Chattanooga State Community College

Self-Study Report

Accreditation of Associate of Applied Science Degree in

Computer Information Technology

In compliance with the
2021 Outcome Assessment Model

Submitted to:

The Association of Technology, Management, and Applied Engineering Board of Accreditation (ATMAE)

Submitted by:

Chattanooga State Community College
Engineering and Information Technologies Division

Chattanooga, Tennessee
March 5, 2021

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I. The On-Site Visit

A. Date of the Visit

April 7-9, 2021

B. Visiting Team Members

1. Team Chair: Mr. Glen D. Roberson, Jr.
   Employer: IVY Tech Community - Lafayette
   Address 1: 50 West Fall Creek Parkway N Drive
   Address 2: School of Applied Science, Engineering & Technology
   City, State, & Zip: Indianapolis, IN 46208
   Business Phone: (765) 730-0579
   Email Address: groberson@ivytech.edu

2. Team Member 2: Ms. Marcia Wheeler
   Employer: Ozarks Technical Community College
   Address 1: 1001 E Chestnut Expressway
   City, State, & Zip: Springfield, MO 65802
   Business Phone: (417) 447-8108
   Email Address: wheelerm@otc.edu

3. Team Member 3: Mr. John Sluder
   Employer: River Parishes Community College
   Address 1: 925 W Edenborne Parkway
   Address 2: PO Box 2367
   City, State, & Zip: Gonzales, LA 70737
   Business Phone: (225) 743-8653
   Email Address: jsluder@rpcc.edu

C. Proposed On-Site Visit Agenda

The following agenda was developed for the visiting chair to review. Please let Chattanooga State Community College know if revision are necessary.

CHATTANOOGA STATE COMMUNITY COLLEGE
Engineering & Information Technologies Division
ATMAE ACCREDITATION SITE VISIT
April 7 – April 9, 2021
Tentative Agenda

Table I-1: Tentative Agenda

Wednesday, April 7, 2021
Team Chair arrives in Chattanooga
Thursday, April 8, 2021
8:00 – 9:00 Tour Campus and Labs with Dr. Tremaine Powell
9:00 – 9:30 Faculty meetings
Hanadi Mohamed, *Programming Faculty*
Jeffrey Schneider, *Programming Faculty*
9:30 – 10:00 Industry Advisory Board Member Meeting
10:00 – 10:30 Office meetings
Team Chair – **Dr. Rebecca Ashford**, President
Team Member 2 – **Dr. Beth Norton**, Vice President Academic Affairs
Team Member 3 – **Tammy Swenson**, Vice President Business and Finance
10:00 – 10:30 Classroom Observations
• *CITC 1301 – Introduction to Programming and Logic – Randy Ricketson (10:00-11:15)* • *CITC 1303 – Database Concepts – Jeffrey Schneider (10:00-11:30)*
11:00 – 11:30 Office meetings
Team Chair – **Garner Long**, Vice President, Technology
Team Member 2 – **Nancy Patterson,** Vice President, College Advancement
Team Member 3 – **Quincy Jenkins**, Executive Director of Diversity Equity & Inclusion
11:30 - 12:00 Office meetings

Team Chair – **Amanda Bennett**, Interim Vice President Student Affairs. (panel interview including personnel from Enrollment Services, Student Support Center, and Recruiting and Orientation)
Team Member 2 – **Reed Allison**, Director of Financial Aid (and key Financial Aid personnel)
Team Member 3 – **Stephanie Hollis**, Director of Career Services
12:00 – 1:00 Lunch meeting with Advisory Committee members and graduates (3 members and graduates from each area –Programming, Cyber Defense, Networking)
1:00 – 2:00 Classroom Observations
• *CITC 2356 Penetration/Network Defense – Patrick Ward (1:00-2:15)* • *CITC 1317 Intro to Scripting Languages – Randy Ricketson (1:00-2:00)*
2:00 – 2:30 Meet with Faculty Leads
• Mr. Noman Saied, Programming • Mr. Randy Ricketts, Networking • Mr. Patrick Ward, Cyber Defense
2:30 – 3:00 Student Meeting - (3 students from each area)
3:00 – 6:30 Resource Room Review & Classroom Observations
• *CITC 1301 Introduction to Programming and Logic – Hanadi Mohamed (2:00-3:15)* • *CITC 2310 Advanced Net Programming – Jeffrey Schneider (5:30-8:20)* • *CITC 2335 Systems Analysis and Design – Savitha Pinnepalli (5:30-8:20)*
6:30 Dinner (Team members only)
6:30 – 9:00 Work Time for Team
9:00 Return to Hotel
Friday, April 9, 2021
8:00 – 8:30 Meet with Full-time Faculty
• Mr. Jeffrey Schneider • Mrs. Hanadi Mohamed
8:30 – 9:00 Open agenda for any of the following activities:
• Tour branch campuses
• Resource Room review
• Follow up interviews and meetings as needed
12:00 – 2:00 Lunch and Final Report Out – *CETAS Conference Room*
Dr. Rebecca Ashford (President), Beth Norton (Vice President), Dr. Tremaine Powell (Dean), Savitha Pinnepalli (Department Head), Noman Saied (Programming), Patrick Ward (Cyber Defense), Randy Ricketson (Networking)

D. Current Accreditation Status of Program

Chattanooga State Community College's (ChSCC) Computer Information Technology degree was previous titled Information Systems Technology while contained within ChSCC's Business Division. The Information Systems Technology degree was accredited by the Accreditation Council for Business Schools and Programs (ACBSP) beginning in 2009. This degree program included concentrations in End User Support, Network Management, and Programming.

Program changes implemented in 2011 resulted in the program concentration revisions to Database Management, Network Management, and Web Programming. In 2012, Game Programming was added to the above mentioned three concentrations. The Information Systems Technology degree program was transferred from the Business Division to the Engineering & Information Technologies Division in 2015. The program accreditation with ACBSP continued till June 7, 2019.

On August 10, 2020, Chattanooga State Community College submitted its "Request for Initial Visit" as its intent to apply for initial accreditation of its Engineering and Information Technologies, Computer Information Technology program including A.A.S programming, Networking, and Cyber Defense concentrations.

II. General Information

A. The Institution (http://www.chattanoogastate.edu/; https://www.tbr.edu/)

Founded in 1965, Chattanooga State Community College is a comprehensive, public community college in the College System of Tennessee offering more than 100 degree and certificate programs preparing students for associate and associate of applied science degrees, technical and institutional certificates, transfer to four-year institutions, and immediate entrance into the job market. *ChattState Online* offers 30+ fully online degrees. Home to the only fully embedded technical college on a Tennessee community college campus, the College consistently offers a high-quality education with a 16:1 student-to-teacher ratio, 99 percent job placement rate, and 98 percent allied health licensure pass rate.

The College serves a six-county service area that includes Hamilton, Rhea, Sequatchie, Marion, Bledsoe and Grundy counties, the college also collaborates with businesses and industry to create and deploy customizable workforce training solutions.

1. Name and Address

Chattanooga State Community College
4501 Amnicola Highway
Chattanooga, TN 37406

Campuses
Main Site, Chattanooga
Dayton Site
Kimball Site

2. Number of Students Enrolled

Table II-1: 2019-20 Enrollment Summary

	Fall 2019	Spring 2020
TOTAL HEADCOUNT	8,050	7,028
Full-time Headcount	3,821	3,227
Part-time Headcount	4,229	3,801
Full-Time Equivalent	5,253.06	4,413.33

3. Total Full-Time Equivalent Faculty (2019-20) Academic Year

238 faculty

4. Operating Budget

Table II-2: College Operating Budget

	Fiscal Year	Budget (unrestricted)
Current	2020 - 2021 *(Fiscal Year 2021)*	$61,888,897
Five-Year History	2019 – 2020 *(Fiscal year 2020)*	$60,392,314
	2018 – 2019 (Fiscal Year 2019)	$58,763,399
	2017 – 2018 (Fiscal Year 2018)	$58,464,215
	2016 -2017 (Fiscal Year 2017)	$58,646,731
	2015-2016 (Fiscal Year 2016)	$57,363,595

5. Institutional Accreditation Organization(s) and Dates of Accreditation.

Accreditations, Legal, TBR SACSCOC Status and Letter of Reaffirmation

Chattanooga State Community College is accredited by the Southern Association of Colleges and Schools Commission on Colleges (SACSCOC) to Award the Associate Degree. The College was last reaffirmed for accreditation with SACSCOC in July 2011. Chattanooga State has successfully completed the reaffirmation process pending final approval during the meeting of the Commission on Colleges to be held in June 2021. There are no instances of accreditation denial, revocation, placement on probationary status for any program at the institution.

A complete list of program accreditations for the institution is found in Table II-3.

Table II-3: Chattanooga State Community College Accreditations

Program/Accrediting Agency	Date of Last Approval	Results
Applied Science A.A.S **General Engineering Concentration** ACCREDITED BY THE APPLIED SCIENCES ACCREDITATION COMMISSION (ANSAC) OF THE ACCREDITATION BOARD FOR ENGINEERING AND TECHNOLOGY, ABET 111 Market Pl., Suite 1050, Baltimore, MD 21202 (410) 347-7700 www.abet.org	2018 Applied Science General Engineering	Approved to 2024
Automotive Technology **Collision Repair Technology** APPROVED BY THE NATIONAL AUTOMOTIVE TECHNICIANS EDUCATION FOUNDATION (NATEF) 101 Blue Seal Dr., SE, Suite 101 Leesburg, VA 20175 (703) 669-6650 FAX (703) 669-6125 www.natef.org	2016 Automotive Technology 2019 Collision Repair	Approved to 2021 Approved to 2022
Business A.A.S **Accounting** **Business** *Entrepreneurship* *Management* *Office Management* ACCREDITED BY THE ACCREDITATION COUNCIL FOR BUSINESS SCHOOLS AND PROGRAMS (ACBSP) www.acbsp.org 11520 West 119th St., Overland Park, KS 66213 (913)339-9356 FAX (913)339-6226	2019 Business	Approved to 2029
Dental Hygiene and Dental Assisting A.A.S ACCREDITED BY THE COMMISSION ON DENTAL ACCREDITATION OF THE AMERICAN DENTAL ASSOCIATION (CODA) *(A specialized accrediting body recognized by the Council on Postsecondary Accreditation by the United States Department of Education)* www.ada.org/coda 211 East Chicago Av., Chicago, IL 60641-2678 (312) 440-2500 FAX (312) 440-7494	2014 Dental Hygiene 2014 Dental Assisting	Approved to 2021 Approved to 2021

Program/Accrediting Agency	Date of Last Approval	Results
Diagnostic Medical Sonography ACCREDITED BY THE COMMISSION ON ACCREDITATION OF ALLIED HEALTH EDUCATION PROGRAMS (CAAHEP) www.caahep.org 1361 Park St., Clearwater, FL 33756 (727) 210-2350 FAX (727) 210-2354 IN COOPERATION WITH THE JOINT REVIEW COMMITTEE ON EDUCATION IN DIAGNOSTIC MEDICAL SONOGRAPHY 2025 Woodlane Dr., St. Paul, MN 55125 (651) 731-7225 FAX (817) 354-8519	2018 Cardiac Concentration 2018 General Concentration 2018 Vascular Concentration	Approved to 2028 Approved to 2028 Approved to 2028
Diesel Equipment Technology APPROVED BY THE ASE EDUCATION FOUNDATION (ASE) 1503 Edwards Ferry Rd, NE, Suite 401 Leesburg, VA 20176 (703) 669-6650 www.aseeducationfoundation.org	2018 Diesel Equipment Technology	Approved to 2023
Early Childhood Education A.A.S ACCREDITED BY THE NATIONAL ASSOCIATION FOR THE EDUCATION OF YOUNG CHILDREN (NAEYC) www.naeyc.org 1313 L Street, NW, Suite 500 Washington, DC 20005 (800) 424-2460 FAX (202) 232-1720	2015 Early Childhood Education	Approved to 2022
Electrical Electronics Engineering Technology AAS **Programs:** Automated Controls Concentration Computer Systems Concentration Solar Engineering Technology ACCREDITED BY THE ENGINEERING TECHNOLOGY ACCREDITATION COMMISSION (ETAC) OF THE ACCREDITATION BOARD FOR ENGINEERING AND TECHNOLOGY, ABET www.abet.org 111 Market Pl., Suite 1050, Baltimore, MD 21202 (410) 347-7700	2018 Electrical Electronics Engineering Technology	Approved to 2024
Emergency Medical Services ACCREDITED BY THE COMMITTEE ON ACCREDITATION OF EDUCATIONAL PROGRAMS FOR THE EMS PROFESSIONS 1248 Harwood Rd., Bedford, TX 76021 http://www.COAEMSP.org (817) 283-9403 FAX (817) 354-8519	2016 Emergency Medical Technician-Paramedic Program	Approved to 2021

Program/Accrediting Agency	Date of Last Approval	Results
Engineering Systems Technology AAS ACCREDITED BY THE ENGINEERING TECHNOLOGY ACCREDITATION COMMISSION (ETAC) OF THE ACCREDITATION BOARD FOR ENGINEERING AND TECHNOLOGY, ABET www.abet.org 111 Market Pl., Suite 1050, Baltimore, MD 21202 (410) 347-7700 **PROGRAMS:** Construction Management Engineering Systems Management Industrial Technology Mechatronic Systems Welding Engineering Technology	2018 Engineering Systems Technology	Approved to 2024
Engineering Technology A.A.S. Programs: ACCREDITED BY THE ENGINEERING TECHNOLOGY ACCREDITATION COMMISSION (ETAC) OF THE ACCREDITATION BOARD FOR ENGINEERING AND TECHNOLOGY, ABET www.abet.org 111 Market Pl., Suite 1050, Baltimore, MD 21202 (410) 347-7700 **PROGRAMS**: Chemical Engineering Technology Civil Engineering Technology Construction Engineering Technology Design/Drafting Engineering Technology Mechanical Engineering Technology Non-Destructive Testing Technology Nuclear Power Engineering Technology Radiation Protection Quality Assurance/Quality Control Engineering Technology	2018 Engineering Technology	Approved to 2024
Health Information Management A.A.S ACCREDITED BY THE COMMISSION ON ACCREDITATION FOR HEALTH INFORMATICS AND INFORMATION MANAGEMENT EDUCATION (CAHIIM) www.cahiim.org 233 N. Michigan Ave., Suite 2150, Chicago, IL 60601-5800 (312) 233-1100 FAX (312) 233-1090	2005 Health Information Management	With satisfactory completion of annual reports, accreditation remains in place.
HVAC/R Technician APPROVED BY HVAC EXCELLENCE www.hvacexcellence.org P.O. Box 491, Mount Pleasant, IL 60056-0491 (800) 394-5268 FAX (800) 546-3726	2019 HVAC/R	Approved annually.

Program/Accrediting Agency	Date of Last Approval	Results
Information Systems Technology A.A.S ACCREDITED BY THE ACCREDITATION COUNCIL FOR BUSINESS SCHOOLS AND PROGRAMS (ACBSP) www.acbsp.org 11520 West 119th St., Overland Park, KS 66213 (913)339-9356 FAX (913)339-6226	2009 Information Systems Technology	Approved to 2019 (seeking accreditation change)
Industrial Electricity ACCREDITED BY THE NATIONAL CENTER FOR CONSTRUCTION EDUCATION AND RESEARCH (NCCER) P.O. Box 141104, Gainesville, FL 32614-1104 (888) 622-3720 FAX (352) 334-0932 www.nccer.org	2012 Industrial Electricity	Approved and renewed annually by submitting NCCER form "200S"
Industrial Electronics ACCREDITED BY ELECTRONICS TECHNICIANS ASSOCIATION INTERNATIONAL eta@eta-i.org 5 Depot Street, Greencastle IN 46135 (800) 288-3824; (765) 653-8262 (P) 765-653-4287 (F)	2016 Industrial Electronics	Approved and annually renewed by paying dues.
Industrial Maintenance/Mechatronics ACCREDITED BY THE NATIONAL CENTER FOR CONSTRUCTION EDUCATION AND RESEARCH (NCCER) P.O. Box 141104, Gainesville, FL 32614-1104 (888) 622-3720 FAX (352) 334-0932 www.nccer.org	2012 Industrial Maintenance	Approved and renewed annually by submitting NCCER form "200S"
Machine Tool Technology ACCREDITED BY THE NATIONAL INSTITUTE FOR METAL WORKING SKILLS (NIMS) www.nims-skills.org 10565 Fairfax Blvd., Suite 203 Fairfax 22030 (706)352-4971	2013 Machine Tool Technology	Approved to 2019
Medical Assistant ACCREDITED BY THE COMMISSION ON ACCREDITATION OF ALLIED HEALTH EDUCATION PROGRAMS (www.caahep.org) 35 East Wacker Dr., Suite 1970 Chicago, IL 60601-2208 (312) 553-9355 FAX (312) 553-9616 ON RECOMMENDATION OF THE COMMITTEE OF ACCREDITATION FOR MEDICAL ASSISTANT EDUCATION AMERICAN ASSOCIATION OF MEDICAL ASSISTANTS 20 North Wacker Dr., Suite 1575 Chicago, IL 60606-2963 (800) 228-2262	2015 Medical Assisting	Approved to 2023

Program/Accrediting Agency	Date of Last Approval	Results
Nuclear Medicine Technology ACCREDITED BY THE JOINT REVIEW COMMITTEE ON EDUCATIONAL PROGRAMS IN NUCLEAR MEDICINE TECHNOLOGY www.jrcnmt.org 2000 W. Danforth Rd., Suite 130, #203 Edmond, OK 73003 (405) 285-0546 FAX(405) 285-0579	2016 Nuclear Medicine Tech	Approved to 2023
Nursing (RN) A.A.S ACCREDITED BY THE NATIONAL LEAGUE FOR NURSING ACCREDITING COMMISSION www.nln.org 61 Broadway, New York, NY 10006 (800) 669-1656	2018 Nursing	Approved to 2025
Paralegal Studies A.A.S APPROVED BY THE AMERICAN BAR ASSOCIATION www.americanbar.org 750 North Lake Shore Dr., Chicago, IL 60611	2016 New Program	Set to be included in 2021 Affirmation
Paramedic Program A.A.S APPROVED BY THE COMMITTEE OF ACCREDITATION OF EDUCATIONAL PROGRAMS FOR THE MEDICAL SERVICES PROFESSION (CoAEMSP) www.coaemsp.org 1248 Harwood Road Bedford, TX 76021-4244 (817)283-9403	2016 New Program	Set to be included in 2021 Affirmation
Pharmacy Technician ACCREDITED BY THE AMERICAN SOCIETY OF HEALTH SYSTEM PHARMACISTS www.ashp.org/accreditation 7272 Wisconsin Av., Bethesda, MD 20814 (301) 657-3000 FAX (301) 652-8278	2017 Pharmacy Tech	Approved to 2023
Physical Therapist Assistant A.A.S ACCREDITED BY THE COMMISSION ON ACCREDITATION IN PHYSICAL THERAPY EDUCATION (CAPTE) OF THE AMERICAN PHYSICAL THERAPY ASSOCIATION www.capteonline.org 1111 N. Fairfax St., Alexandria, VA 22314 (800) 999-2782	2017 Physical Therapy Asst.	Approved to 2019
Radiation Therapy Technology A.A.S **Radiologic Technology A.A.S** ACCREDITED BY THE JOINT REVIEW COMMITTEE ON EDUCATION IN RADIOLOGIC TECHNOLOGY www.jrcert.org 20 North Wacker Dr., Suite 2850 Chicago, IL 60606-3182 (312) 704-5300 FAX (312) 704-5304	2018 Radiation Therapy Tech 2018 Radiologic Technology	Approved to 2026 Approved to 2026

Program/Accrediting Agency	Date of Last Approval	Results
Respiratory Care A.A.S ACCREDITED BY THE COMMITTEE ON ACCREDITATION FOR RESPIRATORY CARE (COARC) www.coarc.com 1248 Harwood Rd. Bedford, TX 76021-4244 (817) 283-2835 FAX (817) 354-8519	2011 Respiratory Care	Approved to 2021
Surgical Technology ACCREDITED BY THE COMMISSION ON ACCREDITATION OF ALLIED HEALTH EDUCATION PROGRAMS (CAAHEP) www.caahep.org 35 East Wacker Dr., Suite 1970 Chicago, IL 60601-2208 (312) 553-9355 FAX (312) 553-9616	2019 Veterinary Technology	Approved to 2024
Veterinary Technology A.A.S ACCREDITED BY THE AMERICAN VETERINARY MEDICAL ASSOCIATION www.avma.org 1931 N. Meacham Road, Suite 100, Schaumburg, IL 60173 (800) 248-2862 FAX (847)925-1329	2019 Veterinary Technology	Approved to 2024
Welding CERTIFIED BY THE AMERICAN WELDING SOCIETY (AWS) www.aws.org 550 NW LeJeune Road Miami, Florida 33126 (305)443-9353	2015 Welding	Approved and renewed annually by paying dues.
Chattanooga State Community College is Accredited by the Southern Association of Colleges and Schools Commission on Colleges (SACSCOC) to Award the Associate Degree 1866 Southern Lane, Decatur, Georgia 30033-4097 • (404) 679-4501 ***Every eligible instructional program of the College is nationally accredited.***	July 2011	Reaffirmation July 2021

6. History of Accreditation by the Association of Technology, Management, and Applied Engineering

On August 10, 2021, Chattanooga State Community College submitted its "Request for Initial Visit" as its intent to apply for initial accreditation of the College's AAS Computer Information Technology program including Cyber Defense, Networking, and Programming concentrations.

7. Administration of the Institution

a. Name and Address
Chattanooga State Community College
4501 Amnicola Highway
Chattanooga, TN 37406

b. Head (President)
Dr. Rebecca Ashford
President, Chattanooga State Community College
4501 Amnicola Highway
Chattanooga, TN 37406

c. Chief Academic Officer (Vice President of Academic Affairs)
Dr. Beth Norton
Vice President of Academic Affairs
4501 Amnicola Highway
Chattanooga, TN 37406

8. Major Academic Units within the Institution

All departments and programs/concentrations/options fall under the following academic units:

- Business Division
- Engineering & Information Technologies Division
- Humanities & Fine Arts Division
- Mathematics & Sciences Division
- Nursing & Allied Health Division
- Social & Behavioral Sciences Division
- TN College of Applied Technology (TCAT)

9. Institutional Mission and Goals

Mission Statement

Chattanooga State Community College Mission Statement

Chattanooga State is an educationally purposeful community where faculty, staff, and students share academic goals and strive for high standards that lead to the attainment of degrees and certificates, meaningful careers, and a committed citizenry of lifelong learners.

Vision
Every student will succeed. Each day, we...empower our students; inspire them to achieve; energize their passion and purpose; sharpen the focus of their vision; navigate their challenges together; encourage exploration and self-discovery. Create a community of learners.

Values
Competence, Professionalism, Innovation, Collaboration, Excellence, Resilience, Integrity, Compassion, Respect

Focused Institutional Goals (IG)
Developed in summer 2019, the five identified focused institutional goals (IG) represent the collective goals of the functional divisions reporting directly to the President. While the five IGs do not represent 100% of the current or future accomplishments of the College, these goals should influence strategic decisions and inform unit goals, strategies, and improvement planning.

Chattanooga State Focused Institutional Goals aligned to Student Success.

IG1. Achieve comparably high student outcomes across identified subpopulations.
IG2. Promote equitable access to high quality in demand educational programs, training pathways, and careers.
IG3. Integrate appropriate and quality student supports in order to provide a consistent student experience.
IG4. Engage community partners in innovative approaches to economic and workforce development.
IG5. Equip employees to perform goal-driven objectives at a high-quality performance level

Student Success - Key Performance Indicators (KPIs)

S1. Increase graduation rate by 10 percentage points.
- **S1.1** Improve term-to-term progression rates at the credit hour benchmarks (12, 24, and 36 hours)
- **S1.2** Improve fall-to-fall retention rate.
- **S1.3** Increase total awards per 100 FTE.
- **S1.4** Increase the number of certificates awarded each year.

S1.5 Increase the number of associates degrees awarded each year.

S2. Increase the percent of students who earn A, B, or C in the TBR-identified critical courses

S3. Job placement rate remains above 90%

S3.1 Post-award Progression of Graduates (needs to be defined as a goal; added by TBR late)

S4. Meet or exceed the CCSSE cohort in the student engagement benchmark categories.

S5. Increase the number of associates degrees awarded each year.

S6. For students on TTP pathways, increase the number who complete AND transfer to a university.

S7. Increase the percent of students who take and successfully complete remedial instruction with co-requisite model.

10. Relationship of Institution to Superior Governing Body – System of Governance

Chattanooga State Community College is authorized to award degrees by the Tennessee General Assembly through the governance system of the Tennessee Board of Regents (TBR) and the guidance and support of the Tennessee Higher Education Commission (THEC).

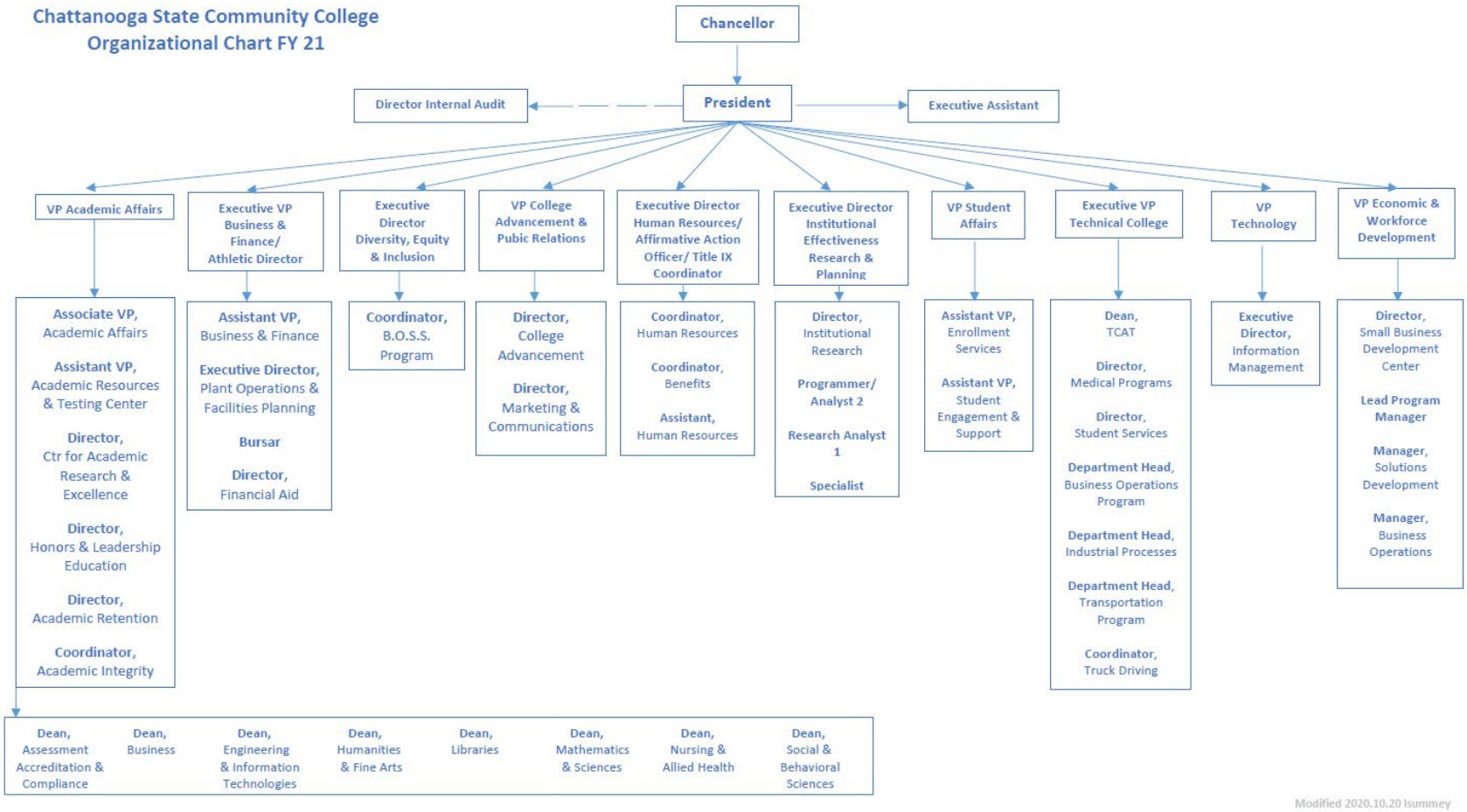
The Tennessee Higher Education Commission was created in 1967 by the Tennessee General Assembly to achieve coordination and foster unity with regard to higher education in the state. The Commission coordinates and provides guidance to the institutions governed by the University of Tennessee Board of Trustees, the six locally governed state universities, and the community colleges including Chattanooga State Community College, and colleges of applied technology governed by the Tennessee Board of Regents. There are currently nine public universities, two special purpose institutes, 13 community colleges, and 27 colleges of applied technology in Tennessee that serve approximately 250,000 students.

The Commission is composed of nine voting members appointed from the general public, each serving six-year terms and representing the three Grand Divisions of the state equally; three constitutional officers- Comptroller of the Treasury, State Treasurer, and Secretary of State- who are ex-officio voting members; one voting student member; and the Executive Director of the State Board of Education, as ex-officio, non- voting member.

B. Administrative Unit(s) Information

Chattanooga State Community College's organizational chart is depicted in Figure II-1: Organizational Chart.

Figure II-1: Organizational Chart



1. Name of College or School if appropriate and/or Department Administrative Units

Chattanooga State Community College
Engineering and Information Technologies Division
4501 Amnicola Highway
Chattanooga, TN 37406

2. Name(s) of Dean and/or Department Head

Dr. Tremaine Powell, Dean
Ms. Savitha Pinnepalli, Department Head – Computer Information Technology

3. Names of other Departments in Administrative Unit

Engineering Systems Technology
Engineering Technology and Applied Science

4. Names and Titles of Others with Program Administration and/or Coordination Responsibility at College or School and Administrative Unit

Dr. Lyn Potter, Department Head
Electrical/Electronics Engineering Technology, Engineering Systems Technology, Mechatronics Technology, Engineering Technology (Chemical Engineering Technology, Non-Destructive Testing, Quality Assurance/Quality Control

Ms. Beth Ruta, Department Head
Applied Science and Engineering Technology

5. Titles of Degrees, Programs, and Concentrations for which Accreditation is being requested.

Associate of Applied Science, Computer Information Technology with concentrations in: Cyber Defense, Networking, Programming

6. Operation Budget for administrative unit in which the Degree, Program, and Concentrations for which Accreditation is being requested reside with breakout identifying the budget for the Degree, Program, and Concentrations

Table II-4: E&IT Operating Budget

	Fiscal Year	Budget (unrestricted)
Current	2020 - 2021 *(Fiscal Year 2021)*	$3,400,372
Five-Year History	2019 – 2020 *(Fiscal year 2020)*	$3,276,170
	2018 – 2019 (Fiscal Year 2019)	$2,975,789
	2017 – 2018 (Fiscal Year 2018)	$3,043,069
	2016 -2017 (Fiscal Year 2017)	$3,142,743
	2015-2016 (Fiscal Year 2016)	$3,120,729

Table II-5: CIT Operating Budget

	Fiscal Year	Budget (unrestricted)
Current	2020 - 2021 *(Fiscal Year 2021)*	$507,437
Five-Year History	2019 – 2020 *(Fiscal year 2020)*	$501,408
	2018 – 2019 (Fiscal Year 2019)	$498,393
	2017 – 2018 (Fiscal Year 2018)	$493,064
	2016 -2017 (Fiscal Year 2017)	$361,105
	2015-2016 (Fiscal Year 2016)	$443,616

III. Compliance with Standards

1. Standard 1: Preparation of Self-Study

The Self-Study Report shall follow the guidelines of the Accreditation Handbook version in place at the time of the accreditation application. The report shall be completed by a representative portion of the institutions administrative staff and teaching faculty directly related to the program(s) to be reviewed. Representative student transcripts for each program and/or option shall be included in the self-study and made available for the visiting team. Representative examples of student's management and/or technical graded work shall be available for each course in the Self-study and/or campus documentation room. Examples of textbooks and traditional and/non-traditional instructional materials for each management and/or technical course shall be provided for the visiting team.

"All Programs have the same response."

This self-study was prepared under the direction of Dr. Tremaine Powell, Dean of Engineering and Information Technologies. Chattanooga State's faculty and staff were vital to the self-study's development by contributing data and documentation necessary for the compilation and preparation of the self-study as well as providing materials that will be made available in the resource room.

Computer Information Technology faculty will provide syllabi, textbooks, and samples of student work for the resource room. Additionally, faculty within the Computer Information Technology department were assigned specific sections to research and document while composing and assembling the self-study's narrative and appendices.

The faculty and staff of the General Education divisions including Business, Humanities and Fine Arts, Mathematics and Science, and Social and Behavioral Sciences, will provide syllabi and textbooks for inclusion in resource room materials.

Business and Finance, Human Resources, Library Services, Institutional Effectiveness and Research, Student Affairs, and Career Services were instrumental in providing data such as enrollment, budget, graduation, job placement and other information as required.

This self-study follows the guidelines as set forth in the ATMAE 2021 Accreditation Handbook and addresses compliance with ATMAE accreditation standards for the A.A.S. degree in Computer Information Technology program with multiple concentrations offered by the Engineering and Information Technologies Division.

This report is organized in accordance with the 2021 ATMAE Accreditation handbook for accreditation of the associate degree program with input from representative faculty, staff,

administrators, students, and advisory committee members within Chattanooga State Community College and the Engineering and Information Technologies Division administering the degree program/concentrations seeking accreditation.

The authors are:

- Lisa Jackson, Director Wacker Institute and Division Coordinator – Engineering & Information Technologies
- Hanadi Mohamed, Assistant Professor – Computer Information Technology
- Savitha Pinnepalli, Assistant Professor, and Department Head– Computer Information Technology
- Dr. Tremaine Powell, Dean – Engineering & Information Technologies
- Randy Ricketson, Associate Professor, Networking Lead Faculty – Computer Information Technology
- Noman Saied, Associate Professor, Programming Lead Faculty – Computer Information Technology
- Jeffrey Schneider, Assistant Professor - Computer Information Technology
- Patrick Ward, Associate Professor, Cyber Defense Lead Faculty – Computer Information Technology

Relevant student transcripts are in a separate attachment.

2. Standard 2: Program Definition

*A program is a set of courses leading to a degree. A program may have more than one option, specialization or concentration, but specific course requirements for each option shall be clearly specified, and as appropriate all program/options shall meet ATMAE standards. In situations where an option is not appropriate for ATMAE accreditation based upon the approved definition of technology, management, and applied engineering, the request for accreditation should clearly state which option, concentration, or specialization is seeking accreditation and which ones are excluded. The case for exclusion should be made with the application for accreditation. If an option, concentration or specialization is excluded and the program becomes accredited, the program must identify specifically which concentrations, options and specializations are and are not accredited in all their publications and promotional materials that mention accreditation. Only institutions legally authorized under applicable state law to provide degree programs beyond the secondary level and that are recognized by the appropriate regional and/or national accrediting agency are considered for accreditation. Evidence must exist that the programs are understood and accepted by the university/college community, and the business/industry community***.**

"All Programs have the same response."

The Computer Information Technology faculty and staff agree that the AAS Computer Information Technology degree, with the Cyber Defense, Networking, and Programming concentrations, in this report meet the approved definition of technology, management, and applied engineering. The three (3) concentrations have a specific set of courses that lead to an Associate of Applied Science degree. Specific course requirements for each concentration are clearly specified in the College catalog and meet ATMAE standards.

3. Standard 3: Program Title and Mission:

Each program/option shall have appropriate mission and title consistent with the approved ATMAE definition of Technology, Management, and Applied Engineering.

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3.1. The program/option title definition and mission shall be compatible with the ATMAE definition of Technology, Management, and Applied Engineering.

1) Mission

The mission of Computer Information Technology Department is to prepare students for Associate of Applied Science in Cyber Defense, Networking, and Programming Concentration along with certifications in emerging Information technologies. The programming track prepares students in databases, object-oriented and web programming languages to design, develop and implement scalable applications for Software Engineer careers. The Cyber Defense program prepares students with skills needed to identify vulnerabilities and fortify computer systems in order to prevent cyber security breaches. The Networking program provides students with network management skills, computer security, operating systems, switches and routers, and server administration. Students will develop strong critical thinking skills in a hands-on lab environment along with real world internship experiences.

Program description. Computer Information Technology offers a core curriculum with multiple concentrations: Cyber Defense, Networking, and Programming

3.2. Degree. The program/option shall lead to a degree at the associate, bachelor, or master's level.

Degree: Associate of Applied Science (A.A.S.) Computer Information Technology

As provided in the 2020-2021 college catalog at Chattanooga State Community College Catalog 2020-21 Computer Information Technology and provided below, the Computer Information Technology program and concentrations have titles, definitions, and missions compatible with ATMAE's definition of Technology, Management, and Applied Engineering. All programs lead to an Associate of Applied Science degree in Computer Information Technology with a concentration in: Cyber Defense, Networking, or Programming.

4. **Standard 4 – Program Goals**

Each program and program options shall have both current short and long-range goals and plans for achieving these goals. Goals related to maintenance and improvement of facilities and equipment should be included (response linked to Standard 11).

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Short Range Goals (2019-2020; 2020-2021)

1. Create more Prior Learning Assessment (PLA) opportunities for students to gain credit toward their A.A.S. degree, utilizing industry recognized certifications (*e.g.,* Google IT Specialist Certificate, COMPTIA certifications, MCSA Server certifications). (Aligns with division goals)

2. Increase student success through increased retention and completion. (Aligns with division goals)
    a. Plans to achieve this include: Better utilization of the 'Early Alert' system to identify and help struggling students. Use of the midterm grades to better monitor student progress at the 'halfway point'.
    b. Increase communication of student services to students.

3. Expose K-12 students to skills and careers in Computer Information Technology
    a. Plans to achieve this include: Work with Hamilton Country Schools, Marion County Schools, and Rhea County schools to offer opportunities for High School Students to obtain college credits toward CIT certificates and degrees. Host hackathons and other events that K-12 students can participate in to learn about the field of IT.

