

MASTER OF SCIENCE IN INFORMATION TECHNOLOGY MANAGEMENT (ITM)

Program Director: Ravi Nath
Program Office: Eppley College of Business Administration 212

GRADUATE STUDY IN INFORMATION TECHNOLOGY MANAGEMENT

The Master of Science in Information Technology Management (M.S.) degree is a 33-credit-hour program. The course of study provides a creative synergy between technology and management and is designed to meet the demands of the constantly evolving business-technology environment. Students learn to be responsible leaders who will shape how information technology drives business success.

Technology touches every aspect of business, and graduates of the M.S.-I.T.M. program are prepared to set the pace, bringing a values-centered perspective to the business world.

Program Goals

1. Explain the core concepts, capabilities, and tools of information technology.
2. Apply information technology and business knowledge in business-world contexts.
3. Apply analytical, critical thinking, and professionalism skills in a broad business context.
4. Demonstrate effective interpersonal communication and collaborative skills.

Faculty

Professors: C. Corritore, A. Hendrickson, R. Nath;
Associate Professors: L. Chen, W. Duckworth, R. Marble;
Assistant Professors: N. Govindarajulu.

Admission Requirements

1. **Eligibility for Admission:** Applicants for admission to the M.S. program must have a baccalaureate degree, regardless of the undergraduate field of study, and an acceptable level of scholarship from an accredited institution of higher education, along with the following documents:
2. **Application:** A completed application form, personal essay discussing how a master's degree fits in with an applicant's career plans and which aspects of Creighton's M.S. program are most appealing, current resume, and a non-refundable application fee.
3. **Recommendations:** Two recommendations are required. The recommendations should be completed by persons other than family members who are capable of assessing an applicant's performance in an academic or work setting.
4. **Transcripts:** One official transcript must be sent from each institution of collegiate rank attended by the applicant. Transcripts should be sent directly from the collegiate institution to the Graduate Business Programs, College of Business, Room 212, 2500 California Plaza, Omaha, NE 68178. All such transcripts become the property of Creighton University.
5. **Graduate Management Admissions Test (GMAT):** All applicants must submit an acceptable score report on the Graduate Management Admissions Test (GMAT). The GMAT is administered by PearsonVUE. Further information about the GMAT may be obtained at MBA.com
6. **Test of English as a Foreign Language (TOEFL):** The Graduate School requires all students from countries in which English is not the native language to demonstrate competence in English by a score of 550 in the TOEFL (Test of English as a Foreign Language) examination or 80 on the Internet-based Test (iBT) at the graduate level. International applicants who received their baccalaureate degree from an accredited institution in the U.S., United Kingdom, Canada (excluding French Quebec), Australia, New Zealand, or Africa (English speaking only) are not required to submit a TOEFL score report.
7. **Financial Ability:** All international applicants must provide a "Certification of Available Finances" form in order for the I-20 form to be issued by the Office of International Programs if an applicant is admitted to the program.

- 8. Statistics Requirement of the Graduate Business Programs:** Students entering a graduate business program will need to show evidence that they have completed at least one statistics course in their undergraduate degree that included correlation and regression. Students without such a class may complete instead a non-credit statistics tutorial offered by the college for a fee.

Acceptance to the M.S. Program is granted to applicants who clearly demonstrate that they have high promise of succeeding in graduate business study. Interviews are not required as part of the admission process. Applicants who wish to visit the campus prior to submitting their application materials are welcome to call the Graduate Business Programs to schedule an appointment.

Master of Science (M.S.) with a Major in Information Technology Management - Campus-based

General Requirements

The Master of Science in Information Technology Management (M.S.) consists of 33 credit hours beyond the required Foundation courses. All students complete the 12 hours of Core components and select 21 hours of Electives that are consistent with their career interests.

