



**UNIVERSITY OF GUAM
COLLEGE OF NATURAL AND APPLIED SCIENCES
COURSE SYLLABUS¹**

1. BASIC INFORMATION (SEE INSTRUCTOR):

- (1) Semester/year: _____
- (2) Course: CS*200, Computer Applications and Lab
- (3) Class Meeting: _____
- (4) Instructor: _____
- (5) Office: _____
- (6) Phone: _____
- (7) Email: _____
- (8) Fax Number: _____
- (9) Office Hours: _____

2. CATALOG COURSE DESCRIPTION:

This course covers preparation, storage, and processing of data, documents, and illustrations; graphing, manipulating and simple analysis of data; computer-to-computer communications and file transfers; use of UOG network resources; and introduction to computer languages. Prerequisite: MA*085 Level II or Math Placement or Consent of the Instructor.

3. COURSE CONTENT:

This course covers the following topics: microcomputer operations, graphic user operating system; hands-on application packages – word processing, spreadsheets, database management systems, business graphics, data communications, and computer languages.

4. RATIONALE FOR OFFERING COURSE:

This is a required course for the proposed Computer Science Degree Program and Computer Information System Program. It is designed to introduce and prepare students in computer applications and lab for the very rigorous upper division computer science courses.

5. SKILLS AND BACKGROUND REQUIRED OR EXPECTED:

None.

6. LEARNING OBJECTIVES FOR STUDENTS (INTENDED STUDENT LEARNING OUTCOMES - SLOs):

- (1) Describe the major components and properties of all modern computer systems.
- (2) Using MS Word, create a well-formatted research paper with outline, embedded table, graphic illustration, and references.
- (3) Using MS Excel, create a well-formatted spreadsheet to calculate a cash-flow student budget.
- (4) Using MS PowerPoint, create a well-formatted presentation corresponding to the outline for the above research paper (in SLO #2).
- (5) Using HTML, create well-formatted, linked WebPages.

Note: With Program Faculty Consultation, an instructor may add additional SLOs to the above Program Faculty approved SLOs.

Program SLOs²: See below.

7. CONCEPTUAL STRUCTURE OF THE COURSE (SEE INSTRUCTOR):

8. FORMAT AND ACTIVITIES IN THE COURSE (SEE INSTRUCTOR):

9. TEXTBOOK AND READINGS:

(See Instructor)

10. ADDITIONAL MATERIALS OR EQUIPMENT (SEE INSTRUCTOR):

11. ASSIGNMENTS, TERM PAPERS AND EXAMS (SEE INSTRUCTOR):

12. EVALUATION AND GRADES (SEE INSTRUCTOR):

13. COURSE POLICIES (SEE INSTRUCTOR):

14. SPECIAL NEEDS:

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15. CALENDAR OR SCHEDULE (SEE INSTRUCTOR):

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17. STUDENT WORK LOAD (SEE INSTRUCTOR):

18. SUPPLEMENTARY MATERIALS/ADDITIONAL RESOURCES (SEE INSTRUCTOR):

19. CONTACT INFORMATION FOR CLASSMATES:

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²Program SLOs:

BA Computer Science/Computer Information Systems goals include the following:

CS/CIS PR-1: (GE) Demonstrate competence with **Windows** and basic **MS Office** applications especially MS WORD, EXCEL, and PowerPoint.

CS/CIS PR-2: Demonstrate **technical competence*** in **Programming:**

- Analyze problems and create algorithm/heuristic solutions.
- Develop these using computer-programming methodologies in several programming languages.

CS/CIS PR-3: Demonstrate technical competence in **Systems.**

- Identify and analyze system requirements, criteria and specifications.
- Design and implement human sensitive/compatible computer based systems using appropriate tools, methods and techniques.
- Effectively manage, organize, and retrieve all forms of information.
- Evaluate system design solutions and their risks.

CS/CIS PR-4: Demonstrate technical competence in **Databases.**

- Be able to design and implement a functional database.

CS/CIS PR-5: Demonstrate technical competence in **Networks.**

- Be able to design, install, administer, and maintain a computer network.
- Be able to setup, install, and use two different operating systems and be able to program client-server applications for them.

