The National Hispanic University

Computer Information Systems
Bachelor of Science Program

Chair: Professor Michael Mooney

Self-Study

Conducted by
Dr. Julio R. Garcia

Fall 2008

Submitted September 24, 2008
Table of Contents

Program Mission, Goals and Objectives........................................................................................................... 1
1. Describe the program’s mission, role, and scope. .......................................................................................... 1
  2. Describe the program, including name of the degree, the major, the emphases, and the purpose. ............... 1

Program of Study for B.S. CIS Majors .................................................................................................................. 2
Course Descriptions for B.S. CIS Majors .............................................................................................................. 4
Sequence of BS CIS Major Courses ................................................................................................................... 8
AS in Computer Networking .................................................................................................................................. 9
Course Descriptions for AS in Computer Networking ..................................................................................... 10
Sequence of AS in Computer Networking Courses .......................................................................................... 12
3. What are the major goals and objectives? If these have changed over the last 5 years, provide a summary of these changes. Are there likely to be changes in the near future? 13
   Mission and Goals over the past five years ................................................................................................. 14
   Likely Changes in the near future .................................................................................................................. 14
4. How do these goals and objectives fit in with the NHU mission? ............................................................... 14

Brief Overview of NHU History .......................................................................................................................... 15
Program History .................................................................................................................................................. 16
  1. Describe the program's history since the last program review or within the last 5 years, emphasizing major changes that have occurred. ............................................................... 16

Enrollment Trends ............................................................................................................................................ 16
Graduation Trends ............................................................................................................................................ 16
Significant Program Changes since Last Review .............................................................................................. 18
Realignment of Computer Science Program Courses to conform to UC and CSU upper and lower division classifications ........................................................................................................... 21
The establishment of Computer Science Program Electives ........................................................................... 21
Associate of Science in Computer Networking ............................................................................................. 22

Faculty and Staffing ........................................................................................................................................... 22
  2. Provide a summary of the recommendations from the previous program review and the program responses to those recommendations .............................................................. 22

Recommendations from External Review Team Spring 2003 and actions taken ........................................ 23
Individual or Small Study Group ....................................................................................................................... 25
Tutoring ............................................................................................................................................................. 25
  2. How effectively does this program utilize its existing resources? What are the major resources issues affecting the department now and into the next 5 years? ....................... 25
Existing Resources........................................................................................................................................... 25

Academic Quality .......................................................................................................................................... 26

1. Describe how the program has improved within the last five years, using evidence to support these conclusions. ........................................................................................................................................... 26

Grants .......................................................................................................................................................... 27

2. Describe new directions in curriculum, resources, research, reorganization, staffing, or student clientele planned for the next few years and aimed at strengthening the program .................................................................................................................................. 27

Resources .................................................................................................................................................. 27

Reorganization ........................................................................................................................................ 28

Research ................................................................................................................................................. 28

Student Clientele .................................................................................................................................... 28

3. Discuss the use of the various modes of instruction utilized in the program such as lectures, group projects, cooperative learning, field or laboratory work, etc. .............................................................................................................................................. 29

4. Describe the quality and quantity of library resources that support the program. Identify needs to be met in the next five years. .................................................................................................................................................. 30

Library Computer Science Resources ...................................................................................................... 30

5. Provide a brief description of the program’s advisement process and identify procedures used to assess and improve it. .............................................................................................................................................. 31

6. Describe the present and planned use of technology to enhance instruction. What are the most serious technological needs of the program? .............................................................................................................................................. 31

7. Describe the program’s assessment efforts, including plans, student assessment goals, major student learning outcomes, and utilization of assessment information. .............................................................................................................................................. 31

8. Faculty profile: both full-time and adjunct .......................................................................................... 32

Observations from the Current Department Chair ..................................................................................... 32

Appendix A – Courses Outlines BS Computer Information Systems .................................................................. 35

Appendix B – Curriculum Vitae .................................................................................................................. 100

Amitabh Bihari (Amit) ..................................................................................................................................... 101

Carlos P. Alvarado ...................................................................................................................................... 104

Prameet S. Chhabra ..................................................................................................................................... 108

Norma R. Avila .......................................................................................................................................... 112

Julio R. Garcia .......................................................................................................................................... 115
The National Hispanic University

Computer Science Department Self-Study

Program Mission, Goals and Objectives

1. Describe the program’s mission, role, and scope.

The mission of the Computer Science Department is to prepare students to develop and support information systems. The degree programs train them in systems analysis and design, application development, and in the use of databases to enter both the business side and the technical side of today’s electronic communication and system administration.

Furthermore, the Computer Science Department program seeks to infuse NHU students with a deep understanding of the Hispanic culture and its relationship to other cultures, and to enable students to apply such knowledge to the various functional areas of computer science.

Today’s world runs on information, and the computer-based information system is the tool that gathers, stores, organizes and integrates data so that it becomes useful information. Without information systems, most modern organizations would be hard pressed to meet their strategic, tactical and operational goals. Students gain practical experience by developing computer programs and applications, and by building computers, networks, and communication systems.

2. Describe the program, including name of the degree, the major, the emphases, and the purpose.

The Computer Science Department offers a Bachelor of Science (B.S.) degree in Computer Information Systems (CIS) and an Associate Science (A.S.) degree in Computer Networking. The B.S. CIS degree program is not intended to provide specialized study. The degree is well-rounded and includes courses in general education, business, core, programming, networking, database and telecommunications. In addition, two upper-division courses CS 332: Server Administration and CS 340: Advanced Networking can be substituted for upper division courses offered in 4-year institutions such as Database Management Systems, Database Design, Networked Databases, Web Design & Programming, Middleware, Multimedia, IT Security, e-Commerce, Computer Graphics and Visualization, High-Performance Computer Architecture, Artificial Intelligence, Applied Logic, Relational Database Systems, Information Resource Management and Data Administration, Database Design and Administration, Visual Programming, Macroeconomics, Business Statistics, and other topics of interest with prior approval from the Department Chair.

Students complete coursework in each of the functional areas of computer programming, database and computer networking. The Computer Science program emphasis is designed to
prepare students for a broad range of entry-level positions in computer-related organizations and/or further their education in graduate school. The program provides students with subject matter understanding and skills that will enable them to be managers, business owners as well as leaders within the economic community.

The list of courses required for a B.S. degree in Computer Information Systems (CIS) and the major courses description are as follows:

**Program of Study for B.S. CIS Majors**

**Total Number of Units Required: 128 Units**

**General Education: 49 units**

<table>
<thead>
<tr>
<th>AREA A: Communication In The English Language and Critical Thinking (9 Units)</th>
<th>Units</th>
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<tbody>
<tr>
<td>SPC 100 Public Speaking</td>
<td>3</td>
</tr>
<tr>
<td>ENG 100 English Composition and Reading</td>
<td>3</td>
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<tr>
<td>ENG 201 Critical Thinking, Reading, and Writing Across the Curriculum or Introduction to Logic</td>
<td>3</td>
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<table>
<thead>
<tr>
<th>AREA B: Physical Universe and Its Life Forms (10 Units)</th>
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<tbody>
<tr>
<td>GEO 200 Principles of Physical Geography</td>
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<tr>
<td>BIO 100 General Biology</td>
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<td>MAT 100 College Algebra</td>
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<thead>
<tr>
<th>AREA C: Arts, Literature, Philosophy, and Foreign Languages (9 Units)</th>
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<tbody>
<tr>
<td>ART 100 Art Appreciation</td>
</tr>
<tr>
<td>PHL 100 Introduction to Philosophy</td>
</tr>
<tr>
<td>ENG 250 Contemporary Multicultural Literature</td>
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<tr>
<th>AREA D: Social, Political and Economic Institutions and Behavior (9 Units)</th>
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<tbody>
<tr>
<td>ANT 100 Introduction to Anthropology or Introduction to Psychology</td>
</tr>
<tr>
<td>HIS 100 U.S. History I</td>
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<tr>
<td>HIS 201 U.S. History II</td>
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<tr>
<th>AREA E: Lifelong Understanding and Self Development (3 Units)</th>
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<tr>
<td>ANT 125 Chicano/Latino Culture or UNI 100 First-Year Seminar</td>
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</table>
**Upper Division Requirements (9 Units)**

<table>
<thead>
<tr>
<th>COURSE TITLE</th>
<th>Units</th>
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<tbody>
<tr>
<td>ENG 300</td>
<td>Advanced Writing Skills</td>
</tr>
<tr>
<td>ENG 301</td>
<td>World Literature or Personal, Professional, and Social Ethics</td>
</tr>
<tr>
<td>HIS 414</td>
<td>World History I or Argumentation and Advocacy of World Issues</td>
</tr>
<tr>
<td>SPC 300</td>
<td>World Literature or Personal, Professional, and Social Ethics</td>
</tr>
</tbody>
</table>

**Core Courses: 13 units**

<table>
<thead>
<tr>
<th>COURSE TITLE</th>
<th>Units</th>
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<tbody>
<tr>
<td>SPA 100</td>
<td>Elementary Spanish I or Spanish for the Spanish Speaker I</td>
</tr>
<tr>
<td>CS 100</td>
<td>Introduction to Computers</td>
</tr>
<tr>
<td>CS 103</td>
<td>Advanced Computer Applications</td>
</tr>
<tr>
<td>INF 100</td>
<td>Information Literacy</td>
</tr>
<tr>
<td>ENG 300</td>
<td>Advanced Writing Skills</td>
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</table>

**Business Courses: 18 units**

<table>
<thead>
<tr>
<th>COURSE TITLE</th>
<th>Units</th>
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<tbody>
<tr>
<td>BUS 101</td>
<td>Introduction to Business</td>
</tr>
<tr>
<td>BUS 240</td>
<td>General Accounting Principles</td>
</tr>
<tr>
<td>BUS 260</td>
<td>Business Statistics</td>
</tr>
<tr>
<td>BUS 325</td>
<td>Business Communications</td>
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<td>BUS 351</td>
<td>Business Ethics</td>
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<tr>
<td>BUS 368</td>
<td>Project Management</td>
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**Lower Division Courses: 24 units**

<table>
<thead>
<tr>
<th>COURSE TITLE</th>
<th>Units</th>
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<tbody>
<tr>
<td>CS 101</td>
<td>Introduction to Programming</td>
</tr>
<tr>
<td>CS 105</td>
<td>Object-Oriented Programming I</td>
</tr>
<tr>
<td>CS 106</td>
<td>Object-Oriented Programming II</td>
</tr>
<tr>
<td>CS 107</td>
<td>Personal Computer Systems</td>
</tr>
<tr>
<td>CS 110</td>
<td>Data Communications and Networking</td>
</tr>
<tr>
<td>CS 130</td>
<td>Network Operating Systems</td>
</tr>
<tr>
<td>CS 150</td>
<td>Elementary Algorithms and Data Structures</td>
</tr>
<tr>
<td>CS 212</td>
<td>Internet Protocols</td>
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</table>

**Upper Division Courses: 27 units**

<table>
<thead>
<tr>
<th>COURSE TITLE</th>
<th>Units</th>
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<tbody>
<tr>
<td>CS 300</td>
<td>Introduction to Internet/Telecommunications</td>
</tr>
<tr>
<td>CS 322</td>
<td>Client Administration</td>
</tr>
<tr>
<td>CS 330</td>
<td>Database Management Systems</td>
</tr>
<tr>
<td>CS 332</td>
<td>Server Administration</td>
</tr>
<tr>
<td>CS 340</td>
<td>Advanced Networking</td>
</tr>
<tr>
<td>CS 360</td>
<td>Object-Oriented Analysis and Design</td>
</tr>
<tr>
<td>Course</td>
<td>Description</td>
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<td>--------------</td>
<td>------------------------------------------------------------------------------</td>
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<tr>
<td>CS 380</td>
<td>Graphical Programming</td>
</tr>
<tr>
<td>CS 460</td>
<td>Management of Information Systems</td>
</tr>
<tr>
<td>CS 490A</td>
<td>CIS Internship, or</td>
</tr>
<tr>
<td>CS 490B</td>
<td>CIS Senior Project</td>
</tr>
</tbody>
</table>

Course Descriptions for B.S. CIS Majors

**CS 100 Introduction to Computers 3**
Use of PC with current applications software to solve both personal and organizational problems. Includes an introduction and history of computers and their applications, a general overview of how a computer system operates, and introduction to the different components of a computer.
Pre-requisite: None.

**CS 101 Introduction of Programming 3**
Creation of software components that interact with and control existing applications such as spreadsheets, word processing, and databases. A broad range of examples, case studies, exercises, and programming projects gives students significant hands-on experience. Students learn a three step process for building an application - creating the user interface, setting properties, and writing the code.
Pre-requisite: CS 103.

**CS 103 Advanced Computer Applications 3**
A study of the use and applications of productivity software and the Internet in business and public organizations. The course emphasizes the use of database software and spreadsheet software to plan, analyze, design, develop and test educational and/or business solutions.
Pre-requisite: CS 100 or consent of instructor.

**CS 105 Object-Oriented Programming I 3**
Translation of an informal problem specification into a class design and the implementation of that design in an object-oriented programming language. Software topics include maintainability, readability, testing, documentation, and modularization. Topics include writing portable applications, compiling, execution, selection, repetition, parameter passing, and arrays. Students are expected to read, understand and debug existing code as well as develop new classes.
Pre-requisite: CS 101.

**CS 106 Object-Oriented Programming II 3**
Advanced programming techniques, problem solving, algorithms, and structured program design. Develop structured program design, control structures, arrays, functions, sorting sequential, and random files.
Pre-requisite: CS 105.

**CS 107 Personal Computer Systems 3**
An in-depth exposure to computer hardware and operating systems. Students learn the functionality of hardware and software components as well as suggested best practices in
maintenance and safety issues. Through hands-on activities and labs, students learn how to assemble and configure a computer, install operating systems and software, and troubleshoot hardware and software problems.

Pre-requisite: CS 103.

CS 110  Data Communications and Networking  3
Introduction to data communications and networking concepts. Principles of LANs and WANs, routers and Internetworking devices. Network architectures, protocols, administration and support are covered. The use of several common LAN’s products, LAN management security, and LAN comparisons are discussed. Students will do research and present information on the design and implementation of a LAN project that can solve a significant, complex and hopefully generalized problem, dealing with constraints and trade-offs in the solution.

Pre-requisite: CS 103.

CS 130  Network Operating Systems  3
An intensive introduction to multi-user, multi-tasking network operating systems. Characteristics of current network operating systems will be discussed. Students will learn the configuration of network services, basic network security, installation procedures, back-up procedures, remote access and troubleshooting. This course covers other fundamental networking basics including LAN and WAN topologies, networking hardware placement and uses, and cabling standards.

Pre-requisite: CS 107.

CS 150  Elementary Algorithms and Data Structures  3
Introduction to the concepts and representation of basic data structures, including queues, stacks, trees, arrays, linked lists, strings and graphs. The course covers data-related algorithms that are common to the design and manipulation of compilers, databases and operating systems.

Pre-requisite: CS 106.

CS 212  Internet Protocols  3
Routing protocols used on the Internet, and the real-world implementations of TCP/IP. TCP/IP architecture. Application layer protocols and services; Transport layer protocols; Internet layer protocols; and Internet administration. Concepts of IP addressing. Configuration of hosts and access to internet work using TCP/IP protocols. FTP, TELNET, HTTP, NFS, Gopher, Netscape, WWW and other TCP/IP services are covered.

Pre-requisite: CS 110.

CS 300  Introduction to Internet/Telecommunications  3
This course examines the many features and technologies that make the Internet work. This includes Internet services/tools: WWW, E-mail, Chat rooms, File Transfer Protocol (FTP), Telnet, newsgroups, browsers and search engines; creating a web site: HTML authoring tools; Client/Server architecture; Internet appliances: Web TV, Thin clients, Internet telephony and wireless devices; Internet Infrastructure: segmentation, routing, servers, clients and bandwidth; Web Programming: concepts, protocols, languages and scripting; Databases and Web Hosting: Database Management Systems (DBMS), SQL and hosting services; internet security: intrusions, protection strategies and virtual private networks (VPN).
Pre-requisite: CS 103 or consent of instructor.

**CS 322 Client Administration 3**
Installation and configuration of a network workstation using current Network Operating System software. Formatting and partitioning of disks, creation of file-sharing and print-sharing services. Creation and removal of user accounts, booting and shutting down systems safely, creating and managing local system resources. Create system backups, and manage security access services provided by the NOS software. Key network protocols and standards.
Pre-requisite: CS 212

**CS 330 Database Management Systems 3**
Introduction to the basic concepts underlying database systems. Emphasizes the relational model, and discusses the elements of the entity-relationship model, the network model, and the hierarchical model. Various issues concerning physical data organization and query optimization are presented. Crash recovery schemes and control schemes are also covered. Discussion concerning a number of different non-standard database systems.
Pre-requisite: CS 103 and CS 150.

**CS 332* Server Administration 3**
Pre-requisite: CS 322.

**CS 340* Advanced Networking 3**
Implementation and support of a current Internetworking Operating System (IOS). Real-life issues with case studies and examples to guide the student through important IOS functions. Router configuration and administration. LAN and WAN interfacing technologies as they relate to router configurations. Router Internetworking Operations System (IOS) as well as its Command-Line Interface (CLI). Managing and troubleshooting router LAN/WAN interfaces.
Pre-requisite: CS 332.

**CS 360 Object-Oriented Analysis and Design 3**
Information Systems methodologies to solve enterprise-wide managerial and organizational problems. Requirements analysis, specifications, preliminary design, detailed design, code, unit test, integration test and system test. Specifications and a preliminary design are created, reviewed and evaluated using systems analysis and design techniques to develop a multi-user system including database. Application of at least one programming language to solve a problem relevant to the course.
Pre-requisite: CS 330.
CS 380  Graphical Programming  3
Study of a current graphical programming language for data acquisition, instrument control software, and analysis software in the context of industrial, scientific, academic, and laboratory environments. Write programs that solve problems in computers, electronics, physics, and chemistry. Students will have the opportunity to apply and reinforce computer programming concepts previously learned.
Pre-requisites: CS 101, CS 105 and CS 106.

CS 460  Management of Information Systems  3
This course focuses on the problems and issues faced by managers of Information Systems. Management of computer equipment and personnel, managing teams in programming projects, cost estimating and planning for software development projects, outsourcing of CIS functions, disaster recovery planning, computer security and computer crime, copyright protection for computer software, and legal and ethical issues in Computer Science/Information Systems.
Pre-requisite: Senior Standing or consent of instructor.

CS 490A  Computer Information Systems Internship  3
Students will have a computer technology-related job at a local firm or organization. It will give students the experience of being computer professionals, which should help in career decisions and preparation for obtaining their first job after graduation. Students already doing computer-related work may substitute this course for an elective with prior approval from the Instructor and the Department Chair.
Pre-requisites: Senior Standing and CS 460.

CS 490B  Computer Information Systems Senior Project  3
Formulation and solution of a selected problem in Computer Information Systems. The project must solve a practical problem within the computer field; should be challenging enough and should require the application of concepts learned in previous CS courses. The student will write a report and present it to the sponsoring professor.
Pre-requisites: Senior Standing and CS 340.

Sequence of BS CIS Major Courses

Students majoring in Computer Information Systems must follow the sequence of BS CIS major courses stated below:
AS in Computer Networking

The list of courses required for an A.S. degree in Computer Networking and the major courses description are shown next.

Total Number of Units Required: 75 Units

General Education: 34 units

<table>
<thead>
<tr>
<th>AREA A: Communication In The English Language and Critical Thinking (9 Units)</th>
<th>Units</th>
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<tbody>
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<td>SPC 100 Public Speaking</td>
<td>3</td>
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<tr>
<td>ENG 100 English Composition and Reading</td>
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<td>ENG 201 Critical Thinking, Reading, and Writing Across the Curriculum \textit{or} Introduction to Logic</td>
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<table>
<thead>
<tr>
<th>AREA B: Physical Universe and Its Life Forms (13 Units)</th>
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<tbody>
<tr>
<td>BIO 100 General Biology</td>
</tr>
<tr>
<td>CHE 130 Chemistry</td>
</tr>
<tr>
<td>PHY 120 Physics</td>
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<td>MAT 100 College Algebra</td>
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<th>AREA C: Arts, Literature, Philosophy, and Foreign Languages (3 Units)</th>
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<tbody>
<tr>
<td>PHL 100 Introduction to Philosophy</td>
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<tr>
<th>AREA D: Social, Political and Economic Institutions and Behavior (6 Units)</th>
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<tbody>
<tr>
<td>HIS 100 U.S. History I</td>
</tr>
<tr>
<td>HIS 201 U.S. History II</td>
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</table>

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<tr>
<th>AREA E: Lifelong Understanding and Self Development (3 Units)</th>
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</thead>
<tbody>
<tr>
<td>ANT 125 Chicano/Latino Culture \textit{or} \textit{or} First-Year Seminar</td>
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</table>

Core Courses: 10 units

<table>
<thead>
<tr>
<th>COURSE TITLE</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>SPA 100 Elementary Spanish I \textit{or} Spanish for the Spanish Speaker I</td>
<td>3</td>
</tr>
<tr>
<td>CS 100 Introduction to Computers</td>
<td>3</td>
</tr>
<tr>
<td>CS 103 Advanced Computer Applications</td>
<td>3</td>
</tr>
<tr>
<td>INF 100 Information Competency</td>
<td>1</td>
</tr>
</tbody>
</table>
Lower Division Courses: 31 units

<table>
<thead>
<tr>
<th>COURSE TITLE</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>CS 107 Personal Computer Systems</td>
<td>3</td>
</tr>
<tr>
<td>CS 110 Data Communications and Networking</td>
<td>3</td>
</tr>
<tr>
<td>CS 130 Network Operating Systems</td>
<td>3</td>
</tr>
<tr>
<td>CS 212 Internet Protocols</td>
<td>3</td>
</tr>
<tr>
<td>CS 220 Networking Basics</td>
<td>4</td>
</tr>
<tr>
<td>CS 221 IOS Configuration</td>
<td>4</td>
</tr>
<tr>
<td>CS 222 Routing and Switching</td>
<td>4</td>
</tr>
<tr>
<td>CS 223 Network Design (WANs)</td>
<td>4</td>
</tr>
<tr>
<td>CS 290 IT Internship</td>
<td>3</td>
</tr>
</tbody>
</table>

Course Descriptions for AS in Computer Networking

CS 100 Introduction to Computers 3
Use of PC with current applications software to solve both personal and organizational problems. Includes introduction and history of computers and their applications, a general overview of how a computer system operates, and introduction to the different components of a computer.
Pre-requisite: None.

CS 103 Advanced Computer Applications 3
A study of the use and applications of productivity software and the Internet in business and public organizations. The course emphasizes the use of database software and spreadsheet software to plan, analyze, design, develop and test educational and/or business solutions.
Pre-requisite: CS 100 or consent of instructor.

