

ICT INFORMATION AND COMMUNICATION TECHNOLOGY

	Hr/Wk Lect/ Disc	Hr/Wk Clin Lab	Sem Cr Hr
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Courses

ICT.110 Computer Software Applications	3		3
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This course in software applications will provide students with an overview of a computer operating system and commonly used computer software. Students will gain experience with word processing and database management tasks, presentation software, and spreadsheets. Additional software programs associated with the Windows environment will be explored. This course may be used to satisfy the computer requirement common for students planning to transfer to a four-year college or university.

Offered: Fall or Spring or Summer

Prerequisites: AOP.101 or or BOC.107 or appropriate articulated high school credit.

Applicable toward graduation at Sandburg where program structure permits:

Degree or Certificate: AA, AS, AAS, AGS, and Certificates where applicable.

General Education -- Not Applicable Elective Only

ICT.112 Microcomputer Spreadsheet Applications 1	1	2	2
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This course will provide students with skills necessary to develop and maintain a spreadsheet. students need no prior knowledge of a spreadsheet application program for this course. The use of basic business mathematical formulas, functions, and statistics will be introduced. In addition, the processes for formatting and editing worksheets, managing files, creating graphs and web pages will be covered.

Offered: As Needed

Applicable toward graduation at Sandburg where program structure permits:

Degree or Certificate: AAS, AGS, and Certificates where applicable.

General Education -- Not Applicable

ICT.114 Microcomputer Database Applications 1	1	2	2
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This course is an introduction to the management of data on personal computers. It covers the database operations that allow a personal computer user to create and update files; order and search files; generate reports and labels; use memory variables for more complex data manipulation; and produce custom input and output forms.

Offered: Spring

Applicable toward graduation at Sandburg where program structure permits:

Degree or Certificate: AAS, AGS, and Certificates where applicable.

General Education -- Not Applicable

ICT.115 Website Support	1	2	2
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Today's businesses understand the value and importance of a company website, although many do not understand the factors which contribute to its success. Students will be introduced to determining the best way to keep the content and design of a company website up-to-date. Students will explore various strategies that can simplify and streamline what has been called the most difficult task in web development-maintenance.

Students will be exposed to proper procedures for text, images, and hyperlinks that are suitable for professional purposes.

Offered: Spring

Applicable toward graduation at Sandburg where program structure permits:

Degree or Certificate: AAS, AGS, and Certificates where applicable.

General Education -- Not Applicable

ICT.120 Computer Information Systems	3		3
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This course is an overview of computer information systems. It is designed for the student majoring in computer information systems or various business curricula. The course may be used to fulfill the introductory course requirement in the Computer Information Systems Specialist A.A.S. degree or to meet the introductory computing course requirements for business majors at four-year colleges or universities.

Computer concepts, terminology, hardware, software, operating systems, networks and career preparation topics are surveyed and discussed.

Offered: Fall or as Needed

Applicable toward graduation at Sandburg where program structure permits:

Degree or Certificate: AA, AS, AAS, AGS, and Certificates where applicable.

General Education -- Not Applicable Elective Only

ICT.125 Foundations of Information Technology	2	2	3
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Foundations of Information Technology is designed for the degree seeking Computer Information System Students. This course is an overview of basic computer technology. This is a hands-on course that introduces the student to core concepts of computer technology in order to be successful in more advanced computer courses. Topics include but are not limited to: Computers and Digital Basics, Hardware, Software, Operating Systems, File Management, LANs, WANs, The Internet, The Web, E-mail and Digital Media. This course also gives the student a foundation in basic office application software as well as research and presentation skills necessary to be a successful computer professional.

Offered: Fall

Applicable toward graduation at Sandburg where program structure permits:

Degree or Certificate: AAS, AGS and Certificates where applicable.

General Education -- Not Applicable

ICT.130 Fundamentals of Programming 2 2 3

This course introduces a disciplined approach to problem-solving and algorithm development, and the use of various software planning and development tools necessary for the efficient solution of problems requiring computer programmed solutions. The topics of selection, repetition, and sequence control structures and program design, testing, and documentation using good programming style are covered in this course. This course will also introduce the C programming language. Emphasis is on high-level block-structure including: syntax, operators, data types, program control, pointers, arrays, I/O and disk file processing, parameters and libraries. Students will focus on analyzing, coding, compiling and debugging programs which are developed using modular and structured programming techniques. In addition to procedural methods students will also be introduced to data abstraction concepts. Offered: Spring

Applicable toward graduation at Sandburg where program structure permits:

Degree or Certificate: AAS, AGS, and Certificates where applicable.

