



College of Engineering
Department of Industrial Engineering
Master of Science Operations Management

Master of Science in Operations Management

UNIVERSITY OF ARKANSAS

Graduate Course Descriptions and Objectives

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OMGT 5003—Introduction to Operations Management

Course Description:

Provides an overview of the functional activities necessary for the creation and delivery of goods and services. Topics covered include: productivity; strategy in a global business environment; project management; quality management; location and layout strategies; human resources management; supply chain and inventory management; material requirements planning; JIT; maintenance and reliability; and other subjects relevant to the field. Required course.

Course Objectives:

The course goal is to define operations management and the role of the operations manager in making strategic OM decisions in relation to the following objectives:

1. Apply strategies for **Designing and Producing Products and Services**.
2. Apply a Total **Quality** Management principles that identify and satisfy customer needs
3. Make **Process and Capacity Design** decisions along with process options for products and services.
4. Select optimal facility **Locations** for both manufacturing and service organizations.
5. Select effective and efficient **Layout** strategies that will meet the firm's competitive requirements.
6. Create a **Human Resource strategy** to manage labor and design jobs.
7. Make **Supply Chain Management** decisions giving consideration to quality, delivery, innovation and costs.
8. Make **Inventory decisions** that strike a balance between inventory investment and customer service.
9. Make quantity and timing of production decisions for the intermediate future through **planning and scheduling**
10. Make **reliability and Maintenance** decisions to maintain the capability of Operations Management systems.
11. Evaluate the importance of strategies to achieve competitive advantage in a global environment
12. Construct Analytical tools for Operations Managers that include the following decision making tools: linear programming, transportation models, waiting-line models, learning curves, and simulation.
13. Apply excel functions as tools to aid in the analysis and evaluation of solutions for strategic OM decisions. Excel required.

OMGT 5013—Supply Chain Management for Operations Managers

Course description:

Focuses on the development and application of decision models in supply chains with emphasis on supply chain performance, cost, and metrics; demand forecasting; aggregate planning; inventory management; supply chain design and distribution; transportation modeling and analysis; supply chain coordination; the role of information technology; and sourcing decisions. Spreadsheet tools and techniques will be used to analyze supply chain performance. Prerequisites: OMGT 4333; OMGT 5003.

Course Objectives:

1. Define a supply chain and discuss its goals and the impact of supply chain decisions on the success of the organization
2. Describe how a company achieves strategic fit between its supply chain strategy and its competitive strategy
3. Identify the major drivers of supply chain performance and be able to define the key metrics for tracking performance of the supply chain for each driver
4. Explain the role of forecasting for both an enterprise and a supply chain and be able to identify the components of a demand forecast
5. Discuss the importance of aggregate planning as a supply chain activity
6. Explain the impact of quantity discounts and trade promotions on lot size and cycle inventory
7. Describe the role of safety inventory in a supply chain and be able to identify the factors that influence the appropriate level of safety inventory
8. Describe the role of sourcing in a supply chain and identify the dimensions of supplier performance that impact total cost
9. Identify the key factors that must be considered when designing a distribution network and discuss the strengths and weaknesses of various distribution options
10. Define uncertainties that are particularly relevant when designing global supply chains and explain strategies for mitigating risk in global supply chains
11. Evaluate the strengths and weaknesses of different modes of transportation in a supply chain
12. Explain the importance of information and information technology in a supply chain
13. Describe supply chain coordination, the bullwhip effect, and their impact on supply chain performance
14. Identify obstacles to coordination in supply chains

OMGT 5113—Human Resource Management

Course Description:

A review of Human Resources Management functions as they apply in today's business setting with specific emphasis on regulatory compliance, total rewards systems, recruitment, training, and employment practices. The course is designed both for HRM professionals and for line managers /professionals who need to understand the roles and responsibilities of HR as a business partner.

