

IDS COURSES – Student Learning Outcomes

August 2009

IDS 180: Principles of Information Systems

At the end of this course students should be able to:

1. Understand the importance of determining information system requirements for all management levels by developing an understanding of the differences between various types of information systems
 2. Understand how information systems are developed
 3. Understand the computer revolution and its impact on the way business is conducted
 4. Become familiar with critical-thinking skills in identifying information systems problems and how to investigate existing literature about hardware and software solutions to problems.
 5. Know the components and functions of computer systems, both hardware and software.
 6. Become familiar with the advances in networking, data communications and the Internet and how they affect the way business is conducted.
 7. Identify which information technology tools are used to solve various business problems.
 8. Develop proficiency solving business problems using modern productivity tools (e.g., spreadsheet, database) or creating custom programs.
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IDS 290: Business Communication

At the end of this course students should be able to:

1. Adapt the concepts of the basic communication model to written messages and oral presentations through careful audience analysis and message planning.
 2. Choose words, write sentences, and develop paragraphs for good news, bad news, and persuasive messages that are clear, concise, complete, and accurate.
 3. Incorporate technology effectively in gathering, organizing, writing, and presenting written and oral messages.
 4. Effectively gather, interpret, and organize both secondary and primary information needed to support written and oral reports.
 5. Evaluate and produce graphics to communicate messages quickly and accurately.
 6. Write effectively for those with English as a second language.
 7. Collaborate effectively on written documents.
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IDS 301: Statistical Analysis for Business

At the end of this course students should be able to:

1. Use data from a sample to make inferences about a population.
 2. Apply probability theory in decision making situations.
 3. Formulate hypotheses for decision making and research.
 4. Analyze data using appropriate statistical techniques.
 5. Interpret the results of statistical analysis.
 6. Present statistical results using graphics, text, and the spoken word.
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IDS 302: Introduction to Operations Management

At the end of this course students should be able to:

1. Define the role of operations and supply chain in an organization and its interactions with business functions such as accounting, finance, and marketing.
 2. Develop the basic business and operations strategies for increased productivity and competitiveness for service and manufacturing.
 3. Use descriptive and optimization models and incorporate cost drivers to improve general business decision making.
 4. Identify issues in inventories and resources for an organization and use basic models to improve its management
 5. Design quality management strategies, techniques and tools for improved customer satisfaction.
 6. Plan the basic scheduling for project and its management
 7. List and apply lean operations principles.
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IDS 306: Information Systems Analysis

At the end of this course students should be able to:

1. Work in a project-team setting.
 2. Perform all aspects of the SDLC planning phase.
 3. Perform all aspects of the SDLC analysis phase.
 4. Understand and articulate the benefits and limitations of the steps and deliverables used in information systems projects.
 5. Analyze the competitive advantage that IS projects can bring to an organization.
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IDS 315: Business Application Programming

At the end of this course students should be able to:

1. Explain the following concepts and write programs involving at least some of them:

 - Structured programming principles
 - Data validation techniques
 - Array processing
 - File processing
 - Visual Basic for Web development
 - Visual Basic for database access
 - Object-oriented programming (OOP) principles

IDS 375: Information Systems Technology

At the end of this course students should be able to:

1. Retain currency in the face of rapid technological change by reading and understanding technical literature.

2. Critically and comparatively evaluate technical descriptions of computer hardware and software products
 3. Recognize and evaluate linkages between end-user requirements and underlying hardware and software technologies
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IDS 380: Data Management Systems

At the end of this course students should be able to:

1. Describe how relational databases store business data and provide desired information.
 2. Analyze organizational information requirements using the entity-relationship approach and model them as Entity-Relationship Diagrams (conceptual database design).
 3. Map an Entity-Relationship Diagram to a relational database (logical database design).
 4. Use normal form theory to analyze and improve a database design.
 5. Create a database with the ORACLE Database Management System and process complex information using the SQL language.
 6. Explain how a DBMS enforces security, recovery from failure, and concurrency control.
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IDS 390W: Reporting Techniques for Accountants

At the end of this course students should be able to:

