learn a second language. It is important to better prepare students. English speaking people are a minority.

Megan Lawe a COB student said she wouldn't take a curriculum with a language in it, many students don't like them.

Mike Suman thinks a major class in international business might work in place of the language, although he thinks language is important.

Bill Smith mentioned that the alumni surveys think a language is important.

Drew Swymeler thought that a history of modern far-east was a very helpful class for him in college.

Dean Nicol added that the COB is committed to adding a multicultural class to the core.

Perry Abbs asked about a contracts class, he feels that is important. The COB core has a Contracts and Sales course in it.

Wendy Michalski – student asked if there was an APICS Certification class that would get the students certified.

Steve would love to move in that direction, he has already talked to the APICS people about it.

Mike Suman suggested that we get outlines for the technology course we might use. He wondered about overlap. He also thinks that lean manufacturing is important from the custodian right up to the president and a company would be in trouble if they didn't understand this.

Bill Smith brought up that certain terms need to be mentioned in class because the textbooks don't have them.

Operations Major

The old program had a lot of directed electives in it. Steve lowered the credits because if you had a higher number of credits in a program at Eastern, it scared students away. They want to know what degree gets them done faster.

Steve – Many of the COB programs don't have co-op. Students say they don't want them. Speakers that have visited the classrooms really push for internships. A cooperative education class was added to the proposed checksheets for a number of reasons. The advisory committee and the Dean both thought it needed to be required. Even if it is just for three credit hours.

The Dean explained that coop's are determined via jobs and what kind of an education concept they will get out of it. There is a contract up front that has to be signed by the student, employer and dept. head. Students have outcomes and have to do weekly reports. The employer is expected to do evaluations on the students. When doing an internship, students have to do all the same steps as looking for a job. It really is a learning experience.

Mike Suman thinks that more on-line classes would help the students. That way, students can do a course or two while on internships. Also, if a student doesn't do an internship, make sure they know to look for a summer job that is worth while. Something they can use in the future, not a pizza delivery job.

Drew Swymeler mentioned that all of the engineers at Haworth had to have internships.

Steve explained that he taught a Supply Chain Management class last winter. He organized the class with two teams and projects with two different factories. He did it this way because one out of seventeen students didn't have an internship. This gave application experience to students so they could help sell themselves. It was an experiment and was do-able. Value Stream Mapping is a technique that could be used for MGMT 472; members think it is a good idea also. Students hear about it, but Steve wants depth.

Mike Suman suggested seeing if Six Sigma Academy in Arizona would come here and do training for students. He also wondered if ISYS 200 was something that students would use. He feels that they need to be masters at global web, maybe ISYS 321. He also mentioned a seminar that he took that was very helpful, "How to use Google 5 Different Ways". It was a three day class that was great for all. They need to know how to use the internet 24-7.

Jill Braendle thinks that students need more computer training besides ISYS 200.

Megan Lawe a present student wants a choice of possible of computer classes. She also wants to find an advisor that knows about which classes are useful. She believes variety will entice more students.

Steve will talk to the computer people prior to submitting the changes in the fall. Another change Steve is proposing for the program is dropping Organizational Behavior. This class was originally designed for line managers. He added Blue Print Reading, but the Manufacturing Dept, doesn't think our students can do it. Which leads to another question, do our students have enough math? Production processes were added to his operations class. It was talked about, but not a full picture. He feels that our students need more. Also, purchasing changes need to be considered. INTB-320-International Logistics is being added to the program. He will also look into certifications to teach.

Drew Swymeler believes that from an engineering standpoint, if you don't know how to procure, how can you do it. From a math standpoint, Algebra and trig are all that is needed.

Brian Smith feels that students should know both sides of purchasing. What is a company trying to achieve. Purchasing shouldn't be in marketing, oil and water don't mix. Students need both sides of purchasing. We are limiting our market the way it is now.

Steve explained that the purchasing class is used in many other curriculums and that is what it was designed this way. It wasn't developed for the operations major.

Glenn Cathey wondered if eliminating Organizational Behavior was the right idea. Steve thinks it is being covered – but he isn't sure.

Program Affiliations

Next fall, Steve plans to work more with NAPM/ISM. The purchasing teacher is a member, it is a bigger group. This could mean more internship possibilities. Steve regularly takes 10 or so students to APICS Meetings.

Students have a web page. Brian Smith thinks we should hook the resume books to internships.

Industry Feedback

Johnson Controls won't hire a person if they haven't had an internship. It was suggested we look at two student resumes, one with an internship and one without. Students aren't aware that they need internships, they think a job without will work.

Drew Swymeler mentioned that students need internships because it puts them ahead of the others. Especially with so many selections.

Megan Lawe thinks that we should show students in the FSUS 100 class the difference in having an internship or not and how it looks on a resume.

Mike Suman thinks we need to do some marketing to leadership of companies – he mentioned that Susan Jones could help. We need to make it easy for a company to hire interns.

Jim Dehlinger thinks we need to change our brochures because they make it look like internships aren't necessary.

The students mentioned that a political science class would work well in social awareness instead of choices.

Steve also takes the students on plant tours. They give students a good feel for that line of work, as well as helping to sell the programs. He has been to both Wolverine and Haworth in Big Rapids. He also took students to an APICS Conference Competition. He would like to host an APICS Meeting here at Ferris.

Steve asked for suggestions or thoughts on future Advisory Meetings. The consensus was spring, mid May to June meeting in Big Rapids with golf. He told members he appreciated all of the suggestions and will try and incorporate them into the program.

Mike Suman mentioned that Steve is doing a good job, his efforts are showing. Down the road, we will have a product worth having.

Meeting adjourned at 3:30pm.

