Mechanical Engineering
Department

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Graduate Student Handbook for the Master of Science in Mechanical Engineering

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Introduction

This handbook is published as a guide for graduate students who are seeking a Master of Science Degree in Mechanical Engineering (MSME) or a Professional Masters Option in Industrial and Systems Engineering. The purpose of the handbook is to inform graduate students about the ME department's regulations, requirements, and procedures for the MSME degree. The handbook is intended as a supplement to the University Graduate School catalog; however, you should review the University Graduate Catalog for general rules and regulations governing the University's graduate programs. A copy of the catalog can be obtained on the University web site at http://catalog.umassd.edu/index.php?catoid=2

Advising and Registration

All new students will meet with the Graduate Program Director (GDP) before starting the first semester to get an orientation on the program and department, and register for classes. The director is the student's academic adviser until the student chooses a thesis or project adviser. At that time, the thesis or project adviser will become the student's academic adviser. If the student selects the course option, the director will remain as the student's adviser until graduation.

All students are required to meet their adviser a minimum of once per semester. Typically a student meets the adviser mid-semester after receiving a request from the University to register. The adviser monitors the student's progress towards completion of the course requirements and advises the student on course registration for the next semester. A tracking sheet is retained in the student's folder and is used to certify the student for graduation.

Students are encouraged to seek additional meetings with their adviser as needed.

Course Load Guidelines

Course load requirements are clearly spelled out in the University graduate catalog, "A course load of nine credits per semester is considered full-time in a graduate program. Students awarded full-time graduate assistantships may take no fewer than 6 and no more than 9 credits (including research and thesis or dissertation) per semester, unless approval is obtained in writing from the Graduate Director for the student's program. Twenty (20) hours per week of assistantship work and three (3) courses is considered a normal load. A course load of at least 7 credits is required for 3/4 time status and of at least 4 1/2 credits for half-time status."

A student who has completed their course requirements but has not completed the thesis or project may be given an in progress grade "IP," and may continue the thesis/project.

It is recommended that students who work full-time take only one course per semester.

Degree Requirements and Academic Progress

Each full-time candidate for the MSME Degree must obtain a minimum of 31 graduate credits (Thesis or Project tracks) or 34 graduate credits (Course Work track), maintaining a grade point average of at least 3.0 out of a 4.0 grading scale in course work with no more than two course grades below B-minus before the degree is awarded. Only courses with a C or better grade will be accepted toward fulfilling the degree requirements. Students receiving three or more grades below a B-minus are normally dismissed from the program.

Required Core Courses (10 credits)

MNE 500	**Graduate Seminar**	**1**
MNE 501	**Advanced Engineering Mathematics**	**3**
MNE 502	**Applied Numerical Methods**	**3**
MNE 503	**Continuum Mechanics**	**3**

15 credits – may be selected from any advisor-approved graduate level courses. No more than six of these credits may be in graduate courses offered outside the Mechanical Engineering Department. Any course taken outside the department must be approved by the thesis advisor or graduate program director. See course offerings at http://catalog.umassd.edu/content.php?catoid=2&navoid=274

Seminar Requirement

All new Mechanical Engineering MS students are required to attend the seminar class for two semesters (1 academic year). No student can miss more than one seminar/semester. If the student misses a semester of seminar, they have to make it up before they graduate. Part-time, working students who are unable to attend the seminar series are required to make two separate presentations at the seminar series- one explaining their work and one on their research topic.

Additional Requirements — Thesis, Project, or Course Work tracks (6 or 9 credits)

Thesis Option	**MNE 580 Masters Thesis**	**6**
Project Option	**MNE 590 Masters Project**	**6**
Coursework Option	**3 additional courses**	**9**

Because students completing the thesis option are required to complete original research that “advances the state of the literature,” students in the thesis option are expected to prepare a journal paper manuscript to the satisfaction of their thesis advisor prior to graduation. It is not required that the manuscript be accepted for publication prior to graduation; but the student should continue to work with the advisor to complete the peer-review process.