1. Analyze and interpret numbers' meaning appropriately for various audiences; *think* with the numbers.
 2. Identify economic, broad business, and financial risks of an industry/sector; competitive advantages; financial and non-financial performance. Use facts and information to create meaning and analysis rather than just list facts.
 3. Analyze the quality of information and evidence; find and evaluate relevant research sources, both print and electronic databases online, for three projects.
 4. Work effectively in teams to create written and oral reports; practice leadership skills.
 5. Make at least your final presentation without notes (no reading!!).
 6. Use a presentation package such as PowerPoint to create at least one set of visuals.
 7. Using an SEC manual, create professional document content and design.
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IDS 396W: Reporting Techniques for Business Professionals

At the end of this course students should be able to:

1. Learn the essentials of organizing business messages.
 2. Gather primary information and interpret it effectively.
 3. Prepare short documents for business such as instructions, proposals, and policy and procedure statements.
 4. Prepare a substantial analytical report using both primary and secondary research and supported with suitable graphics.
 5. Deliver individual and team oral business presentations using appropriate visual support.
 6. Design effective visual support for written and oral business presentations.
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IDS 406: Information Systems Design

At the end of this course students should be able to:

1. Work in a project-team setting.
 2. Perform all aspects of the SDLC design phase.
 3. Perform all aspects of the SDLC implementation phase.
 4. Understand and articulate the benefits and limitations of the steps and deliverables used in systems design and implementation projects.
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IDS 460: Project Management

At the end of this course students should be able to:

1. Explain and discuss the phases and knowledge framework for the methods used in project management.
 2. Understand the genesis of project, program, and portfolio management and their importance to enterprise success.
 3. Conduct a *gap analysis* by identifying “as is” and “to be” vision of the project.
 4. Create a Charter and Scope for a project.
 5. Apply project management concepts by working on a team project as project manager or active team member.
 6. Use Microsoft Project to link all activities and resources to produce a detailed project schedule and budget.
 7. Identify the critical path, calculate its variance and estimate the probability of completing the project within a stated time.
 8. Produce and integrate planning for Communication, Human Resources, Quality, Risk, and Procurement.
 9. Define project management terms and techniques such as:
 - The triple constraint of project management
 - The project management knowledge areas
 - Tools and techniques of project management such as:
 - Cognitive mapping
 - Process flow charts
 - Work breakdown structures
 - Gantt charts, network diagrams, critical path analysis
 - Cost estimates
 - Crashing a project
 - Earned value management
 - Leadership and team building.
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IDS 481: E-Business/Web Development

At the end of this course students should be able to:

1. Translate a set of business requirements into a functional and interactive Web site.
2. Display a fundamental understanding of some of the major tools and frameworks available for Web development

3. Have marketable skills in this area.
 4. Apply these skills to any of the major Web development frameworks in use in the industry today.
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IDS 482: Information Technology Projects

At the end of this course students should be able to:

IDS 483: Networks and Data Communications

At the end of this course students should be able to:

1. Comprehend and explain general networking terminologies.
 2. Understand software and hardware elements necessary to implement a network.
 3. Explain internetworking, transmission media, and network protocols.
 4. Discuss and compare major network standards for LAN and WAN and their technical differences.
 5. Develop preliminary competence to design, analyze, and implement small-scale networks.
 6. Articulate general approaches available to implement security measures on a computer network.
 7. Discuss standard architectures, layers, and key protocols of each layer.
 8. Explain the Internet architecture.
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IDS 492: Management of Information Systems

At the end of this course students should be able to:

1. Explain and apply several tools used for developing organizational strategy and aligning IS&T's efforts with that strategy.
 2. Describe several recent IS&T technologies, its value for business applications, and concerns with its use.
 3. Understand, analyze and represent a current organizational process ("as-is") and an improvement to it ("should-be").
 4. Research IS&T technologies, management, and strategies in academic and professional journals, industry research companies, Information Systems Organizations, and the Internet in general.
 5. Create a source of information and knowledge using collaborative IS&T tools and discuss how those tools might be used to achieve a given strategy.
 6. Use of Project Management Software for the development and implementation of new technologies to achieve IS&T strategies.
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IDS 515: Intermediate Programming for Business Applications

At the end of this course students should be able to:

IDS 520: Advanced Programming for Business Applications

At the end of this course students should be able to:

IDS 609: Information Technology for Business

At the end of this course students should be able to:

IDS 610: Electronic Business Technologies

At the end of this course students should be able to:

IDS 620: Electronic Business Infrastructures

At the end of this course students should be able to:

IDS 630: IT Management Strategies for E-Business

At the end of this course students should be able to:

