School of Continuing Studies

BS in Applied Computing Systems and Technology

The program in applied computing systems and technology is designed to give the student a solid foundation in computing technology and the foundations upon which information systems are built.

The application development, database systems, Web development and business systems analysis concentrations cover specific concentration areas in information systems. In these concentrations students learn the skill needed to build information systems to meet the information needs of businesses and other enterprises, enabling them to achieve their objectives in an effective, efficient way. Information systems sees technology as an instrument to enable the generation, processing and distribution of needed information. Professionals in information systems are primarily concerned with the information that computer systems can provide to aid an enterprise in defining and achieving its goals, and the processes that an enterprise can implement and improve using computing technology.

In the information technology concentration, students obtain the combination of knowledge and practical, hands-on expertise to take care of both an organization's information technology infrastructure and the people who use it. IT professionals guide the selection of hardware and software products appropriate for an organization, integrating those products with organizational needs and infrastructure, and installing, customizing and maintaining those applications for the organization's computer users.

Note: Applied Computer Systems and Technology courses in the School of Continuing Studies do not count towards the degree requirements of full-time Newcomb-Tulane students.

Requirements for a Bachelor of Science Degree in Applied Computing Systems and Technology

General Requirements

Proficiency Requirements

ENGL 101 or CSEN 125   4 credits

Writing (ENLS 367 recommended) or Literature   3 credits

Two math courses   6 credits

Foreign language/Perspectives Outside the European Tradition/Comparative Cultures   6-8 credits

Supporting Requirements

Oral Communications   3 credits

Computer Applications   (Covered by Major)

Distribution Requirements (at least two disciplines per category)

Humanities   12 credits

Social Sciences   12 credits

Sciences   12 credits

Minor Requirements   *18 credits (usually)*

Major Requirements   *36 credits*

Free Electives   *12 credits (usually)*

Total   124 credits

Minor Requirements

Since information systems are intimately tied to applications in a business environment, a business studies minor is strongly recommended. Students who choose the Web development concentration may wish to obtain a minor in media arts in lieu of the business minor.

Major Requirements

Core Courses

Fundamentals of Information Systems and Information Technology

Problem Analysis and Programming Principles I

Problem Analysis and Programming Principles II

Database Fundamentals

IT Hardware and Software Fundamentals

Networking Fundamentals

Choose one area of concentration:

Application Development Concentration

Object-Oriented Design Implementation

Object-Oriented Programming with Java

One of the following:

    Programming in C++

    Visual Application Development

Advanced Object-Oriented Methods

Two electives

Database Systems Concentration

Systems Analysis and Design

Oracle Forms and Reports

Relational Database Design and Development

Database Application Development

One of the following:

    Data Warehousing and Data Mining

    Database Administration

One elective

Web Application Development Concentration

Systems Analysis and Design

Webpage Design and Development

Two of the following:

    Website Development with XML/XHTML

    Website Development with JavaScript

    Website Development with CGI/Perl

    Website Development with ASP

Internet Database Application Development

One elective

Business Systems Analysis Concentration

Systems Analysis and Design

Information Systems Project Management

System Requirements Development and Testing

Systems Analysis Practicum

Two electives

Information Technology Concentration

Internet Technologies

Fundamentals of Information Security and Assurance

Four of the following (At least one at the 400 level):

    Internet Server Administration with Windows Server and IIS

    LAN Server Administration

    Internet Server Administration with Linux and Apache

    Microcomputer Hardware

    Managing a Network Infrastructure

    Wide Area Networks

    Network Security

    Website Security

Requirements for an Associate of Science Degree in Applied Computing Systems and Technology

Core Courses

Fundamentals of Information Systems and Information Technology

Problem Analysis and Programming Principles I

Problem Analysis and Programming Principles II

Database Fundamentals

IT Hardware and Software Fundamentals

Networking Fundamentals

Choose one area of concentration:

Development Concentration

Object-Oriented Design Implementation or Systems Analysis and Design

One 300 level elective

Information Technology Concentration

Internet Technologies

Fundamentals of Information Security and Assurance

Requirements for a Minor in Applied Computing Systems and Technology

Fundamentals of Information Systems and Information Technology

Problem Analysis and Programming Principles I

Problem Analysis and Programming Principles II

Database Fundamentals

IT Hardware and Software Fundamentals

Networking Fundamentals

Requirements for a Postbaccalaureate Certificate in Application Development

Fundamentals of Information Systems and Information Technology

Problem Analysis and Programming Principles I

Problem Analysis and Programming Principles II

Database Fundamentals

IT Hardware and Software Fundamentals

Networking Fundamentals

Object-Oriented Design Implementation

Object-Oriented Programming with Java

One of the following:

