AREA: Office Systems Assistant Certificate

FORMAT: This program is delivered through direct assessment, competency-based education (CBE). Competencies are performance-based statements about knowledge, skills, and abilities. Direct assessment means that progress and completion are based solely on the attainment of required competencies in lieu of credit hours or clock hours as a measure of student learning. Additional info about this program design is provided in the catalog section on CBE policies.

LENGTH: Direct assessment CBE programs are not time-based. Estimated time to completion depends on the student's academic load/attendance status for hours of educational activity per semester and previously attained competencies that are verified by faculty.

PURPOSE: Commercial and industrial expansion in Virginia is steadily increasing the demand for qualified records management and word processing personnel. The Office Systems Assistant Program is designed to prepare graduates for full-time employment in a variety of office positions.

OCCUPATIONAL OBJECTIVES: data entry specialist, front desk coordinator, information processing specialist, office assistant, office support technician, proofreader/editor, receptionist or records clerk

PROGRAM REQUIREMENTS: The program prepares the student to fill clerical and word processing positions and provides fundamental knowledge and skills associated with general office work. The curriculum includes competencies in keyboarding, math, business, word processing and business communications. Students who have satisfactorily completed high school courses in keyboarding with a grade of C or better may take word processing competencies. (Proof by means of a high school transcript must be on file in the Admissions and Records Office.) Upon satisfactory completion of the program, the graduate will receive a certificate in office systems assistant.

ADMISSION/COURSE PREREQUISITE REQUIREMENTS: Students without keyboarding skill (or limited skill below 25 words per minute) must attain the competencies equivalent to AST 101 Keyboarding I, prior to work on higher level competencies.

COMPETENCIES: The following competencies are required for completion of this direct assessment, competency-based education program:

I. Technical Skills

I. A. Document Production

1. Format documents using generally accepted business practices
2. Efficiently create business correspondence using advanced formatting features.

I. B. Proofreading and Editing Skills

1. Demonstrate proficiency in proofreading and editing skills, including grammar, spelling, sentence structure, and punctuation
2. Compose clearly written business correspondence using correct grammar, punctuation, and sentence construction
3. Write business letters, reports, and memorandums following correct format and creating a good impression on the reader
4. Edit business manuscripts using the revision symbols used by professional editors

I. C. Database and Records Management

1. Research and discuss records management need for maintaining records and recorded information
2. Develop skills in using the systems and procedures required in the information cycle
3. Apply the principles of filing as they apply to records management systems
4. Apply problem solving skills to select appropriate technology involved in records management specialized functions

I. D. Presentations

1. Design visual presentations for specific audiences and purpose using presentation software.

II. Interpersonal Skills

II. A. Develop the knowledge, skills, and understanding to make informed academic, social, personal, career, and interpersonal decision

1. Display high standards of ethical conduct and behaviors
2. Pursue appropriate learning activities contributing to lifelong professional growth
3. Maintain high standards for quality work and responsiveness in providing office administrative services

II. B. Better understand self (values, work ethic, attitudes, professional presence, personal wellness, self-esteem).

1. Demonstrates behaviors that are consistent with standards for professional and ethical conduct
2. Function effectively as a member of a diverse team to accomplish common goals.

II. C. Select career goals with thought and care, value work and the benefits it brings, and adjust to the inevitable changes in the working world.

1. Demonstrate a commitment to serving internal and external customers with quality outcomes
2. Apply new technical and business information/knowledge to practical use on the job
3. Research career advancement opportunities

II. D. Demonstrate rational approaches to decision making and problem solving.

1. Demonstrate through simulations and case studies continued rational approaches to solutions and remedies for office issues.

II.E. Use correct oral and written grammar and develop strategies to avoid communication breakdown.

1. Conveys information clearly and effectively

III. Office Administration Procedures & Theory/Business

III. A. Constantly Changing Workplace/Business

1. Describe the environment of business in the United States.
2. Identify the role of organization in the achievement of business goals.
3. Determine the role of automation in achieving a firm's objectives.
4. Explore the fundamentals of small business.
5. Explore the realm of international business

IV. Job Search/Employment

IV. A. Job Search and Advancement

1. Demonstrate job search skills required for employment
2. Demonstrate business awareness and workplace effectiveness.

V. General Education/Other

V. A. Other Requirements

1. Introduction to Business (BUS 100) Competencies
2. College Composition I (ENG 111) Competencies
3. Orientation to Virtual Assistance (SDV 101) Competencies
4. Introduction to Mathematics (MTH 120) Competencies
5. Approved Social/Behavioral Science Elective Competencies

Career Studies Certificate: Information Processing Technician
Direct Assessment Competency-Based

AREA: Information Processing Technician **221-299-16**

FORMAT: This program is delivered through direct assessment, competency-based education (CBE). Competencies are performance-based statements about knowledge, skills, and abilities. Direct assessment means that progress and completion are based solely on the attainment of required competencies in lieu of credit hours or clock hours as a measure of student learning. Additional info about this program design is provided in the catalog section on CBE policies.

LENGTH: Direct assessment CBE programs are not time-based. Estimated time to completion depends on the student's academic load/attendance status for hours of educational activity per semester and previously attained competencies that are verified by faculty

PURPOSE: To assist students in developing the basic software skills involved in information processing in the office environment and their applications for a range of office functions

OCCUPATIONAL OBJECTIVES: office assistant, office support technician, customer service care center, information technology assistant

ADMISSION/COURSE PREREQUISITE REQUIREMENTS:
Students without keyboarding skill (or limited skill below 25 words per minute) must attain the competencies equivalent to AST 101 Keyboarding I, prior to work on higher level competencies.

