CHD 208 Administration of Child Development Programs 3-0-3
This course includes appropriate administrative policies and procedures relevant to preschool programs. Topics include local, state and federal regulations; budget planning; record keeping; personnel policies and parent involvement. Upon completion, students should be able to identify elements of a sound business plan, develop familiarity with basic record-keeping techniques, and identify elements of a developmentally appropriate program.

CHD 209 Infant and Toddler Education Programs 3-0-3
This course focuses on child development from infancy to thirty months of age with emphasis on planning programs using developmentally appropriate material. Emphasis is placed on positive ways to support an infant's social, emotional, physical and intellectual development. Upon completion, students should be able to plan an infant-toddler program and environment which is appropriate and supportive of the families and the children.

CHD 210 Educating Exceptional Young Children 2-2-3
This course explores the many different types of exceptionalities found in young children. Topics include speech, language, hearing and visual impairments; gifted and talented children; mental retardation; emotional, behavioral, and neurological handicaps. Upon completion, students should be able to identify appropriate strategies for working with young exceptional children.

CHD 211 Child Development Seminar 2-0-2
A selection of topics relating to young children are addressed in this course. Subject matter will vary according to industry and student needs. Upon completion, students should demonstrate competencies designed to assess course objectives.

CHD 212 Child Development Associate Seminar 2-2-3
This course includes topics from competency areas required for individuals working toward or renewing CDA credentials. Industry needs determine course topics. Upon completion, students should demonstrate competency in meeting course objectives.

CHD 214 Families and Communities in Early Care and Education Programs 2-2-3
This course provides students with information about working with diverse families and communities. Students will be introduced to family and community settings, the importance of relationships with children, and the pressing needs of today's society. Students will study and practice techniques for developing these important relationships and effective communication skills.

CHD 215 Supervised Practical Experience in Early Childhood Education 0-6-3
PREREQUISITE: Permission of the instructor.
This course provides a minimum of 90 hours of hands-on, supervised experience in an approved program for young children. Emphasis is placed on performance of daily duties which are assessed by the college instructor and the cooperating teacher. Upon completion, students should be able to demonstrate competency in a child care setting.

Computer Science (CIS)

Availability of courses in this program is dependent upon student enrollment. See master schedule of classes or advisor for further information.

CIS 096 Introduction to Computers 3-0-3
This course is designed to introduce students to basic computer terminology, hardware, input/output devices, memory, and processing. Students will learn basic keyboarding skills in addition to learning how to manage files. Windows as a graphical user interface and applications that use the Windows environment are emphasized.

CIS 110 Introduction to Computer Logic and Programming 2-1-3
This course includes logic, design and problem solving techniques used by programmers and analysts in addressing and solving common programming and computing problems. The most commonly used techniques of flowcharts, structure charts, and pseudocode will be covered and students will be expected to apply the techniques to designated situations and problems.

CIS 111 Word Processing Software Applications 2-1-3
This course provides students with hands-on experience using word processing software. Students will develop skills common to most word processing software by developing a wide variety of documents. Emphasis is on planning, developing, and editing functions associated with word processing.

CIS 113 Spreadsheet Software Applications 2-1-3
This course provides students with hands-on experience using spreadsheet software. Students will develop skills common to most spreadsheet software by developing a wide variety of spreadsheets. Emphasis is on planning, developing, and editing functions associated with spreadsheets.

CIS 115 Presentation Graphics Software Applications 2-1-3
This course provides students with hands-on experience using presentation graphics software. Students will develop skills common to most presentation graphics software by developing a wide variety of presentations. Emphasis is on planning, developing, and editing functions associated with presentations.

CIS 117 Database Management Software Applications 2-1-3
This course provides students with hands-on experience using database management software. Students will develop skills common to most database management software by developing a wide variety of databases. Emphasis is on planning, developing, and editing functions associated with database management.

CIS 146 Microcomputer Applications 2-1-3
This course is an introduction to the most common microcomputer software applications. These software packages should include typical features of applications, such as word processing, spreadsheets, database management, and presentation software. Upon completion, students will be able to utilize selected features of these packages. This course will help prepare students for the MOS and IC^3 certification. This course or an equivalent is CORE for the AAT and AAS CIS programs.

