

# Technology Management (TECH)

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## **TECH 1000. Experiential Credit Portfolio Development and Assessment. (2 Credits)**

Pre- 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. Understanding Technology PP. (3 Credits)**

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 Credits)**

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. (1-8 Credits)**

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. Technology and Human Life SS GI. (3 Credits)**

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 Credits)**

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 Credits)**

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 Credits)**

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. (1-3 Credits)**

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 Credits)**

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. (1-3 Credits)**

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 Credits)**

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 \$85/McGraw applies

**TECH 3010. Creative Problem Solving. (3 Credits)**

Prerequisite(s): University Advanced Standing

Focuses on thinking creatively and developing innovative solutions to complex problems. Covers creative problem-solving techniques, including brainstorming, lateral and design thinking. Prepares learners to identify and define problems, generate and evaluate ideas, and implement effective solutions. Explores various tools and frameworks for creative problem-solving, such as mind mapping, storyboarding, and prototyping. Open for all majors.

**TECH 301R. Technology Lecture Series. (1 Credit)**

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 Credits)**

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. Includes writing intensive instruction.

**TECH 3700. Materials Management. (3 Credits)**

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 Credits)**

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 Credits)**

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 in technical enterprises.

Software fee of \$15 applies.

**TECH 405G. Global Ethical and Professional Issues in Technology GI. (3 Credits)**

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 Credits)**

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 Credits)**

Prerequisite(s): TECH 3400 with a C- or higher; University Advanced Standing

Covers advanced tools and techniques used in project portfolio management and program management, including the activities of strategic project leadership and management. Covers methods to effectively plan, organize, and execute complex projects, and demonstrate approaches to align projects and portfolios with organizational strategy and business goals. Provides an evaluation of software tools used in project portfolio management.

**TECH 4420. Organization Information Technologies. (3 Credits)**

Prerequisite(s): TECH 3000, IM 2010, and ACC 3000 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 in cross-functional teams. Examines Excel and Access as decision support tools. Examines the ethical and legal issues raised by the capabilities of information technology.

Lab access fee of \$45 for computers applies.

**TECH 481R. Internship. (1-3 Credits)**

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 3 credits toward graduation. May be graded credit/no credit.

**TECH 489R. Undergraduate Research in Technology Management. (1-3 Credits)**

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 Credits)**

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 Credits)**

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

Provides a capstone experience that integrates the knowledge and skills acquired throughout the technology management program. Requires students to apply their understanding of technology management principles and practices to a real-world project addressing a relevant challenge or problem. Evaluates student performance through written reports, oral presentations, and evaluations by industry professionals and academic coordinators. Fosters critical thinking, problem-solving, and team collaboration skills. Offers opportunities to network with industry professionals and gain valuable insights into the field. Includes writing intensive instruction.

**TECH 497R. Independent Study. (1-3 Credits)**

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. Management of Technological Innovation. (3 Credits)**

Prerequisite(s): Acceptance into the Master of Science in Engineering and Technology Management or other UVU graduate programs

Explores the processes, tools, and strategies needed to successfully manage technological innovation within an organization. Covers various topics, including identifying and evaluating new technologies, creating a culture of innovation, developing and implementing new products and services, and managing the risks and challenges associated with technological change.

**TECH 6010. Intellectual Property Fundamentals. (3 Credits)**

Prerequisite(s): Acceptance into the Master of Science in Engineering and Technology Management or other UVU graduate programs

Focuses on the legal protection and monetization of ideas, creations, and inventions. Covers the various forms of intellectual property, including patents, trademarks, copyrights, and trade secrets. Explores the laws and regulations governing these intellectual property forms, including international treaties and agreements. Examines the process of obtaining, licensing, and enforcing intellectual property rights and the ethical and social implications of these rights.

**TECH 6400. Six Sigma Project Management. (3 Credits)**

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 Credits)**

Prerequisite(s): Acceptance into the Master of Science in Engineering and Technology Management or other UVU graduate programs

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 Credits)**

Prerequisite(s): Acceptance into the Master of Science in Engineering and Technology Management or other UVU graduate programs

Presents contemporary approaches for managing product design and development. Examines both traditional development methods and new approaches for Agile and Hybrid product development. Explores future trends in managing technological product design and development.

**TECH 6450. Engineering Economics and Project Evaluation. (3 Credits)**

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 Credits)**

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 through resource allocation and specific work management.

**TECH 6700. Data Driven Decision Making. (3 Credits)**

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 Credits)**

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 Credits)**

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 Credits)**

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 Credits)**

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 Credits)**

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.