COMPETENCIES: The following competencies are required for completion of this direct assessment, competency-based education program:

I. Technical Skills

I. A. Document Production
1. Efficiently create business correspondence using advanced formatting features.

I. B. Customized Formatting
1. Apply automated and customized formatting to business documents
2. Create mail merge documents
3. Create styles and themes in a variety of business documents
4. Apply problem solving skills when designing a multipage document with created tables and indexes using generally accepted business practices for grammar and sentence structure

I. C. Proofreading and Editing Skills
1. Demonstrate proficiency in proofreading and editing skills, including grammar, spelling, sentence structure, and punctuation
2. Compose clearly written business correspondence using correct grammar, punctuation, and sentence construction
3. Write business letters, reports, and memorandums following correct format and creating a good impression on the reader
4. Edit business manuscripts using the revision symbols used by professional editors

II. Interpersonal Skills

II. A. Develop the knowledge, skills, and understanding to make informed academic, social, personal, career, and interpersonal decision
1. Display high standards of ethical conduct and behaviors
2. Pursue appropriate learning activities contributing to lifelong professional growth
3. Maintain high standards for quality work and responsiveness in providing office administrative services

II. B. Better understand self (values, work ethic, attitudes, professional presence, personal wellness, self-esteem).
1. Demonstrates behaviors that are consistent with standards for professional and ethical conduct
2. Function effectively as a member of a diverse team to accomplish common goals.

II. C. Select career goals with thought and care, value work and the benefits it brings, and adjust to the inevitable changes in the working world.
1. Demonstrate a commitment to serving internal and external customers with quality outcomes
2. Apply new technical and business information/knowledge to practical use on the job
3. Research career advancement opportunities

II. D. Demonstrate rational approaches to decision making and problem solving.
1. Demonstrate through simulations and case studies continued rational approaches to solutions and remedies for office issues.

II. E. Use correct oral and written grammar and develop strategies to avoid communication breakdown.
1. Conveys information clearly and effectively

III. Office Administration Procedures & Theory

III. A. Constantly Changing Workplace
1. Recognize how economic globalization and changing technology contribute to the dynamic workplace
2. Describe and model the characteristics and conventions of a professional image
3. Discuss and understand the value of working with a diverse workplace team

III. B. Workplace Behaviors
1. Apply techniques and systems for self-management and balance to be a productive, efficient worker

2. Develop a framework for making ethical decisions
3. Understand and practice leadership behaviors
4. Develop skills for providing effective customer service and recognize the importance of the organization's commitment to customer service

III. C. Communication Essentials

1. Apply appropriate guidelines for writing email, memos, letters, and reports
2. Prepare and demonstrate effective verbal communication and presentations

IV. Job Search/Employment

IV. A. Job Search and Advancement

1. Demonstrate job search skills required for employment
2. Demonstrate business awareness and workplace effectiveness.

V. Other

V. A. Orientation to Virtual Assistant

1. Orientation to Virtual Assistant (SDV 101) Competencies

Associate of Applied Science Degree in Health Information Management – Direct Assessment Competency-Based

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AREA: Health Information Management

DEGREE: Associate of Applied Science Degree

FORMAT: This program is delivered through direct assessment, competency-based education (CBE). Competencies are performance-based statements about knowledge, skills, and abilities. Direct assessment means that progress and completion are based solely on the attainment of required competencies in lieu of credit hours or clock hours as a measure of student learning. Additional info about this program design is provided in the catalog section on CBE policies.

LENGTH: Direct assessment CBE programs are not time-based. Estimated time to completion depends on the student's academic load/attendance status for hours of educational activity per semester and previously attained competencies that are verified by faculty

PURPOSE: The curriculum is designed to provide training in the management of systems to collect, interpret, and analyze patient data and to communicate information related to the research, planning, provision, and evaluation of every day operations in health care services. Additionally, students gain skills to manage positions related to these functions. The curriculum provides students with a unique blend of courses in administrative technology, information management, and health care services. Students who possess an interest in medical services, medical coding, health information regulations, and computer applications to manage will find this career rewarding. This program is beneficial to individuals who are seeking career advancement and eligibility for the national certifying examination-Registered Health Information Technician (RHIT).

Special Accreditation Status: The HIM associate degree is in Candidacy Status, pending accreditation review by the Commission on Accreditation for Health Informatics and Information Management Education (CAHIM).

Certification Eligibility: Upon accreditation by CAHIIM *(*though accreditation in not guaranteed*)* students in their final semester and graduates of the program are eligible to take a national certifying examination. The Registered Health Information Technician (RHIT) Certification is recognized nationwide as proof of proficiency in Health Information Management.

OCCUPATIONAL OBJECTIVES: Health Information (Medical Records) Assistant/Technician, Medical Coder, Coding Manager/Supervisor, Health Information Supervisor/Office Manager, Clinical Documentation Improvement Specialist, Privacy Officer, health data analyst.

Employment opportunities exist in all types of healthcare delivery organizations (hospitals, ambulatory care centers, home health services and long term care facilities) plus managed care, consulting firms, claims and reimbursement companies, software service providers, and research firms.

TRANSFER GUIDELINE: Transfer opportunities for associate of applied science degrees, if existing, are very specific in nature. Students enrolling in an applied science degree with plans to transfer should explore opportunities with an advisor.

