INFO SYS AND OPERATIONS MNGMT (ISM)

ISM 110 Business Computing I 3
Develops skills using microcomputer applications including electronic mail, word processing, graphics, spreadsheets, and network functions. 
Notes: Open to freshmen and other students seeking an introduction to computer usage.

ISM 116 Web Design and Development 3
Students learn skills needed to design effective Web pages by studying the best practices in website design. 
Prerequisites: C or better in ISM 110 or equivalent.

ISM 201 Essentials of Cyber Security 3
This course provides an overview of cyber security essentials. Any loss of data or compromise devastates a corporation. This course covers essential aspects of cyber security management. 
Prerequisites: ISM 110. Restricted to students who are Pre admitted to or admitted to majors in the Business School (PACC, ACCT, PBAD, BADM, CARS, ECON, ECOS, PENT, ENTR, PFIN, FINC, PINT, INTB, PISC, ISSC, PMKT, MKTG, or PSTH, STHP).

ISM 210 Principles of Business Analytics 3
Principles of Business Analytics introduced students to the advanced techniques in the use of business computing applications, including spreadsheets, database systems, and linkage between applications to enhance productivity. Students study how end-user applications are managed and contribute to business. 
Prerequisites: Grade of C or better in ISM 110 or equivalent and one of the following: MAT 112, MAT 115, MAT 120, MAT 191, STA 108 or permission of instructor.

ISM 218 Database Systems 3
Study of database management systems including their design, implementation, query and use. Includes an extensive case study requiring the development of a multiple table database system for organizational needs. 
Prerequisites: Grade of C or better in ISM 110.

ISM 240 Business Programming I 3
Introduction to the planning and creation of computer programs for solving business-related problems. Emphasis on problem analysis and structured programming techniques. Students utilize a procedural programming language. 
Prerequisites: MAT 115 or higher, and Grade of C or better in ISM 110 or equivalent, ISSC major.

ISM 280 Information Systems in Organizations 3
Fundamentals of information systems needed to achieve organizational, operational, informational, technological, managerial, and innovative functions are discussed. Evolving role of information systems in achieving and maintaining competitive advantage is evaluated. 
Prerequisites: ISM 110 or equivalent.

ISM 300X Experimental Course 1-6
This number reserved for experimental courses. Refer to the Course Schedule for current offerings.

ISM 301 Systems and Process Analysis 3
Focuses on systems and process concepts such as automation boundaries, feasibility assessments, performance measures, information modeling, process reengineering, quality, and value added. Course emphasizes analysis methodologies. 
Prerequisites: C or better in ISM 280. ISSC major.

ISM 310 Business Programming II 3
Study of advanced procedural software structures such as multidimensional arrays and tables, indexed file processing, and interactive processing. Introduction to object oriented software structure such as class definitions, object instances, and class methods.
Prerequisites: C or better in ISM 240.

ISM 324 Secure Networked Systems 3
Networking and telecommunication concepts are described. Technical and organizational activities for securing distributed systems are presented. System security and information assurance methodologies, procedures and best practices are studied. 
Prerequisites: Grade of C or better in ISM 201. Restricted to IS majors and Information Technology minors only.

ISM 325 Topics in Applications Development 1-3
Study of specific application development environments and development tools to support business application development. 
Prerequisites: ISSC Major.

ISM 326 Ethical Hacking 3
Ethical hacking is presented as a process of intentionally attempting to hack a computer system to understand potential vulnerabilities that a malicious hacker could exploit and find ways to mitigate them. 
Prerequisites: ISM 201 and ISM 280. Admission to ISSC major.

ISM 400X Experimental Course 1-6
This number reserved for experimental courses. Refer to the Course Schedule for current offerings.

ISM 411 Undergraduate Internship in Information Systems 1-3
This course provides students with the opportunity to apply classroom knowledge and skills to a business situation and develop new work management skills and understandings. 
Prerequisites: Admission to the ISSC major and approval of instructor. 
Notes: May be repeated for credit for a maximum of 6 s.h.

