

PROFESSIONAL TECHNICAL STUDIES (PTS) OVERVIEW

PTS INTRODUCTION:

The DoDEA Professional Technical Studies (PTS) Program offers career-related courses to middle and high school students. The PTS curriculum is organized around Career Clusters that identify pathways from secondary school to two- and four-year colleges, and the workplace. Career Clusters and Pathways represent a nationwide effort to help schools ensure that students get the knowledge and skills they need for multiple career choices by matching what is taught in the classroom to business and industry standards.

Professional Technical Studies works because it's practical as well as academic. PTS provides students with relevant contexts for learning. It's about the real world. It's about learning by doing. The PTS Career Practicum is the capstone experience.

DODEA CAREER CLUSTERS:

Architecture and Construction: Students explore career fields that include designing, managing, building, and maintaining the built environment.

Arts, AV/Technology, and Communication: Students explore career fields that include creating, exhibiting, performing, and publishing multimedia content.

Business, Management, and Administration: Students explore career fields that include organizing, directing, and evaluating functions essential to productive business operations.

Government and Public Administration: Students explore career fields that include executing government functions at the local, state, and federal level. ROTC is the only Pathway offered within this Cluster.

Health Sciences: Students explore career fields that include providing diagnostic and therapeutic services, health informatics, support services, and biotechnology.

Hospitality and Tourism: Students explore career fields that include managing restaurants and other food services, lodging, attractions, recreation events, and travel-related services.

Human Services: Students explore career fields that include providing for families and serving human needs. Personal Care Services is the only Pathway offered within this Cluster.

Manufacturing: Students explore career fields that include processing materials into intermediate or final products.

Information Technology: Students explore career fields that include designing, supporting, and managing hardware, software, multimedia, and systems integration.

Science, Technology, Engineering, and Mathematics (STEM): Students explore career fields that include performing scientific research and professional technical services in science, technology, engineering, and mathematics.

Transportation, Distribution, and Logistics: Students explore career fields that include managing movement of people, materials, and goods by road, pipeline, air, rail, and water.

UNDERSTANDING PTS STANDARDS:

The DoDEA PTS Standards are organized by Pathway and divided into two sections; one section for high school and one for middle school. Each Pathway includes a series of Strands, Standards, and Components. The Strands serve as topical keyword organizers. The Standards serve as overarching statements of what a student should know and be able to do. The Components represent steps required to achieve the Standards.

PTS INSTRUCTIONAL DESIGN:

Standards-based Education (SBE) is a philosophy in which standards—guide instructional decisions at the classroom level. The focus of instruction is on student learning and expectations for learning are the same for all students. Assessment is used to guide and, when necessary, modify instruction. The final qualifier of effectiveness of instruction is whether the instruction resulted in increased student learning. There is a paradigm shift from “Teacher.....to Student”, from, “How well did I teach?” to “What did my students learn?”. When planning for instruction, DoDEA PTS teachers should ask themselves five essential questions.

Instructional Design Essential Questions:

1. What do students need to learn?
2. What is the best way(s) to assess student’s knowledge of content?
3. How should data be analyzed?
4. How should teaching and learning be designed?
5. How should materials and resources be evaluated and selected?

Checklist for Teacher Understanding:

- I understand and can articulate in advance of teaching the achievement targets my students are expected to reach.
- I can transform these targets into effective assessments that yield accurate information.
- I inform my students regularly about those targets in terms they can understand.
- My students can describe what targets they are to achieve and what comes next in their learning.

ASSESSMENT:

Assessment provides a method for collecting ongoing data about student learning. Assessment does not always equal “grading”. Effective assessment takes place before instruction begins (pre-assessment), during instruction (formative assessment), and after instruction is completed (summative assessment).

“Good teaching is inseparable from good assessing” Grant Wiggins

Formative Assessment Essential Questions:

1. How will I find out how students are progressing?
2. How often will I need to check their progress?
3. How will I record the data?
4. What will I do as a result of the information I receive?
5. Do I need to refine summative assessment and rubrics?

Summative Assessment Essential Questions:

1. What evidence of student learning will I see?
2. Which assessment option(s) will be used?
3. How much information will I need to determine students’ proficiency?
4. What should be the next step(s)?
5. How will students who struggle be supported?

PTS SCENARIO-BASED INSTRUCTION AND ASSESSMENT:

In PTS curriculum development, the use of assessment scenarios is an extension of problem-based learning that functions as the context for the delivery of the PTS Standards. Scenario-based instruction provides an authentic, real-world, work situation which places skills and knowledge in the context where a solution must be demonstrated and a problem must be solved. Scenarios draw on technical, academic, intellectual, creativity, critical thinking, and workplace employability skills. The problems posed are from real-world situations in business and industry, communities and other settings.

Effective Scenarios provide realistic work situations with pre-established criteria that measure an individual's achievement of PTS standards. They require students to transfer knowledge and skills learned in the school to real life work situations. Well-designed scenarios place students in a simulated job role and setting

Effective Scenario Development:

- Requires demonstration of achievement of PTS standards
- Contains sufficient information to assess the intended outcome (includes sufficient detail for students to construct a good answer)
- Addresses important subject matter that requires serious thought
- Contains a challenging problem
- Reflects authentic workplace or other real life situations
- Integrates academic content and technical skill, integrating standards
- Is action oriented, interesting and motivating
- Is clearly written and understandable
- Includes assessment items
- Includes an assessment rubric
- Is appropriate for use in a variety of settings/locations

DoDEA PTS Resources

CAREER AWARENESS:

The following list includes federal occupational resources that may be of interest to PTS teachers and students.

Career Guide to Industries < http://www.bls.gov/oco/cg >	Career Guide to Industries is a companion Web site to the <i>Occupational Outlook Handbook</i> that provides career information by industry, including the nature of the industry, working conditions, employment, and occupations in the industry, training/advancement, earnings/benefits, employment outlook, and other information.
Career Voyages < http://www.careervoyages.gov >	Career Voyages is collaboration between the U.S. Department of Labor and the U.S. Department of Education designed to provide information on high growth, in-demand occupations along with the skills and education needed to attain those jobs.
Occupational Information Network (O*NET) < http://online.onetcenter.org >	The O*NET system, established by U.S. Department of Labor, serves as a primary source of occupational information, providing comprehensive information on key attributes and characteristics of workers and occupations.
Occupational Outlook Handbook < http://www.bls.gov/oco >	The <i>Occupational Outlook Handbook</i> , established by U.S. Department of Labor, is a nationally recognized source of career information, designed to provide valuable assistance to individuals making decisions about their future work lives.
Occupational Outlook Quarterly Online < http://www.bls.gov/opub/ooq/ooqhome.htm >	This online periodical provides practical information on jobs and careers. Articles are written in non-technical language and cover a wide variety of career and work-related topics such as new and emerging occupations, training opportunities, salary trends, and results of new studies from the Bureau of Labor Statistics.

PROFESSIONAL ORGANIZATIONS:

The following list includes career related professional organizations that may be of interest to PTS teachers and students. Many of these organizations provide curriculum resources, industry certification information, and career materials.

American Association of Family and Consumer Sciences (AAFCS) http://www.aafcs.org	AAFCS is dedicated to Family & Consumer Sciences professionals and strives to improve the quality and standards of individual and family life.
American Hotel and Lodging Educational Institute (AHLA) http://www.ei-ahla.org	The Educational Institute (EI) of the American Hotel & Lodging Association delivers hospitality education, training and professional certification that serves the needs of hospitality schools and industries worldwide.
American Society for Engineering Education (ASEE) http://www.asee.org	ASEE is a nonprofit organization of individuals and institutions committed to furthering education in engineering and engineering technology.
Association for Advancement of Computing in Education (AACE) http://www.aace.org	AACE is an international, educational and professional not-for profit organization dedicated to the advancement of the knowledge, theory, and quality of learning and teaching at all levels with information technology.
Association for Career and Technical Education (ACTE) http://www.acteonline.org	ACTE is the largest national education association dedicated to the advancement of education that prepares youth and adults for careers.
Career Clusters Organization www.careerclusters.org	The States' Career Clusters Initiative manages the development and expansion of career clusters and career resource materials.
Career Technical Student Organization-SkillsUSA http://www.skillsusa.org	SkillsUSA is a national nonprofit organization serving teachers and high school and college students who are preparing for careers in trade, technical and skilled service occupations, including health occupations.
Computer Science Teachers Association (CSTA) http://csta.acm.org	The CSTA is a membership organization that supports and promotes the teaching of computer science and other computing disciplines. <ul style="list-style-type: none"> • Published: K-12 Computer Science Model Curriculum
International Society of Technology in Education (ISTE) http://www.iste.org	ISTE provides leadership and service to improve teaching, learning, and school leadership by advancing the effective use of technology in PK-12 and teacher education. <ul style="list-style-type: none"> • Published NET*S, NETS*T, NETS*A
International Technology Education Association (ITEA) http://www.iteaconnect.org	ITEA is a professional association for technology education teachers who teach a curriculum called "technology education" which is problem-based learning utilizing math, science and technology principles. <ul style="list-style-type: none"> • Published: Standards for Technological Literacy

<p>National Automotive Technicians Education Foundation (NATEF) <http://www.natef.org></p>	<p>NATEF evaluates technician training programs against standards developed by the automotive industry and recommends qualifying programs for certification by ASE, the National Institute for Automotive Service Excellence.</p>
<p>National Business Education Association (NBEA) <http://www.nbea.org></p>	<p>NBEA is the nation's largest professional organization devoted exclusively to serving individuals and groups engaged in instruction, administration, research, and dissemination of information for and about business.</p> <ul style="list-style-type: none"> • Published: National Standards for Business Education
<p>National Cosmetology Association (NCA) <http://www.ncacares.org></p>	<p>The National Cosmetology Association (NCA) membership includes salon owners, hairdressers, nail technicians, estheticians, educators, and students.</p>
<p>National Restaurant Association Educational Foundation (NRAEF) <http://www.nraef.org></p>	<p>NRAEF provides educational resources, materials and programs which address attracting, developing and retaining the industry's workforce.</p>
<p>Partnership for 21st Century Skills (P21) <http://www.21stcenturyskills.org></p>	<p>21st Century Learning Skills define the knowledge and skills every student needs in order to succeed as effective citizens, workers and leaders in the 21st century. This skills set includes: (1) information and communication skills, (2) thinking and problem-solving skills, (3) interpersonal and self-direction skills, (4) global awareness, (5) financial, economic and business literacy, and (6) civic literacy. Visit the Partnership for 21st Century Learning for additional information</p>
<p>Student Television Network (STN) <http://www.studenttelevision.com></p>	<p>The Student Television Network is made up of affiliate schools with an active interest in furthering scholastic broadcasting and video production. STN seeks to "network" students, teachers and schools with one another. Professional organizations supporting STN include the Radio and Television News Directors Foundation, the National Television Academy Foundation, the American Academy of Arts and Channel One News.</p>

CREATIVITY SOFTWARE TOOLS (CST):

The following items describe DoDEA Creativity Software Tools (CST) available to DoDEA schools. The CST provide students with the ability to create and edit graphics, images, videos and Web sites; author multimedia projects; and use technology tools to analyze data and solve problems. The CST were distributed based on age/grade-level appropriateness of the tool. See your school Educational Technologist (ET) for access to the CST.

Atomic Learning	Technology integration tutorial that includes online video tutorials that assist students and teachers in the use of technology resources.
Adobe Captivate	Interactive multimedia tool that includes the ability to create layered, nonlinear files, interactive components and hypermedia applications to manage and communicate student work or teacher instruction.
Adobe Contribute	Web development tool that includes options for creating websites.
Adobe PhotoShop Elements	Photo imaging tool that includes the ability to import and edit photographic or digital images.
Adobe Premiere Elements	Video creation tool that includes the ability to create, edit and produce digital video.
Kidspiration	Critical thinking tool that includes the ability to facilitate critical thinking and decision-making through graphical manipulation of information.
Inspiration	Critical thinking tool that includes the ability to facilitate critical thinking and decision-making through graphical manipulation of information.
SnagIt	Screen capture tool that includes the ability to capture content as it appears on computer screens.
Tech4Learning Image Blender*	Photo imaging tool that includes the ability to import and edit photographic or digital images.
Tech4Learning Imagination Suite (Pixie, Image Blender* and Web Blender)	Includes graphic creation, Web development and photo imaging tools.
Tech4Learning Media Blender	Interactive multimedia tool that includes the ability to create layered nonlinear files, interactive components and hypermedia applications to manage and communicate student work or teacher instruction.
Tech4Learning Recipes4Success	Technology integration tutorial that includes online and downloadable tutorials, learning activities, resources, etc that assist students and teachers in the integration of technology.
Tech4Learning Twist	Vector graphics tool that includes ability to create and edit original or existing graphics.

LIBRARY INFORMATION CENTER RESOURCES:

The following items describe online resources available through DoDEA library information centers. These online resources are provided to DoDDS-Europe, DoDDS-Pacific, and the New York/Virginia/Puerto Rico/Cuba District. Other DDESS school districts receive similar online resources from individual statewide networks. See your school Information Specialist for access to the online databases.

GALE Discovering Collection	The Discovering Collection resources help students develop critical-thinking skills by placing people, places, events and primary documents in context to current events.
GALE InfoTrac	InfoTrac provides access to periodical and news content as well as indexing from a variety of general and specialized journals.
GALE Junior Reference Collection	Junior Reference Collection is a curriculum-based database for middle grades. Students have quick access to information on: science, literature, arts, biographies and general reference among others.
GALE Opposing Viewpoints Resource Center	Opposing Viewpoints Resource Center draws on the acclaimed social issues print series published by Greenhaven Press, as well as core reference content from other Thomson Gale and Macmillan Reference USA sources. Opposing Viewpoints Resource Center's unique features include Viewpoint articles — frameworks that allow students to explore each topic's many facets — and exclusive electronic access to Thomson Gale's Information Plus series featuring statistics and government data.
GALE Science Resource Center	Science Resource Center is an in-depth, curriculum-oriented science database that reflects curriculum trends and focuses on earth science, science history, life science, physical science, science and technology, and space.
GALE Student Resource Center	Student Resource Center offers easy access to award-winning content based on national curriculum standards. Covering the major subject areas, including history, literature, science, social studies. SRC also includes thousands of full-text periodicals and newspapers, primary documents, creative works, and multimedia, including hours of video and audio clips and podcasts.
Newsbank Access World News	Newsbank Access World News contains the electronic editions of record for local, regional, and national U.S. newspapers as well as full-text content of key international resources. Each provides unique coverage of local and regional news, including companies, politics, sports, industries, cultural activities, and people in the community.

Newsbank America's News Magazines	Newsbank America's News Magazines provides coverage of U.S. and international news, business, lifestyle, entertainment, sports, and science and technology from familiar magazines.
ProQuest eLibrary	eLibrary is a general reference tool that delivers a broad collection of periodical and digital media content. Researchers use the search interface to find the answers from magazines, newspapers, books, transcripts, maps, images, web links, and audio/video titles. Natural language, Boolean (keyword), topic, and publication searches are available.
ProQuest Professional Education	ProQuest Professional Education delivers over 300 full-text K-12 professional magazine and journal titles that address all aspects of K-12 education.
ProQuest SIRS Decades	SIRS Decades delivers thousands of primary and secondary source documents organized around the decades of the 20th century.
ProQuest SIRS Discoverer	SIRS Discoverer helps middle school students develop research, writing, language and computer skills. The database includes carefully selected full-text articles and images from more than 1,600 domestic and international newspapers, magazines, online sources and government documents.
ProQuest SIRS Knowledge Source	SIRS Knowledge Source (SKS) is a comprehensive database portal which is comprised of several distinct reference databases including SIRS Researcher®, SIRS Government Reporter®, SIRS Renaissance®, SKS WebSelect™, SIRS Discoverer®, and Discoverer WebFind™. Updated daily, SKS provides information on social issues, science, history, government, the arts and humanities.

Department of Defense Education Activity

Professional Technical Studies Pathway Endorsement Guide

DoDEA Clusters and Pathways
SY 07-08

Professional Technical Studies

Clusters & Pathways

Cluster:

Architecture & Construction

Pathway:

Design/Pre-Construction 1

Cluster:

Arts, A/V Technology & Communications

Pathway:

Audio & Video Technology & Film..... 2

Cluster:

Arts, A/V Technology & Communications

Pathway:

Journalism & Broadcasting..... 3

Cluster:

Business, Management & Administration

Pathway:

Administration & Information Support..... 4

Cluster:

Business, Management & Administration

Pathway:

Business Financial Management & Accounting..... 5

Cluster:

Business, Management & Administration

Pathway:

Management 6

Cluster:

Government and Public Administration

Pathway:

National Security/Military Career 7

Cluster:

Health Science

Pathway:

Therapeutic Services..... 9

Cluster:

Hospitality and Tourism

Pathway:

Lodging 10

Cluster:

Hospitality and Tourism

Pathway:

Restaurant and Food and Beverage Services 11

Cluster:

Human Services

Pathway:

Personal Care Services 12

Cluster:

Information Technology

Pathway:

Information Support & Services 13

Cluster:

Information Technology

Pathway:

Interactive Media 14

Cluster:

Information Technology

Pathway:

Programming/Software Engineering 15

Cluster:

Information Technology

Pathway:

Network Systems 16

Cluster:

Manufacturing

Pathway:

Manufacturing Production Process Development 17

Cluster:

Science, Technology, Engineering & Mathematics

Pathway:

Engineering & Technology 18

Cluster:

Transportation, Distribution & Logistics

Pathway:

Facility & Mobile Equipment Maintenance 19

Cluster:

Transportation, Distribution & Logistics

Pathway:

Sales & Service 20

**DoDEA Professional Technical Studies
Clusters and Pathways**

Cluster:

Architecture & Construction

Pathway:

Design/Pre-Construction

Required Courses			
Course No.	Course Name	Credits	Subj. Area
PTE305	Architectural Drawing	1	GC/GV
PTE405	Applied Architectural Design/CAD	1	GC/GV
Recommended Courses			
Course No.	Course Name	Credits	Subj. Area
PTE301	Principles of Engineering	.5	GV
PTE603	Engineering Design/Development	1	GC/GV
PTI409	Computer Animation	1	GC/GV
MAD501	Math Analysis	1	GM
SCP501	Physics	1	GS
PTW50*	Career Practicum (Pathway Related)	1	GV
Related Courses			
Course No.	Course Name	Credits	Subj. Area
PTE303	Engineering Drawing/CAD	1	GC/GV
PTP305/306	Java I/II or		
PTP307/308 (OT)	Visual Basic I/II	.5 - 1	GC
PTP511 (OT)	AP Computer Science A	1	GC
PTP512 (OT)	AP Computer Science AB	1	GC

Only required and recommended courses apply toward four Carnegie unit endorsements.

**DoDEA Professional Technical Studies
Clusters and Pathways**

Cluster:

Arts, A/V Technology & Communications

Pathway:

Audio & Video Technology & Film

Required Courses			
Course No.	Course Name	Credits	Subj. Area
PTV301	Video Communications I	1	GC/GV
PTV401	Video Communications II	1	GC/GV
Recommended Courses			
Course No.	Course Name	Credits	Subj. Area
PTV501	Video Communications III	1	GC/GV
PTI310	TLC Tech. Leadership Community	1	GC/GV
PTI405	Interactive Multimedia	1	GC
PTW50	Career Practicum (Pathway Related)	1	GV
Related Courses			
Course No.	Course Name	Credits	Subj. Area
ARH401	Photography I	1	GF
PTI409	Computer Animation	1	GC/GV
MUC301	Computer Music	.5	GF
DRA301	Drama	1	GF

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**DoDEA Professional Technical Studies
Clusters and Pathways**

Cluster:

Arts, A/V Technology & Communications

Pathway:

Journalism & Broadcasting

Required Courses			
Course No.	Course Name	Credits	Subj. Area
PTV301	Video Communications I	1	GC/GV
LAS401 or LAJ401	Speech or Journalism	1	Elective
Recommended Courses			
Course No.	Course Name	Credits	Subj. Area
PTV401	Video Communications II	1	GC/GV
PTV501	Video Communications III	1	GC/GV
DRA301	Drama	1	GF
LAS401 or LAJ401	Speech or Journalism	1	Elective
PTI303	Word Processing Software Applications	.5	GC
PTW50*	Career Practicum (Pathway Related)	1	GV
Related Courses			
Course No.	Course Name	Credits	Subj. Area
PTI310	TLC Tech. Leadership Community	1	GC/GV

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**DoDEA Professional Technical Studies
Clusters and Pathways**

Cluster:

Business, Management & Administration

Pathway:

Administration & Information Support

Required Courses			
Course No.	Course Name	Credits	Subj. Area
PTI303	Word Processing Software Applications	.5	GC
PTI304	Presentation Software Applications	.5	GC
PTI306	Spreadsheet Software Applications	.5	GC
Recommended Courses			
Course No.	Course Name	Credits	Subj. Area
PTI305	Database Software Applications	1	GC
PTI306	Spreadsheet Software Applications (Continuation)	.5	GC
PTI307	Imaging Software Applications	1	GC
PTI308	Publication Software Applications	1	GC/GV
PTB401	Management International Business	1	GV
PTB402	Accounting I	1	GV
PTI407	Web Site Development/Management	.5	GC/GV
PTW50*	Career Practicum (Pathway Related)	1	GV
Related Courses			
Course No.	Course Name	Credits	Subj. Area
PTB301	Business and Personal Finance	1	GV
PTB503	Business Law	1	GV
PTI301	Computer Applications	.5	GC
PTI310	Technology Leadership Community	1	GC/GV

Only required and recommended courses apply toward four Carnegie unit endorsements.

**DoDEA Professional Technical Studies
Clusters and Pathways**

Cluster:

Business, Management & Administration

Pathway:

Business Financial Management & Accounting

Required Courses			
Course No.	Course Name	Credits	Subj. Area
PTB402	Accounting I	1	GV
PTB502	Accounting II	1	GV
Recommended Courses			
Course No.	Course Name	Credits	Subj. Area
PTB401	Management International Business	1	GV
PTB503	Business Law	1	GV
PTI303	Word Processing Software Applications	.5	GC
PTI304	Presentations Software Applications	.5	GC
PTI305	Database Software Applications	1	GC
PTI306	Spreadsheet Software Applications	1	GC
PTW50*	Career Practicum (Pathway Related)	1	GV
Related Courses			
Course No.	Course Name	Credits	Subj. Area
PTI301	Computer Applications I	.5	GC
PTB301	Business and Personal Finance	1	GV

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**DoDEA Professional Technical Studies
Clusters and Pathways**

Cluster:

Business, Management & Administration

Pathway:

Management

Required Courses			
Course No.	Course Name	Credits	Subj. Area
PTB401	Management International Business	1	GV
PTB501	Marketing & Entrepreneurship	.5	GV
Recommended Courses			
Course No.	Course Name	Credits	Subj. Area
PTB501	Marketing & Entrepreneurship (Continuation)	.5	GV
PTB402	Accounting I	1	GV
PTI305	Database Software Applications	1	GC
PTI306	Spreadsheet Software Applications	1	GC
PTI308	Publication Software Applications	1	GC/GV
PTB503	Business Law	1	GV
PTW50*	Career Practicum (Pathway Related)	1	GV
Related Courses			
Course No.	Course Name	Credits	Subj. Area
PTI307	Imaging Software Applications	1	GC
PTB301	Business and Personal Finance	1	GV
PTI303	Word Processing Software Applications	.5	GC
PTI304	Presentations Software Applications	.5	GC
PTI301	Computer Applications I	.5	GC

Only required and recommended courses apply toward four Carnegie unit endorsements.

**DoDEA Professional Technical Studies
Clusters and Pathways**

Cluster:

Government and Public Administration

Pathway:

National Security/Military Career

Required Courses			
Course No.	Course Name	Credits	Subj. Area
VEF301	Air Force JROTC I	1	GV
VEM301	Marine JROTC I (one of these 4)	1	GV
VER301	Army JROTC I	1	GV
VEV301	Navy JROTC I	1	GV
VEF401	Air Force JROTC II	1	GV
VEM401	Marine JROTC II (one of these 4)	1	GV
VER401	Army JROTC II	1	GV
VEV401	Navy JROTC II	1	GV
OR			
VEF501	Air Force JROTC III	1	GV
VEM501	Marine JROTC III (one of these 4)	1	GV
VER501	Army JROTC III	1	GV
VEV501	Navy JROTC III	1	GV
Recommended Courses			
Course No.	Course Name	Credits	Subj. Area
VEF401	Air Force JROTC II	1	GV
VEM401	Marine JROTC II	1	GV
VER401	Army JROTC II	1	GV
VEV401	Navy JROTC II	1	GV
OR			
VEF501	Air Force JROTC III	1	GV
VEM501	Marine JROTC III	1	GV
VER501	Army JROTC III	1	GV
VEV501	Navy JROTC III	1	GV
VEF601	Air Force JROTC IV	1	GV
VEM601	Marine JROTC IV	1	GV
VER601	Army JROTC IV	1	GV
VEV601	Navy JROTC IV	1	GV

**DoDEA Professional Technical Studies
Clusters and Pathways**

Recommended Courses			
Course No.	Course Name	Credits	Subj. Area
SSP501	Psychology	.5	GE
SS401	Sociology	.5	GE
LAS401	Speech	1	Elective
SSZ303	Street Law	.5	GE
PTW50*	Career Practicum	1	GV
No Related Courses			

Only required and recommended courses apply toward four Carnegie unit endorsements.

**DoDEA Professional Technical Studies
Clusters and Pathways**

Cluster:

Health Science

Pathway:

Therapeutic Services

Required Courses			
Course No.	Course Name	Credits	Subj. Area
PTH402	Health Science 1	1	GV
PTH502	Health Science 2	2	GV
Recommended Courses			
Course No.	Course Name	Credits	Subj. Area
PTZ306	Nutrition, Fitness and Wellness	.5	GV
SCX401	Human Anatomy & Physiology	1	GS
SSP501	Psychology	.5	GE
SSS401	Sociology	.5	GE
PTI301	Computer Applications 1	.5	GC
PTW50*	Career Practicum	1	GV
Related Courses			
Course No.	Course Name	Credits	Subj. Area
SCB401	Biology	1	GS

Only required and recommended courses apply toward four Carnegie unit endorsements.

**DoDEA Professional Technical Studies
Clusters and Pathways**

Cluster:

Hospitality and Tourism

Pathway:

Lodging

Required Courses			
Course No.	Course Name	Credits	Subj. Area
PTL401	Lodging I	1	GV
PTL502	Lodging II	2	GV
	Or		
PTL402	Lodging I	2	GV
PTL501	Lodging II	1	GV
Recommended Courses			
Course No.	Course Name	Credits	Subj. Area
PTF401	Culinary Arts I	2	GV
PTB401	Management International Business	1	GV
PTB501	Marketing & Entrepreneurship	1	GV
PTZ306	Nutrition, Fitness and Wellness	.5	GV
PTW50*	Career Practicum (Pathway Related)	1	GV
Related Courses			
Course No.	Course Name	Credits	Subj. Area
PTB402	Accounting I	1	GV
PTB503	Business Law	1	GV

Only required and recommended courses apply toward four Carnegie unit endorsements.

**DoDEA Professional Technical Studies
Clusters and Pathways**

Cluster:

Hospitality and Tourism

Pathway:

Restaurant and Food and Beverage Services

Required Courses			
Course No.	Course Name	Credits	Subj. Area
PTF401	Culinary Arts I	2	GV
PTF402	Culinary Arts II	2	GV
Recommended Courses			
Course No.	Course Name	Credits	Subj. Area
PTF403	Culinary Arts III	2	GV
PTB401	Management International Business	1	GV
PTB501	Marketing & Entrepreneurship	1	GV
PTL401	Lodging I or	1	GV
PTL402	Lodging II		
PTZ306	Nutrition, Fitness and Wellness	.5	GV
PTW50*	Career Practicum (Pathway Related)	1	GV
Related Courses			
Course No.	Course Name	Credits	Subj. Area
PTB402	Accounting I	1	GV
PTB503	Business Law	1	GV
SSP501	Psychology	.5	GE
SSS401	Sociology	.5	GE

Only required and recommended courses apply toward four Carnegie unit endorsements.

**DoDEA Professional Technical Studies
Clusters and Pathways**

Cluster:

Human Services

Pathway:

Personal Care Services

Required Courses			
Course No.	Course Name	Credits	Subj. Area
PTC301	Cosmetology I	1	GV
PTC401	Cosmetology II	1	GV
Recommended Courses			
Course No.	Course Name	Credits	Subj. Area
PTC303	Fashion Modeling	.5	GV
PTB401	Management International Business	1	GV
PTC501	Cosmetology III	1	GV
PTC601	Cosmetology IV	1	GV
SCX401	Human Anatomy & Phy	1	GS
PTB301	Business and Personal Finance	1	GV
ARH401	Photography I	1	GF
PTI407	Web Site Development/Management	1	GV
PTW50*	Career Practicum (Pathway Related)	1	GV
Related Courses			
Course No.	Course Name	Credits	Subj. Area
PTB501	Marketing & Entrepreneurship	1	GV
SSP503	Social Psychology	1	GE
SCC501	Chemistry	1	GS

Only required and recommended courses apply toward four Carnegie unit endorsements.

**DoDEA Professional Technical Studies
Clusters and Pathways**

Cluster:

Information Technology

Pathway:

Information Support & Services

Required Courses			
Course No.	Course Name	Credits	Subj. Area
PTI309	Computer Service & Support	1	GC/GV
PTE309	Digital Electronics I or	.5	GV
PTP305 (OT)	Java I or		GC
PTP307 (OT)	Visual BASIC Programming I		GC
Recommended Courses			
Course No.	Course Name	Credits	Subj. Area
PTE309	Digital Electronics I	.5	GV
PTE409	Digital Electronics II	.5	GV
PTE301	Principles of Engineering	.5	GV
PTP305/306	Java I & II or	.5	GC
PTP307/308 (OT)	Visual BASIC I & II		GC
PTI303	Word Processing Software Applications	.5	GC
PTI304	Presentations Software Applications	.5	GC
PTI305	Database Software Applications	1	GC
PTI306	Spreadsheet Software Applications	1	GC
PTI407	Web Site Development/Management	.5	GC/GV
PTP511 (OT)	AP Computer Science A or	1	GC
PTP512 (OT)	AP Computer Science AB	1	GC/GV
PTI501	Cisco Networking I		
PTW50*	Career Practicum (Pathway Related)	1	GV
Related Courses			
Course No.	Course Name	Credits	Subj. Area
PTB501	Marketing & Entrepreneurship	.5	GV
PTI310	Technology Leadership Community	1	GC/GV

Only required and recommended courses apply toward four Carnegie unit endorsements.

**DoDEA Professional Technical Studies
Clusters and Pathways**

Cluster:

Information Technology

Pathway:

Interactive Media

Required Courses			
Course No.	Course Name	Credits	Subj. Area
PTI405	Interactive Multimedia	1	GC/GV
PTI407	Web Site Development/Management	.5	GC/GV
PTI308	Publication Software Applications	1	GC/GV
Recommended Courses			
Course No.	Course Name	Credits	Subj. Area
PTI409	Computer Animation	1	GC/GV
LAJ401	Journalism I	1	Elective
PTV301	Video Communications I	1	GC/GV
PTB501	Marketing & Entrepreneurship	1	GV
PTI407	Web Site Development/Management (Continuation)	.5	GC/GV
AAY301	Yearbook Production	1	Elective
ARA301	Fundamentals of Art	1	GF
PTI307	Imaging Software Applications	1	GC
PTW50*	Career Practicum (Pathway Related)	1	GV
Related Courses			
Course No.	Course Name	Credits	Subj. Area
ARH401	Photography I	1	GF
ARC301	Computer Art	1	GF
ARV301	Video Art	1	GF

Only required and recommended courses apply toward four Carnegie unit endorsements.

