Information Systems

Chairperson: Mark Barratt, Ph.D.
Department of Management website (http://business.marquette.edu/departments/management/)

The Information Systems major provides students with an understanding of the important interactions between technology, organizations and people. Students learn and apply technical, analytical and communication skills and knowledge to solve problems and help organizations create value, manage business processes and enhance productivity.

Information Systems Major

Specific Information Systems Course Requirements:

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<th>Hours</th>
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<td>INSY 3001</td>
<td>Introduction to Information Systems</td>
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<td>INSY 4051</td>
<td>Business Applications Development</td>
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<td>INSY 4052</td>
<td>Database Management Systems</td>
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<td>INSY 4158</td>
<td>Systems Analysis and Design</td>
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Two of the following:

<table>
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<td>INSY 4053</td>
<td>Project Management</td>
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<td>INSY 4054</td>
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<td>INSY 4056</td>
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<td>INSY 4057</td>
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<td>or OSCM 4057</td>
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<td>INSY 4156</td>
<td>Privacy and Security</td>
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<td>INSY 4540</td>
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<td>INSY 4931</td>
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Four Business electives

Total Credit Hours: 30

Courses

INSY 3001. Introduction to Information Systems. 3 cr. hrs.
Provides future information systems users with a broad overview of information systems and applications used in organizations. Topics include the impact of technology on business, the software development life cycle, introduction to databases, business intelligence and analytics, introduction to enterprise architecture, innovation, infrastructure (Cloud), networking, security, ethical use of information systems and other business software applications. Students are involved in designing and creating a database system. Prereq: Soph. stndg.

INSY 3986. Internship Work Period. 0 cr. hrs.

INSY 4051. Business Applications Development. 3 cr. hrs.
An introduction to business applications design and development. Introductory topics include software product development, the Software Development Lifecycle, Agile (SCRUM), user experience design tools for wire-framing and mockup development, user story development, software architecture and technical design, object-oriented programming, data structures and programming logic design, database and external API integration, mobile and web applications development. Students work in groups and also participate in semester-long projects to design and build an innovative software application prototype. Prereq: INSY 3001.

INSY 4052. Database Management Systems. 3 cr. hrs.
Introduces a number of fundamental concepts of database management systems used in enterprise-level organizations. Topics may include data modeling (conceptual, logical); SQL programming language; management and administration of databases including index tuning, concurrency control, data security, backup and recovery; and emerging topics such as distributed and NoSQL databases. Students work on semester-long projects to design and implement a relational database. Prereq: INSY 3001.
INSY 4053. Project Management. 3 cr. hrs.
A fundamental understanding of how to manage a project using concepts and tools, while leveraging best practices, is essential. Students learn to properly initiate and plan a project, and explore the different project methodologies. Additionally, students learn the behavioral skills necessary to successfully launch, lead and realize benefits from projects in profit and nonprofit organizations. While providing a project management framework, Information Systems majors may decide on a software implementation, Operations and Supply Chain Management majors may focus on new product design or product innovation, Marketing majors might select a CRM implementation and Accounting or Finance majors may choose an Fintech implementation. Prereq: INSY 3001 or cons. of instr.

INSY 4054. Emerging Technologies. 3 cr. hrs.
Advances in technologies have fundamentally changed the way companies conduct business and create value for their customers. Business professionals must understand these emerging technologies to creatively leverage them for business solutions and integrate them with existing systems. Familiarizes students with an array of leading edge technologies; helps them understand their business feasibilities in financial, marketing, operations and other business functions; and examines social, economic and ethical impact of these technologies. Topics may include: machine learning and AI, internet of things (IoT), digital assistants, autonomous vehicles, brain-machine interfaces (BMIs), blockchain, 5G/6G, VR/AR, biometrics, cloud computing, digital ecosystems, ethics in AI, and privacy and security. Prereq: INSY 3001; and INSY 4051 or other programming course with cons. of instr.