CS/CIS PR-6: Develop socially, professionally, and ethically utilize these technical skills to construct robust, secure, beneficial (commercial, educational, social) systems i.e. NO Spam, Phishing, Hacking, Deceptive, Fraudulent, Criminal, or Terroristic systems.

***Technical Competence** means to be able to design, implement (build/code, test, debug), communicate effectively (in written, oral, and numerical forms), individually, and as part of a team.



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COURSE SYLLABUS¹

1. BASIC INFORMATION (SEE INSTRUCTOR):

- (1) Semester/year: _____
- (2) Course: CS*201, Programming I
- (3) Class Meeting: _____
- (4) Instructor: _____
- (5) Office: _____
- (6) Phone: _____
- (7) Email: _____
- (8) Fax Number: _____
- (9) Office Hours: _____

2. CATALOG COURSE DESCRIPTION:

This course introduces high level computer programming languages with emphasis on program design, coding, debugging, testing, and proper documentation, with applications. Prerequisites: CS*200, MA*161a or higher.

3. COURSE CONTENT:

This course introduces a number of topics fundamental to programming in high-level computer languages. These topics include basic concepts about hardware and software in general; basic input/output operations; basic data types—integers and real numbers; basic arithmetic operations and expressions; assignment statements; ways to control program logic flow by using conditional expressions and statements and looping structures for repetition. Also covered are other data types like characters, strings, and arrays; and subprograms: functions, procedures, and subroutines.

4. RATIONALE FOR OFFERING COURSE:

This will give students a sound foundation to understand and master the basic, archetypal forms underlying the construction of programs in all major high-level programming languages. With this foundation, students should be able to transition more easily into the more powerful, albeit more terse, forms common to programming and so important now to our world of computers.

5. SKILLS AND BACKGROUND REQUIRED OR EXPECTED:

Since computer program requirements are often described by using mathematical relationships, the student should have a sound mathematical understanding, at least

through the level of MA*161/MA*110, Fundamentals of College Mathematics/Finite Mathematics; and a thorough understanding of basic computer operations as from CS*200 Computer Applications with Lab.

6. LEARNING OBJECTIVES FOR STUDENTS (INTENDED STUDENT LEARNING OUTCOMES - SLOs):

- (1) Construct appropriate I/O statements.
- (2) Construct assignment statements.
- (3) Construct conditional statements.
- (4) Construct looping statements.
- (5) Design, code, test and debug programs, utilizing these constructs to create solutions for simple problems.

Note: With Program Faculty Consultation, an instructor may add additional SLOs to the above Program Faculty approved SLOs.

Program SLOs²: See below.

7. CONCEPTUAL STRUCTURE OF THE COURSE (SEE INSTRUCTOR):

8. FORMAT AND ACTIVITIES IN THE COURSE (SEE INSTRUCTOR):

9. TEXTBOOK AND READINGS:

(See Instructor)

10. ADDITIONAL MATERIALS OR EQUIPMENT (SEE INSTRUCTOR):

11. ASSIGNMENTS, TERM PAPERS AND EXAMS (SEE INSTRUCTOR):

12. EVALUATION AND GRADES (SEE INSTRUCTOR):

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18. SUPPLEMENTARY MATERIALS/ADDITIONAL RESOURCES (SEE INSTRUCTOR):

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- Identify and analyze system requirements, criteria and specifications.
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- Evaluate system design solutions and their risks.

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- Be able to design and implement a functional database.

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- Be able to design, install, administer, and maintain a computer network.
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COURSE SYLLABUS¹

1. BASIC INFORMATION (SEE INSTRUCTOR):

- (1) Semester/year: _____
- (2) Course: CS*202, Programming II
- (3) Class Meeting: _____
- (4) Instructor: _____
- (5) Office: _____
- (6) Phone: _____
- (7) Email: _____
- (8) Fax Number: _____
- (9) Office Hours: _____

2. CATALOG COURSE DESCRIPTION:

This course introduces computer concepts and problem-solving methods. Topics include algorithms, data types, objects, classes, encapsulation, and exception handling. Emphasis is placed on structured program design. Prerequisite: CS*200, CS*201, MA*161a or higher.

3. COURSE CONTENT:

This course covers the following topics: introduction to problem solving, algorithm development, procedural and data abstraction; program design, coding, debugging, testing and documentation. CS*202 teaches computer programming an object-oriented language.

