Arts, Audio Visual Technology, and Communication Career Cluster

The Arts, Audio Visual Technology, and Communication (AAVTC) career cluster focuses on designing, producing, exhibiting, performing, writing, and publishing multimedia content requiring creative aptitude, fluency in computer and technology applications, and proficiency in oral and written communication. This career cluster includes occupations ranging from camera operator, audio and video technician, director, and producer to graphic designer and web and digital interface designer.

Statewide Program of Study: Digital Communications – AV Production

The Digital Communications program of study focuses on occupational and educational opportunities associated with the production of audio and visual media formats for various purposes, such as TV broadcasts, advertising, video production, or motion pictures. The program of study includes operating machines and equipment such as microphones, sound speakers, video screens, projectors, video monitors, sound and mixing boards, and related electronic equipment to record sound and images.

Secondary Courses for High School Credit Principles of Arts, Audio/Video Technology, and Communications - 1 credit Level 1 Professional Communications - Reg/DC - .5 credit Level 2 Audio/Video Production I – 1 credit (DC Projected 2025-2026) Audio/Video Production II + Lab - 2 credits Level 3 (DC Projected 2026-2027) Practicum in Audio/Video Production - 2 credits Level 4 (DC Projected 2027-2028) *Articulated Credit (AC) / Continuing Education (CE) / Dual Credit (DC) Certification offerings can vary from year to year

Aligned Advanced Academic Courses

AP or IB

IB Film SL **IB Film HL**

Dual Credit

Dual credit offerings will vary by local education agency.

Students should be advised to consider these course opportunities to enrich their preparation. AP or IB courses not listed under the Secondary Courses for High School Credit section of this framework document do not count towards concentrator/completer status for this program of study.

Work-Based Learning and Expanded Learning Opportunities

Work-Based Learning Activities	 Shadow a sound designer to learn how sound and foley are created for movies or podcasts Intern with a technical director at a sports team, recording studio, or radio station Shadow a technician on a live news broadcast, concert, or other event
Expanded Learning Opportunities	 Participate in SkillsUSA or TSA Participate in Student Television Network Capture and edit film and audio for a podcast with a local community organization

Aligned Industry-Based Certifications

- Adobe Certified Professional in Digital Video Using Adobe Premiere Pro
- Adobe Certified Professional in Visual Design Using Adobe Photoshop



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Example Postsecondary Opportunities

Apprenticeships

Light Technician

Associate Degrees

- Commercial and Advertising Art
- Animation, Interactive Technology, Video Graphics, and Special Effects

Bachelor's Degrees

- Cinematography and Film/Video Production
- **Recording Arts Technology**

Master's, Doctoral, and Professional Degrees

- Animation, Interactive Technology, Video Graphics, and Special Effects
- **Communications Technology**

Additional Stackable IBCs/License

CompTIA Digital Media and Entertainment Professional Certification (DMEP)



Example Aligned Occupations

Camera Operators, Television, Video, and Film Median Wage: \$48,422 Annual Openings: 155

10-Year Growth: 20%

Audio and Video **Technicians**

Median Wage: \$46,319 Annual Openings: 626 10-Year Growth: 30%

Producers and Directors Median Wage: \$65,029 Annual Openings: 522 10-Year Growth: 12%

Data Source: TexasWages, Texas Workforce Commission. Retrieved 3/8/2024. For more information visit:



https://tea.texas.gov/academics/college-career-and-militaryprep/career-and-technical-education/programs-of-studyadditional-resources

ARTS, A/V TECHNOLOGY & COMMUNICATION – A/V PRODUCTION:

PRINCIPLES OF ARTS, A/V TECHNOLOGY & COMMUNICATIONS

Grades: 9-12 Prerequisite: None

The goal of this course is for the student to understand arts, audio/video technology, and communications systems. Within this context, students will be expected to develop an understanding of the various and multifaceted career opportunities in this cluster and the knowledge, skills, and educational requirements for those opportunities.

PROFESSIONAL COMMUNICATIONS

Grades: 9-12 Prerequisite: None

Professional Communication blends written, oral, and graphic communication in a career-based environment. Careers in the global economy require individuals to be creative and have a strong background in computer and technology applications, a strong and solid academic foundation, and a proficiency in professional oral and written communication. Within this context, students will be expected to develop and expand the ability to write, read, edit, speak, listen, apply software applications, manipulate computer graphics, and conduct Internet research.