CIS 147 Advanced Microcomputer Applications 2-1-3
PREREQUISITE: CIS146 or permission of instructor
This course is a continuation of CIS 146 in which students utilize the advanced features of topics covered in CIS 146. Advanced functions and integration of word processing, spreadsheets, database, and presentation packages among other topics are generally incorporated into the course and are to be applied to situations found in society and business. Upon completion, the student should be able to apply the advanced features of selected software appropriately to typical problems found in society and business. This course will help prepare students for the MOS certification.

CIS 148 Post Advanced Microcomputer Applications 2-1-3
PREREQUISITE: CIS147
This course builds on concepts associated with various microcomputer applications with emphasis on advanced features commonly found in software applications. Advanced features of word processing, spreadsheets, database, and presentation packages are introduced. Features such as macros, Visual Basic Applications, and online features are included in the content of the course. Upon completion, the student will be able to apply the advanced features of selected software to the workplace. This course will help prepare students for the MOS certification.

CIS 149 Introduction to Computers 3-0-3
This course is an introduction to computers and their impact on society. The course covers the development of computers, their impact on society, as well as future implications of development of computer and related communication technologies. This course introduces programming and computer operating systems. Upon completion, students will have basic knowledge of computer technology and will be able to perform basic functions with a computer system. The course will help prepare students for the IC^3 certification.

CIS 151 Graphics for the World Wide Web 2-1-3
PREREQUISITE: CIS146
This course will provide an overview to the theory, tools, and techniques necessary for creating high-quality graphics using design software tools. This course may be substituted with CAT 150 Imaging I: Principles of Photography and Introduction to Photoshop and CAT 180 Imaging II: Techniques of Photoshop and Painter or equivalent.

CIS 160 Multimedia for the World Wide Web 2-1-3
PREREQUISITE: CIS146
This course covers contemporary, interactive multimedia technology systems, focusing on types, applications, and theories of operation. In addition to the theoretical understanding of the multimedia technologies, students will learn how to digitize and manipulate images, voice, and video materials, including authoring a web page utilizing multimedia.

CIS 185 Computer Ethics 3-0-3
This course will survey the various issues surrounding computer ethics.

CIS 189 Co-op for CIS I 0-3-3
This course is part of a series wherein the student works in a degree/program related job. Emphasis is placed on student's work experience as it integrates academic knowledge with practical application through exposure to computer practices in informational technologies environment. The grade is based on the employer's evaluation of each student's productivity, content of a descriptive report submitted by the student, and student development and assessment of a learning contract.

CIS 191 Intro to Computer Programming Concepts 2-1-3
PREREQUISITE: MTH100 or permission of instructor
This course introduces fundamental concepts, including an algorithmic approach to problem solving via the design and implementation of programs in selected languages. Structured programming techniques involving input/output, conditional statements, loops, files, arrays and structures and simple data structures are introduced. Students are expected to write programs as part of this course.

CIS 199 Network Communications 2-1-3
PREREQUISITE: CIS268 and CIS269
This course is designed to introduce students to the basic concepts of computer networks. Emphasis is placed on gaining an understanding of the terminology and technology involved in implementing networked systems. The course will cover the OSI and TCP/IP network models, communications protocols, transmission media, networking hardware and software, LANs (Local Area Networks) and WANs (Wide Area Networks), Client/Server technology, the Internet, Intranets and network troubleshooting. Upon completion of the course, students will be able to design and implement a computer network. Students will create network shares, user accounts, and install print devices while ensuring basic network security. They will receive hands-on experience building a mock network in the classroom. This course will help prepare students for the CCNA and Network + certifications. This is a CORE course for the AAT, AAS CIS programs. CIS 161 or CIS 273 may be used as a suitable substitute for this course.

CIS 203 Introduction to the Information Highway 2-1-3
PREREQUISITE: CIS146
This course introduces the student to the basic principles of the information highway. Students will be exposed to different network information tools such as electronic mail, network news, gophers, the World Wide Web, browsers, commercial information services and the use of appropriate editors or software to introduce construction of Web environments.