CS 107 Personal Computer Systems 3
An in-depth exposure to computer hardware and operating systems. Students learn the functionality of hardware and software components as well as suggested best practices in maintenance and safety issues. Through hands-on activities and labs, students learn how to assemble and configure a computer, install operating systems and software, and troubleshoot hardware and software problems.
Pre-requisite: CS 103.

CS 110 Data Communications and Networking 3
Introduction to data communications and networking concepts. Principles of LANs and WANs, routers and Internetworking devices. Network architectures, protocols, administration and support will be covered. The use of several common LAN’s products, LAN management security, and LAN comparisons will be discussed. Students will do research and present information on the design and implementation of a LAN project that can solve a significant,
complex and hopefully generalized problem, dealing with constraints and trade-offs in the solution.
Pre-requisite: CS 103.

CS 130    **Network Operating Systems**  3
An intensive introduction to multi-user, multi-tasking network operating systems. Characteristics of current network operating systems are discussed. Students learn the configuration of network services, basic network security, installation procedures, back-up procedures, remote access and troubleshooting. This course covers other fundamental networking basics including LAN and WAN topologies, networking hardware placement and uses, and cabling standards.
Pre-requisite: CS 107.

CS 212    **Internet Protocols**  3
Routing protocols used on the Internet, and the real-world implementations of TCP/IP. TCP/IP architecture. Application layer protocols and services; Transport layer protocols; Internet layer protocols; and Internet administration. Concepts of IP addressing. Configuration of hosts and access to internet work using TCP/IP protocols. FTP, TELNET, HTTP, NFS, Gopher, Netscape, WWW and other TCP/IP services are covered.
Pre-requisite: CS 110.

CS 220    **Networking Basics**  4
This course introduces students to current and emerging networking technologies. It focuses on network terminology and protocols, local-area networks (LANs), wide-area networks (WANs), Open System Interconnection (OSI) models, cabling, cabling tools, routers, router programming, Ethernet, Internet, Protocol (IP) addressing, and network standards. Instruction is also provided in the proper care, maintenance, and use of networking software, tools and equipment.
Pre-requisite: CS 130, Sophomore Status.

CS 221    **IOS Configuration**  4
This course introduces students to current and emerging networking technologies. It focuses on initial router configuration. IOS software management, routing protocol configuration, TCP/IP, and access control lists (ACLs). Students will develop skills on how to configure a router, managing IOS software, configuring routing protocol on routers, and set the access lists to control the access to routers.
Pre-requisite: CS 220, Sophomore Status.

CS 222    **Routing and Switching**  4
This course introduces students to current and emerging networking technologies. It focuses on advanced IP addressing techniques (Variable Length Subnet Masking [VLSM]), intermediate routing protocols (RIP v2, single-area OSPF, EIGRP), command-line interface configuration of switches, Ethernet switching, Virtual LANs (VLANs), Spanning Tree Protocol (STP), and VLAN Trunking Protocol (VTP).
Pre-requisite: CS 221, Sophomore Status.
CS 223  Network Design (WANs)  4
This course introduces students to current and emerging networking technologies. It focuses on advanced IP addressing techniques (Network Address Translation [NAT], Port Address Translation [PAT], and DHCP), WAN technology and terminology, PPP, ISDN, Frame Relay, network management, and introduction to optical networking.
Pre-requisite:  CS 222, Sophomore Status.

CS 290  IT Internship  3
This course consists of the student having a computer networking technology-related job at a local firm or organization. It will give students the experience of being a computer network professional, which should help in career decisions and preparation for obtaining their first job after graduation.
Pre-requisite:  CS 223, Sophomore Status.

Sequence of AS in Computer Networking Courses

The sequence of AS in Computer Networking major courses is shown on the following figure:
3. What are the major goals and objectives? If these have changed over the last 5 years, provide a summary of these changes. Are there likely to be changes in the near future?

The goal of both degree programs is to prepare students for careers in fields that support computer-based systems of communication. Graduates may enter such disciplines as Telecommunications Management, Network Management, Systems Analysis, High Technology Marketing and Sales, and Information Systems Design. While the A.S. program is centered on gaining expertise with hardware, software and network design, the B.S. program combines coursework in programming, database management, data communications, and system administration with substantial coursework in business.

Accordingly, students’ hands-on experience both in software and hardware is central to the educational preparation in the Computer Science Department. To address the software skills, the CS department maintains two computer science laboratories and shares a computer lab with NHU’s science programs. The department needs to have the equipment necessary to develop students’ hardware skills.
Upon completion of the program NHU computer science students should effectively demonstrate the following:

1. business and computer science communication skills, including written, oral and presentation;
2. teamwork and leadership skills in a multicultural setting;
3. ability to integrate knowledge across the computer disciplines to offer solutions to problems commonly encountered in business; and
4. ability to solve computer-related problems.

**Mission and Goals over the past five years**

According to NHU’s General Catalog 2006-2008, the mission of the Department of Computer Science is to prepare students to develop and support information systems. The degree programs train them in systems analysis and design, application development, and in the use of databases to enter both the business side and the technical side of today’s electronic communication and system administration.

**Likely Changes in the near future**

Given the advances in computers, telecommunications and networking as well as related areas it is necessary to overhaul the current curriculum to reflect the current trends and types of jobs needed in high-technology companies. We are waiting for the external review members’ feedback but we foresee that we need to include courses in data mining, wireless communications as well as current programming languages.

4. **How do these goals and objectives fit in with the NHU mission?**

The mission of The National Hispanic University (NHU) is to enable Hispanics, other minorities, women, and others to acquire an undergraduate degree or certificate using a multicultural educational experience to obtain a professional career in business, education, or technology. The Computer Science Department faculty fully understands and appreciates the mission of NHU. The faculty is mandated through their instruction and curriculum development activities to address the NHU mission as a primary responsibility. The goals and objectives of the Computer Science Department illustrate NHU’s mission statement in a strategically expansive format.

As described earlier, the goals and objectives of the Computer Science program focus on oral and written communication; qualitative and quantitative reasoning; ethical and social responsibility; and cultural awareness and appreciation. We believe these objectives fit in well with the mission of the Computer Science Department and the University, lifelong learning as well as the needs of our students and their future employers. Our overriding goal is to prepare the next generation of minority leadership in the field of Computer Science.
Brief Overview of NHU History

President B. Roberto Cruz founded the University in 1981 in a two-room campus in Oakland with a program in Liberal Studies and Business. NHU moved to San Jose in 1992. In 1994 the university relocated to the present site on Story Road. During the initial formative years President Cruz was active in building relationships and garnering support from important community members, elected officials, and prominent individuals from the private sector.

The university has experienced a series of dramatic successes over the last seven years: In 2001 the eleven-acre property was purchased at the present site of a former elementary school. Thanks to the leadership of President Cruz, the Board of Trustees, the NHU faculty, staff, and administration, the University was granted Initial Accreditation by WASC in 2002. In 2004, a new 67,000 square foot, three level building was built. Sadly, President Cruz passed away in Fall 2002, but his key partner in helping to build the university, Maria Elena Riddle, agreed to serve as Interim President for the Academic Year, 2002-2003. In fall 2003 the University hired an experienced academician, Dr. David Lopez, to serve as its second President. New academic program development and increased student enrollments have also been realized in these past years.

It is important to note that the fundamental mission of NHU has not changed despite the significant changes and achievements during this decade.
Program History

1. Describe the program's history since the last program review or within the last 5 years, emphasizing major changes that have occurred.

Enrollment Trends
Over the last five years (2003-2007) Computer Science has experienced a 48% increase in majors. It is important to note that the Computer Science program has experienced dramatic growth over the last five years. The program has gone from 25 students in fall 2003 to 37 in fall 2007. See Table 1.

NHU has increased its undergraduate enrollment from 331 in fall 2003 to 399 in fall 2007, an increase of 20.5%. The University has matured and grown in complexity since 2003.

Table 1. Enrollment Trends

<table>
<thead>
<tr>
<th>Semester</th>
<th>CIS Majors</th>
<th>CIS Majors Percent (%) of UG</th>
<th>NHU Undergrads (UG)</th>
<th>NHU Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall 2003</td>
<td>25</td>
<td>7.6%</td>
<td>331</td>
<td>558</td>
</tr>
<tr>
<td>Fall 2004</td>
<td>18</td>
<td>5.9%</td>
<td>305</td>
<td>464</td>
</tr>
<tr>
<td>Fall 2005</td>
<td>28</td>
<td>7.4%</td>
<td>379</td>
<td>549</td>
</tr>
<tr>
<td>Fall 2006</td>
<td>34</td>
<td>7.8%</td>
<td>435</td>
<td>558</td>
</tr>
<tr>
<td>Fall 2007</td>
<td>37</td>
<td>9.3%</td>
<td>399</td>
<td>548</td>
</tr>
</tbody>
</table>


The data in Table 1 only includes the three baccalaureate granting programs of Liberal Studies, Business, and Computer Science (NHU Undergrads (UG)). Further beginning fall 2001 the undergraduate data includes students who are undeclared majors and those in the Translation/Interpretation program (NHU Totals).

Graduation Trends
Currently, we are not satisfied with the past graduation rates as reflected in Table 2. The low graduation rate could be attributed to some students have moved from the area, are attending other schools, or their present employment or lifestyle issues may not permit them to return at this time.

Due to circumstances beyond our control, several students are not eligible for financial aid. Many of our students work to support themselves, their families, and pay their tuition. This may also help to explain the relatively low number of B.S. CIS graduates from 2003 to 2007 listed in Table 2.
Looking towards the future, the university must hire at least one full-time faculty who would be in charge of the program and provide leadership and stability. This professional then would meet with the CS adjunct faculty to address this and other issues related to the CS department. By the way, this graduation issue is not exclusive to the Computer Science department alone. No student has graduated from the AA in Computer Networking program so far.

**Table 2. Graduation Trends**

<table>
<thead>
<tr>
<th>CIS Graduates by Academic Year</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>AY</td>
<td>BS</td>
<td>AA</td>
</tr>
<tr>
<td>2002-2003</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>2003-2004</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>2004-2005</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>2005-2006</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>2006-2007</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>TOTAL</td>
<td>8</td>
<td>0</td>
</tr>
</tbody>
</table>

*Source: National Hispanic University, Registrar Office.*

**Direct Study**

In the lower division courses the number of students who enrolled as Direct Study (DS) was 6 and the number enrolled in regular classes was 786; this represents only 0.76%. However, in the upper division courses 17 students enrolled as Direct Study and 141 enrolled in regular classes resulting in 10.76%. See Table 3.

**Table 3. Direct Study**

<table>
<thead>
<tr>
<th>Lower Division Courses</th>
<th>Upper Division Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Course Number</strong></td>
<td><strong>Regular Class</strong></td>
</tr>
<tr>
<td>CS100</td>
<td>293</td>
</tr>
<tr>
<td>CS101</td>
<td>40</td>
</tr>
<tr>
<td>CS103</td>
<td>267</td>
</tr>
<tr>
<td>CS105</td>
<td>38</td>
</tr>
<tr>
<td>CS106</td>
<td>16</td>
</tr>
<tr>
<td>CS107</td>
<td>34</td>
</tr>
<tr>
<td>CS110</td>
<td>29</td>
</tr>
<tr>
<td>CS130</td>
<td>27</td>
</tr>
<tr>
<td>CS150</td>
<td>18</td>
</tr>
<tr>
<td>CS212</td>
<td>22</td>
</tr>
<tr>
<td>CS220</td>
<td>2</td>
</tr>
<tr>
<td>TOTAL</td>
<td>786</td>
</tr>
</tbody>
</table>

*Source: National Hispanic University, Registrar Office.*
CS 460 and CS 470 were the two classes with most DS enrollment. Since these are upper division courses the regular enrollment did not justify its regular offering and since students needed this class to graduate the only choice was for them to take these courses as DS. We feel that this can be prevented if we establish articulation agreements with other universities so students can take classes there and earn NHU credit.

**Significant Program Changes since Last Review**

There have been many significant changes. In the area of General Education the number of units has increased from 27 to 49 and. This change is in alignment with the articulation agreement with San Jose State University. See Table 4.

**Table 4. Comparison between the GE and Support areas from last review (2003) and the Current BS CIS Program**

<table>
<thead>
<tr>
<th>BS CIS Program from last review (2003)</th>
<th>Current BS CIS Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>GENERAL EDUCATION (27 Units)</td>
<td>GENERAL EDUCATION (49 Units)</td>
</tr>
<tr>
<td>AREA A: Basic Skills (9 Units)</td>
<td>AREA A: Communication In The English Language and Critical Thinking (9 Units)</td>
</tr>
<tr>
<td>SPC 100: Introduction to Speech</td>
<td>SPC 100: Public Speaking</td>
</tr>
<tr>
<td>ENG 100: English Comp and Reading</td>
<td>ENG 100: English Composition and Reading</td>
</tr>
<tr>
<td>PHL 200: Introduction to Logic</td>
<td>ENG 201: Critical Thinking, Reading, and Writing Across the Curriculum or PHL 200: Introduction to Logic</td>
</tr>
<tr>
<td>AREA B: Science and mathematical Concepts (3 Units)</td>
<td>AREA B: Physical Universe and Its Life Forms (10 Units)</td>
</tr>
<tr>
<td>MAT 100: College Algebra</td>
<td>GEO 200: Physical Geography</td>
</tr>
<tr>
<td></td>
<td>BIO 100: General Biology</td>
</tr>
<tr>
<td></td>
<td>MAT 100: College Algebra</td>
</tr>
<tr>
<td>AREA C: Humanities &amp; Arts (6 Units)</td>
<td>AREA C: Arts, Literature, Philosophy, and Foreign Languages (9 Units)</td>
</tr>
<tr>
<td>ART 100: Art Appreciation</td>
<td>ART 100: Art Appreciation</td>
</tr>
<tr>
<td>ENG 201: English Comp and Res Paper</td>
<td>PHL 100: Introduction to Philosophy</td>
</tr>
<tr>
<td></td>
<td>ENG 250: Contemporary Multicultural Literature</td>
</tr>
</tbody>
</table>
AREA D: Social Science (6 Units)  |  AREA D: Social, Political and Economic Institutions and Behavior (9 Units)
---|---
HIS 100: U.S. History and Government I  |  ANT 100: Introduction to Anthropology or PSY 100: Introduction to Psychology
HIS 201: U.S. History and Government II  |  HIS 100: U.S. History I
  |  HIS 201: U.S. History II

AREA E: Human Understanding and Development (3 Units)  |  AREA E: Lifelong Understanding and Self Development (3 Units)
---|---
ETH 134: Hispanic Culture  |  ANT 125: Chicano/Latino Culture or UNI 100: First-Year Seminar

Upper Division Requirements (9 Units)
---
ENG 300: Advanced Writing Skills
ENG 301: World Literature or PHL 300: Personal, Professional, and Social Ethics
HIS 414: World History I or SPC 300: Argumentation and Advocacy of World Issues

In the Core area, the number of units has been reduced from 13 to 10. In the Business courses the number of units remain the same; however, one lower division course (BUS 168) is now an upper division one (BUS 368). By the same token, one upper division course (BUS 360) is now a lower division one (BUS 260). Finally, two business courses (BUS 281 and BUS 340) have been replaced by BUS 325 and BUS 351) as depicted in Table 5.

Table 5. Comparison between the Core and Business areas from last review (2003) and the Current BS CIS Program

<table>
<thead>
<tr>
<th>BS CIS Program from last review (2003)</th>
<th>Current BS CIS Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Courses: (13 units)</td>
<td>Core Courses: 10 units</td>
</tr>
<tr>
<td>ENG 300: Advanced Writing Skills</td>
<td>SPA 100: Elementary Spanish I or SPA 230: Spanish for the Spanish Speaker</td>
</tr>
<tr>
<td>SPA 100: Elementary Spanish I, or SPA 230: Spanish for the Spanish Speaker</td>
<td>CS 100: Introduction to Computers</td>
</tr>
<tr>
<td>CS 100: Introduction to Computers</td>
<td>CS 103: Advanced Computer Applications</td>
</tr>
<tr>
<td>CS 101: Information Competency</td>
<td>INF 100: Information Competency</td>
</tr>
<tr>
<td>CS 103: Advanced Computer Applications</td>
<td></td>
</tr>
</tbody>
</table>
Business Courses: (18 units) Business Courses: (18 units)

| BUS 101: Introduction to Business | BUS 101: Introduction to Business |
| BUS 168: Project Management       | BUS 240: General Accounting Principles |
| BUS 240: General Accounting Principles | BUS 260: Business Statistics |
| BUS 281: Management and Org Behavior | BUS 325: Business Communications |
| BUS 340: Management Accounting    | BUS 351: Business Ethics |
| BUS 360: Business Statistics      | BUS 368: Project Management |

In the BS CIS major courses, the number of units of CIS Lower Division (LD) has doubled from 12 to 24 to accommodate the AS in Computer Networking. Two upper division courses (UD), CS 310 and CS 312, were changed from UD to LD, CS 110 and CS 212 respectively. In addition, two new courses were added, CS 107 and CS 130. The main reason was that students enrolled in the AS program can then transfer to the BS program and take the upper division courses and obtain their BS in CIS. Also, some course titles were changed according to the external review input from the last review in 2003. See Table 6.

In the UD courses the number of units was reduced from 42 to 27. Two of these UD division courses were moved to LD, CS 310 and CS 312; three courses were renamed, CS 322, CS 332 and CS 360; and two courses were removed, CS 306 and CS 308.

Table 6. Comparison between the Major courses from last review (2003) and the Current BS CIS Program

<table>
<thead>
<tr>
<th>BS CIS Program from last review (2003)</th>
<th>Current BS CIS Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS Lower Division Courses (12 units)</td>
<td>CIS Lower Division Courses (24 units)</td>
</tr>
<tr>
<td>CS 101: Computer Programming I</td>
<td>CS 101: Introduction to Programming</td>
</tr>
<tr>
<td>CS 105: Computer Programming II</td>
<td>CS 105: Object-Oriented Programming I</td>
</tr>
<tr>
<td>CS 106: Computer Programming III</td>
<td>CS 106: Object-Oriented Programming II</td>
</tr>
<tr>
<td>CS 150: Elem Alg and Data Structures</td>
<td>CS 107: Personal Computer Systems</td>
</tr>
<tr>
<td></td>
<td>CS 110: Data Communications and Networking</td>
</tr>
<tr>
<td></td>
<td>CS 130: Network Operating Systems</td>
</tr>
<tr>
<td></td>
<td>CS 150: Elementary Algorithms and Data Structures</td>
</tr>
<tr>
<td></td>
<td>CS 212: Internet Protocols</td>
</tr>
</tbody>
</table>
### CIS Upper Division Courses (42 units)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 300</td>
<td>Introduction to Internet/Telecomm</td>
</tr>
<tr>
<td>CS 306</td>
<td>Computer Organization</td>
</tr>
<tr>
<td>CS 308</td>
<td>Operating Systems</td>
</tr>
<tr>
<td>CS 310</td>
<td>Data Comm and Networking</td>
</tr>
<tr>
<td>CS 312</td>
<td>Internet Protocols</td>
</tr>
<tr>
<td>CS 322</td>
<td>Workstation Administration</td>
</tr>
<tr>
<td>CS 330</td>
<td>Database Management Systems</td>
</tr>
<tr>
<td>CS 332</td>
<td>System Administration</td>
</tr>
<tr>
<td>CS 340</td>
<td>Advanced Networking</td>
</tr>
<tr>
<td>CS 360</td>
<td>Structured Systems Development</td>
</tr>
<tr>
<td>CS 380</td>
<td>Graphical Programming</td>
</tr>
<tr>
<td>CS 460</td>
<td>Management of Inf Systems</td>
</tr>
<tr>
<td>CS 470</td>
<td>R/3 Inf Syst Analysis and Design</td>
</tr>
<tr>
<td>CS 490A</td>
<td>Comp Inf Syst Internship, or</td>
</tr>
<tr>
<td>CS 490B</td>
<td>Comp Inf Syst Senior Project</td>
</tr>
</tbody>
</table>

### CIS Upper Division Courses (27 units)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 300</td>
<td>Introduction to Internet/Telecommunications</td>
</tr>
<tr>
<td>CS 322</td>
<td>Client Administration</td>
</tr>
<tr>
<td>CS 330</td>
<td>Database Management Systems</td>
</tr>
<tr>
<td>CS 332</td>
<td>Server Administration</td>
</tr>
<tr>
<td>CS 340</td>
<td>Advanced Networking</td>
</tr>
<tr>
<td>CS 360</td>
<td>Object-Oriented Analysis and Design</td>
</tr>
<tr>
<td>CS 380</td>
<td>Graphical Programming</td>
</tr>
<tr>
<td>CS 460</td>
<td>Management of Information Systems</td>
</tr>
<tr>
<td>CS 490A</td>
<td>CIS Internship, or</td>
</tr>
<tr>
<td>CS 490B</td>
<td>CIS Senior Project</td>
</tr>
</tbody>
</table>

### Realignment of Computer Science Program Courses

Realignment of Computer Science Program Courses to conform to UC and CSU upper and lower division classifications: Except for General Education courses that are in alignment with San Jose State University, there has been no action in regard to aligning the upper and lower division computer science courses with the UC and CSU. However, by looking at the list of courses for the BS CIS program there are few courses that can be transferable to the UC and CSU. After this review, the next step will be to update the curriculum based on the external review committee recommendations. At this stage every effort will be made so that the majority of courses offered can be transferable to the UC and CSU system.

**The establishment of Computer Science Program Electives:** Beginning in the academic year 2003, and as a recommendation from the external review committee students can take up to six upper division units. For example, courses CS 340 and CS 460 can be substituted for upper division courses offered at 4-year institutions such as Database Management Systems, Database Design, Networked Databases, Web Design & Programming, Middleware, Multimedia, IT Security, e-Commerce, Computer Graphics and Visualization, High-Performance Computer Architecture, Artificial Intelligence, Applied Logic, Relational database systems, Information resource management and data administration, Database design and administration, Visual programming, Macroeconomics, Business Statistics, and other topics of interest with prior approval from the department coordinator. This modification could be the foundation for the
inclusion of minors or program specific concentrations in the future such as the one mentioned above.

**Associate of Science in Computer Networking**

This AS in Computer Networking never began due to lack of student enrollment and the lack of support to effectively develop this program.

Professor and current chair of the department Michael Mooney has had reservations from the beginning about making the university into a vocational school. He has regarded the networking A.S. and the certifications that are supposed to go along with it as vocational rather than academic. He has not pursued re-engagement with Cisco or looked at other certifications as a way of increasing the number of students and the amount of revenue brought in by the department. We are interested in what the external review committee recommends about the offering or not of the A.S. in Computer Networking.