AUDIO/VIDEO PRODUCTION I - Projected DC 2025-2026 (ARTC 1302 & IMED 1301) Grades: 9-12

Prerequisite: Principles of Arts, Audio/Video Technology, and Communications

Careers in audio and video technology and film production span all aspects of the audio/video communications industry. Within this context, in addition to developing technical knowledge and skills needed for success in the Arts, Audio/Video Technology, and Communications Career Cluster, students will be expected to develop an understanding of the industry with a focus on pre-production, production, and post-production audio and video products.

ARTC 1302 - Digital imaging using raster image editing and/or image creation software: scanning, resolution, file formats, output devices, color systems, and image-acquisitions.

IMED 1301 - Theories, elements, and hardware/software components of digital media. Emphasis on conceptualizing and producing digital media presentations.

AUDIO/VIDEO PRODUCTION II + LAB - Projected DC 2026-2027

Grades: 10-12 Prerequisite: Audio/Video Production I

Building upon the concepts taught in Audio/Video Production, in addition to developing advanced knowledge and skills needed for success in the Arts, Audio/Video Technology, and Communications Career Cluster, students will be expected to develop an advanced understanding of the industry with a focus on pre- production, production, and postproduction products. This course may be implemented in an audio format or a format with both audio and video.

PRACTICUM IN AUDIO/VIDEO PRODUCTION - Projected DC 2027-2028

Grade: 11-12 Prerequisites: Audio/Video Production II + Lab

Careers in audio/video production span all aspects of the audio/video communications industry. Building upon the concepts taught in Audio/Video Production II + Lab, in addition to developing advanced technical knowledge and skills needed for success in the Arts, Audio/Video Technology, and Communications Career Cluster, students will be expected to develop an increasing understanding of the industry with a focus on applying preproduction, production, and post-production audio and video products in a professional environment. This course may be implemented in an advanced audio/video format. Instruction may be delivered through lab-based classroom experiences or career preparation opportunities.

Credit: 1

Credit: .5

Credit: 1

Credits: 2

Arts, Audio Visual Technology, and Communication Career Cluster



The Arts, Audio Visual Technology, and Communication (AAVTC) career cluster focuses on designing, producing, exhibiting, performing, writing, and publishing multimedia content requiring creative aptitude, fluency in computer and technology applications, and proficiency in oral and written communication. This career cluster includes occupations ranging from camera operator, audio and video technician, director, and producer to graphic designer and web and digital interface designer.

Statewide Program of Study: Graphic Design and Interactive Media – Commercial Photography

The Graphic Design and Interactive Media program of study focuses on occupational and educational opportunities associated with designing or creating graphics to meet specific commercial or promotional needs, such as packaging, displays, or logos. The program of study includes designing clothing and accessories and creating special effects, animation, or other visual images using film, video, computers, or other electronic tools and media for use in computer games, movies, music videos, and commercials.

Secondary Courses for High School Credit

Level 1	•	Principles of Arts, Audio/Video Technology, and Communications – 1 credit
Level 2	•	Commercial Photography I – 1 credit
Level 3	•	Commercial Photography II – 1 credit
Level 4	•	Practicum in Commercial Photography – 2 credits

*Articulated Credit (AC) / Continuing Education (CE) / Dual Credit (DC) Certification offerings can vary from year to year



Aligned Advanced Academic Courses

AP or IB

AP Studio Art: Two-Dimensional Design Portfolio

Dual Credit

Dual credit offerings will vary by local education agency.

Students should be advised to consider these course opportunities to enrich their preparation. AP or IB courses not listed under the Secondary Courses for High School Credit section of this framework document do not count towards concentrator/completer status for this program of study.

Work-Based Learning and Expanded Learning Opportunities

Work-Based Learning Activities	 Shadow an art director at a branding firm or design agency Intern in the marketing and communications department of a technology company
Expanded Learning Opportunities	 Participate in SkillsUSA or TSA Participate in Student Television Network Join a related co-curricular or extracurricular club such as web development or computer coding

Aligned Industry-Based Certifications

- Adobe Certified Professional in Digital Video Using Adobe Premiere Pro Adobe Certified Professional in Graphic Design and Illustration Using Adobe Illustrator Adobe Certified Professional in Visual Design Using Adobe Photoshop Adobe Certified Professional in Visual Effects and Motion Graphics Using Adobe After Effects



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Example Postsecondary Opportunities

Associate Degrees

- Graphic Design
- Digital Arts

Bachelor's Degrees



- Web Page, Digital/Multimedia and Information **Resources Design**
- Design and Visual Communications

Master's, Doctoral, and Professional Degrees

- Game and Interactive Media Design
- Animation, Interactive Technology, Video Graphics, and Special Effects

