Information Science and Technology (MS)
Graduate Degree Program (on-campus and distance)
Department of Business and Information Technology

Program Description
The explosive growth and utilization of information has transformed every aspect of our economy and society. The associated rise in increasingly complex technology has generated the need for highly trained professionals to implement and maintain information systems on local and global scales. Missouri University of Science and Technology’s master’s degree in information science and technology is structured to educate students in the design, development, and successful application of information systems in modern corporate organizations. With only four required core courses, this program provides students with the flexibility to choose their own specialized areas of interest. Areas of specialization that lead to graduate certificates include: business intelligence, human-computer interaction, enterprise resource planning (with SAP Certificate), psychology of leadership, and project management. Other areas of specialization include computer networks, communication systems and e-commerce.

Credit Hours to Complete: A total of 30 credit hours of coursework are required to complete this degree.

Course Length: 16 weeks (fall/spring); 8 weeks (summer)

Delivery Format: Courses are taught face-to-face on campus and delivered over the Internet, via live streaming video; collaborative learning software includes WebEx and Blackboard; classes are archived online for review and easy access.

Course Management Software: Blackboard.

Admission Requirements
Bachelor’s degree with GPA ≥ 3.0, or successful completion of 12 graduate hours in IST courses; GRE: V ≥ 143 (370 based on previous scale), Q ≥ 148 (600 based on previous scale), A≥ 3.5; or GMAT: Q ≥ 35, V ≥ 21, A ≥ 3.5; International requirement: TOEFL ≥ 230 (computer-based), ≥ 570 (paper-based), ≥ 88(web-based); or IELTS ≥ 6.5.

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Business and Information Technology
Distance Graduate Certificate Programs
Department of Business and Information Technology

Business Intelligence (BI)
Medium to large sized organizations that have countless offices and operations scattered about usually have numerous database systems from which upper-level administration would like reports in a combined fashion. In order to make appropriate decisions, upper-level administration needs to draw the data together from different systems in order to get a crisper picture of the status and performance of an organization. This is the role of the data warehouse. The data warehouse can be a powerful strategic tool to help upper-level administration evaluate data and predict trends for the organization. Through organizational scorecards, dashboards and other tools that provide a picture of how an organization is performing. People capable of creating and maintaining such a data warehouse are needed, but the in-depth education necessary for these people is available in only a few places.

Curriculum:*  
The following courses are required:  
ERP 345 Use of Business Intelligence  
IST/ERP 444 Essentials of Data Warehouses

Choose two of the following electives:  
ERP 346 ERP Systems Design and Implementation  
ERP 348 Strategic Enterprise Management Systems  
ERP 442 Customer Relationship Management  
ERP 443/IST 443 Information Retrieval & Analysis  
ERP 448 Enterprise Performance Dashboard Prototyping  
IST 445 Database Marketing

Digital Design
This certificate program addresses the pressing demand and opportunities for graduates with advanced knowledge and skills in areas such as networked communication and marketing, web-based media creation and design, and methods for designing and building effective human-media interfaces.

Curriculum:*  
The following course is required:  
IST 354 Advanced Web and Digital Media Development

Choose two of the following courses:  
IST 385 Human-Computer Interaction  
IST 480 Advanced Web and New Media Studies  
MKT 331 Promotions Management

And choose one of the following courses:  
IST 352 Advanced Web Development  
IST 386 Human-Computer Interaction Prototyping

Digital Supply Chain Management
This graduate certificate will give students the tools and ideas that help shape and define the various components of value creation. Students gain knowledge and skills in the full spectrum of supply chain activities: supplier relationships, purchasing management, operations and inventory management, logistics and transportation, quality management, and information technology.

Curriculum:*  
Choose one course from the following:  
BUS 425 Supply Chain and Project Management  
ME 308 Rapid Product Design and Optimization

Two required courses:  
ERP 346 Enterprise Resource Planning Systems Design and Implementation  
ERP 347 Supply Chain Management Systems in an ERP Environment

And choose one course from the following:  
ERP 345 Use of Business Intelligence  
ERP 442 Advanced Customer Relationship Management  
ERP 446 Enterprise Resource Planning Systems Configuration and Integration  
ME 357 Integrated Product and Process Design  
ME 356 Design for Manufacture  
ME 360 / AE 360 Probabilistic Engineering Design  
ME 363 Principles and Practice of Computer Aided Design
Electronic and Social Commerce
This certificate program is designed to create successful students by developing skills in technological business practices that will provide opportunities for succeeding in today's fast paced world.

To that end, the program focuses on the following competencies:

- Management concepts applied to IT
- Management concepts applied to support of electronic commerce
- Use of business processes in IT integration
- Competitive advantage through IT
- Electronic commerce through collaborative shopping

Curriculum:*  
The following course is required:  
IST 341 Advanced Electronic and Mobile Commerce

Pick one course from the following:  
BUS 423 Corporate Information Systems Management  
IST 351 Technological Innovation Management and Leadership

Pick two courses from the following:  
IST 352 Advanced Web Development  
IST 368/Philosophy 368 Law and Ethics in E-Commerce  
IST 385 Human Computer Interaction  
IST 386 Human-Computer Interaction Prototyping  
IST 435 Mobile Technology for Business  
IST 445 Database Marketing  
IST 480 Advanced Web and New Media Studies  
MKT 331 Digital Marketing and Promotions  
MKT 480 Advanced Marketing Strategy

Enterprise Resource Planning (ERP)
Corporations worldwide have focused on improving business processes for the past two decades. In their efforts to enable business processes by using information technology, we have seen the emergence and growth of enterprise systems, and more recently extended enterprise systems such as Supply Chain Management (SCM), Customer Relationship Management (CRM), Strategic Enterprise Management (SEM), and Business Intelligence. Most Fortune 500 companies have already adopted Enterprise Recourse Planning (ERP) systems and many midsize companies are planning ERP implementation. With a commitment to keep pace with these changes, the University of Missouri system joined SAP's University Alliance program in order to continue and expand classroom capabilities of integrating ERP software into their curriculum.