4. RATIONALE FOR OFFERING COURSE:

This course is required for the Computer Science Degree Program.

5. SKILLS AND BACKGROUND REQUIRED OR EXPECTED:

CS*200, CS*201.

6. LEARNING OBJECTIVES FOR STUDENTS (INTENDED STUDENT LEARNING OUTCOMES - SLOs):

- (1) Describe the steps involved in the problem solving process.
- (2) Utilize various design tools to develop correct solutions to problems.
- (3) Succinctly document both the problem and the solution in given programming tasks.

- (4) Apply object-oriented programming techniques to develop real world applications (define objects and their properties, constructing appropriate methods for each).
- (5) Code, test and debug efficient, event-driven programs to implement solutions of simple problems in a visual development environment using the Java programming language.
- (6) Design, code, test and debug programs, utilizing these constructs to create solutions for simple problems.

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COURSE SYLLABUS¹

1. BASIC INFORMATION (SEE INSTRUCTOR):

- (1) Semester/year: _____
- (2) Course: CS*305 – Assembly Language and Computer Organization
- (3) Class Meeting: _____
- (4) Instructor: _____
- (5) Office: _____
- (6) Phone: _____
- (7) Email: _____
- (8) Fax Number: _____
- (9) Office Hours: _____

2. CATALOG COURSE DESCRIPTION:

This course covers the organization and structure of the major components of modern computer; combinational circuits, sequential circuits, simulation of circuits, coding, computer organization and architecture, including a detailed study of a micro-computer or minicomputer and the use of Assembly Language. Prerequisite: CS*201 and CS*202 or Consent of Instructor.

3. COURSE CONTENT:

Programming in x86 Assembly Language.

4. RATIONALE FOR OFFERING COURSE:

Required for degree.

5. SKILLS AND BACKGROUND REQUIRED OR EXPECTED:

CS*200, CS*201, CS*202.

6. LEARNING OBJECTIVES FOR STUDENTS (INTENDED STUDENT LEARNING OUTCOMES - SLOs):

- (1) Identify the function of each major component of microcomputer systems, including bits, gates, circuits, and the levels of languages used to control them (including machine, assembly, and high-level)
- (2) Convert the various number systems (binary, octal, decimal and hexadecimal) used in computers.
- (3) Design, code, and test programs using the basic grammar, syntax and standards of the

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COURSE SYLLABUS¹

1. BASIC INFORMATION (SEE INSTRUCTOR):

- (1) Semester/year: _____
(2) Course: CS*315 – Intro to File Processing and Data Management
(3) Class Meeting: _____
(4) Instructor: _____
(5) Office: _____
(6) Phone: _____
(7) Email: _____
(8) Fax Number: _____
(9) Office Hours: _____

2. CATALOG COURSE DESCRIPTION:

This course covers the following concepts: Definition of file components, access methods and file operations; algorithms for efficient implementation of data structures; characteristics of bulk storage media or mainframe and microcomputer or minicomputer; introduction to database management systems. Prerequisite: CS*200, CS*201 or Consent of Instructor.

3. COURSE CONTENT:

File systems and Databases
The Relational Database Model
An Introduction to SQL
Entity-Relationship Modeling
Normalization of Database Tables
Database Design
Transaction Management and Concurrency Control
Distributed Database Management Systems.

4. RATIONALE FOR OFFERING COURSE:

This is an advanced course in the theory and design of database management systems, and is intended for future computer scientists, programmers, and systems administrators, and DBA's.

5. SKILLS AND BACKGROUND REQUIRED OR EXPECTED:

CS*200, CS*201.

6. LEARNING OBJECTIVES FOR STUDENTS (INTENDED STUDENT LEARNING OUTCOMES - SLOs):

- (1) Design, develop and implement small professional databases using a specified relational database management system (DBMS).
- (2) Correctly demonstrate the steps for data normalization when designing a database.
- (3) Utilize the SQL (Structured Query Language) fluently for application development.
- (4) Describe and distinguish the features of Object-Oriented DBMS and Distributed DBMS.
- (5) Describe and demonstrate database administration, security, transaction failure and recovery.