Course Objectives:

1. Explain the core function of Human Resources Management as it relates to operating a business with emphasis on the numerous tools utilized by the Human Resources practitioner
2. Demonstrate Human Resources' impact on the morale and attitude of employees through effective conflict-resolution and corrective action processes that promote favorable employee relations
3. Enumerate regulatory challenges involved in Human Resources Management and the consequences to the individual and the enterprise for lack of compliance
4. Present ways in which Human Resources can add value to the organization through the implementation of effective employment practices and by influencing/motivating employees
5. Describe methods and tactics employed by Human Resources professionals in developing total performance management systems, as well as implementing these systems such that they will be supported by both operational leadership and employees
6. Explain operations managers' responsibilities in the area of performance management, including the application of evaluation and coaching tools available within the field
7. Explain the role of training and development in fostering management competencies, employee productivity, and organizational effectiveness
8. Discuss the tools available in the area of recruitment and staffing to continually improve the organization's talent pool, thus enhancing the organization's competitive position
9. Explore Human Resources' role as the face of the organization in creating a favorable labor relations environment and the impact of unions on the competitive position of American corporations, operating in a global marketplace
10. Review Human Resources' role in international operations as it relates to value systems, ethics and customs that vary from those found in US domestic operations

OMGT 5123—Finance for Operations Managers

Course description:

Examines the scope and environment of finance for operations managers. Topics include financial markets, interest rates, financial statements, cash flows, and performance evaluation. Valuation of financial assets, using time value of money; the meaning and measurement of risk/return; capital-budgeting, cost of capital, capital structure, dividend policy, and working capital management are also covered. Required course or may substitute OMGT 5463. Prerequisite: OMGT 4323.

Course Objectives:

1. Explain and apply the concept of time value of money
2. Discuss decision making effectiveness in financial performance analysis and evaluation, capital budgeting, cost of capital, dividend policy, capital structure, working capital management and international issues
3. Describe financial issues, problems, and decisions confronting the manager
4. Present the framework to understand, analyze, and generate solutions consistent with maximizing value of the firm
5. Develop ability to perform financial analysis through the application of concepts, methods and tools including:
 - a. Financial performance evaluation using ratio analysis,
 - b. Measurement of cash flow,
 - c. Reading and interpreting financial statements,
 - d. Capital budgeting issues,
 - e. Dividend decisions and the impact on firm value,
 - f. Working capital and liquidity management
 - g. Issues for the international firm.

OMGT 5133—Operations Management in the Service Sector

Course description:

Review of the role of operations management in the service sector, e.g., health care systems, banking, municipal services, utilities, and postal service and others. Emphasizes the principles and methodologies applicable to the solution of problems within the service industries.

Course Objectives:

1. Be able to fluently articulate the unique and similar aspects of a “service” and a “product”
2. Apply fundamental marketing paradigms to the management of services.
3. Describe and reconcile the nuances of that which is considered “qualitative” in nature versus that which is deemed “quantitative”.
4. Move fluidly between organizational levels in understanding and expressing service concepts.
5. Discuss with various aspects of managing and marketing service organizations.
6. Justify outcomes of the processes and decisions, explaining assumptions and reasons within the context of the strategic goals of the organization.
7. Formulate a strategic service vision.
8. Discuss and articulate the importance of the customer perspective in each facet of delivery.

OMGT 5143—Strategic Issues in Human Resource Management

Course description:

Explores the concept of Strategic Human Resource Management with emphasis on effective partnering by various HR functions with all levels of management to support the large-scale, long-range goals of achieving success in the organization's chosen markets. Internal and external impacts on and of HR in all areas will be examined. Students will analyze case studies to build on basic concepts acquired in OMGT 5113. Prerequisite: OMGT 5113 or consent.

