<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Level</th>
<th>Applied Learning</th>
<th>Prerequisite(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CISY 1003</td>
<td>Intro to Microcomputer Appl.</td>
<td>3.00</td>
<td>Lower</td>
<td>Practicum</td>
<td>Add Information Technology Cert Prep. with D or better or Add Microcomputer Appl. with D or better</td>
</tr>
<tr>
<td>CISY 1023</td>
<td>Intro to Information Tech.</td>
<td>3.00</td>
<td>Lower</td>
<td>Practicum</td>
<td>Add Introduction to Information Technology or Add Microcomputer Appl. or Add Computer Programming I</td>
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<tr>
<td>CISY 1113</td>
<td>Computer Programming I</td>
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<td>Lower</td>
<td>Practicum</td>
<td>Add Introduction to Information Technology or Add Microcomputer Appl. or Add Computer Programming I</td>
</tr>
<tr>
<td>CISY 2141</td>
<td>Info Tech A+ Cert Prep.</td>
<td>1.00</td>
<td>Lower</td>
<td>Practicum</td>
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<tr>
<td>CISY 2133</td>
<td>Computer Programming II</td>
<td>3.00</td>
<td>Lower</td>
<td>Other</td>
<td>Add Introduction to Information Technology or Add Microcomputer Appl. or Add Computer Programming I</td>
</tr>
<tr>
<td>CISY 1023</td>
<td>Intro to Information Tech.</td>
<td>3.00</td>
<td>Lower</td>
<td>Practicum</td>
<td>Add Introduction to Information Technology or Add Microcomputer Appl. or Add Computer Programming I</td>
</tr>
<tr>
<td>CISY 2153</td>
<td>Database Appl and Programing I</td>
<td>3.00</td>
<td>Lower</td>
<td>Practicum</td>
<td>Add Introduction to Information Technology or Add Microcomputer Appl. or Add Computer Programming I</td>
</tr>
<tr>
<td>CISY 3001</td>
<td>Info Tech Cert. Prep. Course</td>
<td>1.00</td>
<td>Lower</td>
<td>Practicum</td>
<td>Add Information Technology Cert Prep. with D or better or Add Microcomputer Appl. with D or better</td>
</tr>
<tr>
<td>CISY 3023</td>
<td>Advanced Microcompr Spreadshts.</td>
<td>3.00</td>
<td>Lower</td>
<td>Practicum</td>
<td>Add Introduction to Information Technology or Add Microcomputer Appl. or Add Computer Programming I</td>
</tr>
<tr>
<td>CISY 3193</td>
<td>Computer Architecture &amp; Organi.</td>
<td>3.00</td>
<td>Lower</td>
<td>Practicum</td>
<td>Add Introduction to Information Technology or Add Microcomputer Appl. or Add Computer Programming I</td>
</tr>
<tr>
<td>CISY 3223</td>
<td>Intro to Web Page Development.</td>
<td>3.00</td>
<td>Lower</td>
<td>Practicum</td>
<td>Add Introduction to Information Technology or Add Microcomputer Appl. or Add Computer Programming I</td>
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<tr>
<td>CISY 3283</td>
<td>Internetworking I</td>
<td>3.00</td>
<td>Lower</td>
<td>Practicum</td>
<td>Add Introduction to Information Technology or Add Microcomputer Appl. or Add Computer Programming I</td>
</tr>
</tbody>
</table>
CISY - 4033 Networking I, 3.00 Credits
Prerequisite(s): CISY 4033 with D or better
Level: Lower
Applied Learning-Practicum
This course will cover the design, prototyping, and evaluation of user interface to computers. This will include the implementation of interactive computing systems for human use and the study of Level: Upper
Prerequisite(s): CISY 4033 with D or better

evaluations will be explored. A final project in security assessment will be required.

