Technology Management (TECH)

TECH 1000
Experiential Credit Portfolio Development and Assessment
2
* Prerequisite(s) or Corequisite(s): TECH 110R

Introduces basic concepts, theories and principals of a professional portfolio to demonstrate prior learning experience. Includes the identification of prior professional experience, certifications, licenses, etc. to document professional competencies for assessment by a committee of appropriate faculty and technology professionals to determine experiential credit granting equivalences in courses TECH 110R. Introduces the value of continuous learning and the process of learning how to learn.

TECH 1010 **PP**
Understanding Technology
3

Covers the principal technologies that are important and prevalent today and their associated science principles. Explores how technology applies to, affects, and interacts with various fields, environments and workplaces. Develops an appreciation for how technology evolves and what possible new and exciting technologies are on the horizon

TECH 1050
Manufacturing Processes and Systems
3

Covers a wide variety of manufacturing processes, including: casting, welding, sheet metal forming, machining, composites fabrication, injection molding, extrusion, thermoforming, rotational molding, and electronics fabrication. Covers understanding of manufacturing systems and all the components required to work together, including: the production system, ERP software system, quality system, business structure, supply chain, and delivery.

TECH 110R
Technical Experiential Credit
1 to 8
* Prerequisite(s): TECH 1000

Allows students to obtain technical experiential credit through an approved portfolio. Portfolio is developed and approved in TECH 1000. May be repeated for a maximum of 15 credits toward graduation.

TECH 200G **SS**
Technology and Human Life
3

Acquaints students with the major technologies affecting our culture and the global community, such as biotechnology, nanotechnology, information technology, and military technology. Places special emphasis on the moral, social, economic, legal, and political consequences of these technologies. Covers summary descriptions of various technologies, some of the major issues associated with them, and the underlying philosophical foundations of our encounters with them. May be delivered online.

TECH 2010
Supervision in Technology
3

Addresses employee motivation and the impact of the workplace environment (both physical and intangible). Presents various techniques of leadership and management (addressing different motivational theories and contemporary research on worker motivation). Teaches how to build and work in effective teams to inspire good performance and use conflict and negotiation effectively. Practices good communication skills both written and oral. Teaches how to understand the organizational structure, how to manage and assess performance, and how to be aware of opportunities and challenges when managing employees in a technological environment, including strategies for training and evaluation. May include hybrid or online delivery.

TECH 2020
Operational and Product Safety Management
3

Presents fundamentals of safety in the workplace including ergonomic, environmental, and other risk factors associated with new technology. Examines the role of technical managers through case studies and observation of local work places and businesses. Studies the impact of governmental agencies and regulations on workplace and product safety. Compares various communication and human factors techniques to prevent and mitigate human error.

TECH 2050
Introduction to Quality Management
3
* Prerequisite(s): STAT 1040, STAT 1045, or EGDT 1600 with a grade of C- or higher

Introduces quality management. Includes ISO 9000, application of Lean Six Sigma, continuous process/product improvement, basic statistical methods, performance measurements, cost of poor quality, employee empowerment, and global quality initiatives. Covers requirements for relevant professional certifications for career enhancement.

TECH 281R
Internship in Technology
1 to 3
* Prerequisite(s): Department Approval

Obtains work experience for lower-division students in their technical field. Provides supervised, practical, and professional experience. Demonstrates accountability regularly with a School of Technology and Computing coordinator. May be repeated for a maximum of 3 credits toward graduation. May be graded credit/no credit.

TECH 290R
Current Topics in Technology
3

Demonstrates current developments in technology fields and how they apply to business and industry processes. Prepares students to use contemporary technologies in their professions. May be repeated for a maximum of nine credits toward graduation. May be delivered hybrid.

TECH 297R
Independent Study
1 to 3
* Prerequisite(s): Department approval

Requires individual initiative and responsibility. For qualified students who wish to undertake an independent project or directed study related to an area of technology or manufacturing. The topic must be approved by the instructor and the Department Chair. May be repeated for a maximum of 4 credits toward graduation.