Appendix E – Alumni Survey Instrument

**Ferris State University
College of Business
Operations and Supply Management (OSM) Program Review
Formerly Know as Integrated Resources Management
Alumni Survey**

1. When did you graduate? _____
2. Which of the following did you obtain?
Bachelor degree in Business Administration _____
Bachelor degree in Operations & Supply Management _____
Certificate(s) Obtained, please list: _____
3. Did you participate in an internship or gain other experience when you were in school?
Yes _____ No _____
If yes, where was it? _____
4. What positions have you held since graduation? _____

5. How did you obtain your first position? _____

6. Current employer: _____
7. What is your job title? _____
8. What are your job duties? _____

9. How long have you held your current position? _____
10. Do you use any computer software programs in your job? Yes _____ No _____
If yes, which ones? _____

11. Current salary? Under \$20,000 _____ \$20,000-\$29,999 _____ \$30,000-\$39,999 _____
\$40,000-\$49,999 _____ \$50,000-\$59,999 _____ \$60,000-\$69,999 _____
\$70,000-\$79,999 _____ \$80,000-\$89,999 _____ \$90,000 or more _____
12. Do you belong to any Professional Society (i.e. American Society of Operations Management (APICS) or Institute of Supply Management (ISM/NAPM))?
Yes _____ No _____

If yes, which organization or chapter? _____

13. Please identify any other professional organizations to which you belong. _____

14. Please list any additional or continuing education/training that you have obtained since you completed your undergraduate degree and feel should be in the current program.

15. How would you evaluate the importance of each of the following OSM functions for someone in your position?

	Extremely Low Value	Low Value	Neutral	High Value	Extremely High Value
Planning and Scheduling					
ERP systems and databases					
Quality Control statistical Tools					
ISO (QS) 9000 Requirements (Baldrige)					
Quality/supplier Auditing					
Six Sigma Training					
Continuous Improvement Methods					
Lean/JIT principles and tools					
Project Management					
Supplier Development: Relationship, evaluation, and cost management					
Inventory Techniques (JIT, Kanban, Min/Max, ROP, etc.)					
Purchasing Policies and Regulations (RFQ, RFP, boiler plate requirements, etc.)					
Blue Print Reading capability					
Negotiation skills					
Sourcing Decisions (product costing, make verse buy, single vs. multiple sources, etc.)					
Transportation Policies and Regulations					
International Logistics Rules and Regulations					

16. Please comment on your specific duties regarding any of the above. _____

17. Please rate your level of agreement with each of the following statements.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

The academic advising was effective.					
I would recommend the program to others.					
The program prepared me for work.					
The OSM degree/minor/ or related certificates is valuable in my career.					
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Would recommend the OSM program be changed to include other business courses.					
Would recommend the program offer concentrations/minors from the College of Technology.					

18. Please comment on any specific recommendations regarding any of the above questions.

COMMENTS

19. Please provide any comments or suggestions about the OSM undergraduate/minor you received from Ferris State University.

Thank you for your time and assistance!

Appendix F – Alumni Survey Results

Ferris State University - College of Business Operations and Supply Management (OSM) Program Review Formerly known as Integrated Resources Management

Alumni Survey

2c. Certificate(s) Obtained, please list:

No comment = 11

- = MBA from GVSU
- = B.S. Production Mgt
- = A.A.S. Technical Drafting & Tool Design
- = BS – Ops Mgt.; AAS Plastics (MBA & CMO)
- = Bachelors in Production Mgt
- = CPIM, Lean Mfg, Six Sigma

3b. If yes, where was it?

No comment = 13

- = Coop @ Cascade Engineering
- =TheTech, Inc
- = Prince Corp (now JCI)
- = Donnelly Corp (Grand Haven)

4. What positions have you held since graduation?

No comment = 0

- = 1. Plastics Process Tech, 2. Engineering Tech II, 3. Engineering Mechanical Design (ACAD), consultant/contract, 4. CAD Designer – Special Machines, 5. Manufacturing Engineer, 6. Industrial Engineer.
- = Quality Manager, Production Mgr., Operations Director, Director of Brand Management, General Manager.
- = MGT Trainee Admin. Assistant, Plant Manager, VP Operations, COO, President.
- = Variation/Simulation Modeling Analysis – Felz Eng. Manager or Metrology Lab – Alcoa; Mechanical Engineer of GM Vehicle Acoustic Systems: Delphi; Systems Engineer – Acoustic Systems – Delphi; Purchasing Buyer – Delphi; Start Center/Program Manager – Delphi; Product Planner/Product Business Manager – Delphi.
- = First line supervisor for 2 yrs; 2. Field Acct for Ann Arbor Railroad; 3. Railroad inspector/Field Acct for NAVY; 4. Carpenter/Superintendent over 10 people; 5. Carpenter for Architect; 6. Eng Tech for MDOT (19 yrs); Bituminous Lab (Took this for job security 75% DOT money came FEDS) (4 yr degree people were let go in state cut backs).
- = Tool maker; Production operator; Production Supervisor; Maintenance Technician; Dairy Equipment Sales, service, installation.
- = Shipping/Receiving Supervisor/Master Scheduler/Production Control Manager/ Material Manager.
- = PACE Mfg Position @ Steelcase, Production Supervisor, production technician, Sr. Business analyst, SPS lean leader @ Steelcase.
- = Quality Supervisory, Production Supervisory, Assistant Quality Manager, Quality Engineer.
- = Bus. Dev. Manager; L.G Electronics & Princeton Graphxs Account Executive; NEC Electronics
- = Electronics technician, Field Engineer, Store owner.
- = Materials Mgr., Accountant, Asst Plt. Mgr, Sales Engr all at United Technologies. Plant Mgr @ Medtronic. Director of Ops @ Clarion. Director of Ops & Mats @ cacks, VP of Ops @ Tillman Ind.

- = Quality Control, Materials Planner, Master Scheduler, Materials Supervisor
- = Engineer, Statistician, Quality Manager, Quality Director.
- = Production Supervisor, Quality Engineer, MFG Engineer, Lean Engineer, Materials Manager, Operations Manager, Sr. Consultant, Manager, Director of Consulting Services.
- = Distribution Mgmt, shipping supervision, engineering.
- = Production Supervisor, Processing Supervisor, Off Shift Ops Mgr, Processing Dept Mgr, Filling and Finishing Mgr, Contract Manufacturing Mgr, Regional Distribution Mgr, Project Mgr, Supply Chain Mgr, Retail SCM

5. How did you obtain your first position?

No comment = 1

- = GR Press Classifieds
- = Resume & Interview
- = Cold call/walk-in
- = Interview's at College
- = I graduated during a very low point in our economy totally unprepared for employment. A friend helped me to obtain employment in Big Rapids in a factory.
- = offered to me by RheTech after completing internship.
- = Was recruited at Ferris by Steelcase
- = Luck, sending out resumes
- = Many Resume's
- = Paper ad
- = Ad in paper
- = Pure determination – knocking on doors – 1992 = Recession = No jobs
- = Responding to ADD's with a cover letter/resume
- = Recruiter @ FSU
- = Responded to paper ad
- = Self search