Additional Stackable IBCs/License

Certified Textile Designer (CTD)



Example Aligned Occupations

Software Developers

Median Wage: \$111,705 Annual Openings: 15,324 10-Year Growth: 36%

Graphic Designers

Median Wage: \$50,973 Annual Openings: 1,766 10-Year Growth: 10%

Art Directors

Median Wage: \$81,926 Annual Openings: 619 10-Year Growth: 18%

Data Source: TexasWages, Texas Workforce Commission. Retrieved 3/8/2024



ARTS, A/V TECHNOLOGY & COMMUNICATION - COMMERCIAL PHOTOGRAPHY:

PRINCIPLES OF ARTS, A/V TECHNOLOGY & COMMUNICATIONS

Grades: 9-12 Prerequisite: None

The goal of this course is for the student to understand arts, audio/video technology, and communications systems. Within this context, students will be expected to develop an understanding of the various and multifaceted career opportunities in this cluster and the knowledge, skills, and educational requirements for those opportunities.

COMMERCIAL PHOTOGRAPHY I

Grades: 9-12 Prerequisite: Principles of Arts, A/V Technology, and Communications

Careers in commercial photography require skills that span all aspects of the industry from setting up a shot to delivering products in a competitive market. In addition to developing knowledge and skills needed for success in the Arts, Audio/Video Technology, and Communications Career Cluster, students will be expected to develop an understanding of the commercial photography industry with a focus on creating quality photographs.

COMMERCIAL PHOTOGRAPHY II

Grades: 10-12 Prerequisites: Commercial Photography I

Careers in commercial photography span all aspects of the industry from setting up a shot to delivering products in a competitive market. In addition to developing advanced technical knowledge and skills needed for success in the Arts, Audio/Video Technology, and Communications Career Cluster, students will be expected to develop an advanced technical understanding of the commercial photography industry with a focus on producing, promoting, and presenting professional quality photographs.

PRACTICUM IN COMMERCIAL PHOTOGRAPHY

Grade: 11-12 Prerequisites: Commercial Photography II

Careers in commercial photography span all aspects of the advertising and visual communications industry. Within the context, in addition to developing technical knowledge and skills needed for success in the Arts, Audio/Video Technology, and Communications Career Cluster, students will be expected to develop an advanced technical understanding of the commercial photography industry with a focus on producing, promoting, and presenting professional quality photographs.

Credit: 1

Credit: 1

Credit: 1

Revised–May 2024

Arts, Audio Visual Technology, and Communication Career Cluster

The Arts, Audio Visual Technology, and Communication (AAVTC) career cluster focuses on designing, producing, exhibiting, performing, writing, and publishing multimedia content requiring creative aptitude, fluency in computer and technology applications, and proficiency in oral and written communication. This career cluster includes occupations ranging from camera operator, audio and video technician, director, and producer to graphic designer and web and digital interface designer.

Statewide Program of Study: Graphic Design and Interactive Media – Graphic Design

The Graphic Design and Interactive Media program of study focuses on occupational and educational opportunities associated with designing or creating graphics to meet specific commercial or promotional needs, such as packaging, displays, or logos. The program of study includes designing clothing and accessories and creating special effects, animation, or other visual images using film, video, computers, or other electronic tools and media for use in computer games, movies, music videos, and commercials.

Secondary Courses for High School Credit

Level 1	•	Principles of Arts, Audio/Video Technology, and Communications – 1 credit	-
Level 2	•	Graphic Design and Illustration I – 1 credit	
Level 3	•	Graphic Design and Illustration II – 1 credit	E
Level 4	•	Practicum in Graphic Design and Illustration – 2 credits	A

*Articulated Credit (AC) / Continuing Education (CE) / Dual Credit (DC) Certification offerings can vary from year to year



Aligned Advanced Academic Courses

AP or IB

AP Studio Art: Two-Dimensional Design Portfolio

Dual Credit Dual credit offerings will vary by local education agency. Students should be advised to consider these course opportunities to enrich their preparation. AP or IB courses not listed under the Secondary Courses for High School Credit section of this framework document do not count towards concentrator/completer status for this program of study.