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COURSE SYLLABUS¹

1. BASIC INFORMATION (SEE INSTRUCTOR):

- (1) Semester/year: _____
(2) Course: CS*360 – Introduction to Operating System
(3) Class Meeting: _____
(4) Instructor: _____
(5) Office: _____
(6) Phone: _____
(7) Email: _____
(8) Fax Number: _____
(9) Office Hours: _____

2. CATALOG COURSE DESCRIPTION:

This course covers the following concepts: Operating system history and services; file systems; memory management; process management-concurrent processes, communication, semaphores, monitors, deadlocks, resource management processor and disk scheduling; security and protection systems. It meets for three hours lecture and three hours laboratory weekly. Prerequisite: CS*202.

3. COURSE CONTENT:

This course covers the following concepts: Operating system history and services; file systems; memory management; process management-concurrent processes, communication, semaphores, monitors, deadlocks, resource management processor and disk scheduling; security and protection systems. It meets for three hours lecture and three hours laboratory weekly. Prerequisite: CS*202.

4. RATIONALE FOR OFFERING COURSE:

This course is required for the Computer Science Degree Program.

5. SKILLS AND BACKGROUND REQUIRED OR EXPECTED:

CS*200, CS*201, CS*202.

6. LEARNING OBJECTIVES FOR STUDENTS (INTENDED STUDENT LEARNING OUTCOMES - SLOs):

- (1) Describe the history and importance of the operating system (OS) in a computer system.
- (2) Completely describe the five major tasks of an OS (i.e. process management, memory management, file management, I/O device management, and network management).
- (3) Describe the roles and importance of computer system management and security.
- (4) Describe the features, strengths, and weaknesses of different operating systems, such as batch, interactive, real-time, embedded, and parallel systems.
- (5) Install, configure, and manage the MS-Windows, UNIX and Linux Operating Systems. Simulate and optimize some component parts of each OS.

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Program SLOs²: See below.

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17. STUDENT WORK LOAD (SEE INSTRUCTOR):

18. SUPPLEMENTARY MATERIALS/ADDITIONAL RESOURCES (SEE INSTRUCTOR):

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- Analyze problems and create algorithm/heuristic solutions.
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- Evaluate system design solutions and their risks.

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- Be able to design and implement a functional database.

CS/CIS PR-5: Demonstrate technical competence in **Networks.**

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- Be able to setup, install, and use two different operating systems and be able to program client-server applications for them.

CS/CIS PR-6: Develop socially, professionally, and ethically utilize these technical skills to construct robust, secure, beneficial (commercial, educational, social) systems i.e. NO Spam, Phishing, Hacking, Deceptive, Fraudulent, Criminal, or Terroristic systems.

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**UNIVERSITY OF GUAM
COLLEGE OF NATURAL AND APPLIED SCIENCES
COURSE SYLLABUS¹**

1. BASIC INFORMATION (SEE INSTRUCTOR):

- (1) Semester/year: _____
- (2) Course: CS*365 – Computer Architecture
- (3) Class Meeting: _____
- (4) Instructor: _____
- (5) Office: _____
- (6) Phone: _____
- (7) Email: _____
- (8) Fax Number: _____
- (9) Office Hours: _____

2. CATALOG COURSE DESCRIPTION:

This course is an in-depth analysis of computer hardware architecture. Other topics may include parallel or multi-core hardware architectures and performance analysis.
Prerequisite: CS*202 and CS*305.

3. COURSE CONTENT:

This course covers: the scope of computer architecture; technologic framework; the design process; uniprocessors; register machines architecture and microprogramming; the exploitation of stacks; language-directed architectures; the “RISC” style; and aspects of memory.

4. RATIONALE FOR OFFERING COURSE:

This course is required for the Computer Science Degree Program.

5. SKILLS AND BACKGROUND REQUIRED OR EXPECTED:

CS*202 and CS*305.

6. LEARNING OBJECTIVES FOR STUDENTS (INTENDED STUDENT LEARNING OUTCOMES - SLOs):

- (1) Identify and describe all the major components of computer systems and CPU's.
- (2) Calculate and compare the duration of basic operations with machine cycles.
- (3) Describe the basic steps of a complete machine cycle and the common ways to speed up processor execution.
- (4) Describe how to construct CPU components from logic gates utilizing the basic

- concepts of digital electronics.
- (5) Compare and contrast RISC vs. CISC, and single vs. multi-core CPU Architectures.