Course Objectives:

1. Describe the changing roles of HRM in contemporary business and government organizations
2. Evaluate the impact of internal and external challenges to HR function in organizations
3. Define what it takes to effectively partner with Operations Managers and the functional areas of the organization in accomplishing corporate objectives and attaining business excellence
4. Evaluate the challenges to HRM posed by an increasingly multigenerational and multicultural society and by the demands of an increasingly diverse workforce
5. Describe the latest political, legal and regulatory changes/trends and their impact on HRM
6. Outline the legal and ethical challenges facing managers in today's society
7. Develop the analytical capacity to quantify HR's impact on the organization, utilizing balance scorecard, benchmarking and other metrics
8. Explore the evolving role of HRM in creating value for the organization in the areas of Compensation, Benefits, Recruiting/Staffing, ER, Training & Development, etc.
9. Apply concepts learned to the analysis and interpretation of specific HRM case studies
10. Assess the impact of technology on the HRM function with respect to change in the work environment, interpersonal dynamics, and a widely dispersed workforce

OMGT 5253 – Leadership Principles

Course Description:

Fundamental historical basis of ethics and character are studied with emphasis on the origin of the factors that many cultures derive their ethical standards. Relationship of how these standards relate to operations management and business. The characteristics of leadership and the ethical qualities that make a person an effective leader in today's business and industrial environment are analyzed. The laws of leadership and examples that specific leaders exhibit these laws are discussed with emphasis on individual growth as a leader in today's market.

Course Objectives:

The course goal is to define the role of the operations manager in making character based leadership decisions by studying the following objectives:

1. Research and understand the origins of ethical standards and how they apply to society and business operations.
2. Learn and relate the Ethics of John C. Maxwell toward the Golden Rule and how its origins in many global religions and cultures developed.
3. Define the seven classical virtues identified by Aristotle and other throughout history and their applications toward character development in today's business and service environments.
4. Understand the relationship of competence and how it relates to adding value to others to foster leadership.
5. Understand leadership as it relates to corporate responsibility.
6. Students will develop an awareness of their competencies, core values, and themselves, and will develop a personal approach - a "personal voice" - in relation to leadership.
7. Students will understand the process of leadership, how it involves both leaders and followers, and the connections and resonances between them.
8. Students will learn the origins of ethical standards and how they apply to society and business operations.
9. Students will understand the varieties of leadership: charismatic, situational, indirect and direct, informal, legitimate, and positional.
10. Students will recognize that authors of leadership books approach the subject based on their background and experiences, requiring the content of the books to be interpreted accordingly.
11. Students will gain a better understanding of historical leadership icons in comparison with contemporary leaders.
12. Students will understand and begin the process of grappling with the moral, ethical and political dimensions of leadership.

OMGT 5303—Health Care Policies and Issues

Course description:

Explores Health care management strategies and policy development with emphasis on health insurance, Medicare, Medicaid and managed care, as well as employee health benefits. The roles of government and business in policy formulation are addressed, as are the problem of financing health care, legal and ethical considerations, current healthcare issues, and quality measures.

Course Objectives:

Each student should accomplish/master the following skills upon completion of this course:

1. Develop a general understanding of the health care system.
2. Develop an understanding of the measurements and determinants of health status.
3. Identify the components of the health care system, and explain their impact, significance, purpose, and larger consequences.
4. Discuss the dynamics of access to the health care system.
5. Explain the cost and finance aspects of the health care system.
6. Explain how quality is determined and measured within the health care system.
7. Describe health care benefits and their impact on at all levels within the health care system.
8. Describe the evolving role of government and its impact on the health care system.

OMGT 5373—Quality Management

Course description:

Introduces students to quality management concepts and their use in enhancing organizational performance and profitability. History of the quality movement, its broad application in key economic sectors, and philosophical perspectives of major quality leaders will be discussed. Focus is on continuous process improvement, using data and information to guide organizational decision-making. The Six Sigma approach and associated statistical tools, supporting process improvement, are also covered. Prerequisite: OMT 4333.