    Programming in C++

    Visual Application Development

Advanced Object-Oriented Methods

Two electives

Requirements for a Postbaccalaureate Certificate in Database Systems

Fundamentals of Information Systems and Information Technology

Problem Analysis and Programming Principles I

Problem Analysis and Programming Principles II

Database Fundamentals

IT Hardware and Software Fundamentals

Networking Fundamentals

Systems Analysis and Design

Oracle Forms and Reports

Relational Database Design and Development

Database Application Development

One of the following:

    Data Warehousing and Data Mining

    Database Administration

One elective

Requirements for a Postbaccalaureate Certificate in Web Development

Fundamentals of Information Systems and Information Technology

Problem Analysis and Programming Principles I

Problem Analysis and Programming Principles II

Database Fundamentals

IT Hardware and Software Fundamentals

Networking Fundamentals

Systems Analysis and Design

Webpage Design and Development

Two of the following:

    Website Development with XML/XHTML

    Website Development with JavaScript

    Website Development with CGI/Perl

Website Development with ASP

Internet Database Application Development

One elective

Requirements for a Postbaccalaureate Certificate in Business Systems Analysis

Fundamentals of Information Systems and Information Technology

Problem Analysis and Programming Principles I

Problem Analysis and Programming Principles II

Database Fundamentals

IT Hardware and Software Fundamentals

Networking Fundamentals

Systems Analysis and Design

Information Systems Project Management

System Requirements Development and Testing

Systems Analysis Practicum

Two electives

Requirements for a Postbaccalaureate Certificate in Information Technology

Core Courses

Fundamentals of Information Systems and Information Technology

Problem Analysis and Programming Principles I

Problem Analysis and Programming Principles II

Database Fundamentals

IT Hardware and Software Fundamentals

Networking Fundamentals

Internet Technologies

Fundamentals of Information Security and Assurance

Four of the following (At least one at the 400 level):

Internet Server Administration with Windows Server and IIS

LAN Server Administration

Internet Server Administration with Linux and Apache

Microcomputer Hardware

Managing a Network Infrastructure

Wide Area Networks

Network Security

Website Security

APPLIED COMPUTING SYSTEMS AND TECHNOLOGY COURSE DESCRIPTIONS
CPST-100 Introduction to Microcomputers
This course introduces students to the microcomputer and some popular micro applications. Special attention is given to essential concepts, word processing, spreadsheets, and database management. The course also provides a preface to operating environments such as Windows. Includes hands-on laboratory sessions; currently, Microsoft Office tools are used for this course.

CPST-101 Advanced Office
This course uses Microsoft Office to teach intermediate to complex design and implementation skills with desktop computers. Tools for data analysis and cross-system integration are stressed. Embedding, importing, exporting and linking are taught using the word processor, spreadsheet and database software of an integrated vendor package. Lectures and practical exercises in the lab will be used to convey both practical and theoretical knowledge. The student learns to integrate powerful application software packages into a departmental information solution.

CPST-102 Document Development with Word Processors
This course covers concepts and principles for designing various types of documents using word processor packages on the microcomputer. It presents the development of word processing applications using macros, merge techniques, mathematical operations, style sheets, tables, outlining, graphics and desktop

publishing fundamentals. Representative word processing packages are used.

CPST-103 Presentation Software

This course prepares students to use a presentation graphics program to organize and present information for personal and professional use. Some topics include: importing, linking and inserting a variety of objects into slides, use of animation and transitions, and the delivery of presentations. Currently PowerPoint is used for the course.

CPST-104 Problem Solving with Spreadsheets

The course covers the use of electronic spreadsheets to perform key applied computing functions with the microcomputer. It presents techniques and methods for designing spreadsheet applications using basic layout and functions, templates, graphing data, macros, consolidation, and audits. It includes concepts and principles of budgeting, system design, and data analysis. Representative spreadsheet packages are used.

CPST-105 Applications of Database Software

Designed for end-users, this course includes design and implementation of various functions and processes using database packages. Topics include: definition of needs from the database software, development of data tables and fields, design of forms and reports, and construction of relationships and views. Representative software packages are used.

CPST-122 Introduction to Programming: Visual Basic

This introductory programming course assumes no previous programming experience and introduces programming in an "object-like" environment. The student is introduced to the use of problem-solving, logic skills and program design to develop simple computer-based solutions in Visual Basic. Students will write Visual Basic programs using elementary applied computing techniques including editing, calculation, decision branching, control looping, and file I/O.

