The Master of Science in Information Systems and Technology

Today's business environment is heavily reliant on professionals who are both business professionals and technically astute. California Lutheran University's Master of Science in Information Systems and Technology (MS-IST), offered by the School of Management, combines the technical foundation of information systems with key business concepts. The integrated coursework enables students to obtain the business, technical and leadership skills necessary to meet the challenges of today's global marketplace.

If you want to expand and deepen your technical skills, add to your business knowledge, prepare for systems analysis and project management roles, this degree is for you. As an MS-IST graduate, you will be prepared for a number of positions in the IT field including senior systems analyst, applications development manager, data center manager, technical services director, software engineer, database administrator, database engineer, and computer scientist. Other management-oriented roles include project manager, program manager, and line management roles in technical organizations.

Goals of the Program

MS-IST students will be involved with the common body of knowledge characteristic of all elements of technology leadership including the following:

1. The ability to solve problems, based on a knowledge of tools, concepts, and theories of information systems and other business disciplines;
2. The ability to transcend functional boundaries, particularly between technical and non-technical organizational functions, synthesizing and integrating information to make complex, short-term decisions with limited information, as well as conduct the research, competitive analysis, and environmental scanning necessary for long-term strategic decisions;
3. The ability to apply specialized skills to business and technical problems inherent in a rapidly changing global environment;
4. The ability to effectively harness and use information technology;
5. Effective written, oral and presentation skills;
6. The interpersonal and team leadership skills needed to build an organizational environment that is effective and conducive to collaboration;
7. A sense of professional and social responsibility in the conduct of technology management.

Academic Calendar

Master of Science in Information Systems and Technology courses are offered year round in four 11-week terms: Fall, Winter, Spring and Summer. Classes are scheduled in the evening once a week to accommodate adult learners who are employed full time and pursuing course work on a part-time basis. Occasionally, a class will be offered in a compressed weekend format or as an International travel course. Based on admission requirements, time to complete the program can take between one and seven years. Students must complete the program within seven years after their first registration.

Admission Requirements

International applicants are subject to separate admission procedures. For current admission procedures, international applicants should consult the following: www.callutheran.edu/management.

Candidates for admission to the MS-IST program should submit a complete application portfolio at least 45 days prior to the start of the term. Admission decisions for regular graduate standing are based on a review of the following materials in the candidate's file:

1. A completed application form and non-refundable application fee;
2. Evidence of an interview with an admission counselor;
3. Official transcripts showing a bachelor's degree from a regionally accredited U.S. institution. Normally, a grade point average of 3.0 or higher in upper division undergraduate work is expected;
4. Two letters of recommendation;
5. A personal statement;
6. Test scores. Applicants whose undergraduate records do not satisfy the criteria set forth in paragraphs A-D below must include Graduate Management Admission Test (GMAT) or Graduate Record Examination (GRE) scores in their admission portfolio. The GMAT may be waived for candidates who present an official transcript of previous college work from a regionally accredited college or university reflecting any one of the following criteria:
   A. An undergraduate, upper division grade point average of 3.0 or higher on a 4.0 scale; or
   B. A combined grade point average of 3.0 or higher for the most recent 60 credits of study consisting of any of the following: graduate course work, upper division postbaccalaureate course work (exclusive of extension or continuing education work), and upper division undergraduate course work; or
   C. A minimum of nine credits of graduate course work completed and a 3.50 grade point average; or
   D. A previously earned master's degree.

Admission to the MS-IST program requires at least one year of work experience and one of the following:

- A prior technical bachelor's degree and one year of hands-on programming coursework or work experience; OR
- A prior non-technical bachelor's degree and three years of technical work experience, including one year of hands-on programming coursework or experience.

Note: All applicants who have completed their undergraduate work at other than a regionally accredited U.S. institution must submit GMAT scores.

Admission Counseling

Prior to enrollment in graduate classes, the applicant must make an appointment for an advisement interview with an admission counselor. This exploratory interview will clarify individual program requirements and provide the opportunity to answer students' questions. Counselors are available by appointment.

Provisional Admission

Under some conditions, after meeting with an admission counselor and with the approval of the Program Director, a student may register for classes before completing the entire admission process. However, the Application for Admission, the $50 application fee, and a copy of a transcript showing a bachelor's degree with an acceptable GPA and/or acceptable standardized test score must be on file in the Graduate and Adult Programs Office before the class registration can be accepted. Students are expected to complete all admission requirements in the first term of their program or they will not be permitted to enroll in subsequent terms. Provisionally admitted students are not eligible for financial aid.