Course Objectives:

1. Define quality and compare and contrast this definition from a variety of perspectives
2. Discuss the application of quality in the various organizations; manufacturing, service, healthcare, and education
3. Compare and contrast the philosophies of Deming, Juran, and Crosby
4. Discuss the role that quality management frameworks such as the Malcolm-Baldrige, ISO-9000, and Six Sigma play in improving an organization's quality performance
5. Discuss the role of the customer, the importance of building customer relationships, and the strategies for measuring customer satisfaction
6. Discuss the role of quality leadership in strategic planning and high performance human resource practices
7. Discuss the scope of process management and specific process improvement techniques
8. Discuss the scope of performance measurements and their impact on the cost of quality within the organization
9. Discuss culture change and the associated barriers to creating a culture of performance excellence
10. Define and discuss the Six-Sigma problem solving process
11. Explain the various tools available for process improvement
12. Explain the use of statistical process control and its impact on process improvement

OMGT 5403—Industrial Safety and Health Administration

Course Description:

Based on Federal Regulations for Occupational Safety and Health, the course examines current regulations, as well as their commonsense application. Covers various standards, such as those for material handling, personal protective equipment, toxic substances, and machine guarding. Uses case studies and real world scenarios to present topics and demonstrate their application.

Course Objectives:

1. Review and discuss Federal Safety and Health Regulations, as well as their application to and impact on private business
2. Explain essential record keeping such as work-related illness and injury logs and environmental impact reporting
3. Describe various techniques for hazard avoidance and accident analysis, impact of injuries, and worker's compensation
4. Summarize how to protect personnel through medical treatment, first aid, and personal protective equipment
5. Execute facility safety through emergency preparedness, contractor safety, workplace security, emergency egress, and fire safety
6. Summarize how to create a safe working environment for employees through ergonomics, industrial noise elimination, and toxic substance management
7. Explain how an educated and informed workforce is maintained through safety training and orientation, hazard communication, and employee right-to-know
8. Outline several quantitative tools of safety and health management, such as ergonomic analysis, permissible exposure to toxic substances, permissible noise exposure, and electrical safety

OMGT 5423—Operations Management and Global Competition

Course description:

Studies of principles and cases in business/industrial administration in global competition. Survey of markets, technologies, multi-national corporations, cultures, and customs. Discussions of ethics, professionalism, difference valuing, human relations skills, and other topics relevant to global practice.

Course Objectives:

1. Describe the different challenges businesses face when they operate in a global environment
2. Explain the national differences in Political, Economic and Legal systems.
3. Examine the various cultural, legal and political issues that impact international business effort
4. Discuss the international institutions and agreements that influence international business practices
5. Explain the various International Trade theories
6. Describe investment theory, foreign exchange and the determination of foreign exchange rates
7. Explain the interaction of business and governments as they relate to international commerce
8. Describe the management implications of international business strategy and operations
9. Discuss how the different cultures impact the global economy

OMGT 5433—Cost Estimation Models

Course description:

Examination of methodologies for estimating and forecasting product and service costs. Topics include labor and material cost analysis; accounting analysis including financial statements, depreciation, budgeting, and overhead allocation; forecasting techniques; general cost estimating methods; operations estimating and analysis; product cost estimating, including pricing approaches; measuring after tax cash flows and utilizing breakeven models (same as INEG 5433). Prerequisite: OMGT 4323 and OMGT 4333, or consent.

Course Objectives:

The course objective is to provide fundamental concepts and principles that will increase the managerial/operational effectiveness of the student and to facilitate student learning in the following areas:

1. Describe how labor and material costs affect selling price, profit margins, and breakeven analysis.
2. Discuss the concept of an accounting analysis to include financial statements, depreciation methods, budgeting concepts, and overhead allocation.
3. Discuss different methods of forecasting techniques – Including linear regression, projects, and learning curve.
4. Apply cost and time estimating relationships and apply general cost and operations estimating methods and analysis
5. Demonstrate the use of product cost estimating and pricing approaches used in breakeven and profit estimation calculations
6. Discuss the importance of after tax cash flows and utilizing breakeven models
7. Describe decision making including rate of return, payback period
8. Discuss methods/concepts with respect to time value of money.

OMGT 5443—Decision Models

Course Description:

Focus on quantitative and qualitative decision models and techniques for technical and managerial problems. Emphasis on application and interpretation of results. Topics include decision trees, influence diagrams, weighting methods, value of information, Analytic Hierarchy Process, Bayes Theorem, Monte Carlo simulation, utility theory, risk analysis, group decision-making and expert systems. Prerequisite: OMGT 4333.

