COURSE NUMBER: IT101

TITLE: IT Fundamentals

DEPARTMENT / PROGRAM: BSIT

SCHOOL:

SEMESTER AND SCHOOL YEAR:

INSTRUCTOR:

COURSE DESCRIPTION

This course provides an introduction to the industry of Information Technology, an overview of the IT profession, and basic computer concepts.

COURSE OBJECTIVES (DESIRABLE OBJECTIVES)

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

- Operate a personal computer.
- Select, use and document appropriate logic design.
- Use word processing applications/spreadsheets/presentations
- Install OS components and office productivity tools.
- Use e-mail and search the web using browsers.
- Manage users and resources (files, directories, applications, etc.) through an operating system.
- Communicate effectively through written communications and reports.
- Know the values and work ethics expected of an ICT professional.
- Design algorithms to solve given problems using flowcharting and pseudocoding techniques.

COURSE OUTLINE AND TIMEFRAME

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<th>TOPICS AND READINGS</th>
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<tr>
<td>- Parts of the Computer</td>
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<td>- Number Systems</td>
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<tr>
<td>• Introduction to the Profession</td>
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<td>- Career Opportunities in ICT</td>
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<td>- Code of Ethics for ICT Professionals</td>
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<td>• The Components of a Computer System</td>
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<td>- Peopleware</td>
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<td>• Operating Systems</td>
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<td>- Different OS Implementation (DOS, Linux, UNIX, Windows, Mac, run-time systems)</td>
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<td>- Human-Machine Interface</td>
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<td>- Resource Management</td>
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<td>• Latest Trends and Issues in Information Technology</td>
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<td>• ICT Applications in Society</td>
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<td>• Hardware and Software Installation, Troubleshooting, Maintenance, Upgrading</td>
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<tr>
<td>• Program Logic Formulation*</td>
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</table>

**REQUIRED READINGS**

**SUGGESTED READINGS**

**COURSE REQUIREMENTS**

**CONSULTATION HOURS**
COMMISSION ON HIGHER EDUCATION
SAMPLE SYLLABUS TEMPLATE

COURSE NUMBER: IT102

TITLE: Computer Programming 1

DEPARTMENT / PROGRAM: BSIT

SCHOOL:

SEMESTER AND SCHOOL YEAR:

INSTRUCTOR:

COURSE DESCRIPTION

This course allows the student to learn and apply the art and style of procedural programming to solve computational problems adhering to the standards and guidelines of documentation. It includes discussion on I/O statements, loop and branching instructions, and creating functions and procedures.

COURSE OBJECTIVES (DESIRABLE OBJECTIVES)

Upon completion of the course, the student should be able to:
- Apply basic language syntax and basic principles.
- Apply principles in procedural programming.
- Determine and apply the debugging techniques for solving errors and inhibiting program acceptance.
- Adhere to standards and guidelines of documentations.
- Justify the correctness of the program as well as its documentation as needed.
- Write a programming project(s) integrating the concepts and principles learned in this course.

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<th>TOPICS AND READINGS</th>
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<td>· Elements of a Program</td>
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<td>o Overview Syntax and Semantics</td>
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<tr>
<td>o Program Structure</td>
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</tbody>
</table>
### Directives
- Basic Data Types
- Variables and Constants
- Operators and Expressions
- Control Structures
  - Conditional Branching Constructs (if-else, switch)
  - Looping Constructs (while, while-do, for, repeat-until)

### REQUIRED READINGS

### SUGGESTED READINGS

### COURSE REQUIREMENTS

### CONSULTATION HOURS
This course allows the student to apply advanced techniques in procedural programming to solve computational problems adhering to the standards and guidelines of documentation. It covers the creation, manipulation and application of user-defined data structures, recursion, and file-handling techniques.