CISY - 4053 Linux/Unix Admin and Scripting, 3.00 Credits
Prerequisite(s): CISY 4033 with D or better
Applied Learning-Practicum
This course covers the fundamentals of data structures and software modeling. Topics include: modern IDE for software development and code version management systems, design and development of reusable software, software modeling (class diagram, use case, CRC card), introduction to analysis of algorithms (order notation), abstract properties, implementation and use of stacks, queues, linked lists, binary trees, binary search trees, and recursion and efficiency of recursive solutions. Additional focus will be given to range of searching (sequential, binary), selecting (min, max, median) and sorting algorithms (quicksort, merge sort, heap sort) and their time and space efficiencies. Software quality assurance (pre and post conditions, program testing), team development of software applications, and professional responsibilities and liabilities associated with software development will be discussed.

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CISY - 5303 Web Programming I, 3.00 Credits
Prerequisite(s): CISY 2223 with D or better
Level: Upper
Applied Learning-Practicum, Upper Level
A comprehensive survey of HTML and web publishing software to create robust, functional web pages. This course will examine HTML standards, browser capabilities, information architecture, bandwidth considerations, image format, maps, frames, forms, and server-centric side scripting. Topics of current interest will be included, such as: JavaScript, VBScript, ActiveX, Active Server Pages, Dynamic HTML, and Cascading Style Sheets.

CISY - 5403 Database Concepts, 3.00 Credits
Prerequisite(s): CISY 2153 with D or better
Level: Upper
Applied Learning-Practicum, Upper Level
This course is a study of the terminology, design, implementation and software associated with database systems. Topics include the need for database management systems, file organization, sequential and direct access methods and physical implementation. Other topics covered are relational database design, entity and semantic models, hierarchical and network models, SQL, database applications using the internet, and sharing enterprise data. Students will design, implement, test, and debug database management systems according to industry standards.

CISY - 5613 UNIX/Linux Server Admin, 3.00 Credits
Prerequisite(s): CISY 4053 with D or better
Level: Upper
Upper Level
This course will introduce students to the techniques and practices associated with the installation, configuration, troubleshooting, and maintenance of a UNIX/Linux based network. Students will create an operational UNIX/Linux server within a network domain to support DNS, DHCP, gateway, file, print, and other services. Applications will be installed and supported for network users. Operational practices including security, user and group management, backups, logging, script use, and documentation will be addressed as a final project.

CISY - 5723 Essentials of Info Security, 3.00 Credits
Prerequisite(s): CISY 4033 with D or better or ELET 2012 with D or better
Level: Upper
Upper Level
This is a comprehensive survey of all aspects of computer security. This will include local host, network, web, database security as well as other objects that are prone to attack. The student will focus on the identification of security threats and counternuasures that can be taken to make these systems more secure. Students will develop a security plan for a small to mid-size company.

CISY - 5813 Cloud Computing Architecture I, 3.00 Credits
Prerequisite(s): CISY 2153 with D or better and CISY 3223 with D or better
Level: Upper
Upper Level
This is an introductory course in the emerging field of cloud computing technologies. This course is the first course in a two course sequence which provides the student with a foundation and survey of the many new emerging cloud computing tools being used to recreate the internet. Topics will include SaaS, PaaS, IaaS, & IDaaS, Data Storage, Collaboration, Securing, and Disaster Recovery in the cloud. This course will be using industry leading cloud services and cloud datacenter technologies. A variety of cloud service provider’s products and platforms will be explored through appropriate hands-on labs.

CISY - 5900 Directed Study, 1.00 TO 6.00 Credits
Level: Upper
Upper Level
A capstone course which provides an integrative experience in applying the knowledge and skills of earlier course work, with particular emphasis on computer science management information systems, and communications skills in an integrated/internship setting; requires student to present and defend, orally and in writing, solutions to experienced real-world problems encountered.

CISY - 6103 Web Server Administration, 3.00 Credits
Prerequisite(s): CISY 4053 with D or better and CISY 3223 with D or better
Level: Upper
Applied Learning-Practicum, Upper Level
This is a comprehensive survey of all aspects of web server administration. Students will gain hands-on experience by actually installing and administering their own web servers. Topics include: server installation and configuration, site planning, supporting dynamic content, security, and maintenance.