Work-Based Learning and Expanded Learning Opportunities

Work-Based Learning Activities	 Shadow an art director at a branding firm or design agency Intern in the marketing and communications department of a technology company 	
Expanded Learning Opportunities	 Participate in SkillsUSA or TSA Participate in Student Television Network Join a related co-curricular or extracurricular club such as web development or computer coding 	

Aligned Industry-Based Certifications

- Adobe Certified Professional in Digital Video Using Adobe Premiere Pro Adobe Certified Professional in Graphic Design and Illustration Using Adobe Illustrator Adobe Certified Professional in Visual Design Using Adobe Photoshop Adobe Certified Professional in Visual Effects and Motion Graphics Using Adobe After Effects

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xample Postsecondary Opportunities

ssociate Degrees

- Graphic Design
- Digital Arts

Bachelor's Degrees



- Web Page, Digital/Multimedia and Information **Resources Design**
- Design and Visual Communications

Master's, Doctoral, and Professional Degrees

- Game and Interactive Media Design
- Animation, Interactive Technology, Video Graphics, and Special Effects

Additional Stackable IBCs/License

Certified Textile Designer (CTD)



Example Aligned Occupations

Software Developers

Median Wage: \$111,705 Annual Openings: 15,324 10-Year Growth: 36%

Graphic Designers

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Art Directors

Median Wage: \$81,926 Annual Openings: 619 10-Year Growth: 18%

Data Source: TexasWages, Texas Workforce Commission. Retrieved 3/8/2024



For more information visit: https://tea.texas.gov/academics/college-career-and-militaryprep/career-and-technical-education/programs-of-study-additionalresources

ARTS, A/V TECHNOLOGY & COMMUNICATION – GRAPHIC DESIGN & ILLUSTRATION:

PRINCIPLES OF ARTS, A/V TECHNOLOGY & COMMUNICATIONS

Grades: 9-12 Prerequisite: None

The goal of this course is for the student to understand arts, audio/video technology, and communications systems. Within this context, students will be expected to develop an understanding of the various and multifaceted career opportunities in this cluster and the knowledge, skills, and educational requirements for those opportunities.

GRAPHIC DESIGN AND ILLUSTRATION I

Grade: 9-12 Prerequisites: Principles of Audio/Video Production

Students will be expected to develop an understanding of the industry with a focus on fundamental elements and principles of visual art and design. Students will use personal information management, email, internet, writing and publishing, presentation, and spreadsheet or database applications for art and design projects.

GRAPHIC DESIGN AND ILLUSTRATION II Grade: 10-12

Prerequisites: Graphic Design and Illustration I

Students will use the enhancement of the Adobe Creative Suite software, which includes Photoshop, InDesign and Illustrator to create advanced graphic documents. Advanced style and techniques will be used throughout the layout and design process. The design process will be explored further, and students will be given more challenging graphic tasks and assignments, which will include logo design. Activities call for students to apply problem-solving methodology to analyze and formulate real world solutions. Career options will be explored in the fields of Marketing, Advertising, and Graphic Design.

PRACTICUM IN GRAPHIC DESIGN AND ILLUSTRATION

Grade: 11-12 Prerequisites: Graphic Design and Illustration II

Careers in graphic design and illustration span all aspects of the advertising and visual communications industry. Within the context, in addition to developing technical knowledge and skills needed for success in the Arts, Audio/Video Technology, and Communications Career Cluster, students will be expected to develop a technical understanding of the industry with a focus on skill proficiency. Instruction may be delivered through labbased classroom experiences or career preparation opportunities.

Credit: 1

Credit: 1

Credit: 1



Business, Marketing, and Finance Career Cluster

The Business, Marketing, and Finance career cluster focuses on careers in planning, organizing, directing, and evaluating business functions essential to efficient and productive business operations. This career cluster includes occupations ranging from business owner and entrepreneur, to accountant, retail manager, and market analyst.

Statewide Program of Study: Entrepreneurship

The Entrepreneurship program of study focuses on occupational and educational opportunities associated with planning, launching, directing, and coordinating public or private sector ventures. This program of study includes formulating policies, launching businesses or organizations, managing daily operations, analyzing management structures, and planning for the use of materials and human resources.

Secondary Courses for High School Credit

Level 1 • Business Information Management I – 1 credit

Level 2	Entrepreneurship I – 1 credit
Level 3	• Entrepreneurship II – 1 credit
Level 4	Practicum in Entrepreneurship – 2 credits

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Our Mission To empower and grow learners of all abilities with authentic, employable skills.

Dur Vision To foster a rich student experience that allows learners of all ability levels to discover their potential as leaders and valued contributors to society.

Aligned Advanced Academic Courses

AP or IB	AP Statistics IB Mathematics: Analysis and Approaches	
Dual Credit	Dual credit offerings will vary by local education agend	

Students should be advised to consider these course opportunities to enrich their preparation. AP or IB courses not listed under the Secondary Courses for High School Credit section of this framework document do not count towards concentrator/completer status for this program of study.