**Faculty and Staffing**

As already mentioned, NHU is a small university where department chairs and faculty play a crucial role in teaching and advising as well as in administration and governance. Adjunct faculty from industry and academia are hired to teach courses and to advise during any absence or overload of scheduling.

Currently, the computer science department has no full-time faculty and four adjuncts which makes it very difficult to provide stability to the department. In the last five years, the department has had six department chairs and given the increase in students’ enrollment it is imperative that we hire at least one full-time computer science faculty. The adjunct faculty that has consistently taught at NHU for at least three years is Prof. Prameet S. Chhabra, Prof. Carlos Alvarado and Dr. Julio R. Garcia. Prof. Norma Avila is new with less than one year teaching at NHU.

2. **Provide a summary of the recommendations from the previous program review and the program responses to those recommendations.**

**The Formal Program Review of Spring 2003**

The Computer Science Program had its last formal program review cycle in Spring 2003 and the coordinator was Dr. Josephine Hawkins. The External Reviewer team provided valuable input to redefine the curriculum that has been in place since 2003. Now with this review it is expected that there will be substantial changes given the advances in technology and the global market place. We welcome these changes because National Hispanic University’s commitment is to remain current to prepare students to meet industry needs.

The following section will address the recommendations from the 2003 Review Team and the actions taken.
Recommendations from External Review Team Spring 2003 and actions taken

1. **The Department needs an advisory board to get helped and further recommendations.**

   Unfortunately this recommendation was not carried out because the department has had six department chairs. The two full-time department chairs from 2003 to 2005 were chairs when NHU did not have the current computer labs, and the other four department chairs were dividing their time in other administrative tasks. We strongly agree that an advisory board can provide guidance in updating the curriculum, assistance with donations and internships, and will help make the program stable and stronger. Given the support to hire at least one full-time CS faculty would give the Computer Science program its advisory board as it did from 1998 to 2000.

2. **At least one new full time member is needed to handle the language component of the Department. The other component, networking, will grow with the networking certificate program.**

   This recommendation was not implementing either for the reasons mentioned above. However, it is necessary to indicate that under the leadership of one of the full-time department chairs the AS in Computer Networking was created with the assistance of Cisco.

3. **New math courses should be introduced to CIS students to prepare for CIS graduates to go to graduate schools in MBA for example, Finite Math 1 and Finite Math 2. (Use MATH SJSU model) or add Calculus II since the CIS already has MAT 130 (should change the title to Calculus I).**

   This recommendation was discussed with the Coordinators from the other programs because it would affect the GE curriculum at NHU. It was determined that these math courses were not possible to be included in the GE curriculum so we included these courses as Support courses but at the end they were not implemented. However, the creation of the Math/Science department was seen as the solution to address this recommendation. In addition, it is expected that with the Math/science department, NHU students will be exposed to these math/science courses and will be good candidates for the computer science program.

4. **CS100. Change “intro to the concepts” to “introduction to different components of a computer.”**

   This recommendation was implemented; this was a very minor change.
5. **The sequence CS 101, CS 105, CS 106 should be changed to Introduction, Intermediate and Advanced programming courses with Visual Basic, Java and C++ correspondingly.**

   We felt that our present structure was satisfactory because our CIS students have the opportunity to learn three computer languages. In addition, students can take more than one computer language concurrently.

6. **Drop the CS306 course in CIS. The CIS students don’t need a low detailed level programming course.**

   This recommendation was implemented. CIS faculty agreed.

7. **The contents of CS 308 Operating Systems should be rewritten to emphasize more concepts. (Use CPC SE320 model).**

   This recommendation was implemented. This course was also changed to a 200 level course.

8. **The contents of CS310 should include routers, internetworking devices.**

   The content of this course covers routers and internetworking devices. We needed to mention this in the course description.

9. **CS312 needs to emphasize on IP addressing**

   This recommendation was implemented.

10. **CS322 and CS332 should be reorganized into a client course and a server course.**

    This recommendation was implemented.

11. **CS340 needs a lab.**

    This recommendation was implemented.

12. **CS360 should change into Object Oriented Analysis and Design. Here the language is Java or C++. At SJSU, the CS Department uses Java. At CPC, the SE Department uses Java and C++ in this course.**

    This recommendation was implemented but with some changes.

13. **The Department should provide one of the CASE tools such as VIEW for CS 380.**

    This recommendation was implemented. This class will use LabVIEW (G programming).
14. **CS460 is the capstone course for CIS students.**

   This recommendation was implemented. This course cannot be substituted.

15. **CS490A and CS490B are service learning courses.**

   This recommendation was implemented.

**Individual or Small Study Group**

The NHU encourages Study Groups - students who work together in groups help and encourage each other, work harder, develop teamwork skills and obtain better grades.

Self-paced computer software is available to improve skills in English reading comprehension, grammar, and mathematics.

**Tutoring**

The SAAC tutorial program is designed to assist students with their academic challenges. The program emphasizes faculty interaction and academic support. Tutors provide assistance in mathematics, reading, writing and study skills to help students develop the necessary skill level to ensure success in college. The role of the SAAC tutor is to guide students in the development of their academic potential and motivate students to become self-directed learners. Furthermore, the SAAC tutorials are incorporated into the curriculum in English 40, English 45, and English 100 as well as Math 45 and Math 100 in order to provide students with one-on-one support and feedback catered to their individual needs. This extra tutorial will prepare them for the more rigorous upper division courses. It is offered to all enrolled students free of charge.

2. **How effectively does this program utilize its existing resources? What are the major resources issues affecting the department now and into the next 5 years?**

**Existing Resources**

The Computer Science Program does not currently meet most of its responsibilities with the existing resources. Students do not have hands-on experiences and this is a limitation that we need to address soon. Our budget is centralized and any purchasing is conducted through the Provost’s office in collaboration with the Finance Department. Currently, no separate allocation or budget line for the individual departments exist at NHU.

The department does not have a full-time clerical support staff for its operations. The department must share the following support staff with Liberal Studies, Business, Science and Math,
Translation and Interpretation, two part-time student employees, one full-time clerical support staff, and one administrative operations officer in charge of scheduling and serving as faculty liaison.

The Department Chair and the adjunct faculty are primarily responsible for their own clerical support. A department chair has significant professional responsibilities such as scheduling the courses, advising, and overseeing the curriculum and instruction in the department. To require the chair to spend so much time with clerical duties undermines the ability to invest the necessary time required as the curriculum and instructional leader for the department. NHU primarily has a paper system in handling vital university documents. No electronic registration system exists at NHU and any add-drops forms, Directed Studies (individual studies) forms, course credit through challenge exam forms, etc. involve the department chair handling, securing signatures, and actually delivering documents to the registrar’s office. This places an undue burden on the department chair. It is an inappropriate use of scarce time that ought to be spent on faculty and curriculum evaluation and development. We have suggested that administration budget appropriately for an integrated computer system; doing so will address several of these issues. In addition, the need for mass communication has been recommended to allow every student an email account.

More full-time faculty and adjunct faculty will be needed to address increased student enrollments at each departmental level. More staff and administrative support will be needed to accommodate the increase in students and staff. Space is also an issue to accommodate the increase in new faculty and staff.

Further, NHU classroom space has been analyzed and it has been determined that through better scheduling (adding more afternoon classes and offering Friday and Saturday classes) our existing facility of 18 classrooms, 2 science labs, and 3 computer labs is probably sufficient for the increased enrollments.

Due to the dynamic changes at NHU, these issues will be part of the tactical planning of the Computer Science Department and the University.

**Academic Quality**

1. **Describe how the program has improved within the last five years, using evidence to support these conclusions.**

The Computer Science faculty believes that the program has significantly improved within the last five years with the creation of the AS in Computer Networking program which we agree needs some attention and revision of its curriculum. The number of students has increased by 48% from 25 students to 37 in the last five years. Moreover, the department has obtained four grants and its BS CIS curriculum has improved. Please refer to Program History, Item 1 for detailed discussion about changes in curriculum since the last Program Review in 2003.
Grants

The CS department has secured four grants for a total of $947,736. The grants are as follows:

1. HP Grant – 21 Tablet PCs and $19,500 in cash for 2 years for a total of about $68,000 – started June 21, 2007.
2. CSEMS grant from NSF - $ 132,000 for 3 years (total $396,000) - started July 27, 2004. This grant provided scholarships to the documented students in Computer Science.
3. NSA grant - $ 100,000 for 1 year- started June 21, 2004
4. MSEIP grant from the Department of Education - $ 383,736 total for 3 years- started October 1, 2003. This grant from the Minority Science and Engineering Improvement Program paid for the work that led to the creation of the math and science department. (The two things were handled at the same time in the curriculum committee and the faculty senate.)
5. Though it was not a grant of money, many of the computers we have used over the last few years have been given to us by the Students Recycling Used Technology program that has been managed by people at Mission College and that was funded initially by Intel.

2. Describe new directions in curriculum, resources, research, reorganization, staffing, or student clientele planned for the next few years and aimed at strengthening the program.

Some computer science faculty has begun using technology in the classroom thanks to a grant funded by HP last year. This grant consisted of 20 Tablet PCs for students’ use and one Tablet PC for the PI. Faculty has started putting their teaching materials on the Internet so students can access them and study at their own pace. This is allowing students who have work conflict schedules to continue their studies, communicate with the instructor via email or use software such as Yugma desktop sharing that allows the instructor share his/her Tablet PC screen with students in real time even when students and the instructor are not physically in the same room. Faculty will continue applying for research and equipment grants and will start presenting papers at professional organizations teaming up with faculty from other departments to establish solid collegiality and communication; develop a pipeline by establishing articulation agreements with community colleges to increase the transfer of students from the CIS programs to BS CIS at NHU. The type of students we expect in the next few years will be transfer students from CCs and working professionals wanting to upgrade their skills so in this case we plan to create a Professional development program to address the needs of working professionals in the area of computer science.

Resources

Computer labs: At present, Computer Science has one dedicated computer lab for CS students and one general computer lab for all NHU students who take the two required computer classes CS 100 “Introduction to Computers” and CS 103 “Advanced Computer Applications.” In addition, there is a third computer lab which is shared with the science department and there are
20 Tablet PCs as explained before. The dedicated computer lab needs to upgrade their PC equipment to teach current concepts in computer networking.

**Staffing:** As was mentioned before, the CS department needs a full-time CS faculty. Adjunct faculty is hired to teach the courses offered in each module. Adjunct faculty comes from industry and academia that are working or teaching in their fields.

**Reorganization**
Presently there are no strategic plans to reorganize the Computer Science Department.

**Research**
NHU does not have a policy regarding sabbatical opportunities for full-time faculty. Also, at present, there is no research support program available to NHU faculty. There has been support on an ad hoc basis for individual faculty. Given the tasks of helping to build a university through governance and committee work, faculty responsibilities in teaching and advising at-risk and high-risk student, participation in outreach and retention efforts, a research program or research expectations for full-time faculty is probably not realistic. Ideally, NHU administration should be committed to supporting faculty development as they seek to enhance their knowledge and skills in their discipline or as teachers. To demonstrate this commitment a faculty sabbatical program should be established that guarantees after six years of continuous service as a full-time, deserving NHU faculty member would be granted the sabbatical recipient one entire semester off, with full pay, to engage in their development plan. The guidelines and process would need to be worked out in conjunction with the Senate and the NHU Administration.

An adjunct faculty is currently the PI of a NHU grant funded by HP.

**Student Clientele**
The National Hispanic University was founded by President Roberto Cruz on the premise that existing higher education institutions have not adequately served the Mexican American/Latino community. These institutions have not been sufficiently dedicated in their service to at-risk and high-risk Latino students. Within the next five years there is no reason to project any significant differences in the academic profile of our overwhelmingly Latino student demographic. NHU students are likely to continue to come from the Eastside of San Jose, and the greater Santa Clara County area.

There will continue to be evening students that are older, working full-time during the day, and have significant family responsibilities. Many of these students tend to come from families that are lower-income, immigrant, ELL, and have a non-college prep high school background. These students have demonstrated high motivation and a willingness to work hard to succeed academically, despite many obstacles.

NHU is in the process of examining and planning for how it can best serve a new group of students that are recent high school graduates, non-college prep, lower-income, immigrant, and are English Language Learners (ELL). We are discovering that these traditional age college students are often expected to provide major financial support to their families and more often
than not work at least full-time. An issue of concern to all undergraduate advisors is low motivation and a lack of understanding of the habits and time management skills necessary to succeed at the college level. We are currently reviewing and adjusting our institutional capacity to more effectively serve the traditional age at-risk Latino students.

3. Discuss the use of the various modes of instruction utilized in the program such as lectures, group projects, cooperative learning, field or laboratory work, etc. Describe any innovative pedagogical approaches such as service learning, online courses, and internships. Indicate the resource issues involved in supporting these activities.

NHU instructors use a variety of instructional modes in their courses. Although the lecture mode is seen as important, NHU, because of its small class size and “familia” climate has developed a student culture and a set of student expectations where there is a significant amount of group projects, oral presentations, and cooperative learning in instruction. Conversations with junior and senior-level computer science students demonstrate this. These students are experienced at working with each other on a variety of group projects and cooperative learning assignments. There is an additional level of synergy that our students experience in group projects given their “history” with each other, in their shared coursework, and the institution. Please refer to Appendix A to see the courses outlines for further evidence of modes of instruction.

Some CS faculty has begun thinking about offering online courses; however, since the majority of our students cannot afford a laptop this is a barrier for the moment. However, given the trend in online courses offered at other universities there will be a time that we would offer online classes. As mentioned above, thanks to an HP grant the PI was able to teach a class in mixed mode, students came to school half of the time and the other half was online alternatively. In this class CS 360 “Object-Oriented Analysis and Design,” offered last fall 2007, students were given a Tablet PC each and students indicated that they improved their learning with this methodology. Other faculty uses the Tablet PCs in the classroom with encouraging results. Finally, a science faculty is teaching a class in the traditional way without the use of the Tablet PC; then in the next module he will teach the same class using the Tablet PC to determine the effectiveness of the Tablet PC in students’ learning.

At this juncture, the majority of computer science courses are taught in the traditional classroom environment with lecture, group projects, cooperative learning, and direct faculty-student contact. Certainly any faculty with the skills and interest can enhance the on-ground instructional experience with an online course management system that would allow better communication and possibilities for online learning tools such as threaded discussions or a chat room. Several faculty members have developed their own websites and make available to the students an opportunity to download certain course assignments.

Currently, NHU does not provide students with an email account, but the Academic Planning Council has suggested this tool as necessary for mass communication to our student body and soon this should become available.

Computer science students need to do an internship or do a research project to graduate from the BS CIS program. This is specifically indicated in the curriculum; please see Program Mission, Goals and Objectives, Item 1.
4. Describe the quality and quantity of library resources that support the program. Identify needs to be met in the next five years.

There has been a dramatic improvement in the facilities and the collections since the last External Reviewers visit in 2003. The library was housed in an elementary school classroom and the holdings were minimal. Today, NHU enjoys an 8,000 square foot library with a significantly improved collection. The library collection has room for considerable improvement and has been very well led by our former Librarians, Rory Litwin, Frederic Rauber, and our current Librarian, Mary Manning.

The computer science department chair and/or faculty will meet with the Librarian during the academic school year to review and make recommendations about the holdings.

Library Computer Science Resources

The NHU library no longer has any print periodical subscriptions except free magazines. The library purchases fewer than 200 books a year. Donations in computer science are almost always so out of date that they do not add them.

The lack of a permanent full-time faculty person or chair for computer science and the relatively small number of students in the program has probably always made this field a low priority for library acquisitions.

Our current holdings are:

350 books, 100 of which are Cisco textbooks from the CCNA course. The majority were published in the 1990’s through early 2000’s. We have another 250 mathematics books, which may also be relevant. One standard measure is the ratio of books to students; this is 10 books per student. Most majors require 100 books per student.

There are no current subscriptions to print journals. We do have close to a full run of Wired.

There is access to 250 electronic journal titles under the subject “Computer Science.” These are full text databases. However, this includes journals such as Computer Music Journal and others that may be not directly useful to our curriculum. Electronic journal resources are available from home with a password.

Electronic books in computer science number 211 as of today. These are quite recent (past 6 years) and range from the popular … Demystified series to academic conference proceedings. Unfortunately, these are not available remotely, so must be accessed on campus. Prints or emails of specific pages may be made.

The NHU library does not collect CD’s, videos, or software in this field.

Please note this data was supplied by our Librarian, Mary Manning.
In the next five years the computer science faculty expects that the number of workstations at the library will increase and that it will have the software that computer science students need to do their research and assignments. So far the number of workstations for the number of computer science students is enough although the needed software is not installed.

5. **Provide a brief description of the program's advisement process and identify procedures used to assess and improve it.**

Computer Science’ advisement is done by the department chair that monitors all of our students’ registration activities. Students also meet with the department chair to discuss adding and dropping classes. All forms including change of majors, add/drop, registration, self-directed requires discussion and signatures of approval.

As recent as spring 2005, we have devised an academic intervention tool which is the Midterm Report. This report is completed by each instructor specifically indicating those students with a C- or lower. The department chair has been contacting those students with deficiencies to discuss their academic progress and offer suggestions for improvement.

6. **Describe the present and planned use of technology to enhance instruction. What are the most serious technological needs of the program?**

Current technology includes the general computer lab and the dedicated computer lab, television for videos, LCD projectors and screens (limited number available), and portable computer labs. NHU has the licenses to use the latest Microsoft Office so we are teaching current computer skills to all NHU students. In the computer science classes, students use the dedicated computer lab, portable computer labs and the Tablet PCs as was explained above. The most serious technological needs of the program are that each CS students must have a laptop or a Tablet PC where they can keep their notes, do their assignments and email them to the instructor straight from their laptop, do Internet research, and for communication purposes to and from the instructor. Another barrier is that NHU students do not have an NHU email address.

7. **Describe the program’s assessment efforts, including plans, student assessment goals, major student learning outcomes, and utilization of assessment information.**

The computer science department has updated the program goals and objectives and the methods of instruction to ensure students’ learning. See the courses outlines in Appendix A. Computer Science faculty decided that every upper division course must have a research paper and an oral presentation so students can improve their written and oral communication skills, ethical and social responsibility, qualitative and quantitative reasoning and cultural awareness and appreciation.

Computer science faculty assesses students’ learning through weekly individual projects and some students are given in-class guidance in assignments. Most of the students make efforts to
complete their programming assignment and homework's. Extra tutoring will certainly help. Instructors talk to students individually and offer help. They always make time available to dedicate their attention to slow-learner students. The evaluation techniques that faculty uses to assign a grade are Lab work, homework, quizzes, midterm exam, final exam, oral presentation, teamwork, and individual and group projects.

The computer science faculty, under the leadership of the department chair, will need to work on the students’ assessment and the utilization of assessment information. It is expected that by the next cycle review this assessment will be implemented. To this end, faculty attended a workshop on assessment last month.

8. **Faculty profile: both full-time and adjunct**
   a. **Describe how new faculty members are mentored in teaching, advising, and working at the university.**

   One of the major advantages of a very small university is that it facilitates very close interaction among full-time faculty. Faculty members do not have separate offices, but cubicles. Faculty members are mostly housed on the east wing of the second floor of the building. The full-time faculty is very involved in the Senate and the various governance committees and this creates opportunities for them to learn about and participate in university life. The faculty in all programs offers assistance to new faculty members. All faculty use an electronic advisement system that allows them to update a student’s enrollment record during advisement and registration. The proximity allows new full-time faculty to immediately get help and feedback on how to use this system and the nuances of academic advisement. Any new faculty is afforded an opportunity to express views and provides feedback both to the more senior faculty and also to the university at large.

   The Computer Science department chair has frequent conversations with the adjunct faculty. A new adjunct faculty member has several meetings with the chair before their class begins. Support and mentoring continues as the courses progresses. Each new faculty has the continual support of the department through introduction of other faculty member who has always been generous to offer assistance as needed.

   b. **Describe how the program evaluates teaching effectiveness.**

   Student evaluations are carried out for all faculty members in every course. These evaluations are shared with the faculty. Discussions follow between the chair and the faculty regarding the evaluations of the strengths and weaknesses if necessary.

   The university has created a peer annual review evaluation document that is shared with the faculty member. The expectation is that all faculty, full time and part time are evaluated on an annual basis.

   c. **Describe plans for enhancing teaching effectiveness.**

   As described earlier, adjunct faculty teaches all the computer science courses at NHU. Some faculty that work at a large university attend workshops regularly where they learn how to
improve their teaching effectiveness. In addition, NHU conducts several faculty development workshops on an annual basis. In the Academic Planning Meetings discussions have determined that a yearly schedule needs to be developed with at least four workshops per year at NHU.

d. Describe the distribution of adjunct and full-time teaching in the program.

NHU heavily relies on adjuncts since the computer science program does not have any full-time faculty. The Computer Science Department has a number of core adjuncts that has served NHU and the students for several years. Among those are: Dr. Julio Garcia and Professor Carlos Alvarado. When it is necessary to hire a new adjunct or a current adjunct seeks to teach an additional course, the department chair reviews the CVs to ensure that the candidate has the appropriate academic background or professional background to deliver instruction. The department chair gives the current adjunct an opportunity to elaborate on their background, expertise and get a better sense what they can offer to the computer science students. The department chair also seeks recommendations from current faculty. Interviews are conducted and the chair makes the best choice based on the pool of candidates.

e. How are adjuncts identified, and how are their credentials evaluated?

The NHU Human Resources Director, Imelda Gonzalez, sends out announcements concerning specific areas of need the computer science Department to the Northern California’s Higher Education Recruitment Consortium website that has a link to the Liberal Studies Department’s section of the HR website. (http://www.nhu.edu/hr/employment/lsadjunct.htm)

Applicants address their resumes to the department chairs and the faculty liaison. It is the department chair’s responsibility to carefully review the job applicant and his/her credentials and make the decision regarding the actual hire. Applicants that are offered positions send their officials transcripts and three letters of recommendations to the HR director for review. Applicants that are hired are also required to meet with the HR Director.

f. Attach faculty CV (Appendix B)

Observations from the Current Department Chair

Here are the observations from the current department chair Professor Michael Mooney. His observations regarding the computer science department are gathered from managing the CS department for the past six months coupled with ten years of working with it with the Provost, other department chairs, and the faculty senate.

1. Historically, the department has lacked leadership qualified to build to its natural capacity within the Latino community of Silicon Valley. Department chairs have been part time, undegreed, unfamiliar, and/or overcommitted. On several occasions during the past ten years, department leadership was handed over to administrators who were already leading other
departments, academic and administrative. I recommend hiring someone like Dr. Garcia, even if it means paying a differential salary, to lead this department as a full-time department chair.

2. The faculty is part time, and while they perform adequately in the classroom, they have little influence over the curriculum or general direction of the department or university, with the exception of Dr. Garcia. I believe there is opportunity to engage them, but that would require dedicated leadership.