6. Current employer:

No comment = 0

- = Hekman Furniture
- = Herman Miller
- = PDM Distribution Servies, Des Moines, IA
- = Delphi
- = Mich Dept of Transportation
- = Leprino Foods, Sheridan Rd, Remus, MI
- = Wright Plastic Products Co, LLC
- = Steelcase, Inc
- = Lear Corporation
- = Gateway Computers
- = Self
- = Tillman Industries
- = Hi-lex Controls
- = Self employed, ITT Technical Training & Consulting
- = Simpler consulting
- = Green Acres Retirement living
- = Abbott Laboratories

7. What is your job title?

No comment = 0

- = Industrial Engineer
- = Director Operations
- = President
- = Global Product Line Planner/Product Bus. Mgr
- = Eng Tech IO
- = A Level Maintenance Technician
- = Materials Manager
- =SPS Leader
- = Quality Engineer
- = Channel Manager
- = Owner
- = V.P. of Operations
- = Materials Supervisor
- = Owner/President
- = Director
- = Maint. Director
- = Retail Supply Chain Manager - West

8. What are your job duties?

No comment = 2

- = Plant layout, line layout, environmental reporting, process improvements lean mfg, other – typical manufacturing/industrial engineering dutras, capital project mgt.
- = Direct Manufacturing & Engineering for a 400 person facility.
- = Test Bituminous Materials in lab setting
- = Maintain entire production facility, electrical and mechanical, refrigeration trouble-shooting repairing. Machining and fabrication, plant upgrades, predictive maintenance.
- = Manage shipping/receiving, material handling, customer service, production scheduling and purchasing.
- = Responsible for leading and teaching Toyota Production System @ the (?) plant and an advisor to our Corporate Len Xender.
- = PPAP, Supplier Issue, Appearance manuals, data control, torque gun control, SPC.
- = Work with valve added resellers to promote Gateway Products to business customers.
- = buying, selling, running business
- = Resp. for all operations, finance, & supply chain.
- =Schedule production, oversee shipping functions
- =Running a business, advertising, directing companies, improving systems, technical training, program mgt, supply chain mgt.
- = Managing U.S. Army Client & 5 consultants
- = Maintain facilities
- = Influence the design of customer programs that will result in successful new product introductions and promotions. Institute industry best practices throughout the supply chain.

10b. If yes, which ones?

No comment = 3

- =ACAD 2000, mechanical desktop, JBA Mfg software, ERA – Environmental Reporting software, MS Office – Word, Excel, Power Pt., Netscape, Photoshop.
- = Several
- = Act, Excel, Word
- = BEN, BAAN, Prod Mgt., outlook, Most all windows office products.
- = In house that pertain to equipment group-wise, word.
- = Microsoft office, TMM by Made2 Manage

= MS Project, Access, Outlook, Power point, Word, Excel.
= All MS Programs & Salesforce.com
= Microsoft suite
= Baan
= Microsoft – Project, Word, Excel, Power point, Statistical software
= MS Office suite
= Basic MS office is all that's needed
= Microsoft Office; SAP, Oracle ERP systems custom WMS (warehouse management systems), log plus
DRP

12b. If yes, which organization or chapter?

No comment = 14

= AME
= Not any more – ASQ, SMR
= Columbus, OH

13. Please identify any other professional organization to which you belong.

No comment = 14

= UTEA Union.
= Michigan Plumbers Association; Department of Environmental Quality Certification.
= ASUG (America SAP User Group), Supply Chain Council (SCOR)

14. Please list any additional or continuing education/training that you have obtained since you completed your undergraduate degree and feel should be in the program.

No comment = 9

= Mechanical desktop training, Pro E Training, Lean Mfg, ISO Auditing, GT&T Training.
= As much Toyota Production System as Possible.
= MBA Drake University 1998.
= Several corporate sponsored management classes. Partial completion of M.S. in Mfg Management at Kettering University.
= Too much to list, current employer has ongoing training courses on site. I have completed over 40 courses in last 8 months. None of these would apply to your programs at all.
= MBA and various seminars such as lean mfg.
= MM – Aquinas College – 30% complete
= Obtained certification to teach, taught HS 3 years math & science
= CPIM, Project Management Certification, Lean Mfg/Six Sigma Certification, Create a new “How to Network” class. Invite real business managers, alumni, etc to teach.

16. Please comment on your specific duties regarding any of the above.

No comment = 8

= I can't stress the value of true lean manufacturing.
= N/A I do not work in production management, but I am familiar with all of the subjects listed and their importance.
= I am responsible for advising our material mgt team, working with supplier development @ both steelcase and our suppliers.
= I wish I had taken them all.
= Use all of them regularly – very important
= ERP Functionality is critical.
= I touch on every aspect in my daily job. One must possess all aspects to excel @ my consulting & technical training.

= I teach my clients lean & 6 Sigma techniques. I learned the basics & FSU, but really learned on the job.
= I do them all.

18. Please comment on any specific recommendations regarding any of the above questions.

No comment = 12

= It's hard to comment as my major was in Production Mgt. & many of the courses I took are not on this curriculum itinerary (many I don't recognize from my curriculum). ie. Algebra I & II, calculus, Acct. I, II & III, statistics I & II.

= Remember when I graduated the courses were for different and did not look to be as specific as this program. It overlapped with the business and technology departments, when exposed to the tools side those of us in the business side were rather far behind those in engineering.

= Classes need to include sld work, kcnbcn, poke-yoke uisnd factory.

= I feel a business degree without a 2 year technical degree to be worth very little. You see this in industry. People with a technical background are much better to deal with.

= ERP Systems should be taught Advanced Planning systems for inventory management also.

19. Please provide any comments or suggestions about OSM undergraduate/minor you received from Ferris State University.

No comment = 9

= I received my minor in Plastics Technology from GRJC.

= I will email you at a later date.

= I strongly believe that if I had been exposed to this type of work in an internship form during my first two years, I would have changed majors. I never utilized my education although it has opened doors for me in my employment opportunities. But I cannot over-emphasize how hands on work like what is now available called mentoring or shadowing in business would have better prepared me for employment. I graduated having never developed a good resume, or any good job searching skills. Was taught to flood employers with resumes, and that was it. I felt unprepared and blame some of that on myself and some on the schools program and lack of support network.