**DoDEA Professional Technical Studies
Clusters and Pathways**

Cluster:

Information Technology

Pathway:

Programming/Software Engineering

Required Courses			
Course No.	Course Name	Credits	Subj. Area
PTP	One full year of one of the following programming languages and one semester of another language:	1.5	GC
305/6 (OT)	Java I & II or		
307/8 (OT)	Visual Basic Programming I & II or		
511 (OT)	AP Computer Science A or		
512 (OT)	AP Computer Science AB		
PTP305 (OT)	Java I or	.5	GC
PTP306 (OT)	Java II or		
PTP307 (OT)	Visual Basic Programming I or		
PTP308 (OT)	Visual Basic Programming II		
(OT indicates that the courses are offered through Distance Learning)			
Recommended Courses			
Course No.	Course Name	Credits	Subj. Area
PTP305 (OT)	Java I	.5	GC
PTP306 (OT)	Java II	.5	GC
PTP307 (OT)	Visual Basic Programming I	.5	GC
PTP308 (OT)	Visual Basic Programming II	.5	GC
PTP511 (OT)	AP Computer Science A	1	GC
PTP512 (OT)	AP Computer Science AB	1	GC
PTI407	Web Site Development/Management	.5	GC/GV
MAA401	Algebra II	1	GM
PTW50*	Career Practicum (Pathway Related)	1	GV
Related Courses			
Course No.	Course Name	Credits	Subj. Area
PTI310	Technology Leadership Community	1	GC/GV
MAD501	Math Analysis	1	GM

Only required and recommended courses apply toward four Carnegie unit endorsements.

**DoDEA Professional Technical Studies
Clusters and Pathways**

Cluster:

Information Technology

Pathway:

Network Systems

Required Courses			
Course No.	Course Name	Credits	Subj. Area
PTI501	Cisco Networking I	1	GC/GV
PTI601	Cisco Networking II	1	GC/GV
Recommended Courses			
Course No.	Course Name	Credits	Subj. Area
PTI309	Computer Service & Support	1	GC/GV
PTE309	Digital Electronics I	.5	GV
PTE409	Digital Electronics II	.5	GV
PTP307/(0T)	Visual BASIC Programming I	.5	GC
PTP308/(0T)	Visual BASIC Programming II	.5	GC
PTP305/(0T)	Java I	.5	GC
PTP306/(0T)	Java II	.5	GC
PTP511 (0T)	AP Computer Science A	1	GC
PTP512 (0T)	AP Computer Science AB	1	GC
MAA401	Algebra II	1	GM
PTW50*	Career Practicum (Pathway Related)	1	GV
Related Courses			
Course No.	Course Name	Credits	Subj. Area
PTI310	Technology Leadership Community	1	GC/GV

Only required and recommended courses apply toward four Carnegie unit endorsements.

**DoDEA Professional Technical Studies
Clusters and Pathways**

Cluster:

Manufacturing

Pathway:

Manufacturing Production Process Development

Required Courses			
Course No.	Course Name	Credits	Subj. Area
PTE501	Engineering Design and Technology I	1	GV
Recommended Courses			
Course No.	Course Name	Credits	Subj. Area
PTE601	Engineering Design and Technology II	.5-1	GV
PTE301	Principles of Engineering	.5	GV
PTE303	Engineering Drawing/CAD	1	GC/GV
PTE309	Digital Electronics I	.5	GV
PTE409	Digital Electronics II	.5	GV
PTE603	Engineering Design/Development	1	GC/GV
PTI409	Computer Animation	1	GC/GV
MAD501	Math Analysis	1	GM
SCP501	Physics	1	GS
PTW50*	Career Practicum (Pathway Related)	1	GV
No Related Courses			

Only required and recommended courses apply toward four Carnegie unit endorsements.

**DoDEA Professional Technical Studies
Clusters and Pathways**

Cluster:

Science, Technology, Engineering & Mathematics

Pathway:

Engineering & Technology

Required Courses			
Course No.	Course Name	Credits	Subj. Area
PTE303	Engineering Drawing/CAD	1	GV/GC
Recommended Courses			
Course No.	Course Name	Credits	Subj. Area
PTE301	Principles of Engineering	.5	GV
PTE309	Digital Electronics I	.5	GV
PTE409	Digital Electronics II	.5	GV
PTE603	Engineering Design/Development	1	GC/GV
PTE501/601	Engineering Design and Technology I & II	.5-1	GV
PTI409	Computer Animation	1	GC/GV
PTE405	Applied Architectural Design/CAD	1	GC/GV
PTP305/6(0T)	Java I & II or	.5-1	GC
PTP307/8(0T)	Visual Basic Programming I & II or		
PTP511(0T)	AP Computer Science A or		
PTP512 (0T)	AP Computer Science AB or		
PTP515	Advanced Computer Studies		
PTI501/601	Cisco Networking I & II	.5-2	GC/GV
MAD501	Math Analysis	1	GM
SCP501	Physics	1	GS
PTW50*	Career Practicum (Pathway Related)	1	GV
No Related Courses			

Only required and recommended courses apply toward four Carnegie unit endorsements.

**DoDEA Professional Technical Studies
Clusters and Pathways**

Cluster:

Transportation, Distribution & Logistics

Pathway:

Facility & Mobile Equipment Maintenance

Required Courses			
Course No.	Course Name	Credits	Subj. Area
PTT303	Auto Tech—2 hr	2	GV
Recommended Courses			
Course No.	Course Name	Credits	Subj. Area
PTT301	Welding—1 hr	1	GV
PTW50*	Career Practicum (Pathway Related)	.5–3	GV
No Related Courses			

Only required and recommended courses apply toward four Carnegie unit endorsements.

**DoDEA Professional Technical Studies
Clusters and Pathways**

Cluster:

Transportation, Distribution & Logistics

Pathway:

Sales & Service

Required Courses			
Course No.	Course Name	Credits	Subj. Area
PTT302	Auto Tech I—1 hr	1	GV
Recommended Courses			
Course No.	Course Name	Credits	Subj. Area
PTT303	Auto Tech—2 hr	1	GV
PTT301	Welding	1	GV
PTB401	Management International Business	1	GV
PTB501	Marketing & Entrepreneurship	1	GV
PTW50*	Career Practicum (Pathway Related)	.5–3	GV
No Related Courses			

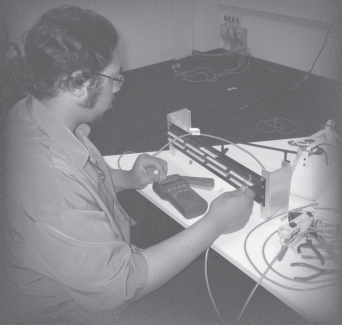
Only required and recommended courses apply toward four Carnegie unit endorsements.

dodea

DEPARTMENT OF DEFENSE EDUCATION ACTIVITY



DoDEA Curriculum Content Standards



Professional Technical Studies (PTS)

High School Standards

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Professional Technical Studies:
Career Development Program

STRAND

PT-CDP1

Career Development

Students use skills to plan career paths and pursue career opportunities.

Standard:

PT-CDP1a Students will conduct career research and evaluate career information so as to:

Components:

PT-CDP1a.1 use a variety of resources to research career options;

PT-CDP1a.2 understand available educational opportunities for a variety of career fields (e.g., internships, job training programs, technical training, college, etc.);

PT-CDP1a.3 identify the type of preparation, skills, and abilities required to gain entry-level employment in variety of career fields;

PT-CDP1a.4 understand how demographic, geographic, and technological trends affect education, training programs, and career opportunities; and

PT-CDP1a.5 analyze potential career information (e.g., salary, benefits, growth, workplace location, etc.)

Standard:

PT-CDP1b The student will conduct a career interest self-assessment so as to:

Components:

PT-CDP1b.1 understand how personal interests, hobbies, extra-curricular activities, volunteer work, career practicum, apprenticeships, and so on can serve as work experience or lead to a career; and

PT-CDP1b.2 identify preferred working environments (e.g., self-employed, large company, small business, private sector, government, etc.)

Standard:

PT-CDP1c The student will establish a career action plan so as to:

Components:

PT-CDP1c.2 identify work options based on career interests;

PT-CDP1c.3 evaluate the likelihood of obtaining a job and advancing in the career field of interest;

PT-CDP1c.4 prepare a resume summarizing skills, training, experience, etc.;

PT-CDP1c.5 apply knowledge gained from individual career research and interest assessments to form a career action plan; and

PT-CDP1c.6 participate in career development programs (e.g., career fairs, job shadowing, practicum, internships, etc)

STRAND

PT-CDP2

Employability

Students learn workplace skills which allow them to gain employment.

Standard:

PT-CDP2a.1 The student will exhibit reliability characteristics and workplace ethics, so as to:

Components:

PT-CDP2a.2 exhibit reliability and dependability behaviors e.g., punctuality, attendance, completion of assignments, etc.;

PT-CDP2a.3 understand ethical character traits as related to the workplace e.g., integrity, honesty, etc.;

Professional Technical Studies Standards:
Career Development Program (CDP)

	PT-CDP2a.4	understand the concept of professional image e.g., appearance, language, attitude, etc.;
	PT-CDP2a.5	identify skills necessary to function in a diverse and multicultural workplace; and
	PT-CDP2a.6	collaborate with peers, colleagues, experts, and others to achieve workplace goals.
Standard:	PT-CDP2b	The student will understand how to operate effectively within the workplace so as to:
Components:	PT-CDP2b.1	identify workplace goals and values e.g., commerce, community, philanthropy, etc.;
	PT-CDP2b.2	understand how personal skills and abilities can increase workplace efficiency and productivity;
	PT-CDP2b.3	understand workplace culture;
	PT-CDP2b.4	understand changes in the nature of work and the workplace; and
	PT-CDP2b.5	identifies resources to improve work performance and support life-long learning (e.g., training, workshops, seminars, etc.)

Professional Technical Studies: Architecture & Construction Cluster
Design/Pre-Construction Pathway

Strand:

PT-DPC1

Academics

Students apply English language arts, mathematics, science, and social studies content area skills.

Standard:

PT-DPC1a: The student will employ basic methods of data collection and analysis to provide information for projects so as to:

Components:

PT-DPC1a.1: access research methods available to formulate project planning and problem solving; and

PT-DPC1a.2: provide appropriate precedents for development of a project.

Standard:

PT-DPC1b: The student will use appropriate formulas to determine ratios, fractions, and proportion measures so as to:

Components:

PT-DPC1b.1: calculate ratios, fractions, and proportion measures; and

PT-DPC1b.2: use ratios, fractions, and proportion measures to perform measurement tasks.

Strand:

PT-DPC2

Communication Skills

Students use information technology to express and interpret information.

Standard:

PT-DPC2a: The student will work with potential clients so as to:

Component:

PT-DPC2a.1: make a presentation to explain a concept.

Strand:

PT-DPC3

Problem Solving and Critical Thinking

Students use information technology to define, test, and solve problems.

Standard:

PT-DPC3a: The student will identify the relationship between available resources and requirements of a project or problem that needs to be solved in order to accomplish realistic planning so as to:

Components:

PT-DPC3a.1: estimate resources/materials required for a specific project/problem—including time management, labor management, job management, and job site obligations—in order to effectively plan;

PT-DPC3a.2: use available resources/materials effectively to complete project or resolve a problem; and

PT-DPC3a.3: determine alternative solutions for a specific project/problem in order to effectively plan.

Standard:

PT-DPC3b: The student will evaluate and adjust plans/schedules to respond to unexpected events and conditions so as to:

Components:

PT-DPC3b.1: adjust plans and schedules to meet project needs;

PT-DPC3b.2: identify and assess critical situations as they arise to resolve issues; and

PT-DPC3b.3: provide a project update to track changes necessitated by unexpected events and conditions.

Standard:	PT-DPC3c: The student will synthesize and report conditions to keep the organization apprised of progress and problems so as to:
Component:	PT-DPC3c.1: provide a project update to keep stakeholders up to date.
Strand:	
PT-DPC4	Information Technology Applications Students use computers, networks, and communication technology to access, organize, process, transmit, and communicate information.
Standard:	PT-DPC4a: The student will use information technology tools specific to architecture and construction to access, manage, integrate, and create information so as to:
Components:	PT-DPC4a.1: manage personal schedule and contact information; PT-DPC4a.2: create memos and notes; and PT-DPC4a.3: use a CAD system to perform drafting duties.
Standard:	PT-DPC4b: The student will use electronic mail applications so as to:
Components:	PT-DPC4b.1: use e-mail to communicate within and across organizations; and PT-DPC4b.2: use e-mail to share files and documents.
Standard:	PT-DPC4c: The student will use Internet applications so as to:
Components:	PT-DPC4c.1: search for information and resources; and PT-DPC4c.2: access and evaluate Internet resources.
Standard:	PT-DPC4d: The student will use writing and publishing applications so as to:
Component:	PT-DPC4d.1: prepare simple documents and other business communications.
Standard:	PT-DPC4e: The student will use spreadsheet applications so as to:
Components:	PT-DPC4e.1: create a spreadsheet; and PT-DPC4e.2: perform calculations and analysis on data.
Standard:	PT-DPC4f: The student will use computer operations applications so as to:
Components:	PT-DPC4f.1: manage computer operations; and PT-DPC4f.2: manage file storage.
Strand:	
PT-DPC5	Systems Students use an organized set of ideas and principles to explain or interact among structured organizations.
Standard:	PT-DPC5a: The student will integrate structural systems, environmental systems, safety systems, building envelope systems, and building service systems to design modern buildings so as to:
Component:	PT-DPC5a.1: assess building systems and their interrelationships to development design criteria.
Standard:	PT-DPC5b: The student will review traditional project phases and various roles in them to plan for implementation phases within a project so as to:
Component:	PT-DPC5b.1: relate traditional project phases and various roles within them to a current project.

Standard:	PT-DPC5c:	The student will examine the relationship of roles and responsibilities between trades/professions to complete a project/job so as to:
Components:	PT-DPC5c.1:	plan, organize, schedule, and manage a project/job to optimize workflow sequence;
	PT-DPC5c.2:	use time management skills to schedule a project/job; and
	PT-DPC5c.3:	recognize relationships between trades/professions to facilitate smooth workflow.
Standard:	PT-DPC5d:	The student will examine all aspects of the built environment and its systems to complete project planning so as to:
Component:	PT-DPC5d.1:	align and incorporate the built environment and its systems to the complete project.
Standard:	PT-DPC5e:	The student will apply industry standards and practices for quality to ensure quality work so as to:
Components:	PT-DPC5e.1:	identify industry standards and practices in order to incorporate quality into projects; and
	PT-DPC5e.2:	use industry standards and practices to evaluate workmanship.
Strand:	PT-DPC6	Safety, Health, and Environment Students understand the importance of safety, health, environmental, and regulatory compliance in the workplace.
Standard:	PT-DPC6a:	The student will apply the basic principles of environmental impact to enhance project acceptance and quality so as to:
Component:	PT-DPC6a.1:	evaluate and align sustainable design elements to add value to a project.
Standard:	PT-DPC6b:	The student will apply design requirements to accommodate people with varying physical abilities so as to:
Component:	PT-DPC6b.1:	study the “Americans with Disabilities Act” in order to build compliance into project designs.
Strand:	PT-DPC7	Leadership and Teamwork Students collaborate with others to accomplish goals and objectives.
Standard:	PT-DPC7a:	The student will incorporate the diversity of needs, values, and social patterns in project design so as to:
Component:	PT-DPC7a.1:	identify Western, non-Western, national, regional traditions and heritage to express diversity in project design as required.
Standard:	PT-DPC7b:	The student will establish specific goals to manage project assignments in a timely manner so as to:
Components:	PT-DPC7b.1:	establish project goals in order to meet project specifications and deadlines; and
	PT-DPC7b.2:	organize work teams to effectively manage assignments.
Standard:	PT-DPC7c:	The student will work as an individual and as a team member to accomplish assignments so as to:

Components:	PT-DPC7c.1: use human relations skills to work cooperatively with coworkers representing different cultures, genders, and backgrounds;
	PT-DPC7c.2: track team goals to contribute constructively and positively to the team;
	PT-DPC7c.3: match team members to appropriate activities; and
	PT-DPC7c.4: manage personal skills to accomplish assignments.
Standard:	PT-DPC7d: The student will use mentoring skills to inspire others to achieve so as to:
Component:	PT-DPC7d.1: use motivational techniques to enhance performance in others.
Strand:	
PT-DPC8	Architectural Technology Applications Students use computers, networks, drafting and communication technology to access, organize, process, produce, transmit and communicate information.
Standard:	PT-DPC8a: The student will use drawings and computer-generated plans to develop a technical set of drawings so as to:
Component:	PT-DPC8a.1: identify client's needs and wants to develop criteria for a set of technical drawings.
Standard:	PT-DPC8b: The student will employ appropriate representational media to convey essential formal elements so as to:
Components:	PT-DPC8b.1: use two- and three-dimensional drawings to convey graphic information;
	PT-DPC8b.2: reference drawings and sketches to build models; and
	PT-DPC8b.3: use appropriate computer technology to convey graphic information.
Standard:	PT-DPC8c: The student will study principles, conventions, standards, applications, and restrictions pertaining to the manufacture and use of construction materials, components, and assemblies to incorporate into project design so as to:
Components:	PT-DPC8c.1: evaluate and select building materials and assemblies to meet project specifications; and
	PT-DPC8c.2: use appropriate combinations of building materials and components to satisfy the requirements of building programs.
Standard:	PT-DPC8d: The student will apply basic organizational, spatial, structural, and construction principles to the design of the interior and exterior spaces so as to:
Component:	PT-DPC8d.1: evaluate and select the most appropriate solution.
Strand:	
PT-DPC9	Employability and Career Development Students use computers, networks, and communication technology to access, organize, process, transmit, and communicate information.
Standard:	PT-DPC9a: The student will exhibit a positive work ethic to comply with employment requirements so as to:
Component:	PT-DPC9a.1: exhibit behaviors showing reliability and dependability.

Standard:	PT-DPC9b:	The student will recognize requirements for career advancement to plan for continuing education and training so as to:
Components:	PT-DPC9b.1:	identify opportunities for career advancement to formulate career goals;
	PT-DPC9b.2:	maintain positive interpersonal skills to enhance potential for advancement;
	PT-DPC9b.3:	pursue education and training opportunities to acquire skills necessary for career advancement;
	PT-DPC9b.4:	read trade magazines and journals, manufacturers' catalogues, industry publications, and material on Internet sites to keep current on industry trends; and
	PT-DPC9b.5:	examine the organization and structure of various segments of the industry to prepare for career advancement.
Standard:	PT-DPC9c:	The student will recognize the responsibilities and personal characteristics of a professional craftsperson to develop personal goals for professionalism so as to:
Components:	PT-DPC9c.1:	research workplace/jobsite information to identify appropriate craft responsibilities and personal characteristics; and
	PT-DPC9c.2:	present a professional image in the workplace/jobsite to enhance career advancement.
Standard:	PT-DPC9d:	The student will maintain a career portfolio to document knowledge, skills, and abilities so as to:
Components:	PT-DPC9d.1:	select educational and work history highlights to create a personal resume;
	PT-DPC9d.2:	contact professional references to acquire recommendations; and
	PT-DPC9d.3:	maintain a record of work experiences, licenses, certifications, and education to build a portfolio.

Professional Technical Studies: Arts, AV Technology, & Communications Cluster
Audio & Video Technology & Film Pathway

Strand:

PT-AVT1

Audio and Visual Technology and Film

Students use information technology to design, produce, exhibit, and publish multimedia content.

Standard:

PT-AVT1a: The student will explore career opportunities in audio and video technology so as to:

Components:

PT-AVT1a.1: exhibit knowledge of the history of film and how it is specifically related to the industry today;

PT-AVT1a.2: analyze various careers and their job descriptions in audio and video technology and film;

PT-AVT1a.3: define the terminology associated with audio and video technology and film production; and

PT-AVT1a.4: comprehend the value of a broad general knowledge of fine arts and cultural and regional diversity.

Standard:

PT-AVT1b: The student will apply knowledge of equipment and skills related to audio production so as to:

Components:

PT-AVT1b.1: comprehend the types of microphones, pickup patterns, and techniques required for a variety of audio presentations;

PT-AVT1b.2: apply knowledge of audio equipment for productions, including basic recording equipment, equalizers, mixing console, and quality-monitoring equipment;

PT-AVT1b.3: exhibit knowledge of analog and digital audio formats;

PT-AVT1b.4: illustrate the techniques required for synchronization of an audio with video and multiple sound tracks; and

PT-AVT1b.5: demonstrate writing audio scripts for various types of programs.

Standard:

PT-AVT1c: The student will apply knowledge of equipment and skills related to video production so as to:

Components:

PT-AVT1c.1: apply knowledge of lighting requirements for a planned production;

PT-AVT1c.2: apply knowledge of analog and digital video formats;

PT-AVT1c.3: demonstrate operation and maintenance of a video system;

PT-AVT1c.4: demonstrate knowledge of camera operations, video signals, and video formats;

PT-AVT1c.5: exhibit knowledge of computer-based development of video production and editing, with an emphasis on digital technology;

PT-AVT1c.6: describe how to frame and maintain picture composition;

PT-AVT1c.7: demonstrate focusing and adjusting images and performing pans and zooms; and

PT-AVT1c.8: analyze production functions.

Standard:

PT-AVT1d: The student will exhibit knowledge of editing audio and video productions so as to:

Components:

PT-AVT1d.1: identify the basic functions of, and resources for, editing;

	PT-AVT1d.2:	apply knowledge of basic editing to both linear and nonlinear systems; and
	PT-AVT1d.3:	apply knowledge of control peripherals used for editing.
Standard:	PT-AVT1e:	The student will demonstrate technical production support for audio, visual, and film presentations so as to:
Components:	PT-AVT1e.1:	demonstrate repair and servicing of transmitting and receiving systems;
	PT-AVT1e.2:	apply knowledge of wireless and wired transmission systems;
	PT-AVT1e.3:	demonstrate installation of cabling for audio and video productions;
	PT-AVT1e.4:	demonstrate the installation of a wireless audio-video system; and
	PT-AVT1e.5:	demonstrate writing audio scripts for various types of programs.
Standard:	PT-AVT1f:	The student will exhibit the knowledge and skills required to design audio-video presentations so as to:
Components:	PT-AVT1f.1:	apply knowledge of the critical elements in designing a production throughout the stages of pre-production, production, and post-production;
	PT-AVT1f.2:	create a short script and identify the resources needed to begin the production;
	PT-AVT1f.3:	identify the activities associated with pre-production, production, and post-production;
	PT-AVT1f.4:	analyze the script and storyboard development processes for successful production;
	PT-AVT1f.5:	execute production of the script; and
	PT-AVT1f.6:	critique a production to determine how the various elements resulted in a successful or unsuccessful presentation.
Standard:	PT-AVT1g:	The student will exhibit ethical conduct in writing, creating, printing, broadcasting, and performing so as to:
Components:	PT-AVT1g.1:	analyze ethical principals of decision making related to clients, customers, fellow workers, and others;
	PT-AVT1g.2:	analyze ethical conduct that provides proper credit to those whose ideas and content have been used; and
	PT-AVT1g.3:	identify the proper use of proprietary information.
Standard:	PT-AVT1h:	The student will apply knowledge of laws affecting this career cluster so as to:
Components:	PT-AVT1h.1:	analyze the copyright laws in relation to seeking formal permission to use materials;
	PT-AVT1h.2:	analyze the First Amendment, FCC, the Freedom of Information Act, libel laws, and other regulations for the compliance issues relevant to this cluster; and
	PT-AVT1h.3:	analyze the liabilities associated with productions and performances, media, and telecommunications installations.

Professional Technical Studies: Business, Management, & Administration Cluster
Administration & Information Support Pathway

Strand:

PT-AIS1

Information Processing

Students use information technology to input, analyze, organize, and share information.

Standard:

PT-AIS1a: The student will use word-processing software to produce documents so as to:

Components:

- PT-AIS1a.1:** use software techniques to insert a graphic in a document;
- PT-AIS1a.2:** use software commands to design a table;
- PT-AIS1a.3:** use computer software to design forms;
- PT-AIS1a.4:** apply computer skills to complete preprinted forms;
- PT-AIS1a.5:** use a scanner to scan data and insert data into a document electronically; and
- PT-AIS1a.6:** use software commands to merge text.

Standard:

PT-AIS1b: The student will prepare documents for presentation so as to:

Components:

- PT-AIS1b.1:** use traditional notation to proofread and edit documents;
- PT-AIS1b.2:** use resource materials to prepare documents; and
- PT-AIS1b.3:** secure document notarization.

Standard:

PT-AIS1c: The student will use database software to produce documents so as to:

Components:

- PT-AIS1c.1:** use database software to create databases;
- PT-AIS1c.2:** use data-entry techniques to enter information in databases; and
- PT-AIS1c.3:** use appropriate commands to retrieve data and create reports from database.

Standard:

PT-AIS1d: The student will use spreadsheet software to produce documents so as to:

Components:

- PT-AIS1d.1:** use spreadsheet software to create spreadsheets;
- PT-AIS1d.2:** enter appropriate formulas and functions in a document; and
- PT-AIS1d.3:** create components to analyze spreadsheet data.

Standard:

PT-AIS1e: The student will choose appropriate software to enter information so as to:

Components:

- PT-AIS1e.1:** analyze, compare, and contrast available software packages to use;
- PT-AIS1e.2:** use appropriate software to generate information reports; and
- PT-AIS1e.3:** review software packages to select the best choice.

Strand:

PT-AIS2

Management of Records and Files

Students use information technology to archive information.

Standard:

PT-AIS2a: The student will establish and follow procedures for electronic filing for a variety of file types so as to:

Components:

- PT-AIS2a.1:** establish document priorities to interpret file hierarchy;

- PT-AIS2a.2:** employ computer skills to manage electronic files; and
- PT-AIS2a.3:** retain, transfer, and discard files as necessary to manage records.

Strand:

PT-AIS3

Organizational Skills

Students use systematic planning to complete tasks.

Standard:

- PT-AIS3a:** The student will apply planning and time-management principles to accomplish workplace efficiency and achieve company objectives so as to:

Components:

- PT-AIS3a.1:** list appointments and itineraries to maintain calendars;
- PT-AIS3a.2:** set priorities and schedule work to organize workload; and
- PT-AIS3a.3:** exercise good housekeeping to maintain a clean and functional work environment.

Standard:

- PT-AIS3b:** The student will plan and participate in meetings so as to:

Components:

- PT-AIS3b.1:** assemble materials to prepare for meetings; and
- PT-AIS3b.2:** take notes and handle materials to support a meeting.

Standard:

- PT-AIS3c:** The student will prepare an inventory and maintenance schedule to maintain and manage a variety of data systems so as to:

Components:

- PT-AIS3c.1:** determine equipment, supplies, and training needed to maintain data systems; and
- PT-AIS3c.2:** define equipment, supply, and training maintenance schedule.

Strand:

PT-AIS4

Communication Skills

Students use information technology to express and interpret information.

Standard:

- PT-AIS4a:** The student will select appropriate formats to prepare internal and external written documents so as to:

Components:

- PT-AIS4a.1:** select format and procedure to produce memoranda appropriate for a given purpose;
- PT-AIS4a.2:** select document type and layout to produce business letters; and
- PT-AIS4a.3:** select appropriate writing method to produce a variety of reports.

Standard:

- PT-AIS4b:** The student will compose and prepare written communications to convey technical concepts and company information so as to:

Components:

- PT-AIS4b.1:** use writing and organizational skills to construct reports, graphs, and tables;
- PT-AIS4b.2:** use technology to design and develop multimedia materials; and
- PT-AIS4b.3:** use description of audience and purpose to prepare written documents.

Strand:

PT-AIS5

Financial Skills

Students use information technology to input, manipulate, communicate, and archive financial information.

Standard:

- PT-AIS5a:** The student will maintain records and reports to manage cash and banking procedures so as to:

Professional Technical Studies Standards: Business, Management, & Administration Cluster
(BMA): Administration & Information Support Pathway

Components:	PT-AIS5a.1: record transactions to manage cash-fund accounts;
	PT-AIS5a.2: tally receipts and proof work to prepare bank deposits; and
	PT-AIS5a.3: practice good bookkeeping guidelines to reconcile bank statements.
Standard:	PT-AIS5b: The student will apply computational skills to computerized financial documents so as to:
Component:	PT-AIS5b.1: operate appropriate financial software to generate usable data.

Professional Technical Studies: Business, Management, & Administration Cluster
Business Financial Management & Accounting Pathway

Strand:

PT-BFM1

Computational Skills

Students use information technology to perform calculations.

Standard:

PT-BFM1a: The student will apply computational skills in written documents so as to:

Components:

PT-BFM1a.1: observe policies and regulations when performing calculations for a given situation;

PT-BFM1a.2: calculate and enter data for a given situation on appropriate forms or reports; and

PT-BFM1a.3: recheck computations in written documents for accuracy and quality.

Standard:

PT-BFM1b: The student will apply computational skills to computerized financial documents so as to:

Components:

PT-BFM1b.1: operate appropriate financial software to generate usable data; and

PT-BFM1b.2: operate electronic spreadsheet software to create formulas and reports.

Strand:

PT-BFM2

Organizational Skills

Students use systematic planning to complete tasks.

Standard:

PT-BFM2a: The student will use organizational skills to perform accounting and financial operations so as to:

Components:

PT-BFM2a.1: record and schedule appointments and calendars to manage functions;

PT-BFM2a.2: organize work priorities to ensure deadlines will be met; and

PT-BFM2a.3: organize documents, forms, and manuals to maintain orderly flow of work.

Strand:

PT-BFM3

Policies and Regulations

Students adhere to legal policies and regulations and use information technology to implement policies and regulations.

Standard:

PT-BFM3a: The student will apply federal, state, and local laws, rules, and regulations to guide storage and retention of financial records so as to:

Components:

PT-BFM3a.1: adapt accounting and record-keeping functions to current computerized systems; and

PT-BFM3a.2: establish backup procedures for maintaining electronic records.

Standard:

PT-BFM3b: The student will identify, apply, and keep current with laws and regulations that affect financial and accounting practices so as to:

Components:

PT-BFM3b.1: understand basic financial laws and regulations as applied to financial and accounting practices;

PT-DCP3b.2: examine the purposes of financial laws, policies, and regulations to apply them to a given situation; and

PT-BFM3b.3: maintain knowledge of current financial laws, policies, and regulations to ensure continued compliance in financial and accounting practices.

Strand:

PT-BFM4

Analysis and Interpretation of Data

Students use information technology to process and test information.

Standard:

PT-BFM4a: The student will analyze and interpret financial data to produce accurate reports so as to:

Components:

PT-BFM4a.1: understand the purpose of financial statements;

PT-BFM4a.2: analyze financial statements to verify information; and

PT-BFM4a.3: interpret financial data for planning purposes.