Note: With Program Faculty Consultation, an instructor may add additional SLOs to the above Program Faculty approved SLOs.

Program SLOs²: See below.

7. **CONCEPTUAL STRUCTURE OF THE COURSE (SEE INSTRUCTOR):**

8. **FORMAT AND ACTIVITIES IN THE COURSE (SEE INSTRUCTOR):**

9. **TEXTBOOK AND READINGS:**

(See Instructor)
10. **ADDITIONAL MATERIALS OR EQUIPMENT (SEE INSTRUCTOR):**

11. **ASSIGNMENTS, TERM PAPERS AND EXAMS (SEE INSTRUCTOR):**

12. **EVALUATION AND GRADES (SEE INSTRUCTOR):**

13. **COURSE POLICIES (SEE INSTRUCTOR):**

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**UNIVERSITY OF GUAM
COLLEGE OF NATURAL AND APPLIED SCIENCES
COURSE SYLLABUS¹**

1. BASIC INFORMATION (SEE INSTRUCTOR):

- (1) Semester/year: _____
- (2) Course: CS*370 – Data Structure and Algorithm Analysis
- (3) Class Meeting: _____
- (4) Instructor: _____
- (5) Office: _____
- (6) Phone: _____
- (7) Email: _____
- (8) Fax Number: _____
- (9) Office Hours: _____

2. CATALOG COURSE DESCRIPTION:

The course covers the following concepts: Basic data structures (linked lists, stacks, and trees); graphs, search path and spanning trees; searching; memory management, hashing, dynamic storage allocation; integration of data structures into system design. Prerequisite: CS*202.

3. COURSE CONTENT:

Objects and classes, templates, inheritance, algorithm analysis, sorting algorithms, randomization algorithms, stacks, graphs and paths, queues, linked lists, trees, binary search trees, hash tables.

4. RATIONALE FOR OFFERING COURSE:

This is the definitive programming course, codifying the various techniques utilized in successful code generation.

5. SKILLS AND BACKGROUND REQUIRED OR EXPECTED:

CS*201 and CS*202.

6. LEARNING OBJECTIVES FOR STUDENTS (INTENDED STUDENT LEARNING OUTCOMES - SLOs):

- (1) Describe the operation, implementation and performance of fundamental algorithms and data structures, and the relative merits and suitability of each for various applications.
- (2) Design, implement, and test efficient software solutions for various application

- areas using appropriately selected algorithms and data structures (including especially linked-lists, stacks, and trees).
- (3) Analyze data structures and algorithms, by comparing and evaluating them with respect to time and space requirements, in order to make the most appropriate design choices for various application areas.
 - (4) Motivate and explain efficient programming concepts, relevant alternatives and decision recommendations, in written form, to IT specialists.
 - (5) Apply relevant standards and ethical considerations to the design and implementation of efficient software solutions.

Note: With Program Faculty Consultation, an instructor may add additional SLOs to the above Program Faculty approved SLOs.

Program SLOs²: See below.

- 7. CONCEPTUAL STRUCTURE OF THE COURSE (SEE INSTRUCTOR):**
- 8. FORMAT AND ACTIVITIES IN THE COURSE (SEE INSTRUCTOR):**
- 9. TEXTBOOK AND READINGS:**
(See Instructor)
- 10. ADDITIONAL MATERIALS OR EQUIPMENT (SEE INSTRUCTOR):**
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UNIVERSITY OF GUAM
COLLEGE OF NATURAL AND APPLIED SCIENCES
COURSE SYLLABUS¹

1. BASIC INFORMATION (SEE INSTRUCTOR):

- (1) Semester/year: _____
- (2) Course: CS*380 – Organization of Programming Languages
- (3) Class Meeting: _____
- (4) Instructor: _____
- (5) Office: _____
- (6) Phone: _____
- (7) Email: _____
- (8) Fax Number: _____
- (9) Office Hours: _____

2. CATALOG COURSE DESCRIPTION:

The course examines general concepts of programming languages; scope and binding rules, applications and implementation of language concepts, including the study of two or more languages. Prerequisite: CS*201 and CS*202.

3. COURSE CONTENT:

Objects and classes, templates, inheritance, algorithm analysis, sorting algorithms, randomization algorithms, stacks, graphs and paths, queues, linked lists, trees, binary search trees, hash tables.