CPST-125 Introduction to Programming: Java

This course introduces the student to the tools used in creating and executing programs and the use of the Java language for specifying

program instructions and concepts that are common to all modern programming languages and environments. The course covers the use of a text editor and compiler, the compiling and running of simple programs, the creation of a simple Java class that functions as the framework of a complete program, the characteristics of simple data types, the declaration, assigning, and manipulation of variables, the use and manipulation of string objects, the use of console-based input and output, the use of if-else constructs to make decisions, the use of loop constructs to perform iteration, the declaration, assigning, and manipulation of arrays, and call static methods.

CPST-140 Working with the Internet
This course acquaints the students with the Internet, its uses and history, and a wide variety of tools and applications for effectively accessing information. Students will have the opportunity to learn classic text-based Internet applications, as well as graphical and multimedia capabilities of the World Wide Web. Coverage of basic technologies (e.g., hardware, protocols, authoring software) is included.

CPST-201 Statistical Software with SPSS or SAS
This course will be based on either of two major statistical software packages, SPSS or SAS. Students will gain hands-on experience with data conversion and transformations, and will explore basic statistical analyses using data samples from business, marketing, clinical research, epidemiology and education.

CPST-305 Technology and Ethics
This course examines the ethical and social aspects of information technology with emphasis on computing. Pertinent issues include acquisition, access, stewardship, liability, freedom, privacy, control and security.

CPST-310 Help Desk Operations
This course covers the business practices, tools and technology most frequently used to support business help desk and support operations. Designed to allow students to retrieve the most up-to-

date information of general IT and support business practices, using the Internet as a resource for white papers, product demonstrations, and trial versions of software. Students are expected to apply their knowledge through hands-on projects, exercises, and case study assignments.

CPST-325 Advanced Object-Oriented Programming
This is course focuses on object-oriented principles and languages. Emphasis is placed on abstraction, the use of interfaces, creation and use of class hierarchies, advanced work with UML class diagrams, and an introduction to object-oriented design.

CPST-345 Website Development with PHP (3)
This course teaches the fundamentals of programming for web sites using PHP Hypertext Preprocessor, a popular tool for enhancing home pages. The language is part of the Open Source collaborative effort and may be found on millions of websites. Students develop PHP based functions and use MySQL to interface with a small database application using PHP code.

CPST-405 Managing the Information Technology Department
Examines the organization, planning and management of major I. S. department functions. Some of these are: technology, personnel, budget, productivity, assessment, project selection and implementation, operations, data custody and ownership.

CPST-436 Advanced Database Administration
This course is designed to give the student a firm foundation in advanced database administrative tasks. The student will gain the necessary knowledge and skills to set up a backup and recovery scheme for a high-end database system. Students will then follow a structured performance and tuning analysis of a database. Students will receive an introduction to network administration. Currently, Oracle is used for this course.

CPST-445 Multimedia Website Development (3)
This course provides understandings and skills with some of the tools and techniques of designing, developing and publishing

multimedia components on the Internet via the World Wide Web. Students become acquainted with the computer hardware, software (both used on the desktop and the Net), and programming techniques needed to design, create and maintain fully multimedia Web documents and sites. This course will primarily focus on sound, video, and animation component development and publishing. The course relies primarily on "plug-ins" but will require some programming as well.

CPST-462 Advanced LAN Administration
The focus of this course is managing a network infrastructure based on Windows 2003 Server and Active Directory. Students are expected to already be familiar with the common administrative tasks associated with the Windows 2003 Server network operating system, including administering users and groups, creation of file shares, assigning shared folder permissions and NTFS file/folder permissions, managing disk storage and disk fault tolerance, network printing, configuring networking protocols, such as TCP-IP, IPX/SPX, and NetBEUI, as well as an understanding of network naming and addressing services, such as DHCP, DNS, WINS, and NetBIOS.

CPST-475 Fundamentals of Routers
Students learn the functions, technologies and applications of routers. Usage of Cisco routers and software tools, plus RouterSim software, is included in the course. Configuration of routers using IOS commands is taught, as well as network protocols, design and management principles and tools, and security.

CPST-476 Fundamentals of Wireless Networking
This course is introduces the student to the techniques, design and application of wireless networking while avoiding "black box, plug and play" approach so as to develop a higher level of thought and understanding of the subject. Of primary importance is the application of so called "WiFi", and its numerous offshoots, to create local area and personal area networks that are efficient in coverage and throughput, and secure. In addition, topics such as point to point links between networks, and wide area wireless

deployments will be covered. The course will address the rapid changes and new applications as they pertain to wireless networks. Throughout the semester class discussion of the "latest" technologies in wireless will be encouraged. Security should be of prime concern in any wireless networking application and this course will present the tools to implement security within wireless networks, as well as introduce the latest techniques for enhancing security. Basic radio frequency concepts and implementations will be studied to provide a foundation for the understanding of wireless networks in the "real world" environment. Networking equipment and computers will be utilized throughout the course to demonstrate the applications of wireless networking.