Course Objectives:

1. Understand the challenges of individual and organizational decision making.
2. Understand the mathematical foundations and axioms of decision analysis.
3. Be able to develop and implement a decision process using the appropriate decision models in a public or private organization.
4. Understand and apply the techniques of qualitative decision analysis to frame the decision problem and develop creative alternatives.
5. Be able to develop decision objectives and value measures for a decision problem.
6. Develop deterministic single and multiple objective decision models, perform analysis and identify decision insights.
7. Understand decision making heuristics and avoid cognitive and motivational biases
8. Be able to identify key uncertainties and quantify uncertain knowledge with probability.
9. Perform probabilistic single and multiple objective decision analysis and develop decision insights.
10. Develop a decision model and perform a decision analysis on a *significant* professional decision.
11. Effectively communicate the problem frame, decision insights, and decision recommendation.

OMGT 5463—Economic Decision-Making

Course description:

Principles of economic analysis with emphasis on discounted cash flow criteria for decision-making. Comparison of criteria such as rate of return, annual cost, and present worth for the evaluation of investment alternatives. Required course (may substitute OMGT 5123). Prerequisite: OMGT 4323.

Course Objectives:

1. Describe the role and fundamental concepts of economic decision making
2. Be able to conduct an economic decision analysis
3. Use Excel spreadsheet functions to solve economic decision making problems
4. Be able to apply the concept of time value of money,
5. Make economic calculations for interest rates and cash flows,
6. Compare mutually exclusive alternatives on a present worth, annual worth, and future worth basis
7. Understand and perform rate of return analyses
8. Conduct benefit/cost analysis
9. Compare multiple alternatives economically using multiple attributes
10. Perform an economic replacement analysis
11. Analyze independent alternatives when there is a capital investment limit
12. Explain the concept and applications of depreciation methods and perform after-tax cash flow analysis

OMGT 5473—Lean Six Sigma

Course Description:

This course covers the application of lean principles to manufacturing, service and government processes in order to improve productivity, increase value and eliminate waste as well as the use of the Six Sigma problem solving methodology to reduce variation and improve quality. Students will gain experience with the tools and analysis methods used in both approaches. The topics covered include: methods for creating Lean processes, proven lean problem-solving methodologies, managing a lean transformation, implementing a Six Sigma initiative, executing the five phases of the Six Sigma DMAIC process, and communicating results to stakeholders and decision-makers. The prerequisite courses for MSOM students are OMGT 4853 and OMGT 5003. This course does require the use of Excel for quantitative analysis and an introductory understanding of statistics. There are resources available within the course on these topics and statistics skills will be reviewed as part of the course.

Course Goals/Objectives:

At the conclusion of the course, students will be able to:

1. Discuss how to create and sustain a culture that focuses on the delivery of value to the customer by utilizing continuous process improvement and variance reduction strategies.
2. Translate customer feedback and enterprise goals into opportunities for improvement.
3. Discuss the differences and similarities between Lean and Six Sigma, how they complement one another and how they can be used together for greater benefit.
4. Explain the project selection process and set goals for a Six Sigma or LSS project.
5. Explain the goals of each phase of the Six Sigma DMAIC process and create a plan for managing and executing a Six Sigma improvement project.
6. Explain the roles and responsibilities of Six Sigma project team members, the stages of team development, common team decision making tools and team communication methods.
7. Select and apply the tools and analysis methods commonly used as part of the Lean Six Sigma DMAIC process.
8. Clearly and concisely communicate project plans and the results of studies to stakeholders and decision makers.

