

PRE-REGISTRATION GUIDELINES AND SUGGESTIONS FOR ISEM STUDENTS

Suggested Course Planning Process

Figure 1 shows a simple ISEM Course Planning Decision Tree that will help you to take appropriate courses in your first semester, middle semesters, and the last two semesters. Exhibit 1 shows important information such as ISEM required courses and suggested email addresses for quick help. In addition, some of the new courses are briefly described on next page. The attached ISEM Planning Guide will answer most of your questions and will also help you develop your Course Plan.

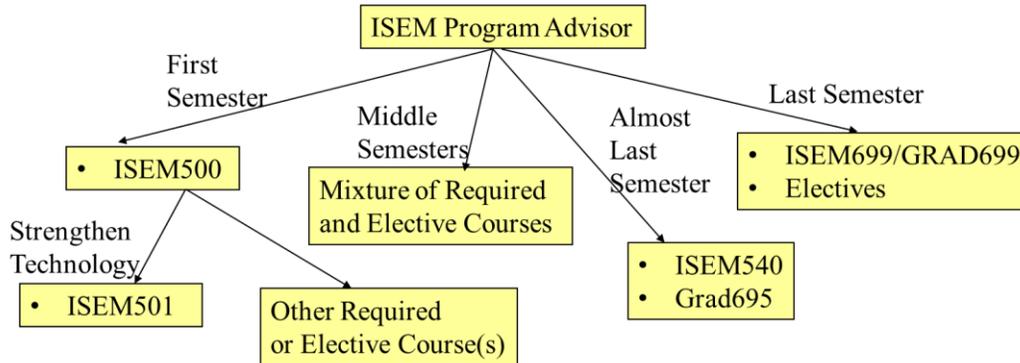


Figure1: ISEM Course Planning Decision Tree

IMPORTANT: You cannot take Grad695 and Grad699/ISEM699 in the same semester.

Important Suggestions and Guidelines:

- You cannot take more than one online course in a semester
- Please take as many required courses as quickly as possible so that you can graduate at your scheduled times. Exhibit1 shows the list of required courses
- In the last two semesters, you must take Capstone Courses (Grad695 and ISEM699/Grad699)
- To help you plan your courses better, we are offering several sections of ISEM required courses

Exhibit 1: Required Core Courses and other Vital Information

ISEM Required Courses (15 semester hours + 6 semester hours of Capstone)

ISEM 500	Strategic IS Planning, Engineering & Management	(3)
ISEM 502	User Centered Design or ISEM530 or ISEM565 or CISC520	(3)
ISEM 540	Architecture and Integration of Modern Enterprises	(3)
MGMT 510	Business Strategy and Management Principles	(3)
MGMT 511	Digital and Global Enterprises or PMGT510 or ANLY500	(3)
GRAD 695	Research & Writing	(3)
GRAD 699/ISEM 699	Master's Thesis or Research Project	(3)

Important eMail Addresses: For quick response to your questions, please use the following email addresses instead of sending emails to one person who may be too busy or away from work:

- Helpdesk@Harrisburgu.edu: for General IT and Moodle Support
- Registrar@Harrisburgu.edu: for questions related to registration, drop-adds, transfer credits, etc
- ISEMinfo@harrisburgu.edu: for questions related to the ISEM Program

Exhibit2: ISEM Courses at a Glance: Required, Capstones, and Different Topic Areas