= The program seems to have more depth to it now. When I was in school it was not that robust.

= Good program, good school.

= It was a great program that really prepared me for 'the real world'. I sometimes wish that FSU had a more recognized name. I mostly deal with people outside of Michigan and they say "where?" when (if) I tell them where I went to college. Would be interested if you need help teaching lean/L.I. Tools in the future. I've enclosed my card.

= The program was too general, I love the idea of a tech minor. I would add more marketability to the graduate. It would also allow him/her to choose another direction easily if the career of management does not agree with them, being a manager isn't for everyone. It's often more fun to be "one of the guys". The OSM type positions are often headache positions best inhabited by those who will devote much of their life to the company. This devotion isn't tough if one loves his or her job, but in my experience the OSM type jobs are tough to love.

= I graduated with a Production Mgt degree in 1981. The current program appears to be more robust.

Appendix G – Employer Survey Instrument

Ferris State University
College of Business
Operations and Supply Management (OSM) Program Review
Formerly Know as Integrated Resources Management
Employer Survey

1. Please indicate the value of each of the following general skills for a successful career in Operations and/or Supply Chain Management. Select the best response for each.

	Extremely Low Value	Low Value	Neutral	High Value	Extremely High Value
Accounting					
Business Ethics					
Communication Skills					
Economics					
Engineering					
Finance					
Human Resource Management					
Information Systems					
International Business					
Internship or other Field experience					
Leadership					
Marketing					
Quality Management/Engineering					
Strategic Management					
Statistics					

2. Please provide any comments you have regarding the above or other general skills, which are not covered by the skills mentioned above.

3. Please indicate the value you place on undergraduate students having knowledge in the following areas as part of an undergraduate degree in Operations and Supply Management.

	Extremely Low Value	Low Value	Neutral	High Value	Extremely High Value
Planning and Scheduling					
ERP systems and databases					
Quality Control statistical Tools					
ISO (QS) 9000 Requirements (Baldrige)					
Quality/supplier Auditing					
Six Sigma Training					

Continuous Improvement Methods					
Lean/JIT principles and tools					
Project Management					
	Extremely Low Value	Low Value	Neutral	High Value	Extremely High Value
Supplier Development: Relationship, evaluation, and cost management					
Inventory Techniques (JIT, Kanban, Min/Max, ROP, etc.)					
Purchasing Policies and Regulations (RFQ, RFP, Terms & Conditions, etc.)					
Blue Print Reading capability					
Negotiation skills					
Sourcing Decisions (product costing, make verse buy, single vs. multiple sources, global sources, etc.)					
Transportation Policies and Regulations					
International Logistics					

4. Please provide any comments you have regarding the above or other skills, which are not covered by the skills mentioned above.

5. Should the OSM program be changed to allow for minors from other programs and colleges? Please see blue attached check sheet to review course requirements.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
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6. Given your answer in question 4, please check or circle which minors would add value to a students education:

College of Technology:	Manufacturing	Quality Management	Plastic Engineering	Facilities Management	Rubber Engineering
College of Business:	International Business	Management	Accounting	Human Resource	Marketing

7. Please provide any comments you have regarding the above.

8. Have you or would you hire a graduate of the OSM program?

Have Hired _____ Likely to Hire _____ Not Likely to Hire _____

9. Have you or would you hire a graduate of the Business Administration with a minor in OSM?

Have Hired _____ Likely to Hire _____ Not Likely to Hire _____

10. If you or your organization are interested in offering an internship or want to interview students, please provide an email address or other contact information below.

11. What is your title or position? (optional) _____

12. Name of your organization? (optional) _____

13. How many people are employed at your organization?

Less than 50 _____ 50-100 _____ 101-250 _____ 250-500 _____ 501-1000 _____
More than 1000 _____

14. How many people are employed in your Operations/Materials department? _____

COMMENTS

15. Please provide any additional comments you would like to make.

Thank you for your time and assistance!

Attachment: Comparison of program Courses

- Note: 1. Bold indicates differences between programs
 2. All other required courses, including general educational and business core are identical between programs.

OSM Core Program Courses	Business Administration with OSM Minor
ACCT 205 Managerial Accounting	ACCT 205, or 321 (Cost accounting)
ISYS 200 Database Design & Implementation	ISYS 200 Database Design & Implementation
MFGE 322 Production Processes	MFGE 322 Production Processes
MFGE 351 Introduction to Industrial Engineering	MFGE 351 Introduction to Industrial Engineering
MFGE 354 Lean Manufacturing: Concepts and Practices	MFGE 354 Lean Manufacturing: Concepts and Practices
MKTG 466 Purchasing	MKTG 466 Purchasing
MKTG 472 Supply Chain Management	MKTG 472 Supply Chain Management
STQM 351 Quality Control for Management	STQM 351 Quality Control for Management
MGMT 302 Organizational Behavior or MGMT 373 Human Resource Management	MGMT 302 Organizational Behavior
	MGMT 373 Human Resource Management
MGMT 491 Management Internship	MGMT 447 Business Ethics and Social Responsibility
MGMT 420 Small Business Consulting OR STQM 311 Continuous Improvement Tools and Techniques	MGMT 488 Advanced Management Cases & Problems
INTB 320 International Logistics	FINC Elective or INTB 440 International Finance
	INTB 310 International Business Systems

**Appendix H (1) – Employer Survey Results: Advisory Board
 Ferris State University
 College of Business
 Operations and Supply Management (OSM) Program Review
 Formerly Know as Integrated Resources Management
 Employer Survey**

1. Please indicate the value of each of the following general skills for a successful career in Operations and/or Supply Chain Management. Select the best response for each.

	Extremely Low Value	Low Value	Neutral	High Value	Extremely High Value
Accounting		1	2	4	
Business Ethics		1	2	4	
Communication Skills: Interpersonal			3	2	2
Communication Skills: Written			2	2	3
Communication Skills: Presentation			2	5	
Economics		1	4	2	
Engineering			4	3	
Finance		1	1	4	1
Human Resource Management		3	2	2	
Information Systems		1	2	3	1
International Business		1	2	4	
Internship or other Field experience		1		1	5
Leadership			2	3	2
Marketing		1	4	2	
Quality Management/Engineering			3	4	
Strategic Management			2	4	1
Statistics			3	2	2

2. Please provide any comments you have regarding the above or other general skills, which are not covered by the skills mentioned above.