PROGRAM REQUIREMENTS. The two-year curriculum in Health Information Management includes instruction in administrative management, medical coding, medical administrative technology, and general education. Students are advised to check with an advisor in planning their programs and selecting electives. Upon satisfactory completion of the program, the graduate will be awarded the Associate of Applied Science Degree with a major in Health Information Management.

COMPETENCIES: The following competencies are required for completion of this direct assessment, competency-based education program:

I: Health Data Management

I.A. Health Data Structure, Content, and Standards

1. Apply policies and procedures to ensure the accuracy of health data.
2. Collect and maintain health data (such as data elements, data sets, and databases).
3. Conduct analysis to ensure that documentation in the health record supports the diagnosis and reflects the patient's progress, clinical findings, and discharge status.
4. Verify timeliness, completeness, accuracy, and appropriateness of data and data sources for patient care, management, billing reports, registries, and/or databases.

I.B. Healthcare Information Requirements and Standards

1. Apply policies and procedures to ensure organizational compliance with regulations and standards.
2. Assist in preparing the organization for accreditation, licensing, and/or certification surveys.
3. Maintain the accuracy and completeness of the patient record as defined by organizational policy and external regulations and standards.
4. Monitor and apply organization-wide health record documentation guidelines.

I.C. Clinical Classification Systems

1. Adhere to current regulations and established guidelines in code assignment.

2. Apply diagnosis/procedure codes according to current nomenclature.
3. Ensure accuracy of diagnostic/procedural groupings such as DRG, MSDRG, APC, and so on.
4. Resolve discrepancies between coded data and supporting documentation.
5. Use and maintain applications and processes to support other clinical classification and nomenclature systems (ex. DSM IV, SNOMED-CT).
6. Use and maintain electronic applications and work processes to support clinical classification and coding.
7. Validate coding accuracy using clinical information found in the health record.

I.D. Reimbursement Methodologies

1. Apply policies and procedures for the use of clinical data required in reimbursement and prospective payment systems (PPS) in healthcare delivery.
2. Apply policies and procedures to comply with the changing regulations among various payment systems for healthcare services such as Medicare, Medicaid, managed care, and so forth.
3. Compile patient data and perform data quality reviews to validate code assignment and compliance with reporting requirements, such as outpatient prospective payment systems.
4. Ensure accuracy of diagnostic/procedural groupings such as DRG, APC, and so on.
5. Support accurate billing through coding, chargemaster, claims management, and bill reconciliation processes.
6. Use established guidelines to comply with reimbursement and reporting requirements such as the National Correct Coding Initiative.

II. Health Statistics, Biomedical Research, and Quality Management

II.A. Healthcare Statistics and Research

1. Collect, maintain, and report data for clinical indices/databases/registries to meet specific organization needs such as medical research and disease registries.
2. Collect, organize, and present data for quality management, utilization management, risk management, and other related studies.
3. Comprehend basic descriptive, institutional, and healthcare vital statistics.

II.B. Quality Management and Performance Improvement

1. Abstract and report data for facility-wide quality management and performance improvement programs.
2. Analyze clinical data to identify trends that demonstrate quality, safety, and effectiveness of healthcare.

III. Interpersonal Skills

III.A. Develop the knowledge, skills, and understanding to make informed academic, social, personal, career, and interpersonal decision

1. Display high standards of ethical conduct and behaviors
2. Pursue appropriate learning activities contributing to lifelong professional growth
3. Maintain high standards for quality work and responsiveness in providing office administrative services

III.B. Better understand self (values, work ethic, attitudes, professional presence, personal wellness, self-esteem).

1. Demonstrates behaviors that are consistent with standards for professional and ethical conduct
2. Function effectively as a member of a diverse team to accomplish common goals.

III.C. Select career goals with thought and care, value work and the benefits it brings, and adjust to the inevitable changes in the working world.

1. Demonstrate a commitment to serving internal and external customers with quality outcomes
2. Apply new technical and business information/knowledge to practical use on the job
3. Research career advancement opportunities

III.D. Demonstrate rational approaches to decision making and problem solving.

1. Demonstrate through simulations and case studies continued rational approaches to solutions and remedies for office issues.

III.E. Use correct oral and written grammar and develop strategies to avoid communication breakdown.

1. Conveys information clearly and effectively

IV. Health Services Organization and Delivery

IV.A. Healthcare Delivery Systems

1. Apply current laws, accreditation, licensure, and certification standards related to health information initiatives from the national, state, local, and facility levels.
2. Differentiate the roles of various providers and disciplines throughout the continuum of healthcare and respond to their information needs.

IV.B. Healthcare Privacy, Confidentiality, Legal, and Ethical Issues

1. Adhere to the legal and regulatory requirements related to the health information infrastructure.
2. Apply and promote ethical standards of practice.
3. Apply policies and procedures for access and disclosure of personal health information.
4. Maintain user access logs/systems to track access to and disclosure of identifiable patient data.
5. Release patient-specific data to authorized users.

V. Information Technology & Systems

V.A. Information and Communication Technologies

1. Apply policies and procedures to the use of networks, including intranet and Internet applications, to facilitate the electronic health record (EHR), personal health record (PHR), public health, and other administrative applications.
2. Participate in the planning, design, selection, implementation, integration, testing, evaluation, and support for EHRs.
3. Use common software applications such as spreadsheets, databases, word processing, graphics, presentation, e-mail, and so on in the execution of work processes.
4. Use specialized software in the completion of HIM processes such as record tracking, release of information, coding, grouping, registries, billing, quality improvement, and imaging.