CISY - 6123 Adv Pro with Vid Game Des & Dev, 3.00 Credits
Prerequisite(s): CISY 4003 with D or better or CISY 6503 with D or better
Level: Upper
Applied Learning-Practicum, Upper Level
This course is an advanced study of programming using current tools to create video games. Topics covered include higher-level programming techniques, writing programs that use the windows user interface, and creating and using graphic objects. The gaming topics of data structures and algorithms, artificial intelligence, physics modeling, and mathematics will also be covered. A final project will be required incorporating AI and physics.

CISY - 6503 Object-Oriented Programming, 3.00 Credits
Prerequisite(s): CISY 2133 with D or better
Level: Upper
Applied Learning-Practicum, Upper Level
Object-oriented analysis (OOA) and object-oriented design (OOD) concepts will be covered using an object-oriented programming (OOP) language such as Java. Topics include: objects, messages, classes, encapsulation, inheritance, polymorphism, code reuse, and method-driven and model-driven object-oriented approaches, methodologies and tools. Students will formulate object solutions to practical problems in the business and scientific areas.

CISY - 6703 Network Design Concepts, 3.00 Credits
Prerequisite(s): CISY 4033 with D or better
Level: Upper
Applied Learning-Practicum, Upper Level
In this course students will design and implement network systems, utilizing various topologies, media, and protocols. Students will control network hardware such as switches, and routers. Design concepts will be implemented through a variety of laboratory exercises. Students will be required to analyze and present a network design plan.

CISY - 7003 Project Management, 3.00 Credits
Prerequisite(s): BUAD 3153 with D or better and ( CISY 5133 with D or better or CISY 5303 with D or better or CISY 5203 with D or better or CISY 5403 with D or better )
Level: Upper
Applied Learning-Practicum, Upper Level
A comprehensive approach to the process of scientifically retrieving, examining and analyzing data from computer storage media so that data can be used as evidence in court. This course assumes a prerequisite knowledge of network operating systems and security concepts. A final project will be required.
CISY - 7033 Security Tools, 3.00 Credits
Prerequisite(s): CISY 5133 with D or better
Level: Upper
Applied Learning-Practicum, Upper Level
This course provides a practical, hands-on approach to a myriad of security tools employed in wired and wireless networks. These security tools will include Industry Standard Firewalls, Virtual Private Networks (VPNs), wired network vulnerability scanners, wireless security probes, wireless intrusion detectors, wireless scanners and wireless encryption cracking utilities. Advanced firewall concepts and technologies will be covered in depth and include design considerations for enterprise networks, large company networks and medium business networks. The course will include VPN concepts, technologies, and configurations for site to site VPNS as well as configurations for client remote access VPNS. The course will cover various vulnerability scanners for networks with heterogeneous operating systems and advanced firewall configurations. Students, in a laboratory environment, will attack and defend networks and submit a project paper detailing lessons learned and how to best defend both wired and wireless networks. The course assumes a prerequisite knowledge of network operating systems and security concepts.

CISY - 7203 Web Programming II, 3.00 Credits
Prerequisite(s): CISY 7203 with D or better
Level: Upper
Applied Learning-Practicum, Upper Level
A survey of programming languages and techniques for Web development. Topics include CGI's (Common Gateway Interface), client side programming with JavaScript, dynamic content using Java and ActiveX, server side programming using Active Server Pages and VBScript, creating dynamic database driven content, and developing web based client/server database applications.

CISY - 8033 Sftw Intrlng & Interoperability, 3.00 Credits
Prerequisite(s): CISY 6703 with D or better and CISY 4723 with D or better
Level: Upper
Applied Learning-Practicum, Upper Level
In this course, students will integrate network system components to construct a working enterprise network. Topics addressed include integration of different network topologies, interoperability between network operating systems, integration of client-server applications, web based information systems, other support systems and support of end-user needs.

CISY - 8403 Web Applications, 3.00 Credits
Prerequisite(s): CISY 7203 with D or better
Level: Upper
Applied Learning-Creative Work, Upper Level
In this capstone course, students will create web based multi-media applications for companies and/or organizations. These applications will demonstrate client and server side design, programming and maintenance. Additional topics include: systems development life cycle, web-site hosting and administration, e-commerce, and integrated software applications.