Upon completion of the course, the student should be able to:
- Define, construct and use data structure composed of other data types, such as arrays of user-defined data types, in program.
- Employ functionalities of the language to create, manipulate and destroy arrays of dynamic variables.
- Regularly follow a modular programming approach in coding.
- Write a code to create and manipulate two-dimensional arrays.
- Construct a code to do a simple binary search on an array of sorted data or perform a binary file-handling solution using random access algorithm.
- Perform review of created code through visual means and/or with the use of debugging tools and correct errors.
- Practice set procedures for developing maintainable code by adhering to a chosen coding standard.
- Comply with internal documentation standards and tools.
- Develop and conduct limited tests to confirm that coding process meets design specifications and practice documentation for tests performed.
Rewrite code and documentation to integrate corrections.
Write a programming project(s) integrating the concepts and principles learned in this course.

**COURSE OUTLINE AND TIMEFRAME**

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<td>- Lists</td>
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<td>Strings</td>
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<td>Sub-programs</td>
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<td>Procedures and Functions</td>
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<td>- Language-provided subprograms or Libraries</td>
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<td>- User-defined subprograms</td>
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<td>- Scope of Identifiers</td>
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<td>- Parameters</td>
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<td>Pointers</td>
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<tr>
<td>Structures, Unions, and User-defined Data Types</td>
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<td>Files</td>
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<td>Searching and Sorting Algorithms</td>
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</table>

**REQUIRED READINGS**

**SUGGESTED READINGS**

**COURSE REQUIREMENTS**

**CONSULTATION HOURS**
COURSE NUMBER: IT105

TITLE: Computer Organization

DEPARTMENT / PROGRAM: BSIT

SCHOOL:

SEMESTER AND SCHOOL YEAR:

INSTRUCTOR:

COURSE DESCRIPTION

The course presents the various hardware structures (down to transistor level) that compose a computer, their individual functions, how they interact with each other, how they can be organized and controlled to perform the task assigned to the computer. How data is represented, stored and manipulated is also covered.

COURSE OBJECTIVES (DESIRABLE OBJECTIVES)

Upon completion of this course, the student should be able to:

- Gain an understanding of the hardware structures that make computers possible.
- Know the different devices and components of a computer system (down to the transistor level), know how these components interact and work together.
- Understand computer organization concepts and how they apply to systems development.

COURSE OUTLINE AND TIMEFRAME

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<th>TOPICS AND READINGS</th>
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<td>- What is Computer Organization?</td>
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<td>- Components of Computer System</td>
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<td>- Processor</td>
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<tr>
<td>- Memory</td>
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</tbody>
</table>
- **I/O**
  - Computer and Data Representation
    - Number Systems
    - Fixed-Point and Floating-Point Numbers
  - Logic Design Subsystems
  - Microprocessors and Assembly Language Programming
    - Addressing Modes
    - Instruction Sets
  - Processor
    - General Microprocessor Organization
    - Single bus architecture
      - Registers
      - Buses, gating and Control Sequences
      - Microprogram Control
    - Control Unit
    - Arithmetic Logic Unit
      - Adders (Half, Full, Fast, CLA)
      - Subtractor
      - Multiplication Algorithm (Booth/Extended Booth)
      - Division Algorithm (Restoring/Non-restoring)
  - Memory
    - Types of Memory
    - Memory caching
    - Virtual memory
    - Memory interleaving
  - I/O Organization
    - Disk Organization
    - Input-Output Peripherals
  - Basic Interfacing

### REQUIRED READINGS

### SUGGESTED READINGS

### COURSE REQUIREMENTS

### CONSULTATION HOURS
COURSE NUMBER: IT106

TITLE: PROFESSIONAL ETHICS

DEPARTMENT / PROGRAM: BSIT

SCHOOL:

SEMESTER AND SCHOOL YEAR:

INSTRUCTOR:

COURSE DESCRIPTION

The course introduces ethics and ethical theories; provides discussions on the ethical dilemmas and issues facing IT practitioners. An appreciation and discussion of the Code of Ethics of I. T. Professionals; cybercrimes and appropriate Philippine Laws are also included.

COURSE OBJECTIVES (DESIRABLE OBJECTIVES)

At the end of the term, the students should be able to:
- Understand and appreciate the meaning of ethics, values and attitudes.
- Be guided in their ethical thinking and considerations as they relate in the cyberworld.
- Be aware of the different ethical dilemma/issues in the cyberworld.
- Appreciate and internalize the code of conduct of an I. T. Professional.
- Be familiar with the various Philippine Laws that penalizes cybercrimes.