A student must remain continuously enrolled in the program (excluding summers) or receive approval for a leave of absence in order to maintain their status as a degree candidate. Failure to do this may result in dismissal from the program.

Project or Thesis Option: The thesis or project committee shall consist of at least three members, at least two must be ME faculty and one may be a senior scientist or engineer from outside the university or a faculty in another department. The principal advisor must be an ME faculty.

The members of student's thesis or project committee will be selected by the faculty advisor in consultation with the student. All thesis or project committees must be approved by the Graduate Program Committee.

There are three (3) phases of thesis/project preparation:

1. Submit the thesis/project proposal. In this phase the committee is formed.
2. Research and writing resulting in a thesis/project document.
3. Oral Thesis/Project Defense. **Note**, the Dean of the College of Engineering must be notified of the defense two weeks in advance by the principal advisor.

Course Option: Masters degree candidates who take the course option will take a comprehensive oral exam in their final semester. Failure to pass the exam will prohibit the student from receiving a degree. A student who has failed the exam may petition the Graduate Committee for permission to take the exam again.

The exam will cover three (3) areas of study, and the student must choose the specific areas from the following list:

Robotics and Control Systems
Thermal and Fluid Sciences
Engineering Mathematics
Manufacturing
Material Science
Solid Mechanics and Dynamics

It is assumed that the candidate has taken courses in the department in the chosen areas. Based on the topics chosen by the student, the Graduate Committee will select no less than 3 professors to serve on the Graduate Oral Exam Committee for the student and recommend this committee to the chairperson for approval. The specific format of the exam will be determined by the examination committee, but will take no more than 3 hours. It is recommended that the student

take the exam early in the final semester so that the student will have time to retake the exam if necessary during the same semester.

Policy for Maintaining Satisfactory Academic Progress

A student who has been admitted to an MS degree program in Mechanical Engineering, must maintain a 3.00 or higher grade point average (GPA).

A. A student will be placed on academic probation if the student's GPA falls below 3.00. A student will return to academic good standing by obtaining a minimum 3.00 GPA by the time the next nine hours are completed. Coursework such as research and thesis/dissertation registration that are for IP grade cannot be included in these nine hours.

B. A student may be recommended for dismissal from a graduate program if:
   - The student fails to increase the GPA listed above to a minimum of 3.0 by the time he/she completes the next nine credit hours;
   - or the student receives a grade below C while on academic probation;

Transfer Credits

If a student wants to take a course at another university for transfer credit, the student must fill a Mechanical Engineering Graduate Transfer Credit Evaluation Form prior to taking a course.

A maximum of six (6) credits may be transferred from another institution upon approval by the chairperson and Dean. The transferred course must have a B- or better grade.

Repeat Courses

The ME department allows a student to repeat a specific course once if it is offered at UMD. The repeat course grade will be used to calculate the student's GPA. Both grades will remain as part of the student's record.

Teaching and Research Assistantships

Students awarded an assistantship will work with a faculty mentor on a research project leading to a thesis. A student should complete a program of study by the end of the first or second semester indicating the thesis advisor.

Student Responsibilities

Students are expected to apply due diligence toward completion of their degree. This includes progress on research projects in addition to coursework. It is a matter of courtesy to discuss with the advisor when the student wishes to have time away from campus.

In general, students are limited to funding from University sources not to exceed a total of 20 hours per week during academic semesters or 40 hours per week during summer and intersession. However, in certain special cases, students can receive an exception so that more than 20 hours per week can be funded. Students must then have permission from their advisor and the GPD.

A student with a research assistantship is expected to spend 20 hours per week on project work and 20 hours per week on courses and thesis/project. The typical student will spend considerably more time than described above doing work relevant to their thesis or project to ensure that they will graduate in a timely manner. Students who are supported with a research assistantship should work approximately half time on their research when taking courses and full time when only thesis/project credits are taken and during the summers. Students should discuss time expectations with their advisor.