5. Use technology, including hardware and software, to ensure data collection, storage, analysis, and reporting of information.

V.B. Data, Information, and File Structures

1. Apply knowledge of database architecture and design (such as data dictionary) to meet departmental needs.

V.C. Data Storage and Retrieval

1. Apply retention and destruction policies for health information.
2. Query and generate reports to facilitate information retrieval using appropriate software.
3. Use appropriate electronic or imaging technology for data/record storage.

V.D. Data Security

1. Apply confidentiality and security measures to protect electronic health information.
2. Apply departmental and organizational data and information system security policies.
3. Protect data integrity and validity using software or hardware technology.
4. Use and summarize data compiled from audit trails and data quality monitoring programs.

VI. Job Search/Employment

VI.A. Job Search and Advancement

1. Demonstrate job search skills required for employment
2. Demonstrate business awareness and workplace effectiveness.

VII. Organizational Resources

VII.A. Human Resources

1. Apply the fundamentals of team leadership.
2. Comply with local, state, and federal labor regulations.
3. Conduct orientation and training programs.
4. Monitor and report staffing levels and productivity standards for health information functions.
5. Participate in and work in teams and committees.
6. Use tools and techniques to monitor, report, and improve processes.

VII.B. Financial and Resource Management

1. Contribute to work plans, policies, procedures, and resource requisitions in relation to job functions.
2. Make recommendations for items to include in budgets and contracts.
3. Monitor and order supplies needed for work processes.
4. Monitor coding and revenue cycle processes.
5. Recommend cost-saving and efficient means of achieving work processes and goals.

VIII. Other

Anatomy & Physiology

1. Structure and function of the human body

Medical Terminology

1. Medical Prefixes, suffixes, root words, combining forms, and common terminology used by body system.

Pathophysiology

1. Diseases processes including signs and symptoms, diagnosis, treatment, and prognosis.

Pharmacotherapy

1. Common prescription and over the counter medications by body system

General Education/Other Requirements

1. Human Anatomy and Physiology for the Health Professions (BIO 145) Competencies
2. College Composition I (ENG 111) Competencies
3. Orientation to Health Information Management (SDV 101) Competencies
4. Introduction to Computer Applications (ITE 115) Competencies
5. Personal Wellness Competencies
6. Approved Social/Behavioral Science Elective Competencies
7. Approved Humanities Elective Competencies

AREA: Hospital Facility Coding* **221-152-02**

FORMAT: This program is delivered through direct assessment, competency-based education (CBE). Competencies are performance-based statements about knowledge, skills, and abilities. Direct assessment means that progress and completion are based solely on the attainment of required competencies in lieu of credit hours or clock hours as a measure of student learning. Additional information about this program design is provided in the catalog section on CBE.

LENGTH: Direct assessment CBE programs are not time-based. Estimate time to completion depends on the student's academic load/attendance status for hours of educational activity per semester and previously attained competencies that are verified by faculty.

PURPOSE: To prepare individuals for full-time employment upon completion of the community college program. The program is beneficial for individuals seeking career advancement and the Certified Coding Specialist (CCS) national coding certification sponsored by American Health Information Management Association (AHIMA).

OCCUPATIONAL OBJECTIVES: Hospital facility coding specialist, medical coding assistant, medical billing specialist or medical insurance coding specialist.

PROGRAM REQUIREMENTS: This program prepares the student for inpatient and ambulatory surgery coding positions and provides course preparation for the CCS national certification. Prior to non-clinical internships or student employment, satisfactory completion of criminal background search and drug screen may be required. Upon satisfactory completion of the program, the graduate will be awarded a Career Studies Certificate in Hospital Facility Coding.

CERTIFICATION: Students enrolled in the program may apply for the AHIMA CCS exam (at the student's expense).

***ACCEPTANCE PREREQUISITE:** Must have attained the competencies in the Medical Billing/Coding certificate program and/or hold an active CPC certification or CPC-H (AAPC) certification or CCA certification (AHIMA).

COMPETENCIES: The following competencies are required for completion of this direct assessment, competency-based education program:

I: Health Data Management

I.A. Health Data Structure, Content, and Standards

1. Apply policies and procedures to ensure the accuracy of health data.
2. Collect and maintain health data (such as data elements, data sets, and databases).
3. Conduct analysis to ensure that documentation in the health record supports the diagnosis and reflects the patient's progress, clinical findings, and discharge status.
4. Verify timeliness, completeness, accuracy, and appropriateness of data and data sources for patient care, management, billing reports, registries, and/or databases.

I.B. Healthcare Information Requirements and Standards

1. Apply policies and procedures to ensure organizational compliance with regulations and standards.
2. Assist in preparing the organization for accreditation, licensing, and/or certification surveys.
3. Maintain the accuracy and completeness of the patient record as defined by organizational policy and external regulations and standards.
4. Monitor and apply organization-wide health record documentation guidelines.

