MODULE DESCRIPTIONS

FUNDAMENTALS OF INFORMATION SYSTEMS

An introduction to information systems, information technology, and application software. Examines the foundations of information systems through analysis of the technology-based business enterprise and the increasing role of technology in an information-driven society. Explores the applications and types of information systems, including global issues, legal and ethical issues and their effect on the organization, competition, business processes, and society.

LEADERSHIP & TEAM DEVELOPMENT Offers an introduction to, and an overview of, the concepts of leadership and team development. This module will provide a framework and rationale for the team/cohort learning model in an organizational context. Emphasis is placed on the application of concepts to real managerial problems and issues. This module will use a combination of conceptual and practical approaches, lectures, discussions, case studies and group exercises. The differences between leadership and management will be explained.

FUNDAMENTALS OF BUSINESS OPERATIONS

Focuses on the study of the theory of traditional business operations as well as electronic business; the conception, design, production, distribution and after sales support of goods and services in a modern technological environment. Topics include contemporary and emerging business models, supply chains, value chains, and relationships between and across internal and external business operations.

ACCOUNTING & FINANCE Presents a theoretical and applied understanding of the role of accounting and finance as a means for decision-making in modern organizations. Full life-cycle accounting, financial reporting, and financial data artifacts will be discussed, as well as financial data ware-housing and performance indicators and the role of information technology and its impact on financial transparency.

MARKETING A study of traditional and contemporary marketing models and techniques, demographics and psychographic information, customer profiles, one-to-one marketing, database marketing, social networking, and marketing decision support systems. Also covered are information artifacts relevant to and generated from the marketing operation.

HARDWARE & SOFTWARE IN INFORMATION SYSTEMS An in-depth study of modern computing and network hardware. Topics will include binary numbering systems, digital logic, computer organization, and modern CPU architectures (CISC, RISC). Also covered are simulations of the instruction fetch execute cycle, operating system fundamentals, and the integration of the computer with the network. Network fundamentals will be discussed including LAN, WAN and wireless, network topologies and protocols.

INFORMATION TECHNOLOGY MANAGEMENT

An applied study of modern techniques and approaches to the management of IT projects; project planning, outsourcing versus in-house development, team formation and building, phases of project development, including roll-out, support, and retiring of projects. The role of the project manager and project management functions will be discussed in detail; business case development, cost justification, return on investment; management of IT projects through a geographically dispersed workforce and the unique challenges to systems development.

INFORMATION SYSTEMS ANALYSIS & DESIGN

An applied study of information systems analysis. Topics covered will include traditional and contemporary systems development lifecycles; waterfall, object-oriented, and rapid methodologies; the role of the business analyst in scope definition, requirements analysis, and functional requirements documentation creation; risk and the impact to the information systems project and risk mitigation techniques will be discussed.

The Wescoe School
MUHLENBERG COLLEGE

2400 Chew Street • Allentown, PA 18104-5586
Phone: 484-664-3300 • Fax: 484-664-3532

www.muhlenberg.edu/wescoe

FUNDAMENTALS OF PROGRAMMING An introductory course on program design and programming: variables, data types, program structure, conditional logic, iteration; event-driven programming. Modular program design including introduction to procedures, functions, and modular development will be covered, as well as the project environment, compilation process, and debugging techniques. Students will develop several small programming projects using a modern programming language (Visual Basic .NET).

FOUNDATIONS OF DATABASE SYSTEMS An applied theory course focusing on modern database design, development, and systems with a focus on the relational model. Topics covered will include logical database design, entity-relationship modeling, referential integrity, and normal forms. Translation from logical to physical database design: structured query language and database performance issues. Advanced database topics will include database procedural logic: procedures, triggers.

SYSTEMS IMPLEMENTATION: USE OF DATABASE SYSTEMS An applied theory course focusing on two-tier client/server architectures. Topics will include event-driven programming; database access and data manipulation using programmatic interfaces, logic and data partitioning, and development of shared code libraries; error handling and application recovery.

OBJECT-ORIENTED SOFTWARE ENGINEERING An applied theory course focusing on the modular/component program design. Topics covered will include the design principles behind component development and the implementation of them: information hiding, polymorphism, inheritance. Elements of the Unified Modeling Language will be discussed.

CLIENT/SERVER DEVELOPMENT This module introduces students to Web-based, n-tier client/server development. Lecture will consist of discussion of Web protocols (HTTP) and methods. This module builds upon programming knowledge and analysis and design documentation from prior modules.

STRATEGIC INFORMATION SYSTEMS An examination of cross-functional information systems used to support strategic, rather than tactical or operational business objectives and the system architectures required to support the extended enterprise. Discussion will focus on the issues arising from the virtual corporation, out-sourcing and off-shoring issues associated with enterprise and global systems, and large-scale information integration; the impact of unstructured information and its increasing role in strategic information initiatives.

INFORMATION & PROCESS ENGINEERING A project based study of the theory and practice of business process modeling and synthesis of information architecture, with a focus on information integration. Topics include business process modeling, structured and unstructured information blueprints, information asset development and information infrastructure, downstream/upstream information flow, information integration and information supply chains; internal and external information policies and the impact on information management.

DATA ANALYTICS & KNOWLEDGE MANAGEMENT This course will focus on the theory and application of exploratory data analytics, data mining, and knowledge discovery. Topics will include: analytic models, analysis techniques for pattern extraction and detection, decision models, forecast models, inference, search technologies, taxonomic organization of information, knowledge discovery and knowledge creation, the transformation of the organization, ethical use of information, ethical implications and the impact on the use of discovered and inferential knowledge, security and privacy issues, and external policies and their influence on the use of information and knowledge.

MULTIDISCIPLINARY PROJECT (CAPSTONE) Utilizing their knowledge from the previous modules, students will create an information technology solution to an existing organizational issue compounded by non-existent systems, poor systems or a lack of information. The organization may be profit or nonprofit, and the students will develop a business case that supports their solution.