Other employment and time consuming activities can cause conflict of commitment issues for students. Full-time students and any students with full RA stipend support are discouraged from seeking other employment to ensure that they have enough time to adequately complete their degree. It is within the rights of individual departments or faculty advisors to forbid students to be otherwise employed, or to require notification of the advisor and/or person providing the funding source before the student considers outside employment. Graduate students are responsible for ensuring that their advisors and graduate committee members are kept up to date with their progress.

The student should also ensure that they are meeting all departmental, programmatic, and University requirements for the degree. This includes coursework, scheduling of the required examinations, and completion of the thesis or project by the required dates. Students are also expected to participate in required seminars.

The collected data and products of analysis of research projects is the property of the University of Massachusetts Dartmouth, and will be stored in accordance with university regulations. Students are obligated to provide their advisor with laboratory notebooks, computer files, and other materials as requested. This is a requirement of funding agencies, and UMD is held accountable for data from funded projects.

If the research has been implemented as planned and has potential for publication, the student will jointly write up the study with the advisor for submission for publication. It is in the best interest of students to complete drafts of manuscripts for publication prior to completion of their degree. If this is not possible, the student should discuss with the advisor the timeframe in which the first draft of the manuscript should be completed. If completed before the student leaves or within this timeframe, in most cases, the student will be assigned first authorship. After that date, the advisor retains the option to prepare the article for publication with authorship order at his or her discretion.

In either case, other collaborators will be included as co-authors depending on their contribution. To be listed as an author, a person must have made a direct, substantial academic contribution to at least **two** of the four main components of a typical scientific project or paper: (i) conception or design, (ii) data collection and processing, (iii) analysis and interpretation of data, (iv) writing sections of the paper. Anyone listed as an author should critically review successive drafts of the paper and approve the final version. Anyone listed as author should be able to defend the paper as a whole (although not necessarily all the technical details).

Faculty Responsibilities

Faculty who mentor graduate students have an obligation to provide students with the support they need to be successful. These responsibilities include:

- Providing guidance on the specific requirements for achieving the chosen degree, including advice on courses for the program of study, selection of appropriate research topics, evaluation of research progress, and expectations on the amount of time spent on research.
- Arranging with the student and maintaining a mutually agreeable schedule to discuss coursework and research progress. The advisor should then be available during these times to meet with the student.
- Ensuring that the objectives related to the student's program of study and research are attainable if the student exhibits due diligence. The typical M.S. thesis student should expect to graduate within six semesters (including summer semester). Individual time-to-degree goals may vary due to the nature of research, and the time spans noted here should serve as a guideline under which the major professor and the student can work together toward timely completion of the degree requirements.
- Participating in regular meetings to ensure that the student is obtaining appropriate guidance and making progress towards the degree.
- Informing the graduate student if extramural funding for the student's research project is in jeopardy.
- If at all possible, providing the student with professional development opportunities including attending conferences, participating in workshops, obtaining teaching experience, etc.

Leave of Absence

A leave of absence is granted only in exceptional circumstances, such as illness or family illness, or some other personal hardship. A leave request form should be filled, which requires a detailed justification and must be signed by the GPD, Dean and Graduate Office. Evidence of good academic progress is a requirement to obtain approval. International students must also obtain the approval from the International Students Office.

Students on leave are excused from the registration requirement during the period of the leave. Leaves are normally granted for six months; but, if necessary, leaves up to one year may be approved. If possible, requests for leaves of absence should be submitted one month prior to the semester for which the leave is requested. Leaves of absence are not granted for a semester already begun except under extenuating

circumstances. Instead, students should use the withdraw procedures. Leaves of absence are not granted to students who wish to absent themselves to undertake thesis or dissertation research elsewhere; such students should maintain continuous registration at UMD. Students going off campus to fulfill an internship related to degree requirements should also remain registered.