I.D. Reimbursement Methodologies

1. Apply policies and procedures for the use of clinical data required in reimbursement and prospective payment systems (PPS) in healthcare delivery.
2. Apply policies and procedures to comply with the changing regulations among various payment systems for healthcare services such as Medicare, Medicaid, managed care, and so forth.
3. Compile patient data and perform data quality reviews to validate code assignment and compliance with reporting requirements, such as outpatient prospective payment systems.
4. Ensure accuracy of diagnostic/procedural groupings such as DRG, APC, and so on.
5. Support accurate billing through coding, chargemaster, claims management, and bill reconciliation processes.
6. Use established guidelines to comply with reimbursement and reporting requirements such as the National Correct Coding Initiative.

II. Health Statistics, Biomedical Research, and Quality Management

II.A. Healthcare Statistics and Research

1. Collect, maintain, and report data for clinical indices/databases/registries to meet specific organization needs such as medical research and disease registries.
2. Collect, organize, and present data for quality management, utilization management, risk management, and other related studies.
3. Comprehend basic descriptive, institutional, and healthcare vital statistics.

III. Health Services Organization and Delivery

III.A. Healthcare Delivery Systems

1. Apply current laws, accreditation, licensure, and certification standards related to health information initiatives from the national, state, local, and facility levels.
2. Differentiate the roles of various providers and disciplines throughout the continuum of healthcare and respond to their information needs.

III.B. Healthcare Privacy, Confidentiality, Legal, and Ethical Issues

1. Adhere to the legal and regulatory requirements related to the health information infrastructure.
2. Apply and promote ethical standards of practice.
3. Apply policies and procedures for access and disclosure of personal health information.
4. Maintain user access logs/systems to track access to and disclosure of identifiable patient data.
5. Release patient-specific data to authorized users.

IV. Information Technology & Systems

IV.A. Information and Communication Technologies

1. Apply policies and procedures to the use of networks, including intranet and Internet applications, to facilitate the electronic health record (EHR), personal health record (PHR), public health, and other administrative applications.
2. Participate in the planning, design, selection, implementation, integration, testing, evaluation, and support for EHRs.
3. Use common software applications such as spreadsheets, databases, word processing, graphics, presentation, e-mail, and so on in the execution of work processes.
4. Use specialized software in the completion of HIM processes such as record tracking, release of information, coding, grouping, registries, billing, quality improvement, and imaging.
5. Use technology, including hardware and software, to ensure data collection, storage, analysis, and reporting of information.

IV.B. Data Storage and Retrieval

1. Apply retention and destruction policies for health information.
2. Query and generate reports to facilitate information retrieval using appropriate software.
3. Use appropriate electronic or imaging technology for data/record storage.

IV.C. Data Security

1. Apply confidentiality and security measures to protect electronic health information.
2. Apply departmental and organizational data and information system security policies.
3. Protect data integrity and validity using software or hardware technology.
4. Use and summarize data compiled from audit trails and data quality monitoring programs.

V. Organizational Resources

V.A. Human Resources

1. Apply the fundamentals of team leadership.
2. Comply with local, state, and federal labor regulations.
3. Conduct orientation and training programs.
4. Monitor and report staffing levels and productivity standards for health information functions.
5. Participate in and work in teams and committees.
6. Use tools and techniques to monitor, report, and improve processes.

V.B. Financial and Resource Management

1. Contribute to work plans, policies, procedures, and resource requisitions in relation to job functions.
2. Make recommendations for items to include in budgets and contracts.
3. Monitor and order supplies needed for work processes.
4. Monitor coding and revenue cycle processes.
5. Recommend cost-saving and efficient means of achieving work processes and goals.

VI. Other

1. Pharmacotherapy - Common prescription and over the counter medications by body system
2. Orientation to Health Information Management (SDV 101) Competencies

AREA: Information Systems Technology

DEGREE: Associate of Applied Science Degree

FORMAT: This program is delivered through direct assessment, competency-based education (CBE). Competencies are performance-based statements about knowledge, skills, and abilities. Direct assessment means that progress and completion are based solely on the attainment of required competencies in lieu of credit hours or clock hours as a measure of student learning. Additional info about this program design is provided in the catalog section on CBE policies.

LENGTH: Direct assessment CBE programs are not time-based. Estimate time to completion depends on the student's academic load/attendance status for hours of educational activity per semester and previously attained competencies that are verified by faculty.

PURPOSE: The associate of applied science degree program (AAS) in (IST) is designed for students who seek employment or professional development as a generalist in the area of information technology (IT), with specific knowledge in various areas such as Web design/development, computer network design and administration and database administration. These specialized areas are gained by completing one or more career studies certificates which can be applied as the approved IT electives in the IST degree program.

OCCUPATIONAL OBJECTIVES: The associate of applied science degree curriculum in information systems technology prepares students for employment with business, industry and government organizations as entry-level Web applications developers, network engineers or database administrators, depending on degree specialization.

TRANSFER GUIDELINES: Transfer opportunities for associate of applied science degrees, if existing, are very specific in nature. Students enrolling in an applied science degree with plans to transfer to a four-year college or university should explore opportunities with their assigned CBE program faculty.

PROGRAM REQUIREMENTS: A student who studies topics in IT must possess general knowledge in systems analysis and design, software design and development, Web markup languages, Internet and network foundations and database fundamentals. Additionally, students must possess sound analytical and problem-solving skills, strong written and verbal communications skills and must have good interpersonal skills. These skills are an integral part of the information system technology (IST) curriculum. The curriculum includes technical courses in information technology, business-related areas, general education and electives. Instruction is centered on theoretical concepts and practical, hands-on applications key to success in the information technology field. Students are strongly encouraged to consult with their advisor in planning their programs and selecting electives. Upon satisfactory completion of the program the graduate will be awarded the associate of applied science degree with a major in information system technology.