OMGT 5503—Maintenance Management

Course description:

Principles and practices of maintenance department organization, prevention procedures, and typical equipment problems. Includes related topics such as plant protection, preventative and plant maintenance. (Students must have met the requirement for OMGT 4333--Applied Statistics prior to enrollment)

Course Objectives:

1. Describe the strategic importance of a structured maintenance plan (as it aligns with the 10 Operations Management Decisions)
2. Analyze system reliability and interpret key failure metrics
3. Distinguish between preventive and corrective maintenance
4. Compare and interpret preventive maintenance costs and corrective maintenance costs
5. Analyze maintenance improvement methodologies
6. Develop a Total Productive Maintenance (TPM) program plan for an organization to implement

OMGT 5623—Strategic Management

Course Description:

Examines strategic management, which is defined as the art and science of formulating, implementing, and evaluating cross-functional decisions that enable an organization to achieve its long-term objectives. Principles of strategic management will be covered in conjunction with case studies to provide opportunity for analysis and experience in applying these principles in an operations management environment.

Course Objectives:

1. Develop vision and mission statement
2. Perform external and internal strategic management audits
3. Establish long-term strategic objectives
4. Generate, evaluate, and select strategies
5. Implement strategies to address management, operations, marketing, financial, R&D, and MIS issues
6. Measure and evaluate strategic performance
7. Explain business ethics, social responsibility and environmental sustainability.
8. Discuss global / international issues.

OMGT 5633—Linkages Among Technology, Economic & Societal Values

Course Description:

Addresses how macro-level change is influenced by the linkages among technology, economics and societal values. Three major course initiatives: 1) Developing a conceptual model for understanding how macro-level change has occurred over history; 2) Examining recorded history in order to develop a contextual appreciation for Society's current situation; and 3) Using statistical data to identify six overriding world trends that are likely to greatly impact society's goal of achieving sustainable prosperity and well-being in the foreseeable future

Prerequisite: Must be admitted to the Master of Science in Operations Management Program, Project Management Graduate Certificate Program, be a Non-Degree Seeking Graduate Student, or have departmental consent.

OMGT 5653—Introduction to Data Analytics for Ops. Mgrs.

Course Description:

Introduces data science and data analytics. Provides basic skill instruction in the statistical data analysis programming language R. Provides experience building and interpreting descriptive and predictive data analytics models. Provides operations managers with the skill and tools to use and understand advanced data analytics methods. Provides practice communicating those results to senior stakeholders and decision makers. Prerequisite: OMGT 5003 or EMGT 5033, must be admitted to the Master of Science in Operations Management Program, Project Management Graduate Certificate Program, be a Non-Degree Seeking Graduate Student, or have departmental consent.

Course Objectives: The goal of this course is to introduce students to data analytics. You will be programming in R. Upon completion of this course, students should be able to:

1. Demonstrate basic proficiency in the R programming language for statistical analysis.
2. Apply Affinity Analysis to analyze data to support decision-making.
3. Apply descriptive statistical and graphical displays of data to communicate results of data analytics to senior stakeholders and decision makers.
4. Apply classification methods such as K-Nearest Neighbors and Classification Trees to evaluate solutions to complex engineering problems.
5. Use Linear Regression to make statistical predictions to support decision-making.
6. Use the data reduction method of Principal Component Analysis to select between solutions to complex engineering problems.
7. Develop executive summaries, oral presentations, and detailed technical reports to communicate results of data analytics to senior stakeholders and decision makers.

OMGT 5673—Principles of Operations Research

Course Description:

Surveys the mathematical models used to design and analyze operational systems. Includes linear programming models, waiting line models, computer simulation models, and management science. Students will be introduced to applications of operations research and solution methods, using spreadsheet software. Prerequisite: OMGT 4333.

Course Objectives:

1. Students will increase their scientific decision-making effectiveness through utilization of operations research methods.
2. Gain an understanding of the importance of precise problem definition
3. Demonstrate the ability to identify the decision variables, parameters, constraints, and objective functions associated with a problem
4. Obtain an understanding of the role of sensitivity analysis in operations research
5. Become familiar with the most common models used in operations research, as well as the underlying assumptions and most common applications of these models

OMGT 5733—Human Behavior Analysis

Course description:

Examination of the principal drivers of individual and group behavior in organizations with coverage of practical applications of concepts in organizational behavior for operations managers. In addition to group behavior, individual behavior and organizational processes, the course explores people management challenges that result from external pressures on stakeholders (e.g. competitive, economic, social, political, and regulatory impacts).