<p style="text-align: center;"><u>Core Courses for MS in ISEM (15 semester hours)</u></p> <ul style="list-style-type: none"> • ISEM 500: IS Planning, Engg & Mgmt • MGMT 510: Business Strategy & Management Principles • ISEM 540: Architecture and Integration of Modern Enterprises • ISEM 502 User Centered Design or ISEM530 or ISEM565 or CISC520 • MGMT 511 Digital and Global Enterprises or PMGT510 or ANLY500 <p><u>ISEM Capstone (6 Semester Hours)</u></p> <ul style="list-style-type: none"> • GRAD 695: Research Methods & Writing • GRAD699/ISEM 699: Applied Project or Research Thesis <p style="text-align: center;"><u>ISEM Elective Courses</u></p> <p><u>Technology Courses</u></p> <ul style="list-style-type: none"> • ISEM 501: Information & Communication Technologies • ISEM 534: Database Design and Management • ISEM 536: IT Infrastructure & the Internet • ISEM 551: Web-based Software Engg • ISEM555: Mobile Computing and Wireless Communications • ISEM570: IT Quality Assurance <p><u>Business Intelligence (BI) Related Courses</u></p> <ul style="list-style-type: none"> • ISEM 503: Artificial Intelligence Principles and Applications • ISEM564: Big Data Applications • ISEM 565: Business Intelligence and Decision Support • ISEM572: Smart Enterprises and Strategic Intelligence 	<p style="text-align: center;"><u>ISEM Courses (Cont)</u></p> <p><u>Enterprise Engineering Courses</u></p> <ul style="list-style-type: none"> • ISEM 530: Analysis & Design of Information Systems • ISEM 550: Information Security Management • ISEM 525: Business Process Modeling and Workflow • ISEM539: Enterprise Architectures Frameworks • ISEM 560: eGovernment and eCommerce • ISEM 568: Aligning Business with IT Strategy • ISEM580: ST-Large Scale Systems Engineering <p><u>Enterprise Management and Entrepreneurship Courses</u></p> <ul style="list-style-type: none"> • MGMT 512: Marketing in the Digital Age • MGMT 513: Financial and Managerial Accounting • ISEM 520 Service Science, Management and Engineering • MGMT 531: Business Entrepreneurship Principles • MGMT 532: Business Entrepreneurship Management • MGMT 533. Business and Entrepreneurial Financing • ISEM 561 Public Administration • ISEM 562: Public Policy <p><u>Digital Health and Life Sciences Courses</u></p> <ul style="list-style-type: none"> • ISEM 521: Life Science for IT Professionals • ISEM 541: Healthcare Systems • ISEM 542: Health Informatics and Information Systems • ISEM 543: Digital Health • ISEM 544: Social, Technical and Organizational Issues in Digital Health • ISEM545: Healthcare Data
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EXHIBIT3: IMPORTANT: Individualized Concentration for ISEM Students

The Master of Science in Information Systems Engineering and Management student can choose courses totaling 15 semester hours of credit from any of the graduate programs at HU. Basically, an ISEM student can take *any* courses from *any* graduate program at HU as electives, totaling 15 semester hours. In addition, an ISEM student is expected to use the concepts learned in their electives to strengthen their Capstone Courses. This option allows the ISEM students to build their own customized concentrations such as the following:

- Analytics by taking at least 12 semester hours in Analytics and using Analytics concepts in ISEM Capstone.
- Project Management by taking at least 12 semester hours in Project Management and using Project Management concepts in ISEM Capstone.
- Security by taking at least 12 semester hours in Security and using Security concepts in ISEM Capstone.
- Health by taking at least 12 semester hours in Healthcare and using Healthcare concepts in ISEM Capstone.
- An almost unlimited number of highly creative concentrations by combining any graduate course work in ISEM (listed in Exhibit1) with other HU courses to meet the changing needs of modern digital enterprises.

In other words, the transcript of an ISEM graduate and the Capstone topic defines the concentration and not a pre-specified rigid list of courses.

APPENDIX A: Sample of New and Interesting Elective Courses

Notes:

- All required courses are offered in every semester. The **highlighted** courses are being offered this semester, the others will be offered in the next semester. The new courses are in **red**.
- For all course descriptions and administrative details, please consult the Graduate Catalog (at MyHU home Page, left corner)

NEW COURSE: ISEM 562. Science and Technology Policy (Executive Format)

Course Description (Proposed): This course examines the relationships between science, technology, and government, and their mutual influence on public and private decisions. These relationships will be analyzed in the areas of innovation, health, climate, energy and the environment, information technology, and international security. Public policy and government regulations affect the way our economy, industries, and businesses work. Knowing how public policy operates can improve manager's ability to adapt business strategy to sustain competitive advantage and recognize new business opportunities to create new markets. This course will attempt to answer the following main questions: Is scientific and technological development a force beyond human control, or can it be governed? How does the federal government attempt to harness scientific knowledge and resources for the nation's economic welfare and competitiveness in the global marketplace? Who makes decisions about controversial scientific experiments, such as genetic engineering and space exploration? Who is held accountable when things go wrong?