General Education -- Not Applicable

ICT.135 Mobile Technologies 2 2 3

This course will expose students to emerging technologies, issues, and concepts in wireless and mobile networks. A variety of technologies will be studied on how they exist and function. Technologies may vary each time this course is offered as this type of technology is rapidly changing. Offered: Spring

Applicable toward graduation at Sandburg where program structure permits:

Degree or Certificate: AAS, AGS and Certificates where applicable.

General Education -- Not Applicable

ICT.160 Introduction to Internetworking 2 2 3

This is the first of four courses providing students with classroom and laboratory experience in networking technologies that will provide them with entry-level skills in computer networking. Course content includes, but is not limited to, safety practices, networking, network terminology and protocols, network standards, working with LANs and WANs, understanding the OSI model, cabling and use of cabling tools, working with routers and doing router programming, network topologies (primarily the star topology) and IP addressing. Emphasis is given to decision-making and problem-solving techniques in applying scientific, mathematical, communication and social studies skills and concepts to network problems. Instruction and training is also provided in the proper care, maintenance and use of networking software, tools and equipment as well as the consideration of local, state and federal safety, building and environmental codes and regulations.

Offered: Spring

Applicable toward graduation at Sandburg where program structure permits:

Degree or Certificate: AAS, AGS, and Certificates where applicable.

General Education -- Not Applicable

ICT.165 LINUX 1 2 2 3

This course aligns to the Linux Professional Institute (LPI) Linux Essentials Professional Development Certificate (PDC), an entry level credential. Linux adoption continues to rise world-wide. This course provides the foundational skills for working in Linux open source technologies environment.

Offered: Fall

Prerequisites: ICT.180

Applicable toward graduation at Sandburg where program structure permits:

Degree or Certificate: AAS, AGE, and Certificate where applicable. General Education: Not applicable..

General Education -- Not Applicable

ICT.170 Hardware Installation & Maintenance 2 2 3

This course covers the basic hardware of a microcomputer. Topics include component identification, memory systems, internal and external component installation and configuration, preventive maintenance, procedures, upgrading, documentation procedures, diagnosis and troubleshooting, and basic component repair. Upon completion of the course, students should be able to select appropriate microcomputer equipment, upgrade and maintain existing equipment, and diagnose and repair non-functional components.

Offered: Fall

Prerequisites: ICT.180 previous or concurrent enrollment.

Applicable toward graduation at Sandburg where program structure permits:

Degree or Certificate: AAS, AGS, and Certificates where applicable.

General Education: Not applicable..

General Education -- Not Applicable

ICT.180 Windows Networking & Operating System 2 2 3

This course is to provide individuals who are new to Microsoft Windows with the knowledge necessary to understand and to identify the tasks involved in supporting Windows networks. This is an introductory course designed to provide an overview of networking concepts and how they are implemented in Windows. This course will help the student prepare for the Microsoft Certified Technology Specialist examination.

Offered: Fall

Prerequisites: ICT.125 or concurrent enrollment.

Applicable toward graduation at Sandburg where program structure permits:

Degree or Certificate: AAS, AGS, and Certificates where applicable.

General Education: Not applicable..

General Education -- Not Applicable

ICT.182 Implementing Ms Network Infrastructure 2 2 3

This course is for support professionals who are new to Microsoft Windows and will be responsible for installing, configuring, managing, and supporting a network infrastructure that uses the Microsoft Windows Server products. This course will help the student prepare for the Microsoft Certified Technology Specialist examination.

Offered: Spring

Prerequisites: ICT.180

Applicable toward graduation at Sandburg where program structure permits:

Degree or Certificate: AAS, AGS, and Certificates where applicable.

General Education: Not applicable..

General Education -- Not Applicable

ICT.184 Managing Ms Windows Network Servers 2 2 3

This course helps students build the skills they need on the job as a Network Administrator to manage a Microsoft Windows Server. This course will examine issues of network management, implementation, and troubleshooting of existing network and system environments based on Microsoft Windows. This course will help students prepare for the Microsoft Certified Professional examination: Managing a Microsoft Windows Network Environment.

Offered: Fall

Prerequisites: ICT.180 or have consent of Instructor.

Applicable toward graduation at Sandburg where program structure permits:

Degree or Certificate: AAS, AGS, and Certificates were applicable. General Education: Not Applicable..