- Logistics (general). Lean education is now a requirement.
- Team building, problem solving, data analysis
- Leadership, problem solving, data analysis, decision making
- We would bring them in as entry level, if management potential exists we would grow them into leadership.
- Six Sigma, design for Six Sigma & International business (logistics) are very important to success in this field of study. – Internship is important to the success of the program and to the development of the students.
- All skills in #1 are important/valuable – students should have a general idea of the concepts if they want to move up in a company they will need to be very proficient in these skills.

No comments - 1

In the following questions, we want you to evaluate the OSM program to or Business Administration program and compare to similar OSM programs to better assess are strengths and weaknesses.

3. There is a distinct difference between the OSM program compared to the Business Administration program combined with a minor in OSM? **(Please see attachment with course differences in bold.)** Circle the best answer.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
0	1	2	2	0

- One survey has logistics & internship listed under 'disagree' but circled 'neutral'
- Two surveys did not circle any answer.

4. On a scale of 0 to 10 (10 being best, how would you compare the OSM program at Ferris State University to similar program within the state?

1	2	3	4	5
0	0	1	1	1

- One survey did not answer #4 because they "have no basis for comparison"
- On their own scale of: [Worst – Less than equal – Equal – Better – Best] one survey circled "less than equal". They stated, "Why: Depth of program, program visibility".
- Two surveys left the question blank.

5. Have you or would you hire a graduate of the OSM program?

Have Hired 1 Likely to Hire 6 Not Likely to Hire 0

6. Have you or would you hire a graduate of the Business Administration with a minor in OSM?

Have Hired 0 Likely to Hire 6 Not Likely to Hire 1

7. Please provide any comments you have on the above.

- Would be likely to hire Bus Adm, however, at a lower salary & with training required.
- Internship is critical.
- More qualification & skills the higher the probability.
- Suggest a Bus. Ad. course of study that allows OSM minor that is flexible enough to allow a variety of specific disciplines (logistics, supply chain, etc.).
- The student must have the potential – what they do gets considered. How they perform determines their future with us.
- No comment - 2

8. Please indicate the value you place on undergraduate students having knowledge in the following areas as part of an undergraduate degree in Operations and Supply Management.

	Extremely Low Value	Low Value	Neutral	High Value	Extremely High Value
--	---------------------	-----------	---------	------------	----------------------

Planning and Scheduling			2	4	1
ERP systems and databases		1	2	1	3
Quality Control statistical Tools		1	3	3	
ISO (QS) 9000 Requirements (Baldrige)		2	3	2	
Quality/supplier Auditing		1	3	3	
Six Sigma Training			3	4	
Continuous Improvement Methods				3	4
Lean/JIT principles and tools			1	1	5
Project Management			1	6	
Supplier Development: Relationship, evaluation, and cost management			2	3	2
Inventory Techniques (JIT, Kanban, Min/Max, ROP, etc.)			1	3	3
Purchasing Policies and Regulations (RFQ, RFP, boiler plate requirements, etc.)			3	3	1
Blue Print Reading capability		1	4	2	
Negotiation skills			3	3	1
Sourcing Decisions (product costing, make verse buy, single vs. multiple sources, etc.)			3	3	1
Transportation Policies and Regulations			2	3	2
International Logistics Rules and Regulations			1	4	2

9. What is your title or position?

- Safety & Environmental Manager
- Multi-Plant Planning Manager
- Business Development Manager
- HR
- Materials Manager
- Materials Manager

- No answer - 1

10. Name of your organization?

- Ice Mountain
- Haworth
- Material Management Group
- DMMI – DENSO
- TRW – Auto
- National Nail Corp.

- No answer - 1

11. How many people are employed at your organization?

Less than 50 - 0 50-100 - 0 101-250 - 3 250-500 - 0 501-1000 - 0

More than 1000 - 3

- No answer - 1

12. How many people are employed in your Operations/Materials department?

- 100+ locally

- 10

- 70%

- 100+

- 12

- 10

- No answer - 1

COMMENTS

13. Please provide any additional comments you would like to make.

- Depts. working together is great.

- ISO 14001/14002, TS 16949, Itar Recirculation on Gov't/Military bids, incoterms are very relevant to this field of study

- I'm glad to help – just call

- No comment - 4

Thank you for your time and assistance!

!

Appendix H (2) – Employer Survey Results: APICS and NAPM members

Ferris State University - College of Business Operations and Supply Management (OSM) Program Review Formerly known as Integrated Resources Management Employer Survey

2. Please provide any comments you have regarding the above or other general skills, which are not covered by the skills mentioned above.

No comment = 14

- = I think it is critical to have a broad knowledge of business since touches so many different areas of the company.
- = Possible language skills needed (Spanish)
- = Project management
- = General interdisciplinary team-working skills
- = Skill sets in INCOTERMS and import/export knowledge are essential. International commerce is a hot button as companies go off-shore to low cost counties seeking the best commercial solution to rising and competitive costs.
- = Cross functional training

4. Please provide any comments you have regarding the above or other skills, which are not covered by the skills mentioned above.

No comment = 16

- = Teaching problem solving/corrective action and root cause identification is critical.
- = Accounting skills are extremely important.
- = ISO 14001 and TS16949 are most appropriate for automotive suppliers. QS, Baldrige seem to be less utilized. The buss words are the TS and 14001.
- = The ability to work with those in other functional areas: i.e. finance, engineering, marketing, sales. (Ross financial)

7. Please provide comments you have regarding the above.

No comment = 18

- = If you know where the money goes, the rest is comprised of basic technical skills, common sense & ability to work with people.
- = Minors of value would be dependent on the student's career choice/plan.

10. If you or your organization are interested in offering an internship or want to interview students, please provide an email address or other contact information below.

No comment = 19

- = I am not directly involved in such hiring, but a couple of key contacts are: Pam Prafke, Sr. Mgr HR staffing and/or Drew Schramm, Sr. V.P. Supply Mgmt

11. What is your title or position?

No comment = 5

- = Materials Mgr
- = Master Production Scheduler
- = Logistics Analyst
- = Production Control Supervisor
- = Customer Support Manager
- = Purchasing Agent
- = Supply Chain Manager
- = Senior Buyer
- = Buyer Specialist
- = John Krull
- = Director of Purchasing
- = Buyer/Planner/Production Control
- = Buying Specialist
- = Senior Acquisition Manager
- = Materials Manager

12. Name of your organization?

No comment = 8

- = JCI
- = Howard Miller Company
- = Steelcase
- = Gertux Corp
- = Haworth Inc
- = Haworth Inc
- = Elan Nutrition, Inc.
- = Public Education
- = Idra Prince Inc.
- = Grand Valley State University
- = Herman Miller, Inc
- = TRW Automotive

15. Please provide any additional comments you would like to make.

No comment = 18

- = The OSM program looks to be very good with the content offered. Please consider encouraging Apics certifications. Please consider lean learnings with supermarkets, water spider routes, and the plan for every part.
- = Not looking to hire anyone in our company at this time.