Master of Science (M.S.) in Information Technology (33 credits)

I. FOUNDATION COURSES

Demonstrated proficiency in programming

II. CORE COURSES (12 hours)

ITM 734	Human Factors in Information Systems	3 credits
ITM 782	Data Base Management Systems	3 credits
ITM 788	Business Information Analysis and Process Design	3 credits
MBA 776	Business, Ethics and Society	3 credits

III. ELECTIVES (21 hours)

Students should select Elective courses based on their area of interest. At least 15 hours must be other 700-level ITM courses. Note that students who have not successfully completed MIS 253 (undergraduate MIS survey course) or an equivalent course MUST take ITM 731 as an elective. The remaining 6 hours of Electives may be selected from other 700-level MBA courses; MSA 722, 724, 726, 730, or 732; or 500-level courses taken for graduate credit (ACC 516, 521, 538, 544, or 579; ECO 538; or FIN 558). Students who are in the joint MS-ITM/JD program may use 6 hours of specific LAW courses as Elective credit. Students may elect an area of emphasis in E-commerce by completing ITM 710, 770, and 790 as 3 of their Elective courses.

GRADUATE STUDY IN INFORMATION TECHNOLOGY MANAGEMENT - ONLINE

General Requirements

Students will complete 33 credit hours of course work listed for either the Health Information Management (HIM) or the Information Technology Leadership track. Courses are to be taken in the order listed.

Master of Science (M.S.) in Information Technology (33 credits)

Health Information Management Track Program Goals

This program is intended to meld business, information technology and health care concepts, methodologies, and practices in an interdisciplinary and practical manner to provide unique value proposition to students. The students will:

1. Understand the core concepts, capabilities, and tools of information technology in the healthcare context.
2. Apply information technology and business knowledge in the health care context.
3. Apply analytical, critical thinking, and professionalism skills in a broad health care context.
4. Demonstrate effective interpersonal communication and collaborative skills.
5. Identify and evaluate approaches to electronic health record systems.
6. Discern the ethical problems, ambiguities, controversies, and assumptions in health care practices, security, systems, policies, and laws.

(All of the following courses are taken in the order listed:)

CHS 604	Health Care System	1.5 credits
ITM 604	Information Technology Concepts	1.5 credits
ITM 782	Data Base Management Systems	3 credits
ITM 787	Business Process Management	3 credits
CHS 701	Information Technology and Health Informatics I	3 credits
MHE 603	Law and Health Care Ethics	3 credits
ITM 734	Human Factors in Information Systems	3 credits
MBA 703	Managerial Decision-Making	3 credits
CHS 609	Health Information Technology, Quality, Patient Safety	3 credits
ITM 770	Security in the Digital Age	3 credits
ITM 733	System Integration	3 credits
CHS 702	Information Technology & Health Informatics II	3 credits

Master of Science (M.S.) in Information Technology (33 credits) ***Information Technology Leadership Track Program Goals***

The IT Leadership focus is intended to meld business and information technology concepts, methodologies, and practices in an interdisciplinary and practical manner to prepare students for leadership and upwards professional mobility in their profession. The students will:

- Understand the core concepts, capabilities, and tools of information technology.
- Apply information technology and business knowledge in the business context.
- Apply analytical, critical thinking, and professionalism skills in the business context.
- Demonstrate effective interpersonal communication and collaborative skills.
- Identify and analyze strategic issues in Information Technology Management.
- Comprehend the effect of traits and strategies on effective IT leadership.

(All of the following courses are taken in the order listed:)

ITM 731	Information Technology Management	3 credits
ITM 782	Data Base Management Systems	3 credits
ITM 787	Business Process Management	3 credits
ITM 736	Managing Information Resources	3 credits
MBA 776	Business, Ethics and Society	3 credits
ITM 734	Human Factors in Information Systems	3 credits
MBA 703	Managerial Decision-Making	3 credits
ITM 760	Strategic Leadership in IT	3 credits
ITM 770	Security in the Digital Age	3 credits
ITM 775	Managing Business Transformations and Innovations	3 credits
ITM 789	Seminar: Advanced Topics in ITM	3 credits

ITM 604 Information Technology Concepts (1.5)

This course provides coverage of the role of key concepts and elements of information systems and their role in business organizations, emphasizing applications of information systems and the current issues facing their managers and users. Lecturers, discussions, presentations, and student work will seek to foster an understanding of the strategic importance of information systems, their impact on people and organizations, the many ways they can improve the work practices within firms, and the ways they can improve a firms' products.