Work-Based Learning and Expanded Learning Opportunities

Work-Based	 Intern at a local start-up or a business incubator Participate in the development and launch of a school-
Learning Activities	based enterprise
Expanded Learning Opportunities	Job shadow an entrepreneurParticipate in BPA, DECA, FBLA, or related UIL events

Aligned Industry-Based Certifications

• Entrepreneurship and Small Business

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Example Postsecondary Opportunities

Associate Degrees

- **Operations Management and Supervision**
- Organizational Leadership

Bachelor's Degrees

- Business Administration and Management
- Public Administration

Master's, Doctoral, and Professional Degrees

- Business Administration
- Public Administration

Additional Stackable IBCs/License

- Salesforce
- Service Contract Providers



Example Aligned Occupations

General and Operations Managers

Median Wage: \$83,220 Annual Openings: 25,450 10-Year Growth: 23%

Management Analysts

Median Wage: \$93,983 Annual Openings: 6,030 10-Year Growth: 25%

Chief Executives

Median Wage: \$163,567 Annual Openings: 648 10-Year Growth: 3%

Data Source: TexasWages, Texas Workforce Commission. Retrieved 3/8/2024.



https://tea.texas.gov/academics/college-careerand-military-prep/career-and-technicaleducation/programs-of-study-additional-resources



Entrepreneurship

BUSINESS, MARKETING AND FINANCE - ENTREPRENEURSHIP:

BUSINESS INFORMATION MANAGEMENT I

Grades: 9-12 Prerequisite: None

In Business Information Management I, students implement personal and interpersonal skills to strengthen individual performance in the workplace and in society and make a successful transition to the workforce and postsecondary education. Students apply technical skills to address business applications of emerging technologies, create word-processing documents, develop a spreadsheet, formulate a database, and make an electronic presentation using appropriate software.

ENTREPRENEURSHIP I

Grades: 10-12 Prerequisites: None

In Entrepreneurship, students will gain the knowledge and skills needed to become an entrepreneur. Students will learn the principles necessary to begin and operate a business. The primary focus of the course is to help students understand the process of analyzing a business opportunity, preparing a business plan, determining feasibility of an idea using research, and developing a plan to organize and promote the business and its products and services. In addition, students will understand the capital required, the return on investment desired, and the potential for profit.

ENTREPRENEURSHIP II Grades: 11-12 Prerequisites: Entrepreneurship I

The purpose of the course is to prepare students with the knowledge and skills needed to become a successful entrepreneur within an innovative marketplace. The goal and outcome of the course is for students to have their business launched by the end of the course or have the tools necessary to launch and operate their business. Students are encouraged to work in close cooperation with local industry leaders, community members, and educators to develop ideas and objectives, complete a business model canvas, pitch to potential investors, register with governmental agencies, develop their brand identity, and participate in local chamber of commerce meetings and events. The recommended participants are students in the CTE Entrepreneurship program of study, students in grades 11-12, and those interested in starting a business.

PRACTICUM OF ENTREPRENEURSHIP Grades: 12

Prerequisites: Entrepreneurship II

The Practicum in Entrepreneurship provides students the opportunity to apply classroom learnings and experiences to real-world business problems and opportunities, while expanding their skill sets and professional relationships as a real or simulated business owner versus the experience one would have as an employee. Students will prepare for an entrepreneurial career in their area of interest in their career cluster and build on and apply the knowledge and skills gained from courses taken in an array of career areas. Practicum experiences occur in a paid or unpaid arrangement and a variety of locations appropriate to the nature and level of the student's need for work-based learning experience. Students implement personal and interpersonal skills to strengthen individual performance in the workplace and in society and to make a successful transition to the workforce or postsecondary education. It is recommended that students are paired with local business owners or employers in their specific industry program of study.

Credits: 2

Credit: 1

Credit: 1

Credit: 1

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Education and Training Career Cluster

The Education and Training career cluster focuses on planning, managing, and providing education and training services and related learning support services. All parts of courses are designed to introduce learners to the various careers available within the Education and Training career cluster. This career cluster includes a diverse spectrum of occupations, ranging from teaching assistant, classroom teacher, to school administrator.

Statewide Program of Study: Teaching and Training

The Teaching and Training program of study focuses on occupational and educational opportunities associated with careers related to teaching, instructing, and creating instructional and enrichment materials. The program of study includes recognizing a variety of student groups and their corresponding needs, identifying processes for developing curriculum and coordinating educational content, and coaching groups and individuals.