COMPETENCIES: The following competencies are required for completion of this direct assessment, competency-based education program:

I. Network Concepts

1. Carry out basic computer network troubleshooting techniques
2. Carry out trouble-shooting strategies for resolving an identified end-user IT problem.
3. Demonstrate the techniques of defensive programming and secure coding
4. Describe the attitudes, knowledge and abilities associated with quality customer service
5. Describe the layers, protocols, and components of the OSI model
6. Diagram the components of an integrated IT system
7. Differentiate among data types, data transfer protocols and file characteristics specified to the targeted use
8. Differentiate among strategies for business continuity provisioning of IT resources at the enterprise level
9. Differentiate among various computer networking models
10. Differentiate among various techniques for making a computer network secure
11. Discuss significant trends and emerging technologies and their impact on our global society
12. Explain the process of authentication and authorization between end-user devices and computing network resources
13. Identify a variety of enterprise-level digital storage technologies
14. Implement a hardware and software configuration responsive to an identified scenario
15. Summarize the flow of data through a computer network scenario
16. Summarize the implications of various cloud computing models
17. Summarize the security implications and risk for distributed IT systems
18. Summarize the tenets of ethics and professional behavior promoted by international computing societies
19. Use a variety of practices for making end-user systems secure

II. IT Professions

1. Academic Planning- Provides students with information related to academic programs and how they can achieve their academic goals

2. Academic Skills-Provides students with an overview of information related to optimal academic performance
3. Career Exploration and Development –Provides students with an overview of career options
4. College Policies – Provides students with an overview of important college policies as outlined in the Student Handbook
5. College Resources-Provides students with an overview of general college resources including: SIS, Instructional Technology, College Catalog, Library Resources and Student Services
6. Life Management- Provides information on how to manage various aspects of their lives
7. Social/Interpersonal- Provides information on how to effectively interact with others
8. Wellness- Provides information on how to maintain a healthy lifestyle

III. Web Page Design

1. Create a web site that incorporates the following as a minimum: HTML5, Proper heading information, Proper CSS code in line, embedded and external files (CSS 3 as a minimum), Unordered, ordered, description lists, images, tables, forms, internal and external web page links.
2. Demonstrate best practices for designing end-user computing interfaces.
3. Document the web site specifications
4. Use the FTP client to transfer files
5. Use the W3C Validator

IV. Database Fundamentals

1. Identify database administration tasks.
2. Describe the data management activities associated with the data lifecycle.
3. Diagram a database design based on an identified scenario.
4. Differentiate among data types, data transfer protocols and file characteristics specific to the targeted use.
5. Discuss applications of data analytics.
6. Discuss data governance and its implications for users as well as IT professionals.
7. Discuss issues relevant to dealing with very large data sets, both structured and unstructured.
8. Produce simple database queries.

V. Principles of Information Systems

1. Demonstrate professional behavior in response to an ethically-challenging scenario in computing.
2. Describe IT procurement processes for goods and services.
3. Diagram the components of an integrated IT system.
4. Differentiate among data types, data transfer protocols and file characteristics specific to the targeted use.
5. Differentiate among strategies for business continuity provisioning of IT resources at the enterprise level.
6. Differentiate among various operating systems.
7. Differentiate between public and private data.
8. Discuss issues relevant to dealing with very large data sets, both structured and unstructured.
9. Discuss significant trends and emerging technologies and their impact on our global society.
10. Discuss software development methodologies.
11. Explain the process of authentication and authorization between end-user devices and computing network resources.
12. Identify a variety of assistive or adaptive technologies and universal design considerations.
13. Identify a variety of enterprise-level digital storage technologies.
14. Identify basic components of an end-user IT system.
15. Summarize life-cycle strategies for replacement, reuse, recycling IT technology and resources.
16. Summarize strategies to support or train users with their IT resources.
17. Summarize the differences among various programming languages.
18. Summarize the implications of various cloud computing models.
19. Summarize the role of IT in supporting the mission and goals of an organization.
20. Summarize the security implications and risks for distributed IT systems.
21. Use a variety of practices for making end-user systems secure.
22. Use data analytics to support decision making for a given scenario.

VI. Microcomputer Operating Systems

1. Carry out trouble-shooting strategies for resolving an identified end-user IT problem.
2. Describe the attitudes, knowledge and abilities associated with quality customer service.
3. Differentiate among various operating systems.
4. Explain the process of authentication and authorization between end-user devices and computing network resources.
5. Implement an application of virtualization.
6. Summarize the tenets of ethics and professional behavior promoted by international computing societies
7. Use a variety of practices for making end-user systems secure.
8. Use communication, negotiation, and collaboration skills as a member of a diverse team.
9. Use documentation or a knowledge base to resolve a technical challenge in an identified computing scenario.

VII. Software Design

1. Demonstrate the techniques of defensive programming and secure coding.
2. Use a programming or a scripting language to solve a problem.
3. Use communication, negotiation, and collaboration skills as a member of a diverse team.
4. Use documentation or a knowledge base to resolve a technical challenge in an identified computing scenario.