Once a leave of absence is granted, the right to use University facilities (i.e. libraries, athletic facilities, etc.) is halted as student status will not be active during the leave. This also applies to any UMD funding (e.g., fellowships, assistantships and loans). Therefore, a student is advised to deliberate before requesting a leave.

PROFESSIONAL MASTER'S OPTION IN INDUSTRIAL & SYSTEMS ENGINEERING

I. Program Definition

Objectives

College of Engineering at University of Massachusetts Dartmouth is offering a Professional Master's Program in Industrial & Systems Engineering. It is a graduate program designed to provide graduate education to working engineering professionals to advance in their careers in industrial and systems engineering. The Program provides an integrated approach to engineering and management of production systems and engineering organization. Graduates of the program will achieve professional competence in concepts, knowledge, methodologies, and skills required for production system design/operations, quality assurance, and management in an engineering environment.

The program will require six graduate courses (18 credits) that are offered by Mechanical Engineering and three courses (9 credits) by School of Business. Project study (6 credits) under the guidance of academic advisors is also required. The total credit requirement is 33 credits. Participants completing both courses and project requirements will receive a MS Degree in the Industrial and Systems Engineering option of the Mechanical Engineering program. Detailed description of qualifications for enrollment and the requirements for the graduation are described below.

Admission

A BS or an equivalent degree in engineering or a closely related field is required. Admission applications of participants with non-engineering undergraduate degrees will be considered on a case by case basis by the Professional Master's Program Committee for possible admission.

Required Graduate Courses

Courses included in this program are regular graduate level courses offered and taught by University of Massachusetts Dartmouth faculty. The list of required courses is as follows:

- Six courses out of the Group I courses offered by Mechanical Engineering Department (Appendix I)
- Three course of Group II courses offered by College of Business (Appendix II)
- Master project: this could be a project related to participant's current position in the work place (MNE590 Master Project, Appendix I).

II. Program Implementation

Administration

The program will be administered by the Graduate Program Committee of the Mechanical Engineering department with inputs provided by the Professional Master's Program Committee. This committee will consist of faculty teaching production/manufacturing courses and will report to the Graduate Program Committee of the department.

Advising

Upon admission, each student will be assigned to a temporary advisor by the director of Mechanical Engineering graduate program. The temporary advisor will assist the new student through selecting of the first semester courses. After one semester of taking courses, the student will choose a permanent advisor.

Master Project

After one semester of taking courses, the student will choose a permanent advisor capable of advising him/her on conducting project that the student will choose. These projects will most of the time be related to participant's engineering duties. Students who do not have a work related project will choose a faculty advisor who could give them a project to work on. The Master Project will be approved by the Professional Master's Program Committee.

The thesis or project committee shall consist of a minimum of three members, at least two must be ME faculty and one may be a senior scientist or engineer (with a Ph. D. degree) from outside the university or a faculty in another department. The principal advisor must be an ME faculty.

The members of student's project committee will be selected by the faculty advisor in consultation with the student. All projects and project committees and must be approved by the Graduate Program Committee.

There are three (3) phases of project preparation:

1. Submit the project proposal. In this phase the committee is formed.
2. Research and writing resulting in a project document.
3. Oral Project Defense. **Note**, the Dean of the College of Engineering must be notified of the defense two weeks in advance by the principal advisor.

Mechanical Engineering Faculty and Specialization

Farhad Azadivar
PhD Purdue University, MS Asian Institute of Technology, BS Tehran University.
Specialization: Computer Simulation, Modeling and Optimization of Manufacturing, Traffic, and Marine Fishery Systems. Deterministic and Stochastic Optimization.

Sankha Bhowmick
PhD University of Minnesota, MS Villanova University, BS Jadavpur University ,
Specialization: Heat and mass transfer, bioengineering, MEMS.

Vijay B. Chalivendra
PhD University of Rhode Island; MS and BS Sri Venkateswara University of College of Engineering. Specialization: Mechanical Behavior of Emerging Advanced Materials, Biomaterials, Nano-Composites, MEMS.