Appendix I – Student Survey Instrument

Ferris State University
College of Business
Operations and Supply Management (OSM) Program Review
Formerly Know as Integrated Resources Management
Student Survey

1. Which of the following will you be in the fall of 2005?

Freshman _____ Sophomore _____ Junior _____ Senior _____

2. Which of the following will you obtain?

Bachelor degree in OSM _____ Minor in OSM _____

3. If you are obtaining a minor in Operations & Supply Management, what is your major?

4. Why did you choose to come to Ferris to pursue your degree? _____

5. Why did you select the Operations & Supply Management Program? _____

6. Did you transfer into this program from another program at Ferris or another college or university?

Yes _____ No _____

If yes, what/where was it? _____

7. Are you involved in the student chapter of the American Society of Operations Management (APICS)?

Yes _____ No _____

8. Please identify any other professional/student organizations to which you belong. _____

9. Have/do you plan to participate in an internship or gain other OSM experience while you are in school?

Yes _____ No _____

If yes, where is/will it be? _____

How did/will you obtain this position? _____

10. Which of the following classes have you already taken?

Course	Yes	No
ACCT 205 – Managerial Accounting		
INTB 320 – International Logistics		
ISYS 200 – Database Design & Implementation		
MGMT 302 – Organizational Behavior		
MGMT 370 – Quality/Operations Management		
MGMT 373 – Human Resource Management		
MGMT 420 – Small Business Consulting		
MFGE 322 – Production Processes		
MFGE 351 – Introduction to Industrial Engineering		
MFGE 354 – Lean Manufacturing: Concepts and Practices		
MKTG 466 – Purchasing		
MKTG472 – Supply Chain Management		
STQM 311 – Continuous Improvement Tools and Techniques		
STQM 351 – Quality Control for Management		

11. Of the courses you had taken to date, which do you perceive as most relevant to the OSM program? _____

12. Which courses do you perceive as the least relevant to the OSM program? _____

13. Are there any courses/areas of study that you think should be added or improved? Why and in what way?

14. Are there any other minor or certificates that you think should be added or improved? Why and in what way?

15. Are there any courses/areas of study that you think should be eliminated from the program? Why?

16. Please rate your level of agreement with each of the following statements.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The academic advising is effective.					
The OSM instructors are knowledgeable					

in the subject matter.					
The OSM instructors are available to students.					
The OSM instructors are helpful to students.					
The courses in the program are conveniently scheduled.					
The classrooms are appropriate for the classes in the program.					
I am generally satisfied with the program.					
I would recommend the program to others.					
The program is preparing me to work in the field.					
If available, I would prefer to take classes that meet partially online.					
If available, I would prefer to take classes that meet entirely online.					

17. Please comment on your responses to the questions in the previous section.

ADDITIONAL COMMENTS

18. Please provide any comments/suggestions about the OSM undergraduate degree/minor.

Thank you for your time and assistance!

Appendix J – Student Survey Results

No survey were returned. This is after two attempts, one mailed and the other handed out.

Appendix K – Faculty Survey Instrument

Ferris State University

College of Business

Operations and Supply Management (OSM) Program Review

Formerly Know as Integrated Resources Management

Faculty Survey

1. What department are you in?

COB: CIS/Accounting _____ Graduate Programs _____ Management _____ Marketing _____

COT: Manufacturing/Quality _____ Plastics _____ Rubber _____ Facilities _____ Welding _____

2. Please rate your level of agreement with each of the following statements.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I am familiar with the OSM major.					
I am familiar with the OSM minor.					
I have recommended the OSM degree to students who are undecided or thinking of changing their major.					
I have encouraged my advisees to get a minor in OSM.					
I am familiar with the student chapter of the American Society of Operations Management (APICS)					
I generally believe the faculty respect the contributions of the OSM program to the COB.					
The OSM degree/minor is valuable to the COB.					

3. Is there a difference between the Major in the OSM program compared to the Business Administration program combined with a minor in OSM? (Please see yellow attachment with course differences in bold.)

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
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4. Should the OSM program be changed to allow for minors from other programs and colleges?
Please see attached checksheet to review course requirements.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
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Appendix L – Faculty Survey Results

Ferris State University - College of Business Operations and Supply Management (OSM) Program Review Formerly known as Integrated Resources Management

Faculty Survey

3. Comments:

- [Is there a difference] – Yes. No question choices here make no sense/appears to be little diff.
- NO.
- Strongly agree? Very little difference.
- Disagree - should
- Yes there is – soooo what is your point?

4. Comments:

- Agree – more flexibility is usually good
- Not sure. Check the MKTG check sheet diversified option. For agree disagree make a statement you can agree or disagree with – not a yes/no question.
- Disagree – would weaken the program
- ?
- These are yes/no questions not agree/disagree?
- [from] – what does this mean?
- ?? does not make sense

5. Comments:

No comment - 21

- I don't understand the purpose of questions 3 and 4. It seems like you are trying to construct a program that is palatable to students when it should be designed to prepare students for a job (career) in a particular area. What good is a program that is acceptable to students but is worthless in being successful on the job. Or, maybe I misunderstand what you are doing.
- As a marketing faculty member, I know very little about these majors and don't feel qualified to comment much except that if faculty knew more about the program they might be better able to advocate for it and recommend it.
- Question #4 is confusing. How are other minors allowed or not? Why is this an issue? Otherwise, no comment. Keep up the good work & good luck!
- This program is outside of my expertise and unrelated to the majority of courses that I teach. I do, however, believe it is an appropriate major and minor in the College of Business.
- I wonder if both Supply Chain Mgmt & International Logistics are not providing a significant overlap of courses/contents. I also think the major should be modified to allow for a minor or certificate. If you can't guarantee an internship, as valuable as internships are, you should not require it, but recommend it.
- Operations & Supply Management should have a program with the injeengineering.
- #4 is unclear – do you mean get a business degree or allow a minor (i.e. from Technology) w/in the OSM major? Get supply chain management & purchasing out of marketing!