VIII. System Analysis

1. Carry out trouble-shooting strategies for resolving an identified end-user IT problem.
2. Demonstrate best practices for designing end-user computing interfaces.
3. Demonstrate professional behavior in response to an ethically-challenging scenario in computing
4. Describe IT procurement processes for goods and services.
5. Describe the attitudes, knowledge and abilities associated with quality customer service.
6. Describe the data management activities associated with the data lifecycle.
7. Diagram a database design based on an identified scenario.
8. Diagram the components of an integrated IT system.
9. Diagram the phases of the Secure Software Development Lifecycle.'
10. Differentiate among various techniques for making a computer network secure.
11. Discuss software development methodologies.
12. Identify a variety of assistive or adaptive technologies and universal design considerations.
13. Identify a variety of enterprise-level digital storage technologies.
14. Identify basic components of an end-user IT system.
15. Identify database administration tasks.
16. Implement a hardware and software configuration responsive to an identified scenario.
17. Modify a system to improve data confidentiality or regulatory compliance.
18. Produce technical documentation responsive to an identified computing scenario.
19. Summarize life-cycle strategies for replacement, reuse, recycling IT technology and resources.
20. Summarize strategies to support or train users with their IT resources.
21. Summarize the implications of various cloud computing models.
22. Summarize the role of IT in supporting the mission and goals of an organization.
23. Use a programming or a scripting language to share data across an integrated IT system.
24. Use a programming or a scripting language to solve a problem.
25. Use communication, negotiation, and collaboration skills as a member of a diverse team.
26. Use data analytics to support decision making for a given scenario.
27. Use documentation or a knowledge base to resolve a technical challenge in an identified computing scenario.

IX. General Education

1. College Composition I (ENG 111) Competencies
2. College Composition II (ENG 112) Competencies
3. Mathematics for the Liberal Arts I (MTH 151) Competencies
4. Mathematics for the Liberal Arts II (MTM 152)
5. Principles of Public Speaking (CST 100)
6. Approved Social/Behavioral Science Elective Competencies
7. Personal Wellness Competencies
8. Approved Humanities Elective Competencies

PURPOSE: The IST Program consists of a number of career studies options that focus on a specific career field in information technology (IT). These programs are appropriate for students earning the IST degree as a means of satisfying the IT electives to obtain a specialized, focus area of expertise.

The career studies certificates listed here provide students with opportunities to gain skills in designing, installing, administering and repairing computer networks; and to explore the various aspects of cyber security.

FORMAT: This program is delivered through direct assessment, competency-based education (CBE). Competencies are performance-based statements about knowledge, skills, and abilities. Direct assessment means that progress and completion are based solely on the attainment of required competencies in lieu of credit hours or clock hours as a measure of student learning. Additional info about this program design is provided in the catalog section on CBE policies.

LENGTH: Direct assessment CBE programs are not time-based. Estimate time to completion depends on the student's academic load/attendance status for hours of educational activity per semester and previously attained competencies that are verified by faculty.

Before entering a career studies program, students should have a strong foundation in using computer applications (such as the competencies attained in the ITE 115 course, listed in the back of this catalog). Students should also have a strong foundation in computer concepts to include database fundamentals, Internet and networking fundamentals, operating systems, software design, and computer hardware troubleshooting prior to beginning the program.

To satisfy the IST degree requirements, students are encouraged to attain competencies within the career studies certificates, since these are stackable credentials. Students must also formally complete an "Application for Graduation" for both the Career Studies Certificates and the degree upon attainment of the competencies required for the CSC and the degree upon graduation. The competencies in the Career Studies Certificate programs are directly related to the IST degree.

COMPETENCIES: The following competencies are required for completion of this direct assessment, competency-based education program:

AREA: Cyber Security 221-732-09

I. Network Concepts

1. Carry out basic computer network troubleshooting techniques
2. Carry out trouble-shooting strategies for resolving an identified end-user IT problem.
3. Demonstrate the techniques of defensive programming and secure coding
4. Describe the attitudes, knowledge and abilities associated with quality customer service
5. Describe the layers, protocols, and components of the OSI model
6. Diagram the components of an integrated IT system
7. Differentiate among data types, data transfer protocols and file characteristics specified to the targeted use
8. Differentiate among strategies for business continuity provisioning of IT resources at the enterprise level
9. Differentiate among various computer networking models
10. Differentiate among various techniques for making a computer network secure
11. Discuss significant trends and emerging technologies and their impact on our global society
12. Explain the process of authentication and authorization between end-user devices and computing network resources
13. Identify a variety of enterprise-level digital storage technologies
14. Implement a hardware and software configuration responsive to an identified scenario
15. Summarize the flow of data through a computer network scenario
16. Summarize the implications of various cloud computing models
17. Summarize the security implications and risk for distributed IT systems
18. Summarize the tenets of ethics and professional behavior promoted by international computing societies
19. Use a variety of practices for making end-user systems secure

II. Network Security Basics

1. Carry out basic computer network troubleshooting techniques on a security related issue.
2. Describe the data management activities associated with the data lifecycle from a security perspective.
3. Diagram the components of an integrated IT system used to exercise good security.
4. Differentiate among data types, data transfer protocols and file characteristics specific to the targeted use. (In this case secured transfers.)
5. Differentiate among strategies for business continuity provisioning of IT resources at the enterprise level.
6. Differentiate among various techniques for making a computer network secure.
7. Differentiate between public and private data.
8. Explain the process of authentication and authorization between end-user devices and computing network resources.

9. Implement a hardware and software configuration responsive to an identified scenario.
10. Modify a system to improve data confidentiality or regulatory compliance.
11. Summarize the security implications and risks for distributed IT systems.
12. Summarize the tenets of ethics and professional behavior promoted by international computing societies.
13. Use a variety of practices for making end-user systems secure.