3. The curriculum is well focused and unique due to the 18 business units embedded in the major. The CIS focus leads directly to a career. However, the specific CS curriculum is five to seven years old and needs revision. Also, much of the curriculum is unrealized because the department lacks the necessary equipment and software. In addition, more math is required for a degree in computer science.

4. The lab requirement for most of the CIS courses makes scheduling the classes difficult because they don’t fit in the 2.15 or 2.30 hour increments allowed for courses in the modular system. This may improve once the university switches to a standard semester, but the lab component should be addressed, regardless.

5. The equipment and software are insufficient for a four-year CIS degree.

6. The department currently has 37 students. Several students graduated last year and several more will graduate this year. They are generally well-educated and happy with their NHU experience, but they do mention their lack of “hands-on experience.” Our current students are well served, but wish the CIS classes had more students and equipment. Much of the value of their education comes from the GE and business courses they take while earning their degrees.

7. Advancement, fundraising, and recruitment suffer from the lack of a full-time department chair that is qualified to lead a university computer science department.
Appendix A – Courses Outlines BS Computer Information Systems
# THE NATIONAL HISPANIC UNIVERSITY

## COURSE OUTLINE

<table>
<thead>
<tr>
<th>Course Number:</th>
<th>CS100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course Title:</td>
<td>Introduction to Computers</td>
</tr>
<tr>
<td>Total Units (3):</td>
<td>Lecture (3) Lab ( ) Practicum ( )</td>
</tr>
<tr>
<td>Weighted Faculty Contact Hours:</td>
<td>Lecture 45 Lab _____ Practicum _____</td>
</tr>
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( x ) Degree ( ) Credential ( ) Certificate Program ( ) Continuing Education

( ) Liberal Studies ( ) Business ( x ) Computer Information Systems
( ) Teacher Education ( ) Translation and Interpretation Studies
( ) Specify nature of Continuing Education Program ____________

Department: ( ) Liberal Studies ( ) Business ( x ) Computer Information Systems ( ) Teacher Education

General Education ( ): GE Area: ___________

Subject: ________________

Catalog/Course Description:
Use of PC with current applications software to solve problems both personal and organizational. Includes introduction and history of computers and their applications, a general overview of how a computer system operates, and introduction to different components of a computer.

Prerequisite: None

Grading Policy: Letter Grade ( x ) Credit/No-Credit ( )

Repeatability Status: none

Methods of Instruction:

1. **Range of Class Activities**
   Includes stand-up lecture, Web-based content delivery, small-group discussions, in-class journal, text assignments, videos, oral presentation, and interactive individual/group activities.

2. **Writing Activities**
Most activities are primarily computational/non-computational problem solving.

3. Project Activities—may be designated by instructor

4. Lab Activities

Course Content:
1. Topics Covered
   - Essential Introduction to Computers. Personal computer application software packages. How to purchase, install and maintain a computer system.
   - Creating and editing a Word document. Formatting a Word document.
   - Using a Wizard to create a resume, a memo, and a cover letter with a table.
   - Create professional presentations using PowerPoint. Using outline view and clip art to create a slide show. Adding animation effects. Applying animation effects to bulleted lists. Animating clip art objects.

2. Course Objectives (Student Performance/Learning Objectives)
   Students who successfully complete this course will be able to:
   - Explain how a computer operates and how to select the proper hardware and software for specific application(s).
   - Use a word processing and presentation software to solve personal computer application-type problems related to education or business.
   - Write a research paper following specific guidelines as well as write a resume, a memo, a cover letter, etc.
   - Create a professional presentation including sound animation and transition effects.
   - Obtain a free email address and send emails with attachments.
• Create a Web formatted document with a word processor.

3. **Literacy Skills Objectives** –

4. **Methods of Evaluation and Assignments:**

   1. In-class participation 10%
   2. Assignments 40%
   3. Group presentation 10%
   4. Quizzes 10%
   5. Midterm 15%
   6. Final Exam 15%

5. **Nature of textbooks and readings**— The instructor will use the appropriate texts for this course, including any relevant supplementary publications. Readings, where appropriate, will incorporate multicultural and gender issues and perspectives.


**Materials Fees:** $15.00

**Laboratory or Instructional Equipment Needed:** Student PCs with Microsoft Windows 2000 and Office 2000, one printer, LCD projector, and a dedicated instructor’s desktop.

**NEW COURSE ( )**  **EXISTING COURSE ( x )**

**Date of last review:** November 25, 2003
### THE NATIONAL HISPANIC UNIVERSITY

#### COURSE OUTLINE

<table>
<thead>
<tr>
<th>Course Number:</th>
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</tr>
</thead>
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<tr>
<td>Course Title:</td>
<td>Introduction to Programming</td>
</tr>
<tr>
<td>Total Units (3):</td>
<td>Lecture (2) Lab (1) Practicum ( )</td>
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</table>
| Weighted Faculty Contact Hours: | 30  

( x ) Degree ( ) Credential ( ) Certificate Program ( ) Continuing Education  
( ) Liberal Studies ( ) Business ( x ) Computer Information Systems  
( ) Teacher Education ( ) Translation and Interpretation Studies  
( ) Specify nature of Continuing Education Program ________________

**Department:**  
( ) Liberal Studies ( ) Business ( x ) Computer Information Systems  
( ) Teacher Education

**General Education ( ):**  
GE Area: ___________

**Subject:** ________________

**Catalog/Course Description:**  
Creation of software components that interact with and control existing applications such as spreadsheets, word processors, and databases. A broad range of examples, case studies, and programming exercises gives students significant hands-on experience. Students learn a three-step process for building an application - creating the user interface, setting properties, and writing the code.

**Prerequisite:** CS 103

**Grading Policy:**  
Letter Grade ( x ) Credit/No-Credit ( )

**Repeatability Status:** none

**Methods of Instruction:**  
1. Range of Class Activities
Includes stand-up lecture, Web-based content delivery, small-group discussions, in-class journal, text assignments, videos, oral presentation, and interactive individual/group activities.
2. Writing Activities

Most activities are primarily computational/non-computational problem solving.

3. Project Activities—may be designated by instructor

5. Lab Activities
Students will write Visual Basic programs using the appropriate code and structure. They will produce flow charts and the code indicating their strategy for solving specific Visual Basic assignments.

Course Content:
1. Topics Covered
   - Introduction to Visual Basic Programming
   - Building an application
   - Working with Intrinsic Controls and Active X Controls
   - Multiple Forms, Dialogs, Debugging, and EXEs
   - Menus, Data Controls, Common Dialogs, and General Procedures
   - Drag and Drop Events and More Complex Code Structures
   - Database Management and Reporting Applications
   - Creating Active X Controls and Distributing Applications
   - Object Oriented Programming

2. Course Objectives (Student Performance/Learning Objectives)
   Students who successfully complete this course will be able to:
   - Explain application development, user interface design, and program development methodology.
   - Explain structured and object-oriented programming.
   - Identify and explain ActiveX Controls, Visual Basic wizards, and report generations.
   - Create the user interface, setting properties, and writing the code.
   - Apply the process to build an application in a graphical environment.
3. Literacy Skills Objectives –

4. Methods of Evaluation and Assignments:

   6. In-class participation               15%
   7. Assignments                          40%
   8. Group Presentation                  15%
   9. Quizzes                             10%
  10. Midterm                             10%
   6. Final Exam                          10%

5. Nature of textbooks and readings— The instructor will use the appropriate texts for this course, including any relevant supplementary publications. Readings, where appropriate, will incorporate multicultural and gender issues and perspectives.


Materials Fees: $15.00

Laboratory or Instructional Equipment Needed: Computer lab with at least one printer, LCD projector, and a dedicated instructor’s desktop. Workstations must have Visual Basic 6 installed.

NEW COURSE ( ) EXISTING COURSE ( x )

Date of last review: November 25, 2003
THE NATIONAL HISPANIC UNIVERSITY

COURSE OUTLINE

Course Number: CS103

Course Title: Advanced Computer Applications

Total Units (3): Lecture (3) Lab ( ) Practicum ( )

Lecture Lab          Practicum

Weighted Faculty Contact Hours: 45

( x ) Degree ( ) Credential ( ) Certificate Program ( ) Continuing Education
  ( ) Liberal Studies ( ) Business ( x ) Computer Information Systems
  ( ) Teacher Education ( ) Translation and Interpretation Studies
  ( ) Specify nature of Continuing Education Program _______________

Department:
  ( ) Liberal Studies ( ) Business ( x ) Computer Information Systems
  ( ) Teacher Education

General Education ( ): GE Area: _____________

Subject: ________________

Catalog/Course Description:
A study of the use and applications of productivity software and the Internet in business and public organizations. The course emphasizes the use of database software and spreadsheet software to plan, analyze, design, develop and test educational and/or business solutions.

Prerequisite: CS 100 or consent of instructor

Grading Policy: Letter Grade ( x ) Credit/No-Credit ( )

Repeatability Status: none

Methods of Instruction:
  1. Range of Class Activities
     Includes stand-up lecture, Web-based content delivery, small-group discussions, in-class journal, text assignments, videos, oral presentation, and interactive individual/group activities.
2. Writing Activities
Most activities are primarily computational/non-computational problem solving.

3. Project Activities—may be designated by instructor

6. Lab Activities

Course Content:
1. Topics Covered
   - Microsoft Excel 2000. Calculating a sum. Using the fill handle to copy a cell to adjacent cells. Formatting the Worksheet. Adding a 3-D column chart to the worksheet.
   - Entering titles and numbers into the worksheet. Entering Formulas. Using the AVERAGE, MAX and MIN functions. Verifying formulas.
   - Previewing and printing the worksheet. Displaying and printing the formulas version of the worksheet. Getting external data from a web source using a web query. E-mailing a workbook from within Excel.
   - Integrating Office 2000 applications and the WWW. Embedding an Excel Chart into a Word document.

2. Course Objectives (Student Performance/Learning Objectives)
Students who successfully complete this course will be able to:
   - Create dynamic charts within spreadsheets.
   - Create and analyze spreadsheets.
• Incorporate formulas and functions into spreadsheets.
• Analyze worksheet data by changing values.
• Perform Goal Seeking and IF analysis on spreadsheets.
• Create a relational database.
• Design a database to eliminate redundancy.
• Create Look-up and statistical queries.
• Create indexes within a database.
• Integrate Windows applications
• Import files and graphics from the Internet

3. Literacy Skills Objectives –

4. Methods of Evaluation and Assignments:
   11. In-class participation 15%
   12. Assignments 40%
   13. Group Presentation 15%
   14. Quizzes 10%
   15. Midterm 10%
   6. Final Exam 10%


Materials Fees: $15.00

Laboratory or Instructional Equipment Needed: Student PCs with Microsoft Office 2000, one printer, LCD projector, and a dedicated instructor’s desktop.

NEW COURSE ( ) EXISTING COURSE ( x )

Date of last review: November 25, 2003
THE NATIONAL HISPANIC UNIVERSITY

COURSE OUTLINE

Course Number: CS105

Course Title: Introduction to Object-Oriented Programming I

Total Units (3): Lecture (2) Lab (1) Practicum ( )

Weighted Faculty Contact Hours: Lecture 30 Lab 30 Practicum

( ) Degree ( ) Credential ( ) Certificate Program ( ) Continuing Education

( ) Liberal Studies ( ) Business ( ) Computer Information Systems

( ) Teacher Education ( ) Translation and Interpretation Studies

( ) Specify nature of Continuing Education Program

Department:

( ) Liberal Studies ( ) Business ( ) Computer Information Systems

( ) Teacher Education

General Education ( ): GE Area: ____________

Subject: __________________

Catalog/Course Description:
Translation of an informal problem specification into a class design and the implementation of that design in an object-oriented programming language. Software topics include maintainability, readability, testing documentation, and modularization. Topics include writing portable applications, compiling, execution, selection, repetition, parameter passing, and arrays. Students are expected to read, understand and debug existing code as well as develop new classes.

Prerequisite: CS 103

Grading Policy: Letter Grade (x) Credit/No-Credit ( )

Repeatability Status: none
Methods of Instruction:

1. **Range of Class Activities**
   Includes stand-up lecture, Web-based content delivery, small-group discussions, in-class journal, text assignments, videos, oral presentation, and interactive individual/group activities.

2. **Writing Activities**
   Most activities are primarily computational/non-computational problem solving.

3. **Project Activities**—may be designated by instructor

7. **Lab Activities**
   Students will write Java programs using the appropriate code and structure. They will produce flow charts and the code indicating their strategy for solving specific Java assignments.

Course Content:

1. **Topics Covered**

2. **Course Objectives (Student Performance/Learning Objectives)**
   Students who successfully complete this course will be able to:
   - Write, compile and execute Java programs.
   - Build robust applications using Java’s object-oriented features.
   - Create applications and applets using Java run-time class libraries.
• Develop platform-independent graphical user interfaces with AWT.

3. Literacy Skills Objectives –

4. Methods of Evaluation and Assignments:

   16. In-class participation  15%
   17. Assignments          40%
   18. Group Presentation   15%
   19. Quizzes             10%
   20. Midterm             10%
   6. Final Exam           10%

5. Nature of textbooks and readings—The instructor will use the appropriate texts for this course, including any relevant supplementary publications. Readings, where appropriate, will incorporate multicultural and gender issues and perspectives.


Materials Fees: $15.00

Laboratory or Instructional Equipment Needed: Computer lab with at least one printer, LCD projector, and a dedicated instructor’s desktop. Workstations must have Java installed.

NEW COURSE ( )    EXISTING COURSE ( x )

Date of last review: November 25, 2003
THE NATIONAL HISPANIC UNIVERSITY

COURSE OUTLINE

Course Number: CS106

Course Title: Object-Oriented Programming II

Total Units (3): Lecture (2) Lab (1) Practicum ( )

Weighted Faculty Contact Hours: Lecture 30 Lab 30 Practicum

(x) Degree ( ) Credential ( ) Certificate Program ( ) Continuing Education
   ( ) Liberal Studies ( ) Business (x) Computer Information Systems
   ( ) Teacher Education ( ) Translation and Interpretation Studies
   ( ) Specify nature of Continuing Education Program _______________

Department:
   ( ) Liberal Studies ( ) Business (x) Computer Information Systems
   ( ) Teacher Education

General Education ( ): GE Area: ____________

Subject: ______________

Catalog/Course Description:
Advanced programming techniques, problem solving, algorithms, and structured program design. Develop structured program design, control structures, arrays, functions, sorting, sequential, and random files.

Prerequisite: CS 103

Grading Policy: Letter Grade (x) Credit/No-Credit ( )

Repeatability Status: none

Methods of Instruction:
1. Range of Class Activities
   Includes stand-up lecture, Web-based content delivery, small-group discussions, in-class journal, text assignments, videos, oral presentation, and interactive individual/group activities.
2. **Writing Activities**
   Most activities are primarily computational/non-computational problem solving.

3. **Project Activities**—may be designated by instructor

8. **Lab Activities**
   Students will write C++ programs using the appropriate code and structure. They will produce flow charts and the code indicating their strategy for solving specific C++ assignments.

**Course Content:**

1. **Topics Covered**
   - Recursion and Efficient Searching and Sorting.

2. **Course Objectives (Student Performance/Learning Objectives)**

   Students who successfully complete this course will be able to:
   - Explain and manipulate control structures, arrays, functions, sorting, sequential, and random-access files.
   - Write solid event-driven C++ code.
   - Create stand-alone, multiform applications using C++.
   - Create an effective interface.
   - Access and modify a database.

3. **Literacy Skills Objectives** –

4. **Methods of Evaluation and Assignments:**

   21. In-class participation  
   22. Assignments  
   23. Group Projects  
   24. Quizzes  
   25. Midterm  
   6. Final Exam

<table>
<thead>
<tr>
<th>Activity</th>
<th>Percentage</th>
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<tr>
<td>In-class participation</td>
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<tr>
<td>Group Projects</td>
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<tr>
<td>Quizzes</td>
<td>10%</td>
</tr>
<tr>
<td>Midterm</td>
<td>10%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>10%</td>
</tr>
</tbody>
</table>
9. **Nature of textbooks and readings**— The instructor will use the appropriate texts for this course, including any relevant supplementary publications. Readings, where appropriate, will incorporate multicultural and gender issues and perspectives.


**Materials Fees:** $15.00

**Laboratory or Instructional Equipment Needed:** Computer lab with at least one printer, LCD projector, and a dedicated instructor’s desktop. Workstations must have C++ installed.

NEW COURSE ( ) EXISTING COURSE (x)

**Date of last review:** November 25, 2003
THE NATIONAL HISPANIC UNIVERSITY
COURSE OUTLINE TEMPLATE

Course Number: CS 107
Course Title: Personal Computer Systems

Total Units (3): Lecture (2) Lab (1) Practicum ( )

<table>
<thead>
<tr>
<th></th>
<th>Lecture</th>
<th>Lab</th>
<th>Practicum</th>
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(X) Degree ( ) Credential ( ) Certificate Program ( ) Continuing Education
( ) Liberal Studies ( ) Business (X) Computer Information Systems
( ) Teacher Education ( ) Translation and Interpretation Studies ( )
Specify nature of Continuing Education Program

Department:
( ) Liberal Studies ( ) Business (X) Computer Information Systems
( ) Teacher Education

General Education ( ):

Subject:

Catalog/Course Description: An in-depth exposure to computer hardware and operating systems. Students learn the functionality of hardware and software components as well as suggested best practices in maintenance, and safety issues. Through hands on activities and labs, students learn how to assemble and configure a computer, install operating systems and software, and troubleshoot hardware and software problems.

Prerequisite: CS 103

Grading Policy: Letter Grade (X) Credit/No-Credit ( ) Pass/Fail ( )

Repeatability Status:

Instruction Method:
1. Range of Class Activities--- Includes stand-up lecture, Web-based content delivery (online curriculum, e-labs, graphics, photo zooms, instructional videos, flash
demos/animations, drag-n-drop activities, assessments), small group discussions, in-class journal, text and hands-on lab assignments, videos, experiments, group projects.

2. **Writing Activities**--- Written Lab Assignments and completion of an Engineering Journal/Workbook. Most activities are primarily skill demonstration and computational/non-computational problem solving.

3. **Project Activities**--- May be designated by instructor

4. **Lab Activities**--- Hands-on lab assignments in the computer lab related to assembling and disassembling a personal computer, configuring a workstation for IP networking, testing and configuring network connections, and installing operating system software. Troubleshooting non-expected outcomes.

**Course Content:**

1. **Topics Covered**---
   - Computer systems and programs
   - Overview of software applications
   - Math for the Digital age (Boolean, decimal, binary, hexadecimal)
   - Laboratory Safety and Tools
   - Computer hardware components
   - Assembling a Computer
   - Operating System Fundamentals
   - Multimedia capabilities
   - Advanced hardware Fundamentals and Servers
   - Networking Fundamentals
   - Printers and Printing
   - Preventive Maintenance, Upgrading and Troubleshooting

2. **Course Objectives (Student Performance/Learning Objectives)**--- Upon completion of this course, students will be able to:
   - Build a computer including installation of the motherboard, floppy and hard drives, CD-ROM, and video cards.
   - Install and manage operating systems.
   - Add peripherals and multimedia capabilities to a personal computer
   - Identify and describe local-area network architecture, networking protocols and the OSI Model, and TCP/IP utilities.
   - Connect the computer to a local area network and to the Internet.
   - Identify and explain basic administrative tasks including maintenance and troubleshooting.
3. Literacy Skills Objectives—

4. Methods of Evaluation and Assignments—

26. In-class participation 10%
27. Engineering Journal and Workbook 10%
28. Lab Manual 20%
29. Group Assignments 10%
30. Written Quizzes and Exams 10%
31. Online Assignments/Assessments 40%

Particular emphasis is given to the use of decision-making and problem-solving techniques in applying science, mathematics, communication, and social studies concepts to solve networking problems.

5. Nature of textbooks and readings— The instructor will use the appropriate texts for this course, including any relevant supplementary publications. Readings, where appropriate, will incorporate multicultural and gender issues and perspectives. Example Text: Cisco Systems Networking Academy: IT Essentials I Companion Guide, 2003, Cisco Systems, Inc. (or latest version)

Materials Fees: $20

Laboratory or Instructional Equipment Needed:
- 12 Workstations
- Desktop and Operating System software
- 1 Server
- PC Repair/Laboratory Tools
- Cable, connectors, jacks and other various supplies

NEW COURSE (X) EXISTING COURSE ( )

Date of last review: November 26, 2003
# THE NATIONAL HISPANIC UNIVERSITY

## COURSE OUTLINE

<table>
<thead>
<tr>
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<th>CS110</th>
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<td>Course Title:</td>
<td>Data Communications and Networking</td>
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<tr>
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<tr>
<td>Lecture</td>
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<td>Lab</td>
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<td>Practicum</td>
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( x ) Degree ( ) Credential ( ) Certificate Program ( ) Continuing Education

( ) Liberal Studies ( ) Business ( x ) Computer Information Systems

( ) Teacher Education ( ) Translation and Interpretation Studies

( ) Specify nature of Continuing Education Program _______________

**Department:**

( ) Liberal Studies  ( ) Business  ( x ) Computer Information Systems

( ) Teacher Education

**General Education ( ):**

GE Area: _____________

**Subject:** ________________

**Catalog/Course Description:**

Networking concepts. Principles of LANs and WANs. Routers and internetworking devices. Set-up and use of several common LAN’s products, LAN management security, and LAN comparisons. Investigate, design, implement and present a LAN project which will solve a significant, complex and hopefully generalized problem, dealing with constrains and trade-offs in the solution.

**Prerequisite:** CS 103

**Grading Policy:** Letter Grade ( x ) Credit/No-Credit ( )

**Repeatability Status:** none

**Methods of Instruction:**

1. Range of Class Activities
Includes stand-up lecture, Web-based content delivery, small-group discussions, in-class journal, text assignments, videos, oral presentation, in-class participation and group activities.

2. Writing Activities
   Submit a research paper. Most activities are primarily computational/non-computational problem solving.

3. Project Activities—may be designated by instructor

10. Lab Activities

Course Content:
1. Topics Covered
   • Understanding Complex Networks. Network Administration and Support. Enterprise and Distributed Networks.
   • Wide-Area and Large Scale Networks. Solving Network Problems. Using the Resources of the Internet.

2. Course Objectives (Student Performance/Learning Objectives)
   Students who successfully complete this course will be able to:
   • Recognize and explain terminology related to the field of computer networks.
   • Identify and describe the different types of computer networks.
   • Identify and describe internetworking devices.
   • Explain the difference between a LAN, MAN, and a WAN
   • Explain how computer networks are used at home, education and industry.
   • Explain networking media, protocols and interfacing devices
   • Design a small LAN

3. Literacy Skills Objectives –
4. Methods of Evaluation and Assignments:

32. In-class participation 10%
33. Assignments 40%
34. Research Paper 10%
35. Group Presentation 10%
36. Quizzes 10%
37. Midterm 10%
7. Final Exam 10%

5. Nature of textbooks and readings—The instructor will use the appropriate texts for this course, including any relevant supplementary publications. Readings, where appropriate, will incorporate multicultural and gender issues and perspectives.