Secondary Courses for High School Credit

Level 1	 Principles of Education and Training – 1 Credit
Level 2	Communication and Technology in Education – 1 Credit
Level 3	Instructional Practices – 2 Credits
l evel 4	 Practicum in Education and Training – Reg/DC – 2 Credits

*Articulated Credit (AC) / Continuing Education (CE) / Dual Credit (DC) Certification offerings can vary from year to year



Aligned Advanced Academic Courses

Dual Credit

Dual credit offerings will vary by local educational agency.

Students should be advised to consider these course opportunities to enrich their preparation. AP or IB courses not listed under the Secondary Courses for High School Credit section of this framework document do not count towards concentrator/completer status for this program of study.

Work-Based Learning and Expanded Learning Opportunities

Work-Based Learning Activities	 Serve as a camp counselor to learn mentoring, facilitation, and lesson planning skills Volunteer in a tutoring center to learn lesson planning and skills assessment
Expanded Learning Opportunities	 Participate in FCCLA Participate in TAFE

Aligned Industry-Based Certifications



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Example Postsecondary Opportunities

Apprenticeships

Teacher Apprentice

Associate Degrees

- Adult and Continuing Education and Teaching
- Educational/Instructional Technology

Bachelor's Degrees

- Elementary Education and Teaching
- Secondary Education and Teaching

Master's, Doctoral, and Professional Degrees

- Educational Leadership and Administration, General
- Curriculum and Instruction
- Additional Stackable IBCs/License

Generalist, Grades EC-4



Example Aligned Occupations

Teaching Assistants, Except Postsecondary

Median Wage: \$28,066 Annual Openings: 10,000 10-Year Growth: 15%

Secondary School Teachers, Except Special Education and CTE

Median Wage: \$61,035 Annual Openings: 8,288 10-Year Growth: 14%

Education Administrators, Kindergarten through Secondary

Median Wage: \$81,976 Annual Openings: 2,676 10-Year Growth: 14%

Data Source: TexasWages, Texas Workforce Commission. Retrieved 3/8/2024.





https://tea.texas.gov/academics/college-career-and-militaryprep/career-and-technical-education/programs-of-studyadditional-resources

EDUCATION & TRAINING – TEACHING & TRAINING:

PRINCIPLES OF EDUCATION AND TRAINING

Grades: 9-10 Prerequisites: None

This course covers a variety of topics including learning processes, education theory, classroom management, child development and lesson planning. Students will research careers and topics in education including teacher training, interview processes and ethics in the workplace. Students will experience field-based teaching observation opportunities and create a portfolio that will serve as a foundation for future education courses.

COMMUNICATION AND TECHNOLOGY IN EDUCATION

Grades: 10-11 Prerequisites: Principles of Education and Training

Communication and Technology in Education is an extended course of study designed to provide students with the fundamentals of planning, managing, and training services needed to provide learning support services in K-12 classrooms. Students will develop knowledge and skills regarding the professional, ethical, and legal responsibilities in teaching related to educational technology; as well as understand laws and pedagogical justifications regarding classroom technology use. This course provides an opportunity for students to participate in training related to Google for Education, Microsoft Office Fundamentals, Common Sense Media, and Digital Citizenship as they relate to standards set by the International Society for Technology in Education (ISTE).

INSTRUCTIONAL PRACTICES Grades: 11-12

Prerequisites: Communication and Technology in Education + Eligibility verification at district level is required. See counselor for more information.

This course is a field-based internship in which students work under the joint direction of their course instructor and a mentor teacher on a GISD Childcare Facility plus the Early Childhood Center. Students learn to plan and direct instruction, develop materials for educational environments, assist with record keeping, and complete other responsibilities of teachers, trainers, paraprofessionals, and other educational personnel.

BESTT PROGRAM - PRACTICUM IN EDUCATION AND TRAINING

Grades: 12 Prerequisites: Instructional Practices + Eligibility verification at district level is required. See counselor for more information.

This course is a field-based internship in which students work under the joint direction of their course instructor and a mentor teacher on a GISD Childcare Facility, Early Childhood Center, Elementary, or Middle School campus. Students learn to plan and direct instruction, develop materials for educational environments, assist with record keeping, and complete other responsibilities of teachers, trainers, paraprofessionals, and other educational personnel.

BESTT PROGRAM - PRACTICUM IN EDUCATION AND TRAINING - DC (EDUC 1301 & EDUC 2301)

Grades: 12

Prerequisites: Instructional Practices + Eligibility verification at district level is required, see counselor for more information + TSIA satisfied in literacy.