General Education -- Not Applicable

ICT.190 Presentation Graphics & Multimedia 2 2 3

This course is designed for the student to explore the capabilities of presentation graphics programs and multimedia presentation options. Audio, video and screen casting programs will be explored.

Offered: As Needed

Prerequisites: ICT.110

Applicable toward graduation at Sandburg where program structure permits:

Degree or Certificate: AAS, AGS, or Certificates were applicable. General Education: Not Applicable..

General Education -- Not Applicable

ICT.205 Visual Basic Programming 2 2 3

This course uses Visual BASIC in the Windows environment. It introduces event-driven computer programming to develop graphical user interfaces in an object-oriented environment. Topics include input/output operations, sequence, interaction, arithmetic operations, array, forms sequential files and other related topics.

Offered: Spring

Prerequisites: ICT.130 prior to or concurrently.

Applicable toward graduation at Sandburg where program structure permits:

Degree or Certificate: AAS, AGS, and Certificates where applicable.

General Education: Not applicable..

General Education -- Not Applicable

ICT.210 Advanced Microcomputer Software Application 2 2 3

In this course--designed as a continuation of ICT.110--students will be empowered and encouraged to develop advanced skills in the use of word processing, spreadsheet, database, presentation, and other software programs as they apply to the Windows environment.

Offered: Spring

Prerequisites: ICT.110;

Applicable toward graduation at Sandburg where program structure permits: Degree or Certificate: AAS, AGS, and Certificates were applicable. General Education: Not applicable..

General Education -- Not Applicable

ICT.212 Microcomputer Spreadsheet App2 2 2 3

In this course students will apply the concepts learned in ICT 112 to realistic business problems. Advanced spreadsheet concepts will be covered, including formatting techniques, templates, functions, lists, filters, analysis tools, workgroups, and the process for importing and exporting data.

Offered: As Needed

Prerequisites: ICT.112

Applicable toward graduation at Sandburg where program structure permits: Degrees and Certifications: AAS, AGS, and Certificates where applicable. General Education: Not applicable..

General Education -- Not Applicable

ICT.214 Microcomputer Database Applications 2 2 3

This course is a continuation of ICT 114. Students will explore the database operations needed to create and update files; order and search files; generate reports and labels; use memory variables for more complex data manipulation; and produce custom input and output forms.

Offered: Spring

Prerequisites: ICT.114

Applicable toward graduation at Sandburg where program structure permits: Degree and Certificate: AAS, AGS, and Certificates where applicable. General Education: Not applicable..

General Education -- Not Applicable

ICT.225 Sql/Database Application 2 2 3

This course is designed to teach the use of Structures Query Language (SQL) to construct, modify, and maintain relational databases. Emphasis is on SQL and its uses in business applications. Hierarchical, network, and relational models are covered. Additional topics include data redundancy, data independence, security, and data integrity.

Offered: Spring

Prerequisites: Take ICT.130 concurrently.

Applicable toward graduation at Sandburg where program structure permits:

Degree or Certificate: AAS, AGS, and Certificates where applicable.

General Education: Not applicable..

General Education -- Not Applicable

ICT.250 Ethical Hacking & Network Defense 2 2 3

Hands-on Ethical Hacking and Network Defense introduces the art of ethical hacking and security testing and prepares students to be efficient security professionals. This course covers the tools and techniques that ethical hackers and security testers use to discover vulnerabilities and offers solutions to protect computer networks. In addition to learning fundamental security testing concepts, students gain practical knowledge in computer programming in documentation of security tests and in ethical and legal ramifications and discover that critical thinking skills and creativity are essential in security testing.

Offered: Fall

Prerequisites: ICT.180

Applicable toward graduation at Sandburg where program structure permits:

Degree or Certificate: AAS, AGS, and Certificates where applicable.

General Education: Not applicable..

General Education -- Not Applicable

ICT.255 Security + Fundamentals 2 2 3

In this course, we will take an in-depth look at network security concepts and techniques, including basic security principles, establishing security baselines, and the most recent attack and defense techniques and technologies. We will learn how to harden a network to resist attacks, protect basic and advanced communications, and use cryptography and Public Key Infrastructure (PKI) to thwart attacks. We will also discuss establishing security policies and procedures and managing security efforts to prepare students.

Offered: Fall

Prerequisites: ICT.180

Applicable toward graduation at Sandburg where program structure permits:

Degree or Certificate: AAS, AGS, and Certificates were applicable. General Education: Not applicable..