Materials Fees: $15.00

Laboratory or Instructional Equipment Needed: Computer lab with at least one printer, LCD projector, and a dedicated instructor’s desktop. Workstations must have access to the Internet and have installed Windows 2000 or Windows NT.

NEW COURSE ( ) EXISTING COURSE ( x )

Date of last review: November 26, 2003
THE NATIONAL HISPANIC UNIVERSITY

COURSE OUTLINE TEMPLATE

Course Number: CS 130
Course Title: Network Operating Systems

Total Units (3): Lecture (2)     Lab (1)     Practicum (  )
Lecture Lab      Practicum
Weighted Faculty Contact Hours: 30.00          30.00         00.00

( X ) Degree   (  ) Credential   (  ) Certificate Program   ( ) Continuing Education
     ( ) Liberal Studies   ( ) Business   (X) Computer Information Systems
     ( ) Teacher Education ( ) Translation and Interpretation Studies ( )
Specify nature of Continuing Education Program

Department:
     ( ) Liberal Studies   ( ) Business   (X) Computer Information Systems
     ( ) Teacher Education

General Education (  ):

Subject:

Catalog/Course Description: An intensive introduction to multi-user, multi-tasking network operating systems. Characteristics of current network operating systems will be discussed. Students will learn the configuration of network services, basic network security, installation procedures, back up procedures, remote access and troubleshooting. This course covers other fundamental networking basics including LAN and WAN topologies, Networking hardware placement and uses, and cabling standards.

Prerequisite: CS 107

Grading Policy: Letter Grade (X) Credit/No-Credit ( ) Pass/Fail ( )

Repeatability Status:

Instruction Method:
   1. Range of Class Activities--- Includes stand-up lecture, Web-based content delivery (online curriculum, e-labs, graphics, photo zooms, instructional videos, flash
demos/animations, drag-n-drop activities, assessments), small group discussions, in-class journal, text and hands-on lab assignments, videos, experiments, group projects.

2. **Writing Activities**--- Written Lab Assignments and completion of an Engineering Journal/Workbook. Most activities are primarily skill demonstration and computational/non-computational problem solving.

5. **Project Activities**--- May be designated by instructor

6. **Lab Activities**--- Hands-on lab assignments in the computer lab related to installing operating system software, and configuring a workstation for network services and for TCP/IP networking. Troubleshooting non-expected outcomes.

**Course Content:**

2. **Topics Covered**---

   - Operating System Fundamentals
   - Networking and Networking Standards
   - Physical Components of a Network
   - TCP/IP Networking
   - Network Services
   - Network Operating Systems
   - Installation Process and Boot Process
   - Advanced NOS Administration
   - Troubleshooting the Operating System
   - Network Security

6. **Course Objectives (Student Performance/Learning Objectives)**--- Upon completion of this course, students will be able to:

   - Configure network services, including basic network security and troubleshooting.
   - Configure a workstation for network services and for TCP/IP networking
   - Install operating system software
   - Use fundamental command-line features of the operating system including file system navigation, file permissions, the vi text editor, command shells, and basic network use.
   - Identify and describe GUI features including Applications Manager, Text Editor, printing, and mail.
   - Identify and execute basic administrative tasks.

7. **Literacy Skills Objectives**—
8. Methods of Evaluation and Assignments—

38. In-class participation 10%
39. Engineering Journal and Workbook 10%
40. Lab Manual 20%
41. Group Assignments 10%
42. Written Quizzes and Exams 10%
43. Online Assignments/Assessments 40%

Particular emphasis is given to the use of decision-making and problem-solving techniques in applying science, mathematics, communication, and social studies concepts to solve networking problems.

9. Nature of textbooks and readings— The instructor will use the appropriate texts for this course, including any relevant supplementary publications. Readings, where appropriate, will incorporate multicultural and gender issues and perspectives.

Materials Fees: $20

Laboratory or Instructional Equipment Needed:
- 12 Workstations
- Desktop and Operating System software
- 1 Server
- PC Repair/Laboratory Tools
- Cable, connectors, jacks and other various supplies

NEW COURSE (X) EXISTING COURSE ( )

Date of last review: November 25, 2003
THE NATIONAL HISPANIC UNIVERSITY

COURSE OUTLINE

Course Number: CS150

Course Title: Elementary Algorithms and Data Structures

Total Units (3): Lecture (2) Lab (1) Practicum ( )

Weighted Faculty Contact Hours: Lecture 30 Lab 30 Practicum

(x) Degree ( ) Credential ( ) Certificate Program ( ) Continuing Education
( ) Liberal Studies ( ) Business (x) Computer Information Systems
( ) Teacher Education ( ) Translation and Interpretation Studies
( ) Specify nature of Continuing Education Program ________________

Department:
( ) Liberal Studies ( ) Business (x) Computer Information Systems
( ) Teacher Education

General Education ( ): GE Area: _____________

Subject: ________________

Catalog/Course Description:
Introduction to the concepts and representation of basic data structures, including queues, stacks, trees, arrays, linked lists, strings and graphs. The course will cover data related algorithms that are common to the design and manipulation of compilers, databases and operating systems.

Prerequisite: CS 106

Grading Policy: Letter Grade (x) Credit/No-Credit ( )

Repeatability Status: none

Methods of Instruction:
1. Range of Class Activities
   Includes stand-up lecture, Web-based content delivery, small-group discussions, in-class journal, text assignments, videos, oral presentation, and interactive individual/group activities.
2. **Writing Activities**
   Most activities are primarily computational/non-computational problem solving.

3. **Project Activities**—may be designated by instructor

11. **Lab Activities**
   Students will write algorithms using the appropriate C++ code and structure. They will describe strategies to prevent various categories of software errors.

### Course Content:

1. **Topics Covered**
   - Course introduction and introduction to data structures.
   - Software engineering principles. Data design and implementation.
   - ADTs unsorted list and sorted list. ADTs Stack and Queue.
   - Binary search trees. Sorting and searching algorithms

2. **Course Objectives (Student Performance/Learning Objectives)**

   Students who successfully complete this course will be able to:
   - Apply elements of C++.
   - Identify and describe data structures such as stacks, linked lists and arrays.
   - Use stacks, linked lists and arrays in advanced programming projects.
   - Describe algorithms used in the design and manipulation of compilers, databases and operating systems

3. **Literacy Skills Objectives** –

4. **Methods of Evaluation and Assignments:**

   44. In-class participation  
   45. Assignments  
   46. Group Presentation  
   47. Quizzes  
   48. Midterm  
   6. Final Exam

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>In-class participation</td>
<td>15%</td>
</tr>
<tr>
<td>Assignments</td>
<td>40%</td>
</tr>
<tr>
<td>Group Presentation</td>
<td>15%</td>
</tr>
<tr>
<td>Quizzes</td>
<td>10%</td>
</tr>
<tr>
<td>Midterm</td>
<td>10%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>10%</td>
</tr>
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</table>
5. **Nature of textbooks and readings**— The instructor will use the appropriate texts for this course, including any relevant supplementary publications. Readings, where appropriate, will incorporate multicultural and gender issues and perspectives.


**Materials Fees:** $15.00

**Instructional Equipment Needed:** Computer lab with at least one printer, LCD projector, and a dedicated instructor’s desktop. Workstations must have C++ installed.

**Date:** November 17, 2003
THE NATIONAL HISPANIC UNIVERSITY

COURSE OUTLINE

Course Number: CS212

Course Title: Internet Protocols

Total Units (3): Lecture (2) Lab (1) Practicum (  )

Weighted Faculty Contact Hours: Lecture 30 Lab 30 Practicum _______

(x) Degree ( ) Credential ( ) Certificate Program ( ) Continuing Education

( ) Liberal Studies ( ) Business (x) Computer Information Systems

( ) Teacher Education ( ) Translation and Interpretation Studies

( ) Specify nature of Continuing Education Program _______________

Department:

( ) Liberal Studies ( ) Business (x) Computer Information Systems

( ) Teacher Education

General Education ( ): GE Area: _____________

Subject: ________________

Catalog/Course Description:
Routing protocols used on the Internet, and the real-world implementations of TCP/IP. IP addressing. TCP/IP architecture; Application Layer protocols and services; Transport Layer protocols; Internet Layer protocols; and Internet administration. Configuration of hosts and access to internetworks using TCP/IP protocols. FTP, TELNET, HTTP, NFS, Gopher, Netscape, WWW and others are covered.

Prerequisite: CS 110

Grading Policy: Letter Grade (x) Credit/No-Credit ( )

Repeatability Status: none
Instruction Method:

1. **Range of Class Activities**
   Includes stand-up lecture, Web-based content delivery, small-group discussions, in-class journal, text assignments, videos, oral presentation, and interactive individual/group activities.

2. **Writing Activities**
   Students will write a research paper and will present written reports of all laboratory assignments.

3. **Project Activities—may be designated by instructor**

12. **Lab Activities**
    Configure hosts and access internetworks using TCP/IP protocols. Troubleshoot TCP/IP networks using protocol analysis techniques. Use TCP/IP to locate the information and resources on the Internet.

Course Content:

1. **Topics Covered**
   - Introducing TCP/IP, IP Addressing, Subnetting, and Supernetting.

2. **Course Objectives (Student Performance/Learning Objectives)**
   Students who successfully complete this course will be able to:
   - Configure hosts and access internetworks using TCP/IP protocols.
   - Use all major TCP/IP application services including FTP, TELNET, HTTP and NFS.
   - Troubleshoot common internetworking problems.
   - Troubleshoot TCP/IP networks using protocol analysis techniques.
   - Use TCP/IP to locate the information and resources on the Internet.
   - Discuss at least one IT security issue.

3. **Methods of Evaluation and Assignments:**
49. In-class participation 10%
50. Oral Presentation 10%
51. Assignments 40%
52. Research Paper 10%
53. Quizzes 10%
54. Midterm 10%
7. Final Exam 10%

4. **Nature of textbooks and readings**—The instructor will use the appropriate texts for this course, including any relevant supplementary publications. Readings, where appropriate, will incorporate multicultural and gender issues and perspectives.


**Materials Fees:** $15.00

**Laboratory or Instructional Equipment Needed:** Computer lab with at least one printer, LCD projector, and a dedicated instructor’s desktop. Workstations must have access to the Internet and Windows 2000 or Windows NT installed.

NEW COURSE ( ) EXISTING COURSE ( x )

**Date of last review:** November 17, 2003
Course Number: CS300

Course Title: Introduction to Internet/Telecommunications

Total Units (3): Lecture (3) Lab ( ) Practicum ( )

Weighted Faculty Contact Hours: 45

Degree or Credential Program:
( ) Liberal Studies ( ) Business (x) Computer Information Systems
( ) Teacher Education

Department:
( ) Liberal Studies ( ) Business (x) Computer Information Systems
( ) Teacher Education

General Education ( ): GE Area: ____________

Subject: ________________

Catalog/Course Description:

Prerequisite: CS 103 or consent of instructor.

Grading Policy: Letter Grade (x) Credit/No-Credit ( )

Repeatability Status: none

Methods of Instruction:
1. Range of Class Activities
   Includes stand-up lecture, Web-based content delivery, small-group discussions, in-class journal, text assignments, videos, oral presentation, and interactive individual/group activities.
2. **Writing Activities**
   Submit a research paper. Most activities are primarily computational/non-computational problem solving.

3. **Project Activities**—may be designated by instructor

13. **Lab Activities**

**Course Content:**

1. **Topics Covered**
   - Using the Internet. Build Your Own Web Site. How Clients and Servers Work Together
   - Sights and Sounds of the Internet. WebTV and Other Internet Appliances
   - Understanding Networks. Internet Infrastructure. Internet Clients. Solving Client Problems

2. **Course Objectives (Student Performance/Learning Objectives)**

   Students who successfully complete this course will be able to:
   - Compress files, decompress files, check files for viruses, and send and receive files via email.
   - Obtain and setup an email account.
   - Identify and locate information via the Internet.
   - Create a Web site.
   - Describe network technologies such as Ethernet, Token Ring, FDDI, and wireless.
   - Describe how computers are used in industry, government and education.
3. Literacy Skills Objectives –

4. Methods of Evaluation and Assignments:

- 55. In-class participation 10%
- 56. Assignments 40%
- 57. Group Presentation 10%
- 58. Research Paper 10%
- 59. Quizzes 10%
- 60. Midterm 10%
- 7. Final Exam 10%

5. Nature of textbooks and readings—The instructor will use the appropriate texts for this course, including any relevant supplementary publications. Readings, where appropriate, will incorporate multicultural and gender issues and perspectives.


Materials Fees: $15.00

Laboratory or Instructional Equipment Needed: Student PC’s with at least one printer, LCD projector, and a dedicated instructor’s desktop. Workstations must have access to the Internet.

NEW COURSE ( ) EXISTING COURSE ( x )

Date of last review: November 26, 2003
# THE NATIONAL HISPANIC UNIVERSITY

## COURSE OUTLINE

<table>
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<tr>
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<td>Course Title:</td>
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( x ) Degree ( ) Credential ( ) Certificate Program ( ) Continuing Education
( ) Liberal Studies ( ) Business ( x ) Computer Information Systems
( ) Teacher Education ( ) Translation and Interpretation Studies
( ) Specify nature of Continuing Education Program _______________

Department:
( ) Liberal Studies ( ) Business ( x ) Computer Information Systems
( ) Teacher Education

General Education ( ): GE Area: _______________

Subject: _______________

Catalog/Course Description:
Installation and configuration of a network workstation using current Network Operating System software. Formatting and partitioning of disks, creation of file sharing and print sharing services. Creation and removal of user accounts, booting and shutting-down systems safely, creating and managing local system resources. Create system backups, and manage security access services provided by the NOS software. Key network protocols and standards.

Prerequisite: CS 110 and CS 212

Grading Policy: Letter Grade ( x ) Credit/No-Credit ( )

Repeatability Status: none
Methods of Instruction:
1. Range of Class Activities
   Includes stand-up lecture, Web-based content delivery, small-group discussions, in-class
   journal, text assignments, videos, oral presentation, and interactive individual/group
   activities.

2. Writing Activities
   Written reports of all laboratory assignments and submit a research paper. Most activities
   are primarily skill demonstration and computational/non-computational problem solving.

3. Project Activities—may be designated by instructor

14. Lab Activities
   Hands-on lab assignments in the computer lab. Troubleshooting non-expected
   outcomes. Setup protocols that underlie current computer networks. Implement and
   maintain a computer network. Administer a computer network.

Course Content:
1. Topics Covered
   - Installation and configuration of a network workstation using current Network
     Operating System software
   - Format and partition of disks
   - Create file sharing and print sharing services
   - Create and remove user accounts, booting and shutting-down systems safely,
     create and manage local system resources
   - Create system backups, and manage security access services provided by the NOS
     software
   - Utilize key network protocols and standards

2. Course Objectives (Student Performance/Learning Objectives)
   Students who successfully complete this course will be able to:
   - Install and configure a network workstation using current Network Operating
     System software
   - Describe protocols that underlie Windows NT 4.0, Windows 2000 and Linux
     networks.
   - Implement and maintain a Windows NT, Windows 2000 and Linux network.
• Describe networking Windows NT, Windows 2000 and Linux environments.
• Develop a procedure for system backups and security management
• Describe TCP/IP from a Windows and Linux perspective
• Discuss at least one IT security issue.

3. Literacy Skills Objectives –

4. Methods of Evaluation and Assignments:
   61. In-class participation 10%
   62. Assignments 40%
   63. Group Presentation 10%
   64. Research Paper 10%
   65. Quizzes 10%
   66. Midterm 10%
    7. Final Exam 10%

5. Nature of textbooks and readings—The instructor will use the appropriate texts for this course, including any relevant supplementary publications. Readings, where appropriate, will incorporate multicultural and gender issues and perspectives.


Materials Fees: $15.00

Laboratory or Instructional Equipment Needed: Computer lab with at least one printer, overhead projector, LCD projector, and a dedicated instructor’s desktop. Workstations must have Windows 2000, Windows NT or UNIX.

NEW COURSE ( ) EXISTING COURSE ( x )

Date of last review: November 26, 2003
THE NATIONAL HISPANIC UNIVERSITY

COURSE OUTLINE

Course Number: CS330

Course Title: Database Management Systems

Total Units (3): Lecture (2) Lab (1) Practicum ( )

Weighted Faculty Contact Hours: Lecture __ Lab __ Practicum __

(x) Degree ( ) Credential ( ) Certificate Program ( ) Continuing Education
  ( ) Liberal Studies ( ) Business (x) Computer Information Systems
  ( ) Teacher Education ( ) Translation and Interpretation Studies
  ( ) Specify nature of Continuing Education Program ____________

Department:
  ( ) Liberal Studies ( ) Business (x) Computer Information Systems
  ( ) Teacher Education

General Education ( ): GE Area: __________

Subject: ________________

Catalog/Course Description:
Introduction to the basic concepts underlying database systems. Emphasizes the relational model, and discusses the elements of the entity-relationship model, the network model, and the hierarchical model. Various issues concerning physical data organization and query optimization are presented. Crash recovery schemes and control schemes are also covered. The course concludes with a discussion concerning a number of different non-standard database systems.

Prerequisite: CS 103 and CS 150

Grading Policy: Letter Grade (x) Credit/No-Credit ( )

Repeatability Status: none

Methods of Instruction:
  1. Range of Class Activities
Includes stand-up lecture, Web-based content delivery, small-group discussions, in-class journal, text assignments, videos, oral presentation, and interactive individual/group activities.

2. **Writing Activities**
   Written reports of all laboratory assignments and submit a research paper. Most activities are primarily skill demonstration and computational/non-computational problem solving.

3. **Project Activities**—may be designated by instructor

15. **Lab Activities**
   Hands-on lab assignments in the computer lab. Design and implement a database. Solve a problem relevant to the course material by applying at least one programming language.

**Course Content:**

1. **Topics Covered**
   - Introduction to database Processing. Introduction to database Development. The Entity-Relationship Model.

2. **Course Objectives (Student Performance/Learning Objectives)**
   Students who successfully complete this course will be able to:
   - Explain the underlying models of database systems and key technologies in database implementation.
   - Design and implement a database.
   - Explain concepts in distributed database systems.
   - Describe and explain Future Trends in Database Technology.
   - Apply at least one programming language to solve a problem relevant to the course material.
3. Literacy Skills Objectives –

4. Methods of Evaluation and Assignments:
   67. In-class participation  10%
   68. Assignments          40%
   69. Group Presentation   10%
   70. Research Paper      10%
   71. Quizzes             10%
   72. Midterm             10%
   7. Final Exam           10%

5. Nature of textbooks and readings—The instructor will use the appropriate texts for this course, including any relevant supplementary publications. Readings, where appropriate, will incorporate multicultural and gender issues and perspectives.


Materials Fees: $15.00

Laboratory or Instructional Equipment Needed: Computer lab with at least one printer, LCD projector, and a dedicated instructor’s desktop. Workstations must have current database management software for laboratory activities.

NEW COURSE ( )   EXISTING COURSE (x)

Date of last review: November 26, 2003
THE NATIONAL HISPANIC UNIVERSITY

COURSE OUTLINE

Course Number: CS332

Course Title: Server Administration**

Total Units (3): Lecture (2) Lab (1) Practicum ( )

Weighted Faculty Contact Hours: 30 Lecture 30 Lab

(x) Degree ( ) Credential ( ) Certificate Program ( ) Continuing Education
( ) Liberal Studies ( ) Business (x) Computer Information Systems
( ) Teacher Education ( ) Translation and Interpretation Studies
( ) Specify nature of Continuing Education Program _____________

Department:
( ) Liberal Studies ( ) Business (x) Computer Information Systems
( ) Teacher Education

General Education ( ): GE Area: _____________

Subject: ________________

Catalog/Course Description:

** This is an elective course.

Prerequisite: CS 322

Grading Policy: Letter Grade (x) Credit/No-Credit ( )

Repeatability Status: none
Methods of Instruction:

1. Range of Class Activities
   Includes stand-up lecture, laboratory assignments, Web-based content delivery, small-group discussions, in-class journal, text assignments, videos, oral presentation, in-class participation and group activities.

2. Writing Activities
   Written reports of all laboratory assignments and submit a research paper. Most activities are primarily skill demonstration and computational/non-computational problem solving.

3. Project Activities—may be designated by instructor

16. Lab Activities
   Hands-on lab assignments in the computer lab. Troubleshooting non-expected outcomes.

Course Content:

1. Topics Covered
   - Installation, configuration and administration of a server
   - Implementation of user accounts, file and printing services
   - Active Directory and Account Management
   - Resource Access and Remote Access Services
   - Server Network Services. System Reliability and Availability

2. Course Objectives (Student Performance/Learning Objectives)
   Students who successfully complete this course will be able to:
   - Configure, troubleshoot and maintain a server with different and current Server Operating Systems.
   - Implement and manage system administration and Security in a server
   - Install, configure and administer a server
   - Backup a server
   - Discuss at least one IT security issue
3. Literacy Skills Objectives –

4. Methods of Evaluation and Assignments:

73. In-class participation 10%
74. Assignments 40%
75. Group Presentation 10%
76. Research Paper 10%
77. Quizzes 10%
78. Midterm 10%
7. Final Exam 10%

5. Nature of textbooks and readings—The instructor will use the appropriate texts for this course, including any relevant supplementary publications. Readings, where appropriate, will incorporate multicultural and gender issues and perspectives.


Materials Fees: $15.00

Laboratory or Instructional Equipment Needed: Computer lab with at least one printer, overhead projector, LCD projector, and a dedicated instructor’s desktop. Workstations must have current NOSs installed.

NEW COURSE ( ) EXISTING COURSE ( x )

Date of last review: November 26, 2003
THE NATIONAL HISPANIC UNIVERSITY

COURSE OUTLINE

Course Number: CS340

Course Title: Advanced Networking**

Total Units (3): Lecture (2) Lab (1) Practicum ( )

Weighted Faculty Contact Hours: Lecture 30 Lab 30 Practicum

( x ) Degree ( ) Credential ( ) Certificate Program ( ) Continuing Education

( ) Liberal Studies ( ) Business ( x ) Computer Information Systems

( ) Teacher Education ( ) Translation and Interpretation Studies

( ) Specify nature of Continuing Education Program ____________

Department:

( ) Liberal Studies ( ) Business ( x ) Computer Information Systems

( ) Teacher Education

General Education ( ): GE Area: ___________

Subject: ________________

Catalog/Course Description:
Implementation and support of a current Internetworking Operating System (IOS). Real-life issues with case studies and examples to step the student through important IOS functions. Router configuration and administration. LAN and WAN interfacing technologies as they relate to router configurations. Router Internetworking Operating System (IOS) as well as its command-line interface (CLI). Managing and troubleshooting router LAN/WAN interfaces.