4. RATIONALE FOR OFFERING COURSE:

This course is required for the proposed Computer Science Degree Program..

5. SKILLS AND BACKGROUND REQUIRED OR EXPECTED:

CS*201, CS*202, and CS*370.

6. LEARNING OBJECTIVES FOR STUDENTS (INTENDED STUDENT LEARNING OUTCOMES - SLOs):

- (1) Identify and describe the four major families of programming languages.
- (2) Design, code, test and debug a program using at least one Imperative language.
- (3) Design, code, test and debug a program using at least one Functional language.
- (4) Design, code, test and debug a program using at least one Logic language.
- (5) Design, code, test and debug a program using at least one Object-oriented language.

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UNIVERSITY OF GUAM
COLLEGE OF NATURAL AND APPLIED SCIENCES
COURSE SYLLABUS¹

1. BASIC INFORMATION (SEE INSTRUCTOR):

- (1) Semester/year: _____
- (2) Course: CS*403 – Data Communication and Networking
- (3) Class Meeting: _____
- (4) Instructor: _____
- (5) Office: _____
- (6) Phone: _____
- (7) Email: _____
- (8) Fax Number: _____
- (9) Office Hours: _____

2. CATALOG COURSE DESCRIPTION:

The course covers the following concepts: Data communication and network concepts; protocol and standards; distributed computing; local and wide area networks. Prerequisite: CS*370.

3. COURSE CONTENT:

Data Communication and Network Concepts.

4. RATIONALE FOR OFFERING COURSE:

This course is required for the proposed Computer Science Degree Program..

5. SKILLS AND BACKGROUND REQUIRED OR EXPECTED:

CS*202, CS*360, CS*370.

6. LEARNING OBJECTIVES FOR STUDENTS (INTENDED STUDENT LEARNING OUTCOMES - SLOs):

- (1) Describe the fundamental concepts and principles of telecommunications systems (e.g. configurations, protocols, OSI and TCP/IP models), and data and signal conversion for data communications.
- (2) Describe the basic principles and structures of computer networks (LAN, MAN, PAN, WAN, Internet and World Wide Web).
- (3) Describe the principles of network design, management, and security.
- (4) Use actual hardware and software for network connections, administration, and multiplexing, along with error detection and error correction to master the skills of

network operating systems (NOS, e.g. MS Windows or LINUX) through the hands-on projects. The skills attained through the manipulation of NOS will be applicable to network administration of a client-server system utilizing the NOS.

Note: With Program Faculty Consultation, an instructor may add additional SLOs to the above Program Faculty approved SLOs.

Program SLOs²: See below.

7. CONCEPTUAL STRUCTURE OF THE COURSE (SEE INSTRUCTOR):

8. FORMAT AND ACTIVITIES IN THE COURSE (SEE INSTRUCTOR):

9. TEXTBOOK AND READINGS:

(See Instructor)

10. ADDITIONAL MATERIALS OR EQUIPMENT (SEE INSTRUCTOR):

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UNIVERSITY OF GUAM
COLLEGE OF NATURAL AND APPLIED SCIENCES
COURSE SYLLABUS¹

1. BASIC INFORMATION (SEE INSTRUCTOR):

- (1) Semester/year: _____
- (2) Course: CS*410 – Compiler Design and Construction
- (3) Class Meeting: _____
- (4) Instructor: _____
- (5) Office: _____
- (6) Phone: _____
- (7) Email: _____
- (8) Fax Number: _____
- (9) Office Hours: _____

2. CATALOG COURSE DESCRIPTION:

The course covers the following concepts: Syntax and semantics of programming languages, lexical analysis, parsing techniques, run-time storage management, symbol table organizations; introduction to semantic routine, intermediate codes, interpreters, error recovery techniques; code optimization and generation; compiler generators. Prerequisite: CS*202, CS*305, CS*370, CS*380.

3. COURSE CONTENT:

Compiler Theory and Algorithms.

4. RATIONALE FOR OFFERING COURSE:

This course is required for the proposed Computer Science Degree Program..

5. SKILLS AND BACKGROUND REQUIRED OR EXPECTED:

CS*202, CS*305, CS*370, CS*380.