ITM 710 Development Technologies for the Web (3)

As the interest in web sites becomes more widespread, so have people's expectations. It is increasingly obvious that the functionality provided by HTML is insufficient. This is particularly true as more and more web sites are used to interact with databases. Many scripting and actual programming languages and environments such as CGI, Javascript, and flash are being turned to as they can provide the added functionality demanded by today's commercial web sites. This course will explore these and other technologies and use them to create web sites. **P: Demonstrated proficiency in programming.**

ITM 731 Information Systems Management (3)

This course provides in-depth coverage of the role of information systems in business organizations, emphasizing applications of information systems and the current issues facing their managers and users. Lectures, discussions, presentations, and student project work will seek to foster an understanding of the strategic importance of information systems, their impact on people and organizations, the many ways they can improve the work practices within firms, and the ways they can improve a firm's products. *Note: The program director may waive ITM 731 and require an additional ITM elective for students who have successfully completed MIS 253 (Management Information Systems) or an equivalent course.*

- ITM 733 Systems Integration (3)**
Addresses the circumstances surrounding the reliance of most organizations on information technology products and resources from many different sources, both internal and external to the organization. The concepts and methods associated with coordinating an infrastructure of hardware, software, networks, services, and training resources will be discussed and applied. Issues concerning the preparation, distribution, and evaluation of requests for proposal (RFP), contracting and acquisition of information technology products, and managing a team of vendors and contractors, will be considered and illustrated with case studies. Exercises will offer students an insight into the complexities of such topics as outsourcing, integrating legacy systems with current applications, and managing system evolution. **P: IC.**
- ITM 734 Human Factors in Information Systems (3)**
Current trends in system design towards development of systems which fit in better with what humans find natural and easy to do motivate this course. The course focuses on information about human behavior, cognition, abilities and limitations, and other characteristics that are relevant to interaction with information systems. Specific strategies which apply these concepts in order to improve usability will be explored. Benefits of the incorporation of human factors into information processing systems such as less training, fewer errors, increased ability to perform complex operations, less stress, and faster work will also be discussed. Students will have the opportunity to incorporate human factor principles in an information system in order to maximize human-computer cognitive compatibility. **P: ITM 731 or equivalent.**
- ITM 735 Information Systems Project and Risk Management (3)**
The role of systems analysis, decision analysis, and risk analysis in the project management process; managerial issues; analytical techniques of project management including CPM/PERT; budgeting processes; resource management; project control; use of project management software. **P: Statistics.**
- ITM 736 Managing Information Resources (3)**
This course focuses on the managerial issues faced by business and information systems (IS) managers in today's technology rich business environment. Special emphasis is placed on information as a critical resource and on its role in policy and strategic planning. The course discusses the issues and techniques relevant to the effective management of information resources. It will take a broad perspective by examining the internal, external, and strategic planning issues involved in IS resource management. The course will also use Harvard Business School cases and other cases to explore the managerial, technical, and behavioral issues relevant to IS resource management. **P: ITM 731 or equivalent and Statistics.**
- ITM 738 Emerging Technologies (3)**
According to Moore's law, the amount of information storable in one square inch of silicon has roughly doubled yearly every year since the technology was invented. This phenomenon is causing numerous new and promising advances in information technology. Businesses capitalizing early on the adoption of some of these key technologies stand to gain significant competitive advantage. Unfortunately, organizations are in a quandary with respect to the identification, use and management of these emerging technologies. The primary focus of this course will be on the identification, acquisition, management and use of emerging technologies. **P: ITM 731 and ITM 782.**
- ITM 740 Data Mining Techniques for Business (3)**
Advances in information and data capture technologies have accelerated the rate at which organizations are able to gather large volumes of data pertaining to customers, suppliers, competitors, and other entities of interest. These databases are rarely tapped for the wealth of information they may hide. The purpose of this course is to deal with the issue of extracting information and knowledge from large databases. The extracted knowledge is subsequently used to support human decision-making with respect to summarization, prediction, and the explanation of observed phenomena (e.g. patterns, trends, and customer behavior). Techniques such as visualization, statistical analysis, decision trees, and neural networks can be used to discover relationships and patterns that shed light on business problems. This course will examine methods for transforming massive amounts of data into new and useful information, uncovering factors that affect purchasing patterns, and identifying potential profitable investments and opportunities. **P: Statistics.**