** This is an elective course.

Prerequisite: CS 332

Grading Policy: Letter Grade ( x ) Credit/No-Credit ( )

Repeatability Status: none
Methods of Instruction:

1. Range of Class Activities
   Includes stand-up lecture, Web-based content delivery, small-group discussions, in-class journal, text assignments, videos, oral presentation, and interactive individual/group activities.

2. Writing Activities
   Submit written Lab Assignments, a Research Paper, and completion of an Engineering Journal/Workbook. Most activities are primarily skill demonstration and computational/non-computational problem solving.

3. Project Activities—may be designated by instructor

17. Lab Activities
   Hands-on lab assignments in the computer lab. Troubleshooting non-expected outcomes.

Select hardware that is compatible with different types of NOSs used in the server. Install and configure different types of NOSs used in the server. Use network client administrator to create a boot disk and enable workstations to install operating systems over the network.

Course Content:

1. Topics Covered
   - Implementation and support of a current Internetworking Operating System (IOS).
   - Real-life issues with case studies and examples to step the student through important IOS functions.
   - Router configuration and administration.
   - LAN and WAN interfacing technologies as they relate to router configurations.
   - Cisco Router Internetworking Operating System (IOS) as well as its command-line interface (CLI).
   - Managing and troubleshooting router LAN/WAN interfaces.

2. Course Objectives (Student Performance/Learning Objectives)

   Students who successfully complete this course will be able to:
   - Describe the basic design, configuration and hardware structure of routers.
• Define IOS, including the basic command structure.
• Set up, manage and troubleshoot a router.
• Describe LAN technology, including IEEE LAN standards, LAN encapsulation, LAN segmentation, LAN switching, WAN technology, including connectivity, X.25, Frame Relay, DDR and ISDN.
• Describe and configure routing protocols, including RIP and OSPF.
• Discuss at least one IT security issue.

3. Literacy Skills Objectives –

4. Methods of Evaluation and Assignments:

79. In-class participation 10%
80. Engineering Journal and Workbook 10%
81. Lab Manual 20%
82. Research Paper 10%
83. Group Assignments 10%
84. Written Quizzes and Exams 10%
85. Online Assignments/Assessments 30%

5. Nature of textbooks and readings—The instructor will use the appropriate texts for this course, including any relevant supplementary publications. Readings, where appropriate, will incorporate multicultural and gender issues and perspectives.


RESOURCES & RECOMMENDED READING


Materials Fees: $15.00

Laboratory or Instructional Equipment Needed: Computer lab with at least one printer, overhead projector, LCD projector, and a dedicated instructor’s desktop. Workstations must have current NOSs installed.

NEW COURSE ( ) EXISTING COURSE ( x )
Date of last review: November 26, 2003

THE NATIONAL HISPANIC UNIVERSITY

COURSE OUTLINE

Course Number: CS360

Course Title: Object Oriented Analysis and Design

Total Units (3): Lecture (2) Lab (1) Practicum ( )

Weighted Faculty Contact Hours: Lecture 30 Lab 30

(x) Degree ( ) Credential ( ) Certificate Program ( ) Continuing Education
( ) Liberal Studies ( ) Business (x) Computer Information Systems
( ) Teacher Education ( ) Translation and Interpretation Studies
( ) Specify nature of Continuing Education Program _______________

Department:
( ) Liberal Studies ( ) Business (x) Computer Information Systems
( ) Teacher Education

General Education ( ): GE Area: _____________

Subject: ________________

Catalog/Course Description:
Information Systems methodologies to solve enterprise-wide managerial and organizational problems. Requirements analysis, specifications, preliminary design, detailed design, code, unit test, integration test and system test. Specifications and a preliminary design are created, reviewed and evaluated using systems analysis and design techniques to develop a multi-user system including database. Apply at least one programming language to solve a problem relevant to the course.

Prerequisite: CS 330

Grading Policy: Letter Grade (x) Credit/No-Credit ( )

Repeatability Status: none
Methods of Instruction:

1. **Range of Class Activities**
   Includes stand-up lecture, laboratory assignments, Web-based content delivery, small-group discussions, in-class journal, text assignments, videos, oral presentation, in-class participation and group activities.

2. **Writing Activities**
   Written reports of all laboratory assignments and a research paper.

3. **Project Activities**—may be designated by instructor

18. **Lab Activities**
   Hands-on lab assignments in the computer lab. Show how information systems methodologies can be used to solve enterprise-wide managerial and organizational problems. Design a database structure and usage in a system solution using information system development methodologies. Apply principles and concepts involved in the management of organizational information systems resources.

Course Content:

1. **Topics Covered**
   - Data Models: Relational, Hierarchical, Network Normalization. Integrity: referential, data item, intro-relation. Data Definition languages Application interface: DML, Query, QBE, SQL, etc.
   - Develop a simple multi-user information system. Algorithms and Data Structures. Programming languages and application development facilities. Group planning and decision making.


2. Course Objectives (Student Performance/Learning Objectives)
Students who successfully complete this course will be able to:

  ▪ Explain how information systems methodologies can be used to solve enterprise- wide managerial and organizational problems.
  ▪ Design database structure and usage in a system solution using information system development methodologies.
  ▪ Explain and apply the principles and concepts involved in the management of organizational information systems resources.
  ▪ Apply at least one programming language to solve a problem relevant to the course material.
  ▪ Discuss at least one IT security issue.

3. Literacy Skills Objectives –

4. Methods of Evaluation and Assignments:
   86. In-class participation 10%
   87. Assignments 40%
   88. Group Presentation 10%
   89. Research Paper 10%
   90. Quizzes 10%
   91. Midterm 10%
   7. Final Exam 10%

5. Nature of textbooks and readings—The instructor will use the appropriate texts for this course, including any relevant supplementary publications. Readings, where appropriate, will incorporate multicultural and gender issues and perspectives.

Materials Fees: $15.00

Laboratory or Instructional Equipment Needed: Computer lab with at least one printer, LCD projector, and a dedicated instructor’s desktop. Workstations must have current database management software and Office 2000 Professional or Office XP Professional.

NEW COURSE ( ) EXISTING COURSE ( x )

Date of last review: December 01, 2003
## THE NATIONAL HISPANIC UNIVERSITY

### COURSE OUTLINE

<table>
<thead>
<tr>
<th>Course Number:</th>
<th>CS380</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Course Title:</strong></td>
<td>Graphical Programming</td>
</tr>
<tr>
<td><strong>Total Units (3):</strong></td>
<td>Lecture (2) Lab (1) Practicum ( )</td>
</tr>
<tr>
<td><strong>Weighted Faculty Contact Hours:</strong></td>
<td>Lecture 30 Lab 30 Practicum</td>
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</tbody>
</table>

- ( ) Degree
- ( ) Credential
- ( ) Certificate Program
- ( ) Continuing Education
  - ( ) Liberal Studies
  - ( ) Business
  - ( ) Computer Information Systems
  - ( ) Teacher Education
  - ( ) Translation and Interpretation Studies
  - ( ) Specify nature of Continuing Education Program

### Department:

- ( ) Liberal Studies
- ( ) Business
- ( ) Computer Information Systems
- ( ) Teacher Education

### General Education ( ):

- GE Area: ____________

### Subject:

- ____________

### Catalog/Course Description:

Study of a current graphical programming language for data acquisition, instrument control software, and analysis software in the context of industrial, scientific, academic, and laboratory environments. Write programs that solve problems in computers, electronics, physics, and chemistry. Students will have the opportunity to apply and reinforce computer programming concepts previously learned.

### Prerequisites:

CS 101, CS 105 and CS 106

### Grading Policy:

- Letter Grade ( x )
- Credit/No-Credit ( )

### Repeatability Status:

- none
Methods of Instruction:

1. Range of Class Activities
   Includes stand-up lecture, laboratory assignments, Web-based content delivery, small-group discussions, in-class journal, text assignments, videos, oral presentation, in-class participation and group activities.

2. Writing Activities
   Written reports of all laboratory assignments and submit a research paper.

3. Project Activities—may be designated by instructor

19. Lab Activities
   Hands-on lab assignments in the computer lab. Students will create programs related to SubVIs, Structures, Arrays, Clusters, Charts, Graphs, and Data acquisition. Students will then integrate concepts learned in previous programming classes to solve problems related to Chemistry, Physics, Electronics, etc.

Course Content:

1. Topics Covered
   • LabVIEW basics. System configuration requirements. Palettes.
   • Virtual Instruments. Front panel. Block Diagram. Data flow programming.
   • Editing and debugging virtual instruments. Building blocks. Debugging techniques.
   • SubVIs. Editing the icon and connector. Using a VI as a SubVI. Hierarchy window.
   • Data acquisition. Types of signals. Common transducers and signal conditional. Signal grounding measurements. Analog I/O considerations. DAQ VI organization. DAQ hardware configuration.
2. **Course Objectives (Student Performance/Learning Objectives)**

Students who successfully complete this course will be able to:

- Explain the basic components of a graphical programming language and virtual instruments.
- Build virtual instruments.
- Access and control VI editing tools and VI debugging tools.
- Create programs using For Loops, While Loops, Case Structures, Sequence Structures, arrays, clusters, polymorphism and Shift Registers.
- Explain and apply the basic notions of signals and signal acquisition, charts and graphs, and recognize their similarities and differences.

3. **Literacy Skills Objectives** –

4. **Methods of Evaluation and Assignments:**

   92. In-class participation    10%
   93. Assignments     40%
   94. Group Presentation 10%
   95. Research Paper   10%
   96. Quizzes       10%
   97. Midterm 10%
   7. Final Exam 10%

5. **Nature of textbooks and readings**—The instructor will use the appropriate texts for this course, including any relevant supplementary publications. Readings, where appropriate, will incorporate multicultural and gender issues and perspectives.


**Materials Fees:** $15.00

**Laboratory or Instructional Equipment Needed:** Computer lab with at least one printer, LCD projector, and a dedicated instructor’s desktop. Workstations must have LabVIEW 6.1 installed.

NEW COURSE ( x ) EXISTING COURSE ( )

**Date of last review:** December 01, 2003
THE NATIONAL HISPANIC UNIVERSITY

COURSE OUTLINE

Course Number: CS460

Course Title: Management of Information Systems

Total Units (3): Lecture (2) Lab (1) Practicum ( )

Lecture Lab Practicum

Weighted Faculty Contact Hours: 30 __ 30 __

( x ) Degree ( ) Credential ( ) Certificate Program ( ) Continuing Education

( ) Liberal Studies ( ) Business ( x ) Computer Information Systems

( ) Teacher Education ( ) Translation and Interpretation Studies

( ) Specify nature of Continuing Education Program _______________

Department:

( ) Liberal Studies ( ) Business ( x ) Computer Information Systems

( ) Teacher Education

General Education ( ): GE Area: ____________

Subject: ________________

Catalog/Course Description:
This course focuses on the problems and issues faced by managers of information systems. Management of computer equipment and personnel, managing teams in programming projects, cost estimating and planning for software development projects, outsourcing of CIS functions, disaster recovery planning, computer security and computer crime, copyright protection for computer software, and legal and ethical issues in Computer Science/Information Systems.

Prerequisite: Senior standing or consent of instructor

Grading Policy: Letter Grade ( x ) Credit/No-Credit ( )

Repeatability Status: none

Methods of Instruction:
1. Range of Class Activities
Includes stand-up lecture, Web-based content delivery, small-group discussions, in-class journal, text assignments, videos, oral presentation, and interactive individual/group activities.

2. Writing Activities
   Written reports of all laboratory assignments and submit a research paper.

3. Project Activities—may be designated by instructor

20. Lab Activities
   Hands-on lab assignments in the computer lab. Troubleshooting non-expected outcomes.

Course Content:

1. Topics Covered
   • Assuming the role of the systems analyst. Understanding organizational style and its impact on information systems. Determining feasibility and managing analysis and design activities.
   • Analyzing systems using data dictionaries. Analyzing semi-structured decision support systems. Preparing the systems proposal. Designing effective output. Designing effective input.
   • Designing the file or database. Designing the user interface. Designing accurate data-entry procedures.
   • Successfully implementing the information system. Object-oriented systems analysis and design. Discuss IT security issues.

2. Course Objectives (Student Performance/Learning Objectives)
   Students who successfully complete this course will be able to:
   • Explain the role of an Information System Analyst.
   • Explain organizational subcultures in the design of information systems.
   • Apply ethical analysis to difficult situations.
   • Explain the managerial and organizational requirements for creating a database environment.
   • Explain how an organization can develop information systems that fit its business plan.
   • Design an Expert System model for a service organization
3. Literacy Skills Objectives –

4. Methods of Evaluation and Assignments:

   98. In-class participation 10%
   99. Assignments 40%
   100. Group Presentation 10%
   101. Research Paper 10%
   102. Quizzes 10%
   103. Midterm 10%
   7. Final Exam 10%

5. Nature of textbooks and readings—The instructor will use the appropriate texts for this course, including any relevant supplementary publications. Readings, where appropriate, will incorporate multicultural and gender issues and perspectives.


Materials Fees: $15.00

Laboratory or Instructional Equipment Needed: Computer lab with at least one printer, overhead projector, LCD projector, and a dedicated instructor’s desktop. Workstations must have Office 2000 Professional or Office XP Professional.

NEW COURSE ( ) EXISTING COURSE ( x )

Date of last review: December 01, 2003
THE NATIONAL HISPANIC UNIVERSITY

COURSE OUTLINE

Course Number: CS470

Course Title: Information Systems’ Analysis and Design

Total Units (3): Lecture (3) Lab ( ) Practicum ( )

Weighted Faculty Contact Hours: 45

( x ) Degree ( ) Credential ( ) Certificate Program ( ) Continuing Education

( ) Liberal Studies ( ) Business ( x ) Computer Information Systems

( ) Teacher Education ( ) Translation and Interpretation Studies

( ) Specify nature of Continuing Education Program ________________

Department:

( ) Liberal Studies ( ) Business ( x ) Computer Information Systems

( ) Teacher Education

General Education ( ): GE Area: ________________

Subject: ________________

Catalog/Course Description:
Design and implementation of business reengineering with the use of current software tools. Demonstrations and computer applications will be applied to actual business problems in production, transportation, finance, and marketing. How to predict future business conditions, the impact of uncertainty, and the optimization of revenue. Students will have the opportunity to discuss quality issues.

Prerequisite: Senior standing or consent of instructor.

Grading Policy: Letter Grade ( x ) Credit/No-Credit ( )

Repeatability Status: none

Methods of Instruction:

1. Class Activities
Includes stand-up lecture, Web-based content delivery, small-group discussions, in-class journal, text assignments, videos, oral presentation, and interactive individual/group activities.

2. **Writing Activities**
   Submit a research paper. Most activities are primarily skill demonstration and computational/non-computational problem solving.

3. **Project Activities**— May be designated by instructor.

21. **Lab Activities**

**Course Content:**

1. **Topics Covered**
   - Foundations for systems development. The systems development environment.
   - Selecting the Best Alternative Design Strategy.
   - Designing the Human Interface.
   - Designing Databases.
   - Systems Implementation and Operation.

2. **Course Objectives (Student Performance/Learning Objectives)**
   Students who successfully complete this course will be able to:
   - Design and implement business reengineering with the use of current software tools.
   - Demonstrate and apply computer applications to actual business problems in production, transportation, finance, and marketing.
   - Demonstrate how to predict future business conditions, the impact of uncertainty, and the optimization of revenue.
   - Discuss quality issues.

3. **Literacy Skills Objectives** –
4. Methods of Evaluation and Assignments:
   104. In-class participation 10%
   105. Assignments 40%
   106. Group Presentation 10%
   107. Research Paper 10%
   108. Quizzes 10%
   109. Midterm 10%
   7. Final Exam 10%

5. Nature of textbooks and readings—The instructor will use the appropriate texts for this course, including any relevant supplementary publications. Readings, where appropriate, will incorporate multicultural and gender issues and perspectives.


Materials Fees: $15.00

Laboratory or Instructional Equipment Needed: Student PC’s with at least one printer, overhead projector, LCD projector, and a dedicated instructor’s desktop. Workstations must have Office 2000 Professional or Office XP Professional.

NEW COURSE ( ) EXISTING COURSE ( x )

Date of last review: December 01, 2003
THE NATIONAL HISPANIC UNIVERSITY

COURSE OUTLINE

Course Number: CS 490A

Course Title: Computer Information Systems Internship

Total Units (3): Lecture ( ) Lab ( ) Practicum (3)

Weighted Faculty Contact Hours: Lecture Lab Practicum

( x ) Degree ( ) Credential ( ) Certificate Program ( ) Continuing Education
( ) Liberal Studies ( ) Business ( x ) Computer Information Systems
( ) Teacher Education ( ) Translation and Interpretation Studies
( ) Specify nature of Continuing Education Program _______________

Department:
( ) Liberal Studies ( ) Business ( x ) Computer Information Systems
( ) Teacher Education

General Education ( ): GE Area: ________________

Subject: ________________

Catalog/Course Description:
Students will have a computer technology related job at a local firm or organization. It will give students the experience of being computer professionals, which should help in career decisions and preparation for obtaining their first job after graduation. Students already doing computer-related work may substitute this course for an elective prior approval from the instructor and the Department Coordinator.

Prerequisite: Senior standing and CS 460

Grading Policy: Letter Grade ( x ) Credit/No-Credit ( )

Repeatability Status: none

Methods of Instruction:
1. Range of Class Activities
   Includes hands-on experience, problem-solving, small group discussions, Internet and library research.
2. **Writing Activities**  
Students will write a report describing the activities performed on their internship experiences.

3. **Project Activities—may be designated by instructor**

22. **Lab Activities**  
Gain experience in working at a job in the computer field.

---

**Course Content:**

1. **Topics Covered**

   NA

2. **Course Objectives (Student Performance/Learning Objectives)**  
Students who successfully complete this course will be able to:

   - Gain experience in working at a job in the computer field.
   - Develop computational/non-computational skills.
   - Solve problems in the computer field.

3. **Literacy Skills Objectives** –

4. **Methods of Evaluation and Assignments:**

   110. Written Report 20%
   111. Oral Presentation 20%
   112. Work supervisor's evaluation 60%

5. **Nature of textbooks and readings**—The instructor will use the appropriate texts for this course, including any relevant supplementary publications. Readings, where appropriate, will incorporate multicultural and gender issues and perspectives.

   NA

**Materials Fees:** $0.00

**Laboratory or Instructional Equipment Needed:** NA

**NEW COURSE ( )  EXISTING COURSE ( x )**

**Date of last review:** December 01, 2003
THE NATIONAL HISPANIC UNIVERSITY

COURSE OUTLINE

Course Number: CS 490B

Course Title: Computer Information Systems Senior Project

Total Units (3): Lecture ( ) Lab ( ) Practicum (3)

Lecture Lab          Practicum
Weighted Faculty Contact Hours:_______  _____  135_______

( x ) Degree ( ) Credential ( ) Certificate Program ( ) Continuing Education
( ) Liberal Studies ( ) Business ( x ) Computer Information Systems
( ) Teacher Education ( ) Translation and Interpretation Studies
( ) Specify nature of Continuing Education Program _______________

Department:
( ) Liberal Studies ( ) Business ( x ) Computer Information Systems
( ) Teacher Education

General Education ( ): GE Area: ____________

Subject: _______________

Catalog/Course Description:
Formulation and solution of a selected problem in Computer Information Systems. The project
must solve a practical problem within the computer field, should be challenging enough and
should require the application of concepts learned in previous CS courses. The student will write
a report and present it to the sponsoring professor.

Prerequisite: Senior standing and CS 340

Grading Policy: Letter Grade (x) Credit/No-Credit ( )

Repeatability Status: none

Methods of Instruction:
1. Range of Class Activities
   This project consists of a student performing development and delivery of a
   computer product. The product to be worked on is selected by the student
from industry, government, or academic sponsors. The computer product is typically a software system or application.

2. **Writing Activities**
   Students will write a report about their senior project.

3. **Project Activities—may be designated by instructor**

23. **Lab Activities**
   Apply the knowledge gained by prior college study to the development of a computer system. Gain a realistic view of what is involved in doing a job as part of the computing profession. Obtain valuable experience that will benefit them as they complete their education and seek employment.

**Course Content:**
1. **Topics Covered**

   The emphasis of the senior project is on the software system life-cycle development process; proposal writing, project management planning, system requirements analysis and design, testing, documenting, and viewing of a computer product. Regardless of the size or type of project, the system development follows the software engineering life-cycle, i.e. requirements must be established before the product is designed, design must be done before the program is coded, to be followed by testing, user documentation, report generation, etc.

   The senior project is accomplished in two phases. In the first phase, the student established the project, delivers a project proposal, plans the effort, and analyzes and documents the requirements. In the second phase, the work involved includes the designing, coding, testing, and delivery of the product to the sponsor. Each student is expected to devote a minimum of 100 hours during the semester towards the senior project, although this may be higher in actuality.

2. **Course Objectives (Student Performance/Learning Objectives)**

   Students who successfully complete this course will be able to:
   - Apply the knowledge gained by prior college study to the development of a computer system.
   - Gain a realistic view of what is involved in doing a job as part of the computing profession.
   - Obtain valuable experience that will benefit them as they complete their education and seek employment.
3. **Literacy Skills Objectives –**

4. **Methods of Evaluation and Assignments:**

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Proposal</td>
<td>7.5%</td>
</tr>
<tr>
<td>Project Management Plan</td>
<td>7.5%</td>
</tr>
<tr>
<td>Requirements Specification</td>
<td>7.5%</td>
</tr>
<tr>
<td>First Oral Report</td>
<td>10.0%</td>
</tr>
<tr>
<td>Software Design Document</td>
<td>7.5%</td>
</tr>
<tr>
<td>Test Document</td>
<td>7.5%</td>
</tr>
<tr>
<td>Source/Object Code</td>
<td>7.5%</td>
</tr>
<tr>
<td>Maintenance Manual</td>
<td>7.5%</td>
</tr>
<tr>
<td>User's Manual</td>
<td>7.5%</td>
</tr>
<tr>
<td>Final Oral Report</td>
<td>15.0%</td>
</tr>
<tr>
<td>Final Written Report</td>
<td>15.0%</td>
</tr>
</tbody>
</table>

5. **Nature of textbooks and readings**—The instructor will use the appropriate texts for this course, including any relevant supplementary publications. Readings, where appropriate, will incorporate multicultural and gender issues and perspectives.