Strand:

PT-BFM5

Accounting

Students use information technology to record and analyze the cost of materials.

Standard:

PT-BFM5a: The student will examine elements of an accounting system to acquire skills in applying good accounting practices so as to:

Component:

PT-BFM5a.1: evaluate assets and liabilities to show their functions in an accounting system.

Standard:

PT-BFM5b: The student will record business transactions to track business activities so as to:

Components:

PT-BFM5b.1: create a chart of accounts to show the variety of accounts activities in a system; and

PT-BFM5b.2: record transactions.

Standard:

PT-BFM5c: The student will collect financial data to report required financial information so as to:

Component:

PT-BFM5c.1: assemble appropriate accounting elements to prepare financial statements.

**Professional Technical Studies: Business, Management, & Administration Cluster
Management Pathway**

Strand:

PT-MAN1

Organizational Skills

Students use systematic planning to complete tasks.

Standard:

PT-MAN1a: The student will develop and implement short- and long-term strategic plans to manage growth, profit, and goals within a specific market segment so as to:

Components:

PT-MAN1a.1: complete effective business plans to meet varied business needs;

PT-MAN1a.2: develop and implement annual performance-based operating plans to manage long-range company goals; and

PT-MAN1a.3: develop and implement business plans to serve division and department subjects.

Standard:

PT-MAN1b: The student will evaluate employee performance to provide timely and appropriate responses to personnel issues so as to:

Components:

PT-MAN1b.1: apply performance standards to evaluate employees; and

PT-MAN1b.2: develop timely responses to employee performance evaluations.

Standard:

PT-MAN1c: The student will organize the various business services to address all company components so as to:

Components:

PT-MAN1c.1: analyze the individual role and the role of the assigned unit to the business;

PT-MAN1c.2: develop policies and procedures to provide support for the organization; and

PT-MAN1c.3: organize business components to ensure quality products/ services are delivered on time.

Strand:

PT-MAN2

Communication Skills

Students use information technology to express and interpret information.

Standard:

PT-MAN2a: The student will assume appropriate roles to create, deliver, receive, and manage business communications in the workplace so as to:

Components:

PT-MAN2a.1: identify an audience and create communications, support statistics for internal and external audiences;

PT-MAN2a.2: assume the necessary role to perform the responsibilities of delivering a message;

PT-MAN2a.3: assume the necessary role to perform the responsibilities of receiving a message;

PT-MAN2a.4: manage the broad scope of business communications to process, document, and store information efficiently and appropriately; and

PT-MAN2a.5: prepare appropriate materials to reply to inquiries that require a considered response.

Strand:

PT-MAN3

Leadership and Teamwork

Students collaborate with others to accomplish goals and objectives.

Standard:

PT-MAN3a: The student will motivate and supervise personnel to achieve completion of projects and company goals so as to:

Components:

PT-MAN3a.1: exhibit behaviors and actions to effectively motivate and lead people;

PT-MAN3a.2: exhibit behaviors and actions to effectively motivate and lead change; and

PT-MAN3a.3: exhibit behaviors and actions to effectively motivate and promote the use of teamwork in the workplace.

Standard:

PT-MAN3b: The student will direct and supervise personnel to complete company goals and projects so as to:

Components:

PT-MAN3b.1: exhibit the actions and behaviors most effective for supervising and directing the financial resources;

PT-MAN3b.2: exhibit the actions and behaviors most effective for supervising and directing human resources for a company;

PT-MAN3b.3: exhibit the actions and behaviors most effective for supervising and directing the external relationships in your area of responsibility;

PT-MAN3b.4: exhibit the actions and behaviors most effective to supervise and direct the knowledge/information resources; and

PT-MAN3b.5: exhibit the actions and behaviors most effective for supervising and directing company tangibles.

Strand:

PT-MAN4

Maintaining Facilities, Equipment, and Supplies

Students use information technology to manage facilities, equipment, and supplies.

Standard:

PT-MAN4a: The student will develop and implement plans and standard operating procedures to ensure maintenance of facilities, equipment, and supplies so as to:

Components:

PT-MAN4a.1: describe the types and requirements of all company facilities, equipment, and supply chains necessary to manage physical properties of company structure;

PT-MAN4a.2: manage the present day-to-day operations and maintenance of all company facilities, equipment, and supply chains to ensure physical integrity of all systems; and

PT-MAN4a.3: determine adjustments needed and plan for future growth in facilities, equipment, and supply chains to enable profitable operation and growth.

Strand:

PT-MAN5

Project Management

Students manage project tasks, timelines, and goals.

Standard:

PT-MAN5a: The student will use performance standards to monitor progress of personnel, finance, and other functional areas so as to:

- Components:
- PT-MAN5a.1:** identify and communicate performance standards and operating policies and procedures, such as ISO (International Standards Operations) to personnel;
 - PT-MAN5a.2:** evaluate results of performance standards to develop an effective tracking system; and
 - PT-MAN5a.3:** analyze performance reports and make adjustments to recognize successes and identify shortfalls.

Strand:

PT-MAN6

Facilitating Change

Students identify and implement improvement opportunities.

Standard:

PT-MAN6a: The student will evaluate opportunities to determine potential company changes and implement strategies for catalyzing and guiding changes so as to:

Components:

- PT-MAN6a.1:** evaluate opportunities to determine potential company changes; and
- PT-MAN6a.2:** implement the improvement process to guide the change.

Strand:

PT-MAN7

Ethics and Legal Responsibilities

Students understand the importance of ethical and legal guidelines in the workplace.

Standard:

PT-MAN7a: The student will apply business laws and regulations to business situations so as to:

Components:

- PT-MAN7a.1:** identify resources to keep business-related laws and regulations current;
- PT-MAN7a.2:** apply knowledge of copyright laws to business situations;
- PT-MAN7a.3:** apply ethical principles to decision making related to clients, customers, and coworkers; and
- PT-MAN7a.4:** apply professional conduct to business situations.

Strand:

PT-MAN8

Pricing

Students understand product pricing.

Standard:

PT-MAN8a: The student will apply a variety of approaches to determine the appropriate price for a product/service so as to:

Components:

- PT-MAN8a.1:** use different pricing methods including cost-based pricing, demand-based pricing, competition-based pricing, psychological pricing, and promotional pricing to calculate the price of products/services; and
- PT-MAN8a.2:** determine company goals and external issues necessary to determine pricing.

Standard:

PT-MAN8b: The student will relate factors that influence price to a product's actual price so as to:

Components:

- PT-MAN8b.1:** list and discuss the factors that influence price;
- PT-MAN8b.2:** identify and match key pricing factors to specific products;
- PT-MAN8b.3:** prioritize pricing factors and apply a process to calculate prices;
- PT-MAN8b.4:** determine the total product cost and the break-even point;

	PT-MAN8b.5: identify the impact of external (uncontrollable) factors and consumer practices on product prices; and
	PT-MAN8b.6: determine pricing to maximize profit.
Standard:	PT-MAN8c: The student will evaluate customers and their needs to determine pricing of products and services so as to:
Components:	PT-MAN8c.1: list and discuss the concept of customer needs as it applies to the price of a specific product/service; and
	PT-MAN8c.2: recognize geographic needs of product to determine price.
Standard:	PT-MAN8d: The student will apply pricing strategies to meet competition so as to:
Components:	PT-MAN8d.1: identify the competitive practices to anticipate the future activities of competitors;
	PT-MAN8d.2: identify and apply the process of altering pricing to meet competitive situations; and
	PT-MAN8d.3: evaluate pricing formats to find the best solution to price altering.
Standard:	PT-MAN8e: The student will apply technology to identify a variety of approaches for determining and monitoring pricing so as to:
Components:	PT-MAN8e.1: identify the ways that technology can be used to impact the pricing function; and
	PT-MAN8e.2: explain the specific applications of technology to determine pricing.
Standard:	PT-MAN8f: The student will apply strategies for determining and adjusting prices to maximize return and meet customer's perceptions of value so as to:
Components:	PT-MAN8f.1: develop objectives, policies, and strategies to make pricing decisions; and
	PT-MAN8f.2: use technology to determine prices.
Strand:	
PT-MAN9	Customer Service Students analyze customer needs and requirements.
Standard:	PT-MAN9a: The student will use strategies necessary to determine appropriate level of customer service so as to:
Components:	PT-MAN9a.1: determine the appropriate activities to achieve high-quality customer service; and
	PT-MAN9a.2: determine activities necessary to offer the benefits of self-service to customers.
Strand:	
PT-MAN10	Selling Students understand the art of selling.
Standard:	PT-MAN10a: The student will take necessary action to determine customer needs and wants and to respond through planned, personalized communication that influences purchase decisions so as to:
Components:	PT-MAN10a.1: demonstrate techniques to achieve personal selling; and
	PT-MAN10a.2: demonstrate appropriate techniques to achieve electronic selling.

Standard:	PT-MAN10b: The student will establish selling philosophies to develop customer loyalty and profitability so as to:
Components:	PT-MAN10b.1: develop selling policies that encourage long-term client relationships; and PT-MAN10b.2: analyze current business conditions to isolate external factors affecting the selling relationship.
Standard:	PT-MAN10c: The student will use product and company attributes to help the customer understand benefit outcomes so as to:
Components:	PT-MAN10c.1: develop benefit statements to show their unique relationship to the company PT-MAN10c.2: develop benefit statements to show their relationship to a product or service; and PT-MAN10c.3: identify value-added considerations to show their relationship to a product or service.
Standard:	PT-MAN10d: The student will analyze client characteristics to facilitate the buying process so as to:
Components:	PT-MAN10d.1: identify client purchasing processes to integrate significant elements into buying process; and PT-MAN10d.2: determine motives to help define the customer buying process.
Standard:	PT-MAN10e: The student will use accepted processes to complete the buying process so as to:
Components:	PT-MAN10e.1: conduct prospecting to maintain or increase client base; PT-MAN10e.2: make a sales presentation to encourage customers to buy a product or use a service; and PT-MAN10e.3: develop and implement a follow-up plan to enhance satisfaction and encourage a continuing relationship.
Strand:	PT-MAN11
	Distribution Students understand product distribution.
Standard:	PT-MAN11a: The student will identify and use standard processes to move, store, locate, and/or transfer ownership of goods and services so as to:
Component:	PT-MAN11a.1: determine appropriate channels to distribute goods and services.
Strand:	PT-MAN12
	Promotion Students understand product promotion.
Standard:	PT-MAN12a: The student will identify types of promotion and the promotional mix, and disseminate information about products/services or company to achieve a desired outcome for a product or service so as to:
Components:	PT-MAN12a.1: develop a plan to promote a product/service; PT-MAN12a.2: prepare an advertising plan to promote a product/service; PT-MAN12a.3: use various forms of publicity to promote product/service;

PT-MAN12a.4: exhibit a clear and concise understanding of ethical behavior to promote a product/service; and

PT-MAN12a.5: develop a plan to use all forms of promotional mix to develop a well-rounded sales campaign.

Strand:

PT-MAN13

Communication Skills

Students use information technology to express and interpret information.

Standard:

PT-MAN13a: The student will use concepts, strategies, and systems necessary to interact effectively with others so as to:

Components:

PT-MAN13a.1: apply effective presentation skills to a marketing/sales situation; and

PT-MAN13a.2: exhibit verbal communication skills to provide information at staff meetings and trade shows.

Standard:

PT-MAN13b: The student will develop and deliver effective customer relations skills to provide good customer service so as to:

Component:

PT-MAN13b.1: share ideas about selling and maintaining products/services with customers and coworkers to maintain sales continuity.

Standard:

PT-MAN13c: The student will provide ethical, legal, and culturally sensitive information to customers and coworkers so as to:

Components:

PT-MAN13c.1: exercise cultural sensitivity to interact with customers and coworkers; and

PT-MAN13c.2: examine ethical and legal issues to provide information in a given marketing situation.

Strand:

PT-MAN14

Product/Service Management

Students explore methods for managing a variety of products and services.

Standard:

PT-MAN14a: The student will apply the concepts and processes necessary to obtain, develop, maintain, and improve a product/service mix so as to:

Components:

PT-MAN14a.1: examine and compare consumer products/services to industrial products/services;

PT-MAN14a.2: develop a product/service mix to service a selected target market; and

PT-MAN14a.3: conduct research for potential new products/services to meet customer needs.

Standard:

PT-MAN14b: The student will apply the product/service management function to a marketing business so as to:

Components:

PT-MAN14b.1: explain the importance of product/service management to a marketing business;

PT-MAN14b.2: explain the impact of product life cycles on marketing decisions;

PT-MAN14b.3: use technology to perform functions of product/service management; and

PT-MAN14b.4: explain the relationship of business ethics to product/service management.

Standard:	PT-MAN14c: The student will apply various types of quality assurance to product/service management so as to:
Components:	PT-MAN14c.1: maximize the use of grades and standards to product/service management; PT-MAN14c.2: explain the importance of warranties and guarantees to product/service management; and PT-MAN14c.3: identify the provisions of appropriate agencies to protect consumers.
Standard:	PT-MAN14d: The student will create a product mix that meets the needs of customers and produces a profit for the company so as to:
Components:	PT-MAN14d.1: determine ways to achieve product mix; PT-MAN14d.2: relate the importance of product bundling to marketing products; PT-MAN14d.3: develop a plan to create a product mix; and PT-MAN14d.4: determine appropriate services to offer customers within a product mix.
Standard:	PT-MAN14e: The student will apply marketing factors to position products/services in a business so as to:
Components:	PT-MAN14e.1: describe marketing factors that are used to position products/services in a business; PT-MAN14e.2: use product branding to position products and services; and PT-MAN14e.3: explain the role of customer service to positioning/image of products/services.

Professional Technical Studies: Health Science Cluster
Therapeutic Services Pathway

STRAND

PT-TS1

Health Care Foundations

Students investigate health care concepts through the study of anatomy and physiology.

Standard:

PT-TS1a

The student will know the academic subject matter required for proficiency within therapeutic services and use this knowledge as needed in their role, so as to:

Components:

PT-TS1a.1

analyze medical and dental terminology:

- interpret medical word roots, prefixes, and suffixes;
- analyze words commonly used in medical/dental care;

PT-TS1a.2

analyze the relationship of tissues, organs, and body systems

- explain the structural units of the body;
- analyzes body tissues and membranes;

PT-TS1a.3

analyze the anatomy and physiology of the integumentary system:

- explain the structure of the integumentary system;
- analyze the function of the integumentary system;
- discuss characteristics and treatment of common skin disorders;

PT-TS1a.4

analyze the anatomy and physiology of the skeleton:

- explain the structure of the bones;
- analyze the function of the skeletal system; discuss characteristics and treatment of common skeletal disorders;

PT-TS1a.5

analyze the anatomy and physiology of the muscles:

- explain the structure of the muscles;
- analyze the function of the muscular system;
- discuss characteristics and treatment of common muscular disorders;

PT-TS1a.6

analyze the anatomy and physiology of the blood:

- explain the structure of the blood;
- analyze the function of the blood; discuss characteristics and treatment of common blood disorders;
- apply OTSA standards for blood borne pathogens;

PT-TS1a.7

analyze the anatomy and physiology of the circulatory system:

- explain the structure of the heart;
- analyze the function of the heart;
- analyze circulation and the blood vessels;
- discuss characteristics and treatment of common cardiac circulatory disorders;

PT-TS1a.8

analyze the anatomy and physiology of the lymphatic system:

- explain the structure of the lymphatic system;

- analyze the function of the lymphatic system;
 - discuss characteristics and treatment of common lymphatic disorders;
 - apply standard OSHA standards for blood borne pathogens;
- PT-TS1a.9** analyze the anatomy and physiology of the respiratory system:
- explain the structure of the respiratory system;
 - analyze the function of the respiratory system;
 - discuss characteristics and treatment of common respiratory disorders;
- PT-TS1a.10** analyze the anatomy and physiology of the nervous system:
- explain the structure of the brain, spinal cord, and nerves;
 - analyze the function of the nervous system;
 - discuss characteristics and treatment of common nervous system disorders;
- PT-TS1a.11** analyze the anatomy and physiology of the special senses:
- explain the structure of the eye;
 - analyze the function of the eye;
 - explain the structure and function of the ear, nose and tongue;
 - discuss characteristics and treatment of common sensory disorders;
- PT-TS1a.12** analyze the anatomy and physiology of the digestive system:
- explain the structure of the digestive system;
 - analyze the function of the digestive system;
 - discuss characteristics and treatment of common digestive orders;
- PT-TS1a.13** analyze nutritional factors that relate to body structure and function:
- analyze the function of nutrients;
 - analyze dietary guidelines;
 - discuss characteristics and treatment of common eating disorders;
- PT-TS1a.14** analyze the anatomy and physiology of the urinary system:
- explain the structure of the urinary system;
 - analyze the function of the urinary system;
 - discuss characteristics and treatment of common urinary disorders;
- PT-TS1a.15** analyze the anatomy and physiology of the endocrine system:
- explain the structure of the endocrine system;
 - analyze the function of the endocrine system;
 - discuss characteristics and treatment of common endocrine disorders;
- PT-TS1a.16** analyze the anatomy and physiology of the reproductive system:
- explain the structure of the male reproductive system;

- explain the function of the male reproduction system;
 - explain the structure of the female reproductive system;
 - explain the function of the female reproductive system;
 - discuss characterizes and treatment of common reproductive disorders; and
- PT-TS1a.17** analyze the health care professions:
- analyze medical/health professions and related employment opportunities;
 - discuss preparation and credentials needed in medical/health professions;
 - analyze professional/ethical characteristics of medical/health professionals;
 - perform mathematical conversions common to the medical/health professions;
 - revise personal career development plan.

STRAND

PT-TS2

Health Care Communications

Students study medical terminology.

Standard:

PT-TS2a The student will know the various methods of giving and obtaining information; both orally and in writing, in a health care setting so as to:

Components:

- PT-TS2a.1** apply medical terminology;
- PT-TS2a.2** understand medical abbreviations; and
- PT-TS2a.3** report medical information, patient history, and patient care status.

STRAND

PT-TS3

Health Care Information

Students learn strategies for collecting and analyzing health care information.

Standard:

PT-TS3a The student will use facility protocol and regulatory guidelines for collecting patient information so as to:

Components:

- PT-TS3a.1** collect and format information using facility protocols and regulatory guidelines;
- PT-TS3a.2** analyze information collected to develop appropriate therapeutic response; and
- PT-TS3a.3** maintain confidentiality according to facility protocol.

STRAND

PT-TS4

Information Technology Applications

Students use computers, networks, and communication technology to access, organize, process, transmit, and communicate information.

Standard:

PT-TS4a The student will use information technology applications appropriate to health care so as to:

Components:

- PT-TS4a.1** apply business skills in a health care setting;
- PT-TS4a.2** file records using the alphabetical and numerical systems; and
- PT-TS4a.3** use telephones and computer technology in the work place.

STRAND
PT-TS5

Ethics and Legal Responsibilities

Students understand the importance of ethical and legal guidelines in the workplace.

Standard:

PT-TS5a The student will understand legal responsibilities, limitations and implications of their actions within the health care delivery setting; perform duties according to regulations, policies, laws and legislated rights of clients; and understand accepted ethical practices with respect to cultural, social and ethnic differences within the health care environment, so as to:

Components:

PT-TS5a.1 analyze legal roles and responsibilities;
PT-TS5a.2 evaluate ethical behavior in a health care setting;
PT-TS5a.3 explore legal and ethical issues related to death and dying; and
PT-TS5a.4 understand patient confidentiality and HIPPA regulations.

STRAND
PT-TS6

Safety, Health, and Environment

Students understand the importance of safety, health, environmental, and regulatory compliance in the workplace.

Standard:

PT-TS6a The student will understand existing and potential hazards to clients, co-workers and self; and prevent injury or illness through safe work practices by following health and safety policies and procedures;

Components:

PT-TS6a.1 promote safety practices in a health care setting;
PT-TS6a.2 apply body mechanics and client safety measures;
PT-TS6a.3 observe fire safety;
PT-TS6a.4 follow OSHA blood borne pathogens guidelines; and
PT-TS6a.5 dispose of contaminants following hospital protocols.

STRAND
PT-TS7

Systems

Students use an organized set of ideas and principles to explain or interact among structured organizations.

Standard:

PT-TS7a The student will understand how their role fits into departments, organizations, and the overall health care environment, so as to:

Components:

PT-TS7a.1 analyze the health care delivery system;
PT-TS7a.2 analyze health care facilities, including government and non-profit agencies; and
PT-TS7a.3 explore health insurance, organizational structure, and trends in health care.

STRAND
PT-TS8

Leadership and Teamwork

Students collaborate with others to accomplish goals and objectives.

Standard

PT-TS8a The student will understand the roles and responsibilities of individual members as part of a health care team, including their ability to promote the delivery of quality health care so as to:

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Therapeutic Services Pathway

Components:	PT-TS8a.1	distinguish appropriate role and responsibilities of each team member;
	PT-TS8a.2	respect and value the expertise and contribution of all team members; and
	PT-TS8a.3	perform task in a pleasant and cooperative manner.
Standard	PT-TS8b	Health care workers will be able to communicate patient information among team members allowing for feedback as needed so as to:
Component	PT-TS8b.1	evaluate relevancy of information to be conveyed; and
	PT-TS8b.2	formulate and report information in a way that is clear and concise.

STRAND
PT-TS9

Client Interaction/Communication

Standard:	PT-TS9a	The student will be able to explain planned procedures to patients and health professionals including goals, side effects and coping strategies so as to
Components:	PT-TS9a.1	assess patient's understanding of information provided;
	PT-TS9a.2	demonstrate empathy for patients;
	PT-TS9a.3	modify communication to the needs of the patient and appropriate situation;
	PT-TS9a.4	develop clear written patient information and instruction;
	PT-TS9a.5	keep written records as appropriate within facility policies and protocols; and
	PT-TS9a.6	communicate with patient with respect and dignity.

STRAND
PT-TS10

Health Maintenance Practices

Standard:	PT-TS10a	The student will understand the fundamentals of wellness and the prevention of disease processes and practice preventive health behaviors among clients so as to:
Components:	PT-TS10a.1	apply infection control measures in a clinical setting;
	PT-TS10a.2	analyze principles of infection control; and
	PT-TS10a.3	maintain sterile technique and isolation.

STRAND
PT-TS11

Treatment Planning and Implementation

Standard	PT-TS11a	The student will understand the purposes of the treatment plan and collaborate in planning procedures that support the goals for the patient according to facility protocol, regulatory guidelines and within their scope of practice, so as to:
Component	PT-TS11a	create a treatment plan using a problem-solving model, incorporating patient input;
	PT-TS11a.2	select appropriate resources to implement treatment plan;
	PT-TS11a.3	evaluate the plan for appropriate outcomes;
	PT-TS11a.4	evaluate priorities in order to organize work;

- PT-TS11a.5** use equipment and instruments according to the manufacturer's guidelines and accepted safety practice; and
- PT-TS11a.6** document actions according to facility protocol and regulatory guidelines.

STRAND
PT-TS12

Standard

Technical Skills

PT-TS12a The student will apply technical skills required for all career specialties so as to:

Component

- PT-TS12a.1** provide first aid in an emergency setting;
- PT-TS12a.2** acquire certification in cardiopulmonary resuscitation;
- PT-TS12a.3** provide basic first aid;
- PT-TS12a.4** apply diagnostic skills in a clinical setting;
- PT-TS12a.5** measure and record vital signs;
- PT-TS12a.6** apply medical assisting and laboratory skills;
- PT-TS12a.7** analyze client nutrition and diet therapy;
- PT-TS12a.8** evaluate therapeutic diets;
- PT-TS12a.9** apply skills related to dental and pharmaceutical careers;
- PT-TS12a.10** identify teeth and dental instruments;
- PT-TS12a.11** work with medications and mathematical conversions;
- PT-TS12a.12** apply patient care skills in a clinical setting;
- PT-TS12a.13** position, turn and transfer patients;
- PT-TS12a.14** make a bed;
- PT-TS12a.15** administer personal care and apply restraints;
- PT-TS12a.16** apply therapeutic skills for rehabilitation and injury prevention in sports medicine and physical therapy;
- PT-TS12a.17** demonstrate assistive and therapeutic techniques; and
- PT-TS12a.18** analyze the therapeutic role of massage therapy and sports medicine.

STRAND
PT-TS13

Standard:

Monitor Client Status

PT-TS13a The student will monitor and assess patient's health status, and develop appropriate therapeutic response based on facility protocol, so as to:

Components:

- PT-TS13a.1** analyze and assess patient response;
- PT-TS13a.2** assess need for follow up and changes to treatment plan; and
- PT-TS13a.3** respond to patient health changes as prescribed by facility protocol.

STRAND
PT-TS14

Standard:

Evaluate patient response to administered treatments and procedures

PT-TS14a The student will evaluate patient's needs, strengths and problems in order to determine if treatment goals are being reached so as to:

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Components:	PT-TS14a.1 choose appropriate evaluation tools to assess patient response to treatment plan;
	PT-TS14a.2 analyze information gathered; and
	PT-TS14a.3 revise or create modifications to treatment plan based on patient response.

STRAND

PT-TS15

Employability and Career Development

Students use skills to plan career paths and pursue career opportunities.

Standard	PT-TS15a The student will understand how employability skills enhance their employment opportunities and job satisfaction so as to:
Component	PT-TS15a.1 practice effective employability skills;
	PT-TS15a.2 demonstrate the professional qualities of a health care worker;
	PT-TS15a.3 apply customer service skills in a health care setting; and
	PT-TS15a.4 develop and apply skills related to a specific career goal.

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Lodging Pathway

Strand:

PT-LOD1

Academics

Students apply English language arts, mathematics, science, and social studies content area skills.

Standard:

PT-LOD1a: The student will study and use basic academic skills to perform effectively in the workplace so as to:

Component:

PT-LOD1a.1: apply mathematical, reading, and writing skills necessary to perform job tasks in the hospitality and tourism industry.

Standard:

PT-LOD1b: The student will study the elements of marketing techniques used in various types of hospitality and tourism establishments to gain familiarity with all venues so as to:

Component:

PT-LOD1b.1: achieve a familiarity with marketing techniques used in the hospitality and tourism industry to sell a product or service.

Standard:

PT-LOD1c: The student will study and synthesize information from cultural diversity and geographical studies to appreciate their importance in developing product or service so as to:

Components:

PT-LOD1c.1: identify the components of cultural diversity to understand their impact on the different areas of the hospitality and tourism industry; and

PT-LOD1c.2: identify the elements of geography that affect the hospitality and tourism industry to aid in customer service.

Standard:

PT-LOD1d: The student will study and synthesize the effects of the economy on the hospitality and tourism industry to apply appropriate strategies in developing products and services so as to:

Component:

PT-LOD1d.1: summarize how to use the “state of the economy” to plan products and services.

Strand:

PT-LOD2

Communication Skills

Students use information technology to express and interpret information.

Standard:

PT-LOD2a: The student will use good oral and written communication skills to create, express, and interpret information so as to:

Components:

PT-LOD2a.1: apply active listening skills in obtaining and clarifying information; and

PT-LOD2a.2: respond with restatement and clarification techniques to clarify information.

Standard:

PT-LOD2b: The student will interpret verbal and nonverbal behaviors to enhance communication with coworkers and customers/guests so as to:

Components:

PT-LOD2b.1: interpret verbal behaviors to enhance communication with coworkers/guests; and

PT-LOD2b.2: interpret nonverbal behaviors to enhance communication.

Standard:	PT-LOD2c:	The student will use correct grammar, punctuation, and terminology to write and edit documents so as to:
Components:	PT-LOD2c.1:	compose writing clearly, succinctly, and accurately to reflect professionalism in written documents;
	PT-LOD2c.2:	use description of audience and purpose to prepare written documents including forms, reports, and data sheets;
	PT-LOD2c.3:	use correct grammar, spelling, punctuation, and capitalization to prepare written documents; and
	PT-LOD2c.4:	use computer skills to design and develop written materials and supporting visual aids.
Standard:	PT-LOD2d:	The student will use appropriate resources and techniques to develop and deliver formal and informal presentations so as to:
Components:	PT-LOD2d.1:	define purpose of presentation and prepare presentation(s) to support the purpose;
	PT-LOD2d.2:	prepare media and visual aids to support the intended purpose of the presentation; and
	PT-LOD2d.3:	define target audience for presentation and tailor presentation to meet specific needs/requirements of the target audience.
Standard:	PT-LOD2e:	The student will locate, organize, and reference written information from various sources to communicate with coworkers and clients/participants so as to:
Components:	PT-LOD2e.1:	locate written information based on specific needs;
	PT-LOD2e.2:	document the source of the information and cite the source when communicating the information; and
	PT-LOD2e.3:	communicate information to coworkers and/or clients as required.
Strand:	PT-LOD3	
	Problem Solving and Critical Thinking	
	Students use information technology to define, test, and solve problems.	
Standard:	PT-LOD3a:	The student will use the principles of budgeting and forecasting to maximize profit and growth in various sectors of hospitality and tourism so as to:
Component:	PT-LOD3a.1:	apply forecasting skills to determine cost and profit.
Standard:	PT-LOD3b:	The student will study potential, real, and perceived emergency situations to recognize and implement appropriate safety and security measures so as to:
Components:	PT-LOD3b.1:	identify strategies for managing emergency situations; and
	PT-DCP3b.2:	determine budget and funding needs to support safety and security programs and staffing requirements.
Standard:	PT-LOD3c:	The student will identify and use common tasks that require employees to solve problems on the job so as to:
Components:	PT-LOD3c.1:	use critical thinking skills to solve problems;

PT-LOD3c.2: use comments and suggestions from the customer service area to formulate improvements in services/products and training of staff: and

PT-LOD3c.3: use customer comments to guide customer satisfaction policies.

Strand:

PT-LOD4

Information Technology Applications

Students use computers, networks, and communication technology to access, organize, process, transmit, and communicate information.

Standard:

PT-LOD4a: The student will identify and use information technology tools specific to hospitality and tourism to access, manage, and integrate information so as to:

Components:

PT-LOD4a.1: use computer-based technology to access information;

PT-LOD4a.2: use database and spreadsheet technology to manage information;

PT-LOD4a.3: use computer-based technology to integrate information;

PT-LOD4a.4: use information technology to evaluate information; and

PT-LOD4a.5: apply computer skills to expedite workflow and enhance customer service.

Strand:

PT-LOD5

Systems

Students use an organized set of ideas and principles to explain or interact among structured organizations.

Standard:

PT-LOD5a: The student will understand roles within teams, work units, departments, organizations, interorganizational systems, and the larger environment to identify the effect of systems on the quality of the product or service so as to:

Components:

PT-LOD5a.1: research appropriate sources to trace the development of the hospitality and tourism industry and learn the overall structure; and

PT-LOD5a.2: use organizational charts to analyze the workplace operations.

Standard:

PT-LOD5b: The student will manage and improve organizational systems to better serve customers so as to:

Components:

PT-LOD5b.1: develop and manage plans and budgets to accomplish organizational goals and objectives; and

PT-LOD5b.2: develop plans to improve organizational performance including customer satisfaction and service/operations performance.

Standard:

PT-LOD5c: The student will achieve a familiarity with other industries that have relevant services or products and understand how they impact a seamless product/service to the guest/customer so as to:

Components:

PT-LOD5c.1: describe feasible collaboration with various other industries to provide inclusive product to the customer; and

PT-LOD5c.2: identify the core competencies of the various hospitality- and tourism-related organizations or businesses to best use available resources.