4. Career Connect: Connect students with employers for internships and job opportunities in all concentrations.
    a. Plans to achieve this include: Work with Industry Advisory Board and Career Services to increase job placement rates. Faculty will encourage students to attend career fairs and workshops.

5. Provide Professional Development Opportunity for faculty to update skills and stay relevant in trends in IT field.
    a. Plans to achieve this include: Increase professional development budget. Support faculty in maintaining professional competencies and provide opportunities for training in the latest technology using workshops, conferences, and summer and winter working connections.

6. Increase student opportunities for soft skill improvement.
    a. Plans to achieve this include: Increase course projects, group projects, and interaction with other students and industry. Invite guest speakers from Industry, take students to field trip to visit IT Industries, 4-year schools like UTC, and Research facilities like Oak Ridge National Labs, encourage student participation in skills USA, ACM programming contests, Capture the Flag Hackathon. Work with student led IT Hub Club and increase their networking activities.

7. Increase diversity of CIT's industry advisory board.
    a. Plans to achieve this include: Recruit new members through professional contacts and other advisory board member recommendations. Include Future Ready Institute High School Teachers. (Aligns with division goals)

Long Range Goals (2019-2020; 2020-2021;2021-2022; 2022-2023)

1. Develop a larger pool of qualified adjunct instructors. (Aligns with division goals)
    a. Plans to achieve this include Increase advertising and participating advisory boards for area colleges and industry organizations.
    b. Recruiting grad students and graduates from regional 4-year universities.

2. Create A.A.S concentration in Database Management and include Data Science courses. (Aligns with division goals)
    a. Plans to achieve this include: Justification and voting by the Industry Advisory Board, Advising by our 4-year College/University partners.
    b. Approval by Chatt State's Curriculum Committee, and TBR. Once approved, 2+2 pathways will be finalized with 4-year colleges/universities.

3. Obtain "Center of Academic Excellence in Cyber Defense Two-Year Education (CAE-2Y)": Granted to community colleges that offer two-year certificate and associate's degree programs related to cyber defense.
    a. Plans to achieve this include identify faculty to advise students, provide professional development opportunities for faculty to become certified.

4. Enhance coursework focus toward areas such as cloud technologies and CompTIA Cybersecurity Analyst (CSA+) certification.
    a. Plans to achieve this include: Evaluating and altering current curriculum to fit industry needs towards these areas, with industry input during alteration and implementation.

5. Increase the CIT Department's enrollment by 50% within the next 3 years. (Aligns with division goals)
    a. Plans to achieve this include: Increase offerings of CIT courses to High School juniors and seniors. Work with Hamilton County Department of Education's Future Ready Institutes. Work with recruiting to increase awareness of programs. Host more events and open houses to increase interest.

6. Continue to evaluate and improve student "soft skills" through coursework improvement, project-based learning activities, and employer and industry evaluations of these improvements.
    a. Plans to achieve this include: Review of course content by faculty, department head, and dean to identify curriculum and activities that can be added or altered to enhance "soft skills". Observation and evaluation of the delivered curriculum and content by Industry Advisory Board Members. Feedback from employers of "soft skills" from hired graduates.

Division Goals for the Engineering and Information Technologies

1. Increase the 3-year graduation rate in the division by 10 percentage points by degree.
2. Increase full-time equivalent enrollment to the Division by 5%.
3. Improve fall-to-fall retention rate for first time freshmen in the Division by degree.
4. Improve job placement rate to 90% for recent graduates in all degrees.
5. Increase the number of adult learners receiving credit for Prior Learning Assessment within the Division.
6. Accreditable programs are accredited or pursuing accreditation.
7. Increase enrollment and courses offered with high-impact practices.
8. Students will report satisfaction with programs and services via Divisional survey.

5. Standard 5 – Program Learning Outcomes Identification & Validation Measurable

Program learning outcomes shall be identified, assessed and validated for each program/option. These outcomes must align with the program goals established for the program/option and validation shall be accomplished through a combination of external experts, an industrial advisory committee. Each student learning outcome shall be mapped to the specific competencies usually seen in individual course syllabi for the program/option. After the program is in operation, follow-up studies of direct and indirect measures for each outcome Shall be conducted.

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Program Learning Outcomes (PLOs) are developed in conjunction with and approved by the Computer Information Technology Industrial Advisory Boards. Table III-1 outlines program learning outcomes and their alignment with program goals. Please refer to Standard 4 for goal description. PLOs are reviewed for consistency with the institutional mission statement and constituency needs. The review utilizes the indirect measurements of Student, Employer and Industrial Advisory Board Surveys. Table III-2 defines the frequency in which the feedback is collected.

Table III-1: Standard 5 - Program Learning Outcome's Goal Alignment

Program Learning Outcome		Short Range Goals	Long Range Goals
1.	Apply basic industry principles, math concepts, and computational skills to industry and technical problems common to computer information technology;	4, 6	3
2.	Demonstrate standard written and spoken English, and professional conduct to effectively communicate and succeed in an industry/computer setting;	6	6
3.	Select and use industry specific software and hardware;	4, 5	F3, 4
4.	Apply problem solving skills appropriate for employment in a computer and information technology specialty;	5, 6	3, 4, 6

Program Learning Outcome		Short Range Goals	Long Range Goals
5.	Develop, implement, troubleshoot, and operate networks, desktop and web applications, object-oriented programs and scripts, and IT security as required by a computer information technology specialty;	5	2, 3, 4
6.	Upon completion of the program, all students will demonstrate critical thinking skills for inquiry and analysis, assimilation of facts and knowledge, and problem solving.	2	2, 3, 4

Table III-2: Standard 5 - PLO Feedback Collection Frequency

Program Outcome Feedback Collection	Constituency	Frequency
Recent Graduate Survey	Students	Twice a year
Employer Survey	Employers and Industry Advisory Board	Twice a year

The Engineering and Information Technologies Division Coordinator has developed surveys and distributes to students when completing the Major Field Test upon graduation and then every two years. The department head distributes the employer survey during Industry Advisory Board meetings. Recent Graduate surveys request students evaluate the applicability of the POs to the education received. The employer surveys address PLO attainment and alumni performance. As feedback is obtained from students and employers, the results will be reviewed to determine PLO consistency with the institutional mission statement and constituency needs.

The Engineering and Information Technologies Division Coordinator collects the feedback for review for PLO consistency with the institutional mission statement and constituency needs. If the consistency is maintained the PLO will remain as written. If upon the survey results the PLO is not consistent with the institutional mission statement and constituency needs, the specific PLO will be reviewed and modified by the Department Head and faculty. Next, the Engineering and Information Technologies Division's Dean will review and if approved, submit for final approval to the Industry Advisory Boards.

The Computer Information Technology program of study's student learning competencies (SLCs) were decided upon in conjunction with the faculty, department head, dean, industry advisory board (IAB) members. At the onset of the SLC establishment, the SLCs were adopted and approved by Computer Information Technology administration and faculty. Next, the IAB reviewed the outcomes and the SLCs were put in place. The SLCs are reviewed with any changes implemented in the fall. The SLCs are listed in Table III-3.

Table III-3: Standard 5 - Student Learning Competencies

1.	Apply the knowledge, techniques, skills, and modern tools of the concentration of study to specifically define computer information technology activities;
2.	Demonstrate the knowledge of mathematics, science, and computer information technology to computer information technology problems using developed practical knowledge;
3.	Demonstrate effective membership in a technical team;
4.	Identify, analyze, and solve specifically defined computer information technology-based problems;
5.	Employ written, oral, and visual communication in a technical environment

Successful achievement of the SLCs in individual courses leads to the attainment of PLOs. For example, SLC 1 addresses the ability to "Apply the knowledge, techniques, skills, and modern tools of the concentration of study to specifically defined computer information technology." Successful achievement of this SLC will prepare a student to be able to "apply basic industry principles, math concepts, and computational skills to industry and technical problems common to computer information technology." (PLO 1). Graduate outcomes are a cumulative expression of the individual student learning competencies measured in student work assessments through each academic year. Table III-5 presents the correlations between Student Learning Competencies and Program Learning Outcomes.

Table III-4: Standard 5 - Program Learning Outcomes

1.	Apply basic industry principles, math concepts, and computational skills to industry and technical problems common to computer information technology;
2.	Demonstrate standard written and spoken English, and professional conduct to effectively communicate and succeed in an industry/computer setting;
3.	Select and use industry specific software and hardware;
4.	Apply problem solving skills appropriate for employment in a computer and information technology specialty;
5.	Develop, implement, troubleshoot, and operate networks, desktop and web applications, object-oriented programs and scripts, and IT security as required by a computer information technology specialty;
6.	Upon completion of the program, all students will demonstrate critical thinking skills for inquiry and analysis, assimilation of facts and knowledge, and problem solving.

Table III-5: Standard 5 - SLO Alignment With PLOs

SLO	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	Measures
Apply the knowledge, techniques, skills, and modern tools of the concentration of study to specifically define computer information technology activities;	X		X	X	X		Assignments Case Studies Quizzes Tests Examinations Labs Projects Major Field Tests (MFT)
Demonstrate the knowledge of mathematics, science, and computer information technology to computer information technology problems using developed practical knowledge;	X			X	X		
Demonstrate effective membership in a technical team;		X			X		
Identify, analyze, and solve specifically defined computer information technology-based problems;			X	X	X		
Employ written, oral, and visual communication in a technical environment			X			X	

6. Standard 6 –Program Structure & Course Sequencing

Each program/option shall meet minimum foundation semester hour requirements. Programs/options may exceed maximum foundation semester hour requirements specified in each area, as long as minimums are met. A specific list of courses and credit hours that are being counted toward each category shall be included in the Self-Study Report (please use the attached table C). For institutions on the quarter system, they shall convert the course work to the semester system (hours based on Federal Regulations)

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6.1. Program Minimum Curricula Foundation

A. ***Associates Degree:*** Programs/options shall be a minimum of 60 semester hours and shall meet the following minimum/maximum foundation semester hour requirements:

Communications (must include both oral and written course) ……6-9
Mathematics ……...3-12
Physical Sciences* ……..3-12
Management and/or Technical ……..……29-45
General Electives …….0-12
**Life Sciences may be appropriate for selected programs of study.*

The three (3) concentrations, Cyber Defense, Networking, and Programming, all meet the minimum number of foundation credit hour requirements for the Associate of Applied Science in Computer Information Technology.

The curriculum for the AAS Computer Information Technology degree from Chattanooga State has been developed by the faculty and staff along with input from business and industry to prepare students to become high-quality computer information technology specialists in today's workforce. This is accomplished through classroom instruction and extensive hands-on training using state-of-the-art equipment, laboratories, and computes. The graduates of this program are specialist capable of critical thinking, committed to a strong work ethic, prepared for life-long learning, and sought after by employers in the state, region, and nation.

The curriculum builds from basic to advance courses, has a prerequisite tree, and balances semester loads among various technical and general education courses. All students take a set of common Computer Information Technology core courses, and then complete their degree requirements by taking concentration specific courses. The curriculum for the different programs withing the AAS Computer Information Technology degree are given below in Table III-6, Table III-7, and Table III-8.

Table III-6: Standard 6 - Cyber Defense Concentrations

ACCREDITED BY ATMAE The Association of Technology, Management, and Applied Engineering Requirements	**A.A.S. Computer Information Technology Cyber Defense Concentration**	**Semester Hours**
Communications 6-9 Semester Hours	ENGL 1010 Composition 1	3
	COMM 2025 Fundamentals of Communication	3
	Total	6
Mathematics 3-12 Semester Hours	MATH 1530 Introductory to Statistics	3
	Total	3
Physical Sciences 3-12 Semester Hours	Directed Natural Science Elective	4
	Total	4
Management and/or Technical 29-45 Semester Hours	CISP 1010 Computer Science 1	4
	CITC 1302 Introduction to Networking	3
	CITC 1351 Principles of Information Assurance	3
	CISP 1020 Computer Science 2	4
	CITC 1303 Database Concepts	3
	CITC 1332 UNIX/LINUX Operating Systems	3
	CITC 2326 Network Security	3
	CITC 2335 Systems Analysis and Design	3
	CITC 2352 Digital Forensics	3
	CITC 2363 Internet Intranet Firewalls and eCom	3
	CITC 2390 CIT Capstone or CITC 2399 CIT CO-OP/Internship	3
	CITC 2356 Penetration Tests and Network Defense	3
	CITC 2354 Advanced Digital Forensics	3
		41
	Total	41
General Electives 0 – 12 Semester Hours	CSIS 1000 College Success Information Systems	3
	Humanities/Fine Arts General Education Elective	3
	Social and Behavioral Science General Education Elective	3
	Total	9
ATMAE Minimum Total 60 Semester Hours	Degree Total	63

Table III-7: Standard 6 - Networking Concentration

Requirements	A.A.S. Computer Information Technology Networking Concentration	Semester Hours
Communications 6-9 Semester Hours	ENGL 1010 Composition 1	3
	COMM 2025 Fundamentals of Communication	3
	Total	6
Mathematics 3-12 Semester Hours	MATH 1530 Introductory Statistics	3
	Total	3
Physical Sciences 3-12 Semester Hours	Directed Natural Science Elective	4
	Total	4
Management and/or Technical 29-45 Semester Hours	CITC 1301 Intro to Programming and Logic	3
	CITC 1302 Introduction to Networking	3
	CITC 1320 A+ Hardware and Software	3
	CITC 1303 Database Concepts	3
	CITC 1317 Introduction to Scripting Languages	2
	CITC 2320 Window Server Administration	3
	CITC 2326 Network Security	3
	CITC 1323 CCNA 1	3
	CITC 2364 Virtualization Essentials	3
	CITC 2335 Systems Analysis and Design	3
	CITC 1332 UNIX/LINUX Operating System	3
	CITC 2390 CIT Capstone OR CITC 2399 CIT CO-OP/Internship	3
	CITC Electives	6
	Total	41
General Electives 0 – 12 Semester Hours	CSIS College Success Information Systems	3
	Humanities/Fine Arts General Education Elective	3
	Social and Behavioral Science General Education Elective	3
	Total	9
ATMAE Minimum Total 60 Semester Hours	Degree Total	63

Table III-8: Standard 6 - Programming Concentration

Requirements	A.A.S. Computer Information Technology Programming Concentration	Semester Hours
Communications 6-9 Semester Hours	ENGL 1010 Composition 1	3
	COMM 2025 Fundamentals of Communication	3
	Total	6
Mathematics 3-12 Semester Hours	MATH 1530 Introductory Statistics	3
	Total	3
Physical Sciences 3-12 Semester Hours	Directed Natural Sciences Elective (4)	4
	Total	4
Management and/or Technical 29-45 Semester Hours	CISP 1010 Computer Science 1	4
	CITC 1300 Beginning HTML and CSS	3
	CITC 1302 Introduction to Networking	3
	CITC 1303 Database Concepts	3
	CITC 1332 UNIX/LINUX Operating System	3
	CISP 1020 Computer Science 2	4
	CITC 1312 Introduction to Network Programming	3
	CITC 1318 Data Structures	3
	CITC 2335 Systems Analysis and Design	3
	CISP 2410 Assembly and Computer Organization	3
	CITC 2310 Advanced Network Programming	3
	CITC 2375 Internet Software Development	3
	CITC 2390 CIT Capstone OR CITC 2399 CIT CO-OP/Internship	3
	Total	41
General Electives 0 – 12 Semester Hours	CSIS College Success Information Systems	3
	Humanities/Fine Arts General Education Elective	3
	Social and Behavioral Science General Education Elective	3
	Total	9
ATMAE Minimum Total 60 Semester Hours	Degree Total	63

6.2. Lab Activities-

Appropriate laboratory activities shall be included in the program/option and a reasonable balance shall be maintained between the practical application of "how" and the conceptual application of "why".

Table III-9: Standard 6 - Lab Activities by Course

Course Code	Course Title	Lab activity	Software Used
CISP 1010	Computer Science 1	Students use Flowgorithm software for flowcharts and NetBeans IDE to code java programs	Flowgorithm NetBeans IDE for java
CISP 1020	Computer Science 2	Students use Flowgorithm software for flowcharts and NetBeans IDE to code java programs	Flowgorithm NetBeans IDE for java
CISP 2410	Assembly and Computer Organization	Students use MS word to complete assignments, Logism software to build digital logic circuits, and Visual Studio to code assembly programs	MS word Logism Visual studio with C++
CITC 1301	Introduction to Programming and Logic	Students use Flowgorithm software for flowcharts and word processing for pseudocode. Navigate OS (Windows). Browse Internet.	Flowgorithm Microsoft Windows 2010 Internet Browsers Microsoft Word Microsoft Excel Microsoft PowerPoint
CITC 1302	Intro to Networking	Packet Capture, Network Design	Wireshark, Cisco Packet Tracer
CITC 1303	Database Concepts	Students use a text editor to create and save their SQL statements. Also, they use PHPMySQLAdmin to execute those statements.	Notepad, PHPMyAdmin (provided to student)
CITC 1312	Intro to Dot Net Programming	MS Visual Studio to write C# code	Visual Studio
CITC 1317	Intro to Scripting Languages	Learn commands related to Powershell	Microsoft Windows

Course Code	Course Title	Lab activity	Software Used
CITC1318	Data Structures	Students use NetBeans IDE to code java programs	NetBeans IDE for Java
CITC 1320	A+ Hardware and Software	Navigate OS	Microsoft Windows
CITC 1323	CCNA 1	Managing and configuring CISCO Devices (Routers and Switches)	Cisco Internetwork Operating System (IOS)
CITC 1332	Linux Operating System	Navigate OS:	Linux Microsoft Windows MacOS
CITC2310	Advanced Dot Net Programming	MS Visual Studio to write C# code	Visual Studio
CITC 2320	Windows Server Administration	Setup, configure, and manage Windows Server installations and any related services	Microsoft Windows Server
CITC 2335	System Analysis and Design	Students work with access database, Microsoft Visio, Microsoft Project, create website using html and css and learn office suite like word, excel, power point, Flowgorithm and NetBeans IDE for java coding.	Word Excel Access Power Point HTML editor MS Project MS Visio
CITC 2339	Configuring Advanced Services	Install and manage services for high availability and storage configurations	Microsoft Windows Server
CITC 2352	Digital Forensics	Working with different programmable devices OS, File system, and data storage, Capture and analysis disk images	Operation Systems: Linux, Microsoft Windows, MacOS, Android, iOS Disk Image Utilities: Disk Management, DD, Rufus, Diskpart Forensics Tools: OSForensics, Autopsy, FTKImage, WinHex

Course Code	Course Title	Lab activity	Software Used
CITC 2354	Advanced Digital Forensics	Working with different programmable devices OS, File system, and data storage, Capture and analysis disk images	Operation Systems: Linux, Microsoft Windows, MacOS, Android, iOS Disk Image Utilities: Disk Management, DD, Rufus, Diskpart Forensics Tools: OSForensics, Autopsy, FTKImage, WinHex
CITC 2364	Virtualization Essentials	Manage virtual environments	Microsoft Windows Server and VMWare vSphere
CITC2375	Internet Software Development	IDLE Python built-in IDE for Python coding	IDLE
CSIS1000	College Success for Information Systems	Students use MS Word for reflection writing assignments	MS Word

6.3. Course Sequencing

There shall be evidence or appropriate sequencing of courses in each program/option to ensure that applications of mathematics, science, written and oral communications are covered in technical and management courses.

All Computer Information Technology programs have a defined sequence of courses to ensure students build on a foundation of pre-requisite courses. The sequence of courses which is available to students in the College catalog and Tiger Tracks, a software application that lays out program requirements and tracks a student's progress, outlines the order courses are to be taken. Students who enroll at Chattanooga State and do not enter at a college level in math, reading, or writing must complete co-requisite courses before progressing in the program. Prerequisites ensure that a solid foundation in computer information technology is established prior to advancing to more difficult computer information technology topics.

Table III-10: Standard 6 - Cyber Defense Course Sequence

AAS Computer Information Technology Cyber Defense Concentration
Fall *(16 Credit Hours)*
ENGL 1010 - Composition 1 (3)
CISP 1010 - Computer Science 1 (4)
CITC 1302 - Introduction to Networking (3)
CITC 1351 - Principles of Information Assurance (3)
CSIS 1000 - College Success Information Systems (3)
Spring *(16 Credit Hours)*
CISP 1020 – Computer Science 2 (4)
CITC 1303 – Database Concepts (3)
CITC 1332 – UNIX/LINUX Operating Systems (3)
CITC 2326 – Network Security (3)
COMM 2025 – Fundamentals of Communication (3)
Fall *(15 Credit Hours)*
CITC 2335 – Systems Analysis and Design (3)
CITC 2352 – Digital Forensics (3)
CITC 2363 – Internet Intranet Firewalls and eCom (3)
MATH 1530 – Introductory Statistics
Humanities/Fine Arts General Education Elective (3)
Spring *(16 Credit Hours)*
CITC 2390 – CIT Capstone (3) or CITC 2399 – CIT CO-OP/Internship (3)
CITC 2356 – Penetration Tests and Network Defense (3)
CITC 2354 – Advanced Digital Forensics (3)
Social and Behavioral Science General Education Elective (3)
Directed Natural Science Elective (4)
Total Credit Hours (63)

Table III-11: Standard 6 - Networking Course Sequence

AAS Computer Information Technology **Networking**
Fall ***(15 Credit Hours)***
ENGL 1010 - Composition 1 (3)
CITC 1301 – Intro to Programming and Logic (3)
CITC 1302 - Introduction to Networking (3)
CITC 1320 – A+ Hardware and Software (3)
CSIS 1000 - College Success Information Systems (3)
Spring ***(17 Credit Hours)***
CITC 1303 – Database Concepts (3)
CITC 1317 – Introduction to Scripting Languages (2)
CITC 2320 – Window Server Administration (3)
CITC 2326 – Network Security (3)
MATH 1530 – Introductory Statistics (3)
COMM 2025 – Fundamentals of Communication (3)
Fall ***(15 Credit Hours)***
CITC 1323 – CCNA 1
CITC 2364 Virtualization Essentials (3)
CITC 2335 – Systems Analysis and Design (3)
CITC 2363 – Internet Intranet Firewalls and eCom (3)
Humanities/Fine Arts General Education Elective (3)
CITC Elective (3)
Spring ***(16 Credit Hours)***
CITC 1332 – UNIX/LINUS Operating System (3)
CITC 2390 – CIT Capstone (3) or CITC 2399 – CIT CO-OP/Internship (3)
Social and Behavioral Science General Education Elective (3)
CITC Elective (3)
Directed Natural Science Elective (4)
Total Credit Hours (63)

Table III-12: Standard 6 - Programming Course Sequence

AAS Computer Information Technology Programming
Fall *(16 Credit Hours)*
CSIS 1000 - College Success Information Systems (3)
ENGL 1010 - Composition 1 (3)
CISP 1010 – Computer Science 1
CITC 1300 – Beginning HTML and CSS (3)
CITC 1302 - Introduction to Networking (3)
Spring *(16 Credit Hours)*
CITC 1303 – Database Concepts (3)
CITC 1332 – UNIX/LINUX Operating System (3)
MATH 1530 – Introductory Statistics (3)
COMM 2025 – Fundamentals of Communication (3)
CISP 1020 – Computer Science 2
Fall *(15 Credit Hours)*
CITC 1412 – Introduction to Network Programming
CITC 1318 – Data Structures
CITC 2335 – Systems Analysis and Design (3)
Humanities/Fine Arts General Education Elective (3)
Social and Behavioral Science General Education Elective (3)
Spring *(16 Credit Hours)*
CISP 2410 – Assembly and Computer Organization (3)
CITC 2310 – Advanced Network Programming
CITC 2375 – Internet Software Development (3)
CITC 2390 – CIT Capstone (3) or CITC 2399 – CIT CO-OP/Internship (3)
Social and Behavioral General Education Elective (3)
Directed Natural Science Elective (4)
Total Credit Hours (63)

6.4. Prerequisites

Further sequencing should ensure that advanced level courses build upon concepts covered in beginning level courses.

Beginning level courses serve as pre-requisites to advance level courses to ensure students have firm foundational knowledge of basic concepts. Figure III-1**,** Figure III-2**,** and Figure III-3 illustrate the sequencing.

Figure III-1: Standard 6 - Cyber Defense Pre-Requisites

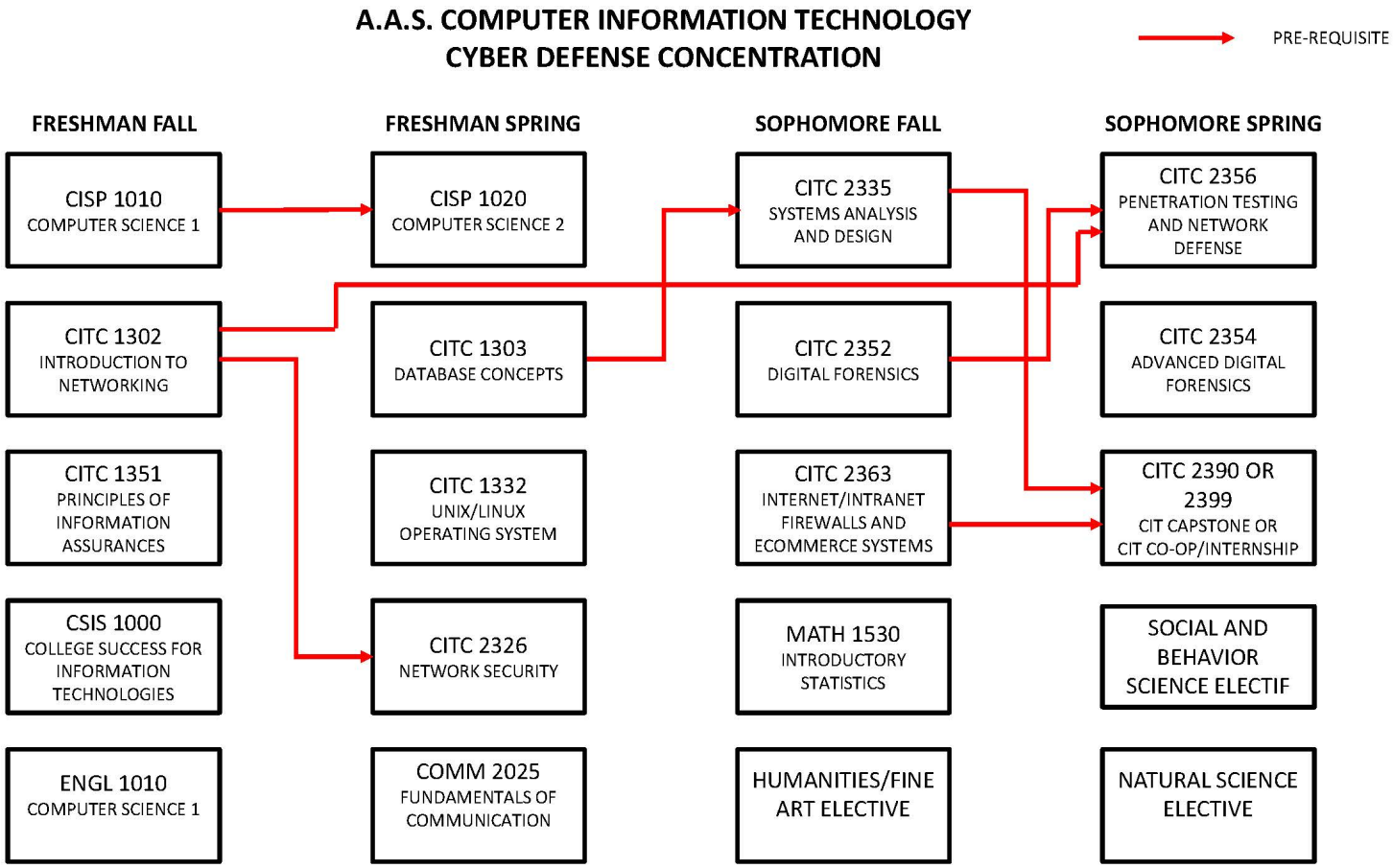


Figure III-2: Standard 6 - Networking Pre-Requisites

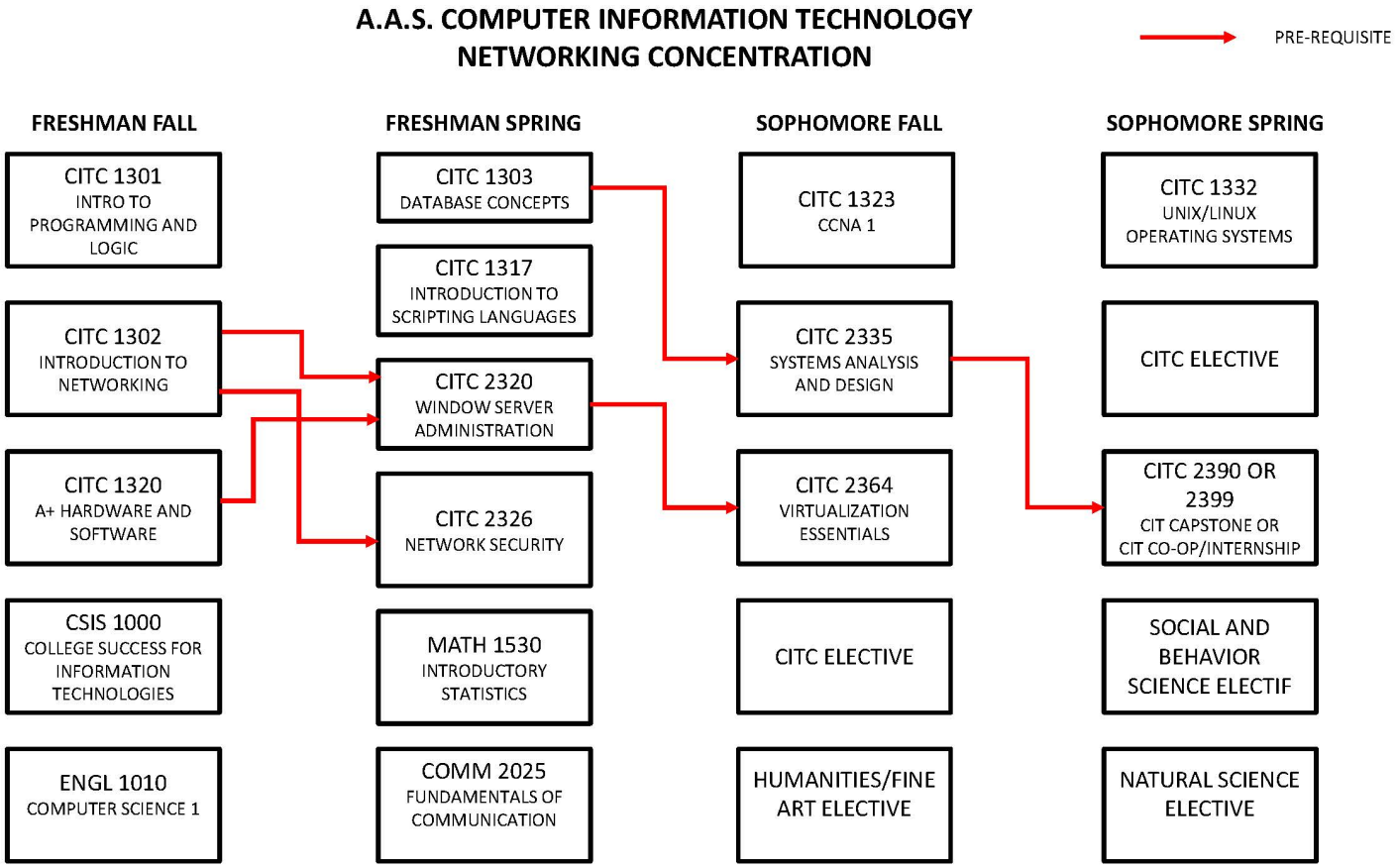
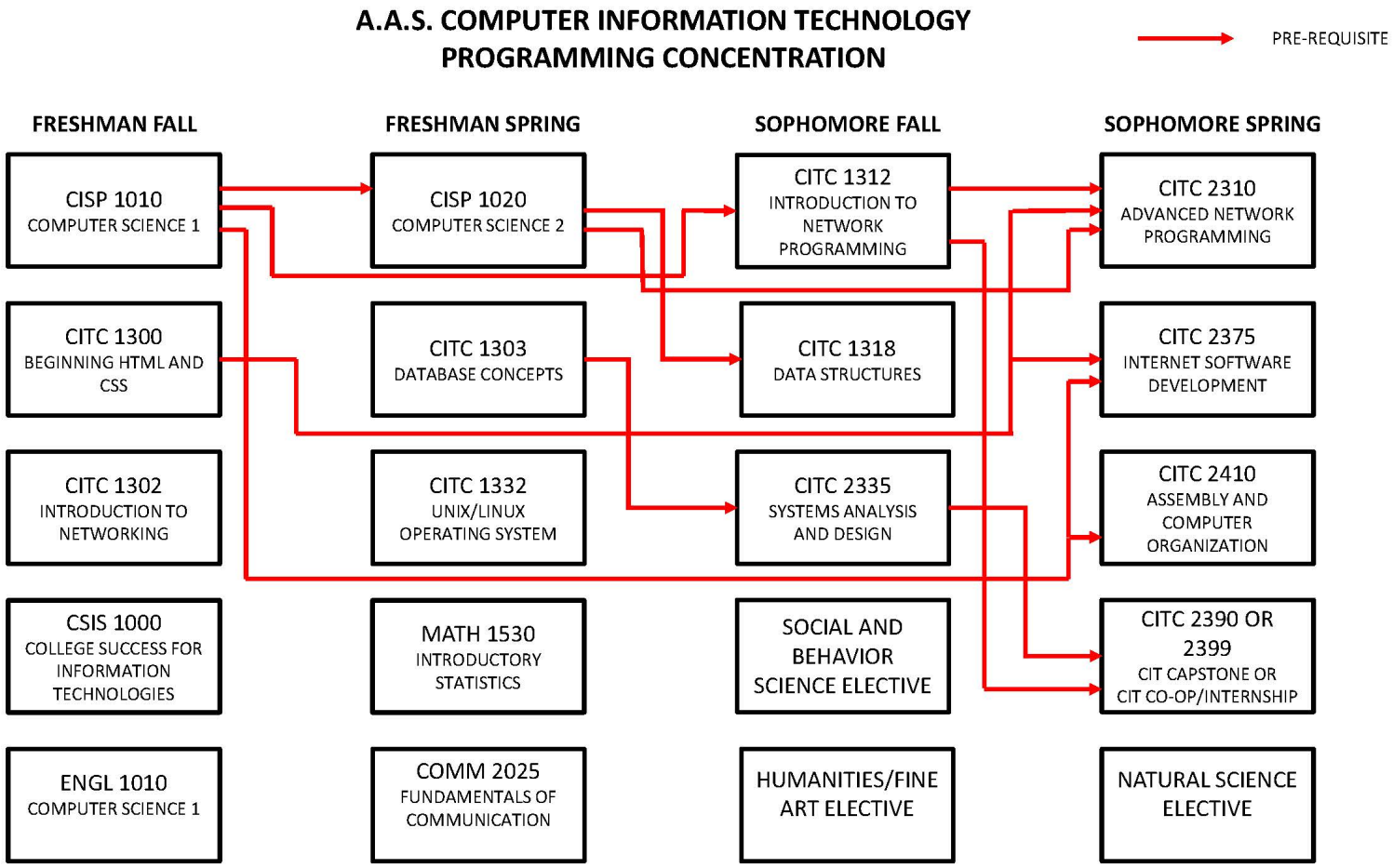


Figure III-3: Standard 6 - Programming Pre-Requisite



7. Standard 7 – Student Admission & Retention Standards

There shall be evidence showing that the quality of technology, management, and applied engineering students is comparable to the quality of students enrolled in other majors at the institution. Additionally, the standards for admission and retention of technology, management, and applied engineering students shall compare favorably with institutional standards. (Sources of admission information may include test scores and grade rankings. Sources of retention information shall include general grade point averages of technology, management, and applied engineering students compared to programs in other institutional programs.)

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General Admissions Requirements Chattanooga State General Admission Requirements

Chattanooga State Community College (ChSCC) has developed admission policies approved by the Tennessee Board of Regents (TBR) and are in alignment with the requirements detailed in *TBR Policy 2.03.00.00, Admission at the Community Colleges.* Chattanooga State's admissions policies are located in the College's 2020-2021 catalog. ChSCC has an open-door admission policy. The College is open to all persons, regardless of race, color, religion, sex, age, national origin, veteran status, or physical, mental or educational disability. The Office of Admissions admits all students.

First-time freshmen, full-time or part-time, must submit either an official high school transcript High School Equivalency Exam Report (HiSET or GED). The high school transcript must be from a regionally accredited school and received after the date of graduation, showing the student's graduation date with final grades posted. Minimum scores for the HiSET Certificate holders are based upon when the HiSET or GED test was taken.

Applicants under 21 must submit an ACT (American College Testing) or SAT (Scholastic Aptitude Test) score. Test scores are valid if taken within three years of the first semester of attendance and are used for advising and placement purposes.

Applicants over 21 must take the Accuplacer assessment test in reading, writing, and math or submit valid (within three years of the first semester of attendance) ACT or SAT scores.

Transfer students must submit official transcripts(s) from all colleges previously attended. Transcripts are evaluated and credit may be given for equivalent courses completed at regionally accredited institutions. Transfer credits will not be used in computing the student's GPA at Chattanooga State. Students transferring from non-regionally accredited institutions follow the same procedures as first-time freshmen. Transfer students are held to the same standards as other Chattanooga State students.

Any student admitted with an entrance deficiency must remove the deficiency prior to completion of 30 semester hours of college level work. A grade of C or better is required in the course selected from the pre-approved listing of acceptable courses for deficiency removal.

In addition to the admission requirements and procedures required of all applicants, some programs have additional requirements, procedures, and deadlines. The specific program in the "A.A.S. Degrees & Technical Certificates" section of the catalog provides detailed information relating to the relevant requirements.

Students may be admitted to the college throughout the calendar year. Formal registration occurs at the beginning of each semester, typically in August, January, and May.

Academic Retention Standards

Academic standing is based on the student's grade point average and is posted at the end of each term. The standing designation becomes part of the permanent record and does not change even if the GPA changes due to repeated courses or grade changes.

Good Standing

The minimum college-level GPA required to receive a degree is 2.0. To be enrolled in good standing, a student must earn the minimum cumulative combined GPA below for the total number of semester credit hours attempted.

Table III-13: Standard 7 - GPA Requirements

Semester Quality Hours Attempted	Required Cumulative GPA
0.0 -12.0	1.0
12.1 - 24.0	1.5
24.1 - 36.0	1.7
36.7 - 48.0	1.9
48.1- above	2

Table III-14: Standard 7 - Grading Scale

Numeric Grade	Letter Grade	Quality Points
90-100	A	4
80-89	B	3
70-79	C	2
65-69	D	1
Below 65	F	0

Probation
Any student who fails to attain the progression standards listed will be placed on academic probation for the next enrolled semester.

Academic Suspension

Any student on academic probation who fails to attain either the cumulative standard or a 2.0 GPA for the current semester will be suspended for the next semester. The summer semester cannot be counted as the semester of suspension, nor can a suspended student enroll in summer school.

A student who re-enrolls at Chattanooga State after an academic suspension will be placed on post-suspension probation. If the student earns:

1. The cumulative standard, he/she will be in good standing.
2. A 2.0 for that semester but is still below the cumulative standard, he/she will remain on probation.
3. Less than a 2.0 GPA for that semester and is still below the cumulative standard, he/she will be placed on a twelve-month suspension.

Students on post-suspension probation cannot register for the next term until grade processing is complete.

Appeal of Academic Suspension
A student may appeal his/her academic suspension. Suspension appeal forms, which include the procedures for an appeal, are available in the Student Support Center. Students' academic suspension appeal hearings are scheduled the week prior to the start of semester classes. Students should ask about suspension appeals as early as possible.

If an appeal is granted, the student will be eligible to enroll that semester in post-suspension probation status and must meet the conditions set by the appeals committee. If the conditions are not met, the student will be suspended for twelve months. Students may not appeal during this twelve-month suspension.

Students enrolled in a post suspension probation status will not be allowed to pre-register for the next term. Grades will be reviewed during end of term processing and registration eligibility will be determined at that time.

Fall-to-Fall Retention

Table III-15: Standard 7 - CIT Fall-to-Fall Retention

	Fall 2017 Cohort Retained Fall 2018	Fall 2018 Cohort Retained Fall 2019	Fall 2019 Cohort Retained Fall 2020
Cyber Defense	46%	39%	62%
Networking	48%	40%	52%
Programming	55%	46%	43%

Table III-16: Standard 7 - E&IT Fall-to-Fall Retention

	Fall 2017 Cohort Retained Fall 2018	Fall 2018 Cohort Retained Fall 2019	Fall 2019 Cohort Retained Fall 2020
Engineering and Information Technologies Division	50%	47%	48%

Table III-17: Standard 7 - ChSCC Fall-to-Fall Retention

	Fall 2017 FTF Cohort Retained Fall 2018	Fall 2018 FTF Cohort Retained Fall 2019	Fall 2019 FTF Cohort Retained Fall 2020
Chattanooga State Community College	49.3%	50.2%	51.8%

In fall 2015, ChSCC applied for, and was awarded, federal grant funding to implement the Focus on Completion program designed to implement and grow Chattanooga State's student support programs to improve retention and graduation rates. The strategies supported through this program include:

- Faculty Development
- Course Improvements including High Impact Practices (HIPs) and coding
- College Success Courses
- Learning Support Courses

- Online Courses
- Guided Pathways
- Institutional Student Learning Outcomes
- Freshmen Orientation
- Completion Coaches
- Service Learning and Community Service
- Peer Mentors and ePortfolios
- Academic Early Alerts
- Tutoring in Co-Requisite Remediation

The Computer Information Technology actively participated in many of these initiatives. Among those found to be most beneficial to students enrolled in one of the CIT concentrations were High Impact Practices courses, College Success, and Academic Early Alerts.

The HIPs courses are designed to connect classroom work to life. Faculty found that students were more engaged in their coursework as there are explicit links to the workforce and students' lives post-college. CIT faculty have three approved HIPs courses in their program of study.

College Success

The lead faculty for the CIT College Success course continuously improves and adds to the course targeting skills and emphasizes the main philosophy of the course which is to enhance a student's employability and/or ability to be promoted. The Computer Information Technology Industry Advisory Board consistently stresses their companies need for 'soft skills'. College Success seeks to give new students tools that will develop those skills: general communication skills, critical thinking techniques, information literacy, global & cultural awareness, quantitative literacy, and work ethic. While the students will develop 'competence in a specialty' in other courses, College Success gives them the first and possibly the most complete summary view of the other Institutional Student Learning Outcomes and their integration into their lifelong development.

Academic Early Alerts (mid-term grades)

Faculty assist with advising, handling educational plans and utilizing DegreeWorks and Early Alert. Faculty also use midterm grade reporting as a form of early alert. The current professional advisors utilize Early Alert and Degree Works. Their focus will be on on-boarding and advisement, helping students to stay on course and to seek support services that they may need to remain in school and on track. Professional advisors will be listed with contact information in eLearn.

Students in CISP 1010, CISP 1020, CITC 1300 and CITC 1301 were provided free tutoring daytime, evening as well as on weekends. For Fall 2020 and Spring 2021 semesters, students were also provided free tutoring using tutor.com. CIT students who performed exceptionally well in their courses were provided opportunity to be paid tutors. A tutor orientation was conducted to onboard students so that they would be able to handle student assignment issues. Tutor orientation and professional development was provided to tutors where subject matter resources were distributed along with problem solving, communication, teaching and leadership skills. Students logged in to the tutor tracking system to clock in an out of their scheduled time. Student usage of tutoring information was also collected for reporting purposes. About 70 students have utilized the tutoring services. Some students were repeat students who used the tutoring facility 2 to 3 times a month.

Table III-18: Standard 7 - Tutor Availability

Semester	**Number of Tutors**
Fall 2018	One tutor worked for 12 hours per week.
Spring 2019	2 tutors averaged 20 hours and worked day, evening and weekend shifts per week.
Fall 2019	4 tutors averaged 40 hours and worked day, evening and weekend shifts per week.
Spring 2020	3 tutors averaged 20 hours and worked day, evening and weekend shifts per week.
Fall 2020	Virtual tutoring using Tutor.com
Spring 2021	One tutor worked virtually for 9 hours per week. Students also used tutor.com virtual tutoring.

8. Standard 8 – Transfer Course Work

The institution shall have policies in place to ensure that coursework transferred to the program is evaluated and approved by program faculty.

"All programs have the same response."

Chattanooga State Community College (ChSCC) has a defined and published policy for evaluating, awarding, and accepting credit for transfer, experiential learning, advanced placement, and professional certificates that is consistent with its mission and ensures that course work and learning outcomes are at the collegiate level and comparable to its own degree programs. ChSCC assumes responsibility for the academic quality of any course work or credit recorded on its transcript.

The College catalog and the ChSCC online Policies and Procedures Manual list these policies which are guided by the Tennessee Board of Regents (TBR).

ChSCC assumes responsibility for all course work recorded on transcripts and follows specific procedures to evaluate courses completed at both regionally accredited and unaccredited institutions. The Admissions Office transcript analyst is responsible for evaluating transcripts received from high schools (the analyst reviews for academic deficiencies), postsecondary institutions, and international institutions as requested by students.

ChSCC accepts transfer credits from other colleges. Upon receipt, the Admissions Office evaluates official transcripts from each institution a student has attended. A grade of "D" or higher is required for transfer. However, a course in which a "D" has been earned may or may not be used to satisfy degree requirements or prerequisites, and any "C" or higher requirements must be met. Transfer credits are not used when computing a student grade point average but are counted in Earned Hours.

ChSCC adheres to the TBR Philosophy of General Education and accepts the transfer of general education courses from all colleges under the TBR umbrella according to TBR policies and guidelines. Students may refer to transfer equivalency tables for other institutions on the Advising tab on the Academics home page.
https://www.chattanoogastate.edu/academics/advising/transfer-information

Credits from non-regionally accredited institutions must be appealed for transfer on individual basis by department or validated by departmental examination. Appeal forms are available in the Admissions Office.

Students who wish to fulfill core curriculum requirements for institutions in both the TBR and the University of Tennessee (UT) system may do so by completing the TBR-UT University Track Module, which incorporates the minimum degree requirements of TBR and UT institutions. Tennessee College of Applied Technology students who hold a 1,290-clock-hour program diploma in a computer information technologies subject may be eligible to receive undergraduate prior learning credit for CITC 1302, Introduction to Networking, CITC 1320, A+ Hardware and Software, CITC 2326, Network Security, and CSIS 1000, College Success for Information Systems for the Associate of Applied Science degree in Computer Information Technology. The articulation agreement is reviewed and renewed every five years.

The ChSCC Academic Affairs Division works to design program-specific articulation agreements with other colleges and universities. The Vice President and the Associate Vice President for Academic Affairs ensure that the agreements meet all accreditation and policy requirements. Credits from non-regionally accredited institutions may be evaluated on an individual basis or validated by examination.

9. Standard 9 – Student Enrollment

Program enrollment shall be tracked and verified. There shall be evidence of an adequate number of program majors to sustain the program, and to operate it efficiently and effectively, as defined by your state or institution standards.

"All programs have the same response."

Institutional Level

The Tennessee Board of Regents assert that in order for an academic program to be sustained in the TBR system, there must be an average of at least 10 graduates per academic year for the three most recent years. If this threshold is not met, the program will be placed on low performing status. Such action requires an institution to justify the reason for the low number of graduates and document a plan of action to correct the problem. A program that remains at low-performing status for an extended time is at risk of termination.

The office of Institutional Effectiveness, Research, and Planning (IERP), monitors and tracks enrollment data that includes unduplicated headcount and number of graduates for each program by semester and by academic year. According to data provided by the IERP office, the Computer Information Technology program has an adequate number of students enrolled with a three-year fall average of 121 students enrolled and a three-academic year average of 26 graduates to sustain the program, allowing it to operate efficiently and effectively.

Program Level

Enrollment is tracked and verified at the program level by the Vice President for Academic Affairs, the Dean of Engineering and Information Technologies, the Computer Information Technology Department Head, the CIT Industry Advisory Board, and the President's Cabinet among other departments within Academic and Student Affairs. Programs are evaluated each semester to ensure adequate enrollment and graduation rates for each concentration within the program. Based on this evaluation, improvements are made in program offerings including the addition of industry certifications embedded within the concentrations.

While the enrollment in the CIT programs remained relatively steady through the Fall 2019 semester, a decrease in enrollment for the 2020 academic year has been noted. This decline in enrollment can be attributed to the pandemic restrictions limiting face-to-face interaction and an overall decrease in the College's enrollment. Dual enrollment and dual credit opportunities at the high school level are being explored to increase program enrollment.

Table III-19: Standard 9 - CIT Headcount

	Fall 2017	**Fall 2018**	**Fall 2019**	**Fall 2020**
Cyber Defense (including Cyber Security)	28	36	38	28
Networking	61	40	46	40
Programming	49	54	44	36
Total Headcount	**138**	**130**	**128**	**104**

Table III-20: Standard 9 - CIT Graduates

	2017-2018 AY	**2018-2019 AY**	**2019-2020 AY**
Cyber Defense (including Cyber Security)	5	6	6
Networking	14	12	12
Programming	5	9	9
Total Headcount	**24**	**27**	**27**

10. Standard 10 - Administrative Support & Faculty Qualifications.

There must be evidence of appropriate support from the institution for the technology, management, and applied engineering program/option.

"All programs have the same response."

10.1. Appropriately qualified administrators are assigned to the program/options.

The Engineering and Information Technologies Division is an academic unit (of seven assigned) of the College and consists of three departments – Engineering Technology and Applied Science; Engineering Systems Technology, and Computer Information Technology – along with a compliment of professional, administrative, and technical support staff. The division is also home to the Building & Construction Institute of the Southeast (BCIS), the Wacker Institute, Volkswagen Academy Mechatronics programs, and the Institute for Materials Joining and Testing. All institutes are academic units within the division and are led by the Dean, Department Head(s), and assigned faculty or professional staff members. Additionally, the Tech-Track initiative, a Carl D. Perkins IV grant funded activity, is housed within the division with the mission of supporting A.A.S. programs of study throughout the College.

The Dean serves as the chief academic administrator for all matters related to the operation of the division, which includes finance/budget, personnel selection, equipment, facilities, curriculum development, business & industry relations, instruction, and accountability responsibilities. The Dean reports to the Vice President for Academic Affairs, who in turn reports to the College President. The three Department Heads report directly to the Dean and serve as the senior academic administrators for their respective departments with similar responsibilities as that of the Dean. The Department Heads carry a partial teaching load, each semester, in addition to their leadership/administrative responsibilities.

Professional staff members report to the Dean and are assigned operational and management responsibilities within the division and support the mission and goals related to that of the division, departments, and individual programs of study. Professional staff members work very close with the Department Heads and faculty in order to provide direct assistance in matters related to the respective programs of study (e.g., accreditation, recruiting, advising, marketing, curriculum development, outreach, grant development, etc.). Administrative support staff members are evaluated (annually) by the Dean but provide direct support to the Department Heads and their respective assigned faculty. The division has an engineering laboratory technician and teaching technician who report to the Dean. The technicians provide direct support to the faculty and students and assist with matters related to instructional equipment serviceability and maintenance.

Faculty are organizationally structured and assigned according to academic disciplines and mission. Faculty leads or lead instructors are designated to each program of study in order to provide leadership and quality control for all matters related to curriculum, educational outcomes, advisory boards, accreditation, instruction, adjunct faculty, student advising, and student success. The division leadership team (Dean, Department Heads, and Director of the Wacker Institute and Division Coordinator) works closely with faculty and share in the decision-making process related to program outcomes, quality, resources, retention efforts, and student success. Faculty members are charged with the responsibility of their academic discipline(s) or concentration(s). ChSCC Policy 02:13:00 delegates the overall responsibility for curricular and academic standards to the faculty: "The Curriculum Committee approves and recommends new policies or courses of action related to educational programs; reviews new curricula, new programs, or substantive changes in existing curricula and programs; and supports and monitors the curriculum development system." Faculty members participate in the curriculum development and review process from the beginning of course development through continual program review. Additionally, Engineering and Information Technologies Division faculty members representing each program/concentration area, develop missions, goals and outcomes aligned with those of the College. All program areas follow procedures for assessing program and student learning outcomes, as outlined in SACS Comprehensive Standard 3.3.1.1.

Faculty members select text/instructional materials used for their respective courses and program(s) of study. Scheduled meetings are held periodically as well as ad-hoc meetings, when necessary, to address any issues related to the health of the programs of study and student success. Faculty members work independently of one another across the academic disciplines but are encouraged to collaborate (with other department faculty members) on support matters related to lab/equipment usage, textbook/instructional materials selection, and outcomes associated with common courses that are included within their respective discipline. Collegiality and teamwork are paramount to the overall success of the division and our students.

Adjunct faculty members are solicited and selected by the Dean, Department Heads, and respective faculty members and are staffed according to academic need and qualifications. Department Heads and lead faculty members provide direct leadership and management to assist adjunct faculty with preparation and resources necessary for courses and labs taught by assigned adjunct members. Overall quality control (outcomes, assessments, instructional materials, etc.) for courses and labs taught by adjunct faculty, as well as matters related to student success, is shared between the entire leadership team. A shared responsibility in leadership and management helps ensure that adjunct faculty members feel welcome as a valued member of the team and that students receive the same quality of instruction as that of the fulltime faculty. The Dean and Department Heads strive to ensure that adjunct faculty members receive the same level of leadership and support as that of the fulltime faculty. Adjunct faculty members are invited to department/division meetings and regularly serve on program advisory boards.

The leadership approach employed by the division is that of centralized planning and decentralized implementation. All members of the division are included in meetings and are encouraged to add value to the goals and desired outcomes related to respective programs of study. The Dean and Department Heads maintain a close working relationship to provide the best support for all programs of study and to serve the best interests of the faculty, students, and community. Decisions are not made in a "silo"; rather, the Dean and Department Heads consult with senior leadership, assigned faculty, staff members, and in some cases, business, and industry leaders, before making decisions that may impact the overall success (and quality) of academic programs of study.

10.2. An adequate number of appropriately qualified full-time faculty members are available and assigned to teach courses in the technology, management, and applied engineering program/option.

Table III-21: Standard 10 - Full-Time Faculty Courses Taught

Faculty Name	Courses Taught
Mohamed, Hanadi	CISP 1010, CISP 1020, CISP 2410, CITC 1301
Pinnepalli, Savitha	CISP 1010, CITC 2335
Ricketson, Randy	CITC 1301, CITC 1302, CITC 1317, CITC 1320, CITC 1332, CITC 2364, CITC 2320, CSIS 1000
Saied, Noman	CITC 1323, CITC 1332, CITC 2310, CITC 2352, CITC 2354, CITC 2390, CITC 2399
Schneider, Jeffrey	CITC 1301, CITC 1303, CITC 1312, CITC 1318, CITC 2310, CITC 2375
Ward, Patrick	CISP 1020, CISP 2410, CITC 1302, CITC 1351, CITC 2326, CITC 2356, CITC 2363, CSIS 1000

10.3. Full time faculty qualifications shall include emphasis upon the extent, currency and pertinence of: (a) academic preparation; (b) industrial professional experience (such as technical supervision and management); (c) practical business experience using applied technology; (d) membership and participation in appropriate technology, management, and applied engineering professional organizations; and (e) scholarly activities. The following minimum qualifications for full time faculty are required

A. ***Associate Degree:*** *The minimum academic qualifications for a regular full-time faculty member is expected to be an earned bachelor's degree in a discipline, or in certain cases for documented reasons, an associate degree plus professional certification/licensure closely related to the faculty member's instructional assignments.* Faculty CVs are located in Appendix A.

Table III-22: Standard 10 - Faculty Qualifications

Faculty Name	Highest Degree Earned- Field and Year	Rank [1]	Type of Academic Appointment [2] T, TT, NTT	FT or PT [4]	Years of Experience			Professional Registration/ Certification	Level of Activity H, M, or L		
					Govt./Ind. Practice	Teaching	This Institution		Professional Organizations	Professional Development	Consulting/summer work in industry
Burchfield, Jeremy	MIS 2009 B.S, Telecommunications	AST	TT	FT	6	6	6	Adobe Certification	M	M	M
Cole, Richard	MBA MMIS BSAE CPM	A	NTT	PT	38	4	4	Six Sigma Green Belt Commercial Pilot License	L	M	H
Huber, Brennan	B.S UTC M.S UTC PhD UTC in progress	A	NTT	PT	3	4	2		L	L	L
Joshuva, Justin K	MS. Computer Science ISA 2017	A	NTT	PT	2	3	3	CompTIA Security+	L	L	L
Mohamed, Hanadi	MS. Computer Science 2001	AST	TT	FT		19	4	Oracle Certified Developer	M	H	L

Pinnepalli, Savitha	MS, Engineering Science, 1999 MS, Power Electronics, 1994	AST	TT	FT	2	20	4	CIW Internet Business Associate Summer/Winter Working Connections Python Programming, Microsoft Power platform tools, encase Cyber Forensics, Amazon Web Services, iOS Swift programming, Hybrid App Development using React Native	H	H	L
Ricketson, Randy	BAS, Computer Information Science, 2000	ASC	TT	FT	30	14	8	Summer working connection Microsoft Azure	M	M	L
Saied, Noman	MS, Computer Science, 2000	ASC	TT	FT	30	12	5	CCNA Connecting Networks CCNA Scaling Networks CCNA Routing and Switching Essentials CCNA Introduction to Networks WideBand Certified Network Administrator Oracle [SQL, Forms, and Reports] Computer Application Certificate	H	H	L

Schneider, Jeffrey	Masters Organizational Leadership 2003	AST	TT	FT	11 years DBA	17 total 7 Full time	5	Winter Working Connections Python for Data Science	M	H	L
Ward, Patrick	MS, Information Systems and Technology 2016 MS, Information Technology, 2010 MBA, 2006	ASC	TT	FT	25	5	5	CISSP # 565669	L	M	L
Watt, Dwight	EdD, Education Leadership MBA Management BA Political Science	A	NTT	PT	15	13	2	MCSE, CCNA CompTIA Security+, Cloud+, Server+, ACE	H	H	L

10.4. Policies and Procedures

*Policies and procedures for faculty selection, appointment, reappointment and tenure shall be clearly specified and shall be conducive to the maintenance of high-quality instruction. This should include policies and procedures for the selection and reappointment of part-time/adjunct faculty***.**

The TBR Employment and Classification Policy defines a fulltime faculty as: "personnel (executive, administrative and professional, academic personnel, and clerical and support) who are employed on a continuing basis, expected to exceed six months and who have a regular work week of 37.5 hours or who are scheduled to carry a full teaching load or its equivalent."

The Engineering and Information Technologies Division employs competent faculty members qualified to accomplish the mission and goals of the institution and division. When determining acceptable qualifications of the faculty, the division gives primary consideration to the highest earned degree in the discipline. A master's degree with 18 hours in subject matter is the minimum requirement to teach CISP 1010, Computer Science 1, CISP 1020, Computer Science 2, and CISP 2410, Assembly and Computer Organization. All other courses within the degree requires a bachelor's degree. The division also considers competence, effectiveness, and capacity, including, as appropriate, undergraduate, and graduate degrees, related work experiences in the field, professional licensure and certifications, honors and awards, continuously documented excellence in teaching, or other demonstrated competencies and achievements that contribute to effective teaching and student learning outcomes. In all cases, the division's leadership team is responsible for justifying and documenting the qualifications of its faculty.

When a faculty position becomes vacant or when a new position is added, the Dean (or delegated hiring manager) initiates a position fill request to the Human Resources Department. This written request is loaded into the Cornerstone system - a web-based software platform that allows the ChSCC Human Resources Department to manage the application, screening, interview, and hiring approval process. The process to post a vacant position requires approval from the Vice President of Academic Affairs, the Vice President for Finance, Executive Director of Human Resources, and the College President. Normally, vacant faculty positions are publicly posted for 30 days through the Cornerstone website and various other mediums (e.g., local/regional newspapers, Chronicle of Higher Education, and relevant listservs, etc.).

Once the fill request has been loaded in Cornerstone, the Dean (or designated hiring manager) assembles a screening and interview committee, comprised of division faculty and staff, with the purpose of screening applications, resumes, and transcripts for the most qualified applicants. When all applicants have been screened, the committee will agree on the top candidates to be interviewed. Faculty candidates will be required to develop and conduct a 10–15-minute teaching demonstration and answer a battery of questions designed to ascertain certain

professional and personal traits. Topics for teaching demonstrations are normally subject-related problems within the instructional discipline and provided (through Human Resources) to the faculty candidates prior to interview. Faculty candidates are scored and selected based on the judgment assessment of the committee.

Faculty retention begins during the hiring process. New faculty members are selected based on qualifications and the propensity for continuity. All new faculty during their first year of service attend the New Faculty Seminar which meets monthly to assist in acclimating the faculty to the College. Another retention approach used is to empower faculty members with the ownership and professional latitude regarding their program(s) of study. The division selects highly qualified engineers to fill faculty positions; but the challenge is to develop them into educational professionals. As mentioned earlier, teamwork is emphasized among the entire division staff. The leadership team works closely with all faculty members to form a value-added culture within the division. The leadership team engages tenure-track and as well as tenured faculty members with exciting initiatives and challenges while providing them with the resources needed to be successful. Tenured faculty members are assigned as peer committee chairs (as part of the portfolio process) in order to provide mentorship and guidance to new faculty members. If (or when) an issue is identified with a faculty member, that may impact his/her employment status, efforts (or actions) are taken by the leadership team to mitigate the issue and provide direct support to a potential problem area.

To be eligible for a fulltime, tenure-track faculty position in a professional, occupational, and/or technical area, applicants must have at least the same level of degree for which they are teaching, according to the ChSCC Human Resources Department. Computer Information Technology faculty positions require a minimum of an engineering baccalaureate (or closely related technical discipline), from a regionally accredited university or college, with three years of documented work experience in order to qualify for a fulltime, tenure-track faculty position. However, a master's degree or a Professional Engineers (P.E.) licensure with five years documented work experience is highly preferred. Faculty candidates must demonstrate excellence in their field and the propensity for continuity.

Example Faculty Job Description

Instructor, Computer Information Technology

Title Instructor, Computer Information Technology

Position Title Instructor, Computer Information Technology

Department ChSCC-- Computer Information Technology

Position Summary Perform specific duties related to instruction; course and curriculum development; professional growth; service to students; and service to the college and community.

Typical Duties and Responsibilities -Teaching and Learning: Teach assigned courses; facilitate the classroom instructional process; evaluate students, monitor progress, assign final grades; provide outside-of class academic assistance to students; maintain attendance and grade records; counsel and advise students regarding academic preparation and career goals; work to retain students; mentor and orient faculty and staff; maintain required classroom and office hours -Course and Curriculum Development: Select texts, supplemental documents, equipment, supplies, and other learning resources; develop supplemental instructional materials; use current technology in preparation, creation and delivery of instruction; create and revise courses and/or curricula as needed; maintain updated course syllabi -Professional Growth: Remain current within field of assigned instruction, related occupational areas and technologies; acquire, maintain, and apply knowledge of current instructional methodologies and materials; attend scheduled college, divisional, professional development and in-service activities; support related professional organizations by attending meetings and serving as officers; participate in annual faculty evaluation process -Student Support: Respect rights of students and access to educational opportunities; participate in registration process by advising, assisting students in preparing schedules and entering schedules into Banner System; assist in recruitment, selection, orientation and evaluation of potential students; assist in formal and informal placement activities for employment and/or transfer to four-year institutions; support student activities -Service to the College and Community: Assist in recruitment and selection of college personnel as assigned; participate in accreditation, assessment and performance funding processes; support and participate in college/division/department committees, organizations and/or task forces to make recommendations in the College's decision-making processes; provide input and/or assistance in preparation of semester schedules, faculty assignments, facility assignments and budgets; attend convocation and commencement exercises and participate in college programs; develop and maintain positive and cooperative relationships with colleagues; strengthen relationships between the college and the community through program advisory committees and/or community outreach activities. Work collaboratively with advisory committee. Encourage and

support student participation in relevant student professional affiliation. Maintain accountability of College property and equipment. -Perform other duties as assigned

Required Qualifications -Education: Bachelor's Degree in Computer Science or Information Systems from a regionally accredited university or college; three years relevant industry experience as an information systems/programming technologist or computer scientist.

Preferred Qualifications In addition to the required qualifications, relevant postsecondary teaching experience; relevant specialty experience with some of the following: Programming Languages (Java, C/C++, Visual Basic, PHP, C#, Perl, Python, ASP.Net); Databases (Administration, Concepts, and Design); Web Technologies (Client/Server side scripting, HTML, CSS, JavaScript, Java Server pages); Networking (Linux, Windows Servers, Switches/Routers, TCP/IP); Cyber Security (Network Security, Digital Forensics); Mobile Technologies (Android, IOS, Windows). Master's degree with 18 graduate hours in subject matter discipline (Computer Science, Information Systems).

10.5. Faculty teaching, advising, and service loads shall be reasonable and comparable to the faculty in other professional program areas.

The General Personnel Policy defines a fulltime teaching load as: "Within the requirement of a minimum of 37.5 hours per week, faculty at universities and community colleges shall be required to carry a full teaching load, which shall be 15 credit hours or the equivalent per term for undergraduate courses." The Department Heads normally carry a reduced teaching load.

Engineering and Information Technologies including Computer Information Technology faculty members are assigned between 15 – 18 load hours, per semester, with a goal of 180 (or more) student credit hours. Load hours are determined by adding the credit hours of a course with the contact hours and dividing by two (e.g., three semester hours + contact hours (two-hour lecture + three-hour lab = five) = eight ÷ two = four load hours). Student credit hours are calculated by multiplying the credit hours of a particular course by the total number of enrolled students (e.g., three semester hours x 20 students = 60 student credit hours). Adjunct faculty members cannot teach more than 15 credit hours in a single semester. Adjunct faculty members are allowed to teach a maximum of 29 contact hours in an academic year.

Faculty members submit a weekly work effort schedule to the appropriate Department Head for review and approval prior to the term start. The schedule will indicate the teaching load as well the appropriate office hours. The College has designated that fulltime faculty members need only display 30 hours on-campus effort with seven hours provided as "float" time to allow for off-campus activities, research, or at-home efforts (e.g., grading papers, updating online educational sites, preparing lessons or labs, etc.).

Table III-23: Standard 10 - Instructor Course Load

Faculty Member (name)	PT or FT[1]	Classes Taught (Course No./Credit Hrs.) Term and Year[2]	Program Activity Distribution[3]			% of Time Devoted to the Program[5]
			Teaching	Research or Scholarship	Other[4]	
Burchfield, Jeremy (Full-time faculty with the Business Division)	PT	*Fall 2019*: CITC1300 01 (3), CITC1300 02 (3), CITC1300 N03 (3), CITC1300 N04(3) *Spring 2020* CITC1300 01 (3), CITC1300 N02(3), CITC1300 N03(3)	100%			100%
Mohamed, Hanadi	FT	*Fall 2019* CISP1010 02 (4), CISP1020 01 (4), CISP2410 01 (3), CITC1301 03 (3), CITC1301 N04(3) *Spring 2020* CISP1010 01 (4), CISP1010 02 (4), CISP1020 01 (4), CISP2410 01 (3), CITC1301 BM1 (3)	100%			100%
Pinnepalli, Savitha	FT	*Fall 2019* CISP1010 01 (4), CISP1010 04 (4), CITC2335 N01 (3) *Spring 2020* CISP1010 03 (4), CITC2335 N01 (3) *Summer 2020* CISP1010 01 (4)	100%			100%
Ricketson, Randy	FT	*Fall 2019* CITC1301 01 (3), CITC1302 N04(3), CITC1320 01 (3), CITC2364 N01(3), CSIS1000 (3), CSIS1000 02 (3) *Spring 2020* CITC1301 02 (3), CITC1317 0(3), CITC1332 N02(3), CITC2320 01 (3), CITC2364 95 (3)	100%			100%
Saied, Noman	FT	*Fall 2019* CITC1323 N01 (3), CITC1332 02 (3), CITC2310 01(3), CITC2352 02 (3), CITC2390 I01/CITC2399 01 (3) *Spring 2020* CITC1332 01 (3), CITC2352 02 (3), CITC2354 01 (3), CITC2390 01/CITC2399 01 (3) *Summer 2020* CITC2390 01/CITC2399 01 (3)	80%	20%		100%

Schneider, Jeffrey	FT	*Fall 2019* CITC1301 02 (3), CITC1303 N02(3), CITC1312 01 (3), CITC1312 02 (3), CITC1318 01 (3), CSIS1000 01 (3), CSIS1000 03(3) *Spring 2020* CITC1301 03 (3), CITC1301 05 (3), CITC1303 01 (3), CITC1303 N02(3), CITC2310 01 (3), CITC2375 01 (3)	100%			100%
Ward, Patrick	FT	*Fall 2019* CISP1020 N02 (4), CISP2410 N02(3), CITC1302 02 (3), CITC1351 01 (3), CITC2363 01 (3), CSIS1000 N04(3) *Spring 2020* CISP1020 N02 (4), CITC1302 02 (3), CITC2326 01 (3), CITC2356 01 (3), CSIS1000 01 (3)	100%			100%
Watt, Dwight	PT	*Fall 2019* CITC1301 PSN *Spring 2020* CITC1301 PSN	100%			100%
Joshuva, Justin	PT	*Fall 2019* CITC 1312	100%			100%
Huber, Brennan	PT	*Spring 2020* CISP 1010 N04	100%			100%

10.6. Appropriate criteria shall be in place to assure part time or non-tenure track faculty are highly qualified to deliver and evaluate student performance in courses assigned.

Adjunct faculty members are solicited and selected by the Dean, Department Head, and respective faculty members and are staffed according to academic need and qualifications. The Department Head and lead faculty provide direct leadership and management to assist adjunct faculty with preparation and resources necessary for courses and labs taught by assigned adjunct members. Overall quality control (outcomes, assessments, instructional materials, etc.) for courses and labs taught by adjunct faculty, as well as matters related to student success, is shared between the entire leadership team. A shared responsibility in leadership and management helps ensure that adjunct faculty members feel welcome as a valued member of the team and that students receive the same quality of instruction as that of the fulltime faculty. The Dean and Department Head strive to ensure that adjunct faculty members receive the same level of leadership and support as that of the fulltime faculty. Adjunct faculty members are invited to department/division meetings and regularly serve on program advisory boards.

11. Standard 11 – Facilities, Equipment, & Technical Support

Facilities and equipment shall be adequate to support program/option goals.

11.1. Facilities are neat, organized, and professional including modern equipment and tools adequate to support student achievement of the program's learning outcomes.

The Engineering and Information Technologies Division has adequate, industry-standard equipment to support short and long-range goals in the Computer Information Technology degree program. Equipment is purchased using College funds, donations from various sources, and partnerships with area industry. However, as equipment costs increase and operating budgets do not always align, it has become imperative that the College secure grant funding to provide the means to remain current in technology. The CIT program has specific operating budget to purchase equipment, instruments, and supplies as needed.

11.2. Appropriate technical support necessary to assure safety and for maintenance is available.

The Engineering and Information Technologies Division (administrative offices & instructional space) is located in the Center for Engineering Technology Arts & Science complex (CETAS), Current renovation to the additional 35,000 in the CETAS complex is underway to expand classroom and laboratories. The division's operating hours are normally 7:30 a.m. to 5:30.p.m. However, a member of the leadership team usually remains on duty past 5:30 to ease the transition and ensure the evening adjunct faculty members and students are settled for the night.

The administrative office suite for the Engineering and Information Technologies Division is in the CETAS building along with faculty members' offices. Each office is equipped with desk, chairs, and computer. Network printing capabilities is available to all faculty and staff.

The Engineering and Information Technologies Division is supported by a full-time engineering laboratory technician. The division leadership supplements the technician with temporary help throughout the year by staffing competent student workers during instructional peak times. The support provided by these technicians and student workers is adequate.

11.3. Current computer equipment and software programs to cover functions and applications in each program area is available.

Table III-24 displays a list of equipment utilized throughout the Computer Information Technology programs:

Table III-24: Standard 11 - Equipment List

Chattanooga State Main Campus		
Location	**Qty**	**Item Description**
CETAS Office 358	2	Google Chrome Books
CETAS Office 369	1	Dell XPS 15
CETAS Classroom 124	1	Instructor Station - Dell 9020
	21	iPads
	1	Student Computer - Dell Optiplex 7060
	28	Student Computers - Dell Optiplex 7440
CETAS Classroom 125	1	Cisco Catalyst 2960
	1	Dell EMC Power Edge R640
	1	Instructor Station - Dell 9020
	1	Ortonics CATE
	24	Student Computers - Dell Optiplex 340
CETAS Classroom 127	2	Cisco Catalyst 2960
	1	Cisco Catalyst System 5505
	2	Cisco switch
	10	Dell GX 620
	4	Dell Optiplex 745
	13	Dell Optiplex 780
	1	Dell Precision 690
	10	HP Proliant Gen 9 DL 380
	11	HP Z400
	1	Instructor Station - Dell 7010
	1	Lenovo EMC PX4
	2	Lenovo Think Senders
	3	Ortronics CAT 5
	11	Power Edge 1750 servers
	3	Power Edge 2650 servers
	1	Power Edge 2970 server
	4	Power Edge 750 servers
	10	Power Edge R330 servers
	11	Power Edge R420 servers
	4	Power Edge R530 servers

	24	Student Computers - Dell 7010
	5	Tripp Lite B020 switches
	5	Tripp Lite Smart Pro UPS 500RT1U
	31	Dell Precision 3430
	1	Laser Jet Pro 400
CETAS Classroom 216	1	Instructor Station Dell Precision 3630
	30	Dell Precision 33630
CETAS Classroom 342	1	Instructor Station Dell Optiplex 9010
	30	Dell Optiplex 7440
Kimball Campus		
Main Building Classroom 101	1	Instructor Station Dell Intel Core 17
	32	Student Computers Dell Intel Core 17

Computer hardware is replaced according to a scheduled replacement cycle of usually three to five years. Support for computer upgrades is provided the Technology Access Fees paid by students. Microsoft software upgrades are implemented by Computer and Network Services. Engineering Technology specific software is updated on an annual basis, or when viable updates are available. New hardware and software are purchased on an as needed basis. Funding is provided through operating budget or grant funding, if available.

The Technology Division provides students with access to the internet and intranet while maintaining all of the computers on campus - both for faculty/staff and computer laboratory equipment. Students are automatically provided an email address so faculty could contact students easier.

The Math Center is the largest computer lab on campus, with 180 computers that support the ChSCC math program; students in the Math Center use My Math Lab to enhance their skills. Classroom developmental writing classes are conducted with computers; students also improve their skills in a writing center with 65 computers. The Library houses more than 125 personal computers and a small number of Apple Macintosh computers for conducting research and completing class assignments.

The Center for Distributed Education is available to help Engineering and Information Technologies Division faculty develop on-line and distance learning materials. CDE also provides training for faculty in all areas of computer usage. Classes in Excel, Microsoft Office, Microsoft Outlook, Adobe Acrobat, or whatever is requested are available. The training sessions are limited in size to provide the faculty an opportunity to participate in the discussion

and classroom work. Training is also available on an individual basis if needed. This training provides a good source of professional development.

The Media Services Department provides support and maintenance for the audio-visual services and equipment needs of the administration, faculty, staff, and students at ChSCC. Department staff help faculty check out and set up audio-visual equipment, duplication support, streaming support and services and produce videos for teaching and course/program promotion.

12. Standard 12 – Program/Option Operation

Evidence shall be presented showing the adequacy of instruction including:

12.1. Scheduling of instruction and student advising

The scheduling of classes in each program/concentration is a combined effort of the department head, department faculty, and the division dean. Each course is offered at least once per academic year, and the course descriptions in the online catalog include the semester(s) in which the course is offered. Each student in the degree program is given a suggested course of study to progress through the degree program, which all students have digital access to, or can be obtained from professional or faculty advisors. Courses are scheduled to provide opportunities for traditional and non-traditional students to complete their course work. Course periods are scheduled to assure that students have ample time to complete all homework assignments and laboratory problem solving activities. .

Under Academic Affairs Policy 02:05:00 Full Time Faculty Job Description, the scheduling guidelines are as follows

C. Work Week and Faculty Schedules

The following guidelines for the faculty work week should be considered as a guide for fulfilling faculty schedules through the College as an institution. These guidelines must constantly be evaluated, changed, and supplemented as needs become apparent.

1. In accordance with TBR policy, all employees of the Tennessee Board of Regents and its institutions who are considered to be full-time shall work a minimum of 37.5 hours per week throughout the year. The specifications for the full-time workweek hours apply to all employees, including faculty. Faculty office hours are determined by the president or their designee.
2. Nine-month faculty schedules traditionally reflect 30 hours on-campus distributed over at least 5 days each week. Normally, this includes 15 instructional hours (e.g. 5 three credit hour classes) and 15 "office hours." In some cases, teaching assignments, course credit hours and other factors may necessitate a variation. In such cases, request for changes will be submitted to the department head/dean for review. All changes require the approval of the Vice President for Academic Affairs before being implemented.
3. Work week requirements and rules for preparing full-time faculty schedules (a.k.a. office hours) are as follows:
    a. Full-time faculty must document a minimum of 30 hours on campus. This is normally 15 class hours and 15 office hours. The minimum 30 hours on campus includes all forms of course delivery, including online and hybrid courses and their associated office hours.
    b. Faculty with a reduced load may adjust their teaching schedules accordingly, but still need to reflect a minimum of 30 hours on campus.

c. Faculty with an overload course must add the additional credit hours (e.g. a 3-hour credit class overload would reflect 33 hours on campus) to their on-campus schedule. (Additional office hours are not required.)
d. Schedules must include a minimum of 2 hours on campus each of the five work days (Monday - Friday).
e. 30-hour schedules must be provided to department head/dean and posted where students can see them. Faculty may post a 27-hour schedule to their office door.
f. Twelve-month faculty shall work a minimum of 37.5 hours per week as determined by the department head/dean.

Source: TBR Policy 5.01.01.00
Faculty hours are posted on their office doors and submitted to the division Dean, and are monitored and enforced by Department Heads and the Division Dean.

12.2. Quality of instruction

Quality of Instruction is based on supervision of instruction and Faculty. Chattanooga State Policy 02:19:02 Faculty Evaluation and Promotion. Below is an excerpt from the policy – 02:19:02:C:5.

5. Promotion Criteria for all Academic Ranks

a. Faculty will be evaluated in teaching, service/outreach, and scholarship/creative activities/research. The college assigns teaching a minimum of fifty-one percent of the weight of the evaluation and the other two criteria are assigned an equal amount of the remaining forty nine percent of the weight of the evaluation. Evaluation should be based on all three criteria, although it is realized that differences in emphasis may exist. The nature of the emphasis should be mutually agreed upon by the faculty and their supervisor.
b. The faculty evaluation process requires candidates applying for promotion to provide documented evidence that all criteria have been met.
c. The faculty evaluation process and documents are available in the campus ePortfolio system.
d. These guidelines should be distributed to all new faculty members and should be easily available to all faculty at all times, including via the Web. Whenever the guidelines are revised, the faculty should be notified of the availability of the revised guidelines. Should guidelines be revised they will be implemented at the beginning of the academic year. Guidelines should use the following general criteria as minimum requirements.
e. Peer Committee members and supervisors must use the following general criteria as minimum requirements.
    1. Teaching - Evaluation of teaching shall be conducted by the department chair /division head, dean, peers, and students. The evaluation shall be based on the following criteria (evidence of each should be submitted):

a. Curriculum and/or program development.
b. Development and application of current instructional techniques (including development of online and computer-assisted course development), etc.
c. Honors and recognition for contributions to teaching
d. Documentation of teaching methodologies.
e. Documentation of staying current in his/her field of discipline/specialization.
f. Student evaluations of the teaching performance.
g. Classroom observations by peer committee members.

2. Service Outreach
    a. Evaluation of the service component should be based on performance in three areas:
        1. Service to the College;
        2. Public service to the community as defined by the College's role and mission; and
        3. Service within the bounds of the applicant's academic discipline and budgeted assignment.
    b. Evaluation should be based on all three areas although it is realized that differences in emphases may exist. The nature of the emphasis should be mutually agreed upon by the faculty and their supervisor.
    c. Due to the many differing forms of potential service outreach that can be offered by faculty, the process for determining specific criteria based on the individual's aspect of work will be founded on the following criteria.
        1. College committee and administrative responsibilities;
        2. Community service programs;
        3. Public service consultation; and
        4. Active contributions to professional associations.
    d. Specific evaluative criteria may be developed using the following guidelines:
        1. Performance in relation to assigned and budgeted duties (as described in the candidate's position description which includes a statement of the mission or purpose of the position and of the objective(s) of the nominee's service unit, as well as the specific assigned tasks and responsibilities of the nominee).
        2. The candidate's effectiveness, as judged by his/her impact on the institution, individuals, groups, or organizations served. This should include documentation of the success of his/her internal and external service, in terms of improvement of communities, programs, operating agencies, production processes, or management practices. It should also include indications of

satisfaction with the service provided by the nominee, and of the magnitude and complexity of his/her work (as opposed to perfunctory activity that does not lead to useful results).

e. Service/outreach work is sometimes not publishable. The results may be in the form of direct consultations, planning reports, or instructional time directed largely to the recipients of college service programs.
f. But certain aspects of service work are suitable for publication in professional journals. For example, unique techniques developed to motivate students or others or new approaches to the transfer and application of knowledge, would be of interest to peers in other public service programs.
g. Performance in the advisement and mentoring of students.

3. Scholarship/Creative Activities/Research - The following are examples of, but not limited to, appropriate activities for this criterion:
    a. Scholarly pursuits in support of the discipline or the teaching profession, which should include typical professional development activities such as taking classes, active participation in professional organizations, workshops, seminars, conferences relating to discipline or improvement of teaching, additional certification, awards, or achievement.
    b. Implementation and use of innovative teaching approaches, such as instructional technologies and learning theories, implementing a new piece of equipment and training colleagues, creating a new lab (write and/or pilot), writing an in house published lab manual or journal, and sharing information from conference.
    c. Performances, compositions, and other artistic creations that are evaluated by written reviews and by qualified peers, either in person or aided by other forms of reports, or both.
    d. Professional or scholarly papers presented at international, national, or regional/state meetings.
    e. Publication of research or scholarly works such as books, journal articles, and other scholarly papers.
    f. Faculty Fellows selection and participation.

12.3. Observance of safety standards

Students, faculty, staff, and guests are all responsible for observance of safety standards. The Chattanooga State Police Department (CPSD) is responsible for ensuring that a safe and secure environment exists in order to support the College's educational mission. CSPD provides services to the campus community in a respectful, knowledgeable, and skillful manner, with the highest standards of ethics, accountability, dignity, equity and fairness.

Students, faculty, staff, and guests are encouraged to immediately report all criminal actions and emergencies on campus to CSPD. Public access telephones are available specifically for

emergency use at various locations around campus. Additionally, the campus community is encouraged to call CSPD for assistance with first aid in minor medical situations. Campus Police officers have received CPR certification and defibrillator training. If the designated officers are not available or the situation is an acute emergency, outside emergency help may be requested by calling 9-911 from on-campus phones or 911 from non-campus phones. If 911 is called, the ill/injured individual is responsible for all fees.

For general health and safety, students, faculty, staff, and guests must follow OSHA, TOSHA, and CDC guidelines.

12.4. Availability of resource materials

ChSCC, through ownership, formal arrangements or agreements, provides and supports student and faculty access and user privileges to adequate library collections and other learning/information resources consistent with offered degrees. The collections and resources are sufficient to support all educational, research, and public service programs.

Pre-COVID Overview

Students, faculty, and staff have access to the Augusta R. Kolwyck Library and Information Commons (KLIC) at the Main Amnicola Campus, 4501 Amnicola Highway, Chattanooga, TN 37406. The library is located on the first floor of the Instructional Materials Center Building and includes approximately 22,000 square feet. There are approximately 408 student seats, including approximately one hundred student computers, a traditional library instruction classroom with 28 computers and a mobile classroom designed to teach students using mobile technology. The library has a variety of mobile devices from which to teach. The main library contains four multimedia group study rooms and a large multimedia meeting room all replete with TV screens and specialized software for students to collaborate on multimedia projects and presentations. Printing is available in the library for a nominal cost to the student.

Students are provided with access to three area public and academic libraries per cooperative agreements. Students and faculty also have access to all partner schools of the Tennessee Academic Library Collaborative (TALC). https://tbr.libguides.com/librarydeansdirectors/TALCLibs
KLIC is open typically 79 hours per week during the Fall/Spring semesters.

Table III-25: Standard 12 - Library Hours

Day	Open	Close
Monday – Thursday	7:30 a.m.	9:00 p.m.
Friday	7:30 a.m.	4:30 p.m.
Saturday	10:00 a.m.	6:00 p.m.
Sunday	1:00 p.m.	9:00 p.m.

COVID Overview

Augusta R. Kolwyck Library and Information Commons (KLIC) at the Main Amnicola Campus, shut its physical doors to our campus community on March 13, 2020 due to the COVID pandemic. However, the librarians and staff quickly transitioned fully to the online environment. During the different COVID response phases, the library provided student support with research and technology through the library's chat widget. As conditions improved, the physical library transitioned to allowing students to make computer appointments to use the 51 computers designated (socially distanced and cleaned after every use). Printing remained available for students at a nominal cost. All librarians, library staff, and users had to follow the mandatory campus protocols for health and safety. Library instruction transitioned to the online environment using Zoom, WebEx, and other platforms.

KLIC physical and virtual hours were typically 61 hours per week during the Fall/Spring semesters. (NOTE: Virtual hours kept remained the same while physical hours fluctuated with the campus phases).

Table III-26: Standard 12 - Library Hours (COVID)

Day	Open	Close
Monday – Wednesday	8:00 a.m.	7:00 p.m.
Thursday & Friday	8:00 a.m.	5:00 p.m.
Saturday & Sunday	1:00 p.m.	6:00 p.m.

Pre- COVID Services:

Assigned Library Liaisons

All credentialed librarians are assigned as library liaisons throughout the six academic divisions and in the Tennessee College of Applied Technology. Anthony Prince is the assigned library liaison for Engineering. Faculty can collaborate with library liaisons to tailor course integrate library instruction and library guides into their curriculum. Students have access to their liaisons or other reference librarians during all the hours that the library is open or by appointment. Library liaisons also communicate resource needs for the division to the library for purchase consideration and keep faculty abreast of the current literature in their areas of interest for inclusion in the library collection.

Reference Assistance

All librarians staff library chat service all of the hours that the library is open. The chat is available via the library's web page. Students are also able to text questions from their mobile device through this service as well. Students can also schedule a Research Appointment to meet one-on-one with a librarian to assist them in their research process.

Interlibrary Loan
Through the library's interlibrary loan services, students have access to books and journal articles in the 69,000 libraries worldwide that belong to the OCLC interlibrary loan network. The library absorbs the cost of borrowing these materials; there are no charges to faculty or students. https://library.chattanoogastate.edu/c.php?g=685993&p=4847589

COVID Services:
Assigned Library Liaisons - same as Pre- COVID

Reference Assistance:
Same as Pre-COVID although Research Appointments were held via technological means (Phone, Zoom, WebEx, etc.)

Interlibrary Loan
Same as Pre-COVID except for the exclusion of borrowing books during COVID. Article service remained open to our users.

Pre- COVID Collections:
The library focuses resources toward providing more and more materials online for 24/7 access: books, journals, videos, test preparation and review guides, etc., in accordance with our Materials Selection Policy. Students still check out books in many cases, but seem to prefer accessing journal articles and videos online. Thus, the library tries to find online videos and journals whenever possible. The benefit is that all students can access the same content 24/7 from any internet-connected device. With online videos, journals, and books, all students can have access to the same curriculum-related resources no matter where they are located or where their courses are taught. All faculty and students are invited to suggest materials for the library to acquire http://www.libsurveys.com/loader.php?id=9896dd6faba229e3c11041f3b2b00b67 Faculty requests for materials to support the curriculum will be honored as long as fiscal resources permit.

The majority of instructional/research materials are found online with 24/7 access for our students. Online materials are provided through the library's website through either specialized databases appropriate to Engineering or through the aggregated search system, OneKLIC. If an instructor collaborates with the liaison librarian, a "Libguide" (Library Guide) can be created specific to assignments. Access is granted to these resources off-campus through a proxy server authenticating the user by their "Tiger ID" and password assigned by the College from any internet capable device (i.e. laptop, phone, tablet, etc.).

Staff involved in the selection and purchase of library materials are:

- Anthony Prince, Liaison to the Engineering and Information Technologies Division

- Betsy Fronk, Collection Development Librarian
- Marie Cullis, Electronic Resources Staff
- Danielle Knowles, Library Systems & Emerging Technologies Librarian
- Susan L. Jennings, Dean of Library Services

KLIC provides 3 general and subject specific databases to support student and faculty research. Engineering databases available electronically are as follows:

- *Academic Search Complete*
- *Applied Science & Technology*
- *AWS Academic Access*

Residents of Tennessee also have access to the Tennessee Electronic Library (TEL) free of charge. Many of its resources provide information about Computer Information Technology as a profession, articles in the news, and general articles and reference sources.

The print book collection has 1460 print volumes in the Library of Congress classification T-TX section and the online has 1091 electronic books (this does not include the Ebsco Engineering eBook Collection). The "T – TP" section of the Library of Congress Classification System is found directly through our library catalog and through our aggregated search, "OneKLIC." The total number of printed books specific to engineering related topics is approximately 728 books.

COVID Collections:
Same as Pre-COVID: During COVID, the library's online collections became even more critical. The library added a new collection of ebooks, Overdrive, which provides books to our faculty, staff, and students from their electronic devices. Even during COVID, students could request books to be pulled for them. Books were checked out and students were able to pick them up using no-contact delivery system. All faculty and students are invited to suggest materials for the library to acquire http://www.libsurveys.com/loader.php?id=9896dd6faba229e3c11041f3b2b00b67 although we are currently collecting more ebooks and audiobooks to match the needs. Faculty requests for materials to support the curriculum will be honored as long as fiscal resources permit. Access to all online resources off-campus is established through a proxy server authenticating the user by their "Tiger ID" and password assigned by the College from any internet capable device (i.e. laptop, phone, tablet, etc.).

Staff involved with the Computer Information Technology instruction and collection development are the same.

12.5. Supervision of instruction

Evaluation of instruction is accomplished by formative and summative student evaluations and classroom evaluations. Each full-time faculty member is evaluated at least once a year by their peer review committee and department head. During the annual evaluation, full-time faculty complete an ePortfolio for review by peer committee, department head, dean, and Assistant Vice-President of Academic Affairs. Classroom evaluations, student evaluations of classroom performance, professional activities, college service, and other instructional responsibilities are included as evidence in the ePortfolio. Each reviewer comments on the evidence presented.

12.6. Placement services available to graduates

Individual career counseling is offered to ChSCC students and community members. This free service is designed to help students decide on a college major at ChSCC or to assist those who are changing careers, retraining, or making the decision to come to college for the first time.

The ChSCC Career Services Center offers the career assessment Pathway U that evaluates interests, values, personality, and workplace preferences in four different assessments. This information helps students learn about their preferred environments, communication with others, and other important factors when considering various career paths. All four of the assessments take 20-25 minutes to complete in total, which make it easy for students to complete for personal career exploration or as a part of classroom assignments. In addition, this resource is free to students, faculty, alumni, and staff.

12.7. Syllabi. Management and/or technical course syllabi must clearly describe appropriate course objectives and student competencies.

All course syllabi clearly describe course objectives and student competencies. Course syllabi are included in the Appendix B.

12.8. Courses delivered by distance. Appropriate criteria are in place to assure the adequacy of distance and/or non- traditional instruction including the following:

12.8.1 - Program faculty are provided adequate resources and training to design, deliver, and assess online classes.

Academic Resources Center (ARC). ARC administers online courses offered by Chattanooga State. ARC provides training to faculty in the development and teaching of online course content. All faculty utilizing the College's course management system are required to learn how to effectively work within the system. The level of training depends on the faculty

member's role (i.e., developer, teacher), as well as the teaching format (in class, hybrid, online, and video conferencing).

All Distance Education faculty come under the direct hire and supervision of the relevant Division, Deans and Department Heads responsible for the program or courses. Faculty who develop or teach an online course must follow the same credentialing as all faculty on campus. Indeed in the majority of course teaching and development, the faculty teach both on ground and online courses. In addition, faculty teaching online courses must completed all three levels of training for the college LMS (eLearn) and for Accessibility.

12.8.2 - Appropriate computer resources/technological infrastructure available for distance learning/online student learning. Accessible technical support addressing online technical issues available during all learning times. Appropriate protocols regarding live and remote proctoring, examination test security, candidate validation and plagiarism.

Chattanooga State Community College (ChSCC) offers distance or correspondence education and therefore:

a) ensures that the student who registers in a distance or correspondence education course or program is the same student who participates in and completes the course or program and receives the credit.

The College follows the institutional policy (ChSCC Policy 02:16:50 Distance Education Standards and Student Authentication) which ensures that the distance education courses have the same standards as on-ground courses and that a student registered for a distance education course is the same student who completes and receives credit for it.

All students, including fully online students, are issued a unique student ID number and college email when they enroll with the college. This unique ID is used to access the student online portal – TigerWeb. Students then set their own password. All communication regarding a student's ID and/or to reset their password is conducted via TigerWeb and their college email. All proctored exams for online courses are taken through the ChSCC Testing Center locations or via an approved external proctor. When students present for proctoring they are required to show their official picture college ID (ChSCC Policy 03:37:00). Student access their exams through the Course Management System (CMS) by using their unique username and password.

As with all on ground courses, students taking any test or assessments not proctored but managed through the CMS are allowed to take those tests within the allocated time frame and from any location. The CMS allows faculty to set restrictions on testing period, test time, review of questions, time on individual questions, etc. to deter cheating. Should a query arise from faculty regarding possible cheating, Academic Resources can view students' IP location during the test-taking period.

The Academic Resources department manages the CMS and the Technology Division manages the Student Information System (SIS), access to computers, and management of passwords.

b) ChSCC has a written procedure for protecting the privacy of students enrolled in distance and correspondence education courses or programs.

As per the College's Computer Access Policy (ChSCC Policy 08:17:01), student privacy in distance courses is protected by the use of a unique username and password to access their courses (ChSCC Policy 08:13:01). Each course is created in the college Banner system before registration for a semester begins. Students access this system through the Tiger Web student portal. They access the portal by use of their unique ID, college email and password.

The college has a real-time integration between the CMS and SIS. As soon as the student registers, they are put into the CMS course site. If a student withdraws, they are removed from the CMS course site. Faculty are also loaded in the CMS sites via their instructor assignments in SIS. As with all college faculty and staff, students are asked by IT to reset their passwords at intervals during the academic year for additional security.

c) ChSCC ensures that students are notified in writing at the time of registration or enrollment of any projected additional student charges associated with verification of student identity.

The College does not charge students for proctoring of online course exams. However, students could incur a location fee if they are proctored through an external proctor outside of our service area. Students are made aware of this potential charge through the Tuition and Fees Table on the ChSCC web site. Also, when students go to the SIS system to register for classes, a notification appears when registering for an online course that has proctored exams.

Students have access to a technology help desk between the hours of 7:30 a.m. to 4:30 p.m. Monday through Friday.

12.8.3 - Qualified instructional designers participate in curriculum designing. The percentage of course/program content contracted with the third-party instructional designers should be reported. Appropriate technologies are in place and supported for course delivery and online instruction. Online courses/programs provide students tools to track their progress and receive timely feedback.

Academic Resources Center (ARC). ARC administers online courses offered by Chattanooga State. ARC provides training to faculty in the development and teaching of online course content. Faculty who deliver online content must complete relevant online course training through the ARC, which includes incorporating mandatory elements into their master courses

within the online course management system (e-learn or Desire2Learn). Course content is reviewed by the ARC for completeness and ADA compliance.

eLearn is a web-based learning management system which allows faculty and students to manage course work, assignments, and evaluations. eLearn has tools which allows faculty and students to track progress through the course and faculty has the ability to provide feedback on student work.

12.8.4 *– Ownership of material/copyright issues. Appropriate policies are in place concerning ownership of instructional material (such as video lectures, etc.) developed specifically for online courses*
Currently all content belongs to both college and developer.

13. Standard 13 – Graduate Satisfaction with Program/Option

Graduate evaluations of the program/option shall be made on a regular basis (two to five years). These evaluations shall include attitudes related to the program learning outcomes identified for the program/option. Summary data shall be available for the graduate evaluations of the program/option.

Program evaluation surveys are sent to program graduates upon graduation and again five years post-graduation.

Table III-27: Standard 13 - Graduate Satisfaction Survey Results

	Excellent	Good	Fair	Poor	No Opinion	Total Respondents
Quality of information provided by your advisor	5	1	1			7
Quality of courses to prepare you for employment	1	5		1		7
Preparation received to prepare you for further study	2	3	1		1	7
Quality of entire education received in the E&IT Division	3	3	1			7

14. Standard 14 – Employment of Graduates

Placement, job titles, and salaries of graduates shall be tracked on a regular basis (two to five years) including the degree to which jobs held by graduates are consistent with program learning outcomes. Summary data shall be available for the employment of graduates.

Placement, job titles, and salaries of graduates are tracked every five years. Career Services tracks graduates' placement, however job titles and salaries are not included in the tracking.

Table III-28: Standard 14 - Computer Information Technology Job Placement

Concentration	Year	Graduates	Respondents	Exempt*	Placed	Percent Placed
Cyber Security	2019	9	9	1[1]	5	71%
Cyber Security	2018	5	5	0	5	100%
Cyber Security	2017	1	1	1[1]		n/a
Networking	2019	12	12	1[1]	6	55%
Networking	2018	7	7	1[1]	6	100%
Networking	2017	11	9	1[2]	6	75%
Programming	2019	10	10	1[1]	5	56%
Programming	2018	7	7	1[1]	6	100%
Programming	2017	3	1	0	1	100%

* [1]Continuing education or [2]military

15. Standard 15 – Job Advancement of Graduates

The advancement of graduates within organizations shall be tracked on a regular basis (two to five years) including promotions to positions of increasing responsibility. Summary data shall be available for the job advancement of graduates.

Job placement evaluation surveys are sent to program graduates upon graduation and again five years post-graduation.

Table III-29: Standard 15 - Graduate Job Advancement Survey

	Yes	No
If employed, have you changed jobs or received a promotion to a higher level of responsibility?	1	5

16. Standard 16 – Employer Satisfaction with Job Performance

Employer satisfaction with the job performance of graduates shall be tracked on a regular basis (two to five years) including employer attitudes related to the importance of the specific program learning outcomes for the program. Summary data shall be available showing employer satisfaction with the job performance of graduates.

Employers are asked to evaluate their satisfaction with Computer Information Technology graduates in regards to attainment of student competencies which are aligned with program learning outcomes.

Table III-30: Standard 16 - Employer Satisfaction with Job Performance

	Strongly Agree	Agree	Disagree	Strongly Disagree	No Opinion	Total Respondents
Have the ability to apply the knowledge, techniques, skills, and modern tools of the concentration of study to specifically defined computer information technology activities.	2	3			2	7
Demonstrate the knowledge of mathematics, science, and computer information technology to computer information technology problems using developed practical knowledge.	1	4			2	7
Demonstrate effective membership in a technical team.	2	3			2	7
Have the ability to identify, analyze, and solve specifically defined computer information technology-based problems.	1	4			2	7
Have the ability to employ written, oral, and visual communication in a technical environment.	1	4			2	7

17. Standard 17 Advisory Committee Approval of Overall Program

A functioning industrial advisory committee shall exist for each program/option. If more than one program of study or program option is available, then appropriately qualified industrial representatives shall be added to the committee or more than one committee shall be maintained.

17.1. Policies for the advisory committee shall exist that include: (a) criteria for member selection; (b) procedures for selecting members; (c) length of member appointment; (d) committee responsibilities; (e) frequency of meetings (at least one per year); and (f) methods of conducting business.

Below are the pre-existing standards for the Engineering and Information Technology Division's Industry Advisory Board. These standards are currently under review by the college's Strategic Enrollment Management (SEM) committee to identify best practices for Advisory Boards, and to standardize IAB's across the college.

1. Identify active advisory members per sub-committee from local/regional business and industry.
    a. Adjunct faculty can participate with sub-committees and constitute part of the overall group count – limit of two adjunct faculty per committee.
2. Submit the sub-committee list to the EEET server, Advisory Boards folder, once complete. List should include employer/organization and contact information.
3. Request and establish a sub-committee chair from the group.
4. Schedule and host one sub-committee meeting per semester (fall & spring terms).
    a. Solicit feedback regarding your respective program or program of study.
    b. Use the Four "R" method:
        i. Relevance
            1. Teaching necessary and critical skills sets (content)
        ii. Rigor
            1. Providing a conducive and challenging learning environment (standards)
        iii. Results
            1. Graduates are prepared to make an intelligent and competitive entry into the workforce (learning outcomes)
        iv. Resources – determine equipment needs; solicit for equipment support.
    c. Explore and discuss cooperative employment opportunities, internships, etc.
    d. Probe for industry trends and needs.
    e. Recommend involving a student with your committee meeting (student chapter officer - IEEE, SME, ANS, AGC, etc.).
    f. Create a COI (center of influence) network comprised of business and industry leaders within your discipline.

    g. Ensure that you invite the Engineering Technology Dean, Department Head, and when appropriate, the VP for Technology to your meetings.
5. Record minutes and submit a written summary to the EEET server, Advisory Board Minutes folder, for record and archive (needed for TAC/ASAC-ABET, ATMAE, and SACS).
    a. Develop a tentative action plan if needed. (i.e., curriculum review or changes).
    b. Brief the department head on any needs or concerns.
6. Maintain communications and relationships with your committees.
7. A formal meeting will be facilitated in both the fall and spring terms of the respective academic year.
8. Recommended Advisory Committee Goals:
    1. Identify and expand the use of new technologies
    2. Compare course/program content with occupational competencies and tasks
    3. Analyze course/program content and sequence
    4. Assist in developing and validating assessments
    5. Advise on labor market needs and trends
    6. Review, recommend, & assist in obtaining instructional materials
    7. Recommend safety policies and procedures
    8. Review and recommend program goals and objectives
    9. Participate in program evaluation and recommend evaluation criteria
    10. Compare student performance standards to business/industry standards/expectations
    11. Assess, recommend, and/or provide equipment and facilities
    12. Evaluate the quality and quantity of graduates and job placement
    13. Conduct community and occupational surveys
    14. Identify new and emerging occupations
    15. Recommend new programs or elimination of obsolete programs
    16. Participate in long-term planning
    17. Discuss accreditation activities and requirements

17.2. A roster of advisory committee members and minutes of advisory committee meetings shall be made available to the visiting team.

Table III-31: Standard 17 - Advisory Committee Meeting

Name	Company	Title
Aaron Barthle	Morning Pointe, Information Technology Director	Independent Healthcare Properties & Morning Pointe
Andrew Knecht	McKee Foods	Software Engineer
Benny Middleton	DC Blox	Vice President Channels and Alliances
Carla Askonas	Chattanooga Technology Council	Executive Director
Evan Bissonette	Stratus Grid	Marketing & Customer Success
Fred Cobb	Info Systems	Executive Vice President of Services, CISO
James Dean	Blue Cross Blue Shield (BCBS)	Manager, SEA, Delivery Automation Services
John Jones	Jones Creations	Graphic Executive
John Schenk	AT&T Fiber and Security Solutions	Fiber and Security Analyst
Ken Jones	EPB	Director of Procurement & Vendor
Luay Wahsheh	UTC, Department of Computer Science and Engineering	Department Head/ Professor
Marcus Hindmon	Chattanooga Business Machines, Inc.	Director of Information Technology
Heather Mixon	Vascular Institute of Chattanooga	Director of Clinical Informatics
Tyler Seaberg	EIR Systems	President and CEO

17.3. Evidence shall exist showing the advisory committee participates in program outcome and program learning outcomes validation and the evaluation of overall program success.

A survey is disseminated to the advisory committee participants to validate and evaluate program success. The results from Fall 2020 are displays in Table III-32.

Table III-32: Standard 17 - Advisory Committee Approval of PLO

	Approve	Disapprove
Graduates will have the ability to apply basic industry principles, math concepts, and computational skills to industry and technical problems common to computer information technology	7	0
Graduates will demonstrate standard written and spoken English, and professional conduct to effectively communicate and succeed in an industry/computer setting.	7	0
Graduates will have the ability to select and use industry specific software and hardware.	7	0
Graduates will have the ability to apply problem solving skills appropriate for employment in a computer and information technology specialty.	7	0
Graduates will have the ability to develop implement, troubleshoot, and operate networks, desktop and web applications, object oriented programs and scripts, and IT security as required by a computer information technology specialist.	7	0
Upon completion of the program, all students will demonstrate critical thinking skills for inquiry and analysis, assimilation of facts and knowledge, and problem solving.	7	0

18. Standard 18 – Outcome Measures Used to Improve Program

Evidence shall be presented showing how both direct and indirect outcome measures have been used to improve the overall program/option. Evidence that program stakeholders participate in this process must be demonstrated. Outcome measures (standards 14-16) and advisory Board input (standard 17)* ***must*** *be used to improve the program. Measures must include a* ***combination*** *of the following:*

- *Graduate Satisfaction with Program/Option*
- *Employment of Graduates*
- *Job Advancement of Graduates*
- *Employer Satisfaction with Job Performance of Graduates*
- *Graduate Success in Advanced Programs*
- *Student Success in Passing Certification Exams*
- *Course-based Direct Measures*
- *Other criteria established by the institution's Regional Accreditation activities.*
- *Evidence must exist showing how the Advisory Committee Approval of Program have been used to improve the overall program/option based on data collected and analyzed.*

The Computer Information Technologies department continually seeks to improve its program based on the insights and recommendations of its stakeholders. Outcome validation measures occur on an institutional level (advisory committees and campus planning), a program level (Advisory Committees, Graduate Survey, Employer Survey, Capstone or Exam or Project), and at the course level (Grade Distribution Data, Course Analysis, Annual Curriculum Review, Textbook Review/Adoption). Competency measures are made through case studies, quizzes, examinations, labs, projects, and major field tests. Table III-33 correlates course improvements to Program Learning Outcomes.

Table III-33: Standard 18 - Improvements related to Program Learning Outcomes

General Program (Concentration) Outcomes	Course(s) Meeting the Program (Concentration) Outcomes	Evidence of Improvement Based on Analysis
1. Apply basic industry principles, math concepts, and computational skills to industry and technical problems common to computer information technology.	**CITC 1318** Data Structures **CITC 1351** Principles of Information Assurance **CITC 2375** Internet Software Development	CITC 2375: Faculty attended Python Boot Camp to improve course pedagogy. Year-to-year grades will be compared for changes. CITC 1351: Created a cost/benefit and risk analysis assignment. CITC 1318: Students give lectures to give a better understanding of the subject.
2. Demonstrate standard written and spoken English, and professional conduct to effectively communicate and succeed in an industry/computer setting.	**CITC 1302** Introduction to Networking **CITC 1351** Principles of Information Assurance **CSIS 1000** College Success Info Systems	CITC 1302: students are required to research IPv6 and submit a report comparing it to IPv4. CITC 1351: Provided students further guidance on security plan assignments. CSIS 1000: Separated students into groups of two to allow interviewing partner and discovering partner's goals.
3. Select and use industry specific software and hardware.	**CITC 1302** Introduction to Networking **CITC 2356** Penetration Testing & Network Defense **CITC 2363** Intranet, Firewalls, & e-commerce	CITC 1302: Students are required to research IPv6 and submit a report comparing it to IPv4. Ward attended training for Palo Alto Networks Cybersecurity Infrastructure Configuration, Prevention, and Countermeasures training The department will purchase new server equipment in order to increase attention on Cloud Computing technologies.
4. Apply problem solving skills appropriate for employment in a computer and information technology specialty.	**CITC 2390** CIT Capstone	CITC 2390: Modified and extend the capstone to include three more options: -Attempting industry standard certificate -Attempting survey/research papers (total 4 different topics) -Project-based capstone (Concentration-centric)

General Program (Concentration) Outcomes	Course(s) Meeting the Program (Concentration) Outcomes	Evidence of Improvement Based on Analysis
5. Develop, implement, troubleshoot, and operate networks, desktop and web applications, object oriented programs and scripts, and IT security as required by a computer information technology specialty.	**CITC 2363** Intranet, Firewall's & eCommerce	CITC 2363: Changed final project to include designing a secure network with firewalls
6. Upon completion of the program, all students will demonstrate critical thinking skills for inquiry and analysis, assimilation of facts and knowledge, and problem solving.	**CISP 1010** Computer Science 1 **CISP 1020** Computer Science 2 **CITC 2335** Systems Analysis and Design	CISP 1010 Programming students coded a Restaurant Management System in NetBeans IDE in java Programming Language. This was a team project. Students completed their research on the internet and tried to simulate a Restaurant Management System. CISP 1020- Computer Science students have a team project every semester CITC 2335: Students create a product or service for an IT company from scratch working in teams. This is their IT Entrepreneurship project. Project artifacts are displayed to Industry judges for feedback and review. Students create web site, database and their electronic ePortfolio.

Table III-34: Standard 18 - Outcome Measures Used to Improve Program

ACCREDITED BY ATMAE The Association of Technology, Management, and Applied Engineering	**Program Improvements**
Computer Information Technology	
What was Done	Schneider attended Python Bootcamp.
Why was it Done	To improve the course, CITC 2375, pedagogy as well as bringing new examples into the classroom.
Supporting Evidence	Final grades for this and last academic years will be compared.
Computer Information Technology	
What was Done	CITC 2375 Internet Software Development is being taught using the IDLE Instructional Development Environment which comes free with Python installation.
Why was it Done	Several CIT industry advisory board members encouraged it.
Supporting Evidence	A survey of the students regarding the efficacy of the software will be conducted.
Computer Information Technology	
What was Done	Creation of assignment(s) designed to guide the student to build a network. This involved providing access to necessary software and hardware.
Why was it Done	Students needed basic knowledge of how to build and manage a network with hands on experience with both hardware and software.
Supporting Evidence	Semester project for CITC 2320 Windows Server Administration class.
Computer Information Technology	
What was Done	The department is in the process of purchasing new server equipment to update the Network lab in order to increase attention on Cloud Computing technologies.
Why was it Done	Cloud technology is becoming more prevalent and required knowledge in the information technology industry. CITC 2320 and CITC 2364
Supporting Evidence	TAF request submission

Computer Information Technology	
What was Done	CITC 2335: Systems Analysis and design Students create a product or service for an IT company from scratch working in teams. This is their IT Entrepreneurship project. Project artifacts are displayed to Industry judges for feedback and review. Students create web site, database and their electronic ePortfolio.
Why was it Done	Some IT students lack soft skills and have good technical skills. This project helps students explore their critical thinking skills, communication skills and problem solving skills in addition to working in a team environment.
Supporting Evidence	Student participate in Student Research Creative Showcase. Student samples are available at this link https://library.chattanoogastate.edu/srcs/showcase
Computer Information Technology	
What was Done	CISP 1010 Programming students coded a Restaurant Management System in NetBeans IDE in java Programming Language. This was a team project. Students completed their research on the internet and tried to simulate a Restaurant Management System.
Why was it Done	Team coding helps students get an insight into how actual coding would be in industry working with a group of people. Creating tasks for applications, managing project resources and deadlines teaches students valuable skills and experience they can use when they get employed.
Supporting Evidence	Student participate in Student Research Creative Showcase. Student samples are available at this link https://library.chattanoogastate.edu/srcs/showcase
Computer Information Technology	
What was Done	Ward attended training for PaloAlto Networks Cybersecurity Infrastructure Configuration, Prevention, and Countermeasures training
Why was it Done	Attempting to include more material in CITC 2363 Intranet, Internet, Firewalls and eCommerce course.
Supporting Evidence	Students will be more aware of various vendors' firewall solutions.

<table>
<tr><th colspan="2">Computer Information Technology</th></tr>
<tr><td>What was Done</td><td>Ward attended Competency-Based Education training and started redesigning the CITC 2356 Penetration Testing and Network Defense course</td></tr>
<tr><td>Why was it Done</td><td>This course needed to be redesigned to be more hands-on so that students would gain relevant experience in the field.</td></tr>
<tr><td>Supporting Evidence</td><td>Graduating Cyber Defense Students continue to be placed in jobs after graduation at over 95%.</td></tr>
<tr><th colspan="2">Computer Information Technology</th></tr>
<tr><td>What was Done</td><td>Modified and extend the CITC 2390 Capstone to include 3 more options, which are:
Attempting Industry standard certificate.
Attempting survey/research papers (total 4-different topics).
Project-based capstone (Concentration-centric).</td></tr>
<tr><td>Why was it Done</td><td>Taking into account Advisory board recommendation by motivating students to add industry standard certification to their resume.

Due to COVID-19 restriction, it was very difficult for students to find internships.

Different option will help student to choose what areas they may need to improve.</td></tr>
<tr><td>Supporting Evidence</td><td>Summer 2020, Fall 2020, and Spring 2021 numbers render the fact that more students now attempting and (passing) industry standard certifications.
<table>
<tr><th>Semester</th><th>Certificate</th><th>Survey/Research</th><th>Project-based</th></tr>
<tr><td>Summer 2020</td><td>3</td><td>1</td><td>0</td></tr>
<tr><td>Fall 2020</td><td>5</td><td>1</td><td>1</td></tr>
<tr><td>Spring 2021</td><td>5</td><td>4</td><td>1</td></tr>
</table></td></tr>
<tr><th colspan="2">Computer Information Technology</th></tr>
<tr><td>What was Done</td><td>CISP 1020- Computer Science students have a team project every semester.</td></tr>
<tr><td>Why was it Done</td><td>To help the students practice some technical skills that are essential to their success in the course and professional life. In addition to team work, problem solving, and communication skills.</td></tr>
<tr><td>Supporting Evidence</td><td>Sample project provided in CISP 1020.SLC.3.1</td></tr>
</table>

Computer Information Technology	
What was Done	CITC 1301- Introduction to Logic and Programming student have a team project every semester.
Why was it Done	The project helps students to practice the following skills that are essential to their success in this course and professional life beyond school: • Analyzing and solving a problem using critical thinking. • Writing pseudocode/ algorithm • Drawing a flowchart using logic.
Supporting Evidence	Sample project provided in CITC 1301.SLC.3.1
Computer Information Technology	
What was Done	Changed final project for CITC 2363 – Intranet, Internet, Firewalls, and eCommerce to include designing a secure network with firewalls
Why was it Done	The class needed to have a final project so that students were able to demonstrate their competency in integrating the skills taught.
Supporting Evidence	I provided student work samples for this course.
Computer Information Technology	
What was Done	Created a cost/benefit and risk analysis assignment for CITC 1351 – Principles of Information Assurance.
Why was it Done	The class needed a way for students to apply their knowledge to a practical problem; how to do a risk assessment for a diesel generator.
Supporting Evidence	The students integrated their analyses into security plans that were provided as student work samples for the course. The grades on this assignment improved over the previous term's offering.
Computer Information Technology	
What was Done	Provided students further guidance on security plan assignments for CITC 1351 – Principles of Information Assurance.
Why was it Done	The class needed more guidance on the security plan assignments as this is the first time for many of them thinking of operational risk management.
Supporting Evidence	Security plans were provided as student work samples for this course. The grades on this assignment improved over the previous term's offering

Computer Information Technology	
What was Done	Separated students into small groups to solve a database problem. CITC 1303 Database Concepts
Why was it Done	Provide them more experience with effective communication.
Supporting Evidence	The grades on this assignment improved over previous semesters.
Computer Information Technology	
What was Done	Separated students into groups of two to allow each to interview their partner and discover the partner's goals. CSIS 1000
Why was it Done	To encourage public speaking and increase interview skills
Supporting Evidence	Students interact in lectures more than before the exercise.
Computer Information Technology	
What was Done	Downloaded and installed PHPMyAdmin to manage MySQL database. CITC1303
Why was it Done	Give students access to a fully functional SQL database.
Supporting Evidence	Students have been surveyed to determine the efficacy of the tool.
Computer Information Technology	
What was Done	Students use MS Word for their papers. CSIS 1000
Why was it Done	Majority of industries use a word processor for their correspondence.
Supporting Evidence	Students are able to submit assignments electronically, freeing them from the constraints of time and space
Computer Information Technology	
What was Done	In CITC 1302, students are required to research IPv6 and submit a report comparing it to IPv4.
Why it was Done	IPv6 is a new version of IP addressing which will eventually replace IPv4.
Supporting Evidence	Student work examples were submitted as student samples.
What was Done	In CITC 1302 students are required to design a network and specify the network addresses for each device.
Why it was Done	Students need to exit the course with a basic understanding of what is required to have a functioning network.
Supporting Evidence	They submit their network design as a final project.

Computer Information Technology	
What was Done	Students in CITC 1317 are required to write a PowerShell script as a final project.
Why it was Done	This allows them to put into practice the commands and skills they have learned throughout the semester.
Supporting Evidence	Students submit their scripts as a final project.

19. Standard 19 – Program Responsibility to Provide Information to the Public

The program must make available to the public via website, information on student performance and achievement as required by CHEA. This information shall be no more than a single click away from the degree program's Home Page and readily accessible to the public. Information provided shall comply with the institution's plan for public disclosure but must help the public understand how to judge the success of the specific program and program options under review.

Sources of potential information can include but are not limited to program student graduation rates; mean grade point averages; average years to complete the degree; student awards/scholarships received and the program's Outcome Assessment process and results; time to secure first position; average starting salaries; and. promotions achieved

Institutions are required to provide the hyperlink of where this information located.

The website for Computer Information Technology is https://www.chattanoogastate.edu/information-systems-technology.

IV. Appendix A

Jeremy Burchfield
Assistant Professor of Web Design

Education

University of Phoenix · 2013

Masters of Information Systems

Lee University · 2009

Bachelor of Science, Telecommunications

Teaching and Research Interests

Web Design

Information Systems

Web Development

Computer Repair

Graphic Design for the Web

Project Management

Use of Technology in the Classroom

iOS App Development

Android App Development

Mobile and Mobile Game Development

Certification:

Certified Internet Webmaster (CIW), Associates Certification – 2010

Professional Teaching License (State of Tennessee) - 2011

Adobe ACA Certification - *Dreamweaver, Flash and Photoshop*

(Projected completion, Summer 2016)

Jeremy Burchfield
Assistant Professor of Web Design

Teaching Experience:

Instructor, Web Design

Chattanooga State Community College · Summer 2014 to Current

Teach students the various stages of web design, from beginning to advanced, including database setup and deployment of content management systems. Introduce students to information technology, basic computer repair, and mobile web design. Equip students with the knowledge needed to pursue web design as a professional career path including the use of HTML5, CSS, Javascript, Wordpress, Adobe Dreamweaver, Flash, and Photoshopwith possible certification in Adobe Dreamweaver, Flash, and Photoshop. Prepare and deliver classroom lectures and presentations, create and grade assignments, coordinate and grade student presentations/projects.

Teacher, Web Design and Information Technology

Cleveland High School · Fall 2008 to Summer 2014

Teach students the various stages of web design, from beginning to advanced, including database setup and deployment of content management systems. Introduce students to information technology, basic computer repair, and mobile web design. Equip students with the knowledge needed to pursue web design as a professional career path including the use of HTML5, CSS, PHP, MYSQL, Javascript, Wordpress, Adobe Dreamweaver, Flash, Photoshop, and Fireworks with possible certification in Adobe Dreamweaver, Flash, and Photoshop. Prepare and deliver classroom lectures and presentations, create and grade assignments, coordinate and grade student presentations/projects. Also responsible for the maintenance and upgrade of the classroom's computer lab, software, server and school's web hosting.

Jeremy Burchfield
Assistant Professor of Web Design

Adjunct Professor, Web Design

Lee University · Fall 2012 to Spring 2014

Teach students the various stages of web design and mobile web design. Guide students into considering web design as a possible career path, equipping the student with knowledge in the use of HTML5, CSS, PHP, MYSQL, Javascript, Wordpress, Adobe Dreamweaver, Photoshop, and Fireworks. Prepare and deliver classroom lectures and presentations, create and grade assignments, coordinate and grade student presentations/projects.

Instructional Technology Assistant

Lee University · Fall 2005 to Summer 2008

Maintained Angel Learning Management System (LMS) including the setup and population of classes for various Lee University courses. Used programs such as Captivate and Camtasia to create tutorial videos, which instructed teachers in the use of Angel and the incorporation of new technology in the classroom. Designed web sites for faculty members at the university using the Adobe Creative Suite. Performed video editing using Final Cut Pro and Adobe Premiere. Maintained the training computer lab, which operated both Mac and Windows computers. In addition, assisted students from various classes across the Lee campus and instructed them in how to use technology to aid in the completion of classroom projects.

Freelance Web Design Experience

http://learnsomeweb.org/ · Jeremy Burchfield, Web Design Instructor Chattanooga State Community College (2014 to current)

This site was created got use in my Principles of Web Design. The course is taught at Chattanooga State Community College. The purpose of the site is provide supplemental material that goes along with the class textbook.

http://www.challengegolf.org · *Ron Potter (2006 to current)*

Created a website for the Challenge Golf Association. This golf ministry was created in Cleveland, TN and has since grown into a nationwide ministry with PGA endorsements and various church denominations that use this as outreach for un-churched men.

http://cmsatlas.jeremyburchfield.com/· *Ron Potter, CEO CMS-Atlas (2013 to current)*

Web site created for CMS Atlas Moving Company located in Johnson City. The purpose of the site is to offer general information about the company and provide a place for companies to contact CMS Atlas.

Cleveland High School (2009 to 2014)

Created a web site for Cleveland High School in Cleveland, TN. This site showcases all information and events that pertain to Cleveland High School. The CHS web site provides information about the school for students, parents and alumni.

CHS Counseling Department (2010 to 2014)

Created a web site for Cleveland High School Counseling department in Cleveland, TN. The purpose of this site is for parents and students to be able to access information that prepares students for success in the high school environment. In addition, parents can access grades and access scholarship information for their CHS students.

Cleveland High School Alumni (2012 to 2014)

Created a web site for the Cleveland High School Alumni of Cleveland, TN. The purpose of this site is to keep alumni of Cleveland High School up-to-date and to plan events specific to the CHS alumni community.

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Cell: 423-305-2172
rhc3175@gmail.com

RETAIL SALES PROFESSIONAL / SUPPLY CHAIN EXECUTIVE

- Proven ability to work closely with customers, to understand their needs and develop appropriate solutions
- Proven ability to train, motivate, and lead successful cross-functional teams
- Skilled at recognizing need for change and acting as change-agent to manage necessary changes
- Works closely with R&D, Engineering, Marketing & Sales on new product development projects
- Driven to provide safe work place environment for all associates
- Demonstrated skills in developing/evaluating/improving policies and processes
- Recognized for spearheading strategic planning and problem-solving projects in diverse settings
- Strong negotiation, contract management, mediation and presentation skills with all levels of internal & external customers and other stakeholders

PROFESSIONAL EXPERIENCE

CHATTANOOGA STATE COMMUNITY COLEGE ● Chattanooga, Dayton TN ● Jan 2017 – Present
Adjunct Professor – Business Department, Engineering & Information Technologies Division

Lead courses in various on-ground and online courses, including:

- ADMN 1311 – Word Processing
- BUSN 1305 – Introduction to Business
- BUSN 1370 – Spreadsheet Applications
- BUSN 2330 – Principles of Management
- CSIS 1000 - College Success Information Systems
- INFS 1010 – Computer Applications

LOWE'S COMPANIES, INC. ● Dayton TN ● 2011 – Present
Department Manager – Zone 2 – Aug 2012 – Jan 2017

Perform the assigned duties of Department Manager over Zone 2 – Flooring, Shelving, Windows/Walls, Kitchen Cabinets, Appliances and Paint – including but not limited to:

- Directing activities of Sales Specialists and CSA's in the various departments
- Often opening or closing one or more of these department with no other associate scheduled in the department
- Utilize computer technology while carrying out daily & weekly tasks such as;
  - Weekly Matrix Cycle Counts for Paint, Flooring & Appliances
  - Working Mark Down Report
  - Monthly Flooring roll goods Inventory Reconciliation
  - Submitting order requests for appliances, paint, flooring supplies and other items throughout the zone
- Whenever possible, handling customer and associate issues without having to involve ASM's or Store Manager
- Training and coaching associates with respect to their assigned responsibilities – both in zone 2 as well as associates from other areas in the store

Sales Specialist – Flooring – Nov 2011 – Aug 2012

Provide customer service, product knowledge and assistance in completing sales to customers anticipating a flooring project in their home or business.

- Work closely with customers to show develop options to address their flooring needs
- Make recommendations based on my understanding of the outcome they desire to achieve
- Work with customers to help them be comfortable with the type of sale their project indicates – either a retail sale or an installed sale
- Work closely with PSA's, Department and Zone Managers to ensure the department is maintained in a professional and orderly manner
- Assist PSA's during product line resets
- Assist customers in finding products in all other areas of the store – walking them to the particular location to find the product they seek
- Assist other departments in the store with zone recovery, product stocking and down-stocking
- Strive to develop team 'mentality' in Flooring department as well as all other departments
- Look for solutions to every problem – always try to provide an answer

Various companies ● 2008 – 2011
Consultant

Provided consulting services to several companies in the Charlotte NC area. Services included strategic sourcing for new product lines, development of contract packaging agreements and enhancement of current product lines. Following are some representative examples:

Radiator Specialty Company

- Worked various trade shows – demonstrating Smith & Wesson® Firearm Care product line, promoting product capabilities and selling to public
- Promotes product line with Law Enforcement Agencies and retail distributors around the country
- Developed PowerPoint presentations for distributions to retail customers and for use on web site
- Developed written instructions and guidelines for distribution to retail customers and for use on web site
- Developed signage for use in retail stores and trade shows
- Developed content and labels for DVD's that were distributed to retail customers around the country
- Developed and provided training seminars for use at Smith & Wesson® Customer Service group.
- Provided training seminars to marketing groups that represent the product line.

Rau Automotive

- Sourced components for new product line to be produced in-house
- Provides consultative services on a variety of topics including, regulatory issues

Third Party Logistics Services Provider

- Identify metrics that will best track company's sourcing and procurement activities
- Develop metric tracking system
- Refine ERP Purchasing Module utilization
- Developed Contract Packaging Agreement to be implemented with their suppliers

3D SYSTEMS CORPORATION ● Rock Hill SC ● 2008
Strategic Sourcing Manager
(Engineering/Development of 3-Dimensional Modeling Systems – see www.3dsystems.com)

Responsible for developing a strategic approach to procurement while working closely with engineering, sales and marketing to ensure a cost-effective and reliable supply chain

- Implemented lean cost savings initiatives, such as inventory reduction and monitoring, that reduced costs by over $172K in two months
- Negotiated supplier contracts to reduce costs for materials and services
- Established strict performance metrics to regulate internal and supplier performance
- Standardized procedures for supplier certification audits and ensured procurement process compliance with the enterprise resource planning system

RADIATOR SPECIALTY COMPANY ● Charlotte NC ● 2000 – 2007
Director, Materials Management
(Process Manufacturing - Radiator Specialty is a manufacturer/distributor of chemical consumer products for the automotive repair & DIY industries - see www.GUNK.com)

Directed restructuring of Materials Group to reduce inventories, reduce delivered costs and improve service to internal & external customers and other stakeholders. Instrumental in managing the full product life cycle for branded and private label industrial & consumer products. Works closely with large retail customers – Wal-Mart, Lowe's, The Home Depot, Advance Auto Parts, Pep Boys, NAPA, etc. (Director, Materials Management position was eliminated during corporate restructuring)

- Developed Side-Stacks for use at Lowe's, Wal-Mart, The Home Depot, Advance Auto, etc.
- Work closely with National Sales Managers to develop products, displays and promotional material for use in retail locations
- 50% reduction in finished goods & raw materials inventories in first year. $800,000 reduction in month-end inventory through origination and management of consignment programs
- $2,700,000 (22.5%) combined savings/cost avoidance negotiated on primary package line
- $750,000 minimum received annually on rebate programs negotiated with primary suppliers
- $100,000 tooling costs avoided through negotiation of supply agreement with plastic bottle suppliers
- 7% one-time cost savings achieved through collaboration with contract packager and packaging suppliers to take advantage of unique situation in chemical market place
- Co-managed all costing initiatives – both for branded and private label products
- Co-managed team that successfully implemented ISO9001:2000 program
- 33% reduction in sku's and 50% increase in OP in business unit through team I co-chaired

GILES & KENDALL, INC ● Huntsville AL ● 1998 – 2000
Vice President, Manufacturing
(Giles & Kendall is a manufacturer/distributor of cedar building products for the DIY & construction industries)

Managed all operational areas including manufacturing, raw material/packaging/MRO purchasing, materials management, inventory management, production planning & scheduling, maintenance and engineering. Major element of this position was focus on safety. (I was recruited to Radiator Specialty Company)

- Eliminated lost time accidents during first year with massive culture change campaign
- 23% efficiency improvement with increased yields and improved productivity
- Managed modernization of existing production lines and installation of new lines and equipment

FLEET AIR INDUSTRIES, INC ● Oneida TN ● 1996 – 1998
Manager, Operations & Strategic Planning
(Fleet Air is a manufacturer/distributor of fiberglass hardtops for the automotive OEM & aftermarket industries)

Provided structured leadership necessary for survival of small business. Restructured financial obligations of company in manner that would allow ongoing debt service with cash generated from operations. (Interim contract position after sale of Hartco – I was recruited to Giles & Kendall)

- Developed and implemented purchasing and inventory management system
- Developed and implemented costing procedures that resulted in a structured pricing system which supported acceptable margins
- Developed and implemented controls, policies and procedures in materials management, safety, accounting, environmental and sales management
- Restructured financial obligations of company in manner that would allow owner to properly manage debt

HARTCO FLOORING COMPANY ● Oneida TN ● 1994 – 1996
Vice President, Materials Management
(Hartco is a manufacturer/distributor of hardwood flooring products for the DIY & construction industries)

Deployed significant changes in purchasing strategies, warehouse/inventory management, maintenance/MRO purchasing & inventory strategies and production strategies at seven locations in two states. (Hartco was sold to competitor)

- 42% inventory reduction through the use of improved controls and monitoring systems
- 99.4% error free shipments attained in first year
- Implementation team leader for MAPICS XA Purchasing, Inventory and Accounts Payable modules
- Implementation team leader for Dancik Floor Vision Order Entry, Customer Service and Sales Management modules
- Developed and coordinated “managed transportation” agreement which resulted in Hartco “fleet” without the hassles of fleet ownership

USG CORPORATION ● 1983 – 1994
DAP, INC (Division of USG) ● Dayton OH ● 1990 – 1994
Director, Procurement & Physical Distribution
(DAP is a manufacturer/distributor of caulks/adhesives/sealants, etc. for the DIY & construction industries)

Developed and implemented consignment programs which improved material availability over JIT programs while reducing DAP balance sheet inventory levels. Managed procurement processes in seven plants located in six states. (I was recruited to Hartco)

- Led department in ISO9001:1994 certification process
- Developed & taught continuous improvement and team building programs
- Developed and published Materials Management Policies and Procedures Manual
- Assisted senior management in sale of DAP

UNITED STATES GYPSUM COMPANY (Division of USG) ● Atlanta GA & Chicago IL ●1983 - 1990
Purchasing Manager
(United States Gypsum is a manufacturer/distributor of building products for the DIY & construction industries)

Developed and managed service & construction contracts and purchasing department business plan. Managed raw material and packaging purchases for 38 plants throughout the US. (My move to DAP was an internal promotion)

- Co-directed a business plan for repositioning and subsequent sale of $120,000,000 subsidiary
- Co-developed a PC based purchasing system for the USG corporate office
- Co-developed a five gallon package – combining HDPE closure with metal container
- Managed six and seven figure maintenance & installation contracts through all Southeastern region plants

EDUCATION, CERTIFICATIONS AND ASSOCIATIONS

MBA, Business Administration & Organizational Behavior - Benedictine University
MMIS, Management Information Systems - Benedictine University
BSAE, Aerospace Engineering - Auburn University
C.P.M. – Certified Purchasing Manager – through ISM (formerly NAPM)
Six Sigma Green Belt
Continuous Improvement Trainer & Team Development – Tennessee Associates International
USMC OCS
Commercial Pilot License (ASEL) with Instrument Rating

Brennan Huber

Cell: 931-570-0365 | Email: stixhuber@gmail.com

Education

Bachelors of Science University of Tennessee - Chattanooga **May 2018**

- Graduated *cum laude* in Computer Science - Scientific Application

Masters of Science University of Tennessee - Chattanooga **August 2020**

- Computer Science - Cyber Security
  - Graduate Researcher: Security of Internet of Things enabled devices, Security of Smart Cities, Blockchain, Software Defined Networks, and Machine Learning.

Doctor of Philosophy University of Tennessee – Chattanooga **August 2020 – Present**

- Computational Science
  - Graduate Researcher: Security of dynamic IoT Networks, Trust Management,
  - Connected Vehicles, Blockchain, Machine Learning

Technical Skills

Experienced Technologies

- Java 7.0+, Python 2.0+, Oracle 18.0+, PHP 5.0+, C#, Unix Environments

Professional Experience

BlueCross BlueShield of Tennessee

- Applications Developer/Analyst **September 2019 – Present**
  - Lead an effort to eliminate technical debt by converting mainframe COBOL jobs into maintainable C# programs.
- PPM Application Administrator **May 2017 – September 2019**
  - Presented and developed processes that provide data analysis and reporting for requests contained within Project and Portfolio Management tool.
  - Developed automated processes within the tool through API integrations with other enterprise-wide technologies.

Adjunct Professor – Chattanooga State Community College **July 2019 - Present**

- Designed lectures, assignments, and projects for a 'Data Structures and Algorithms' and 'Object Oriented Design' class for students to attend for two hours, four times a week.

Teaching Assistant -University of Tennessee Chattanooga **August 2017- May 2018**

- Dr. Farah Kandah: Advanced Computer Network Security
  - Constructed assignments, labs, and projects in order to facilitate learning the concepts and security of the standard OSI computer networks model.

Memberships

UTC Cross Country/Track and Field **Fall 2013 – Spring 2018**

- Captain Cross Country Team

Boy Scouts of America **2007-2012**

- Eagle Scout, December 2010

Publications

[1] Kandah, Farah, Brennan Huber, Anthony Skjellum, and Amani Altarawneh. "A blockchain-based trust management approach for connected autonomous vehicles in smart cities." In *2019 IEEE 9th Annual Computing and Communication Workshop and Conference (CCWC)*, pp. 0544-0549. IEEE, 2019.

[2] Kandah, Farah, Brennan Huber, Amani Altarawneh, Sai Medury, and Anthony Skjellum. "Blast: Blockchain-based trust management in smart cities and connected vehicles setup." In *2019 IEEE High Performance Extreme Computing Conference (HPEC)*, pp. 1-7. IEEE, 2019.

[3] Coleman, Jacob, Farah Kandah, and Brennan Huber. "Behavioral model anomaly detection in automatic identification systems (ais)." In *2020 10th Annual Computing and Communication Workshop and Conference (CCWC)*, pp. 0481-0487. IEEE, 2020.

[4] Huber, Brennan, and Farah Kandah. "Behavioral Model based Trust Management design for IoT at Scale." In *2020 International Conferences on Internet of Things (iThings) and IEEE Green Computing and Communications (GreenCom) and IEEE Cyber, Physical and Social Computing (CPSCom) and IEEE Smart Data (SmartData) and IEEE Congress on Cybermatics (Cybermatics)*, pp. 9-17. IEEE, 2020.

[5] Kandah, Farah, Ilker Ozcelik, and Brennan Huber. "MARS: Machine learning based Adaptable and Robust Network Management for Software-defined Networks." In *2020 10th Annual Computing and Communication Workshop and Conference (CCWC)*, pp. 0586-0591. IEEE, 2020.

[6] Kandah, Farah, Amani Altarawneh, Brennan Huber, Anthony Skjellum, and Sai Medury. "A Human-Understandable, Behavior-based Trust Management Approach for IoT/CPS at Scale." *INTERNATIONAL JOURNAL OF COMPUTERS AND THEIR APPLICATIONS* (2019): 172.

Justin K. Joshuva

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San Antonio, TX, 78266
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EDUCATION

PhD in Computational Science: Computer Science

University of Tennessee at Chattanooga, Chattanooga, TN

2018 – Present

- I am currently enrolled in PhD program in Computational Science: Computer Science

Master of Science in Computer Science: Information Security & Assurance

University of Tennessee at Chattanooga, Chattanooga, TN

2016 – 2017

- I completed my Graduate work with a Master of Science in Computer Science with concentration in Information Security & Assurance.
- I have completed 18 hours of graduate level Mathematics courses
- Thesis: Identifying Users on Social Networking Using Pattern Recognition in Messages.

Bachelor of Science in General Mathematics

University of Tennessee at Chattanooga, Chattanooga, TN

2010 – 2015

- I completed my undergraduate work with a Bachelor of Science in Mathematics and minored in Computer Science.
- Class projects that consisted of Java, C++, and statistical data analytical tools such as R, SPSS, Minitab and Matlab.

WORK EXPERIENCE

Computer/Data Scientist

U.S Army - NETCOM, San Antonio, TX

May 2019 – Present

- Computer Scientist for 106th Signal Brigade

Adjunct Instructor

Chattanooga State Technical Community College, Chattanooga, TN

January 2017 – Present

- Instructor for Database Concepts, Engineering programming, Java I, II, Assembly and Computer Organization, Statistics and Quality Control and Engineering Math.

Graduate Assistant

University of Tennessee at Chattanooga, Chattanooga, TN

August 2016 – 05/2019

- Assist professors in grading student submissions
- Instruct student in Java, Database Management using Oracle.

Professional Tutor

Chattanooga State Technical Community College, Chattanooga, TN

June 2016 – December 2016

- Tutored students from a variety of math classes (College level Math, Algebra1 and 2, Statistics, Business Math, Calculus I - III, Differential Equations and Linear Algebra) in one on one and groupsettings

Primary Teacher / I. T Coordinator

Abundant Life International School, Phnom Penh, Cambodia

Aug 2013 – Jul 2015

- As a lead teacher, I was responsible for organizing and assigning primary grouping to two classroom teachers.
- Lead teacher for Math, Science, History, Health and Computer class for grades 4-8
- In charge of various Information technology tasks.
- Successfully designed and implemented school-wide computer lab for student use.

Teaching Assistant / Professional Tutor

Chattanooga State Technical Community College, Chattanooga, TN

Aug 2008 – May 2013

- Assisted teacher by performing teaching or related duties to a college level math class, such as teaching courses, developing teaching materials, tutoring student, and grading examinations.
- Assisted teacher in subjects such as Elementary Statistics, College Algebra and Contemporary Math.
- Tutored students from a variety of math classes (College level Math, Algebra1 and 2, Statistics, Business Math, Calculus I - III, Differential Equations and Linear Algebra) in one on one and group settings.

Basic Trainee

U. S Army, Ft. Benning, GA

Nov 2007 – Jun 2008

- Completed Army training.

- COMPTIA Security+: 12/31/2022

- Proficient in Microsoft Office products, Microsoft windows, and iOS applications.
- Have knowledge in mathematical analysis tools such as R, SPSS, SAS, and Matlab.
- Have knowledge in programming languages such as Java, C++, HTML, Visual Basic, and Python.
- Have knowledge in database management software such as Oracle, and SQL Server.

Hanadi Mohamed

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More than fourteen years experience in instructing, applying constructive and teaching methods that promote a stimulating learning environment.

- **Programming:** Java, C++, MATLAB, Visual Basic
- **Database:** SQL, Oracle, Access
- LMS (Blackboard and D2L)
- Curriculum Design
- Lesson Planning
- Learning Evaluating
- Classroom Technology
- Classroom Management
- Fluent in English and Arabic

PROFESSIONAL EXPERIENCE

Programming Assistant Professor **8/2020- present**
Chattanooga State Community College, Chattanooga, TN

- Teaching aspects of programming and problem-solving process in Computer Science 1 (CISP1010) and Computer Science 2 (CISP 1020). NetBeans is used to create Java programs and UML diagrams.
- Instruct Computer Organization and Assembly Language, including number systems, Boolean algebra, digital circuits, processor, pipelining, memory and assembly language programming.
- SkillsUSA advisor of Computer Programming Chapter.
- Student Academic Appeal Committee member.

Programming Instructor **8/2017- 8/2020**
Chattanooga State Community College, Chattanooga, TN

- Teaching aspects of programming and problem-solving process in Computer Science 1 (CISP1010) and Computer Science 2 (CISP 1020). NetBeans is used to create Java programs and UML diagrams.
- Instruct Computer Organization and Assembly Language, including number systems, Boolean algebra, digital circuits, processor, pipelining, memory and assembly language programming.
- Educate Computers in Engineering Technology (ET 115); Visual BASIC programming, word processing, spreadsheets, and presentation software.
- Teaching the structure, design, and implementation of computer programming for engineering applications; flow diagram representation of efficient algorithms and proper syntax of C++ and MATLAB computer languages in Engineering Programming course (ENGR 225).
- SkillsUSA advisor of Computer Programming Chapter.
- Student Academic Appeal Committee member.

Substitute Teacher **10/2016 – 5/2017**
Gwinnett County Public Schools, Atlanta, GA

- Implement existing lesson plans in a manner that ensures the integrity of academic time and motivates students to learn and participate
- Instruct students regarding a variety of classroom topics and courses of instruction
- Follow lesson plans as required by school

Arabic Instructor
Atlanta International Language Institute, Atlanta, GA **10/2016 – 1/2017**

- Implemented instructional activities that contribute to a climate where students are actively engaged in meaningful learning experiences
- Planned lessons and developed a deep knowledge of the various curricula
- Identified, selected, and modified instructional resources to meet the needs of students with varying backgrounds and learning styles.

Teaching in Arabic **02/2016- 06/2016**
University of Sharjah, Sharjah, United Arab Emirates

- Taught three sections (total of 61 students) Introduction to Information Technology in Arabic language, provided materials, discussions, and prepared quizzes on line using Blackboard learn

Adjunct Faculty **03/2014 - 06/2015**
Higher Colleges of Technology, Dubai, United Arab Emirates
Institution of higher learning in UAE providing post-secondary education in Business, Education, Engineering Technology, Computer & Information Science, Applied Communications and Health Sciences.

- Taught Databases through lectures, discussions, examples of real-life scenarios, case studies analysis, in-class exercises and used APEX to explain SQL
- Taught Information Assurance using a combination of lectures, practical demonstrations, hands on construction and exploration of components and in-class exercises
- Built interactive and engaging lessons to enhance the material using SoftChalk, resulting in 90% of students agreeing that the class was interesting

Lecturer **01/2004 - 08/2012**

University of Sharjah, Sharjah, United Arab Emirates

An Emirati private national university offers academic programs in Arts, Humanities and Social Sciences, Medical and Health Sciences, Engineering and Applied Sciences, Business, Communications, Law, Fine Arts and Design.

- Designed the curriculum of System Analysis and Design, coordinated and prepared the teaching material
- Increased the achievement of learning gain by 10% by separating the outcomes for each phase of SDLC
- Taught Database Applications, creating databases using Microsoft Access, and information management. Achieved 93.8% leaning gain; students were able to create tables, queries, design forms, and reports
- Taught Introduction to Web Design, designing web pages using HTML Language and creating web sites using Web Design Software. Achieved 83.1% learning gain; students were able to use web design software components, create tables and frames, and manage their web sites

Teaching Assistant **04/1996 - 04/2001**

University of Khartoum, Khartoum, Sudan

Recognized as a top university and a high-ranked academic institution in Sudan.

- Instructed Computer Architecture, System Analysis & Design, Programming languages (BASIC, PASCAL, C)
- Supervised thesis projects of System Analysis and Design for undergraduate students
- Handled tutorials and testing follow ups; coordinated and prepared examinations

EDUCATION

- PhD Computational Science: Computer Science, University of Tennessee Chattanooga (In progress)
- Master of Computer Sciences, University of Khartoum, Khartoum, Sudan 2001
- Bachelor of Computer Sciences, University of Khartoum, Khartoum, Sudan 1995

Professional Development/Affiliations

- Summer Working Connection, Texas, Programming Essentials in Python, 2020
- Summer Working Connection, Texas, Big Data Analytics and Data Visualization, 2019
- SubDiploma: stedi.org, UtahState University, Substitute Teaching Institute, 2016
- Learning How to Learn: Powerful mental tools to help you master tough subjects, San Diego, 2015
- Blackboard Learn Instructor, United Arab Emirates, 2015

SAVITHA PINNEPALLI

Department Head& Assistant Professor, Computer Information Technology

Chattanooga State Community College, 4501 Amnicola Highway, Chattanooga, TN 37406

2463 Bridge Circle, Apt 107
Chattanooga, TN 37421

Email: Savitha.Pinnepalli@Chattanoogastate.edu
Savitha.pinnepalli@gmail.com
Office: (423)-697-4756
(Preferred) Cell: 225-772-4372

Education: 1998-1999 M. S. (Engineering Science), Louisiana State University
1992-1994 M. S. (Power Electronics), Gulbarga University, India
1987-1991 B. E. (Bachelors of Electronics Engineering), Bangalore University, India

Certification: CIW– IBA Internet Business Associate certified Instructor – Summer 2014
Certified Microsoft Office Specialist – Word, Excel, Power Point – Spring 2017
Project Management Institute certification – Spring 2020

Citizenship United States

Awards: Tiger Athletic Foundation undergraduate teaching award – March 2001
LCTCS- Outstanding Faculty Teaching Award for River Parishes Community College – March 2012.
A Neural Network based data compression technique – OIP File 9922 (patent pending)
Salzburg Fellow (Austria) – Summer 2011
NSF ATE Bioscience Industry Fellowship Project Fellow – Summer 2014
NSF ATE National Convergence Technology Center (CTC) EnCase Cyber Forensics workshop December 14-16, 2015.
NSF ATE National Convergence Technology Center (CTC) AWS - Amazon Web Services and iOS Swift programming Summer 2016 in Florida state college and Collins College.
NSF ATE National Convergence Technology Center (CTC) Python Programming at Florida state college June 2016.
NISOD Faculty Scholarship recipient 2018, Austin, Texas
NSF "2018 Manufacturing education using virtual environment resources workshop" at Tennessee Tech, college of Engineering.
NSF 2018 Additive Manufacturing Workshop – 3d printing Nashville, TCAT
NSF 2018 working connections IT Faculty Development Institute – Python Programming and Raspberry PI.
NSF 2019 Leadership Academy and AWS Cloud Foundations – summer working connections 2019.
NSF 2020 Necessary Skills Now from Center for Occupational Research and Development online course.
NSF ATE National Convergence Technology Center (CTC) Hybrid App Development using React Native 2020 (Summer Working Connections)
NSF National Convergence Technology Center Microsoft Power Platform Tools (Winter Working Connections)
CHATECH (Chattanooga Technology Council) nomination for "Unsung Tech Hero of the Year 2020"
NSF 2020 Third Smart Manufacturing Workshop (drone programming) hosted by UTC, Chattanooga

Grants:

- Principal Investigator on Board of Regents Grant titled "Enhancement of Classroom Instructions via Integrating Technology into Classroom. Funds Received $40,428.01.

  Title: Enhancement of Classroom Instructions via Integrating Technology into Classroom. Funds received $40,428. Laptops on Mobile carts were used to train Computer Science students with Office Applications and Web Design using Dreamweaver Software. PI on this grant.
- Principal Investigator on Louisiana Campus Compact Ready Campus Course Integration Grant Program $10,000
- Board of Regents Grant: Working on Hybrid Grant with RPCC Faculty.
- Sponsored Todd Borne RPCC student for 2009 Carter Academic Service Entrepreneur

CASE Grant through Louisiana Campus Compact. Mr. Borne is the recipient of the Award and will be working on the Service Learning Grant for summer 2009 semester with the Ascension Council on Aging.

- Principal Investigator on Board of Regents Grant on Podcasting. Title: Podcasting Used to Address Diverse Learning Styles and Metacognition to Teach Students How to Learn. Project was funded for $60,634. LCTCS Community college Faculty and Staff participated in the 6 days' workshop at River Parishes Community College. A training on Learning styles and metacognition was conducted by Dr. Saundra McGuire from LSU. A two day training on podcasting software Camtasia studio from TechSmith company was organized at RPCC. Matchware company trained on mindview, mediator and screencorder software. The participants also received training on web design and virtual dissection software during the workshop. Several Technology tools were shared with the participants. PI on the podcasting grant.
- Co-Principal Investigator on ARMS Achieving Readiness in Math and Science [ARMS] Across the River Parishes grant sponsored by BOR. Funds received $65,000.
- PI on BOR grant for 2012 titled "Faculty Orientation Geared towards Student Engagement Techniques, Assessments and Technology Tools to Increase Retention in Online Classes" for $101,867.
- Submitted AAUW Community Action Grant for Rhodes State College. (2 years, $10,000)
- Received $5500 funding through Levy grant at Marshalltown Community College to purchase Vex Cortex Robots for the Introductory Programming class.
- Received $500 grant from Wells Fargo Bank in Marshalltown for the Cyber Seniors program for Spring 2016 semester.
- Received $750 from Mechdyne and Emerson Fisher to conduct Hour of Code workshops to promote Computer Science.
- Received NSF ATE Diversity Summit by National Technology Convergence center grant to recruit and retain Latino students in IT field. Grant funding received $10,000
- TAF (Technology Assessment Fees) requests at Chattanooga Community College Total Funds: $168,160 in approval process for Cyber Defense Lab, Programming Lab and Mobile IT Lab.
- SERS Student engagement retention and success grant –submitted a $25,000 grant to TBR to assist our students in developing leadership skills, tutoring skills and Industry and Business tours to assist TN Promise and TN Reconnect students.
- Funds received from SIP grant for implementing Raspberry Pi in college success class for $650.00
- NSF Gif City CS4All with UTC was submitted but not funded.
- NSF STEM AI - Path for AI Active inclusive path for artificial intelligence $308,000 submitted with UTC partnership.

Experience: **2018 – current** – Adjunct Instructor at UTC teaching CPSC1100 Java course

2017 – current Department Head& Assistant Professor, Computer Information Technology, Chattanooga State Community College. Supervising 6 Faculty members and 5

Tutors in the IT HUB. Responsible for AAS programs in Cyber Defense, Networking and Programming. Scheduling, training and day to day operations of the Department, working on Budgets, Grants and Serving on TBR and College committees like Leadership committee, State Wide dual credit committee, Dean Search Committee. Leading with the coordination of Industry Advisory Board. Working with Chattanooga Technology Council for Scholarship for IT students. Teaching System Analysis and Design CITC 2335, Java Programming CISP 1010. Member of Chattanooga Technology Council, Serving on UTC Chattanooga State peer review committee, Prior Learning Assessment Committee and Internal Curriculum review committee, Data Team, Global and cultural awareness Committee. Serving on Statewide (TN) curriculum committee, Tn eCampus and Service-Learning Committee for Service Learning and Volunteerism conference. Serving on Data team and ATD achieving the Dream team. IT HUB Faculty Advisor and tutoring center coordinator where 5 tutors were hired, scheduled, trained, oriented and administered (timesheets). Implemented Girls Scouts STEM day, Hour of Code (partnering with Girls Inc and Million Women Mentors), Cyber Seniors program in partnership with Tech Goes Home. Organized field trips to DC blox and Oak Ridge National Labs. Implemented IT Entrepreneurship HIPS project. (High Impact practices).
2017- Certified Microsoft Office Specialist – Word, Excel, Power Point & Access
2017 – Way up Conference in Coralville Iowa. Women in Higher Education – served as Board Member on the planning council.
2016- Summer Working Connections, AWS, IOS Swift, NSF sponsored PD at Florida State College Jacksonville and Collins College Dallas.
2016- Americorps Vista Summer Associate StemUp Baton Rouge, Camp Instructor.
2015 – 2017 Associate Professor, Computer Software and Technology, Business and Technology Division, Marshalltown Community College, Marshalltown, Iowa. Taught Keyboarding, Certiport Microsoft Certification courses for office 2013 using pearson MYIT Lab and office 365 applications word, excel, access, power point, Programming logic and design using Robot C and Web design. Served on Diversity Committee https://www.youtube.com/watch?v=aZa5EglAe_A , Faculty Representative to Marshalltown Community College Board, Lego League Committee, Conducted Hour of Code and Cyber Seniors Program https://www.youtube.com/watch?v=MhhUjM6Mm3M. Attended Cyber Forensics Workshop hosted by NSF ATE Collin College National Convergence Technology Center (CTC).
2015 – 2016 Adjunct teaching online class at Nunez Community College, Louisiana.
2014 –2015 Chair / Assistant Professor Information Technology, Rhodes State College, Lima, OH, 45804. Duties include mentoring, scheduling, training and performance evaluation of faculty for Digital Media, Web programming and Networking programs. Developing certificates and programs. Revising curriculum to meet industry demands. Maintaining corporate partnerships and liaison for IT advisory boards. Interfacing with high school, Industry and community partners. Advising students on careers and connecting them with employers. Recruiting students for IT majors. Presenting in state and local IT based conferences. Daily supervision to Information Technology faculty. Approve travel and professional development requests. Accountable for program budget. Update courseleaf Catalog. Work with IR for strategic planning for college planning process. Authorizing PARS. Recommend equipment / software purchases to the Dean. Working with College grants. Attendance tracking of Faculty and students. Ordering text books. Advise students academically and handle student issues and problems as needed. Approve prerequisite waivers to students, credit for life experience, transfer credit, proficiency exams or test out exams. Approve supplies for the department. Work on articulation agreements with four-year colleges and universities. Serve on College

committees. Chaired IT/ Global Club to bring Diversity awareness to Rhodes State College Students.

2014 Summer: Instructor, Pyfun Programming Camp, LSU. Taught Python programming to k-12 students.

2008 - 2014: Assistant Professor, Computer and Information Systems, (RPCC) River Parishes Community College. Teaching Microsoft Office Suite 2007, Adobe software products for Web Design using Dreamweaver, fireworks, flash, Adobe premium pro video editing software, Programming in C++, Visio Software for flowcharting. Instructing students in classroom and lab environment using multimedia tools. Administering
discussions, class materials etc. using Blackboard/ Moodle/Angel/Canvas. Classes are taught using laptops and wireless internet connection. Group projects have been published on the web at the following link http://www.rpcc-cis.com
Reviewer for National Science Foundation ATE – Advanced Technological Education proposals December 2008. Selected for Salzburg Global Seminar in Austria, an International Study abroad program.
Institutional Service
2010 – 2012 Faculty Senate President
2012 – 2014 Faculty Senate President
Chair, Computer Science / IT peer group LCTCS
Served as Committee chair for the Global Citizenship Committee.
Served as Chair for the Information Technology Computer Club Committee. Member of Service Learning Committee.
Member of Science Club.
Member of RPCC College Recruiting Committee. Member of
CTECH, Center for Teaching Excellence. Member of Christmas
planning Committee.
2013 – Adjunct Computer Science Instructor, Nunez Community College. Taught Survey of Microcomputer Applications using MS Office 2010.
2012 - Adjunct Computer Science Instructor, Fletcher Technical Community College. Taught Introduction to Computer Applications using MS Office 2013
2011 Summer: Interned at Integrated Business Solution and learnt Mobile App Development using xcode.
2005 - 2007: ERA (Electronic Research Administration) Manager, Office of Sponsored Programs, LSU. Administer institutional access to sponsors. Liaison between administrators and developers implementing proposal routing system. Train users and develop training materials (Power Point, PDF, videos) in using new electronic Sponsored Programs Systems (SPS) implemented. Generate reports for analysis using tools such as SAS/QMF/Access. Maintaining OSP Website. Created Online SPS Training Video using media site software.

2006: Adjunct Instructor BRCC (Evening): Taught 'Programming in C++ using Visual Studio and Microsoft Office Suite 2007 including Power Point. Training aids include Thompson Course Technology's SAMxp/TOM.

2005: (Fall) Adjunct Instructor, River Parishes Community College, Sorrento, LA

1999 - 2005: Instructor, Department of Computer Science, LSU (Louisiana State University). Taught courses such as Programming in C, C++, Computer Architecture, and Microsoft Office Suite.

Tailored courses to meet needs of majors, non-majors, and needs of other departments. Advised students during spring testing. Worked as department liaison to recruit high school students and promote department in fall fest.

2001 - 2005: Coordinator, Computer Science Tutorial, Center for Academic Success. Coordinated tutorial help for students in undergraduate computer programming courses. Administered time and attendance of tutors. Trained tutors to assist students in different programming languages like C, C++ and Java.

2005 - Spring: Coordinator, START (Student Technical, Application, and Resource Training program at LSU. Coordinated training of students in office applications such as MS Office, Flash etc. Scheduling of classes/trainers. Administered time and attendance on time sheets of student workers and graduate students.

2003 - 2004: Instructor, Graham Hall IT residential College, LSU. Customized CSC Courses for IT Residential College. Course instruction included web-based training using SAM/TOM, Electronic Smart board.

2003 (Summer): Trained High School teachers / Dr Isaiah Warner's Chemistry Group. Custom courses to instruct teachers and researchers in MS office suite to format Research Papers.

2001 (Summer): Programming Contractor, Louisiana Board of Regents: Programmed a web-based interface to assist researchers submit proposals, using ESQL/C and PERL.

2005 (Summer): Computer Analyst, LSYOU, LSU

2000 (Summer): Network Administration, LSYOU, LSU

1999 (Summer): Network Administration, LSYOU, LSU:
Assisted staff and students with PC–related and network issues.

1998 - 1999: Grad. Assistant (Network Admin), Dept. of Biological Sciences, LSU. Maintained windows and Mac-based labs. Assisted faculty/staff with PC needs.

1994 – 1996: Lecturer, Siddaganga Institute of Technology, Tumkur, India: Instructed under-graduate' students in various electronics engineering courses and coordinated labs. Administered girls' dorms of about 150 girls.

Teaching Skills:

1999 - 2005 Instructor, Department of Computer Science, LSU. Courses taught include: Computers in Society (CSC 1100)
Introduction to Programming in C I, II(CSC 1250, CSC 1251) Programming Application Statistics in C (non majors) (CSC 1248) Computer Organization (CSC 2280)
Introduction to Computer Science with C++ I, II (Engineers C++)(CSC 1253, CSC 1254)

2006 – 2008 Baton Rouge Community College (BRCC) Multimedia and Web Design using Dreamweaver (CIST 290)
Programming and Algorithm Design using Visio Flowcharts (CSCI 192) Programming in C++ (CSCI 193, CSCI 194)
Introduction to Computer Technology (CSCI 101)

2008 – 2014 River Parishes Community College
Software Applications I, II (Office Suite 2007) (CSCI 2010, CSCI 2020)
Introduction to Computer Technology (CSCI 1010) Web Design using Dreamweaver – CSCI 2025 Introduction to Computer Programming – CSCI 1200

1994 -1996 Lecturer, Siddaganga Institute of Technology, Tumkur, India: Taught Power Electronics, microprocessors and handled various labs for junior and senior students.

Web Page: Projects:

Tiger Athletic Foundation Database: A prototype of a database was developed for Tiger Athletic Foundation (through ISDS). MS Access was used as the database and Visual Basic 5.1 was used as front-end.

Software Skills:

C, C++, Java, Python, R, Matlab, HTML,CSS, FORTRAN 77, Clisp, Prolog, Word Processors (MS Word, WordPerfect etc.), Presentation packages (PowerPoint), Database Packages (File Maker Pro, MS Access etc.), Visual Basic, Crystal Reports, Dreamweaver, Fireworks, Flash, Adobe premium Video editing software, FrontPage, Perl, IBM Mainframe and SAS programming, flowgorithm, Visio flow charts, Visual logic Flowchart, Visual C++ .Net programming, Alice (3D) programming, SQL, Adobe Creative Suite CS3 (Adobe PDF writer). Camtasia Studio, Mediator, Adobe Flash. Operating systems: UNIX (Solaris, Digital, Linux), DOS, Win 95/98, Win NT, Win XP, Win 7/8, Mac OS

Committees

IAB Industry Advisory Board, Chattanooga State Community College
Data Team with ATD coaches, Chattanooga State Community College
SACS COC, Virtual tour committee, , Chattanooga State Community College
Student Research Creative Showcase Committee, Chattanooga State Community College
HIPS High Impact Practices, Chattanooga State Community College
Hour of Code, Chair, Chattanooga State Community College
Million Women Mentors, planning committee, Tennessee E-Learning Committee
Faculty representative and Member of the Chancellor's Cabinet at RPCC

Member of 10th Anniversary Committee at RPCC
Louisiana Women in Technology , Member

Professional Activities:

Java and eclipse training certification by IBM at LSU.
Attended .Net training by Microsoft at LSU.
Participated in University College Majors Fair at LSU.
Participated in recruiting of high school students to computer science on Tiger Dayat LSU.
Advising in the spring invitational for College of Basic Sciences at LSU.
Worked with LSYOU, Louisiana State youth opportunities unlimited during two summers.
Certification in UNIX operating system from India.
Certification in data structures and programming in C.
Attended Faculty Development seminars and workshops in power electronics in India.
Attended Faculty Development seminars in analog and digital communications in India.
Trained high school teachers in the HHMI (Howard Hughes Medical Institute) professors program at LSU in MS Office applications during summer
Trained Dr. Warner's Chemistry group on formatting research papers during summer.
Trained entire LSU campus faculty, staff and administrators to use the electronic proposal submission system (sponsored programs system)
Conducted events on RPCC Campus for Computer Club, Global Club and STEM club.

Randy Ricketson
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Cleveland, Tn. 37312
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Professional Summary

- Knowledge of Windows Server 2000, 2003, 2008, and 2012 administration
- Knowledge of various Unix flavors including AIX, Ubuntu, and Suse
- Knowledge of TCP/IP networking including DHCP, DNS, SMTP, FTP
- Experience with SQL 2000/2005/2008
- Experience with IIS administration
- Experience with ISA Server 2004 administration
- Experience with document imaging solutions such as Hyland OnBase

Technical Summary

- Setup and configure Active Directory, DHCP, and IIS servers including user access, DHCP pools
- Configure SQL 2000 and 2005 instances. Manage all aspects of the server including user access, maintenance plans, running queries, and modification of databases. Migration of databases from SQL 2000 to 2005
- Use network monitoring tools such as Wireshark, Orion, netstat, nbtstat
- Interpret email headers to locate sources of incoming messages
- Use various networking tools such as WhoIS, SamSpade, ARIN databases, etc.
- Troubleshoot hardware and software issues and perform or recommend repairs
- Install and configure Microsoft ISA Server 2004 firewall
- Setup and configure Shavlik and WSUS software for patching of servers and workstations
- Setup and configure SpySweeper server.
- Monitor Anti-virus repositories and verify updates of servers and workstations
- Investigate intrusions of servers making note of time stamps and locate backdoors, services, etc.

Experience

Instructor *Chattanooga State Community College, Engineering and Information Tech, 01/2013 – Present*

- Lead instructor of the Network Management program for the institution
- Teach networking, server, and security classes
- Advise students in career paths and courses
- Maintain networking lab and provide students assistance with coursework

Adjunct Faculty *Mountain View College, Electronics Technology, 10/2007-12/2012*

- Teach Networking Fundamentals class
- Teach Personal Computer Hardware class
- Teach AC Circuits electronics class
- Teach DC Circuits
- Teach Microprocessor and Memories class

System Administrator *Dallas Baptist University, Information Technology, 10/2010-12/2012*

- Monitor, configure, and support AIX 5.2, AIX 5.3, AIX 6.1 and Suse linux servers
- Monitor, configure, and support Microsoft Windows 2000, 2003, and 2008 servers
- Configure and support campus document imaging solution (OnBase)
- Monitor and support the campus Datatel/Unidata database, run queries, and manage environments
- Manage SQL 2000 and SQL 2005 database instances and their associated servers
- Install, monitor, and support IIS 6 and IIS 7 web servers

Coordinator of Support Services *Dallas Baptist University, Information Technology, 6/2008-10/2010*

- Managed the training and day to day operations of 20 to 30 student workers
- Provided hardware and software support to faculty, staff, and students
- Manage software licensing
- Coordinate with networking, programming, and web departments for customer solutions

LAN Support Manager II *Mountain View College, College Computing, 9/1998-6/2008*

- Novell/Windows network administration of up to eleven servers
- Ubuntu Linux administration
- Investigate DMCA infringements and locate the computer used
- Investigate abusive spam and attempt to trace to source
- Investigate hacks of servers and/or workstations
- Administration of user accounts
- Provided hardware and software support to faculty, staff, and students

Microcomputer Specialist *Mountain View College, College Computing, 11/1991-9/1998*

- Installed and repaired computer systems and peripherals
- Installed software and provided end user support
- Created and maintained user network and email accounts

Education

Graduate Student, Computer Science *Southern Methodist University, Dallas, Tx, Spring 2007*
6 hours completed

BAS, Computer Information Science *Dallas Baptist University, Dallas, Tx, 6/1997-6/2000*
Graduated Cum Laude

AAAS, Electronics Technology *Mountain View College, Dallas, Tx, 8/1990 - 12/1992*
CCNA Training *Mountain View College, Dallas, Tx, 01/2004 - 05/2004*

Certifications

- EC-Council Certified Ethical Hacker

NOMAN SAIED

2801 Oak Leaf Ln, Chattanooga TN 37421 | 423.598.3304 | noaman_saied@hotmail.com

SUMMARY

- PhD Candidate in Computer Science: Computational Engineering with more than 30 years of experience in teaching, programming, product architecture, maintenance, implementation, database development, network administration and project management.
- Strategic, independent thinker grounded by technical experience in a range of areas including Object Oriented Analysis and Design, Agile Development Methodology, and Business Process Analysis.
- A strong, open leader who brings together business clients, project managers and technical personnel to build cohesive, confident, driven teams that get results.
- Technology leader in the automotive industry designing and delivering Customer Relationship Management Systems (CRM) that have evolved and taken advantage of developing technology for 14 years.
- Successful manager of remote, distributed teams and offshore development.
- Extensive knowledge and experience in digital data communication techniques and the Open Systems Interconnection (OSI) model.
- Highly effective teacher & mentor who can recognize talent and groom next generation leaders.

SKILLS & ABILITIES

- **Core Competencies:**
  - IT Management & Planning
  - Business Process Management
  - Development Process & Quality
  - Java Technologies
  - Enterprise Architecture
- **Technical Skills & Expertise:**
  - Languages & Technologies: Pascal, COBOL, Perl, SAS, C, C++, VC++, VJ++, VB, Assembly, Java, MATLAB, Python.
  - Web Technologies: HTML/DHTML, XML, CGI, Perl, JavaScript, Servlets, JSP, Web Services, Struts, Spring
  - Web/App Servers: Apache, Tomcat
  - Databases: Foxpro 2.6, Access, dBASE III+, MSSQL, Oracle, SAS, MySQL, Flat file Databases.
  - Concepts & Methodologies: MVC, Design Patterns, Internationalizations, Clustering, SSO, and SSL
  - Software Tools: Eclipse, NetBeans
  - Report Tools & ETL: Jasper, Crystal, and Pentaho.
  - API: Win32 API, OpenGL API, LAM MPI, and POV MPI.
  - Operating Systems: WINDOWS NT/XP/2000/2003, UNIX, LINUX.

EXPERIENCE

July 2020 - To Date	Associate Professor, *Chattanooga State Community College* • Teaching Computer Science, Networking, Digital Forensics, Database, SAS, software development, and trained students to use software packages
Aug 2016 – July 2020	Assistant Professor, *Chattanooga State Community College* • Teaching Computer Science, Networking, Digital Forensics, Database, SAS, software development, and trained students to use software packages
Fall 2016 - To Date	Adjunct Professor, *University of Tennessee at Chattanooga* • Teaching Computer Science, Computer Engineering Programming
Jan 2016 - Aug 2016	Instructor, *Chattanooga State Community College* • Teaching Computer Science, Networking, Database, Mobile Development
Apr 2002 - Dec 2015	Director of Engineering, *Prize Corporation, Chattanooga, TN/ izmo Inc., San Francisco, CA* • izmo Inc.: From August 2007 – January 2016: Director of Engineering: Manage development, Sustenance, Implementation, and support teams. Manage and direct on-shore/off-shore resources, responsible for strategic planning & direction. • Led development & evolution of the flagship CRM product "***ReckonUp***" which became widely acknowledged as the premier CRM tool in the competitive automotive industry, with revenues of approximately $2.4 million per year. The product was acquired by izmo Inc. of San Francisco. • Prize Corporation: From September 2005 – July 2007: Chief Information & Technology Officer: Managed all aspects of the company product including marketing strategy, training development, sustenance, and support. Mange technical turnover as part of acquisition by izmo Inc. • Prize Corporation: From January 2002 – August 2005: Product Development Technical Lead: As a team lead of 5 Developers, 2 sustenance, and 3 support personnel, oversaw all aspects of product development cycle. • Architected, designed, and developed product software. Designed, implemented, & maintained enterprise networks. • Developed report generating tools and data analysis tools.
May 2000 - Jan 2001	Research Assistant, *University of Tennessee at Chattanooga Center of Excellence for Computer Application (CECA)* • Built a cluster of 16 PCs with two controllers' dual boot with Linux OS or Windows NT 4.0 (WorkStation/Server) and MPICH from Argonne National Labs on all of them. Tested the performance of the cluster, wrote programs to optimally solve complex mathematicalproblems. • Designed PERL Modules to search graphics related pages, parse the body of each page, make a count on each occurrence of keyword, report the status of the URL, and dynamically generate html page to show the results
Fall 1998 - To Spring 2000	Teaching Assistant, *University of Tennessee at Chattanooga* • Taught computer literacy, introduction to computer hardware/software, Java, and data structures courses. Helped students in Computer labs

Jan 1996 – Aug 1998	Instructor, *University of Qatar, Doha, Qatar* • Computer Lab Technician and Mathematics Tutor.
Aug 1995 – Jul 1998	Computer Department Manager, *Qatar Education Center, Doha, Qatar* • Hired, managed, supervised department instructors. Developed and taught computer courses.
Jan 1996 – Aug 1998	Instructor, Qatar *Cultural Center, Doha, Qatar* • Taught computer courses and computer software development. Trained students to use software packages.
May 1992 – April 1994	Hardware/Software Developer, *Byte Computer & Commercial Co. LTD, Khartoum Sudan* • Software development and software support. PC troubleshooting and training.
Academic Year 1991/1992	Teaching Assistant, *University Of Khartoum, Khartoum Sudan* • Taught computer and math introductory courses and assist professors in academic computer labs.
Jul 1990 – Aug 1992	Part-time Instructor, *Information Training Center (ITC), Khartoum Sudan* • Taught computer software courses. Trained students to use software packages.
Fall 1998 - To Spring 2000	Teaching Assistant, *University of Tennessee at Chattanooga* • Taught computer literacy, introduction to computer hardware/software, Java, and data structures courses. Helped students in Computer labs

HONORS/AFFILIATIONS

Bachelor's degree from University of Khartoum with honor degree, Second upper class.

Master's degree from University of Tennessee at Chattanooga, 3.67 GPA

PhD Candidate, University of Tennessee at Chattanooga, 4.0 GPA

IEEE Computer Society member.

WGNA (WideBand Gigabit Network Alliance) Member.

Cisco Systems, Inc. CCNA I, CCNA II, , CCNA III, and , CCNA IV Certified Instructor

EDUCATION

May 2018	PhD Candidate Computer Science: Computational Engineering, Chattanooga, Tennessee, University of Tennessee at Chattanooga
November 2018	CCNA Routing and Switching: Connecting Networks, USA, *Cisco Systems, Inc.*
January 2018	CCNA Routing and Switching: Scaling Networks, USA, *Cisco Systems, Inc.*
August 2017	CCNA Routing and Switching: Routing and Switching Essentials and Introduction to Networks USA, *Cisco Systems, Inc.*

2001	***WideBand*** Certified Network Administrator, Nashville, Tennessee, *International Academy of Science*
December 2000	Master's in computer science, Chattanooga, Tennessee, *University of Tennessee at Chattanooga*
1998	Oracle [SQL, Forms, and Reports] Certificates, Doha, Qatar, *University of Qatar*
March 1991	B.Sc. (Honors) Computer Science, Khartoum, Sudan, *University of Khartoum*
March 1991	B.Sc. (Honors) Computer Science, Khartoum, Sudan, *University of Khartoum*
May 1989	Computer Application Certificate, Cairo, Egypt, *University of Ain Shames*
May 1989	Computer Application Certificate, Cairo, Egypt, *University of Ain Shames*

SPONSORED RESEARCH AND EXTERNAL FUNDING

10/01/2019: Funding Announcement -- PI, "HDR DSC: Collaborative Research: ADACE: Anthropocentric Data Analytics for Community Enrichment". National Science Foundation: Harnessing the Data Revolution (HDR): Data Science Corps (DSC) (#1924278), PI, Chattanooga State Community College (sub-grantee), $199,975, 10/01/2019-09/31/2022.

RECENT PUBLICATIONS

Karrar, Abdelrahman & Ahmed, Babikir & Abdelgadir, Amira & **Saied, Noman**. (2020) "**A Compensated Distributed Line Decoupling Approach for Real Time Applications**". Journal: IEEE Transactions on Smart Grid. Manuscript ID TSG-00219-2020. Press

Phuong, Chang & **Saied, Noman** & Tanis, Craig. (2020) "**Assessing Kokkos Performance on Selected Architectures**". In: Crespo-Mariño J., Meneses-Rojas E. (eds) High Performance Computing. CARLA 2019. Communications in Computer and Information Science, vol 1087. Springer, Cham. Print ISBN: 978-3-030-41004-9, Online ISBN: 978-3-030-41005-6. [https://doi.org/10.1007/978-3-030-41005-6_12]

Jeffrey C Schneider
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Apt 108
Ooltewah, TN 37363-4548
jeffrey_c_schneider@yahoo.com

EDUCATION

Siena Heights University, Adrian, MI
M.A. - Organizational Leadership
B.A. - Business Administration

PROFESSIONAL EXPERIENCE

Instructor, Information Systems – Full Time
Chattanooga State Community College Chattanooga, TN (2016-Present)

- Assisted students in developing original ideas or use common solutions in unique ways.
- Instructor for Information Systems, Engineering & Information Technologies
- Data Structures
- Intro and Advanced .NET Programming
- Database
- Increased the student's ability to detect interrelationships among component parts and assess their importance in creating solutions.
- Prepare lesson plans, syllabi, teaching aids, exams and other instructional materials for a diverse group of students.
- Used college approved learning management system (Desire2Learn)

Office Systems Technology/Microcomputer Applications Instructor – Full Time
Western Oklahoma State College, Altus, OK (2014 – 2016)

- Primary instructor for the Office Systems Technology Program
- Primary instructor for the Microcomputer Applications course – basic computer concepts and Office 2013 suite (Online, Blended and Face-to-face sections)
- Teach Records Management, Access, Excel, Administrative Office Procedures Online
- Used college approved learning management system (Moodle)
- Participated in Western's Curriculum Committee, Faculty Senate, Technology Committee and Academic Standards Committee

Resume - Jeffrey C Schneider

Adjunct Professor
Baker College, Coldwater, MI (2011 –2013)

- Organized, developed, and taught outcomes-based training.
- Managed student related records and kept students apprised of their progress.
- Assisted students in developing critical thinking skills to understand/apply concepts of subject matter to vocational, ethical, social, and personal practices.
- Used college approved learning management system (Blackboard).

Assistant Manager
Walgreen's of Coldwater, Coldwater, MI (2008-2014)

- Continually developed salesmanship skills to enhance sales and retain customers.
- Assisted customers and managed ten store employees
- Managed cash/ensured cash controls using cash handling software.
- Received and stocked merchandise and maintained a clean and efficient stockroom.

Adjunct Professor
Siena Heights University, Adrian, MI (2003-2007)

- Prepare lesson plans, syllabi, teaching aids, exams and other instructional materials.
- Fostered supportive environment for students to express ideas in writing and verbally.
- Strengthened student skills to effectively separate a complex problem into its component parts in order to identify solutions.
- Supported development of the ability to examine decisions in light of ethical and corporate social responsibility principles as well as their effects on stakeholders worldwide.
- Assisted students in developing critical thinking skills to understand/apply concepts of subject matter to vocational, ethical, social, and personal practices.
- Maintain class and student related records and promptly assess student coursework to keep students apprised of their progress.
- Used college approved learning management system (Blackboard).

Senior Applications Analyst Siena Heights University, Adrian, MI(1997 – 2005)

- Used problem solving skills to effectively identify solutions to complex problems
- Automated the research component of the Institutional Research Handbook saving several weeks of compilation time.
- Created a web-based budget review program to enable real-time assessments to approved budget managers, allowing the university to be more financially efficient and spreading workload from the finance office to the individual budget managers.
- Created Perl and cshell scripts and programs to automate data backups and audit system integrity.
- Converted flat-file Alumni/Development gift database to Jenzabar's CX (SQL) data format.
- Managed the university's administrative Structured Query Language (SQL) relational database management system (Jenzabar CX).
- Used AIX IBM's Unix based shell system daily.
- Was primary beta-test site for Jenzabar's IBM platform. Assessed upgrades and assisted in bug detection and fixes for all of the Jenzabar CX's modules and products.
- Primary database support for the Registrar, Accounts Payable/Receivable, Financial Aid, Payroll, and Systems departments for Adrian and six external campus sites.
- With very minimal outside support, created and maintained user-driven web sites and provided system support.
- Liaised with numerous groups and stakeholders, faculty, staff, students, general public and other corporate entities to maximize the university's information technology investment.
- Backup support for Alumni/Development and Admissions
- Maintained Dynix IBM platform for university's library.
- Supervised two applications analysts

OTHER PROFESSIONAL EXPERIENCE

Winter Working Connections - Python for Data Science (Certificate December 2020)

- 2020 Working Connections IT Faculty Development Institute with an emphasis in Python for Data Science (on-line)
- Tools emphasized:
  - Accessing Data with SQL
  - Analyzing Data with Numpy
  - Manipulating Data with Pandas
  - Visualization with Matplotlib

NSF HDR ADACE Workshop: Data Science Coding in Python (August 2020)

- National Science Foundation – Harnessing the Data Revolution (on-line)
- Tools emphasized:
  - Numpy
  - Pandas
  - Matplotlib

UTC R-Bootcamp Seminar (May 2020)

- Four-hour preparatory bootcamp teaching the basics of the R computer language

Explore NEON Workshop – University of Tennessee Chattanooga (May 2020)

- Workshop introduces NEON, how to access and work with NEON data and interaction with NEON science staff.

PATRICK WARD

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SUMMARY

PhD Candidate in Information Systems and Technology at Claremont Graduate University with over 20 years of work experience as a software engineer and an infrastructure system engineer and over 4 years teaching

EXPERIENCE

August 2016 – Present	Chattanooga State Community College Worked as an assistant and now an associate professor of cyber defense teaching computer science, networking, and cyber defense courses.
November 1996 - August 2016	Jet Propulsion Laboratory (JPL) Worked as a software engineer and an infrastructure system engineer designing and developing various software and hardware infrastructure solutions for JPL.
October 1993 - November 1996	Logicon, Inc. Worked as a software engineer responsible for the development, testing, delivery and end user support for aircraft avionics software systems.

EDUCATION

PhD Information Systems and Technology
Claremont Graduate University (in progress)
M.S. Information Systems and Technology
Claremont Graduate University 2016
M.S. Information Technology
University of Redlands, 2010
Masters Business Administration (MBA)
University of Redlands, 2006
B.S. Information and Computer Science
UC Irvine, 1993

CERTIIFICATIONS

Cisco Certified Network Admin Instructor for CCNA 1, CCNA 2, CCNA 3, CCNA 4, CCNA Security
Palo Alto Networks Cybersecurity Infrastructure Configuration Instructor
Palo Alto Networks Cybersecurity Prevention and Countermeasures Instructor
Amazon Web Services (AWS) Certified Cloud Practitioner (in progress)
Certified Information Systems Security Professional CISSP # 565669

PROFESSIONAL ORGANIZATIONS

Information Systems & Computing Academic Professionals (ISCAP)
Sysadmin, Audit, Network, and Security (SANS)
International Information System Security Certification Consortium $(ISC)^2$

PRESENTATIONS/PUBLICATIONS

Bitar, H., & Ward, P. (2016). "A Prototype for Alzheimer's Disease Early Diagnosis to Assist Caregivers and Physicians." Healthcare Informatics and Information Technology (2016), pp. 1-10.

Ward, P. (2019, July). "Engaging 21st Century Students". Presentation at Community College Cyber Summit 2019, Bossier City, LA.

Ward, P. (2020). "Development of a Small Cybersecurity Program at a Community College." In Proceedings of the EDSIG Conference ISSN (Vol. 2473, p. 4901).

Ward, P. (2021). "Constructing a Methodology for Developing a Cybersecurity Program." In Proceedings of the 54th Hawaii International Conference on System Sciences (p. 44).

Dwight
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Web Site
http://www.dwightwatt.com

Education

EdD	Education Leadership	University of Georgia Athens, GA 30602
MBA	Management	Winthrop University Rock Hill, SC 29733
BA	Political Science	Winthrop University Rock Hill, SC 29733

Employment

Networking (Cisco/Windows) Program Director/Instructor
Cybersecurity, Computer Support Specialist, and Web Design and Developer Instructor
Database Program Director/Instructor
Georgia Northwestern Technical College (2007-present)
Rock Spring, Georgia 30739

- Teach and develop classes in the database, networking specialist, cyber security, computer support specialist and web design and developer programs. At state level develop new courses and programs as executive CIST member. Courses include PC repair, HTML Cisco and Windows Server and client.
- Teach classes on campus (lab and lecture), online, and at high school site (dual enrollment). Work actively with students for them to succeed in classes traveling if necessary to remote sites to assist them.
- Assist instructors with problems with LMS and how to best convey information in classes

Information Technology Consultant, July 1982 - present
Swainsboro, Georgia 30401 and LaFayette, Georgia 30728

- IT consultant for businesses, churches, manufacturers, individuals and government agencies.
- Installation and maintenance of desktop computers and servers. Corrected problems with systems software and wiring problems to improve efficient usage.
- Web Page development and maintenance using HTML, MySQL and PHP and other languages. Both develops pages initially and updates pages developed by others
- Clean PCs of viruses and spyware and replace defective parts for individuals and businesses

Instructor, September 2005 – June 2007, Peirce College
Philadelphia PA 19102

- Taught networking classes online from location in Georgia.

Curriculum Consultant, Jan 2006 – Dec 2006, Georgia Dept of Technical and Adult Education
Atlanta GA

- Coordinated statewide program standard and guide revisions for Computer Information Systems (CIS) technical college educational programs for degree, diploma, and certificate

awards. Consolidated approximately 600 Technical Certificates of Credit programs (typically less than one year) offered at 34 colleges to about 35 Technical Certificate of credit programs for common programs at all technical colleges

Instructor, November 2005 – December 2006, Southern Wesleyan University
Central SC 29630

- Taught introduction to management information systems for business to students in bachelors business program

Information Technology Department Chair/Instructor
Campus Georgia Virtual Technical College (GVTC) Coordinator
July 2001 – June 2005, Heart of Georgia Technical College
Dublin, Georgia 31021

- Developed and implemented of new Information Technology curricula
- Developer of campus Information Technology Department Internet Web pages
- Managed switch of department lab and host connections to Internet college intranet.
- Maintained and improved campus web pages. Took dated web site and created new interface and made current fully representing the college. Worked with president in the design phase.
- Instructor for Windows MCSE, A+, and Cisco CCNA certification courses. Instructor for Cisco Regional Academy (trained students and instructors) with use of Cisco routers and switches.
- Managed full and part-time faculty day, evening and off site.
- Coordinator of Campus GVTC (on-line course) initiatives, campus faculty facilitator for development of distance education courseware.
-

Microcomputer Specialist Instructor, September 1997 – June 2001, Athens Technical College
Elberton, Georgia 30635

- Developed and implemented new microcomputer specialist curriculum
- Taught Internet, programming, Windows, MS-Office, JavaScript, operating systems, HTML, network concepts, program design, computer concepts, and computer installation and repair (hands-on) classes.
- Supported router and Ethernet connections from remote campus

Senior Programmer/Analyst, August 1996 – September 1997, PMSC (now CSC)
Columbia, South Carolina 29202

- Analyzed programs for clients (COBOL, Assembler and RPGII)
- Maintained and upgraded COBOL, Assembler and RPGII programs used in the property and casualty insurance industry. Programs were up to 20 years old and needed Y2K updates.

Computer Programming/Microcomputer Specialist Instructor (1988-8/1996) Administrative Information Technology Support (1982-1996)
Data Processing Instructor (8/1981-1988) Swainsboro Technical College
Swainsboro, Georgia 30401

- Designed, implemented and maintained token ring network. Created addressing scheme and e- mail addresses and hosts tables.
- Taught programming (COBOL, RPG, Pascal, Visual Basic, etc), PC repair, PC applications, operating systems, database and PC support.
- Trainer for administrative personnel in applications and computers. Led college from having two PCs to all employees having computers and being fully networked and on the Internet.
- Troubleshot and repaired campus PC and mid-range computer hardware and software.
- Assisted in Banner student record software implementation. Created Oracle SQL scripts to produce reports and methods to enter information.
- Designed, developed, implemented, and maintained campus applications for student records and attendance. Records were manually maintained prior to development in COBOL.

Worked with Student Services staff in developing a user friendly program.
- Developed of payroll, accounts payable and general ledger programs. Records were kept manually previously. Worked with accounting personnel in development and unique conditions of college/state accounting and payroll.
- Created and developed original college webpage

Professional and Community Activities

Georgia Sino American Education Symposium participant
2005 Trip organized by GDTAE Presidents Council to China
Graduate initial Executive Leadership Training Program at Heart of Georgia Technical College (2004)
Georgia Department of Technical and Adult Education (DTAE) Computer Curricula Executive Board (1990-96, 2000-2005, 2007-present). Led the development and revision of state standards
Chairman (1990-92, 2002-2005)
Vice-chairman (2000-2002)
Member Computer Curriculum Revision Committee (1995-96, 2000-2001)
Chairman Microcomputer Specialist Committee (1995-96)
Chairman Networking Specialist Committee (2001-2002, 2008-present)
Chairman Database Specialist Committee (2007-2008)
Swainsboro / Emanuel County Chamber of Commerce member (1989-2009)
Webmaster (2002-2003, 2004-2007)
Swainsboro First United Methodist Church
Adult Sunday School Teacher (1987-2015)
Sound Technician (1989-present), Presentation Coordinator (2004-present)
Webmaster (1998-2015)
Certified Lay Speaker
Swainsboro Kiwanis Club member (1995-1996, 2001-present)
Webmaster/Photographer (2003-present)
Kentucky-Tennessee District of Kiwanis
International K-T Notes Editor (2010-2012)
Lt. Governor (2016-2017)
Webmaster (2017-present)
Georgia District of Kiwanis International
Webmaster/Technology Chair (2003-2009)
Walker County Chamber of Commerce (2007-present)
Ambassador (2010-present)
Catoosa County Chamber of Commerce (2016-present)
Ambassador (2016-present)
Ft. Oglethorpe Kiwanis Club member (2007-present)
Distinguished President (2013-2014, 2014-2015)
Webmaster (2008-present)
Professional Association of Georgia Educators (PAGE) member
Technology Association of Georgia (TAG) member

Research and Publications

A+ Certification Test Yourself Practice Exams, by Dwight Watt, Ted Hamilton, Cameron Brandon, and Tom Judge. Published by Osborne McGraw-Hill July 1998.
Structured COBOL for Technical Students, by Dwight Watt. Published by Prentice Hall Publishing August 1997. Textbook on COBOL for the IBM AS/400.

District Revenue Potential and Teachers' Salaries in Georgia, Dissertation at University of Georgia 1989.
Co-facilitator for Georgia Department of Technical Education Probes for CIS curriculum update 2001
Computer/Technology article published weekly in Swainsboro Forest-Blade, Walker County Messenger and Catoosa County News newspapers 2009-present
Decimal and Binary Numbers book by Dwight, Published at Barnes and Noble, 2014
A Guide to Basic HTML by Dwight, Published at Barnes and Noble, 2014

Honors

Olympic Community Hero Torchbearer (1996)
Award of Outstanding Achievement, Swainsboro Tech (1989)
Finalist for American Technical Education Association National Teacher of the Year (1994)
Top five finalist for Georgia Department of Technical and Adult Education Commissioner's Award of Excellence (now the Rick Perkins Award) (1993)
Who's Who Among America's Teachers 2004, 2005, 2006, 2007
Georgia Business Education Association Post Secondary Teacher of the Year (1995)
United States Junior Chamber of Commerce
State Shooting Education Program Manager of the Year (1991)

Certifications

Palo Alto Accredited Configuration Engineer version 7 (ACE)
Amazon AWS Certified Cloud Practitioner and accredited AWS academy instructor
Microsoft Certified Trainer (MCT) (Alumni from 2016)
Microsoft Certified Educator (MCE)
Microsoft Certified Solutions Associate (MCSA) (Windows 7)
Microsoft Certified IT Professional (MCITP)
Microsoft Certified Technology Specialist (MCTS)
Microsoft Certified System Engineer (MCSE)
Microsoft Certified System Administrator (MCSA)
Microsoft Certified Desktop Service Technician (MCDST)
Certified Online Instructor (COI) by LERN
Certified Computing Professional (CCP) (Management, COBOL, BASIC, and RPGIV Areas) (By ICCP)
Cisco Networking Academy Approved Instructor – CCNP I
Cisco Networking Academy Approved Instructor – CCNA
Cisco Networking Academy Approved Instructor – Health Information Networking (HIN)
Cisco Networking Academy Approved Instructor – CCNA Cybersecrity Operations
Adobe Certified Associate - Visual Communication using Adobe Photoshop
Microsoft Technology Associate (MTA) - Networking Fundamentals, Security Fundamentals, Windows Operating System Fundamentals, Windows Server Administration Fundamentals and Database Administration Fundamentals
Security+ by CompTIA
CompTIA Secure Cloud Professional (CSCP)
Cloud+ by CompTIA
Cloud Essentials+ by CompTIA
CompTIA Cloud Admin Professional
Server+ by CompTIA
i-Net+ by CompTIA
Network+ by CompTIA
IT Fundamentals by CompTIA
A+ Certified by CompTIA., earned 1997 and 2008
Cisco Certified Network Associate (CCNA) expired 9/2004
Microsoft Certified Professional + Internet (MCP+I)
MCP (Windows 2000, Windows XP and NT4)

Microsoft Office Specialist (MOS) – various certifications Office 97 to Word 2016
MOS Master Instructor - Office 97
Introduction to Property and Liability Insurance (INTRO) by the Insurance Institute of America
Cisco Certified Academy Instructor (CCAI) – IT Essentials I
Cisco Certified Academy Instructor (CCAI) – CCNA
Internet and Computing Core Certification (IC3) by Certiport
TOSA PowerPoint 2016
Certified Internet Webmaster (CIW) Associate

V. Appendix B

Chattanooga State Community College
Chattanooga, Tennessee
Engineering & Information Technologies Division
Course Syllabus

CISP 1010 - Computer Science 1

4 Credit Hours: 4 Lecture 0 Lab

Catalog Course Description:

This course is an introduction to all aspects of the programming and problem-solving process and the elements of effective programming style. A high-level language will be used as a vehicle for introducing these concepts. Laboratory use of the computer in designing, coding, debugging, and executing programs is an integral part of the course.

Prerequisites:

CITC 1301 or Instructor's Consent

Co-requisites:

None

Entry Level Standards:

College level reading, writing and math

Textbook/Materials:

Big Java Early Objects, 7th Ed, Cay Horstmann, ISBN: 978-1-119-49909-1 [Recommended]
NetBeans IDE. Free download – NetBeans Online Download [Recommended]
USB Storage Device [Recommended]

Program Outcomes:

4. Apply problem solving skills appropriate for employment in a Computer and Information Technology specialty.
5. Develop, implement, troubleshoot, and operate networks, desktop and web applications, object oriented programs and scripts and IT security as required by a Computer Information Technology specialty.
6. Upon completion of the program, all students will demonstrate critical thinking skills for inquiry and analysis, assimilation of facts and knowledge, and problem solving.

Student Learning Competencies:

2. Demonstrate the knowledge of mathematics, science, and Computer Information Technology to computer information technology problems using developed practical knowledge.
3. Demonstrate effective membership in a technical team.
4. Identify, analyze, and solve specifically defined computer information technology-based problems.

Learning Indicators:

The student's ability to demonstrate the following will be indicators of their success in achieving the program and course level student learning outcomes.

1. Understand how to code robust programs and reuse code.
2. Use fundamental concepts of Object-Oriented Programming.
3. Learn fundamental concepts of the Java programming language and API Library.
4. Learn control statements, Data Types and Arithmetic Operations, Branching Decisions and Boolean Expressions, Loops and Arrays.
5. Write a program illustrating the solution of a business problem.
6. Understand the fundamentals of Software Development and Hardware Components.
7. Learn the history and evolution of Computer System

Assessment:

Assessment Alignment and Grade Distribution:

Assessment	Student Learning Competencies	Learning Indicators	Method	Distribution
Quizzes	2,4	2,4,5,6,7	Quiz	30%
Assignments	2,4	1,2,3,4	Product	20%
Project(s)	3,4	1,2,3,4	Product	10%
Exams	2,4	2,4,5,6,7	Exam	40%

Grading Scale:

Letter grades are assigned in accordance with the Academic Regulations in the Chattanooga State catalog as follows:

Grading range	Grade	Grading range	Grade
90 – 100	A	65 – 69	D
80 – 89	B	Below 65	F
70 – 79	C		

College Policy Statements:

This class is governed by the policies and procedures stated in the current Chattanooga State Student Handbook. Click this link to view College Policy Statements.

Last Updated: 02/01/2021

Chattanooga State Community College
Chattanooga, Tennessee
Engineering and Information Technologies Division
Course Syllabus

CISP 1020 – Computer Science 2

4 Credit Hours: 4 Lecture 0 Lab

Catalog Course Description:

This course is a continuation of CISP 1010. It examines topics of programming in a high-level language, including programming concepts, good style, algorithms, documentation, and elementary data structures.

Prerequisites:

CISP 1010 Computer Science 1

Co-requisites:

None

Entry Level Standards:

College level reading, writing and math

Textbook/Materials:

Big Java Early Objects, 7th Ed, Cay Horstmann, ISBN: 978-1-119-49909-1 [Recommended]
NetBeans IDE. Free download – NetBeans [Recommended]
USB Storage Device [Recommended]

Program Outcomes:

4. Apply problem solving skills appropriate for employment in a Computer and Information Technology specialty.
5. Develop, implement, troubleshoot, and operate networks, desktop and web applications, object oriented programs and scripts and IT security as required by a Computer Information Technology specialty.
6. Upon completion of the program, all students will demonstrate critical thinking skills for inquiry and analysis, assimilation of facts and knowledge, and problem solving.

Student Learning Competencies:

2. Demonstrate the knowledge of mathematics, science, and Computer Information Technology to computer information technology problems using developed practical knowledge.
3. Demonstrate effective membership in a technical team.
4. Identify, analyze, and solve specifically defined computer information technology-based problems.

Learning Indicators:
The student's ability to demonstrate the following will be indicators of their success in achieving the program and course level student learning outcomes.

1. Understand how to code robust programs and reuse code.
2. Use advanced programming concepts to include Recursions vs. Loops, Sorting and Searching Techniques and Performance, Basic Data Structure concepts, IO and Handling Errors.
3. Use Basics of Unified Modeling Language (UML), Superclasses, Subclasses and Interfaces, Overriding and Overloading, Encapsulation and Abstraction, Polymorphism and Inheritance, Class Relationships.
4. Complete a program illustrating the solution of a business problem.

Assessment:
Assessment Alignment and Grade Distribution:

Assessment	Student Learning Competencies	Learning Indicators	Method	Distribution
Quizzes	2,4	2,3,4	Quiz	30%
Assignments	2,4	1,2,3,4	Product	20%
Project(s)	2,3,4	1,2,3,4	Product	10%
Exams	2,4	2, 3, 4	Exam	40%

Grading Scale or Policy:
Letter grades are assigned in accordance with the Academic Regulations in the Chattanooga State catalog as follows:

Grading range	Grade	Grading range	Grade
90 - 100	A	65 – 69	D
80 - 89	B	Below 65	F
70 - 79	C		

College Policy Statements:
This class is governed by the policies and procedures stated in the current Chattanooga State Student Handbook. Click this link to view College Policy Statements.

Last Updated: 02/01/2021

Chattanooga State Community College
Chattanooga, Tennessee
Engineering & Information Technologies Division
Course Syllabus

CISP 2410 – Assembly & Computer Organization

3 Credit Hours: 3 Lecture 0 Lab

Catalog Course Description:

This course is a study of computer organization and Assembly language. Topic include number systems, Boolean algebra, combinational and sequential circuits, processor functional units and control, pipelining, memory and caching, stored program computing, memory management, computer system organization, assembly language programming.

Prerequisites:

CISP 1010 Computer Science 1

Co-requisites:

None

Entry Level Standards:

College level reading, writing, and math

Textbook/Materials:

The Essentials of Computer Organization and Architecture, 5th Ed, Linda Null [Required]
Visual Studio 2017 MASM [Required]
Logisim: Download Logisim [Required]
Assembly Language for x86 Processors, 7th Ed, Kip Irvine [Optional]

Program Outcomes:

1. Apply basic industry principles, math concepts, and computational skills to industry and technical problems common to computer information technology.
6. Upon completion of the program, all students will demonstrate critical thinking skills for inquiry and analysis, assimilation of facts and knowledge, and problem solving.

Student Learning Competencies:

2. Demonstrate the knowledge of mathematics, science, and Computer Information Technology to computer information technology problems using developed practical knowledge.
4. Identify, analyze, and solve specifically defined computer information technology-based problems.

Learning Indicators:
The student's ability to demonstrate the following will be indicators of their success in achieving the program and course level student learning outcomes.

1. Calculate unsigned, signed and floating-point binary number values.
2. Design, implement, and test the hardware for a system using a digital circuit simulator.
3. Design, implement, and test assembly language programs.
4. Learn the internal organization of computers, CPU, memory unit and Input/Outputs and the relations between its main components.

Assessment:
Assessment Alignment and Grade Distribution:

Assessment	Student Learning Competencies	Learning Indicators	Method	Distribution
Quizzes	2,4	1,2,4	Quiz	20%
Assignments	2,4	1,2,4	Product	20%
Assembly Language(s)	4	3	Product	10%
Exams	2,4	1,2,3,4	Exam	50%

Grading Scale or Policy:

Letter grades are assigned in accordance with the Academic Regulations in the Chattanooga State catalog as follows:

Grading range	Grade	Grading range	Grade
90 – 100	A	65 – 69	D
80 – 89	B	Below 65	F
70 – 79	C		

College Policy Statements:
This class is governed by the policies and procedures stated in the current Chattanooga State Student Handbook. Click this link to view College Policy Statements .

Last Updated: 02/01/2021

Chattanooga State Community College
Chattanooga, Tennessee
Engineering and Information Technology Division
Course Syllabus

CITC 1300 Beginning HTML and CSS

3 Credit Hours: 3 Lecture 0 Lab

Catalog Course Description:

A beginning course in HTML that provides instruction in creating Web pages. Students learn to write HTML code. Topics include using HTML tags, CSS formatting, and appropriate scripting languages.

Prerequisites:

None

Co-requisites:

None

Entry Level Standards:

College level reading, writing, and math

Textbook/Materials:

No textbook required

Program Outcomes:

1. Apply basic industry principles, math concepts, and computational skills to industry and technical problems common to computer information technology.
3. Select and use industry specific software and hardware.

Student Learning Competencies:

1. Apply the knowledge, techniques, skills, and modern tools of the concentration of study to specifically define computer information technology activities.
5. Employ written, oral, and visual communication in a technical environment.

Learning Indicators:

1. Students will code web pages in HTML using a basic text editor.
2. Students will validate all pages to meet the HTML5 standard
3. Students will use HTML elements to develop web pages according to specific requirements
4. Students will format web pages using Cascading Style Sheets (CSS) to change page characteristics such as colors, fonts, alignment, borders, padding, and margins.
5. Students will validate all CSS to the CSS 3.0 standard.
6. Students will add images and links to web pages.
7. Students will complete web pages that demonstrate simple positioned layouts.

8. Students will complete at least two design projects that incorporate all of the principles and techniques covered in the class.

Assessment:

Assessment Alignment and Grade Distribution:

Assessment	Student Learning Competencies	Learning Indicators	Method	Distribution
Attendance				10%
Quizzes	1,5	1-8	Quiz	20%
Labs	1,5	1-8	Product	30%
Mid-Project	1,5	1-8	Product	20%
Final-Project	1,5	1-8	Exam	30%

Grading Scale:

Letter grades are assigned in accordance with the Academic Regulations in the Chattanooga State catalog as follows:

Grading range	Grade	Grading range	Grade
90 - 100	A	60 – 69	D
80 - 89	B	Below 60	F
70 - 79	C		

College Policy Statements:

This class is governed by the policies and procedures stated in the current Chattanooga State Student Handbook. Click this link to view College Policy Statements .

Last Updated: 02/21/2021

Chattanooga State Community College
Chattanooga, Tennessee
Engineering and Information Technologies Division
Course Syllabus

CITC 1301 INTRODUCTION TO PROGRAMMING AND LOGIC

3 Credit Hours: 3 Lecture 0 Lab

Catalog Course Description:

This course introduces computers, systems, and the management of information in a business environment. Provides a comprehensive overview of the principles of programming and teaches novice programmer how to develop logical thinking, structured procedural and program logic, and good programming style. Focuses on concepts such as procedural logic, programming concepts and enforces good style and logical thinking. This class teaches flowcharting and writing algorithms or pseudo code. In addition, students will learn file management, brief introduction to Office Applications, internet and electronic communications.

Prerequisites:

None

Co-requisites:

None

Entry Level Standards:

There are no level of preparedness requirements in any subject.

Textbook/Materials:

Programming Logic and Design, Fifth Edition, Tonny Gadiss, Pearson. [Required]
Flowgorithm. Free download [Required]
Online editor click here

Program Outcomes:

4. Apply problem solving skills appropriate for employment in a Computer and Information technology specialty.
6. Upon completion of the program, all students will demonstrate critical thinking skills for inquiry and analysis, assimilation of facts and knowledge, and problem solving.

Student Learning Competencies:

2. Demonstrate the knowledge of mathematics, science, and Computer Information Technology to computer information technology problems using developed practical knowledge.
3. Demonstrate effective membership in a technical team.
4. Identify, analyze, and solve specifically defined computer information technology-based problems.

Learning Indicators:
The student's ability to demonstrate the following will be indicators of their success in achieving the program and course level student learning outcomes.

1. Demonstrate problem solving and critical thinking skills.
2. Demonstrate the use of flowchart using pseudocode writing.
3. Demonstrate the use of file management and internet.
4. Learn the concept of Input, Processing, and Output
5. Demonstrate the use of Decision and Repetition structures
6. Demonstrate the use of Modules, Functions, and input Validation
7. Demonstrate the use of Arrays

Assessment:
Assessment Alignment and Grade Distribution:

Assessment	Student Learning Competencies	Learning Indicators	Method	Distribution
Quizzes	2,4	2-7	Quiz	30%
Assignments	2,4	1, 2, 3	Product	30%
Project	3,4	1, 2	Product	10%
Exams	2,4	2-7	Exam	30%

Grading Scale:
Letter grades are assigned in accordance with the Academic Regulations in the Chattanooga State catalog as follows:

Grading range	Grade	Grading range	Grade
90 – 100	A	60 – 69	D
80 – 89	B	Below 60	F
70 – 79	C		

College Policy Statements:
This class is governed by the policies and procedures stated in the current Chattanooga State Student Handbook. Click this link to view College Policy Statements .

Last Updated: 02/02/2021

Chattanooga State Community College
Chattanooga, Tennessee
Engineering & Information Technologies
Course Syllabus

CITC 1302 Introduction to Networking
3 Credit Hours

Catalog Course Description:
A broad-based course that provides an overview of computer networking. Topics will include network models, protocols and services, media and topologies, devices and tools, network management, and network security. This course may align with the outcomes of industry certification.

Prerequisites:
None

Co-requisites:
None

Entry Level Standards:
College level reading, writing, and math

Textbook/Materials:
CompTIA Network+ Study Guide, 4th Edition. Exam N10-007. ISBN-13: 9781119432258 [Required]

Program Outcomes:
2. Demonstrate standard written and spoken English, and professional conduct to effectively communicate and succeed in an industry/computer setting.
3. Select and use industry specific software and hardware.
4. Apply problem solving skills appropriate for employment in a Computer and Information Technology specialty.

Student Learning Competencies:
1. Apply the knowledge, techniques, skills, and modern tools of the concentration of study to specifically defined computer information technology activities.
2. Demonstrate the knowledge of mathematics, science, and Computer Information Technology to computer information technology problems using developed practical knowledge.
4. Identify, analyze, and solve specifically defined computer information technology-based problems.
5. Employ written, oral, and visual communication in a technical environment.

Learning Indicators:

The student's ability to demonstrate the following will be indicators of their success in achieving the program and course level student learning outcomes.

1. Identify and describe the OSI and TCP/IP Network models.
2. Identify common network protocols including their ports and their functions.
3. Awareness of various cabling methods, including wireless technology.
4. Understand the difference between various network functions such as routing and switching.
5. Identify and understand the use of various network equipment.
6. Familiarity with various network utilities.

Assessment:

Assessment Alignment and Grade Distribution:

Assessment	Student Learning Competencies	Learning Indicators	Method	Distribution
Labs	1,2,4,5	1-6	Assignment	25%
Homework	1,2,4,5	1-6	Assignment and/or Quiz	25%
Exams	2,4,5	1-6	Test	25%
Final	2,4,5	1-6	Test	25%

Grading Scale:

Letter grades are assigned in accordance with the Academic Regulations in the Chattanooga State catalog as follows:

Grading range	Grade	Grading range	Grade
90 - 100	A	65 - 69	D
80 - 89	B	Below 65	F
70 - 79	C		

College Policy Statements:

This class is governed by the policies and procedures stated in the current Chattanooga State Student Handbook. Click this link to view College Policy Statements.

Last Updated: 02/02/2021

Chattanooga State Community College
Chattanooga, Tennessee
Engineering and Information Technologies
Course Syllabus

CITC 1303 – Database Concepts

3 Credit Hours: 3 Lecture 0 Lab

Catalog Course Description:

An introduction to the concepts and syntax of relational database management systems. Topics include data modeling, database design concepts, tables and queries and other database objects using the tools provided in a relational DBMS.

Prerequisites:

None

Co-requisites:

None

Concurrent:

None

Entry Level Standards:

College level reading, writing and math

Textbook/Materials:

Murach's MySQL by Joel Murach 2nd Edition ISBN 978-1-890774-82-0 [Required]

Program Outcomes:

2. Demonstrate standard written and spoken English, and professional conduct to effectively communicate and succeed in an industry/computer setting.
3. Select and use industry specific software and hardware.
4. Apply problem solving skills appropriate for employment in a Computer and Information Technology specialty.
5. Develop, implement, troubleshoot, and operate networks, desktop and web applications, object oriented programs and scripts and IT security as required by a Computer Information Technology specialty.

Student Learning Competencies:

1. Apply the knowledge, techniques, skills, and modern tools of the concentration of study to specifically defined computer information technology activites.
2. Demonstrate the knowledge of mathematics, science, and Computer Information Technology to computer information technology problems using developed practical knowledge.
4. Identify, analyze, and solve specifically defined computer information technology-based problems.

Learning Indicators:

The student's ability to demonstrate the following will be indicators of their success in achieving the program and course level student learning outcomes.

1. Demonstrate understanding of problem solving techniques for a database application.
2. Demonstrate understanding of the requirements of a data model.
3. Define database characteristics and user interfaces to implement a data model.
4. Demonstrate understanding of the SQL language to create, modify and retrieve data in relational DBMS.
5. Normalize a database table set into first, second, third and BCNF normal form.

Assessment:

Assessment Alignment and Grade Distribution:

Assessment	Student Learning Competencies	Learning Indicators	Method	Distribution
Quizzes	1,2,4	1,2,3,4	Tests	34%
Projects	1,2,4	1,2,3,4,5	Assignments	33%
Exams	1,2,4	1,2,3,4	Tests	33%

Grading Scale:

Letter grades are assigned in accordance with the Academic Regulations in the Chattanooga State catalog as follows:

Grading range	Grade	Grading range	Grade
90 - 100	A	65 - 69	D
80 - 89	B	Below 65	F
70 - 79	C		

College Policy Statements:

This class is governed by the policies and procedures stated in the current Chattanooga State Student Handbook. Click this link to view College Policy Statements .

Last Updated: 02/02/2021

Chattanooga State Community College
Chattanooga, Tennessee
Engineering and Information Technologies
Course Syllabus

CITC 1312 Intro to .NET Programming

3 Credit Hours: 3 Lecture 0 Lab

Catalog Course Description:

An introductory study of object-oriented programming through the use and practical application of the language. Topics include classes, objects, methods, GUI programming, graphics, databases, XML, Web pages and Internet.

Prerequisites:

CISP1010 Computer Science 1

Co-requisites:

None

Entry Level Standards:

College level reading, writing and math

Textbook/Materials:

C# Programming From Problem Analysis to Program Design 4th Edition, Doyle, Barbara Cengage. ISBN-10: 1285569326 | ISBN-13: 9781285569321 [Required]

Program Outcomes:

1. Apply basic industry principles, math concepts, and computational skills to industry and technical problems common to computer information technology.
4. Apply problem solving skills appropriate for employment in a Computer and Information Technology specialty.
5. Develop, implement, troubleshoot, and operate networks, desktop and web applications, object oriented programs and scripts and IT security as required by a Computer Information Technology specialty.
6. Upon completion of the program, all students will demonstrate critical thinking skills for inquiry and analysis, assimilation of facts and knowledge, and problem solving.

Student Learning Competencies:

1. Apply the knowledge, techniques, skills, and modern tools of the concentration of study to specifically defined computer information technology activites.
2. Demonstrate the knowledge of mathematics, science, and Computer Information Technology to computer information technology problems using developed practical knowledge.
4. Identify, analyze, and solve specifically defined computer information technology-based problems.

Learning Indicators:

The student's ability to demonstrate the following will be indicators of their success in achieving the program and course level student learning outcomes.

1. Learn why C# is being used today for software development
2. Explore the relationship between classes, objects, and types
3. Be familiar with the components of a method.
4. Demonstrate equality, relational and logical operators used with conditional expressions
5. Demonstrate loops
6. Demonstrate use of one and two dimensional arrays
7. Explain some elements of good design
8. Explain basic event-handling programming and exceptions.
9. Demonstrate ability to work with files and databases

Assessment:

Assessment Alignment and Grade Distribution:

Assessment	Student Learning Competencies	Learning Indicators	Method	Distribution
Quizzes	1,2,4	2,3,8,	Quiz	25%
Exams	1,2,4	2,3,8,	Exams	25%
Lab	1,2,4	1-8,	Product	30%
Class Project	1,2,4	1-9	Product	20%

Grading Scale:

Letter grades are assigned in accordance with the Academic Regulations in the Chattanooga State catalog as follows:

Grading range	Grade	Grading range	Grade
90 - 100	A	65 – 69	D
80 - 89	B	Below 65	F
70 - 79	C		

College Policy Statements:

This class is governed by the policies and procedures stated in the current Chattanooga State Student Handbook. Click this link to view the College Policy Statements.

Last Updated: 02/02/2021

Chattanooga State Community College
Chattanooga, Tennessee
Engineering & Information Technologies Division
Course Syllabus

CITC 1317 Introduction to Scripting Languages

2 Credit Hours: 2 Lecture 0 Lab

Catalog Course Description:

An introduction to script programming as a tool for system administration, automation, and customization and as a platform for Web-based applications. Compares shell command languages and scripting languages used on UNIX and Linux systems.

Prerequisites:

CITC 1301 Introduction to Programming and Logic

Co-requisites:

None

Entry Level Standards:

College level reading, writing and math

Textbook /Materials:

Online resource: Ucertify [Required]

Program Outcomes:

3. Select and use industry specific software and hardware.
5. Develop, implement, troubleshoot, and operate networks, desktop and web applications, object oriented programs and scripts and IT security as required by a Computer Information Technology specialty.

Student Learning Competencies:

1. Apply the knowledge, techniques, skills, and modern tools of the concentration of study to specifically defined computer information technology activities.
2. Demonstrate the knowledge of mathematics, science, and Computer Information Technology to computer information technology problems using developed practical knowledge.
4. Identify, analyze, and solve specifically defined computer information technology-based problems.

Learning Indicators:

1. Understand how to use the Powershell help system
2. Understand how to identify commands
3. Ability to use the command pipeline
4. How to sort and filter output
5. How to use providers
6. Ability to use WMI to retrieve information
7. Able to identify, create, and use functions

Assessment:

Assessment Alignment and Grade Distribution:

Assessment	Student Learning Competencies	Learning Indicators	Method	Distribution
Labs	1,2,4	1-7	Online lab and/or Assignment	25%
Homework	1,2,4	1-7	Assignment and/or quizzes	25%
Tests	1,2,4	1-7	Test	25%
Final	1,2,4	1-7	Test	25%

Grading Scale:

Letter grades are assigned in accordance with the Academic Regulations in the Chattanooga State catalog as follows:

Grading range	Grade	Grading range	Grade
90 – 100	A	65 - 69	D
80 – 89	B	Below 65	F
70 – 79	C		

College Policy Statements:

This class is governed by the policies and procedures stated in the current Chattanooga State Student Handbook. Click this link to view College Policy Statements

Updated: 02/26/2021

Chattanooga State Community College
Chattanooga, Tennessee
Engineering & Information Technologies
Course Syllabus

CITC1318 – Data Structures

3 Credit Hours: 3 Lecture 0 Lab

Catalog Course Description:

This course covers the basic fundamental principles of Data Structures. It uses a programming language to implement a variety of data structures. Topics will include recursion, containers, vectors, pointers, dynamic memory, stacks, queues, and Lists with or without iterators. User Designed classes are implemented.

Prerequisites:

CISP 1020 Computer Science 2

Co-requisites:

None

Entry Level Standards:

College level reading, writing, and math

Textbook/Materials:

Big Java Early Objects Author: Horstmann, Cay. Wiley ISBN: 978-1-119-05628-7 [Recommended]

Program Outcomes:

1. Apply basic industry principles, math concepts, and computational skills to industry and technical problems common to computer information technology.
2. Demonstrate standard written and spoken English, and professional conduct to effectively communicate and succeed in an industry/computer setting.
4. Apply problem solving skills appropriate for employment in a Computer and Information Technology specialty.
5. Develop, implement, troubleshoot, and operate networks, desktop and web applications, object oriented programs and scripts and IT security as required by a Computer Information Technology specialty.

Student Learning Competencies:

1. Apply the knowledge, techniques, skills, and modern tools of the concentration of study to specifically defined computer information technology activities.
2. Demonstrate the knowledge of mathematics, science, and Computer Information Technology to computer information technology problems using developed practical knowledge.
4. Identify, analyze, and solve specifically defined computer information technology-based problems

Learning Indicators:

1. The student's ability to demonstrate continued development of programming style using abstract data structures and top-down design.
2. Understand operator overloading, inline code and container classes
3. Create classes using dynamic memory.
4. Implement recursive functions.
5. Implement stack and queues with or without the stack class
6. Implement Linked Lists and Doubly Linked Lists

Assessment:

Assessment Alignment and Grade Distribution:

Assessment	Student Learning Competencies	Learning Indicators	Method	Distribution
Quizzes	1,2,4	1	Quiz	25%
Projects	1,2,4	1,2,3,4,5,6	Product	25%
Exams	1,2,4	1	Exam	25%
Team Project	1,2,4	1,2,3,4,5,6	Product	25%

Grading Scale:

Letter grades are assigned in accordance with the Academic Regulations in the Chattanooga State catalog as follows:

Grading range	Grade	Grading range	Grade
90 – 100	A	65 - 69	D
80 – 89	B	Below 65	F
70 – 79	C		

College Policy Statements:

This class is governed by the policies and procedures stated in the current Chattanooga State Student Handbook. Clink this link to view College Policy Statements.

Last Updated 02/02/2021

Chattanooga State Community College
Chattanooga, Tennessee
Engineering & Information Technologies
Course Syllabus

CITC 1320 A+ Hardware and Software

3 Credit Hours: 3 Lecture 0 Lab

Catalog Course Description:

Computer Hardware and Software covers installation, maintenance, repair, troubleshooting, and connectivity of computers and networks. Topics include the internal components of a computer, installing an operating system, troubleshooting using system tools and diagnostic software, connecting to a network, implementing security best practices on a workstation, and peripheral setup and troubleshooting. This course integrates virtual learning tools to supplement classroom learning and to provide an interactive "hands-on" experience. Upon successfully completing this course, the student will be academically prepared for the current CompTIA A+ certification exams in hardware and software.

Prerequisites:

None

Co-requisites:

None

Entry Level Standards:

College level reading, writing, and math

Textbook/Materials:

A+ Guide to IT Technical Support (Hardware and Software), 10th Edition. ISBN-13: 9781305266438 [Required]
Tools – Philips head screwdriver, flat head, t-6 star [optional]

Program Outcomes:

1. Apply basic industry principles, math concepts, and computational skills to industry and technical problems common to computer information technology.
3. Select and use industry specific software and hardware.
4. Apply problem solving skills appropriate for employment in a Computer and Information technology specialty.

Student Learning Competencies:

1. Apply the knowledge, techniques, skills, and modern tools of the concentration of study to specifically defined computer information technology activites.
2. Demonstrate the knowledge of mathematics, science, and Computer Information technology to computer information technology problems using developed practical knowledge.
4. Identify, analyze, and solve specifically defined computer information technology-based problems.

Learning Indicators:

The student's ability to demonstrate the following will be indicators of their success in achieving the program and course level student learning outcomes.

1. Identify and install individual hardware components.
2. Ability to troubleshoot hardware issues.
3. Ability to install different operating systems.
4. Ability to disassemble a desktop/laptop and reassemble and check for functionality.
5. Ability to configure hardware and software.

Assessment:

Assessment Alignment and Grade Distribution:

Assessment	Student Learning Competencies	Learning Indicators	Method	Distribution
Labs	1,2,4	1-5	Lab	25%
Exams	1,2,4	1,2	Exam	50%
Final	1,2,4	1,2	Exam	25%

Grading Scale:

Letter grades are assigned in accordance with the Academic Regulations in the Chattanooga State catalog as follows:

Grading range	Grade	Grading range	Grade
90 – 100	A	65 - 69	D
80 – 89	B	Below 65	F
70 – 79	C		

College Policy Statements:

This class is governed by the policies and procedures stated in the current Chattanooga State Student Handbook. Click this link to view College Policy Statements.

Last Updated: 02/02/2021

Chattanooga State Community College
Chattanooga, Tennessee
Engineering & Information Technologies Division
Course Syllabus

CITC 1323 CCNA 1

3 Credit Hours: 3 Lecture 0 Lab

Catalog Course Description:

Introduction to Networks is the first of two courses leading to the Cisco Certified Entry Networking Technician (CCENT) designation and is the first of four courses leading to the Cisco Certified Network Associate (CCNA R&S) designation. This course introduces Networking Academy students to the networking field. Topics include Network terminology, Network protocols, Local-area networks (LANs), Wide-area networks (WANs), Open System Interconnection (OSI) model, Cabling, Routers, Internet Protocol (IP) addressing, and Network standards.

Prerequisites:

None

Co-requisites:

None

Entry Level Standards:

College level reading, writing, and math

Textbook/Materials:

None required

Program Outcomes:

3. Select and use industry specific software and hardware.
5. Develop, implement, troubleshoot, and operate networks, desktop and web applications, object-oriented programs and scripts and IT security as required by a Computer Information Technology specialty.
6. Upon completion of the program, all students will demonstrate critical thinking skills for inquiry and analysis, assimilation of facts and knowledge, and problem solving.

Student Learning Competencies:

4. Identify, analyze, and solve specifically defined computer information technology-based problems.
5. Employ written, oral, and visual communication in a technical environment.

Learning Indicators:

The student's ability to demonstrate the following will be indicators of their success in achieving the program and course level student learning outcomes.

1. Explain network technologies and how devices access local and remote networks.

2. Describe router hardware.
3. Explain how switching operates in a small to medium-sized business network.
4. Design an IPv4 and IPv6 addressing scheme to provide network connectivity for a small to medium-sized business network.
5. Configure initial settings on a network device using Cisco command-line interface (CLI).
6. Implement basic network connectivity between devices.
7. Be introduced to the two major models used to plan and implement networks: OSI and TCP/IP
8. Gain an understanding of the "layered" approach to networks
9. Examine the OSI and TCP/IP layers in detail to understand their functions and service
10. Describe router hardware.
11. Explain how switching operates in a small to medium-sized business network.
12. Become familiar with the various network devices and network addressing schemes
13. Discover the types of media used to carry data across the network

Assessment:

Assessment Alignment and Grade Distributions:

Assessment	Student Learning Competencies	Learning Indicators	Method	Distribution
Chapter Exams	4 ,5	1 - 13	Quiz	50%
Skill Lab	4, 5	1 - 13	Lab	25%
Final Comprehensive Exam	4, 5	1 - 13	Exam	25%

Grading Scale:

Letter grades are assigned in accordance with the Academic Regulations in the Chattanooga State catalog as follows:

Grading range	Grade	Grading range	Grade
90 - 100	A	65 - 69	D
80 - 89	B	Below 65	F
70 - 79			

College Policy Statements:

This class is governed by the policies and procedures stated in the current Chattanooga State Student Handbook. Click this link to view the College Policy Statements.

Last Updated: 02/03/2021

Chattanooga State Community College
Chattanooga, Tennessee
Engineering & Information Technologies Division
Course Syllabus

CITC 1324 CCNA 2

3 Credit Hours: 3 Lecture 0 Lab

Catalog Course Description:

Routing and Switching Essentials is the second of two courses leading to the Cisco Certified Entry Networking Technician (CCENT) designation and is the second of four courses leading to the Cisco Certified Network Associate (CCNA R&S) designation. This course focuses on the following: basic routing and switching concepts, Virtual LANs (VLANs), Inter-VLAN routing, static routing and dynamic routing protocols, Single-Area OSPF, Access Control Lists (ACLs), Dynamic Host Configuration Protocol (DHCP) and Network Address Translation (NAT).

Prerequisites:

CITC 1323 CCNA 1

Co-requisites:

None

Entry Level Standards:

College level reading, writing, and Math.

Textbook/Materials:

None

Program Outcomes:

3. Select and use industry specific software and hardware.
5. Develop, implement, troubleshoot, and operate networks, desktop and web applications, object-oriented programs and scripts and IT security as required by a Computer Information Technology specialty.
6. Upon completion of the program, all students will demonstrate critical thinking skills for inquiry and analysis, assimilation of facts and knowledge, and problem solving.

Student Learning Competencies:

4. Identify, analyze, and solve specifically defined computer information technology-based problems.
5. Employ written, oral, and visual communication in a technical environment.

Learning Indicators:
The student's ability to demonstrate the following will be indicators of their success in achieving the program and course level student learning outcomes.

1. Configure basic switch and router settings.
2. Configure DHCP protocol, VLAN, Trunking, inter-VLAN routing, and Single-Area OSPF.
3. Configure static routes and dynamic routing protocols.
4. Configure Access Controls Lists (ACLs) and Network Address Translation (NAT).

Assessment:
Assessment Alignment and Grade Distributions:

Assessment	Student Learning Competencies	Learning Indicators	Method	Distribution
Chapter Exams	4 ,5	1 - 4	Quiz	50%
Skill Lab	4, 5	1 - 4	Lab	25%
Final Comprehensive Exam	4, 5	1 - 4	Exam	25%

Grading Scale:
Letter grades are assigned in accordance with the Academic Regulations in the Chattanooga State catalog as follows:

Grading range	Grade	Grading range	Grade
90 - 100	A	65 - 69	D
80 - 89	B	Below 65	F
70 - 79	C		

College Policy Statements:
This class is governed by the policies and procedures stated in the current Chattanooga State Student Handbook. Click this link to view the College Policy Statements.

Last Updated: 02/18/2021

Chattanooga State Community College
Chattanooga, Tennessee
Engineering & Information Technologies Division
Course Syllabus

CITC 1332 Unix/Linux Operating System

3 Credit Hours: 3 Lecture 0 Lab

Catalog Course Description:

This course provides a thorough overview of the UNIX and LINUX operating systems. Emphasis is placed on the user interface, terminology, and command structure within the multi-task/multiuser environment. Electronic mail and communications standards are covered along with standard UNIX/LINUX utilities needed to support the automated office.

Prerequisites:

None

Co-requisites:

None

Entry Level Standards:

College level reading, writing, and math.

Textbook/Materials:

Optional: Operating Systems Concepts, Author: Jean Bacon and Tim Harris, ISBN: 978-0321117892 [Optional]
Operating Systems: Concurrent and Distributed Software Design [Optional]

Program Outcomes:

1. Apply basic industry principles, math concepts, and computational skills to industry and technical problems common to computer information technology.
3. Select and use industry specific software and hardware.
5. Develop, implement, troubleshoot, and operate networks, desktop and web applications, object-oriented programs and scripts and IT security as required by a Computer Information Technology specialty.
6. Upon completion of the program, all students will demonstrate critical thinking skills for inquiry and analysis, assimilation of facts and knowledge, and problem solving.

Student Learning Competencies:

1. Apply the knowledge, techniques, skills, and modern tools of the concentration of study to specifically define computer information technology activities.
2. Demonstrate the knowledge of mathematics, science, and computer information technology to computer information technology problems using developed practical knowledge.

4. Identify, analyze, and solve specifically defined computer information technology-based problems.

Learning Indicators:

The student's ability to demonstrate the following will be indicators of their success in achieving the program and course level student learning outcomes.

1. Acquire open-source concepts.
2. Understand how Linux is used and the basics of its command line
3. Use shell commands to progressively master Linux commands.
4. Use the vi editor to perform the following tasks: create, modify and access files, add and delete lines words and characters, cut and paste lines and characters and move proficiently throughout pages of a file.
5. Use communication tools such as mail, talk, and write.
6. Change file and directory permissions.
7. Suspend, terminate, and manage foreground and background processes, archive files, and compress files and directories.
8. Become skilled at using the Linux virtual machine for experiments

Assessment:

Assessment Alignment and Grade Distributions:

Assessment	Student Learning Competencies	Learning Indicators	Method	Distribution
Chapter Exams	1, 2, and 4	1-8	Quiz	30%
Skill Lab	1, 2, and 4	1-8	Lab	30%
Mid-Term Exam	1, 2, and 4	1-8	Exam	15%
Comprehensive Exam	1, 2, and 4	1-8	Exam	25%

Grading Scale:

Letter grades are assigned in accordance with the Academic Regulations in the Chattanooga State catalog as follows:

Grading range	Grade	Grading range	Grade
90 - 100	A	65 - 69	D
80 - 89	B	Below 65	F
70 - 79	C		

College Policy Statements:

This class is governed by the policies and procedures stated in the current Chattanooga State Student Handbook. Click this link to view the College Policy Statements.

Last Updated: 02/03/2021

Chattanooga State Community College
Chattanooga, Tennessee
Engineering & Information Technologies Division
Course Syllabus

CITC 1351 Principles of Information Assurance

3 Credit Hours: 3 Lecture 0 Lab

Catalog Course Description:

A beginning course in information assurance which examines the fundamentals of information assurance. The course will introduce topics such as the need for security, risk management, security technology, cryptography, and physical security. Also covered are legal/ethical issues and security policies.

Prerequisites:

None

Co-requisites:

None

Entry Level Standards:

College level reading, writing and math

Textbook/Materials:

Computer Security, Principles and Practice, 4th Edition, Stallings and Brown, ISBN-13: 9780134794105 [Required]

Program Outcomes:

1. Apply basic industry principles, math concepts, and computational skills to industry and technical problems common to computer information technology.
2. Demonstrate standard written and spoken English, and professional conduct to effectively communicate and succeed in an industry/computer setting.
4. Apply problem solving skills appropriate for employment in a Computer and Information Technology specialty.

Student Learning Competencies:

1. Apply the knowledge, techniques, skills, and modern tools of the concentration of study to specifically defined computer information technology activites.
3. Demonstrate effective membership in a technical team.
5. Employ written, oral, and visual communication in a technical environment.

Learning Indicators:

The following will indicate that the students have achieved the student learning competencies:

1. Students will understand legislation related to cybersecurity and compliance.
2. Students will create a set of security plans for a small business.

3. Students will be able to explain the difference between symmetric and asymmetric cryptography.
4. Students will be able to explain the value of creating disaster recovery plans and understand the concept of business continuity.

Assessment:

Assessment Alignment and Grade Distribution:

Assessment	Student Learning Competencies	Learning Indicators	Method	Distribution
Quizzes	1	3	Test	20%
Law Paper	5	1	Product	10%
Security Plans	3.5	2,4	Product	10%
Active Participation and Engagement	1	3	Participation	5%
Midterm Exam	1	3	Test	25%
Final Exam	1	3	Test	30%

Grading Scale:

Letter grades are assigned in accordance with the Academic Regulations in the Chattanooga State catalog as follows:

Grading range	Grade	Grading range	Grade
90 - 100	A	65 -69	D
80 - 89	B	Below 65	F
70 - 79	C		

College Policy Statements:

This class is governed by the policies and procedures stated in the current Chattanooga State Student Handbook. Click this link to view College Policy Statements.

Last Updated: 02/03/2021

Chattanooga State Community College
Chattanooga, Tennessee
Engineering and Information Technologies Division
Course Syllabus

CITC 2310 Advanced .NET Programming

3 Credit Hours: 3 Lecture 0 Lab

Catalog Course Description:

This course is designed for applications programmers and database developers. Hands-on training includes use of the Visual Studio Integrated Development Environment (IDE), the .NET Framework (ASP.NET, ADO.NET, .NET programming), Object-Oriented Programming (OOP), database programming, SQL, and Web Services. Students will develop an application involving a SQL Server database with emphasis on object-oriented and component-based approaches.

Prerequisites:

CISP 1020 Computer Science 2, CITC 1300 Beginning HTML and CSS, and CITC 1312 Introduction to Network (Dot Net) Programming

Co-requisites:

None

Entry Level Standards:

College level reading, writing and math

Textbook/Materials:

C# Programming From Problem Analysis to Program Design 4th Edition, Doyle, Barbara, Cengage. ISBN-10: 1285569326 | ISBN-13: 9781285569321 [Required]

Program Outcomes:

1. Apply basic industry principles, math concepts, and computational skills to industry and technical problems common to computer information technology.
4. Apply problem solving skills appropriate for employment in a Computer and Information Technology specialty.
5. Develop, implement, troubleshoot, and operate networks, desktop and web applications, object oriented programs and scripts and IT security as required by a Computer Information Technology specialty.
6. Upon completion of the program, all students will demonstrate critical thinking skills for inquiry and analysis, assimilation of facts and knowledge, and problem solving.

Student Learning Competencies:

1. Apply the knowledge, techniques, skills, and modern tools of the concentration of study to specifically defined computer information technology activities.
2. Demonstrate the knowledge of mathematics, science, and Computer Information Technology to computer information technology problems using developed practical knowledge.

4. Identify, analyze, and solve specifically defined computer information technology-based problems.

Learning Indicators:

The student's ability to demonstrate the following will be indicators of their success in achieving the program and course level student learning outcomes.

1. Design and build non-trivial, real-world, applications and dynamic Web sites that can send data to and retrieve data from databases located on remote servers based on client input or case study research.
2. Develop data validation processes and integrate them with forms.
3. Create effective reports.
4. Demonstrate effective use of ASP, ADO and SQL Server to build Web-based applications.
5. Effectively review and analyze the work of their peers as a means of providing constructive feedback and improving their own work.

Assessment:

Assessment Alignment and Grade Distributions:

Assessment	Student Learning Competencies	Learning Indicators	Method	Distribution
Quizzes	1,4	4	Quizzes	25%
Labs	1,2,4	1,2,3,4	Product	25%
Exams	1,4	4	Exam	25%
Final Project	1,2,4	1,2,3,4,5	Product	25%

Grading Scale:

Letter grades are assigned in accordance with the Academic Regulations in the Chattanooga State catalog as follows:

Grading range	Grade	Grading range	Grade
90 - 100	A	65 - 69	D
80 - 89	B	Below 65	F
70 - 79	C		

College Policy Statements:

This class is governed by the policies and procedures stated in the current Chattanooga State Student Handbook. Click this link to view the College Policy Statements.

Last Updated: 02/03/2021

Chattanooga State Community College
Chattanooga, Tennessee
Engineering & Information Technologies
Division Course Syllabus

CITC 2320 – Windows Server Administration

3 Credit Hours: 3 Lecture 0 Lab

Catalog Course Description:

Using the Microsoft Windows Server network operating systems, students will learn to install, configure, administer, maintain, and troubleshoot networked computer system servers.

Prerequisites:

CITC 1302 Introduction to Networking or CITC 1323 CCNA 1 and CITC 1320 A+ Hardware and Software

Co-requisites:

None

Concurrent:

INFS 205 Network Client Operating Systems

Entry Level Standards:

College level reading, writing, and math

Textbook/Materials:

Ucertify.com [Required]

Program Outcomes:

1. Select and use industry specific software and hardware.
2. Apply problem solving skills appropriate for employment in a Computer and Information Technology specialty.

Student Learning Competencies:

1. Apply the knowledge, techniques, skills, and modern tools of the concentration of study to specifically defined computer information technology activities.
2. Demonstrate the knowledge of mathematics, science, and Computer Information Technology to computer information technology problems using developed practical knowledge.
4. Identify, analyze, and solve specifically defined computer information technology-based problems.

Learning Indicators:

The student's ability to demonstrate the following will be indicators of their success in achieving the program and course-level student learning outcomes.

1. Identify and install a Windows server operating system.

2. Install and configure various services such as DHCP and Active Directory.
3. Create and manage user and group accounts.
4. Setup file shares.
5. Understand the construction and management of an Active Directory domain.

Assessment:

Assessment Alignment and Grade Distribution:

Assessment	Student Learning Competencies	Learning Indicators	Method	Distribution
Labs	1,2,4	1-4	Lab and/or Assignment	20%
Homework	1,2,4	1-4	Assignment and/or Quiz	20%
Final Project	1,2,4	5	Product	20%
Tests	1,2,4	1-5	Test	20%
Final	1,2,4	1-5	Test	20%

Grading Scale:

Letter grades are assigned in accordance with the Academic Regulations in the Chattanooga State catalog as follows:

Grading range	Grade	Grading range	Grade
90 - 100	A	65 -69	D
80 - 89	B	Below 65	F
70 - 79	C		

College Policy Statements:

This class is governed by the policies and procedures stated in the current Chattanooga State Student Handbook. Click this link to view College Policy Statements.

Last Updated: 02/03/2021

Chattanooga State Community College
Chattanooga, Tennessee
Engineering & Information Technologies Division
Course Syllabus

CITC 2322 – CCNA 4

3 Credit Hours: 3 Lecture 0 Lab

Catalog Course Description:

Catalog Course Description: Connecting Networks is the last of four courses leading to the Cisco Certified Network Associate (CCNA) designation. This course focuses on Hierarchical Network Design, WAN Technologies/Terminology/Devices, Point-to-Point Protocol (PPP), Frame Relay, Network Address Translation (NAT), Broadband solutions, Securing Site-to-Site connections with VPN/GRE/IPSec, and Network Management including NTP, SYSLOG, SNMP, and NetFlow. Students will be required to apply information from CCNA 1, 2, and 3 to network situations.

Prerequisites:

CITC 2321 CCNA 3

Co-requisites:

None

Entry Level Standards:

College level reading, writing, and math

Textbook/Materials:

None

Program Outcomes:

3. Select and use industry specific software and hardware.
5. Develop, implement, troubleshoot, and operate networks, desktop and web applications, object oriented programs and scripts and IT security as required by a Computer Information Technology specialty.
6. Upon completion of the program, all students will demonstrate critical thinking skills for inquiry and analysis, assimilation of facts and knowledge, and problem solving.

Student Learning Competencies:

4. Identify, analyze, and solve specifically defined computer information technology-based problems.
5. Employ written, oral, and visual communication in a technical environment.

Learning Indicators:

The student's ability to demonstrate the following will be indicators of their success in achieving the program and course level student learning outcomes.

1. Define and describe routing functionality and packet forwarding in the language of the OSI and TCP/IP models.
2. Define, describe, and categorize routing protocol characteristics, topologies, and operation including RIP, EIGRP, and OSPF.
3. Perform basic router configuration, administration, and troubleshooting.
4. Configure, secure, administer, troubleshoot, and use router in-band and out-of-band device access, i.e., console and Telnet connections.
5. Design, configure, and troubleshoot IPv4 CIDR, supernetting, and route summarization schemes.
6. Thread routing tables using both static and dynamic entries.
7. Install, configure, and use a packet sniffer (Wireshark) for basic network troubleshooting.
8. Design, build, administer, and troubleshoot a network using, Telnet, RIP, EIGRP, and OSPF. Use and describe command lines, show commands/output, modes, and prompts.

Assessment:

Assessment Alignment and Grade Distributions:

Assessment	Student Learning Competencies	Learning Indicators	Method	Distribution
Chapter Exams	4, 5	1 - 8	Test	50%
Skill Lab	4, 5	1 - 8	Lab	25%
Final Comprehensive Exam	4, 5	1 - 8	Test	25%

Grading Scale:

Letter grades are assigned in accordance with the Academic Regulations in the Chattanooga State catalog as follows:

Grading range	Grade	Grading range	Grade
90 - 100	A	65 - 69	D
80 - 89	B	Below 65	F
70 - 79	C		

College Policy Statements:

This class is governed by the policies and procedures stated in the current Chattanooga State Student Handbook. Click this link to view College Policy Statements .

Last Updated: 02/14/2020

Chattanooga State Community College
Chattanooga, Tennessee
Engineering & Information Technologies
Division Course Syllabus

CITC 2326 – Network Security

3 Credit Hours: 3 Lecture 0 Lab

Catalog Course Description:

This course is designed to give students a fundamental understanding of computer and network security. It will introduce students to a wide variety of concepts related to network security. This course will cover the objectives for the current CompTIA Security+ Certification.

Prerequisites:

CITC 1302 Introduction to Networking or CITC 1323 CCNA 1

Co-requisites:

None

Entry Level Standards:

College level reading, writing and math

Textbook/Materials:

MindTap Information Security for Ciampa's CompTIA Security+ Guide to Network Security Fundamentals 6th Edition. ISBN-13: 978-1-337-28930-6. [Required]

Program Outcomes:

1. Apply basic industry principles, math concepts, and computational skills to industry and technical problems common to computer information technology.
2. Demonstrate standard written and spoken English, and professional conduct to effectively communicate and succeed in an industry/computer setting.
4. Apply problem solving skills appropriate for employment in a Computer and Information Technology specialty.

Student Learning Competencies:

1. Apply the knowledge, techniques, skills, and modern tools of the concentration of study to specifically defined computer information technology activities.

4. Identify, analyze, and solve specifically defined computer information technology-based problems

5. Employ written, oral, and visual communication in a technical environment

Learning Indicators

The following will indicate that the students have achieved the student learning competencies:

1. Students will understand what malicious software (malware) is and demonstrate various techniques to defend against it.
2. Students will learn about the various networking devices and demonstrate how to defend various network devices against cyber-attacks.
3. Students will demonstrate various defenses against social engineering attacks.
4. Students will demonstrate the ability to perform research on a current cybersecurity issue and prepare a presentation to the student body.

Assessment:

Assessment Alignment and Grade Distribution:

Assessment	Student Learning Competencies	Learning Indicators	Method	Distribution
Quizzes	1,4	1,2,3	Quiz	5%
Discussion	1,5	1,2,3	Discussion	20%
Labs	5	4	Product	30%
Midterm Exam	1,4	1,2,3	Exam	15%
Final Exam	1,4	1,2,3	Exam	30%

Grading Scale:

Letter grades are assigned in accordance with the Academic Regulations in the Chattanooga State catalog as follows:

Grading range	Grade	Grading range	Grade
90 - 100	A	65 -69	D
80 - 89	B	Below 65	F
70 - 79	C		

College Policy Statements:

This class is governed by the policies and procedures stated in the current Chattanooga State Student Handbook. Click this link to view College Policy Statements.

Last Updated: 11/10/2020

Chattanooga State Community College
Chattanooga, Tennessee
Engineering & Information Technologies Division
Course Syllabus

CITC 2335 – Systems Analysis and Design

3 Credit Hours: 3 Lecture 0 Lab

Catalog Course Description:

This course examines established and evolving methodologies for the analysis, design, and development of business information systems. Students practice software engineering principles and documentation techniques through case studies.

Prerequisites:

CITC 1303 Database Concepts with a C or better

Co-requisites:

None

Concurrent:

None

Entry Level Standards:

College level reading, writing and math

Textbook/Materials:

Systems Analysis and Design, 11th Ed, Rosenblatt, Cengage, ISBN 978-1-305-49460-2 [Required]
MS Office, Visio, MS Project [Required]
USB Storage Device [Required]

Program Outcomes:

3. Select and use industry specific software and hardware.
4. Apply problem solving skills appropriate for employment in a Computer and Information Technology specialty.
6. Upon completion of the program, all students will demonstrate critical thinking skills for inquiry and analysis, assimilation of facts and knowledge, and problem solving.

Student Learning Competencies

2. Demonstrate the knowledge of mathematics, science, and computer information Technology to computer information technology problems using developed practical knowledge.
3. Demonstrate effective membership in a technical team

Learning Indicators:

1. Demonstrate an understanding of general concepts of system analysis and design.
2. Construct a plan by using project management tools for system study through teamwork and cooperation.
3. Develop an understanding of the system's life cycle and the tools and techniques available to the analyst.
4. Create requirements definition documents using a variety of case studies.
5. Create use cases, and other UML models using modeling tools.
6. Ability to design a solution to a software or hardware problem.
7. Ability to create Graphical User Interface (GUI), GUI Diagrams, and Network Diagrams.
8. Ability to write testing code, shell/batch code, and user policy.
9. Learn to work as a member of a project team.

Assessment:

Assessment	**Student Learning Competencies**	**Learning Indicators**	**Method**	**Distribution**
Quizzes	2, 3	1,4	Test	24%
Assignments	2, 3	3,6,8	Product	36%
Projects	2, 3	2,4,9	Product	20%
Exams	2, 3	1,5	Test	20%
Total				100%

Grading Scale:

Letter grades are assigned in accordance with the Academic Regulations in the Chattanooga State catalog as follows:

Grading range	Grade	Grading range	Grade
90 - 100	A	65 -69	D
80 - 89	B	Below 65	F
70 - 79	C		

College Policy Statements:

This class is governed by the policies and procedures stated in the current Chattanooga State Student Handbook. Click this link to view College Policy Statements .

Last Updated: 09/02/2020

Chattanooga State Community College
Chattanooga, Tennessee
Engineering & Information Technologies Division
Course Syllabus

CITC 2339 Configuring Advanced Services

3 Credit Hours: 3 Lecture 0 Lab

Catalog Course Description:

Designed to help enterprise administrators develop skills-the course focuses on advanced configuration of services necessary to deploy, manage, and maintain a Windows Server infrastructure, this course focuses on advanced configuration of services necessary to deploy, manage and maintain a Windows Server infrastructure. Upon successfully completing this course, the student will be academically prepared for a current Microsoft core server operating system exam.

Prerequisites:

CITC 2320 Window Server Administration

Co-requisites:

None

Entry Level Standards:

College level reading, writing, and math.

Textbook/Materials:

MindTap for MCSA Guide to Identity with Windows Server® 2016, Exam 70-742 12 Months
ISBN-13: 9781337902939

Program Outcomes:

3. Select and use industry specific software and hardware.
4. Apply problem solving skills appropriate for employment in a Computer and Information Technology specialty.

Student Learning Competencies:

1. Apply the knowledge, techniques, skills, and modern tools of the concentration of study to specifically defined computer information technology activates.
2. Demonstrate the knowledge of mathematics, science, and Computer Information Technology to computer information technology problems using developed practical knowledge.
4. Identify, analyze, and solve specifically defined computer information technology-based problems.

Learning Indicators:

The student's ability to demonstrate the following will be indicators of their success in achieving the program and course-level student learning outcomes.

1. Install and configure various services such as Active Directory and Certificate Services.

2. Understand Domain Controllers.
3. Understand Identity management, including user and group management.
4. Be able to implement and manage an Active Directory environment.

Assessment:

Assessment Alignment and Grade Distribution:

Assessment	Student Learning Competencies	Learning Indicators	Method	Distribution
Labs	1,2,4	1-4	Lab and/or Handout	20%
Homework	1,2,4	1-4	Handout and/or Quiz	20%
Final Project	1,2,4	4	Product	20%
Tests	1,2,4	1-4	Test	20%
Final	1,2,4	1-4	Test	20%

Grading Scale:

Letter grades are assigned in accordance with the Academic Regulations in the Chattanooga State catalog as follows:

Grading range	Grade	Grading range	Grade
90 - 100	A	65 -69	D
80 - 89	B	Below 65	F
70 - 79	C		

College Policy Statements:

This class is governed by the policies and procedures stated in the current Chattanooga State Student Handbook. Click this link to view College Policy Statements.

Last Updated: 02/25/2021

Chattanooga State Community College
Chattanooga, Tennessee
Engineering & Information Technologies Division
Course Syllabus

CITC 2352 – Digital Forensics

3 Credit Hours: 3 Lecture 0 Lab

Catalog Course Description:

This course is designed to give students a basic understanding of computer forensics and investigations. This course will introduce students to computing investigations by preparing them to acquire, examine and summarize digital evidence.

Prerequisites:

None

Co-requisites:

None

Entry Level Standards:

College level reading, writing, and math

Textbook/Materials:

Guide to Computer Forensics and Investigations, Nelson, Phillips, Steuart, 6th edition. ISBN-13: 978-1337568944 [Required]
Cengage - MindTap - Online [Required]

Program Outcomes:

1. Apply basic industry principles, math concepts, and computational skills to industry and technical problems common to computer information technology.
3. Select and use industry specific software and hardware.
5. Develop, implement, troubleshoot, and operate networks, desktop and web applications, object-oriented programs and scripts, and IT security as required by a computer information technology specialty.
6. Upon completion of the program, all students will demonstrate critical thinking skills for inquiry and analysis, assimilation of facts and knowledge, and problem solving.

Student Learning Competencies:

1. Apply the knowledge, techniques, skills, and modern tools of the concentration of study to specifically defined computer information technology activities.
4. Identify, analyze, and solve specifically defined computer information technology-based problems.

Learning Indicators:

The student's ability to demonstrate and understand basic computer components, install software recover data, install and uninstall software will be indicators of their success in achieving the program and course level student learning outcomes.

1. Understanding the Digital Forensics Profession and Investigations
2. The Investigator's Office and Laboratory
3. Data Acquisition
4. Processing Crime and Incident Scenes
5. Working With Windows and CLI Systems
6. Current Digital Forensics Tools
7. Linux and Macintosh File Systems
8. Recovering Graphics Files

Assessment:

Assessment Alignment and Grade Distribution:

Assessment	Student Learning Competencies	Learning Indicators	Method	Distribution
Labs (LA)	1, 4	1 - 8	Product	20%
Review Quizzes (RQ)	1, 4	1 - 8	Test	30%
Exam (EX01)	1, 4	1 - 8	Test	25%
Exam (EX02)	1, 4	1 - 8	Test	25%

Grading Scale:

Letter grades are assigned in accordance with the Academic Regulations in the Chattanooga State catalog as follows:

Grading range	Grade	Grading range	Grade
90 - 100	A	65 - 69	D
80 - 89	B	Below 65	F
70 - 79	C		

College Policy Statements:

This class is governed by the policies and procedures stated in the current Chattanooga State Student Handbook. Click this link to view the College Policy Statements.

Last Updated: 12/30/2020

Chattanooga State Community College
Chattanooga, Tennessee
Engineering & Information Technologies Division
Course Syllabus

CITC 2354 – Advanced Digital Forensics

3 Credit Hours: 3 Lecture 0 Lab

Catalog Course Description:

This course will guide students through the process of conducting a high-tech digital forensics investigation. It will include acquiring and analyzing digital evidence and reporting its findings. Advanced techniques in password recovery, registry analysis and evidence filtering will be mastered for those who successfully complete this course.

Prerequisites:

CITC 1302 Introduction to Networking or CITC 1320 A+ Hardware and Software and CITC 2352 Digital Forensics (with a "C" grade or better)

Co-requisites:

None

Entry Level Standards:

College level reading and math

Textbook/Materials:

Guide to Computer Forensics and Investigations, Nelson, Phillips, Steuart, 6th edition. ISBN-13: 978-1337568944 [Required]
Cengage - MindTap - Online [Required]

Program Outcomes:

1. Apply basic industry principles, math concepts, and computational skills to industry and technical problems common to computer information technology.
3. Select and use industry specific software and hardware.
6. Upon completion of the program, all students will demonstrate critical thinking skills for inquiry and analysis, assimilation of facts and knowledge, and problem solving.

Student Learning Competencies:

1. Apply the knowledge, techniques, skills, and modern tools of the concentration of study to specifically defined computer information technology activities.
4. Identify, analyze, and solve specifically defined computer information technology-based problems.

Learning Indicators:

The student's ability to demonstrate and conduct digital investigation that conform to accepted, professional standards and based on the investigative process: identification, preservation,

examination, analysis and reporting will be indicators of their success in achieving the program and course level student learning outcomes.

1. Digital Forensics Analysis and Validation
2. Virtual Machine Forensics, Live Acquisitions, and Network Forensics
3. E-mail and Social Media Investigations
4. Mobile Device Forensics and the Internet of Anything
5. Cloud Forensics
6. Report Writing for High-Tech Investigations
7. Expert Testimony in Digital Investigations
8. Ethics for the Expert Witness

Assessment:

Assessment Alignment and Grade Distribution:

Assessment	Student Learning Competencies	Learning Indicators	Method	Distribution
Labs (LA)	1, 4	1 - 8	Product	20%
Review Quizzes (RQ)	1, 4	1 - 8	Product	30%
Exam (1)	1, 4	1 - 8	Test	25%
Exam (2)	1, 4	1 - 8	Test	25%

Grading Scale:

Letter grades are assigned in accordance with the Academic Regulations in the Chattanooga State catalog as follows:

Grading range	Grade	Grading range	Grade
90 - 100	A	65 -69	D
80 - 89	B	Below 65	F
70 - 79	C		

College Policy Statements:

This class is governed by the policies and procedures stated in the current Chattanooga State Student Handbook. Click this link to view College Policy Statements.

Last Updated: 12/30/2020

Chattanooga State Community College
Chattanooga, Tennessee
Engineering & Information Technologies
Division Course Syllabus

CITC 2356 Penetration Testing and Network Defense

3 Credit Hours: 3 Lecture 0 Lab

Catalog Course Description:

This course focuses on how hackers attack computers and networks, and how to protect Windows and Linux systems. Legal restrictions and ethical guidelines will be taught and enforced. Students will perform many hands-on labs, both attacking and defending, using port scans, footprinting, buffer overflow exploits, SQL injection, privilege escalation, Trojans, and backdoors. Students learn the legal, ethical, and technical aspects of using computer systems in unexpected ways. These skills are essential for penetration testers and other network security professionals.

Prerequisites:

CISP 1010 Computer Science 1 and CITC 1302 Introduction to Networking or CITC 1320 A+ Hardware and Software and CITC 2326 Network Security

Co-requisites:

None.

Entry Level Standards:

College level reading, writing and math

Textbook/Materials:

MindTap Information Security for Simpson/Antill?s Hands-On Ethical Hacking and Network Defense, 3rd Edition. ISBN-13: 978-1-337-27173-8. [Required]

Program Outcomes:

1. Apply basic industry principles, math concepts, and computational skills to industry and technical problems common to computer information technology.
3. Select and use industry specific software and hardware.
5. Develop, implement, troubleshoot, and operate networks, desktop and web applications, object oriented programs and scripts and IT security as required by a Computer Information Technology specialty.

Student Learning Competencies:

1. Apply the knowledge, techniques, skills, and modern tools of the concentration of study to specifically defined computer information technology activities.
2. Demonstrate the knowledge of mathematics, science, and Computer Information Technology to computer information technology problems using developed practical knowledge.

Learning Indicators:
The following will indicate that the students have achieved the student learning competencies:

1. Students will demonstrate understanding and knowledge of how to conduct network security penetration testing.
2. Students will demonstrate understanding and knowledge of how to conduct reconnaissance for both *nix and Windows platforms.
3. Students will demonstrate understanding and knowledge of how to securely code in a variety of scripting languages.

Assessment:
Assessment Alignment and Grade Distribution:

Assessment	Student Learning Competencies	Learning Indicators	Method	Distribution
Labs	1,2	1,2,3	Lab	30%
Case Studies	1,2	1,2,3	Case Study	25%
Quizzes	2	1,2	Quiz	5%
Midterm Exam	2	1,2,3	Exam	15%
Final Exam	2	1,2,3	Exam	25%

Grading Scale:
Letter grades are assigned in accordance with the Academic Regulations in the Chattanooga State catalog as follows:

Grading range	Grade	Grading range	Grade
90 - 100	A	65 -69	D
80 - 89	B	Below 65	F
70 - 79	C		

College Policy Statements:
This class is governed by the policies and procedures stated in the current Chattanooga State Student Handbook. Click this link to view College Policy Statements.

Last Updated: 11/10/2020

Chattanooga State Community College
Chattanooga, Tennessee
Engineering & Information Technologies
Division Course Syllabus

CITC 2363 – Internet Intranet Firewalls and eCom

3 Credit Hours: 3 Lecture 0 Lab

Catalog Course Description:

This course gives an in-depth exploration of firewall, Web security, and e-commerce security. Explores firewall concepts, types, topology and the firewall's relationship to the TCP/IP protocol. Includes client/server architecture, the Web server, HTML and HTTP in relation to Web Security, and digital certification, D.509, and public key infrastructure (PKI).

Prerequisites:

CITC 2326 Network Security or Security+

Co-requisites:

None

Entry Level Standards:

College level reading, writing and math

Textbook/Materials:

Guide to Network Defense and Countermeasures, 3rd Edition ISBN-13: 9781133727941 [Required]

Program Outcomes:

1. Apply basic industry principles, math concepts, and computational skills to industry and technical problems common to computer information technology.
3. Select and use industry specific software and hardware.
5. Develop, implement, troubleshoot, and operate networks, desktop and web applications, object oriented programs and scripts and IT security as required by a Computer
   Information Technology specialty.

Student Learning Competencies:

1. Apply the knowledge, techniques, skills, and modern tools of the concentration of study to specifically defined computer information technology activities.
2. Demonstrate the knowledge of mathematics, science, and Computer Information Technology to computer information technology problems using developed practical knowledge.

Learning Indicators:
The following will indicate that the students have achieved the student learning competencies:

1. Students will demonstrate understanding and knowledge of how to configure firewalls for network security.
2. Students will demonstrate understanding and knowledge of how to configure both *nix and Windows native firewall software for various IT services.
3. Students will demonstrate understanding and knowledge of how to configure an intrusion detection prevention system (IDPS).

Assessment:
Assessment Alignment and Grade Distribution:

Assessment	Student Learning Competencies	Learning Indicators	Method	Distribution
Quizzes	1	1,2,3	Quiz	40%
Labs	2	1,2,3	Labs	20%
Active Engagement and Participation	2	1,2,3	Discussions	5%
Midterm Exam	1	1,2,3	Exam	15%
Final Exam	1	1,2,3	Exam	20%

Grading Scale:
Letter grades are assigned in accordance with the Academic Regulations in the Chattanooga State catalog as follows:

Grading range	Grade	Grading range	Grade
90 – 100	A	65 -69	D
80 – 89	B	Below 65	F
70 – 79	C		

College Policy Statements:
This class is governed by the policies and procedures stated in the current Chattanooga State Student Handbook. Click this link to view College Policy Statements.

Last Updated: 10/28/2020

Chattanooga State Community College
Chattanooga, Tennessee
Engineering & Information Technologies
Division Course Syllabus

CITC 2364 Virtualization Essentials

3 Credit Hours: 3 Lecture 0 Lab

Catalog Course Description:

A study of the business perspective, technical organization, operation, and governance of virtualization. This course will cover topics included in the Virtualization Essentials Professional (VEP) exam. Course materials are accredited by the Cloud Credential Council and registered with the Project Management Institute for PDU eligibility.

Prerequisites:

CITC 2320 Window Server Administration

Co-requisites:

None

Entry Level Standards:

College level reading, writing and math

Textbook/Materials:

Ascend Virtualization Training Program. Ascend Education ISBN 9780692176160. [Required]

Program Outcomes:

2. Demonstrate standard written and spoken English, and professional conduct to effectively communicate and succeed in an industry/computer setting.
3. Select and use industry specific software and hardware.
4. Apply problem solving skills appropriate for employment in a Computer and Information Technology specialty.

Student Learning Competencies:

1. Apply the knowledge, techniques, skills and modern tools of the concentration of study to specifically defined computer information technology activities.
2. Demonstrate the knowledge of mathematics, science and Computer Information Technology to computer information technology problems using developed practical knowledge.
4. Employ written, oral and visual communication in a technical environment.

Learning Indicators:

1. Identify Type 1 and Type 2 hypervisors
2. Ability to install and/or configure Microsoft Hyper-V
3. Ability to install and/or configure VMWare vSphere
4. Understand resource allocation for VM's such as CPU, memory, and storage
5. Ability to create a virtual machine
6. Understanding of cloud technology and/or Virtual Desktop installations

Assessment:

Assessment Alignment and Grade Distribution:

Assessment	Student Learning Competencies	Learning Indicators	Method	Distribution
Labs	1,2	1-5	Online lab and/or Assignment	20%
Exercises	1,2	1-5		20%
Tests	1,2,4	1-6	Test	20%
Final Project	1,2,4	6	Lab and/or product	20%
Final	1,2,4	1-6	Exam and/or product	20%

Grading Scale:

Letter grades are assigned in accordance with the Academic Regulations in the Chattanooga State catalog as follows:

Grading range	Grade	Grading range	Grade
90 - 100	A	65 -69	D
80 - 89	B	Below 65	F
70 - 79	C		

College Policy Statements:

This class is governed by the policies and procedures stated in the current Chattanooga State Student Handbook. Click this link to view College Policy Statements.

Last Updated: 02/25/2021

Chattanooga State Community College

Chattanooga, Tennessee
Engineering and Information Technologies Division
Course Syllabus

CITC 2375 Internet Software Development

3 Credit Hours: 3 Lecture 0 Lab

Catalog Course Description:

The history, growth and use of the internet are explored, and major internet protocols are discussed. Students use CSS, Java Script, Perl, PHP and other techniques to create dynamic Web content.

Prerequisites:

CISP1020 Computer Science 2 and CITC1303 Database Concepts

Co-requisites:

None

Entry Level Standards:

College level reading, writing and math

Textbook/Materials:

Starting out with Python Fourth Edition Gaddis, Tony Pearson 978-0-13-4444321 [Required]

Program Outcomes:

1. Apply basic industry principles, math concepts, and computational skills to industry and technical problems common to computer information technology.
2. Demonstrate standard written and spoken English and professional conduct to effectively communicate and succeed in an industry/computer setting.
4. Apply problem solving skills appropriate for employment in a Computer and Information Technology specialty.

Student Learning Competencies:

1. Apply the knowledge, techniques, skills, and modern tools of the concentration of study to specifically defined computer information technology activities.
2. Demonstrate the knowledge of mathematics, science, and Computer Information Technology to computer information technology problems using developed practical knowledge.
4. Identify, analyze, and solve specifically defined computer information technology-based problems.

Learning Indicators:

The student's ability to demonstrate the following will be indicators of their success in achieving the program and course level student learning outcomes.

1. Create complex web pages.

2. Define and outline the structure of the Document Object Model (DOM) underlying web pages
3. Use PHP or Python to create dynamic web pages.
4. Create a simple AJAX web site that performs asynchronous communication

Assessment:

Assessment Alignment and Grade Distribution:

Assessment	Student Learning Competencies	Learning Indicators	Distribution
Quizzes	1,2,4	2	33%
Exams	1,2,4	2	34%
Projects	1,2,4	1,2,3,4	33%

Grading Scale:

Letter grades are assigned in accordance with the Academic Regulations in the Chattanooga State catalog as follows:

Grading range	Grade	Grading range	Grade
90 - 100	A	65 -69	D
80 - 89	B	Below 65	F
70 - 79	C		

College Policy Statements:

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Last Updated: 09/04/2020

Chattanooga State Community College

Chattanooga, Tennessee
Engineering & Information Technologies Division
Course Syllabus

CITC 2390 CIT Capstone
3 Credit Hours: 3 Lecture 0 Lab

Catalog Course Description:
Understand, explain, design, and create a computer-based project in either an individual or team-based scenario. Projects will vary dependent on the student's concentration in programming, networking, or cyber defense. If possible, design teams will be formed with members from each concentration to complete the project.

Prerequisites:
CITC 2335 Systems Analysis and Design and CITC 1312 Introduction to Network Programming or CITC 2339 Configuring Advanced Services or CITC 2363 Internet Intranet Firewalls and eCom

Co-requisites:
None

Entry Level Standards:
College level reading, writing, and math

Textbook/Materials:
None required

Program Outcomes:
2. Demonstrate standard written and spoken English, and professional conduct to effectively communicate and succeed in an industry/computer setting.
4. Apply problem solving skills appropriate for employment in a computer and information technology specialty.
5. Develop, implement, troubleshoot, and operate networks, desktop and web applications, object-oriented programs and scripts, and IT security as required by a computer information technology specialty.
6. Upon completion of the program, all students will demonstrate critical thinking skills for inquiry and analysis, assimilation of facts and knowledge, and problem solving.

Student Learning Competencies:
2. Demonstrate the knowledge of mathematics, science, and Computer Information Technology to computer information technology problems using developed practical knowledge.
5. Employ written, oral, and visual communication in a technical environment.

Learning Indicators:

1. Students will be given choose an option from the list below and submit 4 reports accordingly to complete the course requirement.

Option1: Attempting certificate, here are deliverables:

- Report 01: Describe the certificate, the process to register, exams availability, exam location, exam dates, etc....
- Report 02: What areas/application of IT field this certificate helps
- Report 03: Certification preps materials and resources
- Report 04: Challenges, lessons learned, and other personal notes and/or suggestions that will help other want to pursue the same certificate.

  Note: Each report must be two or more pages, not including title page and references (must be formatted not just pure text), no compensation or fees will be awarded for certificate(s) will be provided.

Option 2: Attempting survey/research papers:

- 4 different approved topics (4 reports), 2 report from your concentration and 2 from any IT related field (including your concentration, all of them can be from your concentration). The direction and format are already listed in the course contents.

Option 3: Project-based capstone:

- Report 01: Project Objective and why is related to the concentration (Network, Cybersecurity, or Programming).
- Report 02: What you are trying to accomplish, what the problem this project design to solve, etc...
- Report 03: What technologies the project is implementing, what areas in the concentration this project cover.
- Report 04: The final project.

  Note: Each report must be two or more pages, not including title page and references (must be formatted not just pure text).

Assessment:

Assessment Alignment and Grade Distributions:

Assessment	Student Learning Competencies	Learning Indicators	Method	Distribution
Report 01	2, 5	1	Product	25%
Report 02	2, 5	1	Product	25%
Report 03	2, 5	1	Product	25%
Report 04	2, 5	1	Product	25%

Grading Scale:

Letter grades are assigned in accordance with the Academic Regulations in the Chattanooga State catalog as follows:

Grading range	Grade	Grading range	Grade
90 - 100	A	80 - 89	B

Grading range	Grade	Grading range	Grade
70 - 79	C	Below 65	F
65 - 69	D		

College Policy Statements:

This class is governed by the policies and procedures stated in the current Chattanooga State Student Handbook. Clink this link to view the College Policy Statements.

Last Updated: 12/30/2020

Chattanooga State Community College
Chattanooga, Tennessee
Engineering & Information Technologies Division
Course Syllabus

CITC 2399 CIT CO-OP/Internship

3 Credit Hours: 3 Lecture 0 Lab

Catalog Course Description:

This course will be a field experience such as an internship or coop experience. The student is expected to complete 200 plus hours on the location work site. This experience could be either paid or unpaid. Students will be interviewed by the information systems department faculty to gain acceptance into this course. Students will be made aware of possible background and drug tests by the employee. Application deadline for the Fall semester is April 15; deadline for the Spring semester is October 1.

Prerequisites:

CITC 2335 Systems Analysis and Design and CITC 1312 Introduction to Network Programming or CITC 2339 Configuring Advanced Services or CITC 2363 Internet Intranet Firewalls and eCom

Co-requisites:

None

Entry Level Standards:

College level reading, writing, and math

Textbook/Materials:

N/A

Program Outcomes:

2. Demonstrate standard written and spoken English, and professional conduct to effectively communicate and succeed in an industry/computer setting.
4. Apply problem solving skills appropriate for employment in a Computer and Information Technology specialty.
5. Develop, implement, troubleshoot, and operate networks, desktop, and web applications, object-oriented programs and scripts and IT security as required by a Computer Information Technology specialty.
6. Upon completion of the program, all students will demonstrate critical thinking skills for inquiry and analysis, assimilation of facts, and knowledge and problem solving.

Student Learning Competencies:

2. Demonstrate the knowledge of mathematics, science, and Computer Information Technology to computer information technology problems using developed practical knowledge.