COURSE OUTLINE AND TIMEFRAME

1. Ethics, values and attitudes.
2. The most common ethical theories.
   - Ancient Greek – Plato
   - Medieval – Thomas Aquinas
   - Immanuel Kant
   - Rawl Theory Justice
   - Egoism
   - Utilitarianism
3. Ethical Dilemma/ issues in the cyberworld
   - Privacy Invasion
<table>
<thead>
<tr>
<th>Hacking</th>
<th>Security</th>
<th>Theft</th>
</tr>
</thead>
<tbody>
<tr>
<td>Copyright Infringement</td>
<td>Unfair Competition</td>
<td>Virus</td>
</tr>
<tr>
<td>Tele/videoconferencing</td>
<td>Online defamation</td>
<td>Piracy</td>
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<tr>
<td>Fraud</td>
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</tbody>
</table>

4. Ethics and Law
5. Applicable Philippine Laws that penalize cybercrime
   Intellectual Property Right
   E-Commerce Law
   Optical Law
   Civil Code
   Revised Penal Code
   Special Criminal Law
   Unfair Competition Act
   Internet Pornography

2. Government Agencies Responsible in the Implementation of the Philippine I.T. Programs
   Commission on Information and Communication Technology
   National Bureau of Investigation
   Department of Justice

### REQUIRED READINGS

### SUGGESTED READINGS

### COURSE REQUIREMENTS

### CONSULTATION HOURS
IT 201

ACCOUNTING PRINCIPLES

INFORMATION TECHNOLOGY

SEMESTER AND SCHOOL YEAR:

INSTRUCTOR:

COURSE DESCRIPTION

This course is an introduction to the fields of managerial and financial accounting, focusing more on the latter. It is designed to equip Information Management students with knowledge and skills on accounting processes, systems, concepts, principles, and applications in both a manual and computer-based environment.

COURSE OBJECTIVES (DESIRABLE OBJECTIVES)

Upon completion of this course, the student should be able to:
1. Define and explain comprehensively key accounting concepts such as financial accounting, cost accounting, and the different financial statement items;
2. Correctly execute the accounting cycle manually, from transaction analysis to report preparation and closing entries;
3. Gather managerial accounting data, prepare managerial reports in good form, and formulate sound decisions based on these;

COURSE OUTLINE AND TIMEFRAME

<table>
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<th>TOPICS AND READINGS</th>
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<td>2. Basic Financial Statements</td>
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<td>a. Definition of a Business</td>
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<td>b. Objectives of a Business</td>
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<tr>
<td>c. Forms of Business Organizations</td>
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<tr>
<td>d. Introduction to Financial Statements</td>
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<tr>
<td>• A Starting Point: Statement of Financial Position</td>
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<tr>
<td>• Income Statement</td>
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<tr>
<td>• Statement of Cash Flows</td>
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<tr>
<td>e. Relationships Among Financial Statements</td>
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<tr>
<td>f. The Use of Financial Statements by Outsiders</td>
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<tr>
<td>g. Effects of Business Transactions on the Accounting Equation</td>
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<tr>
<td>3. The Accounting Cycle: Capturing Economic Events</td>
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<tr>
<td>a. The Accounting Cycle</td>
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<tr>
<td>b. The Ledger</td>
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<tr>
<td>c. The Use of Accounts</td>
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<tr>
<td>d. Debit and Credit Entries</td>
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<tr>
<td>e. Recording Transactions in Ledger Accounts</td>
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<tr>
<td>f. The Journal</td>
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<tr>
<td>g. The Trial Balance</td>
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<tr>
<td>h. What is Net Income?</td>
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<tr>
<td>i. Recording Revenue and Expense Transactions</td>
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<tr>
<td>j. Adjusting Entries</td>
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<td>4. The Accounting Cycle: Accruals and Deferrals</td>
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<tr>
<td>a. Adjusting Entries</td>
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<tr>
<td>b. Adjusting Entries and Accounting Principles</td>
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</tbody>
</table>
5. The Accounting Cycle: Reporting Financial Results  
   a. The Worksheet  
   b. Preparing Financial Statements  
   c. Relationship among the Financial Statements  
   d. Closing the Temporary Equity Accounts  
   e. After-Closing Trial Balance  