III. Attacks and Crimes

1. Demonstrate professional behavior in response to an ethically challenging scenario in computing.
2. Describe the layers, protocols and components of the OSI model.
3. Summarize the flow of data through a computer network scenario.
4. Summarize the security implications and risks for distributed IT systems.
5. Summarize the tenets of ethics and professional behavior promoted by international computing societies.
6. Use a programming or a scripting language to share data across an integrated IT system.
7. Use documentation or a knowledge base to resolve a technical challenge in an identified computing scenario.

IV. Access and Authentication

1. Differentiate between public and private data.
2. Explain the process of authentication and authorization between end user devices and computing network resources.
3. Modify a system to improve data confidentiality or regulatory compliance.
4. Summarize the flow of data through a computer network scenario.
5. Use a variety of practices for making end user systems secure.
6. Use documentation or a knowledge base to resolve a technical challenge in an identified computing scenario.

V. Firewalls and E-Commerce

1. Differentiate among various techniques for making a computer network secure.
2. Modify a system to improve data confidentiality or regulatory compliance.
3. Use documentation or a knowledge base to resolve a technical challenge in an identified computing scenario.

VI. Network Security Layers

1. Differentiate among strategies for business continuity provisioning of IT resources at the enterprise level.
2. Differentiate among various techniques for making a computer network secure.
3. Implement a hardware and software configuration responsive to an identified scenario.
4. Modify a system to improve data confidentiality or regulatory compliance.
5. Summarize the security implications and risks for distributed IT systems.
6. Use documentation or a knowledge base to resolve a technical challenge in an identified computing scenario.

VII. Legal Topics

1. Demonstrate professional behavior in response to an ethically challenging scenario in computing.
2. Modify a system to improve data confidentiality or regulatory compliance.
3. Summarize the security implications and risks for distributed IT systems.
4. Use documentation or a knowledge base to resolve a technical challenge in an identified computing scenario

AREA: Networking Specialist

I. Network Concepts

1. Carry out basic computer network troubleshooting techniques
2. Carry out trouble-shooting strategies for resolving an identified end-user IT problem.
3. Demonstrate the techniques of defensive programming and secure coding
4. Describe the attitudes, knowledge and abilities associated with quality customer service
5. Describe the layers, protocols, and components of the OSI model
6. Diagram the components of an integrated IT system
7. Differentiate among data types, data transfer protocols and file characteristics specified to the targeted use
8. Differentiate among strategies for business continuity provisioning of IT resources at the enterprise level
9. Differentiate among various computer networking models
10. Differentiate among various techniques for making a computer network secure
11. Discuss significant trends and emerging technologies and their impact on our global society
12. Explain the process of authentication and authorization between end-user devices and computing network resources
13. Identify a variety of enterprise-level digital storage technologies
14. Implement a hardware and software configuration responsive to an identified scenario
15. Summarize the flow of data through a computer network scenario
16. Summarize the implications of various cloud computing models
17. Summarize the security implications and risk for distributed IT systems
18. Summarize the tenets of ethics and professional behavior promoted by international computing societies
19. Use a variety of practices for making end-user systems secure

II. Microcomputer OS

1. Carry out trouble-shooting strategies for resolving an identified end-user IT problem.
2. Describe the attitudes, knowledge and abilities associated with quality customer service.
3. Differentiate among various operating systems.

4. Explain the process of authentication and authorization between end-user devices and computing network resources.
5. Implement an application of virtualization.
6. Summarize the tenets of ethics and professional behavior promoted by international computing societies
7. Use a variety of practices for making end-user systems secure.
8. Use communication, negotiation, and collaboration skills as a member of a diverse team.
9. Use documentation or a knowledge base to resolve a technical challenge in an identified computing scenario.

III. PCs and Troubleshooting

1. Carry out trouble-shooting strategies for resolving an identified end-user IT problem.
2. Describe the attitudes, knowledge and abilities associated with quality customer service.
3. Identify basic components of an end-user IT system.
4. Summarize the tenets of ethics and professional behavior promoted by international computing societies.
5. Use documentation or a knowledge base to resolve a technical challenge in an identified computing scenario.

IV. Linux OS

1. Demonstrate the techniques of defensive programming and secure coding.
2. Implement an application of virtualization.

V. Network Administration

1. Differentiate among various operating systems.
2. Differentiate among various techniques for making a computer network secure.
3. Identify a variety of enterprise-level digital storage technologies.

VI. Network Security Basics

1. Carry out basic computer network troubleshooting techniques on a security related issue.
2. Describe the data management activities associated with the data lifecycle from a security perspective.
3. Diagram the components of an integrated IT system used to exercise good security.
4. Differentiate among data types, data transfer protocols and file characteristics specific to the targeted use. (In this case secured transfers.)
5. Differentiate among strategies for business continuity provisioning of IT resources at the enterprise level.
6. Differentiate among various techniques for making a computer network secure.
7. Differentiate between public and private data.
8. Explain the process of authentication and authorization between end-user devices and computing network resources.
9. Implement a hardware and software configuration responsive to an identified scenario.
10. Modify a system to improve data confidentiality or regulatory compliance.
11. Summarize the security implications and risks for distributed IT systems.
12. Summarize the tenets of ethics and professional behavior promoted by international computing societies.
13. Use a variety of practices for making end-user systems secure.

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