ISM 425 Business Analytics 3
Study of the techniques and methods of business analytics, including gathering, processing and analyzing large volumes of data to generate insights that inform business decisions. 
Prerequisites: ECO 250 and either ISM 218 or ACC 325. ISSC Major or ACCT Major.

ISM 452 Design of Management Information Systems 3
Development of cost effective computer-based systems to produce information needed for managerial decision making as specified in the information analysis phase. 
Prerequisites: C or better in ISM 218 and ISM 240. Any two of the following courses: ISM 301, ISM 310, ISM 324, ISM 326, ISM 411, ISM 425, or SCM 260, ISSC major.

ISM 498 Independent Study 1-3
Individual study of issues or problems in information systems and/or supply chain management. Student must arrange time and course requirements with instructor prior to registration.
ISM 499 Problems in Information Systems and Supply Chain Management 3
Independent study and research with class discussion covering a topic or group of related topics of current interest in information systems and/or supply chain management. 
**Prerequisites:** Permission of instructor.
**Notes:** May be repeated for credit with approval of Department Head.

ISM 600X Experimental Course 1-6
This number reserved for experimental courses. Refer to the Course Schedule for current offerings.

ISM 613 Directed Studies 1-3
Individual study problems in the field. Regular conferences with instructor required. 
**Prerequisites:** Permission of MSITM Program Director and instructor who will supervise study.

ISM 635 Principles of Enterprise Resource Planning using SAP 3
A problem-based approach to SAP and Enterprise Resource Planning concepts. Hands-on learning of integrated SAP software modules for business processes such as sales, logistics, material management, procurement, and human resources.
**Notes:** Same as SCM 635.

ISM 645 Principles of Predictive Analytics 3
Predictive analytics are iteratively generated by analyzing and exploring enterprise data to predict relationships and generate insights for organizations. Principles, models, and methods of predictive analytics are discussed.

ISM 646 Visualizing Data to Design Strategy 3
Data are analyzed to answer questions. Students are exposed to concepts and techniques to understand analytics results and appropriately infer relationships to answer questions and visualize results using contemporary techniques.

ISM 647 Cognitive Computing and Artificial Intelligence Applications for Business 3
Cognitive computing and artificial intelligence based applications are increasingly employed by businesses to generate insight from data. Students are introduced to principles, techniques, and models for developing these systems.

ISM 655 Principles of Cyber Security 3
Study of the technical, managerial, and organization issues in systems security, including systems security models, analysis of business process and technology for systems security, and information assurance.

ISM 666 Blockchains and Cryptography 3
Evaluate strategies to protect data, including cryptographic systems and their use in real world applications. Examine latest developments in blockchains and their role in security and data management.

ISM 667 Global Cyber Threat Analysis 3
The course focuses on evaluating global cyber threats because of cyber weapons, cyber warfare, and other criminal activities. The course also evaluates defensive strategies and necessary capabilities to combat threats.

ISM 670 IT Driven Disruptive Innovation Management 3
Examines the role of disruptive and emerging IT in reshaping business models, strategy, economies, and society by fueling disruptive product and process innovation. Explores processes and governance for IT-driven disruptive innovation.

ISM 671 Organizing Data for Analytics 3
Fundamental concepts of database management systems, including database design, implementation, and the use of the SQL query language.

ISM 672 App Design and Programming 3
Apply fundamental programming concepts in designing and implementing applications for the Web. This course provides students the necessary foudnations for developing Web Applications and evaluating entrepreneurial opportunities.

ISM 673 Designing Secure Computer and IoT Networks for Business 3
Technology related to internal and external network/telecommunication services. Managerial and business issues related to the identification, acquisition, and management of network/telecommunications services in the contemporary enterprise.

ISM 677 Information Systems Management 3
Examines the role of information technology to improve processes and business performance, analyze the interaction of business strategies, work processes, competitive markets, technology and people for effective IT management.

ISM 678 Project Management for Dynamic Environments 3
Modern methods of defining, planning and executing large IT and other projects. Computer software and network modeling are used to support the efficient scheduling of interdependent activities.
**Notes:** Students may not earn credit for both ISM 654 and 678.

ISM 688 Projects in Business Analytics 3
A capstone experience in which the students demonstrate a broad knowledge of Business Analytics by undertaking hands-on projects with realistic data.