Strand:

PT-LOD6

Safety, Health, and Environment

Students understand the importance of safety, health, environmental, and regulatory compliance in the workplace.

Standard:

PT-LOD6a: The student will study potential real and perceived hazards to recognize and implement appropriate safety and security measures so as to:

Components:

PT-LOD6a.1: outline safety and security issues for individuals and groups in multiple environments to minimize risks; and

PT-LOD6a.2: practice personal safety while at the worksite and on work-related assignments to avoid injuries or accidents.

Standard:

PT-LOD6b: The student will review all safety and sanitation procedures applicable to the work area to ensure a safe and healthy work environment for all individuals so as to:

Component:

PT-LOD6b.1: examine sanitation procedures to ensure facility is in compliance with health codes.

Standard:

PT-LOD6c: The student will research ways to use security measures to protect guests/customers/staff and limit liability so as to:

Component:

PT-LOD6c.1: develop various security measures to increase safety.

Standard:

PT-LOD6d: The student will study potential, real, and perceived hazards to recognize and implement appropriate safety and security measures so as to:

Component:

PT-LOD6d.1: outline resources to use in various emergency situations for self, coworkers, and customers/guests.

Strand:

PT-LOD7

Ethics and Legal Responsibilities

Students understand the importance of ethical and legal guidelines in the workplace.

Standard:

PT-LOD7a: The student will identify how ethical issues and concerns affect a career in the hospitality and tourism field so as to:

Component:

PT-LOD7a.1: observe ethical behavior in the workplace to indicate the integral role it plays in all businesses.

Standard:

PT-LOD7b: The student will examine and review ethical and legal responsibilities as they relate to guests/customers and employee conduct within the establishment to maintain high industry standards so as to:

Components:

PT-LOD7b.1: develop an awareness of applicable legal policies to comply with laws regarding hiring, harassment, and safety issues; and

PT-LOD7b.2: interpret ethical and legal guidelines relating to job performance to solve legal and ethical issues.

Standard:

PT-LOD7c: The student will show regard for ethics, values, and principles to deal fairly with others so as to:

Components:

PT-LOD7c.1: respect others at all times to express personal ethical values; and

	PT-LOD7c.2:	integrate ethical treatment in the workplace to establish codes of conduct.
Standard:	PT-LOD7d:	The student will examine professional and workplace ethics and legal responsibilities to provide guidelines for conduct so as to:
Component:	PT-LOD7d.1:	demonstrate awareness of responsibilities for different positions within the organization.
Strand:		
PT-LOD8	Employability and Career Development	
	Students use skills to plan career paths and pursue career opportunities.	
Standard:	PT-LOD8a:	The student will research and review career options and qualifications to explore careers in the hospitality and tourism industry so as to:
Component:	PT-LOD8a.1:	examine the numerous career paths within hospitality and tourism to discover personal preferences.
Standard:	PT-LOD8b:	The student will review independently owned and chain-affiliated facilities in hospitality and tourism to compare and illustrate the advantages and disadvantages of working in each venue so as to:
Component:	PT-LOD8b.1:	examine an independently owned facility to distinguish it from other types.
Standard:	PT-LOD8c:	The student will learn steps necessary to seek, apply for, attain, and retain employment so as to:
Components:	PT-LOD8c.1:	seek and apply for employment to begin career objectives; and
	PT-LOD8c.2:	summarize steps necessary to retain a job in the industry.
Standard:	PT-LOD8d:	The student will understand advancement procedures and the promotional work ladder within the industry to plan career objectives so as to:
Component:	PT-LOD8d.1:	determine the chain of command for a particular industry to evaluate personal skills and potential; and
	PT-LOD8d.2:	explain skills required to achieve a promotion.
Strand:		
PT-LOD9	Technical Skills	
	Students select and use technology tools to provide customer service.	
Standard:	PT-LOD9a:	The student will examine the customer service skills required to be successful in the hospitality and tourism industry so as to:
Components:	PT-LOD9a.1:	examine the customer service skills required to be successful in the hospitality and tourism industry; and
	PT-LOD9a.2:	apply customer service skills to ensure guest satisfaction.
Standard:	PT-LOD9b:	The student will use different types of payment options to facilitate customer payments for services so as to:
Component:	PT-LOD9b.1:	handle different types of payments to accommodate the guest/customer.

Strand:

PT-LOD10

Leadership and Teamwork

Students collaborate with others to accomplish goals and objectives.

Standard:

PT-LOD10a: The student will employ leadership and teamwork skills to facilitate workflow so as to:

Component:

- PT-LOD10a.1:** examine the customer service skills required to be successful in the hospitality and tourism industry;
- PT-LOD10a.2:** observe outstanding leaders to identify effective management styles;
- PT-LOD10a.3:** lead others in tasks and activities to benefit the organization as a whole;
- PT-LOD10a.4:** use leadership skills to create motivation for change;
- PT-LOD10a.5:** model leadership and teamwork qualities to aid in employee morale;
- PT-LOD10a.6:** establish and maintain effective working relationships with all levels of personnel and other departments to provide effective services to guest/customer;
- PT-LOD10a.7:** use interpersonal skills to build effective working relationships;
- PT-LOD10a.8:** resolve conflicts to satisfy staff, guests/customers, and others; and
- PT-LOD10a.9:** use conflict-management skills to facilitate solutions.

Professional Technical Studies: Hospitality & Tourism Cluster
Restaurant, Food, & Beverages Pathway

Strand:

PT-RFB1

Ethics and Legal Responsibilities

Students understand the importance of ethical and legal guidelines in the workplace.

Standard:

PT-RFB1a: The student will examine and review ethical and legal responsibilities as they relate to guests, employees, and conduct within the establishment to maintain high industry standards so as to:

Components:

PT-RFB1a.1: examine all comments and suggestions from the customer service area to formulate improvements and ensure guests' satisfaction.

PT-RFB1a.2: achieve an awareness of applicable legal policies to comply with laws regarding hiring, harassment, and safety issues;

PT-RFB1a.3: interpret ethical and legal guidelines relating to job performance to solve legal or ethical issues;

PT-RFB1a.4: implement applicable legal guidelines and policies to comply with laws regarding hiring, harassment, job performance, ethical and safety issues;

PT-RFB1a.5: integrate guidelines for ethical treatment in the workplace; and

PT-RFB1a.6: identify how ethical issues and concerns affect a career field to aid in making career choices.

Strand:

PT-RFB2

Safety, Health, and Environment

Students understand the importance of safety, health, environmental, and regulatory compliance in the workplace.

Standard:

PT-RFB2a: The student will review all safety and sanitation procedures applicable to the work area to supervise staff in proper sanitation behaviors so as to:

Components:

PT-RFB2a.1: examine overall safety procedures to maintain a safe work area;

PT-RFB2a.2: examine sanitation procedures to ensure facility is in compliance with health codes; and

PT-RFB2a.3: examine the pursuit of personal lifestyle choices to prepare for careers in hospitality and tourism industry.

Standard:

PT-RFB2b: The student will analyze related chemicals and hazardous materials to prevent health-related problems that may result from exposure to these elements so as to:

Component:

PT-RFB2b.1: apply hazardous material practices and procedures for handling and disposing of chemicals.

Strand:

PT-RFB3

Systems

Students use an organized set of ideas and principles to explain or interact among structured organizations.

Standard:

PT-RFB3a: The student will examine the company's standard operating procedures to determine the criteria for food preparation so as to:

Components:

PT-RFB3a.1: implement a set of operating procedures to comply with company requirements;

PT-RFB3a.2: evaluate prepared foods for quality and presentation to set quality standards in accordance with company requirements;

PT-RFB3a.3: use basic food knowledge to prepare nutritious, quality foods;

PT-RFB3a.4: evaluate types of kitchen equipment to match equipment with correct cooking methods; and

PT-RFB3a.5: use points and various types of service to provide customer service in accordance with company policy.

Standard:

PT-RFB3b: The student will understand roles within teams, work units, departments, organizations, interorganizational systems, and the larger environment to identify the effect of systems on the quality of the product or service so as to:

Component:

PT-RFB3b.1: use organizational charts to analyze the workplace operations.

Standard:

PT-RFB3c: The student will manage and improve organizational systems to better serve customers so as to:

Components:

PT-RFB3c.1: develop and manage plans and budgets to accomplish organizational goals and objectives: and

PT-RFB3c.2: develop plans to improve organizational performance including customer satisfaction and service/operations performance.

Standard:

PT-RFB3d: The student will achieve a familiarity with other industries that have relevant services or products and understand how they impact a seamless delivery of products/services to the guest/customer so as to:

Component:

PT-RFB3d.1: network with various other industries to best use available resources and provide an inclusive product to the customer.

Strand:

PT-RFB4

Academics

Students apply English language arts, mathematics, science, and social studies content area skills.

Standard:

PT-RFB4a: The student will manage and use basic reading, writing, and mathematical skills for food service production and guest services to provide a positive guest experience so as to:

Component:

PT-RFB4a.1: apply mathematical, reading, and writing skills to correctly deliver food products and guest services.

Standard:

PT-RFB4b: The student will study and synthesize information from ethnic and geographical studies to apply to customer service so as to:

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Restaurant, Food, & Beverages Pathway

Component:	PT-RFB4b.1:	retrieve vital facts and statistics to correctly use information in a service environment.
Standard:	PT-RFB4c:	The student will study and use basic academic skills to perform effectively in the workplace so as to:
Component:	PT-RFB4c.1:	apply mathematical, reading, and writing skills necessary to perform job tasks in the hospitality and tourism industry.
Standard:	PT-RFB4d:	The student will study the elements of marketing techniques used in various types of hospitality and tourism establishments to gain familiarity with all venues so as to:
Component:	PT-RFB4d.1:	achieve a familiarity with marketing techniques used in the hospitality and tourism industry to sell a product or service.
Standard:	PT-RFB4e:	The student will study and synthesize information from cultural diversity and geographical studies to appreciate their importance in developing products and services so as to:
Component:	PT-RFB4e.1:	identify the components of cultural diversity to understand their impact on the different areas of the hospitality and tourism industry.
Standard:	PT-RFB4f:	The student will study and synthesize the effects of the economy on the hospitality and tourism industry to apply appropriate strategies in developing products or services so as to:
Components:	PT-RFB4f.1:	summarize how to use the “state of the economy“ to plan products and services; and
	PT-RFB4f.2:	examine management styles of different organizational structures to learn best practices for each style.
Standard:	PT-RFB4g:	The student will study the elements of management styles used in various types of hospitality and tourism establishments to gain familiarity with all venues so as to:
Component:	PT-RFB4g.1:	examine management styles of different organizational structures to learn best practices for each style.
Strand:	PT-RFB5	
	Communication Skills	
	Students use information technology to express and interpret information.	
Standard:	PT-RFB5a:	The student will integrate listening, writing, and speaking skills to enhance operations and guest satisfaction so as to:
Components:	PT-RFB5a.1:	use verbal and nonverbal communications to provide a positive experience for guests and employees;
	PT-RFB5a.2:	recognize and respond to guests’ needs and nonverbal cues to provide quality service; and
	PT-RFB5a.3:	interpret verbal and nonverbal behaviors to enhance communications with coworkers and customers/guests.
Standard:	PT-RFB5b:	The student will design all communications to exhibit professionalism in attitude, initiative, respect for others, and commitment so as to:
Components:	PT-RFB5b.1:	apply proper etiquette in all customer contacts; and

	PT-RFB5b.2:	interpret, transcribe, and communicate information, data, and observations to apply information learned from reading to actual practice.
Standard:	PT-RFB5c:	The student will locate, organize, and reference written information from various sources to communicate with coworkers and clients/participants so as to:
Component:	PT-RFB5c.1:	locate, organize, and document written information to communicate and network with coworkers.
Standard:	PT-RFB5d:	The student will use correct grammar, punctuation, and terminology to write and edit documents so as to:
Components:	PT-RFB5d.1:	compose multi-paragraph writing clearly, succinctly, and accurately to reflect professionalism in writing documents; and
	PT-RFB5d.2:	use computer skills to design and develop written materials and supporting visual aids.
Standard:	PT-RFB5e:	The student will use appropriate resources and techniques to develop and deliver formal and informal presentations so as to:
Components:	PT-RFB5e.1:	use description of audience and purpose to prepare oral presentation;
	PT-RFB5e.2:	identify and prepare media and visual aids to complement an oral presentation; and
	PT-RFB5e.3:	deliver presentation to sustain listener's attention and interest.
Standard:	PT-RFB5f:	The student will develop, interpret, and use tables, charts, and figures, to support written and oral communication so as to:
Component:	PT-RFB5f.1:	anticipate future needs to plan accordingly.
Standard:	PT-RFB5g:	The student will manage unexpected situations to ensure continuity of quality service so as to:
Component:	PT-RFB5g.1:	identify the problem and possible solutions, and decide on a course of action to resolve unexpected situations.
Strand:	PT-RFB6 Leadership and Teamwork	
	Students collaborate with others to accomplish goals and objectives.	
Standard:	PT-RFB6a:	The student will review managerial skills required to make staffing decisions while following industry standards so as to:
Components:	PT-RFB6a.1:	model leadership and teamwork qualities to aid in employee retention and create a pleasant working atmosphere for staff members;
	PT-RFB6a.2:	formulate staff development plans to create an effective working team; and
	PT-RFB6a.3:	review industry standards in human relations policies and procedures to ensure all necessary information is included in orientation for new employees.
Standard:	PT-RFB6b:	The student will employ leadership and teamwork skills to facilitate workflow so as to:

Components:	PT-RFB6b.1: develop group working relationships to improve the work environment; and
	PT-RFB6b.2: observe outstanding leaders to identify effective management styles.
Standard:	PT-RFB6c: The student will lead others in tasks and activities to benefit the organization as a whole so as to:
Components:	PT-RFB6c.1: use leadership skills to create motivation for change; and
	PT-RFB6c.2: model leadership and teamwork qualities to aid in employee morale.
Standard:	PT-RFB6d: The student will resolve conflicts to satisfy staff, guest/ customers, and others so as to:
Component:	PT-RFB6d.1: use conflict-management skills to facilitate solutions.
Standard:	PT-RFB6e: The student will establish and maintain effective working relationships with all levels of personnel and other departments to provide effective services to the guest/customer so as to:
Components:	PT-RFB6e.1: use personal skills to build effective working relationships; and
	PT-RFB6e.2: use conflict-management skills to facilitate solutions.
Strand:	
PT-RFB7	Problem Solving and Critical Thinking Students use information technology to define, test, and solve problems.
Standard:	PT-RFB7a: The student will research costs, pricing, and market demands to manage profitability and implement effective marketing strategies so as to:
Components:	PT-RFB7a.1: interpret calculations of food, labor, and pricing to ensure profitability;
	PT-RFB7a.2: examine market and alternative ways of marketing to develop a promotional package; and
	PT-RFB7a.3: anticipate future needs to plan accordingly.
Standard:	PT-RFB7b: The student will manage unexpected situations to ensure continuity of quality service so as to:
Component:	PT-RFB7b.1: identify the problem and possible solutions, and decide on a course of action to resolve unexpected situations.
Standard:	PT-RFB7c: The student will use the principles of budgeting and forecasting to maximize profit and growth in various sectors of hospitality and tourism so as to:
Components:	PT-RFB7c.1: apply forecasting skills to determine cost and profit; and
	PT-RFB7c.2: apply budgeting skills to determine staffing levels.
Standard:	PT-RFB7d: The student will examine all comments and suggestions from the customer service area to formulate improvements in services/ products and training of staff so as to:
Component:	PT-RFB7d.1: use customer comments to guide customer satisfaction policies.

Standard: **PT-RFB7e:** The student will study potential, real, and perceived emergency situations to recognize and implement appropriate safety and security measures so as to:

Component: **PT-RFB7e.1:** identify methods to cope with emergency situations.

Strand:

PT-RFB8

Information Technology Applications

Students use computers, networks, and communication technology to access, organize, process, transmit, and communicate information,

Standard: **PT-RFB8a:** The student will examine types of computerized systems used to manage food service operations and guest services so as to:

Components: **PT-RFB8a.1:** identify ways technology may be used to provide guest and food services;

PT-RFB8a.2: research and evaluate technical resources for food services and bar operations to update or enhance industry standards;

PT-RFB8a.3: use software applications to manage different aspects of food service operations;

PT-RFB8a.4: examine all comments and suggestions from the customer service area to formulate improvements and ensure guest satisfaction; and

PT-RFB8a.5: retrieve Web Site information to use in menu planning, recipes, and for product information.

Strand:

PT-RFB9

Technical Skills

Students select and use technology tools to provide customer service.

Standard: **PT-RFB9a:** The student will examine the company's standard operating procedures related to food and beverage production and guest service to measure effectiveness so as to:

Components: **PT-RFB9a.1:** implement set of operating procedures to comply with company requirements;

PT-RFB9a.2: evaluate prepared foods for quality and presentation to set quality standards in accordance with company requirements;

PT-RFB9a.3: use basic food knowledge to prepare nutritious, quality foods;

PT-RFB9a.4: evaluate types of kitchen equipment to match equipment with correct cooking methodology; and

PT-RFB9a.5: use appropriate types of food service to provide customer service according to set standards.

Standard: **PT-RFB9b:** The student will use different types of payment options to facilitate customer payments for service so as to:

Component: **PT-RFB9b.1:** handle different types of payments to accommodate the guest/customer.

Strand:

PT-RFB10

Employability and Career Development

Students use skills to plan career paths and pursue career opportunities.

Standard:

PT-RFB10a: The student will research and review career options and qualifications in the restaurant and food service industry so as to:

Components:

PT-RFB10a.1: summarize steps needed to obtain a job in the restaurant and food service industry;

PT-RFB10a.2: examine jobs available within the various types of restaurants and food service operations to assess career opportunities; and

PT-RFB10a.3: examine various industry sectors such as independent vs. chain operations to differentiate careers in each type of operation.

Standard:

PT-RFB10b: The student will learn steps necessary to seek, apply for, obtain, and retain employment so as to:

Component:

PT-RFB10b.1: seek and apply for employment to begin career objectives.

Professional Technical Studies: Human Services Cluster
Personal Care Services Pathway

Strand:	
PT-PCS1	<p>Academics Students apply English language arts, mathematics, science, and social studies content area skills.</p>
Standard:	<p>PT-PCS1a: The student will apply mathematics skills to provide services so as to:</p>
Components:	<p>PT-PCS1a.1: use addition, subtraction, multiplication, division, percentage, ratio and proportion, and geometric concepts to manage math-based information; and</p> <p>PT-PCS1a.2: use charts, tables, and graphs as resources for business decisions.</p>
Standard:	<p>PT-PCS1b: The student will apply principles of biology, identifying living tissues, cells, and organisms to provide/select safe and effective products and services so as to:</p>
Components:	<p>PT-PCS1b.1: identify and explain functions and interdependencies of tissues, cells, and organisms to provide/select safe and effective products and services; and</p> <p>PT-PCS1b.2: identify and explain interactions of tissues, cells, and organisms with each other and the environment to provide/select safe and effective products and services.</p>
Standard:	<p>PT-PCS1c: The student will interpret written sentences and paragraphs in work-related documents to obtain items of information so as to:</p>
Component:	<p>PT-PCS1c.1: use reading strategies to decode meaning, technical concepts, and vocabulary, and follow directions.</p>
Standard:	<p>PT-PCS1d: The student will apply principles of chemistry, explaining the composition, structure, and properties of substances and of chemical processes to provide broad-range services so as to:</p>
Components:	<p>PT-PCS1d.1: identify appropriate uses of chemicals;</p> <p>PT-PCS1d.2: understand chemical interactions; and</p> <p>PT-PCS1d.3: recognize potential problems of improper chemical use and the impact of these problems on clients.</p>
Strand:	
PT-PCS2	<p>Communication Skills Students use information technology to express and interpret information.</p>
Standard:	<p>PT-PCS2a: The student will select communication strategies to effectively serve personal care clients/family members so as to:</p>
Components:	<p>PT-PCS2a.1: use effective oral and written communication skills to address personal care clients/family members;</p> <p>PT-PSC2a.2: consult with individuals/family members to determine needs, preferences, and resources;</p>

	PT-PSC2a.3: use interpersonal skills relating to client sensitivity, ethnic diversity, and building rapport to evaluate client point of view and interact respectfully; and
	PT-PCS2a.4: use verbal and nonverbal communication skills to establish and maintain positive relationships with coworkers, other professionals, and individuals/families.
Standard:	PT-PCS2b: The student will apply advertising principles to attract and retain a large clientele so as to:
Component:	PT-PCS2b.1: evaluate and use media to provide maximum impact on particular client populations.

Strand:

PT-PCS3

Problem Solving and Critical Thinking

Students use information technology to define, test, and solve problems.

Standard:	PT-PCS3a: The student will assist individuals to recognize concerns and make informed decisions so as to:
Components:	PT-PCS3a.1: use several approaches to identify and evaluate alternatives; and PT-PCS3a.2: evaluate customer feedback to use it to best advantage.
Standard:	PT-PCS3b: The student will facilitate the development of an individualized plan to reflect client/family preferences, needs, and interests so as to:
Component:	PT-PCS3b.1: analyze client/family wishes, in conjunction with feasibility, to create a course of treatment/action.
Standard:	PT-PCS3c: The student will use time management principles and techniques to achieve objectives so as to:
Component:	PT-PCS3c.1: maintain a business/appointment schedule to effectively serve client/family/community.
Standard:	PT-PCS3d: The student will use interpretation and evaluation skills to enhance client satisfaction so as to:
Components:	PT-PCS3d.1: observe client/family to interpret client satisfaction with solutions, procedures, and products; and PT-PCS3d.2: interpret technical information to choose best resource for use with client's/family's unique preferences.

Strand:

PT-PCS4

Information Technology Applications

Students use computers, networks, and communication technology to access, organize, process, transmit, and communicate information.

Standard:	PT-PCS4a: The student will use technology to analyze data and information so as to:
Components:	PT-PCS4a.1: summarize, compare, and contrast information to arrive at reliable conclusions; PT-PCS4a.2: interpret information about a client, product, process, or topic needed to initiate action; and PT-PCS4a.3: use appropriate software to represent existing client, product, service, or topic information in a different form.

Standard:	PT-PCS4b:	The student will keep electronic records of client services to access and safeguard crucial client information so as to:
Component:	PT-PCS4b.1:	comply with established procedures to store and retrieve information.
Strand:	PT-PCS5	Systems Students use an organized set of ideas and principles to explain or interact among structured organizations.
Standard:	PT-PCS5a:	The student will allocate resources to provide maximum benefit for the client, service provider, business, or organization so as to:
Component:	PT-PCS5a.1:	order and stock products/inventory from vendors to keep supplies available for offering timely client services and products.
Standard:	PT-PCS5b:	The student will examine the range of personal care resources to access at appropriate times so as to:
Components:	PT-PCS5b.1:	design, analyze, and obtain resources necessary for business practice.
Strand:	PT-PCS6	Safety, Health, and Environment Students understand the importance of safety, health, environmental, and regulatory compliance in the workplace.
Standard:	PT-PCS6a:	The student will practice emergency procedures and implement them as needed so as to:
Components:	PT-PCS6a.1:	follow policies, procedures, and regulations to achieve a safe and healthy work environment; and
	PT-PCS6a.2:	implement procedures to protect the health and safety of all.
Standard:	PT-PCS6b:	The student will recognize risks and potentially hazardous situations to help minimize workplace dangers so as to:
Components:	PT-PCS6b.1:	evaluate emergency situations to defuse them and determine intervention strategies; and
	PT-PCS6b.2:	use established guidelines, policies, and procedures to take appropriate measures (e.g., personal protective equipment, etc.)
Strand:	PT-PCS7	Leadership and Teamwork Students collaborate with others to accomplish goals and objectives.
Standard:	PT-PCS7a:	The student will set priorities to accomplish the mission of the personal care organization so as to:
Component:	PT-PCS7a.1:	establish and maintain effective working relationships with all levels of personnel to provide effective services to the client/family.
Standard:	PT-PCS7b:	The student will access appropriate material to establish a personal role in setting priorities for personal care organization so as to:

Component:	PT-PCS7b.1: use organization's policies, procedures, and regulations to work with other coworkers in developing practices sensitive to cultural, religious, disability, and gender issues.
Standard:	PT-PCS7c: The student will analyze the personal care environmental context and factors that may influence future direction so as to:
Component:	PT-PCS7c.1: use conflict-management skills to facilitate solutions.
Standard:	PT-PCS7d: The student will use leadership skills to maintain a positive relationship with the community so as to:
Components:	PT-PCS7d.1: maintain a helpful profile in the professional community and in the larger community to enhance community life; and PT-PCS7d.2: act as a community educator and advocate for the profession
Strand: PT-PCS8	Employability and Career Development Students use skills to plan career paths and pursue career opportunities.
Standard:	PT-PCS8a: The student will continue professional development to keep current on relevant resources and information so as to:
Component:	PT-PCS8a.1: use performance information to evaluate personal performance of goals and self-improvement issues.
Strand: PT-PCS9	Technical Skills Students select and use technology tools to provide customer service.
Standard:	PT-PCS9a: The student will apply technical knowledge and skills required to function in personal care services so as to:
Component:	PT-PCS9a.1: practice in chosen occupation to gain functional skills.
Standard:	PT-PCS9b: The student will synthesize client and professional information to attract clientele and retain present clientele so as to:
Components:	PT-PCS9b.1: assess current techniques and trends to determine applicability to business/organization; and PT-PCS9b.2: assess client records to determine trends.
Standard:	PT-PCS9c: The student will apply administrative/clerical procedures and systems to provide satisfaction for client so as to:
Component:	PT-PCS9c.1: use software to create in-house documents and advertising materials; and PT-PCS9c.2: use office/records management systems to keep client records current/accurate.
Standard:	PT-PCS9d: The student will apply principles and processes for providing personal care services to satisfy the client's expectations so as to:
Components:	PT-PCS9d.1: elicit and evaluate information to identify client's/family's needs; and PT-PCS9d.2: provide services and products to conform to the highest quality standards possible.

Professional Technical Studies Standards: Human Services Cluster
Personal Care Services Pathway

Standard:	PT-PCS9e:	The student will use techniques, principles, tools, and instruments to develop efficient and safe delivery of client services so as to:
Components:	PT-PCS9e.1:	produce and use precise technical plans to develop delivery of client services; and
	PT-PCS9e.2:	create and use drawings and models to develop delivery of client services.
Standard:	PT-PCS9f:	The student will apply economic and accounting principles and practices to promote business success and growth so as to:
Components:	PT-PCS9f.1:	identify banking principles and evaluate banking institutions to determine where to establish a business account; and
	PT-PCS9f.2:	investigate how financial markets work to make successful investment choices.
Standard:	PT-PCS9g:	The student will apply principles of mechanics to choose, evaluate, and maintain service equipment so as to:
Component:	PT-PCS9g.1:	evaluate the design, use, and benefits of service to choose equipment.

Professional Technical Studies: Human Services Cluster
Family and Consumer Science (FCS) Related Courses

STRAND

PT-FCS1

Career, Community, and Family Connections

Students explore family, community, and work interrelationships.

Standard: **PT-FCS1a** The student will demonstrate leadership and teamwork through goal setting and collaboration with others so as to:

- Components:
- PT-FCS1a.1** identify future goals;
 - PT-FCS1a.2** assess characteristics that influence achievement of goals;
 - PT-FCS1a.3** collaborate with family, colleagues, and other community members to achieve shared goals;
 - PT-FCS1a.4** use conflict management skills to facilitate solutions; and
 - PT-FCS1a.5** identify time management strategies related to personal, educational and family goals.

Standard: **PT-FCS1b** The student will demonstrate respectful and caring relationships in the family, workplace and community so as to:

- Components:
- PT-FCS1b.1** recognize personal assets that demonstrate healthy, caring and responsible citizenship;
 - PT-FCS1b.2** participate in a respectful and caring manner in the classroom, family, workplace, and community settings;
 - PT-FCS1b.3** demonstrate interpersonal, teamwork, and leadership skills necessary to function in diverse and multicultural settings; and
 - PT-FCS1b.4** understand safety factors and procedures to maintain safety at school, home, workplace, and the community.

Standard: **PT-FCS1c** The student will demonstrate effective communication skills, so as to:

- Components:
- PT-FCS1c.1** integrate listening, writing, and speaking skills to enhance communications with classmates, family, colleagues, and community members;
 - PT-FCS1c.2** communicate ideas to inform, explain, and persuade others; and
 - PT-FCS1c.3** use effective verbal and nonverbal communication skills with classmates, family, co-workers, and other community members.

Standard: **PT-FCS1d** The student will use information technology to analyze, organize, and present information so as to:

- Components:
- PT-FCS1d.1** use technology tools and resources for managing and communicating personal/professional information, (e.g., finances, schedules, addresses, purchases, and correspondence); and
 - PT-FCS1d.2** use technology tools to interpret information.

Standard: **PT-FCS1e** The student will investigate career choices in family and consumer sciences so as to:

- Components:
- PT-FCS1e.1** create a career plan based on self knowledge and personal interests;

- PT-FCS1e.2** identify education and experience requirements for careers in the family and consumer sciences;
- PT-FCS1e.3** compare the influences of income and fringe benefits to make decisions about employment, job location, housing, and other individual and family responsibilities; and
- PT-FCS1e.4** understand annual gross salary, after tax salary, withholding, taxable income.

STRAND

PT-FCS2

Family and Human Development

Students explore multiple life roles and responsibilities in family, career, and community.

Standard:

PT-FCS2a The student will evaluate the significance of the family and its impact on the well-being of individuals and society

Components:

- PT-FCS2a.1** evaluate the various decisions made by family members;
- PT-FCS2a.2** predict the short term and long term effects of various decisions on the well-being of individuals, families, and society;
- PT-FCS2a.3** identify communication strategies for use with family, colleagues, and community members (e.g., active listening, self-control, respecting different points of view, resolving conflicts, building consensus, etc.); and
- PT-FCS2a.4** analyze personal and societal significance of family related concerns; (e.g., parenting, childcare, education, healthcare, employment, aging, etc.)

Standard:

PT-FCS2b The student will evaluate the impact of parenting roles and responsibilities on strengthening the well-being of individuals and families so as to:

Components:

- PT-FCS2b.1** examine various parenting roles and responsibilities;
- PT-FCS2b.2** predict how various parenting roles affect the well-being of the family members;
- PT-FCS2b.3** analyze personal and family lifespan stages on the needs of families (fixed income, daycare, large family); and
- PT-FCS2b.4** compare child care venues related to child care, nurturing and education.

Standard:

PT-FCS2c The student will analyze physical, intellectual, and social development in relation to theories of child development so as to:

Components:

- PT-FCS2c.1** identify how parents and families prepare for prenatal, birth and infant care;
- PT-FCS2c.2** analyze factors that impact child growth and development;
- PT-FCS2c.3** analyze factors that impact adolescent growth and development;
- PT-FCS2c.4** understand issues and concerns of parents of children with special needs; and
- PT-FCS2c.5** evaluate health and safety factors related to each stage of child development.