Course Goals/Objectives:

1. Demonstrate the application of scientific methods as they bear on practical resolution of people management problems
2. Analyze potential causes and consequences of specific workplace behavior by individuals, by individuals within groups, and by groups within the organization
3. Explain the multidisciplinary roots of the field of human behavior analysis and the application of theory at all levels of analyzing behavior in organizations
4. Evaluate the relative impact of individual differences and situational factors on workplace behavior
5. Analyze the effect on individual employees of organizational change that is driven by technology and evolving workplace models (telecommuting, virtual business, etc.)
6. Examine the elements of building constructive relationships and mutual trust in the workplace
7. Discuss the management challenges inherent in the varied values, belief systems and expectations that characterize the changing demographics of a global workforce
8. Develop skills in building and managing effective teams
9. Evaluate the most recent developments in motivation theory as these find application in the workplace, as well as the relative importance of organizational reward systems vs. managerial behavior in motivating individuals and groups
10. Examine the factors involved in individual and group decision-making, particularly those that can enhance or degrade the quality of decision outcomes in organizations
11. Analyze formal and informal communication processes and networks in organizations that can positively or adversely affect workplace morale and organizational effectiveness

OMGT 5783 – Project Management for Operations Managers

Course description:

An introduction to the Critical Path Method and Program Evaluation and Review Technique. Covers project planning and control methods; activity sequencing; time-cost trade-offs; allocation of manpower and equipment resources; scheduling activities; and computer systems for PERT/CPM with emphasis on MS Project. Case studies include topical issues combining methodologies and project management soft skills, such as conflict management, negotiation, presentations to stakeholders, and team building.

Course Objectives:

1. Describe the major characteristics of a project and defend the importance of project management
2. Apply project initiation techniques
3. Apply scope management techniques
4. Apply scheduling techniques
5. Apply budgeting techniques
6. Develop a risk management plan
7. Conduct progress measurements and evaluations to determine project status
8. Develop a framework for project closure
9. Evaluate case studies, scenarios, or current events in terms of professional and ethical responsibilities.
10. Use Project Management Software to plan, schedule, and control a project
11. Develop a life-cycle project plan including scope, schedule, budget, and risk

OMGT 5793—Risk Management

Course Description:

Students will learn to apply tools to identify, assess, communicate and manage risk. Course work includes methods to identify risks, develop risk models, assess risk, and evaluate risk management options. Case studies are used to understand risk management challenges in systems development in complex organizations. Prerequisite: OMGT 5003 or EMGT 5033, must be admitted to the Master of Science in Operations Management Program, Project Management Graduate Certificate Program, be a Non-Degree Seeking Graduate Student, or have departmental consent.

OMGT 5833 – Decision Support Application Development for Operations Management

Course description:

Students will utilize Microsoft Excel and Visual Basic for Applications to develop custom solutions to challenging operations management problems. Emphasis will be placed on computing productivity in a spreadsheet-based setting to develop practical, useful decision support applications to support operations management.

Prerequisite: OMGT 4853, excellent spreadsheet skills, computer programming experience, and familiarity with Microsoft Excel or other spreadsheet tools

Course Objectives:

Upon completion of this course, students will be able to

- Develop practical, useful decision support applications to support operations management
- Create, debug, and execute custom decision support applications in Visual Basic for Applications
- Design appropriate user interfaces for decision support application program control
- Query databases using structured query language (SQL)

OMGT 5873—Organizing for Change

Course description: Provides an overview of fundamental management functions, including planning, organizing, staffing, directing and controlling. Organizational decision-making authority, structures, and controls are examined. Topics also include leadership, motivational techniques, ethical perspectives on decision-making and corporate social and environmental responsibility.