Sherif D. El Wakil
PhD Birmingham University, MS El-Azhar University, BS Cairo University. Specialization: computer-aided manufacturing, design for manufacturing, materials science.

Alex J. Fowler
PhD Duke University, BA Wesleyan University. Specialization: Fluid flow in porous media, heat transfer, thermodynamics, bioengineering.

Peter D. Friedman **(Chairperson)**
PhD Johns Hopkins University, MS Georgia Institute of Technology, BS Georgia Institute of Technology. Specialization: Experimental fluid mechanics and heat transfer, thermodynamics, nuclear power plant operation.

Wenzhen Huang
PhD2 University of Wisconsin-Madison and Shanghai Jiaotong University, Specialization: Manufacturing Systems Modeling, Computer- Aided Tolerance Design, Applied Statistics, Quality Control.

Raymond N. Laoulache
PhD Brown University, ScM, ScB Northeastern University. Specialization: Thermodynamics, multiphase flow, control systems, fluid mechanics, laser doppler anemometry, parallel computing.

Katja Holtta-Otto
PhD and MS Helsinki University of Technology. Specialization: Project Design and Development, Modularity, Product Platforms, Systems Engineering.

Tesfay Meressi

PhD, MS, University of California Santa Barbara, BS Addis Ababa University. Specialization: Robotics, control theory, machine design.

Raessi, Medhi

PhD and MASc University of Toronto, BSc University of Tehran.
Specialization: Computational fluid dynamics and heat transfer, Interfacial flows, Two-phase flows with phase change, Microscale transport phenomena, Numerical methods for modeling multiphase flows.

John M. Rice **(Graduate Program Director)**

PhD University of Rhode Island, MS Stanford University, BS Northeastern University.
Specialization: Solid mechanics, computer-aided engineering, finite element analysis, composite materials.

APPENDIX I

GROUP I COURSES

MNE 530 three credits
Simulation Modeling
Prerequisites: EGR 301 and computer programming or equivalents Concepts and principles associated with systems simulation and modeling using contemporary software such as Simulation with Arena. Topics include probability and statistics, discrete event simulation, statistical techniques in simulation modeling. Statistical analysis is integrated for the most part into the simulation modeling, reflecting the joint nature of these activities in good simulation studies, and continuous simulation of industrial and manufacturing systems using SIMAN language. The student will work in a team producing a design project relating to these topics.

MNE 532 three credits
Advanced Robotics
Prerequisite: MNE 482 or equivalent
Advanced course in kinematics, dynamics and control of robots. Topics covered include: trajectory generation, position and force control of open chain and closed chain manipulators, kinematic redundancy, link flexibility, artificial intelligence and integration of industrial robots in integrated manufacturing systems.

MNE 533 three credits
Manufacturing Automation
Prerequisite: MNE 345 or equivalent. A study of the different components of an automated manufacturing system. Design of the hardware and software used in the different manufacturing systems. Analysis, modeling, performance and economics of flexible manufacturing systems and flexible manufacturing cells. Design of parts to facilitate automatic assembly.

MNE 535 three credits
Advanced Statistical Quality Control
Introduction of statistical principles and advanced techniques in statistical process control and quality improvement in various engineering fields in mechanical, chemical, electronics manufacturing process. Emphasis on associated applied statistics principles, Shewhart control charts for variables and attributes, short run, Cusum and EWMA charts multivariate process control and diagnosis techniques.

MNE 537 three credits
Manufacturing Systems Design

Prerequisite: MNE 345 or equivalent. Advanced topics in manufacturing systems design and analysis with emphasis on modeling and integration methodologies. Specific topics include production flow analysis, group technology, manufacturing cell design, facilities location and work design, material handling systems and auto-mated guided vehicles, flexible manufacturing systems, and systems evaluation. Term design projects are required using computer and software tools.

MNE 538 three credits
Manufacturing Planning and Control
Prerequisite: EGR 301 or equivalent. Advanced topics in manufacturing production planning and control with emphasis on design and resource utilization. Specific topics include operations planning and control, linear programming, capacity planning, resource computer and software tools.