BA 652: Statistical Analysis

At the end of this course students should be able to:

1. Use data from a sample to make inferences about a population.
 2. Apply probability theory in decision making situations.
 3. Formulate hypotheses for decision making and research.
 4. Analyze data using appropriate statistical techniques.
 5. Interpret the results of statistical analysis.
 6. Present statistical results using graphics, text, and the spoken word.
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BA 662: Operations Management

At the end of this course students should be able to:

1. Understand the role of operations and supply chain in an organization and its interactions with business functions such as accounting, finance and marketing.
2. Understand the basic business and operations strategies for increased productivity and competitiveness for service and manufacturing.
3. Learn to use descriptive and optimization models and incorporate cost drivers to improve business decision making.

4. Understand quality management strategies, techniques and tools for improved customer satisfaction.
 5. Understand the basic issues and models of inventory and materials management.
 6. Understand the basic scheduling techniques for project planning and management.
 7. Understand lean operations principles.
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IDS 680: Information Systems Hardware and Software

At the end of this course students should be able to:

1. Describe the workings of a computer based on the stored program concept: data format, machine code, fetch-execute cycle, addressing.
 2. Explain roles, organization, and interactions of the main computer components: CPU, memory, and peripheral devices.
 3. Explain Function 1 of the operating system--computer-user interface processing
 4. Explain Function 2 of the operating system--hardware resource management:
 - o CPU scheduling
 - o Memory management
 - o Peripheral device management
 - o File management.
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IDS 686: Database Management Systems

At the end of this course students should be able to:

1. Describe how relational databases store business data and provide desired information.
 2. Understand the database environment and the functions of the database administrator
 3. Analyze organizational information requirements and business rules using the entity-relationship approach and model them as Entity-Relationship Diagrams (conceptual database design).
 4. Map an Entity-Relationship Diagram to a relational database (logical database design).
 5. Use normal form theory to analyze and improve a database design.
 6. Create a database with the ORACLE Database Management System and process complex information using the SQL language.
 7. Understand the concept of transaction and describe how a DBMS enforces security, recovery from failure, and concurrency control.
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IDS687: Data Communications and Distributed Data Processing

At the end of this course students should be able to:

1. Comprehend and explain general networking terminologies.
1. Understand software and hardware elements necessary to implement a network.
2. Explain internetworking, transmission media, and network protocols.
3. Discuss and compare major network standards for LAN and WAN and their technical differences.
4. Develop preliminary competence to design, analyze, and implement small-scale networks.
5. Articulate general approaches available to implement security measures on a computer

network.

6. Discuss standard architectures, layers, and key protocols of each layer.
 7. Explain the Internet architecture.
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IDS 688: Information Systems in Organizations

At the end of this course students should be able to:

1. Describe and explain the evolving business and IT environments.
 2. Describe strategic information systems planning and decision making in the new networked global economy.
 3. Apply theoretical business and information systems models to management and problem-solving situations.
 4. Explain the concept of business process reengineering (BPR).
 5. Describe ways of measuring organizational IT performance.
 6. Describe IT governance and the management of change.
 7. Describe the ethical responsibilities of today's IT professional.
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IDS 691: Decision Support Systems

At the end of this course students should be able to:

1. Describe decision theory.
 2. Explain decision modeling.
 3. Identify and define knowledge management terms and concepts.
 4. Explain how knowledge management impacts an organization.
 5. Describe how to build and implement a Knowledge Management System.
 6. Explain Knowledge Management/Knowledge Management System Success.
 7. Identify and Discuss issues affecting Knowledge Management.
 8. Define and explain decision support systems.
 9. Explain decision support technologies
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IDS 695: Information Systems Development I

At the end of this course students should be able to:

1. Discuss and describe the principles of software development project management.
 2. Discuss and describe the lifecycle approach to systems analysis.
 3. Describe the project selection process.
 4. Describe and create the various system analysis graphical methods.
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IDS 697: Information Systems Development II

At the end of this course students should be able to:

1. Plan and execute an information-systems development project using a human-centered SDLC methodology/
2. Produce documentation making up a system design specification.