Course Objectives:

1. Describe management functions in today's global competitive environment
2. Describe how the organization's culture affects its response to the elements of a macro and competitive environment
3. Identify the various characteristics and stages of the managerial decision-making process in an organization
4. Outline planning fundamentals and levels
5. Describe various ethical perspectives in decision making and corporate social and environmental responsibility
6. Describe how integration of the world business environment affects the manager's role
7. Discuss management challenges in entrepreneurship and intrapreneurship in organizations
8. Describe the elements of organizational structure
9. Identify strategies that can improve a work group's responsiveness
10. Describe how to manage a diverse workforce
11. Describe the characteristics of an effective leader
12. Describe how managers can motivate people to achieve and maintain high performance
13. Describe how to build high performance teams that can contribute to the organization's effectiveness
14. Discuss strategies to improve managers' interpersonal and organizational communication skills
15. Describe an effective managerial control system

OMGT 5903—Unmanned Aircraft Systems

Course Description:

Course focuses on the fundamentals of UAS operations and the applications of UAS systems in research, government and business applications. Modules covers government compliance, licensing/certification requirements, University Policy and current events in the UAS field. Prepares students to participate in research or UAS operational roles. Discusses policy and process issues in society and considerations for ethical UAS use. Prerequisite: Must be admitted to the Master of Science in Operations Management Program, Project Management Graduate Certificate Program, be a Non-Degree Seeking Graduate Student, or have departmental consent.

OMGT 5983 – Advanced Project Management

Course Description:

This course builds upon the project management for operations managers' course and offers students an opportunity to apply advanced project management tools to manage troubled projects. Topics include determining the project status using the schedule baseline, cost estimations, and earned value management techniques. Students will learn how to perform a project assessment/audit and will create a troubled project recovery plan. The course includes presentations of case study assignments to gain experience in communicating the status and recovery of failed and troubled projects.

Course Objectives:

1. Evaluate the status of a troubled project
2. Interpret Earned Value Management results and make recommendations for corrective action
3. Use advanced estimation techniques
4. Apply schedule compression and cost reduction techniques to meet project requirements
5. Evaluate and apply an alternate scheduling philosophy
6. Use Project Management Software to plan, schedule, and control a project
7. Develop an Integrated Change Control Plan to catalog and communicate change
8. Evaluate case studies, scenarios, or current events in terms of professional and ethical responsibilities.
9. Develop a troubled project recovery plan

OMGT 5933 – Cybersecurity for Operations Managers

Course description:

The cybersecurity for operations managers' course introduces strategic and tactical processes to implement the National Institute of Standards and Technology (NIST) Risk Management Framework (RMF). Additionally, the Body of Knowledge for the American Society of Industrial Security is applied to each process and procedure. Managers and Leaders responsible for cybersecurity, with or without an IT background, are provided a logical RMF to establish an effective cybersecurity program in their organization.

Course Objectives:

1. Identify cybersecurity compliance requirement for operations management lines of business
2. Describe methods to secure networks.
3. Select the most appropriate security methods.
4. Explain the relationships between information security, cybersecurity and information management.
5. Understand the implications of network insecurity to operations management, particularly blockchain and proprietary information.
6. Implement a Risk Management Framework using National Institute of Standards and Technology process.

OMGT 5993 – Homeland Security for Operations Managers

Course Description:

Introduces concepts of Homeland Security in industry and government settings. Covers basic legal and compliance programs and risk management processes. Explains the continuity between critical infrastructure, government and private sector roles. Focuses on system design and understanding of the National Incident Management System protecting the homeland. Introduces cybersecurity and intelligence analysis concepts. Prerequisite: Must be admitted to the Master of Science in Operations Management Program, Project Management Graduate Certificate Program, be a Non-Degree Seeking Graduate Student, or have departmental consent.

Course Objectives:

1. Explain effective organization structures of security units and the role of operations managers in industry and government positions.
2. Understand the various legal, ethical, regulatory and professional standards and programs for operations managers.
3. Analyze information technology security methods and techniques.
4. Apply leadership techniques to global security process improvement and management of security staff.
5. Apply quantitative techniques to measure the effectiveness of security measures.
6. Synthesize integrated homeland security systems following domestic and international compliance standards.
7. Present design options to homeland security decision makers.