TECH 3000
Introduction to Technology Management
3
* Prerequisite(s): University Advanced Standing

Addresses the special characteristics of managing and leading technology dependent organizations. Covers the leading influential technologies, technology's impact on organizational structure and the policy process, strategic technological planning, futures studies, leadership, global aspects of technology management, performance assessment, technology life cycles and financing, and some of the major ethical implications of managing technology dependent organizations. Canvas Course Mats $78/ McGraw applies

TECH 3010
Creativity Innovation and Change Management
3
* Prerequisite(s):ENGL 1010 or ENGH 1005, Sophomore Standing, and University Advanced Standing

Focuses on principles of creativity and innovation as they apply to technological enterprises. Covers theoretical and practical concepts of both creativity and innovation. Studies both concept and practice of structured methods of creative problem solving. Examines "Appreciative Inquiry" as an alternative management of change technique. Examines inventors and the invention process, including the patent process. Uses lecture, discussion, group projects, case studies, class activities, presentations, videos and guest lecturers.

TECH 301R
Technology Lecture Series
1
* Prerequisite(s): ENGL 2010 and University Advanced Standing

Presents lectures from external speakers in various technology related subjects. Requires a written reaction paper for most of the lectures. May be repeated for a maximum of 2 credits toward graduation.

TECH 3400
Project Management WE
3
* Prerequisite(s): University Advanced Standing

Covers the fundamental principles, processes, and techniques of project management. Includes a systems approach to planning, scheduling, and controlling projects. Focuses on effective processes for managing projects across multiple disciplines/industries and varying management structures. Introduces project management tools that can be used to guide and manage individual and multiple projects. This is a writing intensive course.

TECH 3700
Materials Management
3
* Prerequisite(s): TECH 3000 and ENGL 2010 and University Advanced Standing

Involves a comprehensive approach to purchasing, raw and finished goods inventories, and determining and managing capacity and workers. Includes Just-in-time, Kanban, scheduling and emerging technologies. Assists in preparing students for national certifications.

TECH 3850
Quality Management in Technology
3
* Prerequisite(s): [(TECH 3000 and (STAT 1040 or STAT 1045) or advisor approval] and University Advanced Standing

Involves a comprehensive approach to Quality Management related to technical professions. Covers Lean and Six Sigma approaches, continuous improvement/Kaizen, Voice of the Customer (VOC), Statistical Process Control (SPC), cost of poor quality, leadership, employee empowerment, teamwork, change management, and quality standards. Assists in preparing students for the relevant professional certifications for career enhancement.

TECH 4000
Reliability Management
3
* Prerequisite(s): TECH 3000, TECH 3850, (STAT 1040 or STAT 1045), and IM 2010 each with a grade of C- or higher and University Advanced Standing

Introduces reliability as a component of successful business strategies. Covers processes for design for reliability in the context of quality management and product development. Presents the most common tools and techniques used to test and interpret reliability data. Examines the role of managers and reliability engineers to ensure product reliability and safety. Uses a mix of case studies, student research, and current events to examine the business impact of reliability intechnical enterprises. Software fee of $15 applies.

TECH 405G
Global Ethical and Professional Issues in Technology
3
* Prerequisite(s): PHIL 2050 with a grade of C- or higher and University Advanced Standing

Examines professional, ethical, and cultural issues related to the leadership of technological organizations. Studies the impact of emerging technologies, conflicting values, multiculturalism, and globalization on management practices in the workplace. Reviews current ethical theory and professional codes of conduct with special emphasis on global and intercultural issues. Includes lectures, readings, case studies and other media. May be delivered online.

TECH 4200
Technology Marketing and Customer Relationship Management
3
* Prerequisite(s): TECH 3000 and IM 2010 both with the grade of C- or higher; and University Advanced Standing

Examines marketing theory and customer relationship management (CRM) theory, as well as the application of CRM technology in marketing, sales, and service operations. Includes exploration of CRM software. Covers the basic marketing processes, such as identification, acquisition, growth and retention of desired customers. Highlights the basics of how contemporary CRM software can help manage these processes.