6. Accounting for Merchandising Activities  
   a. Merchandising Companies  
   b. Perpetual Inventory Systems  
   c. Periodic Inventory Systems  

7. Management Accounting: A Business Partner  
   a. Management Accounting: Basic Framework  
   b. Accounting for Manufacturing Operations  

8. Cost-Volume-Profit Analysis  
   a. Cost-Volume Relationships  
   b. Cost Behavior and Operating Income  

9. Sample Accounting Packages

**REQUIRED READINGS**

**SUGGESTED READINGS**

**COURSE REQUIREMENTS**

**CONSULTATION HOURS**
COURSE NUMBER: IT202

TITLE: Operating Systems Applications

DEPARTMENT / PROGRAM: BSIT

SCHOOL:

SEMESTER AND SCHOOL YEAR:

INSTRUCTOR:

COURSE DESCRIPTION

This course provides an introduction to the concepts, theories and components that serve as the bases for the design of classical and modern operating systems. Topics include process and memory management, process synchronization and deadlocks.

COURSE OBJECTIVES (DESIRABLE OBJECTIVES)

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

1. Describe relationships between system services and application software
2. Compare and contrast different design considerations for major OS components

COURSE OUTLINE AND TIMEFRAME

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<td>• OS structures</td>
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<td>Process Management</td>
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<td>• Process concept</td>
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<td>• Process scheduling</td>
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</table>
o Memory Management
  • MVT, Paging, Segmentation

o Virtual Memory
  • Demand Paging

5. File Management

6. Deadlocks
  • Prevention
  • Avoidance
  • Detection and Recovery

7. Concurrent Processes
  • Synchronization
  • Classical Problems (Producer-Consumer, Readers-Writers, Dining Philosophers)

- REQUIRED READINGS

- SUGGESTED READINGS

- COURSE REQUIREMENTS

- CONSULTATION HOURS
COURSE NUMBER: IT204

TITLE: Systems Analysis and Design

DEPARTMENT / PROGRAM: BSIT

SCHOOL:

SEMESTER AND SCHOOL YEAR:

INSTRUCTOR:

COURSE DESCRIPTION

This course covers the different phases of systems development focusing on analysis and design. Students will learn the rudiments of systems development through a feasibility study.

COURSE OBJECTIVES (DESIRABLE OBJECTIVES)

Upon completion of this course, the student should be able to:
- Perform needs analysis.
- Translate business requirements into systems models.
- Design solutions for business requirements.
- Make a proposal to a variety of business organization and to understand the importance of their system.
- Apply interviewing and data gathering techniques and best practices.
- Present the result of systems analysis and be able to learn how to compare the existing system to the proposed system.
- Design a proposed system and present its feasibility.
- Demonstrate the team and interpersonal skills.

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<td>▪ Classification of System</td>
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<td>▪ General System Principle</td>
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<td>▪ Players in the System Game</td>
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<td>System Analysis</td>
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<tr>
<td>o Overview of Analysis</td>
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</table>
• Analysis Definition
  • Characteristics of Analysis
    o Problems of Analysis
    o Systems Analysis Definition
    o Advantages and Limitation
    o Responsibilities of a System Analyst
  • Tools of the System Analyst
    o System Development Life Cycle
    o Structured System Analysis
    o System Model
    o Tools of Structure Analysis
      ▪ Modeling System Functions
      ▪ Modeling Stored Data
      ▪ Modeling Program Structures
      ▪ Other Modeling Tools
  • Feasibility Study
    o Technical Feasibility
    o Operational Feasibility
    o Economic Feasibility
      ▪ Cost Benefit Analysis
  • Systems Analysis Design Approaches
    o Project Fundamentals
      ▪ Project Scheduling Tools
      ▪ Managing Analysis and Design Activities
      ▪ Fact Gathering Techniques
    o The Analysis Process
      ▪ Using Data Flow Diagrams
      ▪ Using Data Dictionaries
      ▪ Process Specifications and Structured Decisions
      ▪ Preparing, Writing and Presenting a System Proposal
    o The Essentials of Design
      ▪ Output Design
      ▪ Input Design
      ▪ Databases
      ▪ User Interfaces
      ▪ Data-Entry Procedures

↓ REQUIRED READINGS

↓ SUGGESTED READINGS

↓ COURSE REQUIREMENTS

↓ CONSULTATION HOURS
COURSE DESCRIPTION

This course introduces the software engineering processes; its principles, techniques and practices to produce quality software products.