International Students

International applicants are subject to separate admission procedures. For current admission procedures, international applicants should consult the following: www.callutheran.edu/management

Requirements for the Master of Science in Information Systems and Technology

The curriculum includes a total of 12 graduate courses (36 credits), based on the Association for Information Systems' Model Curriculum. All courses are offered in 11-week terms. Three foundation courses are required, along with six core courses.

Required Courses

Fundamentals Courses (9 Credits)

BUS 567	Behavioral Sciences for Management	3
BUS 581	Management Concepts for Information Technology	3
IST 586	Information Systems and Business Strategy	3
Core Requirements (12 Credits)		
Select four of the following IST core courses:		12
IST 503	Project and Change Management	
IST 532	Distributed Systems and Applications	
IST 534	Relational Technology	
IST 535	Information Security Management	
IST 570	Emerging Technologies and Issues	
IST 583	Business Systems Development	
IST 584	Data Communication and Networking	
Program Electives (6 Credits)		
Select two additional non-technical courses from across the MBA and MPPA program offerings, with concurrence from the Program Director		6
Electives (9 Credits)		
Select three of the following:		9
IST 501	Healthcare Informatics	
IST 502	Information Technology Infrastructure	
IST 530	Information Systems and Ethics	
IST 536	Fundamentals of Web Development	
IST 539	Global Information Technology	
IST 548	SAP for Managers	
IST 587	Management Concepts for E-Business	
IST 599	Integrated Project	
Other IST course offerings		

Graduate IT courses [1]	
Total Hours	36

[1] Graduate IT courses from the School of Business or graduate courses in Computer Science.

Courses

IST 501. Healthcare Informatics. (3).
This course provides an overview of the business questions Chief Information Officers (CIOs) and Chief Executive Officers (CEOs) of Healthcare companies must address in a concise manner. Topics will include Electronic Health Records, Interoperability, Patient Informatics Mobile Technology, Patient Safety, HIPAA, ePrescribing, Telemedicine. Bioinformatics and Emerging Trends. The course will take a practical approach to Healthcare Informatics and will be conducted with a mix of lectures/discussions, student presentations, case studies, demonstrations, in-class exercises, and exams. Interactive discussion during all class sessions is strongly encouraged. (cross-listed with BUS 504).

IST 502. Information Technology Infrastructure. (3).
This hands-on course will explore the configuration and management of the various components involved in information technology infrastructure. Such infrastructure elements as routers, firewalls, mail servers, content management servers, and other such components will be used to develop skills required to manage IT infrastructure. Other components may include storage networks, grid computing, virtual private networks, and wide area networks. The course will use a combination of dedicated devices and virtual machine technologies to gain experience with those techniques at the same time. Prerequisite: BUS 581. (cross-listed with BUS 509).

IST 503. Project and Change Management. (3).
Project management is an increasingly prominent and requested discipline within organizations today. More and more companies are looking to experienced project managers to deliver company strategic objectives while applying proven project management principles to execute their projects. This course is an introduction to the basic fundamentals of project management. Specifically, the class will focus on building core competencies required to pass the Project Management Professional (PMP) certification examination. This course will provide students with a general baseline of project management knowledge based on the nine knowledge areas defined by the Project Management Institute (PMI). (cross-listed with BUS 503).

IST 530. Information Systems and Ethics. (3).
The increasing pace of technological change challenges our ability to understand and make decisions about its impact. These technologies continue to reshape and reorient society on multiple levels- both national and global. Digital Society and Ethics focuses on the social impact of information technology, including forms of social media and digital spaces. Students will research the ways in which media, information, and knowledge are transforming societies, cultures, organizations, and individuals. The course aims to promote thoughtful dialogue regarding the wider social and ethical issues related to the planning, development, implementation, and use of new media, information, and communication technologies across diverse fields. The course will encourage student contributions from diverse industries,backgrounds, and cultures. Students will contribute and participate through applied research,case studies, and literary critique in various forms and media.

IST 532. Distributed Systems and Applications. (3).
We use distributed systems every day. Every Web interaction, every email, every bank transaction uses a series of at least two computers to accomplish the task it's been asked to do. Distributed systems require an added level of understanding of how systems work together, as the distribution of applications can have both positive and negative impacts on system behavior. This course provides an overview of distributed computing architectures in terms of hardware and software. Topics will include client/server software and N-tier architectures, middleware, Internet technologies, application development, networking, security, and system management. Prerequisite: BUS 581. (cross-listed with BUS 532).