Standard

PT-FCS2d The student will explore systems that sustain healthy lifestyles so as to:

Components:	<p>PT-FCS2d.1 recognize how physical activities and sleep impact a healthy lifestyle;</p> <p>PT-FCS2d.2 recognize social and cultural factors that impact a healthy lifestyle;</p> <p>PT-FCS2d.3 identify stress management and coping techniques;</p> <p>PT-FCS2d.4 understand how friends, family, and community systems sustain a productive lifestyle; and</p> <p>PT-FCS2d.5 identify individual, family, and community resources that support a healthy and productive lifestyle.</p>
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STRAND
PT-FCS3

Nutrition, Food, and Wellness

Students analyze nutrition and wellness concepts that influence individual, family, and community quality of life.

Standard:	<p>PT-FCS3a The student will evaluate nutritional principles essential to maintenance of individual and family member health so as to:</p>
Components:	<p>PT-FCS3a.1 describe the role of food in relationship to healthy and unhealthy bodies;</p> <p>PT-FCS3a.2 describe the connection between food and the brain;</p> <p>PT-FCS3a.3 analyze nutritional content of food;</p> <p>PT-FCS3a.4 explain the effect of normal and abnormal levels of fat, sugar, salt, carbohydrate, cholesterol and protein in the diet;</p> <p>PT-FCS3a.5 explain the effect of normal and abnormal levels of vitamins and minerals in the diet;</p> <p>PT-FCS3a.6 investigate the effectiveness of nutritional supplements;</p> <p>PT-FCS3a.7 identify differences in nutritional needs for children, teenagers, adults, and senior citizens;</p> <p>PT-FCS3a.8 identify differences in nutritional needs of females and males;</p> <p>PT-FCS3a.9 explain dietary factors necessary to develop healthy weight loss, weight gain, and weight maintenance plans; and</p> <p>PT-FCS3a.10 prepare healthy dietary plans for various individuals.</p>
Standard:	<p>PT-FCS3b The student will prepare nutritious foods so as to:</p>
Components:	<p>PT-FCS3b.1 understand the US food pyramid recommendations for meal planning and preparation;</p> <p>PT-FCS3b.2 identify dietary restrictions that may impact meal planning and food preparation;</p> <p>PT-FCS3b.3 identify cultural influences that may impact meal planning and food preparation;</p> <p>PT-FCS3b.4 identify cause, effect, and strategies to prevent food contamination;</p> <p>PT-FCS3b.5 design a nutritious menu;</p> <p>PT-FCS3b.6 plan a food budget; and</p> <p>PT-FCS3b.7 perform basic food preparation steps.</p>
Standard:	<p>PT-FCS3c The student will understand the relationship between fitness and well-being so as to:</p>

- Components:
- PT-FCS3c.1** explain the risks associated with poor fitness, sleep, and eating habits;
 - PT-FCS3c.2** assess personal fitness and eating habits;
 - PT-FCS3c.3** understand the energy requirements for various activities and athletic sports;
 - PT-FCS3c.4** understand the relationship between exercise and diet; and
 - PT-FCS3c.5** design a personal fitness plan.

STRAND
PT-FCS4

Consumer Economics and Family Resources

Students explore resources to address the diverse needs and goals of individuals, families, and communities.

- Standard: **PT-FCS4a** The student will develop financial literacy skills including budgeting and money management so as to:

- Components:
- PT-FCS4a.1** define individual and family financial goals;
 - PT-FCS4a.2** identify fixed and variable budgetary expenses;
 - PT-FCS4a.3** evaluate life situations that impact budgets and financial goals (e.g., job loss, child birth, health, relocation);
 - PT-FCS4a.4** explore banking and financial accounts (e.g., checking accounts, saving accounts, debit cards, credit cards, interest income, investments);
 - PT-FCS4a.5** analyze the use of credit and debt to meet family goals;
 - PT-FCS4a.6** analyze renting versus purchasing;
 - PT-FCS4a.7** analyze saving plans and investment strategies; and
 - PT-FCS4a.8** develop a weekly, monthly, and yearly budget PTZ302

- Standard: **PT-FCS4b** The student will develop consumer awareness skills;

- Components:
- PT-FCS4b.1** identify the difference between consumer wants and needs;
 - PT-FCS4b.2** analyze the impact of marketing on the individual, family members, business and society;
 - PT-FCS4b.3** understand how food production, distribution and consumer marketing affect buying and eating habits;
 - PT-FCS4b.4** analyze consumer skills required to make wise food choices;
 - PT-FCS4b.5** assess factors that affect the availability of housing (e.g., market supply and demand);
 - PT-FCS4b.6** evaluate product return and warranty policies;
 - PT-FCS4b.7** understand consumer laws and consumer assistance organizations (e.g., Better Business Bureau, consumer protection organizations, etc.); and
 - PT-FCS4b.8** implement purchasing strategies that support individual and family needs and financial goals.

- Standard: **PT-FCS4c** The student will evaluate resources that assist individuals and families so as to:

- Components: **PT-FCS4c.1** identify government, public, nonpublic, and for-profit family service providers;

- PT-FCS4c.2** evaluate consumer lending programs (e.g., mortgages, cars, first time buyer, student loan, etc.);
- PT-FCS4c3** Understand insurance programs; and
- PT-FCS4c4** Analyze savings plans and retirement programs.

Professional Technical Studies: Information Technology Cluster
Information Support & Services Pathway

Strand:

PT-ISS1

Computer User Support

Students analyze computer problems and provide customer support.

Standard:

PT-ISS1a: The student will analyze technical support needed so as to:

Components:

PT-ISS1a.1: apply information and data analysis techniques; and

PT-ISS1a.2: evaluate present data and system configuration.

Standard:

PT-ISS1b: The student will perform customer service so as to:

Components:

PT-ISS1b.1: respond to user questions;

PT-ISS1b.2: provide troubleshooting for hardware/software;

PT-ISS1b.3: diagnose problems within system;

PT-ISS1b.4: employ technical and computer tools to perform tasks in the most cost-effective manner; and

PT-ISS1b.5: manage multiple customer requirements.

Strand:

PT-ISS2

Management of Software Systems

Students select, install, and maintain software based on need.

Standard:

PT-ISS2a: The student will perform configuration management activities so as to:

Component:

PT-ISS2a.1: determine standards to be applied (e.g., international, industry, military.)

Standard:

PT-ISS2b: The student will evaluate application software packages so as to:

Component:

PT-ISS2b.1: evaluate appropriateness of software for specific projects.

Strand:

PT-ISS3

Hardware Design, Operation, and Maintenance

Students select, configure, and maintain hardware.

Standard:

PT-ISS3a: The student will demonstrate knowledge of CPU components so as to:

Components:

PT-ISS3a.1: demonstrate knowledge of chip configuration and structure;

PT-ISS3a.2: demonstrate knowledge of the functions of internal components (e.g., motherboards, co-processor boards, memory devices); and

PT-ISS3a.3: demonstrate knowledge of the characteristics and operation of controller and network interface cards.

Standard:

PT-ISS3b: The student will install a computer system so as to:

Components:

PT-ISS3b.1: identify primary PC components and the functions of each;

PT-ISS3b.2: demonstrate knowledge of how hardware components interact and how conflicts arise;

PT-ISS3b.3: access needed information using manufacturers' references (e.g., procedural manuals, documentation, standard and work flowcharts);

PT-ISS3b.4: respond to error messages and symptoms of hardware failures;

	PT-ISS3b.5: install boards to support peripherals;
	PT-ISS3b.6: connect peripherals to CPU;
	PT-ISS3b.7: employ appropriate safety precautions when working with PCs;
	PT-ISS3b.8: configure system;
	PT-ISS3b.9: verify system operation;
	PT-ISS3b.10: document system installation activities;
	PT-ISS3b.11: back up system configuration; and
	PT-ISS3b.12: test all applications.
Standard:	PT-ISS3c: The student will troubleshoot computer systems so as to:
Components:	PT-ISS3c.1: identify priorities and interrupts at system level;
	PT-ISS3c.2: demonstrate the use of volatile and nonvolatile memory;
	PT-ISS3c.3: repair/replace volatile and nonvolatile memory;
	PT-ISS3c.4: test system using diagnostic tools/software;
	PT-ISS3c.5: identify problems in the operating system and related hardware;
	PT-ISS3c.6: differentiate between hardware and software failure;
	PT-ISS3c.7: update flash memory (BIOS);
	PT-ISS3c.8: optimize hard drive;
	PT-ISS3c.9: gather information on problem from user;
	PT-ISS3c.10: conduct appropriate diagnostic tests;
	PT-ISS3c.11: repair and replace hardware;
	PT-ISS3c.12: reinstall software as needed;
	PT-ISS3c.13: recover data and/or files; and
	PT-ISS3c.14: restore system to normal operating standards.

Strand:
PT-ISS4

Networking Concepts

Students design computer networks.

Standard:	PT-ISS4a: The student will demonstrate knowledge of basic network classifications and topologies so as to:
Components:	PT-ISS4a.1: interpret basic networking terminology;
	PT-ISS4a.2: differentiate between LANs, MANs, and WANs; and
	PT-ISS4a.3: identify the basic broadcast topologies (e.g., star ring, bus.)
Standard:	PT-ISS4b: The student will demonstrate knowledge of network applications so as to:
Component:	PT-ISS4b.1: demonstrate knowledge of how disk storage is shared across a network.

Strand:
PT-ISS5

System Administration and Control

Students maintain computer systems.

Standard:	PT-ISS5a: The student will perform general system administration tasks so as to:
Component:	PT-ISS5a.1: establish and maintain user accounts on multiple systems.

Strand:

PT-ISS6

Project Management

Students manage project tasks, timelines, and goals.

Standard:

PT-ISS6a: The student will define scope of work to achieve individual and group goals so as to:

Components:

PT-ISS6a.1: identify size and specifics of the task;

PT-ISS6a.2: formulate task sequence; and

PT-ISS6a.3: plan multiple tasks simultaneously.

Standard:

PT-ISS6b: The student will manage information system project methodologies so as to:

Components:

PT-ISS6b.1: define the scope of the project;

PT-ISS6b.2: develop initial project management flowchart;

PT-ISS6b.3: estimate time requirements;

PT-ISS6b.4: develop time and activity plan to achieve objective;

PT-ISS6b.5: coordinate plan with team, cross-functional groups, or individuals;

PT-ISS6b.6: manage the change control process; and

PT-ISS6b.7: participate in project phase review.

Standard:

PT-ISS6c: The student will apply knowledge of the life cycle of an information system so as to:

Components:

PT-ISS6c.1: define scope of work to achieve individual and group goals;

PT-ISS6c.2: develop time and activity plan to achieve objective;

PT-ISS6c.3: evaluate technical writing requirements;

PT-ISS6c.4: conduct technical research;

PT-ISS6c.5: design technical documentation; and

PT-ISS6c.6: write technical reports.

Standard:

PT-ISS6d: The student will develop time and activity plans to achieve objective so as to:

Component:

PT-ISS6d.1: formulate a task strategy.

Strand:

PT-ISS7

Technical Writing and Documentation

Students use technology to write and publish technical specifications and directions.

Standard:

PT-ISS7a: The student will evaluate technical writing requirements so as to:

Components:

PT-ISS7a.1: evaluate technical writing requirements; and

PT-ISS7a.2: evaluate strengths and weaknesses of completed project.

Standard:

PT-ISS7b: The student will conduct technical research so as to:

Components:

PT-ISS7b.1: identify target audience;

PT-ISS7b.2: define research questions;

PT-ISS7b.3: identify potential sources of information;

PT-ISS7b.4: evaluate potential sources of information based on established criteria (e.g., affordability, relevance);

	PT-ISS7b.5:	conduct interviews with selected human information sources;
	PT-ISS7b.6:	gather information from selected print and electronic sources; and
	PT-ISS7b.7:	determine the accuracy and completeness of the information gathered.
Standard:	PT-ISS7c:	The student will write technical reports so as to:
Components:	PT-ISS7c.1:	analyze data;
	PT-ISS7c.2:	plan information flow; and
	PT-ISS7c.3:	design technical documentation.

Strand:
PT-ISS8

Quality Assurance Processes

Students use a systematic approach to provide evidence that products satisfy requirements.

Standard:	PT-ISS8a:	The student will employ quality tools so as to:
Component:	PT-ISS8a.1:	select quality tool(s) appropriate to situation.
Standard:	PT-ISS8b:	The student will apply knowledge of quality cost implications so as to:
Component:	PT-ISS8b.1:	identify safety responsibility within organization.

Strand:
PT-ISS9

Academics

Students apply English language arts, mathematics, science, and social studies content area skills.

Standard:	PT-ISS9a:	The student will demonstrate language arts knowledge and skills required to pursue the full range of career and postsecondary education opportunities within the IT career cluster so as to:
Components:	PT-ISS9a.1:	adapt language (diction, structure, style) for audience, purpose, and situation;
	PT-ISS9a.2:	collect and organize oral and written information;
	PT-ISS9a.3:	compose and edit (agenda, audio-visuals, bibliographies, drafts, forms/documents, notes, oral presentations, reports, technical terminology);
	PT-ISS9a.4:	comprehend oral and written information (cause/effect, comparisons/contrasts, conclusions, context, purpose, charts/tables/graphs, evaluation/critiques, mood, persuasive text, sequence, summaries, technical matter);
	PT-ISS9a.5:	evaluate oral and written information (accuracy, adequacy, appropriateness, clarity, conclusions, solutions, fact/opinion, propaganda, relevancy, validity, relationship of ideas);
	PT-ISS9a.6:	present formal and informal speech, discussion, information requests/supplying, interpretation, persuasion; and
	PT-ISS9a.7:	use library, text, and Internet resources.

Strand:

PT-ISS10

Communication Skills

Students use information technology to express and interpret information.

Standard:

PT-ISS10a: The student will locate, organize, and reference written information from various sources to communicate with coworkers and clients/participants so as to:

Components:

PT-ISS10a.1: locate written information to communicate with students and teachers;

PT-ISS10a.2: organize information to use in written and oral communications;

PT-ISS10a.3: document the source and proper reference for written information;

PT-ISS10a.4: use computer skills to design and develop written and supporting material;

PT-ISS10a.5: prepare oral presentation to provide information for intended purpose and audience;

PT-ISS10a.6: identify and prepare support materials to accompany oral presentation; and

PT-ISS10a.7: deliver presentations to sustain listener's attention and interest.

Standard:

PT-ISS10b: The student will apply active listening skills to obtain and clarify information so as to:

Component:

PT-ISS10b.1: respond with restatement and clarification techniques to clarify information.

Standard:

PT-ISS10c: The student will demonstrate sensitivity in communicating with a diverse workforce so as to:

Component:

PT-ISS10c.1: understand factors and strategies for communicating with a diverse workforce.

Standard:

PT-ISS10d: The student will build customer relations so as to:

Components:

PT-ISS10d.1: demonstrate ability to assist customers in a professional manner;

PT-ISS10d.2: ensure that customers' needs are met and that customer base is maintained; and

PT-ISS10d.3: document interaction with customers.

Strand:

PT-ISS11

Problem Solving and Critical Thinking

Students use information technology to define, test, and solve problems.

Standard:

PT-ISS11a: The student will guide progress in assigned areas of responsibility/accountability so as to:

Components:

PT-ISS11a.1: set goals;

PT-ISS11a.2: monitor and adjust goals; and

PT-ISS11a.3: communicate and recognize goal achievement.

Standard:

PT-ISS11b: The student will conduct technical research so as to:

Components:

PT-ISS11b.1: determine audience and information needs; and

PT-ISS11b.2: gather and evaluate information.

Standard:

PT-ISS11c: The student will produce a quality product/service so as to:

Components:	PT-ISS11c.1: understand product/service design; and PT-ISS11c.2: test and maintain products/services.
Standard:	PT-ISS11d: The student will use Internet applications so as to:
Components:	PT-ISS11d.1: search for information and resources; and PT-ISS11d.2: access and evaluate Internet resources.
Standard:	PT-ISS11e: The student will use writing/publishing/presentation applications so as to:
Components:	PT-ISS11e.1: prepare reports and other business communications, integrating graphics and other nontext elements; PT-ISS11e.2: prepare presentations for training, sales, and information sharing; and PT-ISS11e.3: deliver presentations, with supporting materials.
Strand:	
PT-ISS12	Leadership and Teamwork Students collaborate with others to accomplish goals and objectives.
Standard:	PT-ISS12a: The student will demonstrate knowledge of the skills needed for leadership in the IT environment so as to:
Components:	PTI-SS12a.1: understand key approaches to successful leadership in the IT environment; PT-ISS12a.2: build interpersonal skills with individuals and other team members; and PT-ISS12a.3: apply best practices for successful team functioning.
Strand:	
PT-ISS13	Interactive Media Customer Requirements Students identify client needs and product expectations.
Standard:	PT-ISS13a: The student will gather and analyze interactive media customer requirements so as to:
Component:	PT-ISS13a.1: gather data to identify customer requirements.
Standard:	PT-ISS13b: The student will create interactive media product specifications so as to:
Components:	PT-ISS13b.1: prepare functional specifications; and PT-ISS13b.2: prepare visual design specifications.
Strand:	
PT-ISS14	Safety Students understand the importance of safety in the workplace.
Standard:	PT-ISS14a: The student will apply safety practices in the laboratory so as to:
Components:	PT-ISS14a.1: develop and implement a safety checklist; PT-ISS14a.2: use safety equipment in the laboratory; and PT-ISS14a.3: encourage others to employ safety practices.

Strand:

PT-ISS15

History of Electricity and Electronics

Students understand the foundations of electricity and electronics.

Standard:

PT-ISS15a: The student will examine the historical developments in electricity and electronics so as to:

Components:

- PT-ISS15a.1:** define innovation and invention related to electronics;
- PT-ISS15a.2:** research history of invention in electronics; and
- PT-ISS15a.3:** make a presentation based upon historical research.

Strand:

PT-ISS16

Mathematics for Electronics

Students apply mathematical concepts to the study of electronics.

Standard:

PT-ISS16a: The student will apply the mathematical processes and applications that lead to solutions of electronic problems so as to:

Components:

- PT-ISS16a.1:** solve direct current (DC) circuit analysis problems using Ohm's Law;
- PT-ISS16a.2:** calculate fundamental alternating current (AC) parameters;
- PT-ISS16a.3:** manipulate scientific notation in problem solutions;
- PT-ISS16a.4:** manipulate engineering notation in problem solutions and used in unit conversion;
- PT-ISS16a.5:** derive algebraic equations to determine unknown values in circuits;
- PT-ISS16a.6:** use Boolean algebra for design and analysis of digital circuits;
- PT-ISS16a.7:** use a scientific calculator as a tool for problem solving; and
- PT-ISS16a.8:** convert units of measurement from one system to another.

Strand:

PT-ISS17

Testing Digital Circuits

Students conduct electronic tests.

Standard:

PT-ISS17a: The student will demonstrate the use of appropriate diagnostic equipment so as to:

Components:

- PT-ISS17a.1:** select and apply appropriate test equipment or tools; and
- PT-ISS17a.2:** analyze and apply observed logic states.

Strand:

PT-ISS18

Digital Applications

Students understand digital electronics.

Standard:

PT-ISS18a: The student will apply concepts of digital electronics so as to:

Components:

- PT-ISS18a.1:** draw and label the seven basic logic gates;
- PT-ISS18a.2:** derive the truth tables of the seven basic logic gates; and
- PT-ISS18a.3:** construct logic circuits using discrete components to emulate the seven basic gates.

Standard:

PT-ISS18b: The student will investigate the operation of logic circuits and how logic gates are used to perform digital operations so as to:

- Components:
- PT-ISS18b.1:** investigate integrated circuits, electronic logic circuits, clocks, timers and flip-flops, digital counting circuits, advanced timers, and computer circuits; and
 - PT-ISS18b.2:** assemble a digital trainer.

Professional Technical Studies: Information Technology Cluster
Interactive Media Pathway

Strand:

PT-ITM1

Interactive Media Customer Requirements

Students identify client needs and product expectations.

Standard:

PT-ITM1a: The student will gather data to identify customer requirements so as to:

Component:

PT-ITM1a.1: determine client's needs and expected outcomes.

Standard:

PT-ITM1b: The student will interpret and evaluate customer requirements so as to:

Components:

PT-ITM1b.1: determine purpose of the interactive media product;

PT-ITM1b.2: determine the target audience; and

PT-ITM1b.3: determine the interactive media elements to be used.

Strand:

PT-ITM2

Interactive Media Product Specifications

Students derive product specifications based on client needs and expectations.

Standard:

PT-ITM2a: The student will prepare functional specifications for interactive media product so as to:

Components:

PT-ITM2a.1: develop flowchart and/or navigational blueprints;

PT-ITM2a.2: determine delivery platform;

PT-ITM2a.3: design user interface; and

PT-ITM2a.4: design navigational schematic.

Standard:

PT-ITM2b: The student will create final project plan so as to:

Components:

PT-ITM2b.1: identify and obtain tools and resources to do the job;

PT-ITM2b.2: identify and evaluate risks;

PT-ITM2b.3: develop detailed task list;

PT-ITM2b.4: identify critical milestones; and

PT-ITM2b.5: identify interdependencies.

Strand:

PT-ITM3

Tools for Media Production, Development, and Project Management

Students select technology tools based on client requirements and product specifications.

Standard:

PT-ITM3a: The student will select and use appropriate software tools so as to:

Components:

PT-ITM3a.1: demonstrate proficiency in the use of digital-imaging techniques and equipment;

PT-ITM3a.2: synthesize available interactive media technologies into a unified presentation using appropriate authoring software;

PT-ITM3a.3: demonstrate knowledge of available graphics software programs;

PT-ITM3a.4: manipulate images; and

PT-ITM3a.5: demonstrate knowledge of the basic principles of animation.

Strand:

PT-ITM4

Web Programming and Hosting

Students learn Web site management including programming, bandwidth issues, client/server management, and Web site hosting.

Standard:

PT-ITM4a: The student will demonstrate knowledge of Internet programming basics so as to:

Components:

PT-ITM4a.1: recognize the importance of Internet programming standards;

PT-ITM4a.2: demonstrate knowledge of standard Internet programming coding;

PT-ITM4a.3: differentiate between various versions of Internet programming;

PT-ITM4a.4: demonstrate knowledge of how to use standard programs to produce an Internet application;

PT-ITM4a.5: identify authoring programs specifically designed for Internet programming production;

PT-ITM4a.6: compare/contrast features, strengths, and weaknesses of different authoring programs;

PT-ITM4a.7: identify cross-platform issues; and

PT-ITM4a.8: keep up-to-date with new and emerging trends related to Internet programming.

Standard:

PT-ITM4b: The student will understand the differences between a client and a server so as to:

Component:

PT-ITM4b.1: differentiate between a client and a server.

Standard:

PT-ITM4c: The student will understand how bandwidth affects data transmission and onscreen image so as to:

Component:

PT-ITM4c.1: demonstrate knowledge of how bandwidth affects data transmission and on-screen image.

Standard:

PT-ITM4d: explain the differences in hosting a Web site on a local server versus at an ISP (Internet Service Provider) so as to:

Component:

PT-ITM4d.1: compare the advantages and disadvantages of running your own server versus using a server provider.

Standard:

PT-ITM4e: The student will apply knowledge of basic Web programming so as to:

Components:

PT-ITM4e.1: demonstrate knowledge of how to interface client/server;

PT-ITM4e.2: identify standard scripting languages (e.g., JavaScript, VBScript); and

PT-ITM4e.3: demonstrate knowledge of the uses and advantages/disadvantages of various scripting languages.

Standard:

PT-ITM4f: The student will explain features and functions of Web-browsing software so as to:

Components:

PT-ITM4f.1: demonstrate knowledge of the role of browsers in reading files on the World Wide Web

PT-ITM4f.2: identify how different browsers and browser settings affect the look of a Web page; and

PT-ITM4f.3: demonstrate knowledge of the characteristics and use of plug-ins.

Strand:

PT-ITM5

Creation and Implementation of Interactive Media Products

Students use functional specifications to create interactive media products.

Standard:

PT-ITM5a: The student will implement functional design criteria so as to:

Components:

PT-ITM5a.1: identify, use, and create reusable components;

PT-ITM5a.2: create and produce content; and

PT-ITM5a.3: create and refine design concepts.

Standard:

PT-ITM5b: The student will create product visual design so as to:

Components:

PT-ITM5b.1: apply principles and elements of design;

PT-ITM5b.2: apply color theory to select appropriate colors;

PT-ITM5b.3: create and/or implement the look and feel of the product;

PT-ITM5b.4: create graphical images;

PT-ITM5b.5: apply knowledge of typography;

PT-ITM5b.6: alter digitized images using an image manipulation program; and

PT-ITM5b.7: evaluate visual appeal.

Standard:

PT-ITM5c: The student will produce or acquire content so as to:

Components:

PT-ITM5c.1: produce or acquire graphics content;

PT-ITM5c.2: produce or acquire animation content;

PT-ITM5c.3: produce or acquire audio content; and

PT-ITM5c.4: produce or acquire video content.

Standard:

PT-ITM5d: The student will integrate media elements so as to:

Components:

PT-ITM5d.1: integrate the use of photographic special effects into media presentations; and

PT-ITM5d.2: integrate photographically derived images with hand-drawn graphic images.

Strand:

PT-ITM6

Testing of Interactive Media Product

Students systematically test the product and make product revisions based on test results.

Standard:

PT-ITM6a: The student will develop and implement a test plan so as to:

Components:

PT-ITM6a.1: perform usability tests;

PT-ITM6a.2: assess product effectiveness;

PT-ITM6a.3: test product for reliability; and

PT-ITM6a.4: revise product design based on test results.

Strand:

PT-ITM7

Use of Writing/Publishing Applications

Students collaborate with others to accomplish goals and objectives.

Standard:

PT-ITM7a: The student will use technology to create and publish information so as to:

Components:	PT-ITM7a.1: create documents (e.g., letters, memos, reports) both with and without templates;
	PT-ITM7a.2: format text using basic formatting functions (e.g., paragraph spacing, margins, bullets, numbering); and
	PT-ITM7a.3: employ word-processing utility tools (e.g., track changes, thesaurus.)
Standard:	PT-ITM7b: The student will prepare complex publications so as to:
Components:	PT-ITM7b.1: create new word-processing forms, style sheets, and templates;
	PT-ITM7b.2: prepare publications using desktop-publishing software;
	PT-ITM7b.3: format new desktop-publishing files;
	PT-ITM7b.4: organize content and standardize format from various sources;
	PT-ITM7b.5: output desktop-publishing files; and
	PT-ITM7b.6: create nonprint output for publication (e.g., PDF, postscript.)
Standard:	PT-ITM7c: The student will prepare reports and other business communications, integrating graphics and other nontext elements so as to:
Components:	PT-ITM7c.1: use advanced formatting features (e.g., headers/footers/dropped caps, indexing);
	PT-ITM7c.2: place graphics in a document; and
	PT-ITM7c.3: enhance publications using different fonts, styles, attributes, justification, etc.
Strand:	
PT-ITM8	Grammar, Punctuation, and Terminology Students apply mechanics of writing.
Standard:	PT-ITM8a: The student will use description of audience and purpose to prepare written documents so as to:
Components:	PT-ITM8a.1: use technical terms and concepts;
	PT-ITM8a.2: incorporate and use references effectively and accurately; and
	PT-ITM8a.3: report objective and/or subjective information.
Standard:	PT-ITM8b: The student will use computer skills to design and develop written and supporting material so as to:
Component:	PT-ITM8b.1: format written documents with correct font and layout for easy reading.
Strand:	
PT-ITM9	Applications in Computer Graphics Students use technology to create computer graphics.
Standard:	PT-ITM9a: The student will analyze multimedia applications of software/hardware for the purposes of visual communications so as to:
Components:	PT-ITM9a.1: exhibit knowledge of graphic design and related software;
	PT-ITM9a.2: create examples of computer graphics in commercial applications; and
	PT-ITM9a.3: export animations as animated files.

Strand:

PT-ITM10

Leadership and Teamwork

Students collaborate with others to accomplish goals and objectives.

Standard:

PT-ITM10a: The student will produce interactive media as member of a development team so as to:

Components:

PT-ITM10a.1: implement functional design criteria;

PT-ITM10a.2: create product visual design;

PT-ITM10a.3: produce or acquire content; and

PT-ITM10a.3: participate in iterative development with clients and team members.

Professional Technical Studies: Information Technology Cluster
Programming/Software Engineering Pathway

Strand:	PT-PSD1	Programming and Software Engineering Students will use software to design solutions for customer needs.
Standard:	PT-PSD1a:	The student will identify and analyze customer software needs and requirements so as to:
Components:	PT-PSD1a.1:	gather data to identify customer requirements;
	PT-PSD1a.2:	conduct needs analysis;
	PT-PSD1a.3:	develop software requirements specification;
	PT-PSD1a.4:	analyze requirements/specifications using current approaches; and
	PT-PSD1a.5:	use available reference tools as appropriate.
Standard:	PT-PSD1b:	The student will produce IT-based strategies and project plan to solve the specific problem so as to:
Components:	PT-PSD1b.1:	define scope of work for the programming project;
	PT-PSD1b.2:	demonstrate knowledge and skills of working on a software development team; and
	PT-PSD1b.3:	design project plan.
Standard:	PT-PSD1c:	The student will define and analyze system and software requirements so as to:
Component:	PT-PSD1c.1:	understand elements and types of information processing.
Standard:	PT-PSD1d:	The student will demonstrate the effective use of tools for software development so as to:
Components:	PT-PSD1d.1:	apply tools for developing software applications; and
	PT-PSD1d.2:	apply language-specific programming tools/techniques.
Standard:	PT-PSD1e:	The student will demonstrate knowledge of the software development process so as to:
Component:	PT-PSD1e.1:	demonstrate knowledge of software development methodology.
Standard:	PT-PSD1f:	The student will design a software application so as to:
Components:	PT-PSD1f.1:	create design specification for a computer application;
	PT-PSD1f.2:	demonstrate comprehension of the trade-off involved in design choices;
	PT-PSD1f.3:	demonstrate knowledge of computing/networking hardware and software architecture; and
	PT-PSD1f.4:	apply the principles of effective information management, information organization, and information retrieval skills.
Standard:	PT-PSD1g:	The student will produce (i.e., code) a computer application so as to:
Components:	PT-PSD1g.1:	demonstrate knowledge of programming language concepts;

	PT-PSD1g.2: demonstrate proficiency in developing an application using an appropriate programming language;
	PT-PSD1g.3: understand the range of languages used in software development;
	PT-PSD1g.4: demonstrate knowledge of program development methodology;
	PT-PSD1g.5: demonstrate knowledge of basic implementation of software systems;
	PT-PSD1g.6: develop software requirements/specifications; and
	PT-PSD1g.7: resolve problems with integration if they occur.
Standard:	PT-PSD1h: The student will demonstrate knowledge of software testing so as to:
Components:	PT-PSD1h.1: develop test plan;
	PT-PSD1h.2: perform testing and validation;
	PT-PSD1h.3: document test results; and
	PT-PSD1h.4: develop software testing audit trails.
Standard:	PT-PSD1i: The student will perform maintenance and customer support functions so as to:
Components:	PT-PSD1i.1: analyze technical support needs for software;
	PT-PSD1i.2: perform customer service; and
	PT-PSD1i.3: perform software maintenance activities.

Professional Technical Studies: Information Technology Cluster
Network Systems Pathway

Strand:

PT-NWS1 Identifying and Analyzing Customer/Organization Network System Needs and Requirements

Students analyze needs and requirements.