3. Design physical databases and user interfaces.
 4. Evaluate system implementation strategies, including the make/buy decision.
 5. Evaluate and create implementation plans.
 6. Evaluate the effectiveness of a human-computer interface.
 7. Perform all aspects of the SDLC design and implementation phases.
 8. Understand and articulate the benefits and limitations of the steps and deliverables used in systems design and implementation projects.
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IDS 705: Communication Strategies

At the end of this course students should be able to:

IDS 744: Seminar in Lean Six Sigma Quality Management

At the end of this course students should be able to:

1. Demonstrate a fundamental knowledge that leads to competency in identifying objectives, measures, targets, and initiatives for improving quality within the general applications of business (including manufacturing, service, and small business), health care, education, and not-for-profit.
 - 1.1: Analyze business-related data through the use of the Baldrige criteria.
 - 1.2: Examine quality problems in the business world using various quality concepts and techniques such as PDCA, cause-and-effect diagrams, Pareto charts, DMAIC, DMADV, and other qualitative problem-solving tools.
 - 1.3: Examine quality problems within organizations using Six Sigma and Lean Six Sigma concepts.
 - 1.4: Apply statistical tools that are based on probability distributions such as z -tests, t -tests, F -tests, chi-square tests to solve problems and improve decision making.
 - 1.5: Apply process capability indices for evaluating quality and process capability.
 - 1.6: Apply statistical process control techniques for evaluating quality.
2. Demonstrate competency in quality techniques through the use of statistically related equations and software.
 - 2.1: List a wide array of approaches to examining quality.
 - 2.2: Apply software tools such as Excel, SPSS, SAS, JMP IN, Minitab, MASS, StatTools, and/or other analytical software to analyze quality issues.
 - 2.3: Interpret statistical results, charts, graphs, and diagrams and then apply such findings to improve problem solving and managerial decision making.
3. Demonstrate competency in critical thinking skills in quantitative and qualitative problem solving and decision making that can be transferred to a wide range of business settings.
 - 3.1: Identify components of the Plan-Do-Check-Act (PDCA) process for critical thinking and problem solving in real world situations.
 - 3.2: Apply the DMAIC (Define, Measure, Analyze, Improve, and Control) approach to address projects for quality improvement.
 - 3.3: Apply the DMADV (Define, Measure, Analyze, Design, and Verify) approach to address projects for quality improvement.

3.4: Differentiate among quality tools such as Quality Function Deployment (QFD), kaizen, Pareto, critical to quality (CTQ), control charts, poka yoke, root cause analysis, Hoshin, Kanban, SWOT, environmental scan, affinity diagrams, and other such tools.

IDS 748: Seminar in Advanced Data Analysis

At the end of this course students should be able to:

1. Demonstrate knowledge of statistics beyond the basics, including competency in problem solving within the general areas of business administration.
 - 1.1 Analyze business-related data through the use of basic and advanced level statistical tools.
 - 1.2 Approach problems for which data analysis has potential for testing hypotheses by following systematic approaches to problem solving, using such concepts as PDCA, CE diagrams, and flowcharts, using a wide range of statistical procedures.
 - 1.3 Construct and evaluate hypotheses through the use of z -tests, t -tests, various analysis of variance designs, bivariate and multiple regression, and nonparametric statistics.
 - 1.4 Construct and evaluate hypotheses through the use of advanced level statistical procedures, such as judgment analysis, factor analysis, hierarchical grouping, multiple discriminant analysis, multivariate analysis of variance, and other statistical procedures to improve decision making.
 - 1.5 Identify probabilities associated with statistical results.
 - 1.6 Differentiate between honest, ethical analyses and distorted misinformation.
 2. Demonstrate competency in quantitative techniques through the use of statistically related hardware and software.
 - 2.1 List approaches to data sampling, design, collection, sampling, and data entry that lead to improved analysis of problems.
 - 2.2 Apply calculators, computers, and graphical tools to analyze and interpret data.
 - 2.3 Apply software tools such as Excel, SPSS, SAS, JMP IN, Minitab, Execustat, Statgraphics, MASS, StatTools, Clementine, Clustan, and/or other analytical software to analyze data bases.
 - 2.4 Interpret statistical software results for problem solving and managerial decision making.
 3. Demonstrate competency in critical thinking skills in quantitative and qualitative problem solving and decision making that can be transferred to a wide range of settings.
 - 3.1 Identify baselines, benchmarks, and trends that are useful for comparing an organization's results with various standards.
 - 3.2 Predict potential strengths and opportunities to improve within an organization through the use of both qualitative and quantitative problem-solving and decision-making techniques tools.
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IDS 749: Seminar in Applied Behavioral Measurement