Curriculum:*  
The following courses are required:  
ERP 346 ERP Design & Implementation  
or BUS 426 Integration of Business Areas  
ERP 446 ERP Configuration  
or ERP 448 Enterprise Performance Dashboard Prototyping

Choose two of the following electives:  
ERP 341 Enterprise Portal Application Development  
ERP 345 Use of Business Intelligence  
ERP 347 Supply Chain Management Systems  
ERP 348 Strategic Enterprise Management  
ERP 349 ERP Systems Administration  
ERP 442 Customer Relationship Management  
ERP 444/IST 444 Essentials of Data Warehouses  
ERP 448 Enterprise Performance Dashboard Prototyping

Students with a Graduate Certificate in ERP will be eligible for a Missouri S&T's-SAP Certificate, authorized by the SAP Corporation.
Business and Information Technology
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Human-Computer Interaction (HCI)
HCI specialists bridge the gap in organizations between groups who build the technologies and those who use them.

Curriculum:*
Required courses:
- IST 385 Human-Computer Interaction
- IST 386 HCI Prototyping
- IST 387 HCI Evaluation

Choose one course from the following:
- IST 487 Research Methods in HCI
- IST 480 Social Informatics

Human Systems Integration (HSI)
(Shared with Engineering Management and Systems Engineering)
The HSI certificate program prepares students to have a significant impact on complex tasks involving humans. It is beneficial for army officers at Ft. Leonard Wood, defense contractors in the systems engineering degree program and others wanting to specialize in HSI.

Curriculum:*
The following three courses are required.
- Eng Mgt 311 Human Factors
- IST 385 Human Computer Interaction
- Eng Mgt 401 (411) Human Systems Integration and Eng Mgt 386 Safety Engineering Management, or IST 387 Human-Computer Interaction Evaluation

Management and Leadership
The graduate certificate in Management and Leadership provides students with the knowledge required to manage and lead technological enterprises.

Required course:
- BUS 421 Teambuilding and Leadership

Choose three courses from the following:
- IST 351: Technological Innovation Management and Leadership
- IST 461: Advanced Information Systems Project Management
- IST 368/Philosophy 368: Law and Ethics in E-Commerce
- BUS 311: Business Negotiations
- BUS 450: Advanced Customer Focus and Satisfaction

BUS 370: Human Resource Management
BUS 380: Strategic Management
EMGT 361: Project Management

Mobile Business and Technology
This certificate is designed to cover the mobile industry as well as the technologies, devices, operating systems, user interface design, and tools of mobile applications. The focus is on the mobile industry and technologies that allow an organization to make decisions in this dynamic domain.

Required courses:
- IST 435 Mobile Technology for Business
- ERP 341 Enterprise Portal and Mobile Application Development

Choose two courses from the following:
- ERP 442 Advanced Customer Relationship Management in ERP Environment
- ERP 347 Supply Chain Management Systems in an ERP Environment
- ERP 348 Performance Dashboard, Scorecard, and Data Visualization
- IST 352 Advanced Web Development
- IST 386 Human-Computer Interaction Prototyping

Project Management
(Shared with Engineering Management)
This certificate programs aims to equip students with a set of tools that will allow them to achieve Project Management Institute (PMI) standards in the project management area.

Curriculum:
- IST 361 Information Systems Project Management (special provision, see below)
- EMgt 458 Case Studies in Project Management
- EMgt 461 Global Project Management
- EMgt 308 Economic Decision Analysis or EMgt 361 Project Management
Psychology of Leadership  
(Shared with Psychological Science)  
This certificate program is designed to provide formalized education in the area of the Psychology of Leadership.

Curriculum:*  
Choose three courses from the following:  
- PSYCH 308 Social Psychology  
- PSYCH 316 Psychology of Leadership  
- PSYCH 374 Organizational Psychology  
- ERP 348 Strategic Enterprise Management Systems  
- IST 351 Leadership in Technology-Based Organizations  
And a fourth course from one of the following five:  
- PSYCH 350 Psychology of Women  
- PSYCH 372 Group Dynamics  
- PSYCH 378 Social Influence  
- IST 401 Social Informatics  
- IST 487 Research Methods in Human Computer Interaction  

*Curriculum is subject to change. Please contact the department for up-to-date information on courses. Other courses approved by the faculty may be substituted for any of the above listed courses on a case-by-case basis. The administrative coordinators must approve the substitution prior to enrolling in the course.

Admissions Requirements  
The graduate certificate program is open to all individuals holding a BS, MS or PhD degree in areas such as business, social sciences, technology, engineering, humanities, or related disciplines.

In order to receive a Graduate Certificate, the student must have an average graduate cumulative grade point of 3.0 or better on a 4.0 scale in the certificate courses taken. Students admitted only to the certificate program will have non-degree graduate status but will earn graduate credit for the courses they complete.

The courses in the certificate program will be offered such that students can complete the program in a timely manner.

If the four-course sequence approved by the graduate advisor is completed with a grade of B or better in each of the courses taken, the student will, upon application, be admitted to the Master of Business Administration or to the Master of Science in Information Science and Technology. The certificate courses taken by students admitted to the program will count toward the MBA program or the M.S. in Information Science and Technology degree program.

Once admitted to the certificate program, a student will be given three years to complete the program as long as a “B” or better average is maintained in the courses taken.

Department Contact Information  

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