MNE 539 three credits
Engineering Optimization
Prerequisite: EGR 301 or equivalent. Advanced topics in engineering optimization with emphasis on the algorithm and applications. Specific topics include linear and nonlinear optimization, mathematical modeling, constrained optimality criteria, transformation methods, constrained direct search, quadratic approximation methods for constrained problems, and comparison of constrained optimization methods. Term design projects are required using computer and software tools.

MNE 540 three credits
Advanced Simulation Modeling
Prerequisites: MNE 530 or Equivalent, and skill in one computer programming language.
Verification, validation, and statistical analysis of the inputs and outputs of simulation models. Topics will include determination of the simulation run lengths, building and analyzing confidence intervals, variance reduction techniques, comparison of systems performances, experimental designs and simulation optimization.

MNE 560 three credits
Methods of Experimental Research
Prerequisite: Graduate standing. The need and subject matter of research. Laws, truths, analogy and hypothesis. Identifying and clustering parameters. Use of models. Experimental setup. Induction, deduction, statistics, and conclusions. Presentation and use of finding.

MNE 561 three credits
Systems Engineering
Pre-requisites: Upper Class Standing, Instructor Approval
Introduction to basic concepts and methods of Systems Engineering. The topics covered include requirements management, system architecture and modular design, system modeling, decision making, design synthesis, design verification, and designing for the system lifecycle.

MNE 562 three credits
Stochastic Processes To be developed

MNE 590 six credits
Masters Project
Prerequisites: Graduate standing, Project
Option, and approval of the student's Graduate Committee
Project research in conjunction with industry under a faculty advisor. A formal report must be submitted to fulfill the project requirements.

APPENDIX 2

GROUP II COURSES

POM 651 three credits
Advanced Operations Analysis
Techniques for the analysis and improvement of the value-adding activities of an organization. Such activities are called by a number of names: processes, operations, production, or just plain "work." Value is added only when the output from a process meets the needs of customers, both internal and external. The course focuses on the efficient and effective management, in both manufacturing and service environments, of processes (a set of tasks or activities that contribute to delivering products and services in order to meet customers' needs, whereby inputs are transformed into outputs thereby adding value).

POM 675 three credits
International Supply Chain Management
Management of the flow of materials into, through, and out of operations, in an international context. The course investigates how to manage such complexities as long distances, currency fluctuations, variable infrastructures, diverse cultures, political instability, and dissimilar legal systems. The value-adding activities of procurement, manufacturing/operations, and logistics/distribution are conceptualized as one integrated supply chain. By understanding various facets of the supply chain, this course will provide sufficient insight to analyze the challenges of configuration and coordination in a global environment.

POM 676 three credits
Business Process Design
Business processes through which "value-adding activities" to customers are accomplished, such as order fulfillment, product development, and customer service. The course provides fundamental ideas underlying total quality management, time-based competition, and business process reengineering. Specific topics include capacity management, integrated work, the impact of variability on process performance, tools for business process design, lean and agile management systems, dynamic flow management, time compression, performance measurement systems, and inter-firm coordination.

POM 677 three credits
Logistics Strategy and Management
This course focuses on logistics operations from global perspectives. Logistics is a vital component of a firm's supply chain. The aim of this course is to understand and analyze the concepts of logistics and supply chain management. Topics include customer service, inventory management, information systems, order processing and fulfillment, transportation, third-party logistics, warehousing, logistics relationships, performance measurement, and supply chain strategy from

global operations perspectives. Emphasis will be placed on challenges related to providing logistical support for procurement, manufacturing and distribution. The course will investigate contemporary theoretical and practical developments in the area of logistics and supply chain management. This course is based on a combination of lecture-based, discussion focused on critical thinking regarding assigned topics, and case study-oriented learning environment. Cases, textbooks and articles relating to the topic will be used. Term paper based on actual cases is required. Advanced preparation will be essential for effective class participation.