CISY - 8503 Appl Database Management, 3.00 Credits
Prerequisite(s): CISY 5403 with D or better and CISY 6503 with D or better
Level: Upper
Applied Learning-Creative Work, Upper Level
In this capstone course, students will create and maintain Database Applications in a commercial and/or academic setting. This course provides an integrative experience in applying the knowledge and skills of earlier course work, focusing on multi-user database systems. A major portion of this course will be design, implementation, and documentation of an enterprise data system. Additional topics may include: systems development life cycle, web applications, and application reliability and security.

CISY - 8603 Seminar Critical Issues in IT, 3.00 Credits
Prerequisite(s): CISY 4103 with D or better
Level: Upper
Applied Learning-Creative Work, Upper Level
This is a research-oriented and performance-oriented course. The course addresses critical (both theoretical and pragmatic) issues in information technology (IT). Issues of concern may include, but are not limited to, IT systems security, ethics of using IT systems, human-IT systems interface, and data analysis requirements at different organizational levels. Students are expected to conduct research, present their findings, accept feedback on their presentations, and document their knowledge of their topics. Students will also complete a project working with a cross-disciplinary team and prepare strategies/materials for an effective job search. Every student is expected to attend all class presentations and guest speaker sessions.

CISY - 8703 Information Security Capstone, 3.00 Credits
Prerequisite(s): CISY 5133 with D or better
Level: Upper
Applied Learning-Creative Work, Upper Level
In this course, students will integrate, configure and analyze network system components, security tools and procedures necessary to create enterprise class network security perimeters. Topics addressed include a combination of open source and proprietary security applications covering the fundamental components of an effective network security perimeter. These components include: firewalls, Intrusion Detection Systems (IDSs), Intrusion Prevention Systems (IPS) Virtual Private Networks (VPN), authentication systems, port scanning, vulnerability scanning penetration testing, disaster recovery systems and security management systems. An in-depth analysis of the security risks associated with the TCP/IP protocol and associated sub-protocols will also be included as part of a final project.

CISY - 8706 Info Technology Internship, 6.00 Credits
Level: Upper
Applied Learning-Internship, Pass/Fail, Upper Level
Students will complete supervised field work in a selected business, industry, government or educational setting. Students carry out a planned program of educational experiences under direct supervision of an owner, manager or supervisor of information technology in an organization. Each intern will be supervised by a member of the faculty. Written and oral reports and a journal of work experience activities will be required. Evaluation will be based on the quality of experiences gained from the internship. Students will be required to complete a series of 4 brief investigative or evaluative papers while completing the internship in areas such as career development, organizational structures, organized labor, business management, security, policies, and/or industry and market trends. Two papers will be completed in each of the 6 hour internships. These courses are offered as a two-part alternative to CISY 8712, 8706 and 8716 are to be taken in sequence as two 6 credit hour classes. These 12 hours will be equivalent of CISY 8712. Students may not enroll in CISY 8712 and CISY 8706 / 8716.

CISY - 8712 Info Technology Internship, 12.00 Credits
Level: Upper
Applied Learning-Internship, Pass/Fail, Upper Level
Students will complete supervised field work in a selected business, industry, government or educational setting. Students carry out a planned program of educational experiences under direct supervision of an owner, manager or supervisor of information technology in an organization. Each intern will be supervised by a member of the faculty. Written and oral reports and a journal of work experience activities will be required. Evaluation will be based on the quality of experiences gained from the internship. Students will be required to complete a series of 4 brief investigative or evaluative papers while completing the internship in areas such as career development, organizational structures, organized labor, business management, security, policies, and/or industry and market trends. Two papers will be completed in each of the 6 hour internships. These courses are offered as a two-part alternative to CISY 8712. 8706 and 8716 are to be taken in sequence as two 6 credit hour classes. These 12 hours will be equivalent to CISY 8712. Students may not enroll in CISY 8712 and CISY 8706 / 8716.