NA

**Materials Fees:** $0.00

**Laboratory or Instructional Equipment Needed:** NA

**NEW COURSE** ( ) **EXISTING COURSE** ( x )

**Date of last review:** December 01, 2003
Appendix B – Curriculum Vitae
Amitabh Bihari (Amit)

Software Quality Business Analyst
Stanford University
Palo Alto, CA 94305
sunnybay101@gmail.com
Cell: (408) 332-1041

EDUCATION

Stanford Continuing Studies, Stanford University, CA, 2007-2008
M.S. Computer Science, Western Michigan University, Kalamazoo, Michigan, May 1998.
M.S. Paper Engineering (Coursework) WMU, Kalamazoo, Michigan, May 1996

TEACHING EXPERIENCE

Instructor, Department of Business and Management, University of California Berkeley Extension, August 2002. Performed teaching as a faculty member in the Department of Business and Management. Taught class on Software Project Management at the graduate and undergraduate level. Supervised students in the pursuit of their Microsoft Project 2002 work. Teaching focuses include understanding and applying tools for evaluating initial software development costs and schedules, defining testing and prototype activities, determining risk management approaches, and managing the full software life cycle from the proposal stage to the retirement stage using IEEE Standard 1074-1997 for Software Life Cycle Processes. The course is intended for software managers and principal computer scientists who have project management duties and recently appointed managers of projects that require computer software development or maintenance, or project engineers or programmer/analysts working as team members. Received outstanding reviews from students.

Visiting Professor, Department of Computer Information Systems, National Hispanic University, San Jose, 2001-2008. Taught first level and advanced Java programming, C++ programming, Unix system administration courses and Management of Information Systems Courses. Java and C++ course involves teaching Object Oriented Programming, UML, Data Structures including arrays, stacks, queues and Applets. The Unix course involves teaching navigation of the Unix file system, Configuring Unix applications, Writing solid event-driven code, Creating stand-alone, multiform applications, Unix System Administration and Unix Shell Programming. MIS course involves using Oracle database and portal to design and create a National ID Portal using the theoretical knowledge of the course.

Teaching Assistant, Department of Paper Engineering, Chemical Engineering and Imaging, Western Michigan University, Michigan 1994-1996. Assisted in the teaching of the undergraduate level Heat Transfer and Fluid Mechanics course. Consistently earned excellent student reviews.

PROFESSIONAL EXPERIENCE

Stanford University, Palo Alto, California. May 2007 - Present
Team lead in planning, development and delivery of comprehensive test suites for testing of Oracle Financials Applications, Hyperion DataWarehouse Brio Reports and PeopleSoft Human Resources module.

Google; Contractor through Work Force Logic
Test Engineer: Worked between 10 to 40 hours a week. Tasks involved rating assignments thru a remote/interactive manager based on Google’s specific criteria. Attention to detail and ability to utilize remote interactive applications based on rating criteria were involved. Tasks also involved tactful remote communication with other raters to resolve conflicts in ratings. Keeping current with world news, events and trends assisted in research for the tasks.

Principal Member of Technical Staff, Database Server, Oracle Corporation, Redwood Shores, California. Feb 2006 - present  A leader in planning, development and delivery of automated test cases for testing of Oracle Application Server Corporate Dashboard Portal as part of Oracle Database Server group. Responsible for gathering requirements for Oracle MDS (MetaData Services) product and business processes and writing test specifications and running Junit test scripts. Planned, designed and developed test specifications to meet the business requirements of the different modules of MDS product including WebDay support, XPATH support, Persistence Manager and Object Relationships. Built and deployed Oracle ADF Portal testing framework on standalone OC4J(Oracle Containers for Java) in linux environment for cross-build performance/scalability validation.

Senior Member of Technical Staff, Database Server, Oracle Corporation, Redwood Shores, California. Mar 2000 – Jan 2006  Defined and implemented the software automation suite for backend and UI testing of content management area of Oracle Portal. Implemented an automated customer use case scenario for real-life application testing. This involved creation of 50+ number of pages, categories, perspectives and items for Toolsweb Portal(Real Life Website) scenario for testing of content management module of portal.

Software Engineer, Imperito Networks, San Jose, California June 1998 - November 1998
Member of Team involved in creating a software solution for Virtual Private Network. Designed the GUI (Graphical User Interface) front end of software using JDK 1.2 Swing API. Implemented DES, Triple DES and MD5 network security algorithms using Object Oriented Methodology in Java using UML. Designed a secure Key Exchange mechanism using public key cryptography.

PROFESSIONAL SOCIETIES

Member of American Mensa, the high IQ society.

SIGNIFICANT VOLUNTEER ACTIVITIES

1999 to 2007: Member of Oracle Emergency Response Team. Participated in regular fire drills, earthquake evacuation drills and CPR trainings in collaboration with City of Redwood City Fire Department.
CARLOS P. ALVARADO
2150 Monroe St. # 5 Tel. (408) 249-9410 (408) 666-2163
E-mail: cpalvarado2002@yahoo.com

Carlos P. Alvarado

OBJECTIVE:
Looking for a SW-HW QA Tester, Field Application, Sales-Customer Support or System Engineer Designer in the Telecom/Network industry. Teacher in Math./Sciences.

SUMMARY:


TECHNICAL SKILLS:
Experience with Telecom protocols: SONET/SDH (OC-3 thru-192), ATM, ATM-MPEG2-, B-ISDN-BRI/PRI, CAS (T1/3, R1, R2, No.5), CCS (SS#7: TCAP, ISUP), FDDI, DSU/CSU, x-PON, TDM, FDM and C/DWDM. Articulate the strengths and weakness of each product.

Experience with Network protocols: TCP/IP v4/v6 (OSPF, BGP), UDP, MPLS (G-MPLS, FEC, LSP, LSR), VoIP (H.32X, SIP), LAN 10/100 Mb/1 Gig-E. Wireless protocols: SMS/MMS, GSM, PCS, TDMA, CDMA and IEEE-802.11.


LAN/WAN/MAN validation testing using ATEs from different manufacturers. Black/White box test cases. DSLAM, A-DSL, ADM, Digital/Optical X-Connect, Protection Switching (1+1, 1:1, 1:N, BLSR).

PROFESSIONAL EXPERIENCE:
N.H.U, San Jose, CA. 7/2007-Present
Adjunct Faculty Professor
Teaching Junior and Senior Courses in the Computer Sciences Department.

Technical Support Engineer.
• Provide technical support by both telephone and E-mail. Interacts directly with technical personal mainly on SS7 signaling issues and configurations of the Networks.

• Work closely with Sales, Engineering and QA teams to ensure successful customer long relationship. Participate in after hours on call support as needed.

• Resolve customers issues and participate in projects that enhances the quality or efficiency of the support team.

TELECOM ITALY MOBILE (TIM), Lima- Peru. 2/2005-6/2007

**Telephone Equipment Consultant.**

• Investigate and study on how to apply present communications technologies effectively and integrate these approaches into how to do business in home, i.e. look into what the Italians, Brazilians, Australians or Canadians staff are doing and see the responsiveness to present customers and futures ones (working example: how to book a cab using GPS and Short Message Service with SS7 in this case). Managed the group project.

COVAD COMM-GOBEAM, Santa Clara, CA.

2003-2005

**Capacity Transportation/Billing Verification.**

• Worked with VoIP(Sylantro-MSP-100, Verify SIP responses, requests, transactions between Agents and Servers including types of delays such as propagation, serialization and handling). Familiar with RFC 3261 and FRC 2329.

• PBX-IP, Centrex Switch-Server, verify performance, reliability and flexibility to support small to medium size deployments using SIP. Followed and managed call progress and call processing. Managed media functions such as digits detection, announcements, voice messaging, and end points. Traced proxy routing and translations between elements supporting managements of routes and resources, scalability, port adapters to A/D phone sets (CÔDECs:G.711, G723, G726 and G.729a) , redundancy and load balancing.

• Deal with the major ILEC and CLEC, also PUC, and FCC regulations and obtained excellent tariffs for different RBOC access eqpt. (rent and power included). Work with: DS-0, DS-1, DS-3, UNE-P/L, Line-splitter and line sharing chts.

• Provide support on billing discrepancies and technical issues. Ability to recreate customer networks, duplicate technical and legal issues, work with Transport staff to devise and implement solutions.

KESTREL SOLUTIONS, Mountain View, CA 1999 – 2003

**Senior System Engineer/Test Engineer**

• Executed OSMINE and NEBS (GR-63 and GR–1089) tests to be compliance with Telcordia and ITUs (GR-833, GR-253 and GR-1230).

• Designed, implemented, and planned test strategies. Test cases covered a set of comprehensive suite of diagnostic test for components, boards, system modules (low/high-speed cards, memory leaks) and optical devices: lasers, photo detectors (PINs), trans-impedance amplifiers and EDFAs.

• Optics: OC-3/-48, X.25, FDDI, 1 Gig-E, Optic fiber (SMF), RF mu/demux, IF, (TalonMX uses Optical FDM). Craft/EMS (GUI) applications.
• Identified tools and chose third party S/W and H/W technologies, working closely with SW and HW development teams and client companies (SBC, PACBELL, QWEST).

ALCATEL USA (D.S.C. COM), Petaluma, CA 1996 – 1999

Senior SW Verification-Diagnostic Engineer

• Created, defined, diagnostic SW test executive programs and run verifications tests on new features, releases, regression and upgrades.

• Performed testing on Broadband A-DSL (TR-048) products using CAP and DMT technologies and shipped four releases for RBOC. Tools used: TL-1 and GUI, Performed Traffic Measurements (PM), different types of interfaces: TR-008, TR-056, TR-303. Areas of test: IP over ATM (LANE, MPOA), SONET, TCP/IP tunneling, X25, LAN (10,100 and 1000 Mbps Ethernet), E-PON, A-PON, T1/3 (DS-0/DS-3), OC-3 and -12.

• Used MPEG-2 Standard for encoding and decoding formats.

WANG COMPUTERS (I-NET, INC), NASA KSC-Cape Canaveral, FL 1992 –1996

Project Leader

• Designed, developed and implemented networks at KSC, to become a standard and be used center-wide at NASA. Followed Bell core, FCC, ITU-CCITT, UL and MILS specs.

• Evaluated, updated and implemented tests to verify system functionality to requirements; perform cost/performance, trade and documentation of LAN/WAN, TCP/IP, SNA, Apple-talk and 10/100/1000 Mbps technologies, including Token Rings (IBM 4/16 Mbps), X25 and ATM (FORE and LUCENT switches) using different mediums: Copper Distribution (CAT 5/6) and Optic Fibers (SMF and MMF) for FDDI and SONET/SDH.

• Updated and re-engineered 3 main backbone networks for the ground support engineering facilities NASA and the Air Force (KSC, FL.) using Cisco routers and Frame Relay Technology. Work with customers and manufacturing companies to support field trials and early installations.

SIEMENS, STROMBERG & CARLSON, Boca Raton, FL/ Munich, Germany 1984 – 1993

Senior Member Technical Staff

• Responsible for developing test system and procedures that guarantee performance of specifications and requirements. Followed Bell-core and ITU-CCITT standards. Scheduled new version releases and manpower needed to manage upgrades on time and cost efficient between customer releases.

• Developed test automated (C language and shell scripts Perl) suites, test plan based on functional and design specifications, traced fault reports, debugging and on line diagnosis with significant software contents, created statistics report for each release.

• Designed and built a Database Administrator (layout of the whole center office with a capacity for 100,000 customer including many features for POTS, CENTREX,
ISDN to be used by integration group for performance verification on First Office Application (FOA) including many CLASS features.

- Sent to Munich, Germany to coordinate executions of the Alpha test plan for the Packet Switch System (ISDN, SS7, X.25 and X.75) to be deployed in USA.
- Areas of system integration: POTS, PBX, CENTREX, ISDN, feature 800 type calls, AMA, ANI, using MML (Man Machine Language), traffic, performance measurements and maintenance were logged and analyzed daily.
- Familiar with translation of Digits, alternates routes, one/two way trunking traffic also 2/4/6 wires trunks facilities including SS7, T1/3, international and local signaling used in different carriers (R1, R2) and analyzing traffic reports to improve future traffic needs.
- Experienced in areas of SS7, ISDN (BRI and PRI), call processing, fault insertions, detection of alarms, events and conditions of the systems.
- Executed capacity and overload (stress) traffic runs to determine behaviors of the System under different loads with live traffic.
- On networks executed network throughput, datagram loss rate, datagram latency and data sequencing and Erlangs and CCS for voice traffic.

EDUCATION AND TRAINING:

Certified in Network Engineering, U.C. Santa Cruz., San Jose, CA.
B.Sc., Electrical Engineering, C.U.N.Y., Staten Isl., N.Y.
A.A.S.,Electrical Technology, N.Y.C.C.C., Brooklyn, N.Y.
A.A.S., RF-Microwave Technology, RCA Institute, NYC, NY.
Constantly attends seminars and courses in the Silicon Valley Schools.
Prameet S. Chhabra

2578 Bentley Ridge Drive, San Jose, CA 95138
Email: prameet@msn.com  Phone: (408) 464-1320

OBJECTIVE
Looking for a teaching opportunity in Computer Science department at state university or community college.

EDUCATION

<table>
<thead>
<tr>
<th>Year</th>
<th>Institution</th>
<th>Degree</th>
<th>Location</th>
<th>GPA</th>
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<td>2004–2008</td>
<td>California State University</td>
<td>M.A., Public Administration</td>
<td>Hayward, CA</td>
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<tr>
<td>1997–1999</td>
<td>California State University</td>
<td>M.S., Computer Networking and OS Design</td>
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</table>

EXPERIENCE

09/2005–Present    Sun Microsystems Inc.    Newark, CA

Market Development Engineering, Senior Software Engineer (MTS4)

- Work with strategic Independent Software Vendor (ISV) partners which include the largest companies in the software business. Make ISV partner applications run best on Sun platform.
- Responsible for managing partner accounts from marketing and technical standpoint and helping optimizing of performance of partner applications on Sun's latest hardware and software. Working on support of ISV Solaris feature adoption. Install, configure, and test ISV applications in a virtualized OS environment. Run benchmarks on Sun OS and Hardware.
- Develop shell scripts and execute some feature/function and system level tests. Setting up Solaris systems with user accounts, installation and Benchmarks of partner products
- Developing Proof of concepts, demonstration, attending telco-industry conferences and speak at some.
- Part of the responsibilities involved educating the partners on latest hardware and software technologies, developing white papers for education, working on internal and external publications. Sample publication: http://developers.sun.com/solaris/articles/solaris_as_sip/solaris_as_sip.html
- Marketing and educating community and strategic partners on the latest of Sun HW and software products and how they can be integrated in 3PP. Responsible also for any pre sales activities such as sizing or BM of the partner products on HW platform. Working on
Sun’s latest HW and software platforms and integrating partner applications with Sun App-server, web server, Identity manger, and Solaris OS.

03/07–Present National Hispanic University San Jose, CA

Computer Science Instructor (part time)

- Designing in class and hybrid courses in CS department as an PT lecturer. Java, UNIX, Networking are some of the courses designed in hybrid mode. Responsibilities include preparing the course work teaching the material, preparing the course assignments grading the home work and programming assignments, help students understand the material as a whole.

- Taught courses Data Networks, Introduction to UNIX operating systems, UNIX, Java, C++, C, shell scripting, Java Script. Some other courses scheduled to teach are, Visual Basic, Computer Networking (TCP/IP), Operating Systems Concepts etc.

08/03–10/04 Mt San Jacinto College San Jacinto, CA

Computer Information Systems Instructor (Full time)

- Designing various online and hybrid courses in CIS department as an instructor. Responsibilities include preparing the course work teaching the material, preparing the course assignments grading the home work and programming assignments, help students understand the material as a whole.

- Taught courses Data Networks, Introduction to UNIX operating systems, Linux Administration, Intermediate UNIX, shell scripting, CGI and Perl scripting, C/C++, Java, Java Script. Some other courses scheduled to teach are, Visual Basic, Computer Networking (TCP/IP), Operating Systems Concepts etc.

01/02–Present Deanza College San Jose, CA

Teaching C, C++ Java, Networking, Data Structures, UNIX courses in CIS department

01/02–06/02 California State University San Jose, Hayward, CA

Computer Information Systems Instructor (PT)

- Serving on the Curriculum committee for the CS department.

- Taught C++ courses in Computer Science dept. Some of the courses include preparing students for class presentation and building them for working in team on big projects.

- Designed developed and taught the Multimedia programming course in Multimedia department

08/01–08/03 ItVerse, Inc San Jose, CA

Software Sales and Marketing Engineer

- Designed, developed web sites in Java Script, Perl/CGI with developed file system databases linked on LINUX/Windows system on with PHP and mySQL programming on Apache2.0. Retrieving information form databases. modifying, inserting, deleting information from the database. Writing stored procedures. Some of
the solutions are online video-rental software, online dental office appointment reservation system. Realtor offices. Worked on HTML, DHTML, Java Script and Flash.

- Designed, developed marketing and Sales of customize software solutions in **Java and VB hooked up with MS Access databases. Also** Software with the back end hook ups in Oracle DB using SQLPLUS query language. Retrieving information from databases. modifying, inserting, deleting information from the database. Crating tables, normalization and optimization. Wiring stored procedures, triggers and embedded SQL. Some of the solutions are POS Software, hotel reservation system.

- Also marketed LAN Administration solutions to small businesses which involved setting up wireless router LAN, with access points desktops and wireless Laptops, and UNIX system administration for some clients.

**07/99–06/01**

Cisco Systems, Inc  San Jose, CA  
Software Engineer

- Designed, developed and deployed **embedded software** in C++/C, under UNIX, and **VxWorks** Operating system for a carrier grade **TDM-ATM Gateway Switching System**.

- Developed SNTP (**Simple Network Time Protocol**) client module on the Circuit Emulation (TDM) card for the time synchronization of the switch and each card in the switch with the internet time servers. Also developed MIBS to control and configure the SNTP application worked the K-V Functions.

- Designed and Developed **software download and version upgrade** module for the TDM line cards This involved conversion of old Release to new Release by transferring of selective files of code from the UNIX through the communication channel to the inactive directory on the switch. Further upgrading the VxWorks kernel switching from active directory to inactive directory on the line card.

- Feature Enhancement and Debugging of the **Inter-Card Communication (ICC)** Module with implementing user authentication.

- Software development for a Multi-Service Access Switch (MGX8850) specific to areas of System level **Card management** and redundancy. Debugging, Feature Enhancement and Development of Line Card **Redundancy**. Developed the KV Functions, SNMP Mibs (ASN format) and debugged Agent Code.

**06/98–01/99**

Northern Telecom (Nortel Networks)  
Software Engineer (Intern)

- Deployed software tools and utilities under UNIX, UNIX system administration, account setup and deletion, backup and recovery, cron jobs, maintain log files, print setup.

- Feature enhancement and troubleshooting in existing utilities for software development

- Worked on accessing tools information for Oracle database modifying and updating databases, designing new databases for new tools, ERD, normalization (third normal from), creating tables, writing embedded queries in C/C++.
07/96–09/96

Tata Energy Research Institute (TERI)

Summer Intern

- Worked with a team of research scientists for their desktop support for UNIX and Windows systems. Account management, backup and recovery, print setup, LAN Networking were some of the primary responsibilities.

TECHNICAL SKILLS

- Programming Languages: C, C++, Java, Visual Basic 6, Shell scripting, Java Script, PHP, MySQL, Perl, CGI
- Platforms and Environments: VxWorks, UNIX, Solaris, SunOS, Windows. Familiarity with these environments at user, developer and administrator levels
- Technologies: Booch’s OOA&D, Public key cryptography, Data Encryption standard, Kerberos, Microsoft Access, Oracle DB
- Tools: Wind River Tornado, Rational ClearCase, Vxgdb, SQLPLUS
- Networking Technologies: ATM, TCP/IP, UDP, SNMP, SNTP, PNNI.

ACADEMIC PROJECTS

- **Client-Server Application** in Stock exchange Information: Developed software in C under UNIX on stock exchange. The user is allowed to log on to remote server and creates a new account, buy/sell stocks; find out their current balance and number of stocks they possess for each equity. The Super User is allowed to update the price of stocks also.

- **Operating System Simulation**: Software in C++ under UNIX, which simulated the various characteristics of OS such as File handling, page faults, segmentation of memory, Disc scheduling.

- **Huffman Encoding**: Software in C to produce Huffman encoding scheme of data compression, sending it to remote site and decoding the compressed file to obtain the original text.

- **Master Mind Game**: Developed Mastermind Game, a project in Java.
- **Word scrabble**: Front end of Scrabble game in Java
- **Point of Sale , Application Software**: Developed in Visual Basic
NORMA R. AVILA

P.O Box 700069
San Jose, Ca 95170-0069
(408) 973-0278
navilao@aol.com

PROFESSIONAL SUMMARY

Ten years of experience in managing projects and teams within multicultural business, technical and academic environments. Nine years of teaching experience within community colleges, private schools and universities. Expertise in building web pages to improve communication, information availability and increase the productivity of development teams. A broad range of skills demonstrated with direct experience in:

- Training / Coaching
- Planning, Organizing and Coordinating
- Problem Solving
- Web Design
- Detail Oriented
- Bilingual in English and Spanish
- Strong Interpersonal and Organizational Skills
- Leadership and Team Building
- Written and Oral Communications Skills
- Project / Resource Management

TECHNICAL SKILLS

Operating Systems: Windows 9x and NT, UNIX, DOS, and Macintosh.
Web Design: HTML, Dreamweaver and Front Page.
Graphic Design: Adobe PhotoShop, general knowledge Illustrator.

PROFESSIONAL EXPERIENCE:

Eligibility Examiner
Social Services Agency – Santa Clara County 12/05
- Present
  • Experience reviewing Fair Hearing requests and county cases to determine client’s eligibility for public assistance programs and determine whether the county’s actions were correct.
  • Interview county workers and clients to determine issues and negotiate a possible solution.
  • Prepare Position Statement for Fair Hearings requested when a solution was not reached.
  • Represent the county in court.
  • Experience reviewing State Manuals and Internal Handbooks for current regulations.

Eligibility Worker II
Social Services Agency – Santa Clara County 2/02
-12/2005
  • Experience in taking applications, interview people in need of public assistance programs.
• Reviewed applications in detail, verifications and budget computations to input the necessary information in the computer system to determine correct eligibility for the public assistance programs based on County regulations.
• Conversion Room team member for the implementation on the new computer system for the Social Services Agency.
• Participated in the Corrective Action and Transitional committees for local office.

Web Project/Program Management
Cisco Systems, Inc          06/00-06/01
• Program Management coordinating the activities of a team of technical leaders to promote leadership in Intelligent Networks resulting in materials for internal and external presentations.
• Designed, developed and maintained internal web site to provide a central repository of information exchange for technology interest groups.
• Project Management evaluating the progress of different products and solutions, in the establishment of processes and providing input to improve the decision-making.
• Created and maintained a web page to report the status of projects and to provide updated and timely information to coordinate multiple dependencies among teams, projects, products and solutions.