COURSE OBJECTIVES (DESIRABLE OBJECTIVES)

Upon completion of this course, the student should be able to:

- Design, develop, deploy, manage and maintain various information systems.
- Demonstrate team and interpersonal skills.
- Use system development tools in software projects.
- Demonstrate written and oral communication skills.
- Demonstrate quality consciousness.
- Appreciate the value of standards and certification.

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<td>Software Process Models</td>
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<td>- Design Notation: Modeling Languages</td>
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<td>- Architectural Models</td>
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<td>- Screen Design and Usability</td>
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<td>- Design Patterns</td>
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<td>- Documentation</td>
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<td>- Risk Management</td>
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<td>- Systems Deployment, Maintenance and Support</td>
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<td>- Configuration Management</td>
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<td>- Capability Maturity Model/Capability Maturity Model-Integrated</td>
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<td>- Software Evaluation and Validation</td>
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- **REQUIRED READINGS**

- **SUGGESTED READINGS**

- **COURSE REQUIREMENTS**

- **CONSULTATION HOURS**
COURSE NUMBER: IT206

TITLE: Technopreneurship

DEPARTMENT / PROGRAM: BSIT

SCHOOL:

SEMESTER AND SCHOOL YEAR:

INSTRUCTOR:

COURSE DESCRIPTION

This course covers the principles and theories of technopreneurship. Students are expected to develop and implement a feasible IT business plan.

COURSE OBJECTIVES (DESIRABLE OBJECTIVES)

Upon completion of this course, the student should be able to:
- Understand the difference between entrepreneurship and technopreneurship
- Apply the principles and theories of entrepreneurship and management in IT business
- Understand the interplay between various factors affecting the IT business
- Develop and implement an IT business plan

COURSE OUTLINE AND TIMEFRAME

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<td>Relationship between entrepreneurship, job creation, and the national economy</td>
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<td>Nature of Entrepreneurship</td>
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<td>Differences between entrepreneur and technopreneur</td>
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<tr>
<td>What is high-tech industry?</td>
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<td>Idea generation and evaluation</td>
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<td>IPR, patents and legal issues</td>
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</table>
- Financing sources
- Developing a business plan
- Starting a business
- Entrepreneurial finance and accounting
- Business strategies
- Marketing, sales, and customer relations
- Stakeholders management
  - Investors
  - Competition
  - Regulatory agencies
  - Employees
  - Financiers
  - Community (society)
- Management of the business
- Global opportunities for entrepreneurs

### REQUIRED READINGS


### SUGGESTED READINGS


### COURSE REQUIREMENTS


### CONSULTATION HOURS


COURSE NUMBER: IT211

TITLE: Object Oriented Programming

DEPARTMENT / PROGRAM: BSIT

SCHOOL:

SEMESTER AND SCHOOL YEAR:

INSTRUCTOR:

COURSE DESCRIPTION

This course allows the student to learn and apply the basic language syntax and principles of object-oriented programming to solve computational problems adhering to the standards and guidelines of documentation.

COURSE OBJECTIVES (DESIRABLE OBJECTIVES)

Upon completion of this course, the student should be able to:
- Apply basic language syntax and principles in OO programming language.
- Determine the debugging techniques for solving errors and inhibiting program acceptance.
- Adhere to standards and guidelines of documentations.
- Justify the correctness of the program as well as its documentation as needed.
- Write a programming project(s) integrating the concepts and principles learned in this course.