6. LEARNING OBJECTIVES FOR STUDENTS (INTENDED STUDENT LEARNING OUTCOMES - SLOs):

- (1) Describe the purposes of and differences between compilers, interpreters and assemblers.
- (2) Construct Regular Expressions.
- (3) Apply the theories of finite automata and context-free grammars to construct a Parser.
- (4) Apply the theories of finite automata and context-free grammars to construct a Lexical Analyzer.

(5) Generate Object code for given Source Code in a specified language.

Note: With Program Faculty Consultation, an instructor may add additional SLOs to the above Program Faculty approved SLOs.

Program SLOs²: See below.

7. CONCEPTUAL STRUCTURE OF THE COURSE (SEE INSTRUCTOR):

8. FORMAT AND ACTIVITIES IN THE COURSE (SEE INSTRUCTOR):

9. TEXTBOOK AND READINGS:

(See Instructor)

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UNIVERSITY OF GUAM
COLLEGE OF NATURAL AND APPLIED SCIENCES
COURSE SYLLABUS¹

1. BASIC INFORMATION (SEE INSTRUCTOR):

- (1) Semester/year: _____
- (2) Course: CS*431 - Advanced Topics in Computing (Systems Analysis & Design)
- (3) Class Meeting: _____
- (4) Instructor: _____
- (5) Office: _____
- (6) Phone: _____
- (7) Email: _____
- (8) Fax Number: _____
- (9) Office Hours: _____

2. CATALOG COURSE DESCRIPTION:

This course is a study of selected topics in programming and information systems, such as computer graphics, computer modeling, informing modeling, software engineering, design and analysis of software. With different subject matter, it may be repeated for credit. Prerequisites: Junior/senior level standing in computer science/computer information systems, or consent of instructor.

3. COURSE CONTENT:

Advanced, timely topics depends on instructor's choice (e.g. Systems analysis and design, computer security).

4. RATIONALE FOR OFFERING COURSE:

This course is required for the proposed Computer Science Degree Program..

5. SKILLS AND BACKGROUND REQUIRED OR EXPECTED:

As one of the final courses, very advanced skills.

6. LEARNING OBJECTIVES FOR STUDENTS (INTENDED STUDENT LEARNING OUTCOMES - SLOs):

- (1) Apply General Systems Theory to describe any system in terms of its components and sub-systems.
- (2) Identify and describe the purpose of a specified system.
- (3) Identify and describe the inputs, outputs, and resources of a specified system.
- (4) Design a system to achieve its specified purpose.

(5) Implement the designed system to transform the inputs and resources into the desired outputs to achieve its intended specified purpose.

Note: With Program Faculty Consultation, an instructor may add additional SLOs to the above Program Faculty approved SLOs.

Program SLOs²: See below.

7. CONCEPTUAL STRUCTURE OF THE COURSE (SEE INSTRUCTOR):

8. FORMAT AND ACTIVITIES IN THE COURSE (SEE INSTRUCTOR):

9. TEXTBOOK AND READINGS:

(See Instructor)

10. ADDITIONAL MATERIALS OR EQUIPMENT (SEE INSTRUCTOR):

11. ASSIGNMENTS, TERM PAPERS AND EXAMS (SEE INSTRUCTOR):

12. EVALUATION AND GRADES (SEE INSTRUCTOR):

13. COURSE POLICIES (SEE INSTRUCTOR):

14. SPECIAL NEEDS:

“If you are a student with a disability who will require a accommodation(s) to participate in this course, please contact me or the Institutional Compliance Officer privately to discuss your specific needs. You will need to provide me with documentation concerning your need for accommodation(s) from the EEO/ADA and TITLE IX Office. If you have not registered with the EEO/ADA and Title IX Office, you should do so immediately at 735-2244, (TTY) 735-2243 to coordinate your accommodation request.”

15. CALENDAR OR SCHEDULE (SEE INSTRUCTOR):

16. DROP DATES:

University policy sets the drop dates. You can withdraw from classes “voluntarily” until mid October (i.e., without notifying instructor) and as late as the end of the semester with instructor’s signature on a withdrawal form. See the semester schedule of courses.

17. STUDENT WORK LOAD (SEE INSTRUCTOR):

18. SUPPLEMENTARY MATERIALS/ADDITIONAL RESOURCES (SEE INSTRUCTOR):

19. CONTACT INFORMATION FOR CLASSMATES:

Exchange contact info with at least one classmate. Contact your classmate(s) if you miss class or if you want to form a study group.