CIS 205 Control Language and Utilities Applications 2-1-3
PREREQUISITE: CIS241 or permission of instructor.
This course introduces computer operation and the job or executive language on a mini- or mainframe computer using both batch and on-line techniques. Utilities including sorts, screen design aids, and control programs while operating system concepts such as scheduling are introduced. Upon completion, the student will been able to demonstrate knowledge of the topics through the completion of programming projects and appropriate tests.

CIS 206 Advanced Control Language 2-1-3
PREREQUISITE: CIS205
This course covers the advanced use of Control Language Commands used to control system functions. Display files, queries, functions and conditional logic are covered and used in practical applications.

CIS 207 Introduction to Web Development 2-1-3
PREREQUISITE: CIS146
At the conclusion of this course, students will be able to use specified markup languages to develop basic Web pages.

CIS 208 Intermediate Web Development 2-1-3
PREREQUISITE: CIS207
This course builds upon basic skills in Web authoring. Various Web authoring tools are introduced. Upon completion students will be able to use these tools to enhance Web sites.

CIS 209 Advanced Web Development 2-1-3
PREREQUISITE: CIS208
This is an advanced Web design course emphasizing the use of scripting languages to develop interactive Web sites. Upon completion students will be able to create data driven Web sites. This course helps prepare students for the Certified Internet Webmaster (CIW) Foundations certification.

CIS 212 Visual Basic Programming 2-1-3
PREREQUISITE: CIS146 or College Algebra
This course emphases BASIC programming using a graphical user interface. The course will emphasize graphical user interfaces with additional topics on such topics as advanced file handling techniques, simulation, and other selected areas. Upon completion, the student will been able to demonstrate knowledge of the topics through the completion of programming projects and appropriate tests.

CIS 213 Advanced Visual Basic Programming 2-1-3
PREREQUISITE: CIS212
This course is a continuation of CIS 212, Visual Basic Programming.

CIS 222 Database Management Systems 2-1-3
This course will discuss database system architectures, concentrating on Structured Query Language (SQL). It will teach students how to design, normalize and use databases with SQL, and to link those to the Web.

CIS 223 Three Dimensional Computer Modeling 2-1-3
This course is a study in 3D computer modeling and 3D painting beginning with primitive shapes and creating compelling 3D objects for use in model libraries, games, print material, web sites, visual simulation, and architectural applications. Powerful operations for modeling and 3D painting are incorporated into an interface that is simple and intuitive to use.

CIS 224 Three Dimensional Computer Animation 2-1-3
This course is a study in 3D computer animation. Course contents include a review of 3D modeling, rendering the 3D animations, compositing and special effects for both video and digital editing, video and film recording, storyboarding and sound design, technical testing and production estimates and scheduling.

CIS 231 Fortran Programming 2-1-3
PREREQUISITE: MTH100 and a previous computer science course or equivalent
This course introduces fundamental concepts of the programming language FORTRAN. Topics included are mathematical and relational operators, branching, the use of input devices, arrays, subprograms, and introductory file and disk operation. Upon completion, the student will been able to demonstrate knowledge of the topics through the completion of programming projects and appropriate tests.

CIS 241 Introduction to RPG Programming 2-1-3
PREREQUISITE: CIS146 or CIS110 or equivalent
This course introduces the fundamental concepts of RPG (Report Program Generator). It includes such topics as report preparation, control breaks, and file processing. Upon completion, the student will been able to demonstrate knowledge of the topics through the completion of programming projects and appropriate tests.

CIS 242 Intermediate RPG Programming 2-1-3
PREREQUISITE: CIS241
This course is a continuation of CIS 241; includes such topics as sequential and random access file processing techniques. It may cover many of the structured programming commands, externally described files, display files, and other capabilities unique to some versions of RPG. Upon completion, the student will been able to demonstrate knowledge of the topics through the completion of programming projects and appropriate tests.

CIS 243 Advanced RPG Programming 2-1-3
PREREQUISITE: CIS242
This course provides enhanced use of externally described physical, logical, and display files in interactive processing. Special instructions are directed toward the use and coding of Subfile Programs. Students enrolled in this course are expected to spend two practice hours per week in the computer laboratory.