COURSE OUTLINE AND TIMEFRAME

<table>
<thead>
<tr>
<th>TOPICS AND READINGS</th>
<th>DATE</th>
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<tbody>
<tr>
<td>• Introduction to Object-Oriented Programming Concepts</td>
<td></td>
</tr>
<tr>
<td>• Programming Fundamentals</td>
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<tr>
<td>o Parts of an OOP Program</td>
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</tbody>
</table>
- Syntax and Semantics
- Coding Conventions
- Data Types
- Basic Input/Output
- Control Structures
- Strings
- Single method programming
- Static methods
- Recursions
- Abstract Data Types
  - Stacks
  - Queues
- Linked Structures
- Multiple Classes
- Data Abstraction
- Inheritance
- Subclasses
- Abstract Classes
- Interfaces
- Polymorphism
- File Handling

**REQUIRED READINGS**

**SUGGESTED READINGS**

**COURSE REQUIREMENTS**

**CONSULTATION HOURS**
COURSE DESCRIPTION

The course covers discussion of database systems, the nature of the data, data association, data semantics and data models. A specific DBMS will be used to implement data models for use in business application programs.

COURSE OBJECTIVES (DESIRABLE OBJECTIVES)

Upon completion of this course, the student should be able to:
- Design database using data models.
- Use database programming languages to manipulate or process data efficiently.
- Perform basic DB administrator’s function.
- Understand various implementations of database management systems.

COURSE OUTLINE AND TIMEFRAME

<table>
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<tbody>
<tr>
<td>Database Development Process</td>
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<td>Entity Relationship Model</td>
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</tbody>
</table>
• Logical Design
• Normalization
• Physical Design
• SQL
• Data Administration
• Introduction to Data Warehousing and Data Mining
• Data Security

REQUwED READINGS

SUGGESTED READINGS

COURSE REQUIREMENTS

CONSULTATION HOURS
COURSE NUMBER: IT214

TITLE: Web Development

DEPARTMENT / PROGRAM: BSIT

SCHOOL:

SEMESTER AND SCHOOL YEAR:

INSTRUCTOR:

COURSE DESCRIPTION

This course covers various web design concepts and techniques that will allow students to design, build and create effective, interactive and dynamic web applications.

COURSE OBJECTIVES (DESIRABLE OBJECTIVES)

Upon completion of this course, the student should be able to:
- Build a GUI applying best practices.
- Design and build web applications.
- Use client-server technologies.
- Understand web services and service-oriented architectures.
- Understand and possibly apply virtual team working and best practices.

COURSE OUTLINE AND TIMEFRAME

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<tbody>
<tr>
<td>• Internet and the World Wide Web</td>
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<td>• Web Technologies</td>
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<td>o Web Site and Web Portals</td>
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<td>o Search Engines</td>
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</table>
**REQUIRED READINGS**

**SUGGESTED READINGS**

**COURSE REQUIREMENTS**

**CONSULTATION HOURS**
COURSE NUMBER: IT215

TITLE: Multimedia Systems

DEPARTMENT / PROGRAM: BSIT

SCHOOL:

SEMESTER AND SCHOOL YEAR:

INSTRUCTOR:

COURSE DESCRIPTION

This three (3) units course equips the IT student with the skills to develop interactive multimedia applications which combine audio, video, text, animation, and still images that can be delivered from CD-ROM to LAN, from Internet to the Intranet.

COURSE OBJECTIVES (DESRIRABLE OBJECTIVES)

Upon completion of this course, the student should be able to:

- Build applications using authoring tools.
- Develop creative expressions using digital technology.
- Evaluate theoretical aesthetics, perceptual possibilities and technical information with state-of-the-art equipment.
- Create and support multimedia productions.

COURSE OUTLINE AND TIMEFRAME

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<tbody>
<tr>
<td>Multimedia Principles and Concepts</td>
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<td>Multimedia Hardware</td>
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</table>
- Multimedia Software
- Multimedia Project Management
- Storyboarding
- Authoring Tools
- Editing Tools (Adobe Photoshop, etc.)
- Interactive Applications

**REQUIRED READINGS**

**SUGGESTED READINGS**

**COURSE REQUIREMENTS**

**CONSULTATION HOURS**