This course is a field-based internship in which students work under the joint direction of their course instructor and a mentor teacher on a GISD Childcare Facility, Early Childhood Center, Elementary, or Middle School campus. Students learn to plan and direct instruction, develop materials for educational environments, assist with record keeping, and complete other responsibilities of teachers, trainers, paraprofessionals, and other educational personnel.

EDUC 1301 - An enriched, integrated pre-service course and content experience that provides active recruitment and institutional support of students interested in a teaching career, especially in high need fields; provides students with opportunities to participate in early field observations at all levels of P-12 schools with varied and diverse student populations; provides students with support from college and school faculty, preferably in small cohort groups, for the purpose of introduction to and analysis of the culture of schooling and classrooms; course content is aligned and applicable with State Board for Educator Certification Pedagogy and Professional Responsibilities standards; includes a minimum of 16 contact hours of field experience in P-12 classrooms.

EDUC 2301 - An enriched integrated re-service course and content experience that provides an overview of schooling and classrooms from the perspective of language, gender, socioeconomic status, ethnic and academic diversity, and equity, with an emphasis on factors that facilitate learning.

Credit: 1

Credit: 1

Credits: 2

Credits: 2



Engineering Career Cluster

The Engineering career cluster focuses on planning, designing, testing, building, and maintaining of machines, structures, materials, systems, and processes using empirical evidence and science, technology, and math principles. This career cluster includes occupations ranging from mechanical engineer and drafter to electrical engineer and to mapping technician.

Statewide Program of Study: Aerospace Engineering (Rockets)

The Mechanical and Aerospace Engineering program of study focuses on occupational and educational opportunities associated with the design, development, maintenance, and testing of engines, machines, and structures related to aircraft and spacecraft. Students will design, test, and evaluate projects related to aerodynamics, structural, and mechanical design. This program of study includes applying scientific, mathematical, and empirical evidence to solve problems related to navigation, mechanics, robotics, propulsion, and combustion.

Secondary Courses for High School Credit

Level	 Introduction to Engineering Design – IED (PLTW)
1	– 1 credit
Level 2	• Aerospace Engineering – Rockets I – 1 credit
Level	 Engineering Design and Problem Solving –
3	Rockets II – 1 Credit
Level	• Practicum in Engineering – Rockets III – 2 Credits



AP Physics 2

AP Statistics

Aligned Advanced Academic Courses

	AP Calculus Al
AP or IB	AP Calculus B
	AP Physics 1

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IB Physics SL IB Physics HL

Dual Credit Dual credit offerings will vary by local education agency.

Students should be advised to consider these course opportunities to enrich their preparation. AP or IB courses not listed under the Secondary Courses for High School Credit section of this framework document do not count towards concentrator/completer status for this program of study.

Work-Based Learning and Expanded Learning Opportunities

Work-Based Learning Activities	 Intern at an aviation or aerospace company Shadow a mechanical engineer to understand design and testing processes Complete a project to test and evaluate a new product design for a local company
Expanded Learning Opportunities	Tour an aerospace facilityParticipate in SkillsUSA or TSA
Aligned Industry	-Based Stamples of Controls
Certificatio	ns 🔺 🔺 🔺
Autodesk Associate (Certified User) Fusion 360	force Conter of Conter of Conter of Conter of



Example Postsecondary Opportunities

Apprenticeships

Mechanical Engineering Technician Apprenticeship

Associate Degrees

- Mechanical Engineering
- Aeronautics/Aviation/Aerospace Science and Technology, General

Bachelor's Degrees

- Aeronautical/Aerospace Engineering Technology/Technician
- Aeronautics/Aviation/Aerospace Science and Technology, General

Master's, Doctoral, and Professional Degrees

- Electrical and Electronics Engineering
- Aerospace, Aeronautical, and Astronautical/Space Engineering, General

Additional Stackable IBCs/License

- Professional Engineer (PE License)
- Aerospace Engineering Certification



Example Aligned Occupations

Aerospace Engineering and **Operations Technologists** and Technicians Median Wage: \$48,204 Annual Openings: 192 10-Year Growth: 21%

Mechanical Engineers

Median Wage: \$99,937 Annual Openings: 1,755 10-Year Growth: 18%

Aerospace Engineers Median Wage: \$115,694 Annual Openings: 483 10-Year Growth: 18%

Data Source: TexasWages, Texas Workforce Commission. Retrieved 3/8/2024.