New Course: ISEM580: Special Topics - Introduction to IoTs and Embedded Systems

Course Description: Simply stated, IoT (Internet of Things) refers to any device/appliance ("thing") can be connected to the Internet. Thus almost every "thing" is becoming a digitally connected Internet device and more appliances and gadgets are using web interfaces. Many interesting and far reaching applications are emerging, many of them utilizing embedded systems that perform a dedicated function within a larger, usually a real-time system. IoTs and embedded systems are dominating different aspects of our day to day activities that span smart phones, automotives, robotics, autonomous drones, wearable devices, medical transplant devices, and an endless list of applications. This course introduces the concepts of IoTs and embedded systems, describes their special nature and how they differ from other systems. The course goes through the different challenges and design objectives with special attention to real time systems. It covers real time operating systems with more attention to Linux based embedded systems and their special nature. The course concludes with a discussion of the key technical and management challenges and emerging trends. Pre-requisites: Graduate Standing

ISEM580-Special Topics: IT Management

Course Description: This course introduces the core principles and practical methods and techniques for effectively managing Information Systems and Technology (IS/IT), services, and organizations. Applied business and systems engineering thinking using quantitative and qualitative analysis methods of business and information systems for planning, investing, budgeting, assessing value and risks, as well as governing and securing Information systems. The course will introduce key IS/IT management principles and examine strategies, challenges, approaches, techniques, and enterprise architecture and ITIL disciplines to align with the business and effectively manage the IT organization, systems, services, budget, to include the organizational impacts associated with disruptive technologies, sourcing, and integrated cloud computing models. Other focus areas will outline key concepts, methods, and techniques for: a) Creating and governing IT projects, b) Defining and managing enterprise services; c) IT risk management and analysis to support IT decisions and formulating and managing risk response plans and security programs. The final segment examines the disrupt technologies and trends and the correlation to IT management. Extensive practical exercises and case study method will be used throughout the course.

ISEM 502 User-Centered Design (3 semester hours)

Prerequisites: None

Description: A high level of end-user and client involvement is absolutely critical in creating usable and effective software and technology that attracts audiences and/or generates revenue. User-centered design (UCD) describes an approach to business analysis and technology development that demands user interaction and user feedback in all stages of the development lifecycle. The UCD process involves a collection of activities and techniques that can be used to create the more usable, intuitive, and effective technology possible. This course covers the full range of UCD methods and demonstrates the importance of these techniques in designing and building interactive technology, focusing mostly on software applications.

ISEM 503 Artificial Intelligence Principles and Applications (3 semester hours)

Prerequisites: ISEM 500 or appropriate work experience

Description: Interdisciplinary presentation of artificial intelligence as a coherent body of knowledge to acquaint the student with the key concepts and applications in business, science and engineering. The course covers models of intelligent behavior, including problem solving, knowledge representation, reason, planning, decision making, learning, perception, pattern recognition, action, communication and interaction. Recent developments in knowledge management, expert systems, computer-aided consulting and integrated intelligent systems are covered through a wide range of case studies, examples and hand-on experiments.

ISEM 525 Business Process Modeling and Workflow Systems (3 semester hours)

Prerequisites: ISEM 500 or PMGT 510 or appropriate work experience

Description: This course introduces the concepts of business process modeling and workflow systems in modern enterprises. In-depth modeling techniques used to capture business processes, workflows and conceptual information models are covered. Emphasis is placed on business modeling techniques such as the Business Process Modeling Notation (BPMN), business-use case modeling, Entity Relationship (ER) modeling, and other selected techniques from the Unified Modeling Language. The emphasis is on concepts and how these concepts are being used in practice by the most recent tools. The student develops business models to reflect case studies and real-world scenarios.

ISEM 542 Health Informatics and Information Systems (3 semester hours)

Prerequisites: ISEM 541 and a basic understanding of modern information systems

Description: This course introduces the basic concepts of healthcare information systems and explains the role of information and communication technologies in current and future healthcare systems. The course reviews the role of different players in healthcare: providers, physicians, and insurance companies. Topics covered in healthcare informatics include: health information networks (HINs) at local, regional, national and global levels; information technology systems and applications; standards and interoperability topics; electronic health records (EHR) and EMR; clinical decision support; computer physician order entry (CPOE), and e-prescriptions, privacy and security concerns, financial/administrative systems, and examples of IT infrastructure for healthcare.