TECH 4400
Advanced Project Management
3
* Prerequisite(s): TECH 3400 with a C- or higher; University Advanced Standing

Presents advanced tools and techniques which build on the concepts presented in introductory project management class. Covers principles for managing multiple projects. Studies best practices for project management. Introduces the activities of Program Management, Project Portfolio Management and Strategic Project Leadership and Management. Analyzes basic cost justification techniques for making economic decisions in technical organizations. May be delivered online.

TECH 4420
Organization Information Technologies
3
* Prerequisite(s): TECH 3000 and IM 2010 and (ACC 3000 or ACC 2020) all with a C- or higher; and University Advanced Standing

Introduces how information, and the management of that information, can affect the structure and operations of organizations. Covers technical and organizational foundations of information systems along with contemporary approaches to building, managing, and protecting information systems including hands-on work with a modern Enterprise Resource Planning (ERP) system. Emphasizes how information technology affects decision-making. Uses Excel as a decision support tool. Examines the ethical and legal issues raised by the capabilities of information technology. May be delivered online. Lab access fee of $45 for computers applies.

TECH 481R
Internship
1 to 3
* Prerequisite(s): TECH 3400, Technology Management Department Chair Approval, and University Advanced Standing

Provides opportunities to apply classroom theory while students work as employees in a job that relates to their careers. May be repeated for a maximum of 9 credits toward graduation. May be graded credit/no credit.

TECH 489R
Undergraduate Research in Technology Management
1 to 3
* Prerequisite(s): Department approval and University Advanced Standing

Provides the opportunity to conduct research under the mentorship of a faculty member. Practices the theoretical knowledge gained in prior major courses. Requires the creation of a significant intellectual or creative product that is characteristic of the Technology Management discipline and worthy of communication to a broader audience. May be repeated for a maximum of 3 credits toward graduation.

TECH 490R
Current Topics in Technology Management
3
* Prerequisite(s): (Senior Status or Instructor Approval) and University Advanced Standing

Designed to show developments in business and industry professions in the short- and mid-term future. Acquaints students with the newest technological developments in their fields. Prepares students for the changes that various technologies will bring their professions. May be repeated for a maximum of 9 credits toward graduation.

TECH 4910
Senior Capstone Project WE
3
* Prerequisite(s): TECH 3010, TECH 3400, and TECH 3850 each with a grade of C- or higher; Senior Status and University Advanced Standing.

Is for senior Technology Management majors. Provides a leadership transition from academic to applied/real-life work experience. Includes student, company liaison, and coordinator evaluation, on-site work visits, written assignments and oral presentations. Offers experience in establishing and accomplishing team objectives that improve their ability to add real value in their future employment. This is a writing intensive course.

TECH 497R
Independent Study
1 to 3
* Prerequisite(s): Technology Management Department Chair Approval and University Advanced Standing

Offers independent study as directed in reading or individual projects at the discretion and approval of the department chair. May be repeated for a maximum of 4 credits toward graduation.

TECH 6000
Strategic Management of Technology and Innovation in Engineering
3
* Prerequisite(s): Acceptance into Master of Science in Engineering and Technology Management program or approval of graduate program director

Presents contemporary concepts and frameworks of strategic management and technological innovation. Develops competence in analyzing novel technologies and business strategies through the exposure to strategy frameworks and historical and contemporary cases. Explores the relationship between technological innovation and strategy in the context of technology-based business firms.

TECH 6010
Engineering Law and Patents
3
* Prerequisite(s): Acceptance into Master of Science in Engineering and Technology Management program or approval of graduate program director

Explores legal topics relevant to engineering and technology managers. Focuses on intellectual property. Covers contracts, torts, labor law, property, and environmental law. Emphasizes legal principles necessary to provide engineers with the ability to recognize issues that are likely to arise in the engineering and technology management profession.

TECH 6400
Six Sigma Project Management
3
* Prerequisite(s): Acceptance into Master of Science in Engineering and Technology Management program or approval of graduate program director

Presents a range of advanced topics on how to define, plan, and execute a project whether your goal is simple or complex. Emphasizes the necessary skills to lead process improvement, and learn systematic methods used to improve performance efficiencies and to reduce variations in business operations to achieve productivity and profitability gains.