Appendix M – Sample Syllabi

Ferris
State
University

MGMT 370
Winter 2006

Instructor: Dr. Steven B. Lyman

Office: B351

Office Phone: 231-591-2469,

E-mail: lymans@ferris.edu

Office Hours: M & W from 1:00pm – 3:00 pm.

Course Description:

The course focuses on strategies, processes and techniques used from material acquisition to production and finally through delivery of a product or service. Students will learn about operational efficiency and effectiveness and how this relates to product/service costs. Extensive use of examples, videos, problem sets and cases will show the current operations practices within industries. The student will develop a working knowledge of what the various issues and concepts are in operations like: Lean Manufacturing, Supply Chain Management, Operation Strategies, Value Stream Mapping, Kaizen, and various elements of Quality from Baldrige to six sigma.

Learning Objectives:

The objective of this course is to develop awareness of current methods used in operations, both in manufacturing and service industries.

1. Students will be able to recognize operations strategies and the role operations plays in supply and demand.
2. Students will understand core competence in relations to strategy and customer service.
3. What is the role product quality has and how is quality both determined and measured?
4. Students will be able to demonstrate knowledge of issues in supply chain management, inventory control and lean production.
5. Students will be able to illustrate their understanding through application of planning and control by applying Materials Requirements Planning (MRP) and Enterprise Resource Planning (ERP).
6. Students will demonstrate their educational professionalism by adhering to the class policies set out in this syllabus.

Throughout the class, a focus on customer service/satisfaction will show how production/operations influence the organization.

Required Text: Ritzman and Krajewski, Foundation in Operations Management, 2003 (Prentice Hall).

Grading: Your final grade for this course will be based on the total of 500 points from the following items which will be graded:

<u>Item</u>	<u>Points</u>	<u>Percentage</u>
Midterm (100 pts each)	300	60%
Final (optional)	100	20%
Team Projects (50 pts each)	100	20%
Classroom Projects	75	15%
Attendance	25	5%

Grading Scale:

470 + = A	370 – 384 = C
455 – 469 = A-	345 – 369 = C-
435 – 454 = B+	325 – 344 = D+

420 – 434 = B	305 – 324 = D
405 – 419 = B-	285 – 304 = D-
385 – 404 = C+	284 and below = F

Attendance Policy

Attendance will be monitored and may impact your grade. There will be sign-in sheet distributed at the beginning of most class periods. If students arrive late, it is their responsibility to sign in. The breakdown for attendance points is as follows:

<u>Attendance (missed classes)</u>	<u>Points</u>
0 to 4	25
5 to 8	20
9 to 12	15
13 to 16	10
More than 16	0

Exams

The midterm and final exams will be composed of both multiple choice and true and false. Exams are closed book but a cheat sheet is allowed for reference (standard 8.5 x 11 page). The objective of examines is to demonstrate your knowledge, understanding and **application** of the concepts of operations. This includes the ability to interrelate topics. A curve to exam averages will be given with the mean to be set at 75% (75 points on a 100 point exam) for each section.

Make-up exams will be at the discretion of the instructor. If students know in advance they will not be able to take the test, they are required to make arrangement with me prior to the test. Should you miss a test, students must contact the instructor within 24 hours of the test to make arrangements.

Active participation in class discussion is strongly encouraged and will assist you in preparing for exams. The ability to participate will be enhanced by keeping up with the assigned reading material prior to class. Articles handed out in class may be tested on plus show students current practices in industry. Also, **usage of cell phones will not be allowed for any reason during tests.**

Teams

Teams will be assigned at the beginning of the semester and will be limited to 5 or 6 students per team. Should there be any problems with team members (not participating), all members can meet with me and we can work out a solution. Team members who do not participate on the larger projects requiring outside of class time should not expect to have their names included on the paper handed in by the participating group members. I will support the group and make non-participating members to do their own project paper.

Class Projects

Throughout the semester I will be assigning questions or problems that each group will be required to answer. Most activities will be conducted during class time. The team will hand in the answer to the instructor for grading with all participating (present) names on one sheet. Only the members who are present and participate will receive credit. I recommend you use examples to illustrate a point when possible.

Team Projects

Either a couple cases or excel projects will be handed out during the semester. It is expected that you know how to use a spreadsheet like Excel. Instructions on what is required will accompany the project. Cases will have a series of questions to be answered. For Excel project's, they will be handed out during the semester (example: during review of chapter 12 MRP). For your last project a template will be provided which will do all calculations including costs data. Your job is to input a production schedule and analyze the various conditions which the scheduling system is exposed to. A ONE page paper is all that is needed, key is use tables/data to communicate and support your answer. The write-up should

comprise your critical analysis and observations from the spreadsheet data. Grading will consist of 50% on the spreadsheet information/data and 50% on write-up. Projects are due on the date specified during class. All projects are to be turned in on the due date, **no late projects. In your write-up, provide tables (make sure you label the table) to support your conclusion/decision. Tables consist of data, not your assumptions, views or feeling!**

Lecture Schedule:

Week	Topic	Assignment
1: 1/9-1/16	Competing with Operations	Chapter 1
2: 1/17-1/20	Process Management	Chapter 2
3: 1/23-1/27	Managing Technology	Chapter 4
4: 1/30-2/3	Quality	Chapter 5
5: 2/8	Midterm # 1 (Wednesday/Thursday)	Covering Chapters 1,2, 4, 5
5: 2/10- 2/15	Capacity	Chapter 6
6: 2/17-20	Location and Layout	Chapter 7
7: 2/22-2/27	Forecasting	Chapter 9 Project #1
8: 3/1-3/15	Supply Chain Management	Chapter 8
9: 3/6-3/10	Spring Break	
10: 3/17	Midterm # 2 (Wednesday/Thursday)	Covering Chapters 6-9
11: 3/20-3/24	Inventory Management	Chapter 10
12: 3/27-3/31	Aggregate Planning & Scheduling	Chapter 11
13: 4/3-4/12	Resource Planning (MRP& ERP)	Chapters 12
14: 4/14-4/21	Lean Systems	Chapter 13.
15	Midterm #3 (Wednesday/Thursday)	Covering Chapters 10-13
16	Final Exam (online final)	All Chapters on test