ISEM 555: Mobile Computing and Wireless Communications

Prerequisites: Graduate standing and ISEM 500

Description: This course provides a management overview of wireless networking and mobile computing. The focus is on the key building blocks and their interrelationships so that the managers can understand the basic issues and approaches. The topics covered include: an introduction to mobile computing applications, wireless networking principles (e.g., intelligent antennas, noise and fading) and a survey of wireless network families (cellular networks, wireless LANs, Bluetooth), WiMax, and Satellites). The course concludes with discussion of wireless security, wireless integration, and wireless network management. The emphasis is on the latest developments, open issues and management/policy implications. Several case studies are used throughout to illustrate the key points. .

ISEM564: Big Data Applications – 3 Semester hours

Prereq: ISEM500 or Equivalent

Description: This course introduces the main concepts of big data with focus on applications of big data and data sciences in business settings. The students will explore several Open Big Data (OBD) sources and investigate applications of OBD in health, education, public safety, public welfare and other vital sectors. Through hands-on experiments, the students will develop a significant understanding of data science and practical applications of big data. Some tools used by practitioners of data science and analytics will be introduced but sophisticated mathematical or programming background is not required. After taking this course, the students should be able to pursue additional studies in different aspects of data sciences and analytics.

ISEM568: Aligning IT to Operations Management

This course discusses how business operations are designed and managed in a company and how Information Technology (IT) supports these operations. However, business operations are based on the business strategies, thus business strategies, business operations and IT are closely interrelated. The main focus of this course is to learn a) how business strategies are defined, b) how business operations are defined and managed, and c) how IT is used to enable the business operations. Different operational strategies and Information Technologies are discussed and explored in detail through team projects.

ISEM 570 IT Quality Assurance (3 semester hours) – listed as ISEM580-40

Prerequisites: ISEM 500 or Permission of the instructor

Description: The information technology product is central to most business systems. Quality of the product is represented by accuracy, reliability, repeatability and specific customer requirement standards. Various techniques to understand the quality control processes and quality assurance measures as demonstrated in industry standards and protocols are covered.

ISEM 572 Smart Enterprises and Strategic Intelligence (3 semester hours) - listed as ISEM580-91

Prerequisites: ISEM 565 or ANLY500 or Permission of the instructor

This course addresses advances in research, technologies, systems, and applications as related to “strategic intelligence”. Strategic intelligence (SI) refers to the intersection of Business Intelligence, Knowledge Management, and Competitive Intelligence for improving the strategic decision making in Smart Enterprises. Instead of intelligence on one topic area, smart enterprises need strategic intelligence that cuts across multiple topic areas. The course will discuss issues, methodologies, trends, challenges, and applications as related to knowledge management, intelligent systems, automated planning and scheduling systems, analytics, and Big Data. Case-based and project-based approaches are used for discussion and assignments.

MGMT 511 Digital and Global Enterprises (3 semester hours)

Prerequisites: MGMT 510

Description: Modern enterprises are globally dispersed organizations where nearly all significant business processes and relationships with customers, suppliers, and employees are digitally-enabled and key corporate assets are managed through digital means. Such organizations merge the concepts traditionally discussed in ecommerce, ebusiness and egovernment. This course introduces the organizational and operational aspects of such organizations and highlights the role of managing such organizations. Topics include organizational structure and design, learning and agile organizations, and operational concerns such as management of supply chains and B2B trade at a global level.

MGMT 512 Marketing Principles and Applications (3 semester hours)

Prerequisites: MGMT 510

Description: This course introduces the student to the most recent and relevant thinking in marketing in the competitive global marketplace. The student is provided with analytical tools to understand and synthesize the most current applications of theories and concepts in marketing. The student is shown how to design strategic planning for competitive advantage in the marketplace and is encouraged to explore the essence of marketing environment and the global vision for business marketing.

MGMT 531 Business Entrepreneurship Principles (3 semester hours)

Prerequisites: MGMT 510 or equivalent or permission of instructor

Description: This course is designed for the student and working professional with interest in owning, or participating in, a successful business startup. This course focuses on the principles that are essential to forming a successful startup company, and the role of innovation in entrepreneurship.