- ITM 760 Strategic Leadership in IT (3)**
A study of how technology, especially information technology, can be used as an essential component of the global strategy of an enterprise. Emphasis is on linking technology policy with corporate strategy and identifying technology options that will ensure the most effective execution of organizational strategy. Electronic commerce is examined as a strategic technology application. Topics also include external and internal strategic analysis, technology forecasting, benchmarking, corporate intelligence, knowledge management and planning and control strategies. Strategic technology planning is examined from a historical perspective; concepts essential to technology security and information assurance are introduced. This course will also cover the analysis of the role of the chief information or technology officer in leading the new fast-paced, information age organization.
- ITM 770 Security in the Digital Age (3)**
This course enables students to know, comprehend, and analyze concepts and applications in the area of planning, control, and security of e-commerce systems and applications, including a substantial emphasis on electronic payment systems. A spectrum of topics are covered including risk management, control systems, security measures, encryption, performance evaluation, behavioral aspects, and assurance methods involved in e-commerce. **P: IC.**
- ITM 775 Managing Business Transformations and Innovations (3)**
This course provides insights and strategies for managing IT-driven business transformation and innovations. Students will glean a perspective of the strategic value and role of IT in triggering and promoting business change and how to manage this process. Case analysis and student-participation approaches are used to bring out key issues and approaches germane to business transformation. **P: ITM 760.**
- ITM 780 Applications of Artificial Intelligence (3)**
This course provides a survey of the theory and applications of artificial intelligence in the business decision environment, with an emphasis on artificial neural networks. Students will engage in reviews of current expository and research literature in the area and will attain hands-on experience with computer packages supporting the creation of these types of systems. Neural network design projects will be required of all students. **P: Calculus and demonstrated proficiency in programming.**
- ITM 781 Computer Systems Architecture and Organization (3)**
This course examines the fundamental concepts and design alternatives associated with computer architectures. The computer is regarded as a hierarchy of levels of functional complexity. Each of these levels - the digital logic level, the microprogramming level, the conventional machine level, the operating system machine level, and the assembly language level- is studied in detail. **P: Calculus and demonstrated proficiency in programming.**
- ITM 782 Data Base Management Systems (3)**
Organizations must manage their data resources effectively in order to remain competitive. The efficient design, deployment, use and management of database systems requires an understanding of the fundamentals of database management systems, techniques for the design of databases and principles of database administration. This course emphasizes the fundamentals of database modeling, design and development, the languages and utilities provided by database management systems, and the techniques for implementing and managing database systems. Although primary emphasis will be on relational database management systems, the object-oriented and distributed models will also be examined. **P: ITM 731 or IC.** *Note: The program director may waive ITM 782 and require an additional ITM elective for students who have successfully completed MIS 354 (Data Base Management) or an equivalent course.)*
- ITM 783 Client/Server and Distributed Systems (3)**
This course provides an introduction to and an applied engagement with the increasingly popular distributed database management architectures. Emphasis will be placed on the various client/server models and network protocols, with hands-on exercises in their application. The concepts and principles underlying these models will be investigated. **P: ITM 782.**