At the end of this course students should be able to:

1. Demonstrate a fundamental knowledge of measurement procedures useful in analyzing such areas as teamwork, leadership, job satisfaction, attitudes, motivation, total quality management, customer satisfaction, employee satisfaction, and other business-related areas requiring measurement and metrics.
 - 1.1.: Develop skills and expertise in reliability, validity, and instrument development.
 - 1.2: Develop an understanding of various instrument formats such as Likert scales, Thurstone scales, Guttman scales, paired-comparison analysis, forced-choice instruments, semantic-differentials, In-Baskets, and/or other designs of measurement tools.
 - 1.3: Lead discussions regarding baselines, benchmarks, targets, the Balanced Scorecard (objectives, measures, targets, and initiatives), and other measurement issues.
 2. Apply the understanding of instrument development and applied behavioral measurement to gain competency in developing, assessing, and using various metrics for improving problem solving and managerial decision making within various areas of business and enterprise.
 - 2.1: Apply the skills acquired in Goal 1 to personally develop a survey, questionnaire, test, or other instrument that yields systematic, measurable, meaningful, and verifiable metrics.
 - 2.2: Examine existing surveys, questionnaires, tests, and other instruments with the necessary knowledge to evaluate their development, reliability, validity, and appropriateness.
 - 2.3: Understand the Baldrige Criteria and be able to relate the Baldrige concepts to the workforce.
 - 2.4: Understand other workforce approaches and metric systems such as Six Sigma, Lean Manufacturing, Lean Six Sigma, ISO, and other measurement models.
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IDS 750: Project Management

At the end of this course students should be able to:

1. Explain the key project management knowledge framework.
 2. Define project scope and work breakdown structure.
 3. Develop a project plan.
 4. Allocate resources to work packages.
 5. Design project schedule and budget.
 6. Determine critical path and critical activities.
 7. Conduct earned value analysis to monitor project progress.
 8. Design project risk plan.
 9. Elaborate cultural and globalization impact on project management.
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IDS 752: Seminar in Supply Chain Planning and Control

At the end of this course students should be able to:

1. Discuss core MPC concepts using appropriate vocabulary.
 2. Discuss how MPC Systems must align with corporate strategy and goals.
 3. Understand strategy and issues relevant to the implementation and integration of MPC systems.
 4. Understand how Forecast accuracy, SOP, and Quality impact the accuracy of the MPC effectiveness.
 5. Understand the role lead time, BOM, Inventory, and MPS accuracy play in successful MRP scheduling
 6. Demonstrate hands-on use of a MRP system (set up machines, routings, create BOMs, load Master Schedule and Inventory, and run MRP).
 7. Collaborate with other students to produce MPC reports and presentations displaying knowledge and its use by integrating class concepts.
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IDS 753: Global Supply Chain Management

At the end of this course students should be able to:

1. Apply appropriate supply chain configurations.
 2. Develop and assess supply chain configurations.
 3. Coordinate demand forecast and production planning.
 4. Assess global sourcing decisions and contracts.
 5. Develop supply chain inventory management tactics.
 6. Articulate the roles of logistics providers.
 7. Identify the technology enablers for supply chain applications.
 8. Facilitate supply-side and demand-side collaborations.
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IDS 754: Seminar in Operations Strategy

At the end of this course students should be able to:

1. Develop a general management perspective on the role of operations management in the functioning of an organization.
 2. Display an awareness of the range of general and technical issues that must be considered in handling operations/manufacturing decisions.
 3. Use a framework for orderly thinking and rigor in formulating, evaluating, and recommending changes in the operations/manufacturing strategy.
 4. Appreciate the complexities in the implementation of operational policies.
 5. Demonstrate skills in oral and written communication and group problem solving via written case analyses, classroom discussions, and group/individual oral presentations.
 6. Achieve a subtle but sophisticated understanding of the links between information technology, business processes, functional areas, organizations and markets.
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IDS 755: Information Systems Security Management

At the end of this course students should be able to:

1. Explain and describe the various components of security management.
 2. Perform a threat analysis and risk assessment for a specified organization.
 3. Identify and explain security models and architectures.
 4. Describe the various security technologies and methodologies.
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IDS 790 Directed Readings in Information and Decision Systems

At the end of this course, students should be able to: