Prepared by the Department of Business
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1. **Course Number: BIT112**
   Course Title: Information Technology Foundations

2. **Description:** This survey course introduces students to all aspects of the Information Technology (IT) industry and is intended for students wishing to make informed choices for careers in IT. Students receive an overview and understanding of the core aspects of Information Technology including Network and Infrastructure Systems, Information Support and Services, Interactive Media and Programming and Software Development. The focus of this course is an understanding and appreciation of the duties of information technology professionals and how each IT area relates to and interacts with the others. Upon completion of this course students have the knowledge necessary to make educated choices about continued study in IT as well as understanding of the impact of technology on society and organizations of all types.

3. **Student Learning Outcomes (instructional objectives: intellectual skills):**
   Upon successful completion of this course, students have the following:
   - Familiarity with all aspects of the INFORMATION TECHNOLOGY (IT) field
   - Knowledge of the various CAREER OPPORTUNITIES IN IT
   - Foundation knowledge and skills in NETWORK and INFRASTRUCTURE SYSTEMS
   - Basic knowledge and skills in INFORMATION SUPPORT SYSTEMS
   - Foundation knowledge and skills in INTERACTIVE MEDIA
   - Core concepts and skills in PROGRAMMING & SOFTWARE DEVELOPMENT
   - Basic skills and concepts of PROJECT MANAGEMENT
   - An excellent foundation for additional Information Technology courses

   Upon successful completion of this course, students are able to do the following:
   - Identify all aspects of the Information Technology field
   - Describe information systems within the context of organizations
   - Explain the importance of technology in information systems
   - Describe people's roles in information systems and evaluate different career paths
   - Make an informed decision about an Information Technology career path
   - Identify the basics of networking and infrastructure systems
   - Perform basic skills in Information Support Systems
   - Use the binary number system to perform simple binary arithmetic and conversions to number systems used in computing
   - Explain the basic functions of a microprocessor
   - Explain the foundations and uses of Interactive Media
   - Use simple multimedia and graphics tools
   - Explain the basic functionality of an operating system
   - Write, test, and use a simple program using a current language
   - Apply the Input/Process/Output model for data and information
   - Use basic project management skills and concepts

4. **Credits:** 3

5. **Satisfies General Education Requirement:** No

6. **Prerequisites:** ENL108 (Critical Reading & Thinking) or satisfactory basic skills assessment score.

7. **Semester Offered:** Varies

8. **Suggested General Guidelines for Evaluation:** Final grade is based on tests, class participation, at least two hands-on projects, and a comprehensive final examination.

9. General Topical Outline (Optional):

Information Support and Services

- Describe computer hardware and software including:
  -Identifying the main classification of computers
  -Identifying network system hardware and software components
  -Explaining the process of selecting and installing computer hardware
  -Identifying various computer operating systems
  - Understand the role of the system bus in a computer and its basic relationship with peripherals including memory
  -Working with binary numbers
  -Benchmarking
  -Using the Windows interface
  -Installing and uninstalling software

Network and Infrastructure Systems

- Demonstrate basic LAN technologies including:
  -Identifying network system hardware and software components
  -Knowing network designs and topologies
  -Tracking packets
  -Securing the connection
  - Differentiating among LANs, MAN's and WAN's
  -Describing grid computing
- Describe and use basic Internet technologies effectively including web pages, web sites, and E-commerce
  -Working with cookies
  -Using browser security settings
  -Creating basic HTML

Programming and information systems analysis and design

- Describe the steps involved in the programming process
- Use logical concepts
- Use basic problem solving and troubleshooting basics
- Name current languages used in programming and explain their strengths and weaknesses
- Identify and describe data types
- Define and use variables
- Develop simple algorithms
- Describe the roles of and the difference between a compiler and an interpreter
- Explain the difference between source code and machine code
- Define a solution to a simple programming problem
- Design a simple program
- Write, test, and use a simple program using a current language using basic problem solving and troubleshooting techniques
- Apply the Input/Process/Output model for data and information
- Work with Data Flow Diagrams (DFDs)
- Work with database software

Interactive Media

- Describe and use the various forms of digital media including graphics, video, and sound
- Define the purpose and function of interactive Media
- Utilize multimedia and graphic tools
- Work with bitmapped graphics
- Explain the process of video editing

Projects and Project Management

- Define a project
- List and quantify tasks within a project
- Use a computer based project management tool

Career Opportunities in IT

- Describe IT's role in the workplace and in society
- Research careers in IT including using on-line resources