- ITM 784 User Interface Design for the Web (3)**
 Everything we used is designed by someone else. Any person who wants to design for others must develop a high degree of sensitivity of the nuances of good and bad design. This course specifically targets such nuances with respect to humans, information systems and interfaces. The human and task factors that must be considered and explicitly incorporated into user interfaces will be explored. Future trends in user interfaces will also be discussed. **P: ITM 734 and ITM 788.**
- ITM 785 Wireless Technologies and Mobile Commerce (3)**
 This course will explore the impact of wireless and mobile e-commerce on the ways in which business is conducted in this electronic era, as well as the technologies involved in developing systems that will support this way of doing business. The course aims to provide the student with a balanced coverage on both the managerial and technical issues relevant to wireless and mobile e-commerce. **P: One semester of a programming language or equivalent experience in C, C++, Java, Visual Basic or some or some other modern programming language.**
- ITM 786 Telecommunications Infrastructure (3)**
 This course is designed to provide the student with an understanding of the technical and managerial aspects of business data communications and networks. This course will prepare a student, by providing them with examples of network concepts, design and planning of networks to meet the enterprise needs. **P: ITM 731 or IC.**
- ITM 787 Business Process Management (3)**
 As Jack Welch put it “The power of your company is contained in the processes themselves.” This course is designed to provide the student with the tools they need to effectively analyze, improve, and redesign business processes to improve business performance. Students will learn and use business process management techniques such as business modeling, six sigma techniques and change management. Case studies, practical hands on experience with business process modeling techniques and tools will be used in class to prepare the student for a business process management project in which the students will work with a company or public institution to evaluate their current processes and develop process recommendations for this institution, a plan to implement these changes and a change management plan to gain the buy in of the employees and stakeholders. **P. ITM 731 or IC.**
- ITM 788 Business Information Analysis and Process Design (3)**
 This course is an applied study of the process of information systems development using project management techniques. Lectures, discussions, readings and exercises will address the areas of information analysis, requirements determination, detailed logical design, physical design, implementation planning, computer technology, project management and organizational behavior. Through regular deliverables associated with the cumulative project file of a running case, students will follow a widely used structured development methodology (the data flow diagramming approach) in conducting team-oriented systems analysis and design projects. **P: ITM 731 or equivalent.**
- ITM 789 Seminar: Advanced Topics in Information Technology Management (3)**
 The content of this course will vary depending on the topic and instructor. With the permission of the instructor, the course can be repeated one time for credit, provided the course content is different. Past seminar topics include: Systems Integration, Advanced Data Mining, E-Business. **P: The prerequisites will depend on the course content.**
- ITM 790 Information Technology Projects (3)**
 In this course the student undertakes a significant research project under the guidance of a faculty mentor. The project will deal with topics in information technology that are significant value to businesses. Established research methodologies will be used in identifying, examining, synthesizing, and disseminating information. **P: IC.**
- ITM 795 Independent Study and Research (1-3)**
 This course is for the study of topics that do not enjoy regular course offerings. **P: IC and Approval of Director of Graduate Business Programs.**

ITM 799 Master's Thesis (1-3)

Students wishing to pursue the thesis option for satisfaction of degree requirements are responsible for identifying an ITM faculty member who is willing to supervise the thesis. Acceptance of thesis supervision responsibility is at the sole discretion of the faculty member. Hence, the thesis option may not be available for all interested students. Prior to enrollment in the thesis course a written proposal for the thesis must be approved by a majority of the ITM program faculty. Pursuant to a defense of the thesis, the completed thesis must be approved by a majority of the ITM program faculty before a grade is assigned. Thesis students will be required to enroll in ITM 799 in two consecutive semesters, normally their final two semesters in the program. Only three of these hours may be used toward the fulfillment of elective course requirements.

CENTER FOR HEALTH SERVICES RESEARCH AND PATIENT SAFETY (CHS)

Faculty

Professors: K. Galt;
Associate Professors: J. Bramble;
Assistant Professors: K. Fuji.

CHS 604 Health Care System (1.5)

This course introduces the organization and management concepts, theories and issues that are of contemporary importance in the dynamic US health care system. Managed care, health system integration, and inter-organizational linkages are discussed in the context of social, economic, political, legal and regulatory issues relevant to health information technology use.

CHS 609 Health Information Technology, Quality and Patient Safety (3)

This course is designed to educate the health information technology manager with the foundation knowledge about patient safety and quality principles needed in health information technology. Concepts of safe systems and quality improvement will serve as the foundation for this course.

CHS 701 Information Technology & Health Informatics I (3)

An overview of health information technologies used in health care practice, with a focus on their use and impact on health care delivery. Future health information technologies and needs in health care are explored.

CHS 702 Information Technology & Health Informatics II (3)

Electronic health records are becoming the primary mode for storage and use of patient health information and provider care data. This course is designed to provide students with an overview of electronic health records. Ways in which electronic health records are used to meet public and private interests are discussed.