CIS 249 Microcomputer Operating Systems 2-1-3
PREREQUISITE: CIS146 or permission of instructor
This course provides an introduction to microcomputer operating systems. Topics include a description of the operating system, system commands, and effective and efficient use of the microcomputer with the aid of its system programs. Upon completion, students should understand the function and role of the operating system, its operational characteristics, its configuration, how to execute programs, and efficient disk and file management.

CIS 250 E-Commerce 3-0-3
PREREQUISITE: CIS146 or permission of instructor
This course is an introduction into e-commerce. Topics include marketing, building an e-commerce store, security, and electronic payment systems. Upon completion students will be able to build an e-commerce presence.

CIS 251 C++ Programming 2-1-3
PREREQUISITE: CIS110 or equivalent
This course is an introduction to the C++ programming language including object oriented programming. Topics include: problem solving and design; control structures; objects and events; user interface construction; and document and program testing.

CIS 252 Advanced C++ Programming 2-1-3
PREREQUISITE: CIS251
This course is a continuation of C++ programming. Techniques for the improvement of application and systems programming will be covered and other topics may include memory management, C Library functions, debugging, portability, and reusable code. Upon completion, the student will been able to demonstrate knowledge of the topics through the completion of programming projects and appropriate tests.

CIS 255 JAVA Programming 2-1-3
PREREQUISITE: CIS146
This course is an introduction to the Java programming language. Topics in this course include object-oriented programming constructs, Web page applet development, class definitions, threads, events and exceptions. Upon completion, the student will be able to demonstrate knowledge of the topics through the completion of programming projects and appropriate tests.

CIS 256 Advanced JAVA 2-1-3
PREREQUISITE: CIS255
This course is a second course of a sequence using the Java programming language. Topics include: Sun's Swing GUI components, JDBC, JavaBeans, RMI, servlets, and Java media framework. Upon completion, the student will be able to demonstrate knowledge of the topics through programming projects and appropriate exams.

CIS 261 COBOL Programming 2-1-3
PREREQUISITE: Previous CIS course
This course is an introduction to the COBOL programming language. Included are structured programming techniques, report preparation, arithmetic operations, conditional statements, group totals, and table processing. Upon completion, the student will been able to demonstrate knowledge of the topics through the completion of programming projects and appropriate tests.

CIS 262 Advanced COBOL Programming 2-1-3
PREREQUISITE: CIS261
This course consists of development, completion, testing, and execution of complex problems in COBOL using various data file structures. A structured approach will be implemented as a methodological system. Upon completion, the student will been able to demonstrate knowledge of the topics through the completion of programming projects and appropriate tests.

CIS 264 Business Applications 2-1-3
PREREQUISITE: CIS243 and CIS206
Prior programming training is put to use in implementing a practical business application such as accounts receivable, accounts payable, payroll, or other business system. A different application is selected each semester. Instructor will provide student with the necessary data and the student will create all the programs that are necessary to produce the expected results. This course will require outside laboratory time to produce programs for evaluation. Mastery of the language selected for the study, at the desired level, is required.

CIS 268 Software Support 2-1-3
PREREQUISITE: CIS146
This course provides students with hands-on practical experience in installing computer software, operating systems, and trouble-shooting. The class will help to prepare participants for the A+ Certification sponsored by CompTIA. This course is a suitable substitute for CIS 239, Networking Software.

CIS 269 Hardware Support 2-1-3
PREREQUISITE: CIS146
This course provides students with hands-on practical experience in installation and troubleshooting computer hardware. The class will help to prepare participants for the A+ Certification sponsored by CompTIA. This is a suitable substitute for CIS 240, Networking Hardware.

CIS 276 Server Administration 2-1-3
This course introduces network operating system administration. Topics included in this course are network operating system software installation, administration, monitoring, and maintenance; user, group, and computer account management; shared resource management; and server hardware management. Students gain hands-on experience in managing and maintaining a network operating system environment.

CIS 280 Network Security 3-0-3
This course provides a study of threats to network security and methods of securing a computer network from such threats. Topics included in this course are security risks, intrusion detection, and methods of securing authentication, network access, remote access, Web access, and wired and wireless network communications. Upon completion, students will be able to identify security risks and describe appropriate counter measures.