ISM 695 Special Topics in IT 1.5
Specific course title identified each time the course is offered. Selected topics will address contemporary issues in information technology and its management.
**Prerequisites:** Admission to MSITM degree program and permission of MSITM Program Director.
**Notes:** Course may be repeated for credit when topic varies.

ISM 696 Organizational Internship 1-3
Academic and required work components allow students to gain organization experience. Course supervised by a designated graduate faculty member and an organization manager. 
**Prerequisites:** Permission of MSITM Program Director.
**Notes:** May be repeated for credit.

ISM 698 Project in Information Technology 3
Capstone experience in which the student demonstrates a broad knowledge of the material covered in the MSITM curricula by undertaking a project approved in consultation with the MSITM Program Director. 
**Prerequisites:** Completion of at least 18 credits of required coursework for MSITM.

ISM 699 Thesis 1-6
An independent, theory-based inquiry in which a student applied knowledge and skills acquired to the scholarly study of information technology and management.

ISM 750X Experimental Course 1-6
This number reserved for experimental courses. Refer to the Course Schedule for current offerings.
ISM 753 Information Systems Research Seminar I 3
Study of the principles of scientific inquiry and its applications in information systems research. Topics may include different types of knowledge generation, foundations of theory and research design alternatives.
Prerequisites: Admission to the Ph.D. in Information Systems or permission of the instructor.

ISM 754 Information Systems Research Seminar II 3
Current research issues on the intersection of information systems and supply chain systems. Topics may include blockchains, Internet-of-Things, information asymmetry and strategic inter-organizational information systems.
Prerequisites: Admission to the Ph.D. program in Information Systems or permission of instructor.

ISM 755 Information Systems Research Seminar III 3
Study of contemporary and emerging topics in information systems. Topics may include cybersecurity, social and crowd-based technologies, health information and health IT, and analytics, artificial intelligence and machine learning.
Prerequisites: Admission to the Ph.D. program in Information Systems or permission of instructor.

ISM 756 Information Systems Research Seminar IV 3
Application of various research techniques in information systems research. Topics may include econometrics, game theory, analytical modeling, queuing models, decision theory; experiments, big data techniques, panel data analysis.
Prerequisites: Admission to the Ph.D. program in Information Systems or permission of instructor.

ISM 782 Practicum in IS Teaching 1-3
Supervised teaching of an information systems (IS) course. Faculty mentor will guide in planning and delivery.
Prerequisites: Permission of PhD Director.
Notes: Course may be repeated for credit. Grade: Satisfactory/Unsatisfactory (S/U).

ISM 783 Organizational Research Internship 3-6
Organizational work and research in information systems in actual organization. Expose student to practical and relevant research problems. Supervised by designated faculty member and organization manager.
Prerequisites: Permission of PhD Director.
Notes: Grade: Satisfactory/Unsatisfactory (S/U).

ISM 785 Theories of Information Systems 3
Examines underlying theories in information systems research. Theories from organizational behavior, strategic management, economics, other disciplines inside and outside business, and IS will be discussed.
Prerequisites: Permission of PhD Director.

ISM 786 Introduction to Research and Frameworks in Information Systems 3
Provides an in-depth understanding of the research process. Topics include: IS frameworks and research methodologies, models, development, and evaluation.
Prerequisites: Permission of PhD Director.
Notes: Grade: Satisfactory/Unsatisfactory (S/U).

ISM 789 Research Seminar in Information Systems 1-3
Explores current and emerging research topics in information systems.
Prerequisites: ISM 786 or permission of PhD Director.
Notes: May be repeated for credit.

ISM 790 Independent Doctoral Research 1-6
Individual work on research issues related to the student’s primary area(s) of specialization. Work may consist of original research and/or critical examination and integration of existing literature.
Prerequisites: Permission of PhD Director.

ISM 799 Dissertation 1-24
Prerequisite: Admission to candidacy.

ISM 801 Thesis Extension 1-3
Thesis Extension.

ISM 802 Dissertation Extension 1-3
Dissertation Extension.

ISM 803 Research Extension 1-3