Standard: **PT-NWS1a:** The student will gather data to identify customer/organization requirements so as to:

- Components:
- PT-NWS1a.1:** identify system and network requirements;
 - PT-NWS1a.2:** identify physical requirements for system implementation;
 - PT-NWS1a.3:** identify system requirements for various types of installations;
 - PT-NWS1a.4:** identify environmental requirements, conditions, and limitations;
 - PT-NWS1a.5:** identify input and output requirements;
 - PT-NWS1a.6:** identify system processing requirements;
 - PT-NWS1a.7:** identify functional requirements for hardware, networking, and software system; and
 - PT-NWS1a.8:** identify time, technology, and resource constraints.

Standard: **PT-NWS1b:** The student will conduct needs analysis so as to:

- Components:
- PT-NWS1b.1:** analyze existing procedures;
 - PT-NWS1b.2:** define business problem to be solved by the application; and
 - PT-NWS1b.3:** access needed information using company and manufacturers' references (e.g., procedural manuals, documentation, standards, and work flowcharts.)

Standard: **PT-NWS1c:** The student will develop networking requirements specification so as to:

- Components:
- PT-NWS1c.1:** demonstrate knowledge of the use, structure, and contents of a requirements specification document;
 - PT-NWS1c.2:** define system and software requirements;
 - PT-NWS1c.3:** evaluate installation requirements;
 - PT-NWS1c.4:** resolve conflicting requirements; and
 - PT-NWS1c.5:** develop informal specifications.

Standard: **PT-NWS1d:** The student will analyze requirements/specifications using current approaches so as to:

- Components:
- PT-NWS1d.1:** demonstrate knowledge of how to use software methodologies to analyze a real-world problem; and
 - PT-NWS1d.2:** identify constraints.

Strand:

PT-NWS2 Project Management

Students manage project tasks, timelines, and goals.

Standard: **PT-NWS2a:** The student will produce strategies and plan to solve the specific network problem so as to:

- Components:
- PT-NWS2a.1:** evaluate project requirements;

	PT-NWS2a.2: demonstrate knowledge of the key functions and subsystems of the network system; and
	PT-NWS2a.3: demonstrate knowledge of the system life-cycle approach.
Standard:	PT-NWS2b: The student will create project plan so as to:
Components:	PT-NWS2b.1: prepare overall plan for integrating new processes, protocols, and equipment;
	PT-NWS2b.2: estimate time requirements;
	PT-NWS2b.3: identify tools and resources for the job;
	PT-NWS2b.4: identify and evaluate risks;
	PT-NWS2b.5: identify critical milestones; and
	PT-NWS2b.6: identify interdependencies.
Standard:	PT-NWS2c: The student will manage information system project methodologies so as to:
Components:	PT-NWS2c.1: define the scope of the project;
	PT-NWS2c.2: develop task list (i.e., work breakdown structures);
	PT-NWS2c.3: evaluate project requirements and risks;
	PT-NWS2c.4: identify stakeholders and decision makers;
	PT-NWS2c.5: identify required resources and budgets;
	PT-NWS2c.6: identify and track critical milestones; and
	PT-NWS2c.7: develop a method of evaluation.
Strand:	
PT-NWS3	Quality Assurance Processes Students use a systematic approach to provide evidence that products satisfy requirements.
Standard:	PT-NWS3a: The student will evaluate the correctness and effectiveness of implementing the network system so as to:
Components:	PT-NWS3a.1: evaluate whether the process was applied in an efficient and responsible manner; and
	PT-NWS3a.2: determine needed follow-up actions.
Standard:	PT-NWS3b: The student will analyze network security systems so as to:
Components:	PT-NWS3b.1: identify security requirements and the need for data protection;
	PT-NWS3b.2: identify specific access levels that need to be accommodated;
	PT-NWS3b.3: match security system design to identified security requirements; and
	PT-NWS3b.4: develop security plan.
Strand:	
PT-NWS4	Networking Concepts Processes Students design computer networks.
Standard:	PT-NWS4a: The student will demonstrate knowledge of the basics of network architecture so as to:
Components:	PT-NWS4a.1: demonstrate knowledge of the characteristics and uses of network components (e.g., hub, switches, routers, firewall);
	PT-NWS4a.2: differentiate between a physical and logical topology;

	<p>PT-NWS4a.3: demonstrate a basic knowledge of OSI modeling;</p> <p>PT-NWS4a.4: demonstrate knowledge of LAN transmission methods and standards;</p> <p>PT-NWS4a.5: demonstrate knowledge of LAN transmission protocols;</p> <p>PT-NWS4a.6: demonstrate knowledge of various frame types and formats; and</p> <p>PT-NWS4a.7: differentiate processes, services, and protocol.</p>
Standard:	<p>PT-NWS4b: The student will demonstrate knowledge of basic network classifications and topologies so as to:</p>
Components:	<p>PT-NWS4b.1: differentiate between LANs, MANs, and WANs;</p> <p>PT-NWS4b.2: identify the basic point-to-point network topologies (e.g., star, ring, tree, network, and irregular);</p> <p>PT-NWS4b.3: demonstrate knowledge of packet-switching techniques;</p> <p>PT-NWS4b.4: identify basic broadcast topologies (e.g., star, ring, bus);</p> <p>PT-NWS4b.5: demonstrate knowledge of characteristics of connection-oriented and connectionless networks;</p> <p>PT-NWS4b.6: demonstrate knowledge of basic telephony (analog vs. digital signals);</p> <p>PT-NWS4b.7: demonstrate knowledge of how to turn LANs into MANs and WANs;</p> <p>PT-NWS4b.8: identify standard high-speed networks;</p> <p>PT-NWS4b.9: demonstrate knowledge/usage of electronic communication networks; and</p> <p>PT-NWS4b.10: investigate emerging technologies.</p>
Standard:	<p>PT-NWS4c: The student will demonstrate knowledge of LAN physical media so as to:</p>
Components:	<p>PT-NWS4c.1: demonstrate knowledge of the reasons for installing a network;</p> <p>PT-NWS4c.2: demonstrate knowledge of local area network (LAN) trends and issues;</p> <p>PT-NWS4c.3: trace the evolution of networks; and</p> <p>PT-NWS4c.4: analyze current trends and development in LANs.</p>
Standard:	<p>PT-NWS4d: The student will demonstrate knowledge of common network computing platforms so as to:</p>
Components:	<p>PT-NWS4d.1: identify how components of a network operating system (server, platform, network services software, network redirection software, communications software) support network operations; and</p> <p>PT-NWS4d.2: select a LAN/WAN technology that meets user-defined set of requirements.</p>
Standard:	<p>PT-NWS4e: The student will demonstrate knowledge of network connectivity basis and transmission line applications so as to:</p>
Components:	<p>PT-NWS4e.1: demonstrate knowledge of the principles and operation of wire (coaxial, fiber optics, etc.) and wireless systems; and</p> <p>PT-NWS4e.2: demonstrate knowledge of the principles and operation of fiber optics, analog and digital circuits.</p>

Standard:	PT-NWS4f:	The student will demonstrate knowledge of communication standards for networks so as to:
Components:	PT-NWS4f.1:	demonstrate knowledge of the TCP/IP protocol;
	PT-NWS4f.2:	demonstrate knowledge of open-system interconnection (OSI) standard and ISO standard 7498; and
	PT-NWS4f.3:	identify standard high-speed networks.
Standard:	PT-NWS4g:	The student will demonstrate knowledge of network operating systems so as to:
Component:	PT-NWS4g.1:	demonstrate knowledge of the general characteristics of network operating systems.
Standard:	PT-NWS4h:	The student will demonstrate knowledge of WAN systems so as to:
Components:	PT-NWS4h.1:	demonstrate knowledge of the conversion of analog speech to digital;
	PT-NWS4h.2:	relate voice, data concepts, and video-to-video area networks;
	PT-NWS4h.3:	select primary and backup data circuits;
	PT-NWS4h.4:	evaluate analog and digital transmission for cost, performance, and reliability;
	PT-NWS4h.5:	demonstrate knowledge of firewall between trusted network and WAN;
	PT-NWS4h.6:	establish a Virtual Private Network (VPN) to form the infrastructure of the WAN;
	PT-NWS4h.7:	determine routers needed to connect with LAN; and
	PT-NWS4h.8:	demonstrate knowledge of interconnecting LANs using WAN services.
Standard:	PT-NWS4i:	The student will demonstrate knowledge of network security systems so as to:
Components:	PT-NWS4i.1:	demonstrate knowledge of security requirements and the need for data protection;
	PT-NWS4i.2:	demonstrate knowledge of access levels that need to be accommodated; and
	PT-NWS4i.3:	develop security plan.
Strand:	PT-NWS5	Network Installation and Configuration Students install and configure computer networks.
Standard:	PT-NWS5a:	The student will install and configure computer networks so as to:
Components:	PT-NWS5a.1:	install information system application programs in accordance with requirements;
	PT-NWS5a.2:	install appropriate operating system and telecommunications hardware and software;
	PT-NWS5a.3:	operate server applications;
	PT-NWS5a.4:	load end-user software and configure appropriately;

PT-NWS5a.5: ensure that all multiuser aspects of the application function are operational; and

PT-NWS5a.6: resolve software compatibility issues.

Strand:

PT-NWS6

Network Administration and Monitoring

Students administer computer networks.

Standard:

PT-NWS6a: The student will demonstrate knowledge of disaster recovery and business continuance so as to:

Components:

PT-NWS6a.1: identify methods for avoiding common computer system disasters;

PT-NWS6a.2: identify common backup devices;

PT-NWS6a.3: identify the criteria for selecting a backup system;

PT-NWS6a.4: back up system;

PT-NWS6a.5: restore system; and

PT-NWS6a.6: compare/contrast streaming a file-backup system.

Strand:

PT-NWS7

Network Maintenance and User Support Services

Students maintain computer networks and provide customer support.

Standard:

PT-NWS7a: The student will identify technical support needed so as to:

Components:

PT-NWS7a.1: apply information and data analysis techniques;

PT-NWS7a.2: identify skill-level needs; and

PT-NWS7a.3: identify resources and risks.

Standard:

PT-NWS7b: The student will perform technical support needed so as to:

Component:

PT-NWS7b.1: employ technical and computer tools to perform task in the most cost-effective manner.

Standard:

PT-NWS7c: The student will perform software upgrades and fixes so as to:

Component:

PT-NWS7c.1: analyze operational problems.

Standard:

PT-NWS7d: The student will perform standard computer backup procedures so as to:

Components:

PT-NWS7d.1: recognize the need for regular backup procedures;

PT-NWS7d.2: develop backup process;

PT-NWS7d.3: identify battery backup equipment; and

PT-NWS7d.4: install surge-suppression protection.

Standard:

PT-NWS7e: The student will perform network system maintenance so as to:

Components:

PT-NWS7e.1: demonstrate knowledge of the basic elements of network maintenance;

PT-NWS7e.2: identify available diagnostic tools used for system maintenance;

PT-NWS7e.3: identify maintenance procedures and processes;

PT-NWS7e.4: identify problems using diagnostic tools;

PT-NWS7e.5: document network system malfunction(s);

PT-NWS7e.6: perform preventive maintenance procedures on computer and peripheral devices;

PT-NWS7e.7: identify new or replacement networking components needed;

PT-NWS7e.8: respond to system messages;

PT-NWS7e.9: fix recoverable problems;

PT-NWS7e.10: restore systems;

PT-NWS7e.11: identify maintenance procedures and processes;

PT-NWS7e.12: establish a preventive maintenance plan;

PT-NWS7e.13: use a systems approach to analyze system problems, select solutions, test solutions, and implement accurate solution;

PT-NWS7e.14: create maintenance plan for regular integrity checks; and

PT-NWS7e.15: minimize impact of problems on productivity.

Standard:

PT-NWS7f: The student will troubleshoot problems so as to:

Components:

PT-NWS7f.1: demonstrate knowledge of basic troubleshooting steps;

PT-NWS7f.2: identify available diagnostic tools used for system maintenance;

PT-NWS7f.3: perform appropriate analysis to identify cause of the problem;

PT-NWS7f.4: develop a problem-resolution plan; and

PT-NWS7f.5: document results and solutions.

Standard:

PT-NWS7g: The student will troubleshoot data communications so as to:

Components:

PT-NWS7g.1: isolate system faults in various types of networks, cables, data modems, and carrier systems;

PT-NWS7g.2: determine hardware communication faults using diagnostic tools; and

PT-NWS7g.3: identify network problems using network management tools (e.g., hardware, software carriers.)

Strand:

PT-NWS8

Safety

Students understand the importance of safety and regulatory compliance in the workplace.

Standard:

PT-NWS8a: The student will apply safety practices in the laboratory so as to:

Components:

PT-NWS8a.1: develop and implement a safety checklist;

PT-NWS8a.2: use safety equipment in the laboratory; and

PT-NWS8a.5: encourage others to employ safety practices.

Professional Technical Studies: Manufacturing Cluster
Manufacturing Production Process Development Pathway

Strand:

PT-MPD1

Customer Needs

Students analyze customer needs and requirements.

Standard:

PT-MPD1a: The student will produce a product to satisfy customer desires so as to:

Components:

PT-MPD1a.1: conduct in-depth investigation to identify customer needs;

PT-MPD1a.2: verify that needed resources are available for the production process;

PT-MPD1a.3: relate workers' skills to equipment management to set up equipment for the production process;

PT-MPD1a.4: use process-control data to monitor fabrication of the product;

PT-MPD1a.5: inspect the product to verify that it meets specifications;

PT-MPD1a.6: document product and process to ensure formal compliance with customer requirements; and

PT-MPD1a.7: check for specified quantities and proper documentation to prepare a final product for shipping or distribution.

Strand:

PT-MPD2

New Manufacturing Process

Students implement a manufacturing process based on need.

Standard:

PT-MPD2a: The student will implement new manufacturing process so as to:

Components:

PT-MPD2a.1: research the new manufacturing process;

PT-MPD2a.2: create standard operating procedures (SOPs) for new process;

PT-MPD2a.3: develop new tooling and fixtures;

PT-MPD2a.4: set up and program equipment for new processes;

PT-MPD2a.5: schedule and test new processes;

PT-MPD2a.6: monitor production-performance data for new processes;

PT-MPD2a.7: train employees on new processes; and

PT-MPD2a.8: prepare documentation on new processes.

Strand:

PT-MPD3

Safety

Students understand the importance of safety and regulatory compliance in the workplace.

Standard:

PT-MPD3a: The student will maintain a safe and productive workplace so as to:

Components:

PT-MPD3a.1: follow local, federal, and company regulations to perform environmental and safety inspections

PT-MPD3a.2: participate in emergency response teams to perform emergency drills;

PT-MPD3a.3: identify unsafe conditions and take corrective action; and

PT-MPD3a.4: provide safety orientation to train other employees in safe practices and emergency procedures.

Strand:

PT-MPD4

Quality Assurance Processes

Students use a systematic approach to provide evidence that products satisfy requirements,

Standard:

PT-MPD4a: The student will maintain quality and implement continuous improvement processes so as to:

Components:

- PT-MPD4a.1:** perform periodic internal quality audit activities;
- PT-MPD4a.2:** check calibration of gauges and other data collection equipment;
- PT-MPD4a.3:** suggest continuous improvements;
- PT-MPD4a.4:** inspect materials at all stages of process to determine quality or condition;
- PT-MPD4a.5:** document the results of quality tests; and
- PT-MPD4a.6:** make adjustments to restore or maintain quality.

Strand:

PT-MPD5

Communication Skills

Students use information technology to express and interpret information.

Standard:

PT-MPD5a: The student will communicate with coworkers and/or customers to ensure production meets business requirements so as to:

Components:

- PT-MPD5a.1:** use speaking and presentation skills to effectively communicate safety, training, and job-specific;
- PT-MPD5a.2:** be timely and accurate in communicating material specifications and delivery schedules; and
- PT-MPD5a.3:** communicate production requirements and product specifications.

Strand:

PT-MPD6

Facilitating Change

Students identify and implement improvement opportunities.

Standard:

PT-MPD6a: The student will suggest and/or implement continuous improvement so as to:

Components:

- PT-MPD6a.1:** analyze data to identify potential problem;
- PT-MPD6a.2:** monitor process capability;
- PT-MPD6a.3:** monitor customer satisfaction;
- PT-MPD6a.4:** measure and record product and process outcomes;
- PT-MPD6a.5:** participate in making new work procedures;
- PT-MPD6a.6:** implement approved recommendations; and
- PT-MPD6a.7:** check that final product meets customer and business needs.

Strand:

PT-MPD7

New Product Development

Students develop new products based on need and customer requirements.

Standard:

PT-MPD7a: The student will produce new product to meet customer needs so as to:

Components:

- PT-MPD7a.1:** conduct research for new products;
- PT-MPD7a.2:** obtain required supplies;
- PT-MPD7a.3:** execute process to produce new product;

- PT-MPD7a.4:** inspect product for deviations from specifications;
- PT-MPD7a.5:** evaluate prototypes for manufacturability;
- PT-MPD7a.6:** solve production process problems; and
- PT-MPD7a.7:** deliver finished product to next stage in production process.

Strand:

PT-MPD8

Production Process

Students manage project tasks, timelines, and goals.

Standard:

PT-MPD8a: The student will improve production process so as to:

Components:

- PT-MPD8a.1:** conduct research for new products;
- PT-MPD8a.2:** propose changes to improve products and processes;
- PT-MPD8a.3:** develop production improvement goals;
- PT-MPD8a.4:** inspect product for deviations from customer and product standard(s); and
- PT-MPD8a.5:** correct product or process problems.

Professional Technical Studies: Science, Technology, Engineering, & Math Cluster
Engineering & Technology Pathway

Strand:

PT-ENG1

Academics

Students apply English language arts, mathematics, science, and social studies content area skills.

Standard:

PT-ENG1a: The student will apply concepts and processes as defined by the National Council of Teachers of Mathematics in *Principles and Standards for School Mathematics* so as to:

Components:

PT-ENG1a.1: choose and/or create models that can be used to solve problems;

PT-ENG1a.2: select and use appropriate statistical methods to analyze data to help make decisions; and

PT-ENG1a.3: apply appropriate data collection and analysis methods and means of displaying data.

Standard:

PT-ENG1b: The student will apply concepts and processes as defined by the National Research Council in the National Science *Education Standards* and by the American Association for the Advancement of Science in *Benchmarks for Science Literacy* so as to:

Components:

PT-ENG1b.1: use systems of measurement to solve problems;

PT-ENG1b.2: convert units of measure between systems;

PT-ENG1b.3: differentiate between scalar and vector quantities including UCS coordinates;

PT-ENG1b.4: apply fundamental laws and principles relevant to engineering and technology; and

PT-ENG1b.5: use the relationships between energy, work, and power to solve a variety of problems involving mechanical, fluid, electrical, and thermal systems.

Standard:

PT-ENG1c: The student will apply concepts and processes as defined in the *Standards for Technological Literacy: Content for the Study of Technology* so as to:

Components:

PT-ENG1c.1: use mathematics, science, and technology concepts and processes to solve problems quantitatively in engineering projects involving design, development, or production in various technologies; and

PT-ENG1c.2: apply the core concepts of technology and recognize their relationships with engineering, science, and math, and other subjects.

Strand:

PT-ENG2

Information Technology Applications

Students use computers, networks, and communication technology to access, organize, process, transmit, and communicate information.

Standard:

PT-ENG2a: The student will use information technology applications so as to:

Components:	PT-ENG2a.1: use computer applications to solve problems; PT-ENG2a.2: select and use different forms of communications technology; and PT-ENG2a.3: collect, manage, and display data.
Strand:	
PT-ENG3	Technical Skills Students select and use technology tools to provide customer service.
Standard:	PT-ENG3a: The student will apply technological content concepts and principles so as to:
Components:	PT-ENG3a.1: discover how things work; PT-ENG3a.2: use appropriate “tools of the trade”; and PT-ENG3a.3: differentiate between related elements of engineering and technology.
Standard:	PT-ENG3b: The student will model technical competence so as to:
Components:	PT-ENG3b.1: use effective project and system management; PT-ENG3b.2: use precision measuring methods and instruments; PT-ENG3b.3: safely operate and use a variety of tools, machines, equipment, and materials; and PT-ENG3b.4: apply elements of engineering and technology.
Strand:	
PT-ENG4	Design Students convert resources into processes or systems to meet needs and solve problems.
Standard:	PT-ENG4a: The student will examine elements of the design process so as to:
Component:	PT-ENG4a.1: examine the history of innovation and invention; and PT-ENG4a.2: apply concepts of design.
Standard:	PT-ENG4b: The student will demonstrate and apply the design process so as to:
Components:	PT-ENG4b.1: design a system, product, or service; and PT-ENG4b.2: access, test, record, organize, and evaluate information needed to alter the design of a product, system, or service.
Standard:	PT-ENG4c: The student will use scientific and mathematical problem-solving skills to produce viable solutions to problems so as to:
Components:	PT-ENG4c.1: demonstrate effective problem-solving techniques; PT-ENG4c.2: apply appropriate scientific methodology; PT-ENG4c.3: use effective critical-thinking skills; and PT-ENG4c.4: use analytical tools and techniques to solve problems, construct tests, and evaluate data.

Strand:

PT-ENG5

Safety, Health, and Environment

Students understand the importance of safety and regulatory compliance in the workplace.

Standard:

PT-ENG5a: The student will apply safety practices in the laboratory so as to:

Components:

PT-ENG5a.1: develop and implement a safety checklist;

PT-ENG5a.2: use safety equipment in the laboratory; and

PT-ENG5a.3: encourage others to employ safety practices.

Strand:

PT-ENG6

History of Electricity and Electronics

Students understand the foundations of electricity and electronics.

Standard:

PT-ENG6a: The student will examine the historical developments in electricity and electronics so as to:

Components:

PT-ENG6a.1: define innovation and invention related to electronics;

PT-ENG6a.2: research history of invention in electronics; and

PT-ENG6a.3: make a presentation based upon historical research.

Strand:

PT-ENG7

Mathematics for Electronics

Students apply mathematical concepts to the study of electronics.

Standard:

PT-ENG7a: The student will apply the mathematical processes and applications that lead to solutions of electronic problems so as to:

Components:

PT-ENG7a.1: solve direct current (DC) circuit analysis problems using Ohm's Law;

PT-ENG7a.2: calculate fundamental alternating current (AC) parameters;

PT-ENG7a.3: manipulate scientific notation in problem solutions;

PT-ENG7a.4: manipulate engineering notation in problem solutions and use in unit conversion;

PT-ENG7a.5: derive algebraic equations to determine unknown values in circuits;

PT-ENG7a.6: use Boolean algebra for design and analysis of digital circuits;

PT-ENG7a.7: use a scientific calculator as a tool for problem solving; and

PT-ENG7a.8: convert units of measurement from one system to another.

Strand:

PT-ENG8

Testing Digital Circuits

Students demonstrate the use of appropriate diagnostic equipment.

Standard:

PT-ENG8a: The student will demonstrate the use of appropriate diagnostic equipment so as to:

Components:

PT-ENG8a.1: select and apply appropriate test equipment or tools; and

PT-ENG8a.2: analyze and apply observed logic states.

Strand:

PT-ENG9

Digital Applications

Students understand digital electronics.

Standard:

PT-ENG9a: The student will apply concepts of digital electronics so as to:

Components:	PT-ENG9a.1: draw and label the seven basic logic gates;
	PT-ENG9a.2: derive the truth tables of the seven basic logic gates; and
	PT-ENG9a.3: construct logic circuits using discrete components to emulate the seven basic gates.
Standard:	PT-ENG9b: The student will investigate how logic circuits and logic gates are used to perform digital operations so as to:
Component:	PT-ENG9b.1: investigate integrated circuits, electronic logic circuits, clocks, timers and flip-flops, digital counting circuits, advanced timers, and computer circuits; and
	PT-ENG9b.2: assemble a digital trainer.

Professional Technical Studies: Transportation, Distribution, & Logistics Cluster
Facility & Mobile Equipment Maintenance Pathway

Strand:

PT-TDL1

Problem Solving and Critical Thinking

Students use information technology to define, test, and solve problems.

Standard:

PT-TDL1a: The student will clarify the problems or issues to be addressed and the objectives so as to:

Components:

PT-TDL1a.1: identify constraints and parameters;

PT-TDL1a.2: obtain and analyze available information and statistical data;

PT-TDL1a.3: generate alternative ideas, proposals, and solutions that would solve the problem;

PT-TDL1a.4: evaluate alternative solutions;

PT-TDL1a.5: identify the best solution based on risks, costs, and benefits; and

PT-TDL1a.6: present the solution and the logic and the rationale for the solution.

Standard:

PT-TDL1b: The student will analyze and evaluate ideas, proposals, and solutions to the problem so as to:

Component:

PT-TDL1b.1: evaluate the quality of information used to support the solution; and

PT-TDL1b.2: evaluate the risks, costs, and benefits of testing and implementing the solution.

Standard:

PT-TDL1c: The student will develop solutions to performance problems using a structured problem-solving process so as to:

Components:

PT-TDL1c.1: describe the problem completely and accurately using data and graphs and charts;

PT-TDL1c.2: develop and present a comprehensive mapping of potential root and indirect causes (e.g., troubleshooting diagram);

PT-TDL1c.3: identify and evaluate alternative solutions;

PT-TDL1c.4: test, monitor, and evaluate best solutions; and

PT-TDL1c.5: develop plans to fully implement solutions to address performance problems.

Strand:

PT-TDL2

Maintaining Facilities, Equipment, and Supplies

Students use information technology to manage facilities, equipment, and supplies.

Standard:

PT-TDL2a: The student will develop and manage repair plans so as to:

Components:

PT-TDL2a.1: identify and describe automotive equipment reliability/performance problems;

PT-TDL2a.2: determine causes of reliability/performance problems of equipment, subsystems, and/or components including electrical/electronics, fluid power, and mechanical systems and computer-controlled systems;

PT-TDL2a.3: determine repair procedures and equipment, materials, parts, supplies, and labor requirements to accomplish repairs; and

PT-TDL2a.4: present and explain report/findings to customer.

Strand:

PT-TDL3

Facility and Mobile Equipment Maintenance

Students understand preventive maintenance and repair strategies.

Standard:

PT-TDL3a: The student will develop and manage preventative maintenance plans and systems so as to:

Components:

PT-TDL3a.1: develop and manage preventative maintenance plans and systems to meet business and equipment manufacturer requirements; and

PT-TDL3a.2: monitor and evaluate the performance of maintenance plans and systems.

Standard:

PT-TDL3b: The student will maintain and improve facilities, equipment, and system performance so as to:

Components:

PT-TDL3b.1: develop and manage repair plans; and

PT-DCP3b.2: develop plans for improving facilities/equipment/system performance.

Strand:

PT-TDL4

Management of Sales and Service Operations

Students use technology to manage sales and service operations,

Standard:

PT-TDL4a: The student will determine sales growth opportunities for new products and services so as to:

Components:

PT-TDL4a.1: analyze changing customer/market needs;

PT-TDL4a.2: evaluate competitor products/services and pricing strategies;

PT-TDL4a.3: determine future demand for potential products and services; and

PT-TDL4a.4: identify most promising products and services.

Standard:

PT-TDL4b: The student will sell transportation services so as to:

Components:

PT-TDL4b.1: establish customer relationship;

PT-TDL4b.2: determine customer needs;

PT-TDL4b.3: describe and explain alternative products, services, and pricing;

PT-TDL4b.4: assist customer in making decisions;

PT-TDL4b.5: close customer sale; and

PT-TDL4a.6: complete sales transaction.

Strand:

PT-TDL5

Employability and Career Development

Students use skills to plan career paths and pursue career opportunities.

Standard:

PT-TDL5a: The student will locate appropriate information on organizational policies in handbooks and manuals so as to:

Component:

PT-TDL5a.1: select the appropriate document(s) as referenced for the situation.

Standard:

PT-TDL5b: The student will demonstrate flexibility and willingness to learn new knowledge and skills so as to:

Professional Technical Studies Standards: Transportation, Distribution, & Logistics Cluster
Facility & Mobile Equipment Maintenance Pathway

- Components:
- PT-TDL5b.1:** display initiative and open-mindedness in accomplishing a work challenge; and
 - PT-TDL5b.2:** complete all tasks thoroughly and identify strategies for accomplishing job.

**Professional Technical Studies: Transportation, Distribution, & Logistics Cluster
Sales & Service Pathway**

Strand:

PT-SAS1

Problem Solving and Critical Thinking

Students use information technology to define, test, and solve problems.

Standard:

PT-SAS1a: The student will clarify the problems or issues to be addressed and the objectives so as to:

Components:

PT-SAS1a.1: identify constraints and parameters;

PT-SAS1a.2: obtain and analyze available information and statistical data;

PT-SAS1a.3: generate alternative ideas, proposals, and solutions that would solve the problem;

PT-SAS1a.4: evaluate alternative solutions;

PT-SAS1a.5: identify the best solution based on risks, costs, and benefits; and

PT-SAS1a.6: present the solution and the logic and the rationale for the solution.

Standard:

PT-SAS1b: The student will analyze and evaluate ideas, proposals, and solutions to the problem so as to:

Components:

PT-SAS1b.1: evaluate the quality of information used to support the solution; and

PT-SAS1b.2: evaluate the risks, costs, and benefits of testing and implementing the solution.

Standard:

PT-SAS1c: The student will develop solutions to performance problems using a structured problem-solving process so as to:

Components:

PT-SAS1c.1: describe the problem completely and accurately using data and graphs and charts;

PT-SAS1c.2: develop and present a comprehensive mapping of potential root and indirect causes (e.g., troubleshooting diagram);

PT-SAS1c.3: identify and evaluate alternative solutions;

PT-SAS1c.4: test, monitor, and evaluate best solutions; and

PT-SAS1c.5: develop plans to fully implement solutions to address performance problems.

Strand:

PT-SAS2

Maintaining Facilities, Equipment, and Supplies

Students use information technology to manage facilities, equipment, and supplies.

Standard:

PT-SAS2a: The student will develop and manage repair plans so as to:

Components:

PT-SAS2a.1: identify and describe automotive equipment reliability/performance problems;

PT-SAS2a.2: determine causes of reliability/performance problems of equipment, subsystems, and/or components including electrical/electronics, fluid power, and mechanical systems and computer-controlled systems;

PT-SAS2a.3: determine repair procedures and equipment, materials, parts, supplies, and labor requirements to accomplish repairs; and

PT-SAS2a.4: present and explain report/findings to customer.

Strand:

PT-SAS3

Facility and Mobile Equipment Maintenance

Students understand preventive maintenance and repair strategies.

Standard:

PT-SAS3a: The student will develop and manage preventative maintenance plans and systems so as to:

Components:

PT-SAS3a.1: develop and manage preventative maintenance plans and systems to meet business and equipment manufacturer requirements; and

PT-SAS3a.2: monitor and evaluate the performance of maintenance plans and systems.

Standard:

PT-SAS3b: The student will maintain and improve facilities, equipment, and system performance so as to:

Components:

PT-SAS3b.1: develop and manage repair plans; and

PT-SAS3b.2: develop plans for improving facilities/equipment/system performance.

Strand:

PT-SAS4

Management of Sales and Service Operations

Students use technology to manage sales and service operations,

Standard:

PT-SAS4a: The student will determine sales growth opportunities for new products and services so as to:

Components:

PT-SAS4a.1: analyze changing customer/market needs;

PT-SAS4a.2: evaluate competitor products/services and pricing strategies;

PT-SAS4a.3: determine future demand for potential products and services; and

PT-SAS4a.4: identify most promising products and services.