¹**BASED ON DR. BARBARA GROSS DAVIS, UC BERKELEY MODEL “CREATING A SYLLABUS”.** From the hard copy book *Tools for Teaching* by Barbara Gross Davis; [Jossey-Bass](#) Publishers: San Francisco, 1993. Linking to this book chapter from other websites is permissible. However, the contents of this chapter may not be copied, printed, or distributed in hard copy form without permission. For a more detailed explanation on each numbered section of the syllabus, please visit: <http://teaching.berkeley.edu/bgd/syllabus.html>.

²Program SLOs:

BA Computer Science/Computer Information Systems goals include the following:

CS/CIS PR-1: (GE) Demonstrate competence with **Windows** and basic **MS Office** applications especially MS WORD, EXCEL, and PowerPoint.

CS/CIS PR-2: Demonstrate **technical competence*** in **Programming:**

- Analyze problems and create algorithm/heuristic solutions.
- Develop these using computer-programming methodologies in several programming languages.

CS/CIS PR-3: Demonstrate technical competence in **Systems.**

- Identify and analyze system requirements, criteria and specifications.
- Design and implement human sensitive/compatible computer based systems using appropriate tools, methods and techniques.
- Effectively manage, organize, and retrieve all forms of information.
- Evaluate system design solutions and their risks.

CS/CIS PR-4: Demonstrate technical competence in **Databases.**

- Be able to design and implement a functional database.

CS/CIS PR-5: Demonstrate technical competence in **Networks.**

- Be able to design, install, administer, and maintain a computer network.
- Be able to setup, install, and use two different operating systems and be able to program client-server applications for them.

CS/CIS PR-6: Develop socially, professionally, and ethically utilize these technical skills to construct robust, secure, beneficial (commercial, educational, social) systems i.e. NO Spam, Phishing, Hacking, Deceptive, Fraudulent, Criminal, or Terroristic systems.

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UNIVERSITY OF GUAM
COLLEGE OF NATURAL AND APPLIED SCIENCES
COURSE SYLLABUS¹

1. BASIC INFORMATION (SEE INSTRUCTOR):

- (1) Semester/year: _____
(2) Course: CS*492 – Practicum in Computer Science
(3) Class Meeting: _____
(4) Instructor: _____
(5) Office: _____
(6) Phone: _____
(7) Email: _____
(8) Fax Number: _____
(9) Office Hours: _____

2. CATALOG COURSE DESCRIPTION:

The course is a laboratory-oriented course involving any laboratory from microcomputers to mainframe depending on the project director administering the practicum. The mathematics computer lab, the computer center labs, or any other computer lab facility may be utilized as worksites for the course. The course provides practical experience for students majoring in computer science or management information systems. Students assist in the daily operation of the computer lab. Regular observation, counseling, and evaluation is provided by the project director. Individual and/or group conferences are required. A junior or senior level student in computer science may enroll for the course with the approval of the Division of Mathematical Sciences. Students may enroll more than once, but a maximum of 3-semester hours credit may be earned in this course.

3. COURSE CONTENT:

See above Catalog description.

4. RATIONALE FOR OFFERING COURSE:

Good, practical experience.

5. SKILLS AND BACKGROUND REQUIRED OR EXPECTED:

All major skills.

6. LEARNING OBJECTIVES FOR STUDENTS (INTENDED STUDENT LEARNING OUTCOMES - SLOs):

- (1) Trouble-shoot, repair and configure computers, servers, routers, printers, copiers, and IP telephony equipment in corporate LAN, WAN, and Wireless environments.
- (2) Use Microsoft's Remote Install Service (RIS), and Symantec's Ghost to clone and mass duplicate corporate PC's.
- (3) Do simple Cat5e cabling and crimping, as well as coax cabling legacy equipment.
- (4) Use different applications for the remote control and remote updating of PCs, such as Microsoft's SMS and Remote Desktop, Dameware, and VN, as well as the corporate specific Helpdesk ticket-generated application called Vantive (used in Continental's and EDS's corporate environments).

Note: With Program Faculty Consultation, an instructor may add additional SLOs to the above Program Faculty approved SLOs.

Program SLOs²: See below.

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