Extra Credit

There is an opportunity to gain 25 extra credit points during the semester. To earn the points, the breakdown is as follows: 5 points will be awarded for each professional meeting attended which is relevant to the subjects covered in this class. Please verify with me before you attend a professional meeting off campus. Verification will require information on the meeting such as topic, speaker name and affiliation, meeting location, and accompany faculty member. The reason why extra credit is being awarded is to encourage student participation in professional organizations as well as enhancing their knowledge of the subjects taught in this course. The requirements are for students to become active in one of the various student organizations that have ties to professional/educational organizations. Some organization such as AMA, APICS, NAPM/ISM, Computer/systems organizations, SHRM, SME, IMA may have meetings which cover related subjects. **Do not assume I will grant extra credit.** The following are required for meetings to be considered for extra credit points:

1. The organizations mission should promote education and networking opportunities (plus professional certifications)
2. The subject of the meeting must pertain to Operations, Quality, Supply Management or Logistics.
3. Must be off campus. Students must attend the entire meeting. Should I find out you departed early, NO points will be awarded.
4. Must have FSU faculty involvement by attending the meeting. This requires faculty to signoff on the paperwork required by FSU and the Extra Credit Meeting Form. Faculty will also have to fill out the paperwork required by the University for School Sponsored field trips.
5. Each student will fill out the Extra Credit Meeting Form which asks for specific information like: the topic discussed, speaker name, time and location, and key points learned.

The intent is to get students involved with professionals in industry and develop networking skills. This will be a valuable skill when seeking employment. Simply joining an organization is not enough,

involvement is key to getting points. This extra credit is awarded for extra work (activities) outside the classroom and must be earned. **There is no entitlement.** If your schedule does not allow for such involvement, I am sorry but there will be no points awarded, no exception. There will be no points for wanting to attend a meeting or joining an organization.

Classroom Policies

I expect students to engage in the learning process.

- Cell phone and pagers are to be turned off in class. Should they go off during lecture, students should turn them off. If I have to ask a student to turn phones (or pagers) off more than once, 20 points will be deducted from their grade. If there is an emergency necessity to have the units on, notify me prior to the start of class.
- Food in the classroom is allowed, unless specified by signs within the building. Students are limited to bring in pop and snacks. Sorry, no four course dinners.
- Should a field trip be setup, students are required to dress appropriately. This includes closed tip shoes, slacks and absolutely NO cell phones. You will follow all rules specified by the company (wear safety glasses). Students who violate any of these rules will have 50 points deducted from their grades.
- Classroom conduct strives to maintain a positive learning environment and educational opportunity for all students. This includes respect between the instructor and students and between students. Discussions should focus on the issues and topics currently under review. Excess noise, rude conduct or inappropriate conversation, as determined by the instructor, is unacceptable. Repeated occurrence will result in a point reduction as determined by the instructor.

Final Note

I reserve the right to make needed and appropriate adjustments in this syllabus.

Extra Credit Form

Credit will be given if the conditions defined in the syllabus and on this form are met.

Student Name:	
Organization Name:	
Date of Meeting:	
Location of Meeting:	
FSU Faculty Member Signature:	
Phone Number:	
Speakers Name:	
Topic Presented:	
Briefly describe major points of presentation:	

Instructor: Dr. Steven B. Lyman

Office: B350

Office Phone: 231-591-2469,

E-mail: lymans@ferris.edu

Office Hours: M & W from 10:00 to 11:00 pm & 1:00 pm – 2:00 pm

Course Description:

The course objective is to give students the opportunity to practice many of the subjects learned in the classroom at a company who seeks assistance. For this semester, the tools learned in the classroom include process mapping (flow charting) and value stream mapping. The company who will be examined/studied is Wolverine World Wide (WWW) in Rockford, Michigan. The specific area to be examined is their central stores with focus on production material flow and the handling of salesman samples. These two projects will require process mapping and value stream mapping (see attached for objectives and outcomes). The class will go to WWW's Central stores once a week and conduct the mapping exercise. While at WWW Central store, students will focus on the job at hand. There will be limited homework outside of class time.

Learning Objectives:

The objective of this course is to develop awareness of current methods used in process mapping with emphasis on value stream mapping.

7. Students will be able to conduct a process mapping exercise.
8. Students will be able to understand value stream mapping and develop an initial state using VSM.
9. Learn how to work with others within a team.
10. Develop networking skills

Recommended Text: Lean Enterprise Institute, *Leaning to See*, 2002.

Grading: Your final grade for this course will be based on the total of 500 points from the following items which will be graded:

<u>Item</u>	<u>Points</u>	<u>Percentage</u>
Initial Process maps (50 pts each)	100	20%
Initial Value Stream Map	50	10%
Team Project: (start of Wolverine World Wide Project)		
Attendance	100	20%
Presentation & paper	100	20%
WWW review	50	10%
Peer Review	100	20%

Grading Scale:

470 + = A	370 – 384 = C
455 – 469 = A-	345 – 369 = C-
435 – 454 = B+	325 – 344 = D+
420 – 434 = B	305 – 324 = D
405 – 419 = B-	285 – 304 = D-
385 – 404 = C+	284 and below = F

Attendance Policy

Attendance will be monitored and is critical for the success of this project. The following is the point system to be used.

<u>Attendance</u>	<u>Points</u>
12-13	100
10-11	80
8-9	60
6-7	40
Less than 6	0

Exams

Not applicable.

Teams

Teams will be assigned at the beginning of the semester given sufficient enrollment. There will be two teams in total. Should there be any problems with team members (not participating), all members can meet with me and we can work out a solution. Team members will be graded by the fellow members at the end of the semester. **I recommend NOT giving good reviews to non-participating, unproductive, or difficult members.** Team member reviews will be averaged and multiplied to the points available which will impact you grade.

Lecture Schedule:

<u>Week</u>	<u>Topic</u>	<u>Assignment</u>
1	Initial mapping exercise Make teams, set first map exercise	Handouts when needed
2-3	Present first Mapping Exercise	
3	Value Stream mapping (in class)	
4	Initial Presentation at WWW - Meet WWW employees - Plant Tour - Start Mapping by observing	
5-10	Continue Mapping - finish mapping - prepare presentation	
11	Value stream process (initial state)	
12	Presentation to WWW	
13 to 16	Clean up/ follow up	