General Education -- Not Applicable

ICT.260 Introduction to Internetwork Operating S 2 2 3

This is the second of four courses providing students with classroom and laboratory experience in current and emerging networking technology that will provide them with entry-level skills in computer networking.

Course content includes, but is not limited to, safety practices, networking terminology and protocols, network standards, working with LANs and WANs, additional discussion of the OSI model, discussion of Ethernet, Token Ring, Fiber Distributed Data Interface, TCP/IP addressing protocol, dynamic routing, and the network administrator's role and function. Emphasis is given to the use of decision-making and problem-solving techniques in applying scientific mathematical, communication and social studies skills and concepts to solve networking problems.

Instruction and training are also provided in the proper care, maintenance and use of networking software, tools, and equipment as well as the consideration of local state and federal safety, building and environmental codes and regulations.

Offered: Fall

Prerequisites: ICT.160

Applicable toward graduation at Sandburg where program structure permits:

Degree or Certificate: AAS, AGS, and Certificates where applicable General Education: Not Applicable..

General Education -- Not Applicable

ICT.261 Introduction to Local Area Networks 1 4 3

This is the third of four semester courses designed to provide students with classroom and laboratory experience in current and emerging networking technology that will empower them to enter employment and/or further education and training in the computer networking field. Instruction includes, but is not limited to, safety, networking, network terminology and protocols, LAN segmentation, IPX addressing, and Fast Ethernet standards. Particular emphasis is given to the use of IPX access lists, full and half duplex Interior Gateway Routing Protocol and Virtual Local Area Networks. Application toward graduation at Sandburg where program structure permits: Degree or Certificate: AAS, AGS, and Certificates where applicable. General Education: Not applicable..

General Education -- Not Applicable

ICT.262 Introduction to Wide Area Networks 2 2 3

this is the fourth of four semester courses designed to provide students with classroom and laboratory experience in current and emerging network technology that will empower them to enter employment and/or further education and training in the computer networking field.

Instruction includes, but is not limited to, safety, networking, network terminology and protocols, WAN services, Frame Relay, and emphasis is given to the use of Frame Relay operation, use and operation of Integrated Services Digital(ISDN), and the operation and function of Point to Point Protocols.

Offered: Spring

Prerequisites: ICT.261

Applicable toward graduation at Sandburg where program structure permits:

Degree or Certificate: AAS, AGS, and Certificates where applicable.

General Education: Not applicable..

General Education -- Not Applicable

ICT.265 Linux 2 2 2 3

This course is the second course in the Linux series. This course aligns to both the LPIC Level 1 certification and CompTIA Linux+ certification.

Students will be prepared to be Linux administrators, managing, configuring and securing the Linux operating system and network.

Application toward graduation at Sandburg where program structure permits: Degree or Certificate: AAS, AGS and Certificate where applicable.

General education: Not applicable..

General Education -- Not Applicable

General Education -- Not Applicable

ICT.270 Cisco Security 2 2 3

This course provides an introduction to the core security concepts and skills needed for the installation, troubleshooting, and monitoring of network devices to maintain the integrity, confidentiality, and availability of data and devices.

Offered: Spring

Prerequisites: ICT.260 or have CCNA Certification.

Applicable toward graduation at Sandburg where program structure permits:

Degree or Certificate: AAS, AGS, and Certificates where applicable.

General Education: Not applicable..

General Education -- Not Applicable

ICT.275 Virtualization 2 2 3

This hands-on training course explores installation, configuration, and management of a virtualized networking environment. Latest virtualization technologies and software will be used and will align to the current entry-level certification exam.

Offered: Spring

Prerequisites: ICT.182 or ICT.184

Applicable toward graduation at Sandburg where program structure permits:

Degree or Certificate: AAS, AGS and Certificates where applicable.

General Education -- Not Applicable

ICT.295 Internship

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This course is a planned and supervised occupation work experience at selected work sites using microcomputer systems. Job tasks are organized to include those of a beginning, intermediate, and advanced nature so as to provide exposure to the total operation of a microcomputer-based data processing/information system. This internship requires a minimum of 160 clock hours of on-the-job activities.

Offered: Spring or Summer

Applicable toward graduation at Sandburg where program structure permits:

Degree or Certificate: AAS, AGS, and Certificates where applicable.

General Education: Not applicable. A GPA of 3.0 is required; This internship is also subject to availability of a work site; and, successful completion of an interview with the work site supervisor. Students who do not meet the prerequisite requirements will be required to enroll in another ICT course approved by the Associate Dean of CTHE programs..

General Education – Not Applicable