Computer Teacher and Lab Operation                      10/97-06/00
South Valley Carden School, San Jose, CA
• Designed lesson plans for computer classes using educational software and teaching applications including MS Office, and Web Page Design.
• Created the first web page for the school and produced school yearbook.

Instructor (part-time) 8/99-06/00
De Anza College, Cupertino, CA
• Taught Computer Applications and gave one-on-one support to students taking self-paced courses at the Computer Applications and Office Systems (CAOS) lab.

Channel Marketing (summer position) 6/99-8/99
Fujitsu Personal Systems, Inc
• Conducted Internet marketing research of potential customer companies.
• Created HTML-document profiles to be used in local database to support sales activities.
• Edited and published monthly Channel Marketing newsletter and manuals.

Director, Library Services 1/94-1/96
Monterrey Institute of Technology (ITESM), San Luis Potosi, Mexico
• Reorganized library services, established library procedures, hired and trained librarians and staff members. Improved library-rating position from 25th to 5th within the ITESM University system.
• Designed, implemented, and managed the first automated library system.
• Created and implemented methods to evaluate usage and user satisfaction.
• Prepared, negotiated and managed budgets increasing library collection by 30%.

Director, Student Affairs Department 1/92-8/93
Monterrey Institute of Technology (ITESM), Campus Hidalgo, Mexico
• Managed the Financial Aid Program, evaluated students’ applications and scholarships grants.
• Hired and managed instructors and group facilitators.
• Coordinated sports and cultural events, as well as an extensive conference calendar.
• Planned and managed logistics for touring musical play festival.

ADDITIONAL EXPERIENCE:

Director, Summer Camp
Three years of experience managing Summer Camp for children. Designed the program of activities. Prepared budget and planned promotional campaign and recruited participants. Hired instructors, enrolled participants and supervised volunteers.

EDUCATION:

Master’s Degree in Library and Information Science
University of Wisconsin, Milwaukee, Milwaukee, WI

Bachelor’s Degree in Computer Science - Administrative Systems
Monterrey Institute of Technology (ITESM), Campus Queretaro, Mexico

Certificate from the program Mastering the Art of Professional Coaching
The New Field Group, San Francisco, California
Julio R. Garcia
San Jose State University
College of Engineering
Dept of Aviation & Technology
Phone Work: (408) 924-3222
E-mail: jgarcia@email.sjsu.edu
www.engr.sjsu.edu/jgarcia/

EDUCATIONAL BACKGROUND
1985-88 University of Northern Iowa
   Doctor of Industrial Technology, Electronics
1973-75 University of Northern Iowa
   M.A. - Technology, Electronics
1965-68 National University of Education, Peru
   B.A. - Technology, Electronics

COURSES TAUGHT
Six-Sigma and Continuous Improvement Systems Management (graduate class)
Advanced Statistical Control (graduate class)
Measurements System Analysis (graduate class)
Analysis & Applications of Integrated Circuits
Microcomputer Architecture
Control Systems
Electronic Communications
Telecommunications Systems
Graphical Programming
Quality Systems
Data Communications and Networking
Networking Theory and Applications
Electronics Manufacturing Technologies
Basic Electronics
Principles of Electronic Circuits
Electronic Circuits I, II and III
Analysis of electric Circuits
Analog Circuits
Analog Systems
Digital Circuits
Computer and Business Applications
Introduction to Computers
Advanced Computer Applications
Graphical Programming
Computer Logic
Object Oriented Design and Analysis
Database Management
Introduction to Internet/Telecommunications
TEACHING EXPERIENCE

Aug 23, 1989  San Jose State University, Professor
to present  Electronics and Computer Technology

Apr 20, 1997  National Hispanic University, Adjunct
 to present  Computer Science

May 15-Aug 15  University of Northern Iowa
1989  Instructor - Electricity/electronics Workshop
Deere & Co. Electrical Apprenticeship Program

Jan-May 7, 1989  University of Northern Iowa
Instructor - Industrial Electronics

Oct-Dec 1988  University of Northern Iowa
Adjunct Instructor

1985-88  University of Northern Iowa
Graduate Assistant, Energy and Power

1981-85  National University of Education, Peru
Full-time Associate Professor
School of Electromechanical Technology - Electronics

1982-84  National University of San Marcos, Peru
Lecturer at workshops in Electronics

Part-time Associate Professor

1977-80  National University of San Marcos, Peru
Electronics Engineering

1977-80  Technological Institute “Carlos Cueto,” Peru
Electricity/electronics

1975-78  National School of Technical Engineering, Peru
Electronics Engineering

Jan-May 1975  University of Northern Iowa
Instructor Assistant, Electricity/electronics

1969-72  High School “Jose Pardo,” Peru
Electronics

Professional Service Activities

June 2007  External evaluator of Dr. John Wyatt for promotion to the rank of
Associate Professor. Mississippi State University.

Nov 2005  Reviewer of proposal “Simulation of a 8-bit high-speed parallel analog-to-
digital converter” by Dr. G.H. Massiha, The University of Louisiana at Lafayette. This proposal is going to be submitted to the National Science Foundation. Washington DC.
Jan 2005 to Present  Grant Application Reviewer, National Science Foundation. Washington DC.

Nov 2005 to Present  Executive Committee member. National Association of Industrial Technology (NAIT)

Nov 1998 to Present  Translator from English to Spanish and Spanish to English to companies “Silicon Valley Power Amplifiers” and “United Way Silicon Valley,” San Jose, California.


Oct 1998 to 2001  Coordinator of the Electronics Focus Group of the National Association of Industrial Technology (NAIT).

Oct 1998 to 2001  Member of the Conference Coordination Committee of the National Association of Industrial Technology (NAIT).

Mar 16-21, 1992  Grant Application Reviewer, United States Department of Education. Washington DC.

INDUSTRIAL EXPERIENCE

Jan-Jul 1989  Technical Consultant
CAM TALKER, Inc.
Cedar Falls, Iowa

1981-84  Technical Consultant, Peru
Electricity/electronics Technology

1982  National University of Education, Peru
Designer of a portable module for teaching electronics

1969-72  Electronics “Chirinos,” Peru
Designer of electronic kits

1969-72  Technician, Peru
Electrical/electronic equipment

RELATED EXPERIENCE

March 1988 to present  The CESNE Institute
Cedar Falls, Iowa
Developed as member of a team material regarding the Deming Method and the Deming Philosophy.
Prepared economic formulas.

Jun 1988 to July 1989  University of Northern Iowa
Programmer Assistant, Suroski Center
COMMITTEE SERVICE

**University:**
- Aug 2007 to Present: Student Fairness, Member
- Aug 1996 to 1999: Improvement of Instruction, Member
- Aug 1996 to June 1999: Student Success, Member
- April 1998-June 1998: International Programs Director Search Committee, Member
- Sept 1997 – Nov 1997: Professional Leave, Member
- May 1992 - June 1995: Continuing Education Committee, Member
- May 1991- June 1994: International Programs and Students Committee, Member
- Nov 1990 - June 1991: Public Safety Committee, Member

**College:**
- Summer 2007 to Present: Student Advisement, Member
- Fall 2006: Professional Leaves Committee, Member
- Aug 2005 to Present: Sabbatical Committee, Member
- Aug 2004 to 2006: Curriculum Committee, Member
- April 1998 to 2002: Aviation Faculty Search Committee, Member
- Jan 1999 to 2002: Student Affairs Committee, DOT representative
- Fall 1997: Professional Leaves Committee, Member
- April-May 1996: College Review Committee, Member
- Sept 1993 - May 1995: Committee to Enhance Equity and Diversity (CEED), Member
- Sept 1990 - May 1992: Student Affairs Committee, Member

**Department:**
- Augusto 2007 to Present: Graduate Coordinator
- March 1994 to Present: Graduate Committee, Member
- Sept 2004 to Present: Scholarship Committee, Member
- Aug 1989 to Present: Curriculum sub-committee of the Computer Electronics area, Member
- Sept to Dec 2004: Chair Review Committee, Chair
- Aug to December 2000: Retention, Tenure, Promotion & Personnel Committee, Chair
- Aug 1996 to Present: Retention, Tenure, Promotion & Personnel Committee, Member
- Aug 1996 to Present: Computer, Equipment and Facilities Committee, Member
- Aug 1994 to June 1995: Safety Committee (Chair)
- Aug 1993 to May 1994: Safety Committee (Co-Chair)
- Aug 1991 - May 1992: Safety Committee (Chair)
- Feb 1992 to May 2003: Articulation and Outreach Committee, Member (Co-Chair Aug 1993-May 1994)
Nov 1991 - May 1992  Computer Committee, Member
Sept 1990 - June 1991  Display Committee, Member
Sept 1990 - June 1991  Students Advisement (Chair, Ad Hoc)
Sept 1991 - Feb 1992  Screening Committee for Division Chair, Member

GRANTS
Grant from Hewlett Packard (HP) to complete the project “A Technology-Assisted Simulation of Distributed-Team IT Solution Development.” The time period for this grant is from 06/21/07 to 06/20/09.

Grant from the National Science Foundation (NSF) to complete the project “Integration of Computer-Based Electronics Laboratory into a Control Systems Course in Electronics Technology.” The time period for this grant was from 09/01/04 to 08/31/07.

Grant from the National Security Agency (NSA) to complete the project “Computer Modeling on the Effect of an Electric Field on the Growth of Thin Films.” The time period for this grant was from 06/21/04 to 06/20/05.

0.2 Release time, Student Success Project. Spring 2009.
0.2 Release time, Professional Development Grant. Fall 2007 and Spring 2008.
0.2 Release time, Student Success Project. Spring 2008.
0.2 Release time, Student Success Project. Spring 2007.
$2,000.00 Professional Development Grant, Spring 2007.
$2,450.00 Professional Development Grant, Spring 2005.
$1,900.00 Professional Development Grant, Spring 2003.
$1,899.00 Professional Development Grant, Spring 2002.
$750.00 Grant from the Lottery Funds, Spring 1999.
$1,250.00 Grant from the Lottery Funds, Spring 1998.
$600.00 Diversity Grant, Spring 1998. San Jose State University.
$1,500.00 Grant from the Lottery Funds, Spring 1997.
$1,500.00 Grant from the Lottery Funds, Spring 1996.
$1,400.00 Grant from the Lottery Funds, Spring 1995.
$1,000.00 Grant from the Lottery Funds, Spring 1994.
$1,000.00 Grant from the Lottery Funds, Spring 1993.
$5,000.00 CSU Grant, Spring 1991.
AWARDS
Professor Emeritus award from the National University “Enrique Guzman y Valle,” Lima, Peru. Feb 24, 2006.
Sabbatical Leave, Spring 2006.
Visiting Professor at the National University “Enrique Guzman y Valle,” Lima, Peru. March 1, 1998 to Present.
1995 Outstanding Industrial Technology Professor Award for Region VI. National Association of Industrial Technology (NAIT).

COMMUNITY SERVICE
Fall 1993 to Present  Member of the Electronics Advisory Committee at Ohlone College, Fremont, CA.
August 1995 to June 1998  Workshop Coordinator, Northern California, California Council of Electronics Instructors (CCEI).

EQUITY
Fall 1992 to Present  Senior Faculty Mentor - SJSU
Spring 1993 to June 1998  SATURDAY ACADEMY - EQUITY 2000 Program - Professor

PRESENTATIONS AT PROFESSIONAL CONFERENCES
“Integration Of Computer-Based Electronics Laboratory Into A Control Systems Course In Electronics Technology,” paper presented at the 40th Annual Convention of the National Association of Industrial Technology (NAIT), Panama City, Florida October 26, 2007. This paper was presented with a colleague from San Jose State University and a colleague from San Francisco State University.
“Assessment of LabVIEW and Multisim in the Delivery of Electronics Laboratory Content,” paper presented at the 2007 American Association of Engineering Technology (ASEE) Annual Conference, Honolulu Hawaii, June 25, 2007. This paper was presented with a colleague from San Jose State University.

“Computer Interfacing Card from Design to Final Product,” paper presented at the 39th Annual Convention of the National Association of Industrial Technology (NAIT), Cleveland, Ohio November 16, 2006. This paper was presented with a colleague from San Jose State University and a colleague from San Francisco State University.

“Integration Of Computer-Based Electronics Laboratory Into A Control Systems Course In Electronics Technology,” paper presented at The Ninth IASTED International Conference on Computers and Advanced Technology in Education (CATE 2006), October 6, 2006. Lima, Peru. This paper was presented with a colleague from San Jose State University.

“Multisim Application of PID Controller,” paper presented at the 38th Annual Convention of the National Association of Industrial Technology (NAIT), St Louis, Missouri November 18, 2005. This paper was presented with a colleague from San Jose State University and a colleague from San Francisco State University.

“Technological Innovations in Electronics,” paper presented on the First Century of the Post Secondary Public Technological Institute “Jose Pardo,” Lima, Peru September 22, 2005. This paper was presented in Spanish.

“Graduate Education in Peru,” conference delivered at the National University “Enrique Guzmán y Valle,” Lima Peru, July 20, 2005. This conference was presented in Spanish.

“Technology Instruction to Target Women and Minorities,” paper presented at the 67th Annual Convention of the International Technology Education Association (ITEA), Kansas City, Missouri April 4, 2005. This paper was presented with a colleague from San Jose State University.

“Using Computer Simulation in Teaching Electronic Experiments,” paper presented at the 37th Annual Convention of the National Association of Industrial Technology (NAIT), Louisville, Kentucky October 21, 2004. This paper was presented with a colleague from San Jose State University and a colleague from San Francisco State University.

“Design and Analysis of An Educational Automatic Guided Vehicle (AGV),” paper presented at the 36th Annual Convention of the National Association of Industrial Technology (NAIT), Nashville, Tennessee November 21, 2003. This paper was presented with a colleague from San Jose State University and a colleague from San Francisco State University.

“Use of LabVIEW in Solving Industrial Problems,” paper presented at the 36th Annual Convention of the National Association of Industrial Technology (NAIT), Nashville, Tennessee November 21, 2003. This paper was presented with a colleague from San Jose State University and a colleague from San Francisco State University.
“Computer Interface to Control Industrial Settings,” paper presented at the 35th Annual Convention of the National Association of Industrial Technology (NAIT), Panama Beach, Florida November 15, 2002. This paper was presented with a colleague from San Jose State University and a colleague from San Francisco State University.

“Using AutoCAD in Multi-Layer Printed Circuit Board (PCB) Design,” paper presented at the 34th Annual Convention of the National Association of Industrial Technology (NAIT), Dearborn, Michigan November 3, 2001. This paper was presented with a colleague from San Francisco State University.

“Using Multisim in teaching Electronic Systems Analyses,” conference delivered at the National University “Enrique Guzmán y Valle,” Lima Peru, August 21, 2001. This conference was presented in Spanish.

“The University and its challenges in the New Millennium,” conference delivered at the National University “Enrique Guzmán y Valle,” Lima Perú, January 16, 2001. This conference was presented in Spanish.

“Networking Workshop,” conducted at the National University “Enrique Guzmán y Valle,” Lima Perú, January 8 – 12, 2001. This workshop was presented in Spanish.


“A Quick and Effective Design of Electronic Circuits,” paper presented at the 2000 Annual Convention of the National Association of Industrial Technology (NAIT), Pittsburgh, PA November 2, 2000. This paper was presented with a colleague from San Francisco State University.

“How to Design and Implement Digital Circuits Using a Multiplexer,” paper presented at the 1999 Annual Convention of the National Association of Industrial Technology (NAIT), Panama City, Florida, November 18, 1999. This paper was presented with a colleague from San Francisco State University.

“Design IC Chips in a School Computer Laboratory,” paper presented at the 1999 Annual Convention of the National Association of Industrial Technology (NAIT), Panama City, Florida, November 18, 1999. This paper was presented with a colleague from San Francisco State University.

“Online Courses,” paper presented at the First International Convention of Multimedia and Distance Learning at the National University “Enrique Guzmán y Valle,” Lima Perú, September 14, 1999. This paper was presented in Spanish.

“Digital Circuits Design,” paper presented at the First International Convention of Multimedia and Distance Learning at the National University “Enrique Guzmán y Valle,” Lima Perú, September 15, 1999. This paper was presented in Spanish.
“Distance Learning,” round table presenter at the First International Convention of Multimedia and Distance Learning at the National University “Enrique Guzmán y Valle,” Lima Perú, September 17, 1999. This presentation was in Spanish.

“How to Design and Implement Digital Circuits Using a Multiplexer,” paper presented at the 1999 Annual Convention of the National Association of Industrial Technology (NAIT), Panama City, Florida, November 18, 1999. This paper was presented with a colleague from San Francisco State University.

“Design IC Chips in a School Computer Laboratory,” paper presented at the 1999 Annual Convention of the National Association of Industrial Technology (NAIT), Panama City, Florida, November 18, 1999. This paper was presented with a colleague from San Francisco State University.

“Microprocessors and their Applications,” conference to faculty of the School of Technology at the National University “Enrique Guzmán y Valle,” Lima Peru, January 12, 1999. This conference was presented in Spanish.

“Teaching Electronics Through Computer Simulation,” paper presented at the 1998 Annual Convention of the National Association of Industrial Technology (NAIT), Indianapolis, Indiana, October 21, 1998. This paper was presented with a colleague from San Francisco State University.

“Using New Technologies for Effective Global Education,” paper presented at the 1998 Annual Convention of the International Technology Education Association (ITEA), Dallas, Texas, March 9, 1998. This paper was presented with a colleague from San Francisco State University.


“Higher Education in Peruvian and Foreign Educational Institutions,” Speaker at the Round Table held at the National University of Education , Lima, Peru, January 14, 1998. This speech was presented in Spanish.


“Global Competition Requires a World Class Workforce,” paper presented at the 1997 Convention of the National Association of Industrial Technology (NAIT), Atlanta, Georgia, October 10, 1997. Co-presenter.

“Modern Techniques for Teaching Electronics in Peruvian Universities,” conference held at the National University of Education, Lima, Peru, June 19, 1997. This conference was in Spanish.


“Problem Solving in Technology Education,” paper presented at the 1993 Teaching and Learning Exchange, San Jose, CA, October 15, 1993. This paper was presented with another colleague from the Division.

“Improving Student Learning in Electronics Technology,” paper presented at the 1992 American Vocational Association (AVA) Convention, St. Louis, Missouri, December 6, 1992. This paper was presented with another colleague from the Division.

ARTICLES


“Multiplexer Applications in Designing Logic Circuits.” This published article was reviewed by the Editorial Board of Tech Directions, 55 (3). October 1995.


RESEARCH
“Identification of Technical Competencies in Analog and Digital Systems and Circuits.” Grant obtained through the California State University Research Fund in 1990-91.

“Improving Student Learning in Electronics Technology.” Mini grant obtained through the Research Committee of the School of Applied Sciences and Arts on December 6, 1991. This study was carried out with another colleague from the Division.

COURSES DEVELOPMENT
TECH 64: “Basic Wireless Communications”, Spring 2008
TECH 161: “High-Speed Mobile Internet”, Spring 2008
TECH 168: “IC Analysis and Applications”, Spring 2004
TECH 166: “Networking Administration and Management”, Spring 2003
TECH 163: “Electronic Communications”, Fall 1996
TECH 167: “Control Systems”, Fall 1996

GRADUATE ADVISOR

Co-Advisor of Six theses in MS in Quality Assurance.

WORKSHOPS
1. Selected as a participant in a one-week Multimedia Technology workshop for Summer 2000, San Jose State University.

2. Organized and conducted a workshop on "How To Use Electronics Workbench (EWB) For High School Students” to high school electronics instructors from Northern California. This Workshop was sponsored by the California Council of Electronics Instructors (CCEI) and conducted at San Jose State University, Department of Technology on May 18, 1996.

3. Organized and co-conducted with an engineer from Integrated Device Technology (IDT), San Jose, CA a Workshop on “RISC Processor” to Electronics Instructors from Northern California Community Colleges. This Workshop was conducted at San Jose State University, Department of Technology on April 23, 1994.
DONATIONS
1. Twenty (20) Macintosh SE computers and a number of electronic instruments from TRW Company during the Spring and Summer of 1996.
2. Forty (40) PCs from PG&E plus printers during the Summer of 1995. Some of these computers have been connected in a network in room IS240, other computers are as standalone units in room IS241 and other computers have been installed in room IS230. These computers will serve students in the areas of Electronics and Computer, and Quality Assurance.
3. $3,000,000.00 worth of semiconductor devices from Integrated Device Technology (IDT) on April 1993.

BOOK REVIEWER
BOOK CONTRACTS

Contract to write a lab manual “Experiments with Pulse and Switching Circuits” for ICS Learning Systems. This lab manual was submitted on September 6, 1995.

Contract to write a lab manual “Experiments with Logic Circuits” for ICS Learning Systems. This lab manual was submitted on September 27, 1995.

Contract to write a lab manual “Experiments with Linear and Digital Integrated Circuits” for ICS Learning Systems. This lab manual was submitted on December 26, 1995.

Contract to write a lab manual “Troubleshooting Practice for the Electronics Technician” for ICS Learning Systems. This lab manual was submitted on January 18, 1996.

WORKBOOKS


OFFICES HELD

Aug 2003 to Present Foundation Board member, National Association of Industrial Technology (NAIT).

Nov 2002 to 2004 Director, Region 6, National Association of Industrial Technology (NAIT).

August 1995 to 1998 Workshop Coordinator, Northern California, California Council of Electronics Instructors (CCEI).
April 1992 - May 1994    Vice President of California Association of Industrial Technology (CAIT).
April 1991 - April 1992  Secretary of California Association of Industrial Technology (CAIT).

PROFESSIONAL ORGANIZATIONS
1. National Association of Industrial Technology (NAIT)
2. American Society of Engineering Education (ASEE)
3. American Association of University Professors (AAUP)
4. California Association of Industrial Technology (CAIT)
5. California Council of Electronics Instructors, Inc. (CCEI)
6. American Vocational Association (AVA)
7. Epsilon Pi Tau (EPT)
8. Society of Manufacturing Engineers (SME)

PROFESSIONAL DEVELOPMENT
Attend regularly seminars and workshops sponsored by
a) National Instruments - LabVIEW
b) INTEL
c) IBM
d) Microsoft
e) 3Com
f) Hewlett Packard
g) Learning Tree International – Computer Networking
h) San Jose State University - WebCT
i) Ohio State University – RF ID
j) California Council of Electronics Instructors (CCEI)
k) Electronics Workbench - Multisim 2001
l) National Association of Industrial Technology (NAIT)
m) National Hispanic University, San Jose, CA.
n) ABET
o) Cadence University