POM 686 three credits
Strategic Project Management
This course presents a view of managing projects from an organizational perspective. The principle areas of discussion will be aligning the projects with business strategies, managing multiple projects in the form of programs (Program management), and in the form of portfolios (Portfolio Management), and marshalling organizational assets through an project management office (PMO). Using a case study approach, students will explore the importance of using organizational strategies to align projects, how to use a project management office as a governance process, and apply practices to create portfolios and programs to leverage organizational assets and achieve project success. The use of project management software will be required.

POM 688 three credits
Risk Management in Projects
This course focuses on Risk Reduction and Quality Improvement in Project Management. The risk management process is a systematic and proactive approach to control projects while decreasing uncertainties. The result of risk reduction includes decreasing project time and cost, and improving quality, satisfaction, and success. This course helps students to implement risk management in their working environment. In this course the students will be asked to propose real-life work related projects that require risk assessment and risk resolution. Upon the approval of the project by the instructor, the students will develop a Risk Response Plan. To this end, they will follow the risk management process, which includes risk identification, qualitative, and quantitative risk analysis, risk response planning, and risk monitoring and control. The outcome of this process can be used as input into a quality improvement methodology in order to mitigate, reduce, or eliminate the associated risk.

MIS 671 three credits
Managing Systems
Managing in an information-intensive environment through skills and knowledge of business and systems change. This course teaches strategies for aligning a firm’s information systems with rapidly changing business environments, taking the perspective of both organizational and technical issues. In addition, this course has a major emphasis on IT leadership and the skills necessary to be a successful leader in information-intensive environments. Case studies, field research, guest speakers,

lectures, and discussions are used to explore topics such as reengineering, systems development and implementation, legacy and enterprise information systems, project management, SAP, and other integrated systems. Students undertake projects with local companies that explore the class topics in actual business settings.

MGT 501 three credits
Operations Management
Facets of management ranging from the ordering of materials to the delivery of finished goods and services. Qualitative and quantitative techniques are equally emphasized. Students will apply these to their own organizations. Besides offering administrative problem solving skills, the course will focus on the strategic importance of this field in helping to resolve issues surrounding competitiveness in today's global marketplace. (UMass Dartmouth undergraduate equivalent MGT 345)

MGT 671 three credits
Management of Organizational Change
Knowledge, understanding, and skills to actively contribute, whether as a manager, leader, or change agent, to essential renewal and transformation processes within organizations. Change leadership is a core competency in successful twenty-first century organizations. The course examines how change occurs in large-scale organizations, the role of leadership in the change process, the use of vision, symbols, and metaphor to stimulate change, and the use of change forums to help employees maintain momentum during the process. Further, the course examines the organizational development perspective on planned change, how to design, implement, and institutionalize planned change in the human or technical systems of an organizations, and roles in the change process. The course will benefit managers who recognize the need for change in their organization and who want to develop change leadership skills.

MGT 677 three credits (Having ENL 605 below as an alternative if MGT 677 is not available)
Leading, Motivating, and Empowering Others
Fundamentals of collaborative work as they occur in traditional, hierarchical, and empowered workplaces. More than ever before, contemporary workplaces require joint effort whether between multiple individuals, groups, organizations, or nations. The course reviews selected theories of leadership, motivation, empowerment, communication, and learning. Further, the course explores their application to today's workplace, and considers differences in these actions upward, downward, and laterally. The course provides a highly interactive setting in which participants can assess and develop interpersonal skills necessary to influence others.

ENL 605 three credits

Persuasive Communication--Persuasive Writing and Speaking, We will survey strategies from Aristotle through Madison Avenue, focusing on ethics and legality and techniques of argumentative discourse: its substance, shape, and style. Emphasis also is on avoiding logical fallacies, composing persuasive messages for clients, customers, colleagues, supervisors, subordinates, and audiences; on writing advertising copy and on giving oral presentations.