CIS 281 System Analysis and Design 3-0-3
PREREQUISITE: Any advanced programming course
This course is a study of contemporary theory and systems analysis and design. Emphasis is placed on investigating, analyzing, designing, implementing, and documenting computer systems. Upon completion, the student will been able to demonstrate knowledge of the topics through the completion of programming projects and appropriate tests.

CIS 282 Computer Forensics 2-1-3
This course introduces students to methods of computer forensics and investigations. This course helps prepare students for the International Association of Computer Investigative Specialists (IACIS) certification.

CIS 284 CIS Internship 4-3-3
PREREQUISITE: Permission of instructor
This course is designed to provide the student with an opportunity to work in a degree/program related environment. Emphasis is placed on the student's "real world" work experience as it integrates academics with practical applications that relate meaningfully to careers in the computer discipline. Significance is also placed on the efficient and accurate performance of job tasks as provided by the "real world" work experience. Grades for this course will be based on a combination of the employer's evaluation of the student, and the contents of a report submitted by the student. Upon completion of this course, the student should be able to demonstrate the ability to apply knowledge and skills gained in the classroom to a "real world" work experience.

CIS 285 Object Oriented Programming 2-1-3
PREREQUISITE: CIS251 or Permission of instructor
This course is an advanced object-oriented programming course and covers advanced program development techniques and concepts in the context of an object-oriented language, such as C++ or Java. Subject matter includes object-oriented analysis and design, encapsulation, inheritance, polymorphism (operator and function overloading), information hiding, abstract data types, reuse, dynamic memory allocation, and file manipulation. Upon completion, students should be able to develop a hierarchical class structure necessary to the implementation of an object-oriented software system.

CIS 287 SQL Server 2-1-3
This course will provide students with the technical skill required to install, configure, administer and troubleshoot SQL Server client/server database management system. At the completion of this series students will be able to: identify the features of SQL Server and the responsibilities and challenges in system administration; identify the benefits of integrating SQL Server and setup clients for SQL Server; install and configure SQL Server; manage data storage using database devices and partition data using segments; manage the user accounts; manage user permissions; identify the various task scheduling and alerting abilities of SQL Executive; identify the concepts used in replication and implement replication of the data between two SQL Services; identify the types of backup and create backup devices; identify the factors effecting SQL Server performance and the need for monitoring and tuning; locate and troubleshoot problems that occur on the SQL Server.

CIS 291 Case Study in Computer Science 3-0-3
PREREQUISITE: CIS281 or Permission of instructor
This course is a case study involving the assignment of a complete system development project for analysis, programming, implementation, and documentation. Topics include planning system analysis and design, programming techniques, coding and documentation. Upon completion, students should be able to design, code, test and document a comprehensive computer information system.

CIS 299 Directed Studies in Computer Science 3-0-3
PREREQUISITE: Permission of instructor
This course allows independent study under the direction of an instructor. Topics to be included in the course material will be approved by the instructor prior to or at the beginning of the class. Upon completion, the student will been able to demonstrate knowledge of the topics as specified by the instructor.

Computer Numerical Control (CNC)

Availability of courses in this program is dependent upon student enrollment. See master schedule of classes or advisor for further information.

CNC 227 Introduction to Statistical Process Control 3-0-3
This is an introduction course in statistical process control of manufacturing processes. Topics include control charts, pareto diagrams, and cause-effect diagrams. Upon completion, students are expected to perform basic functions in analysis and control of manufacturing processes.

CNC 230 Computer Numerical Control Special Topics 0-3-1
This course is designed to allow students to work in the lab with limited supervision. The student is to enhance their proficiency levels on various CNC machine tools. Upon completion, students are expected to plan, execute, and present results of advanced CNC products.

Communication Skills (COM)

+COM100 Introductory Technical English I 3-0-3
PREREQUISITE: Satisfactory placement score.
This course is designed to enhance reading and writing skills for the workplace. Emphasis is placed on technical reading, job-related vocabulary, sentence writing, punctuation, and spelling with substantial focus on occupational performance requirements. Upon completion, students should be able to identify main ideas with supporting details and produce mechanically correct short writings appropriate to the workplace.

+Availability of this course is dependent upon sufficient demand. See master schedule of classes or advisor for further information.