Standard:

PT-SAS4b: The student will sell transportation services so as to:

Components:

PT-SAS4b.1: establish customer relationship;

PT-SAS4b.2: determine customer needs;

PT-SAS4b.3: describe and explain alternative products, services, and pricing;

PT-SAS4b.4: assist customer in making decisions;

PT-SAS4b.5: close customer sale; and

PT-SAS4a.6: complete sales transaction.

Strand:

PT-SAS5

Employability and Career Development

Students use skills to plan career paths and pursue career opportunities.

Standard:

PT-SAS5a: The student will locate appropriate information on organizational policies in handbooks and manuals so as to:

Component:

PT-SAS5a.1: select the appropriate document(s) as referenced for the situation.

Standard:

PT-SAS5b: The student will demonstrate flexibility and willingness to learn new knowledge and skills so as to:

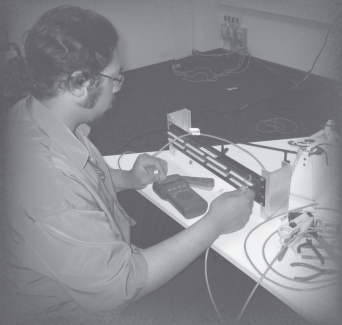
- Components:
- PT-SAS5b.1:** display initiative and open-mindedness in accomplishing a work challenge; and
 - PT-SAS5b.2:** complete all tasks thoroughly and identify strategies for accomplishing job.

dodea

DEPARTMENT OF DEFENSE EDUCATION ACTIVITY



DoDEA Curriculum Content Standards



Professional Technical Studies (PTS)

Middle School Standards

Professional Technical Studies
Middle School Standards

STRAND

PT-MS1

Career Development

Students use skills to plan career paths and pursue career opportunities

Standard:

PT-MS1a1 Students will conduct career research and evaluate career information so as to:

Components:

PT-MS1a2 use a variety of resources to research career options;

PT-MS1a3 identify the type of preparation, skills, and abilities required to gain entry-level employment in variety of career fields;

PT-MS1a4 identify personal career interests;

PT-MS1a5 explore how personal interests, hobbies, extra-curricular activities, volunteer work, and so on may be related to career fields;

PT-MS1a6 apply knowledge gained from individual career research and interest assessments to form a career action plan;

PT-MS1a7 explore reliability and dependability behaviors e.g., punctuality, attendance, completion of assignments, etc.; and

PT-MS1a8 understand safety factors relevant to specific career fields including safety rules for school labs, resources, tools, and materials.

STRAND

PT-MS2

Arts, AV/Technology, and Communication

Students explore career fields that include creating, exhibiting, performing, and publishing multimedia content.

Standard:

PT-MS2a The student will explore career opportunities in audio and video technology and film;

Components:

PT-MS2a1 research careers in audio and video technology and film;

PT-MS2a2 use information technology to design, produce, exhibit, and publish multimedia content; and

PT-MS2a3 edit audio and video production.

STRAND

PT-MS3

Business, Management, and Administration

Students explore career fields that include organizing, directing, and evaluating functions essential to productive business operations.

Standard:

PT-MS3a The student will explore career opportunities in business management and administration so as to:

Components:

PT-MS3a1 research careers in business management and administration;

PT-MS3a2 develop keyboarding accuracy and speed;

PT-MS3a3 develop word processing skills;

PT-MS3a4 use technology productivity tools e.g., spreadsheets, databases, etc.;

PT-MS3a5 use technology communication tools e.g., presentations, desktop publishing, Web sites, etc.;

PT-MS3a6 develop Internet skills including search strategies, Web site evaluation, and Internet safety;

Professional Technical Studies Standards
Middle School Standards

	PT-MS3a7	identify various business components necessary to start a business; and
	PT-MS3a8	analyze business roles and responsibilities necessary to run a business.
STRAND PT-MS4	Human Services	
		Students explore career fields that include providing for families and serving human needs.
Standard:	PT-MS4a	The student will explore career opportunities in family and human services, so as to:
Components:	PT-MS4a1	research careers in family and human services;
	PT-MS4a2	explore life roles and responsibilities in family, career, and community;
	PT-MS4a3	explore nutrition and wellness concepts that influence individual, family, and community quality of life;
	PT-MS4a4	develop consumer awareness skills; and
	PT-MS4a5	perform basic food preparation steps.
STRAND PT-MS5	Information Technology	
		Students explore career fields that include designing, supporting, and managing hardware, software, multimedia, and systems integration.
Standard:	PT-MS5a	The student will explore career opportunities in information technology so as to:
Components:	PT-MS5a1	research careers in information technology;
	PT-MS5a2	learn concepts, skills and processes necessary to program/code/create a software application;
	PT-MS5a3	learn how to repair computers, install software, and troubleshoot technology devices; and
	PT-MS5a4	explore design elements and principals for a variety of graphics applications.
STRAND PT-MS5	Science, Technology, Engineering, and Mathematics	
		Students explore career fields that include performing scientific research and professional technical services in science, technology, engineering, and mathematics.
Standard:	PT-MS6a	The student will explore career opportunities in science, technology, engineering, and mathematics, so as to:
Components:	PT-MS6a1	research careers in science, technology, engineering, and mathematics;
	PT-MS6a2	define technology and the designed world;
	PT-MS6a3	understand the impact of technology on society;
	PT-MS6a4	apply problem-solving strategies to the design process in order to create potential solutions; and
	PT-MS6a5	understand electrical power including currents, circuits, energy sources, conversion methods, applications, and efficiency.

DoDEA PTS Glossary of Terms

Alignment	The process of linking content and performance standards to assessment, instruction, and learning.
Assessment	The process of acquiring qualitative or quantitative information.
Career Clusters & Pathways	Career Clusters and Pathways link what students learn in school with the knowledge and skills they need for success in college and careers. They represent a nationwide effort to help schools ensure that students get the knowledge and skills they need for multiple career choices by matching what is taught in the classroom to business and industry standards. Career Clusters are broad groupings of occupations based on common fields of industry. Career Pathways reflect knowledge and skills needed to attain specific occupations within the Career Cluster.
Career Development	A process in which students use skills to plan career paths and pursue career opportunities
Career Explorer	Career Explorer is a DoDEA Professional Technical Studies (PTS) publication. The purpose of the publication is to provide information about Career Clusters and Pathways and to assist students and parents in selecting high school courses, activities and postsecondary educational programs. Electronic copies of the publication are available on the DoDEA PTS Web site.
Pathway Endorsement	Pathway Endorsements are awarded to students who declare a Career Pathway and successfully achieve four (4) Carnegie units within the Pathway. Carnegie units must include all required courses and appropriate recommended courses to satisfy the four (4) Carnegie unit specifications.
Career Practicum	The Career Practicum provides students an opportunity to experience an actual employment setting in their selected Career Pathway.

Classroom Assessment	An assessment developed, administered, and scored by a teacher or set of teachers with the purpose of evaluating individual or classroom student performance on a topic.
Commentary	Comments that reflect how the standards are demonstrated in student's work.
Components of Standards	Narrative statements of specific performance descriptors for a standard.
Content Standards	Expectations of what students should know and be able to do in particular subjects.
Criteria	Guidelines, rules, characteristics, or dimensions that are used to judge the quality of student performance.
Curriculum	A body of material that defines the content to be taught.
Evaluation	Judgment regarding the quality, value, or worth of a response, product, or performance based on established criteria and usually based on multiple sources of information.
Examples of Student Work	Examples of student work that illustrates standard-setting performances.
Performance Assessment	An assessment that requires students to construct a response, create a product, or perform a demonstration.
Performance Standards	A definition of what students must know and be able to do, and a description of the quality of student work that meets the standards.
Performance Task	An authentic, meaningful task that requires the students to synthesize knowledge and skills learned and apply them to construct a response, create a product and/or performance that demonstrate understanding.
Rubric	A set of scoring guidelines for assessing student work.

Scenario-based Assessment	An authentic, real-world/work situation which places skills and knowledge in the context where mastery of routine performance must be demonstrated and a problem must be solved.
Scope	The curricular content that is to be covered.
Sequence	The sequential order in which the curricular content is presented and studied.
Skills	The ability of students to use knowledge effectively and readily in performance, the ability to transform knowledge into action.
Standards	Specific statements that describe what students are expected to learn and be able to do.
Standards-based Assessment	An assessment in which the criteria are taken directly from the standards.
Standards-based Curriculum	A curriculum designed to produce student understanding and work that demonstrates achievement of the standards.
Standards-based Instruction	Instructional practices designed to help every student achieve the standards.
Strands	Headings that organize the curricular themes contained in the standards.
Understanding	Insight into key ideas, as reflected in thoughtful and effective use of knowledge and skills in varied situations.

Department of Defense Education Activity

Quality Indicator Map for Standards-Based Curriculum and Program Implementations:

A Self-Assessment and Program Improvement Tool

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Background

The DoDEA Community Strategic Plan (CSP) for 2006–2011 reflects DoDEA’s commitment to improving student achievement. Goal One states, “All students will meet or exceed challenging standards in academic content so that they are prepared for continuous learning and productive citizenship.” Milestones in Goal One and Goal Three cite the use of Quality Indicator Maps as a way of measuring progress and change in practice in both curriculum and program areas.

In addition to the CSP, the DoDEA Curriculum Renewal Process clearly establishes a process for program improvement. While some areas in DoDEA have used Innovation Configuration (IC) Maps to address program improvement, there was a need for a streamlined and comprehensive approach for identifying best practices across curriculum and program areas (See Appendix A for Timeline for Development).

Description of the Quality Indicator Map

The Quality Indicator Map for Standards-based Curriculum Implementations is a cross-discipline map that addresses common multi-disciplinary best practices for a standards-based system. As described earlier, the Map serves a two-fold purpose. It replaces the former IC Maps as a tool for determining needs for curriculum or program implementations in the curriculum development cycle. In addition, the Map addresses the requirements outlined in milestones for Goals 1A, 1B, and 3B of the DoDEA Community Strategic Plan to determine quality indicators for curriculum and program areas.

The Quality Indicator Map addresses common cross-curricular practices that support a standards-based system. It provides a common view of the best practices in curriculum, instruction, student assessment, and environment necessary to help all students reach high standards. The QI Map is divided into four main areas called clusters. The clusters were selected based on the relevance these areas have in implementing standards-based programs. The four cluster areas are as follows: curriculum, instruction, assessment, and environment. Each cluster is made up of several best practices. The clusters and the respective best practices are defined below:

1. **Curriculum** – The standards determine the curriculum.
 - * **C-1.** Standards provide the foundation for the design, content, and delivery of instruction.
 - * **C-2.** The teacher possesses content knowledge, an understanding of its relation to standards, and a facility in adapting content to allow all students access to standards.
 - * **C-3.** The teacher promotes diversity as an integral part of the curriculum.
 - * **C-4.** Approved and appropriate materials correlated to standards are used for instruction.
2. **Instruction** – Students are taught in ways that respond to their needs, are standards-based, and are developmentally appropriate.
 - * **I-1.** Teaching practices reflect high expectations for student achievement of the standards.
 - * **I-2.** Students are meaningfully engaged throughout the learning process.
 - * **I-3.** Students have multiple and varied opportunities to meet/exceed the standards.
 - * **I-4.** Varied questioning strategies are used to support student learning.
 - * **I-5.** Varied and flexible groupings are used to assist students in achieving/exceeding the standards.
 - * **I-6.** Varied teaching strategies are used to support inquiry, higher order thinking, and problem solving.
 - * **I-7.** Technology is meaningfully integrated throughout instruction to support student achievement of the standards.

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3. **Assessment** – On-going assessment of student learning supports student development and uses a variety of measures.
 - * **A-1.** Assessment is used to make instructional decisions in support of the standards.
 - * **A-2.** Assessment is used to measure and improve standards-based student performance.
4. **Environment** – The school supports an environment that is respectful, trusting, fair, and safe.
 - * **E-1.** The teacher promotes a safe and flexible physical environment, meeting the needs of diverse learners.
 - * **E-2.** Instructional time is maximized to support all students in meeting/exceeding standards.
 - * **E-3.** The teacher provides a supportive climate and promotes a learning community.

Each best practice of the QI Map identifies several dimensions or features. These features of the best practice increase in complexity and degree as it progresses through the four levels described below. The four levels reflect a continuum from early use of a practice to mastery use of a practice. The terms used to identify each level are:

Initiation	The beginning stages of using a practice;
Involvement	Limited use and or partial implementation;
Implementation	Fully functioning and meeting expectations; and
Innovation	Exemplary level of use with additional creative enhancement of the practice.

An example of a best practice in the curriculum cluster with the DIMENSIONS IN UPPERCASE will help the reader understand the progression of a best practice across a continuum.

Example:

*The fourth best practice of the Curriculum Cluster is: **C4 Approved and appropriate materials correlated to standards are used for instruction.** The dimensions of that best practice are the following:*

- *uses currently adopted material;*
- *uses materials aligned to standards;*
- *uses/adapts materials that address standards and meets the needs of the learner.*

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Cluster: CURRICULUM

Component C-4. APPROVED AND APPROPRIATE MATERIALS CORRELATED TO STANDARDS ARE USED FOR INSTRUCTION.			
Initiation	Involvement	Implementation	Innovation
<p>The teacher provides MATERIALS NOT ALIGNED TO THE STANDARDS to all students to be used in the same way.</p> <p>The teacher provides DIFFERENT MATERIALS when required as part of a STUDENT'S IEP or when provided by a resource specialist for use by particular students.</p>	<p>The teacher uses CURRENTLY ADOPTED materials and other materials NOT DIRECTLY ALIGNED WITH STANDARDS.</p> <p>The teacher provides student ACCESS to a variety of materials, based on a general understanding that students have DIFFERENT NEEDS for depth and complexity in learning materials.</p>	<p><u>The teacher uses currently ADOPTED MATERIALS</u> and supplemental materials RELATED TO STANDARDS.</p> <p>The teacher <u>knows the DIFFERING NEEDS of individual students</u> and identifies or <u>ADAPTS specific materials</u> to provide each student <u>ACCESS TO STANDARDS-based learning</u>.</p>	<p>The teacher uses CURRENTLY ADOPTED materials and PURPOSEFULLY seeks and SELECTS additional materials to ADDRESS STANDARDS.</p> <p>The teacher PLANS STANDARDS-BASED LESSONS with specific attention to MODIFICATIONS of materials for DIFFERING LEARNERS as it applies to each lesson.</p>

Purposes of Quality Indicator Map:

The QI Map will serve as a self-assessment tool for educators and as a program development and improvement tool for the system. **The Quality Indicator Map will NOT be used for teacher evaluation purposes.** The QI Map is intended to serve as a tool for dialogue and deepen one's understanding of standards-based implementations. It is not intended as a tool for collecting or tabulating individual evaluation data on teachers.

DoDEA Educators

Analysis and reflection: Educators who wish to learn more about the practices that will support standards-based implementations will find that the QI Map provides a common language for discussing best practices in all curriculum and program areas. The map may be used as a road map for guiding self-improvement and school improvement in a standards-based school or classroom. Teachers may refer to the map as a resource for ideas in developing professional goals.

Examples: Teachers may wish to analyze their own teaching and think about new or different ways of teaching such as: using the standards, measuring student learning, or providing a supportive environment. Based on their reflections, teachers could identify several professional goals. Administrators, School Improvement Teams, and specialists may find the QI Map useful for determining professional development needs for a school or district or for identifying best practices for the school's improvement efforts.

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Collaboration/Mentoring: Teachers in collaboration with a colleague or group of colleagues may wish to use the map to provide ideas for improvement. Teachers new to a curriculum or grade level may find the map helpful in determining a focus for assistance.

Examples: Grade or department-level teachers might collaboratively plan a new lesson or unit using some of the best practices from a cluster. Teachers new to a grade level may use the map to identify a cluster area (curriculum, instruction, assessment, and environment) they would like to focus on in their development.

DoDEA System

DoDEA, as a system, will use the Quality Indicator Map for curriculum/program development and improvement linked primarily to DoDEA's standards-based implementations. DoDEA has used the Curriculum Renewal Process to systematically address the various tasks and phases of developing and implementing a program. These tasks are divided into 6 major steps:

- Step 1 - Evaluation of Program Implementation;
- Step 2 - Standards Development, Assessment, and Materials Review;
- Step 3 – Professional Development Planning; Purchase Materials/Assessments;
- Step 4 – Pre-Implementation Training;
- Step 5 – Full Implementation and Training for Revised Curriculum;
- Step 6 – Program Improvement and Monitoring.

The Quality Indicator Map serves as a useful tool in all of the steps in the cycle.

Step 1 - Evaluation of Program Implementation: Information concerning the degree of implementation for a curriculum or program is analyzed to determine program needs in the areas of curriculum, instruction, assessment, and environment.

Step 2 - Standards Development, Assessment, and Materials Review: The content and performance standards identify the knowledge and skills students need to be successful. Many of these expectations are also aligned to the student's role in curriculum, instruction, and assessment best practices addressed in the Quality Indicator Map.

Step 3 – Purchase Materials/Assessments: The selection of materials and assessments is based on how well the products meet established evaluation criteria. The evaluation criteria reflect the best practices outlined throughout the Quality Indicator Map.

Step 4 – Pre-Implementation Training: As a new/revised curriculum is being introduced/reviewed, teachers and administrators will receive training on the content and performance standards; the best practices in the QI Maps that will lead to a quality implementation; and tools and strategies for implementing the program.

Step 5 – Full Implementation and Training: As all levels of the system design professional development opportunities to support the curriculum and program areas, the Quality Indicator Map will serve as a tool for developing the training outcomes. Teachers will also receive training on how to use the QI Map as a self-assessment tool.

Step 6 – Program Improvement and Monitoring: In this step, program or content areas are monitored to determine program improvements or adjustments. The Quality Indicator Map may serve as a tool to determine program needs.

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Conclusion

To put the QI Map to work for the greatest benefit, this tool should be viewed as a catalyst for change. The QI Map will be a useful, research-based way to reflect and self-assess classroom practice and, most importantly, be a powerful tool for improving student learning in accordance with the goals of the DoDEA Community Strategic Plan.

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CURRICULUM CLUSTER

Focus Questions for Reflection

- Am I using the standards as a basis for planning units/lessons? (C-1)
- Do my students understand the standards? (C-1)
- Are my teaching strategies and learning activities aligned to the standards? (C-1)
- Am I confident in my knowledge of the content to be taught? (C-2)
- Am I able to adjust the content to address the needs of all my students? (C-2 – C-3)
- Am I respectful of diversity in my choice of materials and strategies? (C-4)

C-1. Standards provide the foundation for the design, content, and delivery of instruction.

INITIATION	INVOLVEMENT	IMPLEMENTATION	INNOVATION
The teacher selects an instructional focus without using the standards. Content is often based on the teacher’s interests or the availability of material. Instructional strategies and student activities are selected to cover textbook content rather than standards. Students can tell what tasks they are to accomplish but are unaware of the standards.	The teacher selects an instructional focus with limited alignment to standards. The teacher uses standards as a guide in selecting what will be taught. Teaching strategies and learning activities are selected without direct connections to standards. Students can explain the activity but are unsure of the standards.	The teacher develops an instructional focus using the standards. The teacher clearly defines the knowledge, skills, and attitudes to be addressed. Teaching strategies and learning activities are congruent with the standards and promote student construction of knowledge. Students can describe their understanding of the standards.	The teacher purposefully identifies the standards and corresponding assessments and then designs an instructional focus directly related to standards. The teacher determines specific concepts, generalizations, and principles to be developed, and connects learning across disciplines. Teaching strategies and learning activities are purposefully selected to promote student construction of knowledge related to the specific standards being addressed. Students can explain and demonstrate their understanding of the standards.

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C-2. The teacher possesses content knowledge, an understanding of its relation to standards, and a facility in adapting content to allow all students access to standards.			
INITIATION	INVOLVEMENT	IMPLEMENTATION	INNOVATION
<p>The teacher has limited content knowledge. The teacher uses assigned texts to select what is to be taught. All students are exposed to the same level of content in the same way.</p>	<p>The teacher has basic content knowledge. The teacher uses knowledge of the grade level to select overall concepts and skills to be taught. The teacher adjusts the levels of difficulty in the content area during the lesson implementation, having made no prior plans for addressing differing needs.</p>	<p>The teacher demonstrates competence in the knowledge in the content. The teacher uses overall knowledge of student similarities and differences to select concepts, generalizations, and skills matched to the standards. The teacher plans general adjustments in content to address differing degrees of student readiness, providing a range from simple to complex, concrete to abstract, essential to extended.</p>	<p>The teacher pursues advanced content knowledge, expertise, and current research in the content field.</p> <p>The teacher uses knowledge of each student's readiness levels to select concepts, generalizations, and skills matched to the standards and plans specific adjustments in recognition of individual student differences.</p> <p>The teacher matches learning content, materials, and ways to access knowledge related to standards to the needs of students.</p>

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C-3. The teacher promotes diversity as an integral part of the curriculum.			
INITIATION	INVOLVEMENT	IMPLEMENTATION	INNOVATION
<p>The teacher uses pre-planned lessons in the curriculum that provides examples of diversity, often planning around holidays. The teacher uses texts that do not provide examples of diversity among people. Resources used promote stereotypes of groups of people. The teacher follows the format of the pre-planned lessons on diversity. Students participate in cultural and holiday celebrations as they are scheduled.</p>	<p>The teacher recognizes and provides examples of diversity in the curriculum and learning activities. The teacher uses texts and resources that address diversity and provides opportunities to discuss differences among groups of people. The teacher highlights contributions of minorities during cultural heritage celebrations and provides students with information on minorities and individuals with special needs.</p>	<p>The teacher works at promoting a climate that respects diversity and provides opportunities to highlight diversity in the content and learning activities. The teacher uses texts and materials that are culturally diverse that provide opportunities for students to discuss similarities and differences among groups of people. The teacher initiates discussions and examinations of cultural heritage throughout the curriculum and demonstrates respect for the contributions of minorities and individuals with special needs.</p>	<p>The teacher and students work together to establish a climate in which respect for diversity is integrated into the content and its activities. The teacher deliberately selects and uses multi-cultural resources that will lead to respect for diversity and consistently provides opportunities to identify the types and extent of similarities and differences among and between groups of people. The teacher and students understand, respect, discuss, and examine cultural heritage and the contribution of minorities and individuals with special needs as a seamless part of their daily curriculum.</p>

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C-4. Approved and appropriate materials correlated to standards are used and adapted for instruction.			
INITIATION	INVOLVEMENT	IMPLEMENTATION	INNOVATION
The teacher provides materials not aligned to the standards to all students to be used in the same way. The teacher provides different materials when required as part of a student's IEP or when provided by a resource specialist for use by particular students.	The teacher uses currently adopted materials and other materials not directly aligned with standards. The teacher provides student access to a variety of materials, based on a general understanding that students have different needs for depth and complexity in learning materials.	The teacher uses currently adopted materials and supplemental materials related to standards. The teacher knows the differing needs of individual students and identifies or adapts specific materials to provide each student access to standards-based learning.	The teacher uses currently adopted materials and purposefully seeks and selects additional materials to address standards. The teacher plans standards-based lessons with specific attention to modifications of materials for differing learners as it applies to each lesson.

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INSTRUCTION CLUSTER			
Focus Questions for Reflection			
<ul style="list-style-type: none"> • Do I expect enough from my students? (I-1) • Do my students relate to the material I teach and are they really involved in learning? (I-2) • Is there variety in my teaching methods? (I-3) • Do the questions I ask promote thinking? (I-4) • Are my students comfortable with inquiry-based learning experiences? (I-5) • Are my groupings flexible enough? (I-6) • Have I infused technology throughout my instruction? (I-7) 			
I-1. Teaching practices reflect high expectations for student achievement of the standards.			
INITIATION	INVOLVEMENT	IMPLEMENTATION	INNOVATION
The teacher reminds students to try their best to succeed. Quality work is rarely displayed or discussed.	The teacher encourages students to work hard and put forth their best effort. At least one example of quality work is provided with limited discussion of how/why the example meets standards.	The teacher demonstrates high expectations for all students and constructs opportunities that promote student perseverance and confidence. Multiple examples and modeling of quality work are provided with teacher comments highlighting important evidence of meeting/exceeding standards.	The teacher conveys high expectations for all students, promotes confidence, and assists students in developing their own goals. Multiple examples and modeling of quality work are provided which display diverse ways to be successful and with teacher comments highlighting evidence of meeting/exceeding standards.

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I-2 Students are meaningfully engaged throughout the learning process.

INITIATION	INVOLVEMENT	IMPLEMENTATION	INNOVATION
<p>The teacher directs all aspects of the learning process. Students have limited types of learning activities. Students demonstrate minimal sharing and lack attention to classroom instruction. Only some students are directly engaged in learning activities. Others seem unclear about requirements for learning assignments or are disengaged.</p>	<p>The teacher seeks to motivate students primarily through rewards and maintaining a teacher-centered classroom. The teacher routinely involves the same students in class discussions that are related to the standards. Students receive information in a passive mode. Students are actively engaged in learning, only some of which is directly related to standards.</p>	<p>The teacher provides a motivating climate that enhances student interest and engagement in learning activities. The teacher establishes an engaging and high academic learning environment to meet the standards and emphasizing the meaningfulness of the material. Students are provided a variety of opportunities and choices to demonstrate their knowledge. Students are engaged in productive learning activities related to standards.</p>	<p>The teacher creates a motivating climate that enhances student interest and engagement in activities, providing for student input in designing learning activities. Teachers and students equally contribute to maintaining the highest level of meaningful engagement to meet or exceed standards. The teacher consistently interacts with all students for input and explanations. Students are engaged in productive learning activities directly connected to meeting/exceeding standards.</p>

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INITIATION	INVOLVEMENT	IMPLEMENTATION	INNOVATION
<p>The teacher rarely deviates from a particular way of presentation (i.e. lecture, centers) and students have limited types of learning activities. The teacher tells students to seek help when they need it. The teacher provides individual assistance when requested. The teacher identifies students in need of extra help when requested to do so by other educators in the school. Students participate in learning activities that are only related to textbook materials/information. The teacher and students focus on a narrow area of learning without connecting new knowledge and skills to prior learning.</p>	<p>The teacher uses a limited number of teaching strategies* and learning activities to impart information or teach skills. The teacher plans for accommodations for a few students with identified needs (special education, ESL, gifted) to assist them in meeting/exceeding standards. The teacher identifies students in need of extra help and makes attempts to seek additional support for their learning. Students participate in learning activities that are connected to standards. Students participate in activities that require them to make connections to prior knowledge, experience, and skills.</p>	<p>The teacher uses multiple teaching strategies* and learning activities to help students to meet/exceed the standards. The teacher makes changes in learning activities to address varying needs of all students, including those with identified needs (special education, ESL, gifted), assisting them in meeting/exceeding standards. The teacher adjusts his/her role and uses the support available from other adults in the school community to help students in meeting/exceeding standards. Students participate in learning activities that address essential questions and key concepts related to the standards. Students apply prior knowledge, experience, and skills from multiple sources to develop new understandings.</p>	<p>The teacher regularly matches teaching strategies* and learning activities to student needs to ensure all students meet/exceed standards. The teacher plans standards-based instruction that provides for various ways to address the specific and changing needs of students. The teacher adjusts his/her role and seeks additional support (guiding, tutoring, mentoring, modeling, and reteaching) from other adults to assist students in meeting/exceeding standards. Students participate in extended investigations that address essential questions and key concepts related to the standards. Students apply prior knowledge, experience, and skills from multiple sources to integrate new learning with existing knowledge.</p>
<p>I-3. Students have multiple and varied opportunities to meet/exceed the standards.</p>			
<p style="text-align: center;">* Examples of teaching strategies:</p> <ul style="list-style-type: none"> • Varied styles of presentation of content • Varied ways for students to access to knowledge • Differing learning activities • Independent and collaborative learning opportunities • Alternatives for integrating new learning with prior knowledge skills and understandings • Time for inquiry learning and reflection 			

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I-4. Varied questioning strategies are used to support student learning.