TECH 6420
Finance for Technical Systems
3
* Prerequisite(s): Acceptance into Master of Science in Engineering and Technology Management program or approval of graduate program director

Presents financial management and information systems concepts relevant to managing business firms. Develops ability to analyze and produce financial management information using information systems. Explores future trends at the intersection of financial management and technology.

TECH 6430
Product Management Processes
3
* Prerequisite(s): Acceptance into Master of Science in Engineering and Technology Management program or approval of graduate program director

Presents contemporary product design and development concepts and frameworks. Develops competence in analyzing different categories of technological products as well as different product design and development processes. Explores future trends in managing technological product design and development.

TECH 6450
Engineering Economics and Project Evaluation
3
* Prerequisite(s): Acceptance into Master of Science in Engineering and Technology Management program or approval of graduate program director

Presents concepts, methods, and tools of economic analysis and managerial decision-making from a cash flow perspective. Emphasizes the time value of money, present worth analysis, annual equivalent worth, rate of return, depreciation, and inflation analyses. Covers the evaluation of projects, and comparison and selection among alternatives addressed. Interprets general accounting principles and basic financial analysis.

TECH 6500
Resource Management in Engineering and Technology
3
* Prerequisite(s): Acceptance into Master of Science in Engineering and Technology Management program or approval of graduate program director

Enhances the ability to analyze and successfully implement resource management techniques in areas of asset, information, and data management. Develops ability to implement optimal processes and procedures in resource estimation and planning, cost and billing, scheduling, and execution. Analyzes resource management responsibilities from a broad level of resource capacity though resource allocation and specific work management.

TECH 6700
Data Driven Decision Making
3
* Prerequisite(s): Acceptance into Master of Science in Engineering and Technology Management program or approval of graduate program director

Critiques management practices for decision making within business. Defines appropriate uses of quantitative and visual data to influence the decision process. Presents engaging case studies drawn from publications, local business managers, and the experiences of faculty. Develops data analysis and presentation skills using appropriate software.

TECH 6710
Materials Management
3
* Prerequisite(s): Acceptance into Master of Science in Engineering and Technology Management program or approval of graduate program director

Presents a comprehensive list of topics in materials management. Places special emphasis on materials flow improvement and waste reduction. Covers production planning, capacity management, purchasing, demand forecasting, inventory management, and lean production.

TECH 679R
Special Topics in Engineering
3
* Prerequisite(s): Acceptance into Master of Science in Engineering and Technology Management program or approval of graduate program director

Presents a range of advanced topics of current interest in the fields of engineering management and technology management. Emphasizes new management practices that are emerging as a result of rapid technological advancements. Critiques theory and practice from the point of view of local guest speakers who present their unique management perspectives. May be repeated for a maximum of 6 credits toward graduation

TECH 690R
Independent Study
3
* Prerequisite(s): Acceptance into Master of Science in Engineering and Technology Management program or approval of graduate program director

Offers independent study as directed in reading or individual projects at the discretion and approval of the graduate program director. May be repeated for a maximum of 6 credits toward graduation.

TECH 6950
Engineering and Technology Projects I
3
* Prerequisite(s): Acceptance into Master of Science in Engineering and Technology Management program or approval of graduate program director

Interprets the nature of strategic thinking and the challenges of strategic alignment. Includes the development of a strategic planning process and methods for assessing strategic success. Describes organizing a proposal to summarize scope of work, work plan, team charter, and identified project outcomes based on ideas supported by a literature review.

TECH 6960
Engineering and Technology Projects II
3
* Prerequisite(s): Acceptance into Master of Science in Engineering and Technology Management program or approval of graduate program director

Describes how to apply advanced processes to move a project from start to finish utilizing the project proposal created in Project I. Covers risk analysis, effective communication, and response to problems. Emphasizes financial and project management concepts to compliment a technical background. Describes how to implement optimized project standards of innovation promotion and leadership in product and/or project launch.