INSY 4055. Web-based Applications. 3 cr. hrs.
Focuses on designing and developing Web-based applications using a variety of programming languages and tools. Students are exposed to Internet application development architecture. Class projects include developing business-to-consumer (B2C) and business-to-business (B2B) applications, among others. Upon completion, students understand the challenges, technologies, and issues in developing and deploying Web-based applications. Prereq: INSY 4051 or COSC 1010 or cons. of instr.

INSY 4056. Information Systems Governance. 3 cr. hrs.
Focuses on the major processes, frameworks and relational mechanisms within the corporate structure that ensure the effective, efficient and protected use of information systems and technologies, investments in IS, assets, systems, processes and human capital resources. Reviews structures around how organizations align IS strategy with business strategy to ensure that companies stay on track to achieve their strategies and goals and implement solid and repeatable methods to deliver, support and measure an IS organization’s performance. Generally viewed as a Board of Director’s or executive level responsibility, information systems governance is best deployed as part of the IS practice and culture. Prereq: INSY 3001 or ACCO 4050; Jr. stndg.

INSY 4057. Enterprise Systems in Supply Chain Management. 3 cr. hrs.
Focuses on how an information system like ERP supports and integrates core business processes within an organization and across its supply chains. A combination of lectures and in-class exercises using SAP’s ERP system. Includes a discussion of key ERP concepts and issues from functional, technical and implementation viewpoint. Also, includes hands-on working experience (through simulation) in manufacturing and distribution using SAP in the following areas: Sales Order Process, Purchasing, MRP, Production Ordering, Accounting and Forecasting. This is the same course as OSCM 4057 and credit cannot be earned for both INSY 4057 and OSCM 4057. Prereq: OSCM 3001 and INSY 3001.

INSY 4156. Privacy and Security. 3 cr. hrs.
Covers technical safeguards that can prevent disruption of service, data tampering and theft. Topics include risk assessment, management policies, authentication, encryption, digital signatures, authorization procedures, government standards, international law and vendor offerings. From a business perspective, the issue of what constitutes authorization for both collection and release of personal data is reviewed. To the extent that corporations have an ethical obligation not to sell or divulge customer data, safeguards and legal limitations to prevent this is also reviewed. Case studies, projects and research reports are used for evaluation. Prereq: INSY 3001 or ACCO 4050.

INSY 4158. Systems Analysis and Design. 3 cr. hrs.
Focuses on designing and developing Web-based applications using a variety of programming languages and tools. Students are exposed to Internet application development architecture. Class projects include developing business-to-consumer (B2C) and business-to-business (B2B) applications, among others. Upon completion, students understand the challenges, technologies, and issues in developing and deploying Web-based applications. Prereq: INSY 4051 or COSC 1010 or cons. of instr.

INSY 4159. Systems Analysis and Design. 3 cr. hrs.
Prepares future Information Systems (IS) professionals to apply established and evolving methodologies for the analysis and design of an information systems solution. Students learn how to gather and analyze user requirements for new systems and design appropriate solutions. Students work with live projects from small and non-profit organizations to gain real-world experience while enhancing teamwork, communication and project management skills. Prereq: Two courses from: INSY 4051, INSY 4052, INSY 4053, INSY 4054 or INSY 4055.

INSY 4540. Global Technology Experience. 3 cr. hrs.
Facilitates an immersive experience in the global business of technology development and management. Tied with a travel component to key technology provider countries in Asia or Europe. Experience how economic, legal, and political factors influence the global technology business and how such business, in turn, impacts social and cultural environments of client and provider nations. Designed around corporate visits, extensive engagement with practitioners and cultural immersion. Prereq: INSY 3001 and cons. of instr.

INSY 4931. Topics in Information Systems. 1-3 cr. hrs.
Topics vary. Prereq: Jr. stndg.

INSY 4986. Information Systems Internship - Grading Period. 3 cr. hrs.

INSY 4989. Information Systems Internship Work and Grading Period. 3 cr. hrs.

INSY 4995. Independent Study in Information Systems. 1-4 cr. hrs.
Faculty-supervised, independent study/research of a specific area or topic in information systems. Prereq: Cons. of dept. ch.