INITIATION	INVOLVEMENT	IMPLEMENTATION	INNOVATION
<p>The teacher uses a question and answer format, generally directing questions to individual students. The teacher generally asks questions that require one-word or limited responses. Students generally ask questions only to clarify procedures or ask for directions.</p>	<p>The teacher poses questions related to the content area, encouraging all students to respond and elaborate. Questions focus on basic knowledge and recall, summarizing basic facts and information addressed in the lesson. Students generally ask questions about areas of personal interest or to clarify procedures or ask for directions.</p>	<p>The teacher poses open-ended questions related to the content area that require students to reason and respond thoughtfully. Questions focus on responses that require students to make a connection, support a hypothesis, consider possibilities, or summarize understandings. Students are asked to elaborate on responses or respond to other students' questions and comments. Students generate relevant questions that extend learning.</p>	<p>The teacher and students share responsibility for posing higher level thinking questions engaging in authentic dialogue. Students are well prepared to engage in meaningful dialogue about the topic. The dialogue reflects student engagement in making inferences, developing hypotheses, synthesizing understandings, considering possibilities, and making connections to prior learning and other content areas. Students deepen their understanding of the standards through dialogue. The discussion itself becomes the vehicle for questions.</p>

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I-5. Varied teaching strategies are used to support inquiry, higher order thinking, and problem solving.			
INITIATION	INVOLVEMENT	IMPLEMENTATION	INNOVATION
<p>The teacher uses textbook materials and lecture format to guide student investigations. Students are engaged in recalling and summarizing information. The teacher limits investigations to one-time independent projects such as science share or invention convention. Projects are not directly related to current standards being addressed. Students display their completed projects. Students can follow and describe the project guidelines.</p>	<p>The teacher engages students in some inquiry-based experiences related to content areas. Students follow defined steps and procedures to complete investigations. The teacher limits explorations to those defined in the lesson plan and those that have limited responses/solutions. Students record their results. Students can articulate the steps they followed to complete the activity but cannot explain the key questions, concepts, results.</p>	<p>The teacher provides frequent opportunities for inquiry-based experiences. Students engage in careful observations, reasoning, critical thinking, collaboration, reflection, and testing of their ideas and then choose ways to communicate findings. The teacher engages students in first-hand inquiry, using real data, primary sources, and interactive materials in the investigations. Students share their work/findings with each other. Students can explain their thinking processes.</p>	<p>The teacher encourages students to identify meaningful questions, issues, and problems to be solved. Students make connections across content areas in the inquiry process. Students work with the teacher to identify important questions to be explored. They use first-hand inquiry, generating real data, using primary source, prior work of others, and interactive materials in the investigations. Student investigators share their work/findings with interested audiences (i.e. experts, older classes, mentors, interest groups) for presenting the results of the inquiry. Students can articulate the thinking patterns used in constructing their knowledge.</p>

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I-6. Varied and flexible groupings are used to assist students in achieving/exceeding the standards.			
INITIATION	INVOLVEMENT	IMPLEMENTATION	INNOVATION
<p>The teacher provides most instruction to the whole group. When groups are formed, they are generally unchanging. Student group work is provided to facilitate tasks rather than build group cohesion.</p>	<p>The teacher generally groups students only by size (i.e. one-on-one, small group, whole class) rather than for differentiating learning tasks or grouping by interest/choice or need. Students in groups work more as individuals than as a team. Individuals are not held accountable for the group effort.</p>	<p>The teacher uses a variety of flexible instructional groupings to match student learning needs. Groups at times reflect student choices and interests. Each student is expected to contribute productively to the group, with each student held accountable for their work.</p>	<p>The teacher varies the grouping of students according to individual learning needs, interests, and styles. The composition of student groups is dynamic and often reflects student input. Students are actively involved in the groupings, self-monitor their productivity, are individually accountable, and coach each other to meet the established standards.</p>

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I-7. Technology is meaningfully integrated throughout instruction to support student achievement of the standards.			
INITIATION	INVOLVEMENT	IMPLEMENTATION	INNOVATION
<p>The teacher uses a limited number of technology applications for students with no direct connections to standards. The teacher makes limited use of technology in presenting lessons and providing learning activities.</p> <p>The teacher allows student access to computers for word processing and/or limited use of selected software programs. Students' use of technology is minimal.</p>	<p>The teacher occasionally modifies lesson plans to include technology in meeting/exceeding standards. The teacher previews and selects specific software and technology for use in delivering instruction and providing learning activities. The teacher provides content specific programs and technology tools for some assignments. All students use similar technology tools and resources.</p>	<p>The teacher plans technology-rich experiences in support of standards-based instruction. The teacher integrates the use of multiple delivery methods with technology, including multimedia and computer video presentations, to engage students in learning. The teacher selects specific programs and activities and encourages student use of assistive technology tools, programs, and internet resources in support of the needs of diverse learners in various content areas.</p> <p>Students are directed to use technology for assignments related to communication, research, design, and work products.</p>	<p>The teacher creates an environment where technology is used effortlessly as a tool in support of learning. The teacher seeks out new technology and determines appropriate uses for presentations and learning activities in support of student learning. The teacher modifies learning activities and content for select students, using assistive technology tools, programs, and internet resources.</p> <p>Students are able to select the appropriate technology tool for a variety of tasks/projects related to communication, research, design, problem-solving, and creative products.</p>

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ASSESSMENT CLUSTER

Focus Questions for Reflection			
<ul style="list-style-type: none"> • Am I routinely assessing my students throughout my instruction for the purpose of providing feedback? (A-1) • Do I routinely monitor and adjust my instruction based on my assessment of student progress throughout instruction? (A-1) • Am I using a variety of assessment techniques and tools? (A-1) • Do I have evidence to show my students have met the standards? (A-2) 			
A-1. Assessment is used to make instructional decisions in support of the standards.			
INITIATION	INVOLVEMENT	IMPLEMENTATION	INNOVATION
<p>The teacher plans instruction without assessing students' current knowledge and skills. Assessments are used for record keeping, grading, managing the classroom environment, and/or forming fixed instructional groups.</p>	<p>The teacher uses formal and informal assessments to determine students' current levels of knowledge and/or skills but designs instruction with no clear connection to standards. Assessments are used to form fluid or temporary instructional groups of students requiring remedial instruction of isolated knowledge and/or skills.</p>	<p>The teacher routinely uses formal and informal assessments to determine students' current levels of understanding, knowledge and/or skills, and to design instruction in support of the standards. Assessments are used to adjust and differentiate instruction and learning activities as appropriate to ensure students' ability to meet/exceed standards.</p>	<p>The teacher and students use formal and informal assessments to determine what the students know, what they need to know, and how instruction should be differentiated for students to meet the standards. Based on assessment results, students are provided opportunities to work individually or in collaborative groups and on varied assignments designed to support their learning.</p>

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A-2. Assessment is used to measure and improve standards-based student performance.			
INITIATION	INVOLVEMENT	IMPLEMENTATION	INNOVATION
<p>The teacher provides the students with a score or grade without using specific criteria to measure their performance. Teacher feedback is provided in the form of a grade.</p> <p>The teacher provides students with limited or no opportunity to re-do their work after the assessment is given. The assessment is seen as the conclusion to the activity. The teacher uses the same forms of assessment for all students.</p>	<p>The teacher provides the students with criteria used to measure their performance after the assessment is completed. Teacher feedback is provided based on isolated skills or knowledge and not on the criteria. Students are encouraged to review their mistakes and re-do their work. The teacher uses different forms of assessment only for students identified with special needs.</p>	<p>The teacher provides the student with the criteria for demonstration of success in meeting the standard and shares examples of meeting/exceeding the criteria. The teacher provides feedback to students linked to criteria. Students are provided on-going opportunities to improve, based on the criteria. Retesting/assessment is used to document mastery/understanding. The teacher uses multiple forms of assessment to allow all learners to demonstrate progress toward attainment of the standards.</p>	<p>Students participate in the development of the criteria for demonstration of success in meeting/exceeding the standards. Students monitor and improve their performance, using feedback from teachers, peers, and self-assessment. Students are encouraged to assist the teacher in documenting and monitoring their progress. Students review tests/performances, find ways to improve, and repeat the test/performance to document mastery/understanding. The teacher provides students with opportunities to choose how they will demonstrate their current levels of understanding, skills, and/or knowledge and opportunities to retest or repeat a performance.</p>

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ENVIRONMENT CLUSTER

Focus Questions for Reflection			
<ul style="list-style-type: none"> • Is the physical design of my classroom conducive to movement, flow, and accessibility? (E-1) • Does the physical design of my classroom allow for modifications and adjustments to match instructional needs? (E-1) • Is the amount of time I allow for instruction and/or assessment matched to my students' needs? (E-2) • Do my students know classroom rules and are they aware of the rationale for my rules for conduct and safety? (E-3) • Is my interaction with parents meaningful, positive, and frequent enough? (E-3) 			
E-1. The teacher promotes a safe and flexible physical environment, meeting the needs of diverse learners.			
INITIATION	INVOLVEMENT	IMPLEMENTATION	INNOVATION
<p>The teacher addresses his/her space needs first before addressing student needs in the learning environment.</p> <p>The physical learning environment is unchanging. Students rely on instructions from the teacher to access materials for their on-going learning needs. The teacher has awareness of safety practices but is not proactive in planning and organizing for safety. Students knowledge and use of best practices for classroom safety are varied.</p>	<p>The teacher considers the typical needs of students when providing materials and resources and arranging the learning environment. The teacher occasionally changes the physical environment to meet instructional needs. The teacher structures access to resources and materials to support the learning objectives. The teacher adheres to age and/or subject matter safety practices when organizing materials and learning activities. Students are varied in their knowledge and use of best practices for classroom safety.</p>	<p>The teacher designs the physical environment to meet the diverse needs of all students. The teacher modifies the work space according to instructional needs, allowing for varying learning activities to occur simultaneously. Students have ready access to resources and materials to achieve learning objectives. The teacher adheres to and promotes age and/or subject matter safety practices when organizing materials and learning activities. Students are knowledgeable of and use best practices for classroom safety.</p>	<p>The teacher creates a physical environment that supports student learning needs and enhances their personal productivity. Students use the classroom as a place adaptable to the learning situation. Changes in the physical environment are made purposefully. Students use the workspace productively, locating and accessing resources as needed. The teacher adheres to and promotes age and/or subject matter safety practices when organizing materials and learning activities. Students are knowledgeable of and use best practices for classroom safety.</p>

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E-2. Instructional time is maximized to support all students in meeting/exceeding standards.			
INITIATION	INVOLVEMENT	IMPLEMENTATION	INNOVATION
<p>The teacher plans learning activities without a standards focus. Time for learning activities is connected to a schedule rather than to learning objectives. There are many interruptions during instructional time, and time is lost moving from one activity to another. The teacher expects all students to follow the same time allotments for learning activities and assignments.</p>	<p>The teacher plans lessons to cover content related to standards, but often time blocks are poorly matched to the accomplishment of the learning objectives. Routines and procedures for managing instructional and non-instructional activities are established but enforced inconsistently. The teacher makes some whole class adjustments to requirements for completing activities and assignments.</p>	<p>The teacher plans for efficient use of time, anticipating the amount of time likely to be needed for an activity or assignment. The teacher and students use efficient routines and procedures for accomplishing tasks and transitioning between activities. Time is spent on learning activities that are directly matched to standards and often incorporate multiple standards. The teacher makes accommodations for students needing more time to complete learning activities and assignments.</p>	<p>The teacher guides students to use instructional time productively, providing options for getting information and help to complete assignments. Routines and procedures are well established, with students assuming considerable responsibilities for efficient transitions and operations. The teacher provides individual flexibility in the amount of time provided to students for completing learning activities.</p>

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E-3. The teacher provides a supportive climate and promotes a learning community.			
INITIATION	INVOLVEMENT	IMPLEMENTATION	INNOVATION
<p>The teacher relates to students as a conveyor of knowledge, limiting interpersonal interactions. The teacher provides critiques of student work and behavior with minimum encouragement or praise. The rules of conduct are unclear. Adult assistance is generally given to the class as a whole. The teacher works independently, engaging in limited conversations about teaching and learning. Communication with parents occurs at their request.</p>	<p>The teacher shows evidence of interest in students as individuals. The teacher serves as the director of all learning, and students respond to teacher expectations. Rules of conduct are developed by the teacher. Adult assistance is provided for students through clear directions.</p> <p>The teacher engages in limited sharing and collaboration with other teachers and plans limited communications with parents in assisting students to meet/exceed standards.</p>	<p>The teacher interacts with all students both as learners and individuals. The teacher provides the degree of guidance, intervention, and discipline necessary to maintain individual student engagement.</p> <p>Expectations for student conduct are very clear, with students participating in the development of rules for conduct. Adult support is provided to encourage learning and assist students toward competence, independence and challenge. The teacher collaborates with professional peers and communicates with parents in supporting standards-based learning for all students.</p>	<p>The teacher demonstrates care, encouragement, and respect for all students and becomes familiar with their individual interests and accomplishments.</p> <p>Students show empathy and are supportive of one another, providing help (academic, social, emotional, physical) on their own initiative. Students monitor their own behavior, guided by rules of conduct they helped to develop.</p> <p>Adult support is provided, and students give input into the type of assistance needed in teaching their learning goals and becoming more independent learners. The teacher collaborates with professional peers, communicates with parents, and seeks community assistance to help all students meet/exceed standards.</p>

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Appendix A

Timeline for Development of the Quality Indicator Maps

The following timeline provides a description of the activities leading to the development of the DoDEA Quality Indicator Map for Standards Based Curriculum Implementations: A Self- Assessment and Program Improvement Tool.

SY – 1998-2001	DoDDS/DoDEA uses Innovation Configurations (IC) Maps in multiple program and curriculum areas to determine the quality and degree of program implementation. These maps vary in format and content.
October 2001	As required by the CSP milestones in Goals 1A, 1B and 3B, a group of cross-curricular and program coordinators initiate a review and analysis of all of the previously developed IC Maps. The group determines that a more consistent, efficient, user-friendly, and streamlined approach is needed for studying the quality and degree of implementation of curriculum and program areas. A draft of the QI Map is developed to include standards-based best practices for all curriculum and program areas.
Nov. 2001- April 2002	The group continues the work of consolidating all of the IC Maps into one map that addresses best practices common across curricular and program areas.
April 2002	The Education Chiefs review the draft of the Quality Indicator Map and approve the concept.
July 2002	The Quality Indicator Map of best practices is approved at the annual superintendents' meeting. Recommendations are made to link the QI Map to the Curriculum Development Cycle.
August 2002	The document is sent to all Superintendents for review and input from districts/areas.
October 2002	The Quality Indicator Map is presented to the Teachers of the Year. Recommendations for refinement are collected.
Dec. 2002 - March 2003	The Quality Indicator Map is refined to incorporate feedback from the field.
May 2003	The Quality Indicator Map is shared with unions and negotiations are established for May 2003.
Summer 2003	Superintendents receive update on the Quality Indicator Map implementation.
Fall/Winter 2003	Training modules are developed. Administrators receive training on the QI Map. Area and district specialists in appropriate curriculum and program areas receive training of trainers.
SY 2003 – 2004	The Quality Indicator Map is used to address curriculum improvements in Social Studies and Health. It is introduced in curriculum and program training to DoDEA educators and administrators at conferences.
Beginning Spring 2004	Training for teachers will be conducted by area/district specialists in appropriate curriculum and program areas.

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Appendix B

Glossary

alignment	The process of linking standards to curriculum materials, assessment, instruction and learning in classrooms.
assessment	The process of acquiring qualitative or quantitative information.
assistive technology	Any item, piece of equipment, product, or system that is used to increase, maintain or improve the functional capabilities of children with disabilities. This may include such low-end technology as a pencil grip or software program like Wiggle Works. Also, any service that directly assists an individual with a disability in the selection, acquisition or use of an assistive technology device.
best practice	Description of research-based strategies included in each cluster.
cluster	A group of best practices with a similar theme that has an impact on implementing standards-based programs (Example: The four cluster areas are curriculum, instruction, assessment, and environment).
congruent	Being in agreement or alignment.
criteria	Guidelines, rules, characteristics, or dimensions that are used to judge the quality of student performance.
critical attributes	The distinctive, non-varying characteristics that make something what it is (example: island = a body of land surrounded by water).
curriculum	A body of material that defines the content to be taught.
differentiate instruction	Using a variety of challenging, appropriate options for individual students or groups of students in order for them to successfully reach targeted standards.
inquiry process	A curriculum model that begins with an exploratory phase to define the topic and builds background experiences and knowledge followed by selecting a focus and posing a question to be explored. Students then examine alternatives, consider and select the most appropriate one given their findings, and decide how to communicate their learning.
modeling	The demonstration of a process and/or an example of a product where the criteria which make the model correct are known to the students.
motivating climate	An environment where students maintain focus on the task due to success, interest, a positive feeling tone, a comfortable level of concern, and where knowledge of results is frequently given.
Quality Indicator Map	Addresses common cross-curricular practices that support a standards-based system and provides a common view of the best practices in curriculum, instruction, student assessment, and environment necessary to help all students reach high standards.
standards	Statements of specific expectations for student learning.

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standards-based assessment	Assessment designed to measure student achievement of the standards
standards-based curriculum	Curriculum designed to produce student understanding and work that demonstrates achievement of the standards.
standards-based instruction	Instructional practices designed to help every student achieve the standards.
strategy	A careful plan necessary to or important in the initiation, conduct, or completion of a learning goal.
task analysis	The process of stating an objective/standard, then factoring out the learning that is essential to that objective/standard.

Professional Technical Studies

PATHWAY: Design & Pre-Construction

CLUSTER: Architecture & Construction

Academics

- Provides appropriate precedents for development of a project

Communication Skills

- Makes a presentation to explain a concept

Problem Solving & Critical Thinking

- Determines alternative solutions for a specific project/problem
- Adjusts plans and schedules to meet project needs

Information Technology Applications

- Uses a CAD system to perform drafting duties
- Uses appropriate computer technology to convey graphic information
- Evaluates and selects building materials and assemblies to meet project specifications

Systems

- Plans, organizes, schedules, and manages a project/job to optimize workflow sequence
- Assesses building systems and their interrelationships to development design criteria
- Identifies industry standards and practices in order to incorporate quality into projects

Safety, Health, & Environment

- Evaluates and aligns sustainable design elements to add value to a project
- Studies the “Americans with Disabilities Act” in order to build compliance into project designs

Leadership & Teamwork

- Uses human relations skills to work cooperatively with coworkers representing different cultures, genders, and backgrounds
- Uses motivational techniques to enhance performance in others

Employability & Career Development

- Pursues education and training opportunities to acquire skills necessary for career advancement

Professional Technical Studies

PATHWAY: Audio & Video Technology & Film

CLUSTER: AV Technology & Communications

Operations, Concepts and Innovations

- Exhibits knowledge of the history of film
- Analyzes various careers in audio and video technology and film
- Defines terminology associated with audio and video technology and film

Production, Problem Solving and Decision Making

- Identifies and analyzes production functions
- Applies knowledge of the critical elements in designing a production
- Applies knowledge of lighting, audio, and video equipment for productions
- Describes how to frame and maintain picture composition
- Demonstrates knowledge of operation and maintenance of a video system
- Exhibits knowledge of computer-based video production and editing
- Applies knowledge of control peripherals used for editing
- Applies knowledge of basic editing to both linear and nonlinear systems
- Demonstrates installation and use of cable or wireless audio-video systems
- Demonstrates repair and servicing of transmitting and receiving systems
- Executes production of the script

Communications

- Creates a short script
- Demonstrates writing audio scripts for various types of programs
- Critiques a production

Ethics and Legal Responsibilities

- Analyzes copyright laws, the First Amendment, and other regulations
- Identifies the proper use of proprietary information
- Analyzes and practices ethical principals of decision making
- Analyzes liabilities associated with productions and performances, media, and telecommunications installations

Professional Technical Studies

PATHWAY: Administration & Information Support

CLUSTER: Business, Management, & Administration

Information Processing

- Uses software commands to merge text
- Secures document notarization
- Uses commands to retrieve data and create reports from database
- Creates components to analyze spreadsheet data
- Uses appropriate software to generate information reports
- Reviews software packages to select the best choice

Management of Records & Files

- Establishes document priorities to interpret file hierarchy
- Employs computer skills to manage electronic files
- Retains, transfers, and discards files as necessary

Organizational Skills

- Lists appointments and itineraries to maintain calendars
- Sets priorities and schedules work to organize workload
- Understands basic financial laws, policies, and regulations
- Assembles materials to prepare for meetings
- Takes notes and handles materials to support a meeting
- Determines equipment, supplies, and training needed to maintain data systems

Communication Skills

- Uses writing and organizational skills to construct reports, graphs, and tables
- Uses technology to design and develop multimedia materials
- Uses description of audience and purpose to prepare written documents

Financial Skills

- Records transactions to manage cash-fund accounts
- Tallies receipts and proofs work to prepare bank deposits
- Practices good bookkeeping guidelines to reconcile bank statements
- Operates appropriate financial software to generate usable data

Professional Technical Studies

PATHWAY: Business Financial Management & Accounting

CLUSTER: Business, Management, & Administration

Computational Skills

- Observes policies and regulations when performing calculations
- Calculates and enters data on appropriate forms or reports
- Rechecks computations for accuracy and quality
- Operates appropriate financial software to generate usable data
- Operates electronic spreadsheet software to create formulas and reports

Organizational Skills

- Records and schedules appointments and calendars
- Organizes work priorities to ensure deadlines will be met
- Organizes documents, forms, and manuals

Policies & Regulations

- Adapts accounting and record-keeping functions to current systems
- Establishes backup procedures for maintaining electronic records
- Understands basic financial laws, policies, and regulations
- Examines the purposes of financial laws, policies, and regulations
- Maintains knowledge of current financial laws, policies, and regulations

Analysis & Interpretation of Data

- Understands the purpose of financial statements
- Analyzes financial statements to verify information
- Interprets financial data for planning purposes

Accounting

- Evaluates assets and liabilities to show their functions
- Creates charts to show account activities in a system
- Records transactions
- Assembles appropriate accounting elements to prepare statements

Professional Technical Studies

PATHWAY: Management

CLUSTER: Business, Management, & Administration

Organizational Skills

- Completes effective business plans

Leadership & Teamwork

- Exhibits behaviors and actions to effectively motivate and lead people

Facilities, Equipment & Supplies

- Determines adjustments needed and plans for future growth in facilities

Project Management

- Identifies and communicates operating policies and procedures

Facilitating Change

- Evaluates opportunities to determine company changes

Ethics & Legal Responsibilities

- Identifies resources to keep laws and regulations current

Pricing

- Uses different pricing methods to calculate the price of products/services

Customer Service

- Determines activities to achieve high-quality customer service

Selling

- Develops selling policies that encourage long-term client relationships

Distribution

- Determines channels to distribute goods and services

Promotion

- Develops plans to develop a well-rounded sales campaign

Professional Technical Studies

PATHWAY: Therapeutic Services

CLUSTER: Health Science

Health Care Foundations

- Knows academic subject matter required for proficiency and uses knowledge as needed

Information Technology Applications

- Applies business skills in a health care setting

Ethics & Legal Responsibilities

- Understands legal responsibilities, limitations and implications of actions
- Performs duties according to regulations, policies, laws and legislated rights of clients
- Understands accepted ethical practices

Safety, Health, & Environment

- Understands existing and potential hazards to clients, co-workers and self
- Prevents injury or illness through safe work practices

Systems

- Understands how their role fits into departments, organizations, and overall health care environment

Leadership & Teamwork

- Understands the roles and responsibilities of individual members as part of a health care team
- Communicates patient information among team members

Client Interaction/Communication

- Explains planned procedures to patients and health professionals

Treatment Planning & Implementation

- Collaborates in planning procedures that support the goals for the patient

Technical Skills

- Applies technical skills required for all career specialties

Monitor Client Status

- Monitors and assess patient's health status
- Develops appropriate therapeutic response based on facility protocol

Professional Technical Studies

PATHWAY: Lodging

CLUSTER: Hospitality & Tourism

Academics

- Summarizes how to use the “state of the economy” to plan products and services

Communication Skills

- Composes clearly, succinctly, and accurately to reflect professionalism
- Documents and cites the source of information

Problem Solving & Critical Thinking

- Applies forecasting skills to determine cost and profit
- Determines budget and funding needs for programs and requirements

Information Technology Applications

- Uses database and spreadsheet technology to manage information
- Applies computer skills to expedite workflow and enhance service

Systems

- Develops plans to improve organizational performance

Safety, Health, & Environment

- Practices personal safety while on work- related assignments

Ethics & Legal Responsibilities

- Interprets ethical and legal guidelines to solve legal and ethical issues
- Demonstrates awareness of responsibilities for different positions

Employability & Career Development

- Examines an independently owned facility
- Determines the chain of command

Technical Skills

- Applies customer service skills to ensure guest satisfaction

Leadership & Teamwork

- Observes outstanding leaders to identify effective management styles
- Models leadership and teamwork qualities

Professional Technical Studies

PATHWAY: Restaurant, Food & Beverage

CLUSTER: Hospitality & Tourism

Ethics & Legal Responsibilities

- Integrates guidelines for ethical treatment in the workplace

Safety, Health, & Environment

- Examines overall safety procedures to maintain a safe work area

Systems

- Evaluates prepared foods for quality and presentation

Academics

- Retrieves vital facts and statistics
- Achieves familiarity with marketing techniques

Communication Skills

- Recognizes and responds to guests' needs and nonverbal cues
- Applies proper etiquette in all customer contacts

Leadership & Teamwork

- Formulates staff development plans to create an effective working team
- Uses conflict-management skills to facilitate solutions

Problem Solving & Critical Thinking

- Examines markets and alternative marketing to develop promotional packages
- Applies forecasting skills to determine cost and profit
- Applies budgeting skills to determine staffing levels

Information Technology Applications

- Uses software applications to manage food service operations

Technical Skills

- Implements operating procedures to comply with company requirements

Employability & Career Development

- Summarizes steps needed to obtain a job in the restaurant and food service industry

Professional Technical Studies

PATHWAY: Personal Care Services

CLUSTER: Human Services

Academics

- Uses charts, tables, and graphs as resources for business decisions
- Identifies and explain interactions of tissues, cells, and organisms with each other and the environment
- Recognizes potential problems of improper chemical use and the impact of these problems on clients

Communication Skills

- Uses interpersonal skills relating to client sensitivity, ethnic diversity, and building rapport
- Uses verbal and nonverbal communication skills to establish and maintain positive relationships

Problem Solving & Critical Thinking

- Analyzes client/family wishes and feasibility to create course of treatment
- Observes client/family to interpret client satisfaction

Information Technology Applications

- Complies with established procedures to store and retrieve information

Systems

- Designs, analyzes, and obtains resources necessary for business practice

Safety, Health, & Environment

- Implements procedures to protect the health and safety of all

Leadership & Teamwork

- Uses conflict-management skills to facilitate solutions
- Maintains a helpful profile in the professional community

Employability & Career Development

- Uses performance information to evaluate personal performance

Technical Skills

- Practices in chosen occupation to gain functional skills
- Assesses client records to determine trends

Professional Technical Studies

PATHWAY: Information Support & Services

CLUSTER: Information Technology

Computer User Support

- Provides troubleshooting for hardware and software
- Employs technical and computer tools to perform task in the most cost-effective manner

Management of Software Systems

- Evaluates appropriateness of software for specific projects

Hardware Design, Operation & Maintenance

- Demonstrates knowledge of how hardware components interact and how conflicts arise

Networking Concepts

- Identifies the basic broadcast topologies

System Administration & Control

- Establishes and maintains user accounts on multiple systems

Project Management

- Develops time and activity plan to achieve objective
- Coordinates plan with team, cross-functional groups, or individuals

Technical Writing & Documentation

- Gathers information from selected print and electronic sources

Quality Assurance Processes

- Identifies safety responsibility within organization

Communication Skills

- Demonstrates the ability to assist customers in a professional manner

Problem Solving & Critical Thinking

- Prepares reports and other business communications, integrating graphics and other nontext elements

Professional Technical Studies

PATHWAY: Interactive Media

CLUSTER: Information Technology

Interactive Media Customer Requirements

- Determines client's needs and expected outcomes
- Determines the interactive media elements to be used

Interactive Media Product Specifications

- Identifies and obtain tools and resources to do the job

Tools for Production, Development & Project Management

- Demonstrates proficiency in the use of digital-imaging techniques and equipment

Web Programming & Hosting

- Demonstrates knowledge of how to use standard programs to produce an Internet application
- Identifies how different browsers and browser settings affect the look of a Web page

Creation & Implementation of Interactive Media Products

- Applies principles and elements of design
- Produces or acquires graphics, animation, audio, and video content

Testing of Interactive Media Product

- Performs usability tests
- Revises product design based on test results

Use of Writing/Publishing Applications

- Prepares publications using desktop-publishing software

Applications in Computer graphics

- Creates examples of computer graphics in commercial applications

Professional Technical Studies

PATHWAY: Programming & Software Development

CLUSTER: Information Technology

Analysis & Design

- Gathers data to identify customer requirements
- Develops software requirements specification
- Analyzes requirements/specifications using current approaches
- Defines scope of work for programming projects
- Demonstrates knowledge and skills of a software development team
- Understands elements and types of information processing
- Applies language-specific programming tools/techniques
- Demonstrates knowledge of software development methodology

Program Development

- Demonstrates comprehension of trade-offs involved in design choices
- Demonstrates knowledge of computing/networking hardware and software architecture
- Applies principles of effective information management, information organization, and information retrieval skills
- Demonstrates proficiency in developing applications using appropriate programming languages
- Demonstrates knowledge of program development methodology

Implementation & Support

- Resolves problems with integration
- Performs testing and validation
- Develops software testing audit trails
- Analyzes technical support needs
- Performs customer service
- Performs software maintenance activities

Professional Technical Studies

PATHWAY: Network Systems

CLUSTER: Information Technology

Identifying Customer Network Systems Requirements

- Identifies system requirements for various types of network installations
- Identifies functional requirements for hardware, networking, and software systems

Project Management

- Demonstrates knowledge of key functions and subsystems of network systems
- Prepares overall plan for integrating new processes, protocols, and equipment

Quality Assurance Processes

- Evaluates whether process was applied efficiently and responsibly

Networking Concepts Processes

- Demonstrates knowledge of characteristics and uses of network components
- Identifies how components of a network operating system support network operations

Network Installation & Configuration

- Installs appropriate operating system and telecommunications hardware and software

Network Administration & Monitoring

- Identifies methods for avoiding common computer system disasters

Network Maintenance and User Support

- Identifies maintenance procedures and processes
- Isolates system faults in various types of networks, cables, data modems, and carrier systems

Safety

- Develops and implements a safety checklist

Professional Technical Studies

PATHWAY: Manufacturing Process Development

CLUSTER: Manufacturing

Customer Needs

- Conducts in-depth investigation to identify customer needs
- Relates workers' skills to equipment management to set up equipment for the production process
- Inspects the product to verify that it meets specifications
- Checks for specified quantities and proper documentation to prepare a final product for shipping or distribution

New Manufacturing Process

- Creates standard operating procedures for new process
- Sets up and programs equipment for new processes

Safety

- Provides safety orientation to train other employees in safe practices and emergency procedures

Quality Assurance Process

- Performs periodic internal quality audit activities
- Inspects materials at all stages of process to determine quality or condition

Communication Skills

- Communicates production requirements and product specifications

Facilitating Change

- Analyzes data to identify potential problem
- Checks that final product meets customer and business needs

New Product Development

- Executes process to produce new product
- Solves production process problems

Production Process

- Develops production improvement goals
- Inspects product for deviations from customer and product standards

Professional Technical Studies

PATHWAY: Engineering & Technology

CLUSTER: Science, Technology, Engineering & Math

Academics

- Applies core concepts of technology and recognizes their relationships with engineering, science, and math, and other subjects

Information Technology Application

- Uses computer applications to solve problems
- Selects and uses different forms of communications technology

Technical Skills

- Operates and uses a variety of tools, machines, equipment, and materials

Design

- Uses analytical tools and techniques to solve problems, construct tests, and evaluate data

Safety, Health & Environment

- Uses safety equipment in the laboratory

History of Electricity & Electronics

- Researches history of invention in electronics

Mathematics for Electronics

- Solves direct current (DC) circuit analysis problems using Ohm's Law
- Calculates fundamental alternating current (AC) parameters
- Uses Boolean algebra for design and analysis of digital circuits

Testing Digital Circuits

- Analyzes and applies observed logic states

Digital Applications

- Investigates integrated circuits, electronic logic circuits, clocks, timers, digital counting circuits, advanced timers, and computer circuits

Professional Technical Studies
PATHWAY: Facility & Mobile Equipment Maintenance
CLUSTER: Transportation, Distribution & Logistics

Problem Solving & Critical Thinking

- Develops and presents comprehensive troubleshooting diagrams
- Identifies and evaluates alternative solutions
- Tests, monitors, and evaluates solutions
- Identifies the best solution based on risks, costs, and benefits
- Develops plans to fully implement solutions to address performance problems

Maintaining Facilities, Equipment & Supplies

- Develops and manages repair plans
- Identifies and describes automotive equipment reliability and performance problems
- Determines causes of performance problems related to electronics, fluid power and mechanical systems
- Determines repair procedures
- Identifies equipment, materials, parts, supplies, and labor requirements necessary to accomplish repairs
- Presents and explains findings to customers

Facility & Mobile Equipment Maintenance

- Develops and manages preventative maintenance plans that meet business and equipment manufacturer requirements
- Monitors and evaluates the performance of maintenance plans and systems
- Develops plans for improving facilities, equipment, and system performance

Professional Technical Studies

PATHWAY: Sales & Service

CLUSTER: Transportation, Distribution & Logistics

Maintaining Facilities, Equipment & Supplies

- Identifies and describes automotive equipment reliability

Management of Sales & Service Operations

- Determines future demand for potential products and services
- Describes and explains alternative products, services, and pricing
- Uses technology to manage sales and service operations
- Determines sales growth opportunities for new products and services
- Analyzes changing customer and market needs
- Evaluates competitor products and services
- Monitors competitor pricing
- Determines future demand for potential products and services
- Establishes relationships with customers
- Determines customer needs
- Describes and explains alternative products, services, and pricing
- Assists customer in making decisions
- Closes customer sale
- Completes sales transactions

Employability & Career Development

- Displays initiative and open-mindedness
- Completes all tasks thoroughly and identifies strategies for accomplishing job