IST 534. Relational Technology. (3).
Relational database management systems (RDBMS), together with information data models, are the cornerstone of today's information technology architecture. They are key components of distributed computing environments and client server applications. This course will examine the following: 1) the definition and role of RDBMS in today's information technology; 2) the basic aspects of data: structure, integrity and manipulation; 3) information modeling concepts and disciplines; and 4) database modeling tools. Utilizing the Erwin information modeling software and applying the IDEFIX modeling method, the student will participate in the development of an information data model. Prerequisite: BUS 581. (cross-listed with BUS 534).

IST 535. Information Security Management. (3).
This course is designed to expose managers to the major concepts and theory of Information Security. Students will understand and apply the principles upon which any information security program is built. Course will cover the basics of the "10 domains" including data classification, cryptography, network and application security, risk management, threat and vulnerability analysis, computer forensics, and policies and architecture designs. (cross-listed with BUS 535).

IST 536. Fundamentals of Web Development. (3).
The course provides a foundation in skills and concepts that web developers need to be able to develop highly effective web sites. The primary focus is on learning and using XHTML and CSS. After learning the basics of web page development using XHTML and CSS, a Web Authoring tool is introduced. Microsoft Expression Web makes creating compliant standards-based Web sites faster and easier. A tutorial on Microsoft Expression Web (EW) is offered and EW is used for a course project. The students will learn the skills to build a multipage standards-based web site. (cross-listed with BUS 536).

IST 539. Global Information Technology. (3).
Provides the student with necessary insights into challenges and opportunities of the international use of information technology, as well as the criticality and approach to alignment of I.T. with global enterprise. (cross-listed with BUS 539).

IST 548. SAP for Managers. (3).
IT present many new opportunities at the enterprise level for the design and implementation of integrated organizational structures and business processes that better align the business to meeting its market demands and allow it to pursue new strategic relationships with other organizations. Enterprise IT primarily involves enterprise resource planning (ERP), supply chain management (SCM), knowledge management (KM), and customer relationship management (CRM) to support and coordinate business activities. This course will explore these opportunities in depth and breadth, including reengineering of business processes, planning enterprise IT, and planning ERP implementation strategies. (cross-listed with BUS 548).

IST 570. Emerging Technologies and Issues. (3).
This course will explore current emerging technologies as they relate to information systems in organizations. Topics will change as technology and organizations continue to evolve. Current topics include social computing, "Web 2.0," blogs, wikis, user-generated content, the role of geographic information systems, the role of ethics in information systems and other cutting-edge topics.(cross-listed with BUS 518).

IST 582. Selected Topic. (3).

IST 583. Business Systems Development. (3).
This course provides the student with concepts, tools, and techniques required to analyze business information systems. The course emphasizes structured development approaches using various tools and techniques. The entire Systems Development Life Cycle (SDLC) is introduced. However, the major emphasis will be placed on the problem definition and analysis phases of the SDLC. Topics covered include the role of systems analyst, the systems development life cycle, popular methodologies, systems planning, project management, and systems analysis. A comprehensive case study will be used to apply many of the techniques. Prerequisite: BUS 581. (cross-listed with BUS 583).

IST 584. Data Communication and Networking. (3).
Organizations are finding that an effective and efficient means of communicating among distributed entities is a business imperative. This management course addresses current and emerging data communication and networking technologies from a business perspective. The application of these technologies to solve business problems and create competitive advantage is of particular emphasis. Students taking this course will learn to make knowledgeable decisions pertaining to strategies and architects for the deployment of telecommunication technologies. Prerequisite: BUS 581. (cross-listed with BUS 584).

IST 586. Information Systems and Business Strategy. (3).
This course provides an overview of contemporary issues in information systems as a strategic and competitive resource for business. The course examines how information technology is aligned to support the goals and strategy of the organization. Topics include strategic planning of information technology, using information technology for competitive advantage, information infrastructure architecture and applications, global information technology issues, information technology as an enabler of business process innovation and information technology-based strategic applications. Prerequisite: BUS 581. (cross-listed with BUS 586).

IST 587. Management Concepts for E-Business. (3).
In today's world, the Internet touches part of every business. It has changed the way business is conducted in the world - and has become a requirement for any business to be a competitive player in today's marketplace. Electronic commerce affects professionals across all disciplines of the business world, from finance to government to education, etc. This course provides an overview of electronic commerce, how it is conducted and managed, and its opportunities, along with its risks and limitations. Case studies spanning applications including business-to-consumer, business-to-business, intra-business, electronic funds transfers and underlying technologies will be used for analysis and understanding of both real-world and theoretical electronic commerce business models. Prerequisite: BUS 581. (cross-listed with BUS 587).

IST 590. Independent Study. (1-4).

IST 599. Integrated Project. (3).
Integrating information systems concepts, along with organizational and business concepts, this course will document, design, develop and implement an integrated software and database project that supports business needs in a fast-changing competitive and technical environment.