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409-766-5100. dvannpolzin@gisd.org

ENGINEERING - AEROSPACE ENGINEERING:

INTRODUCTION TO ENGINEERING DESIGN - IED (PLTW)

Grades: 9-12 Prerequisite: None

This course provides students with opportunities to be creative and to apply decision-making and problem-solving skills to design problems. Students use powerful computer hardware and software (Inventor) to develop 3-D models or solid renderings of objects, Using a Computer Aided Design System, students learn the product design process through creating, analyzing, rendering, and producing a model. Students will learn elementary engineering concepts and will explore career opportunities in design engineering as they develop portfolios to display and present their designs.

AEROSPACE ENGINEERING (ROCKETS I)

Grades: 10-12 Prerequisite: Introduction to Engineering Design - IED (PLTW)

Students master problem solving skills while working within the four main energy systems: mechanical, fluid, electrical and thermal. In addition, students are introduced to and are encouraged to sharpen workforce/life skills such as teamwork, critical thinking, problem-solving, design and development, testing and analysis, documentation, time management, perseverance and others. The culminating project is to utilize the RD&D Loop to design and build a rocket with the following criteria: rocket on the pad by the scheduled date, flight performance that gets a 1.0-lb research package to an altitude of 5,280-ft with close proximity, intact recovery.

ENGINEERING DESIGN AND PROBLEM SOLVING (ROCKETS II)

Grades: 11-12 Prerequisite: Aerospace Engineering (Rockets I)

The increased rigor of the course is evident in the student development of a mathematical flight profile for a Mach 1 rocket using Excel/Python. Students then present the flight profile to either NASA flight engineers or other engineering professionals justifying and explaining all mathematical concepts and equations. Students then use the RD&D Loop to design and develop a rocket with the following success criteria: rocket on the pad by scheduled date, flight performance to achieve Mach 1 velocity with close proximity, intact recovery while staying under a 13,000-ft ceiling. This course satisfies a high school science graduation requirement and students shall be awarded one credit for successful completion of this course.

PRACTICUM IN ENGINEERING (ROCKETS III)

Grades: 12 Prerequisite: Engineering Design and Problem Solving (Rockets II)

Application of the student's knowledge base and the furthered development of life and workforce skills, cognitive reasoning, critical thinking, problem solving, design and development, testing and analysis, documentation, and teamwork and leadership.

The students, or project team, develop a comprehensive mathematical flight profile based on their knowledge and research of hybrid propulsion systems to present to NASA flight engineers. Following the flight profile review and approval, the RD&D Loop is used to design and build all components of a vehicle including the hybrid engine in its entirety - oxidizer tank, injection, inert fuel grain and nozzle. This vehicle, designed to take a scientific payload 50K-ft, is launched with support of the U.S. Army at White Sands Missile Range (WSMR) in New Mexico.

Credit: 1

Credit: 1

Credits: 2



Engineering Career Cluster

The Engineering career cluster focuses on planning, designing, testing, building, and maintaining of machines, structures, materials, systems, and processes using empirical evidence and science, technology, and math principles. This career cluster includes occupations ranging from mechanical engineer and drafter to electrical engineer and to mapping technician.

Statewide Program of Study: Engineering Foundations

The Engineering Foundations program of study focuses on occupational and educational opportunities associated with a wide range of skills applied in the Engineering industry. Students will design, test, and evaluate projects related to engines, machines, and structures. This program of study incudes applying scientific, mathematical, and empirical evidence to solve problems through innovation, design, construction, operation, and maintenance of different engineering systems.

Secondary Courses for High School Credit

- Introduction to Engineering Design IED (PLTW) 1 Credit Level 1 Engineering Science - 1 Credit Level 2 Engineering Design and Presentation I – 1 Credit Level 3
- Engineering Design and Development (PLTW) 1 Credit Level 4



Aligned Advanced Academic Courses

AP or IB

AP Physics 1 AP Physics 2 **AP Statistics**

IB Physics SL IB Physics HL IB Computer Science SL **IB** Computer Science HL

Dual Credit Dual credit offerings will vary by local education agency.

Students should be advised to consider these course opportunities to enrich their preparation. AP or IB courses not listed under the Secondary Courses for High School Credit section of this framework document do not count towards concentrator/completer status for this program of study.

Work-Based Learning and Expanded Learning Opportunities

Work-Based Learning Activities	•	Intern at an engineering, robotics, or aerospace company. Visit an engineering firm and shadow multiple types of engineers.
Expanded Learning	•	Participate in SkillsUSA or TSA

AP Calculus AB

AP Computer

Science A

Opportunities • Join a local engineering association and attend meetings.

Aligned Industry-Based Certifications

Autodesk Associate (Certified User) Fusion 360

*Articulated Credit (AC) / Continuing Education (CE) / Dua Certification offerings can vary from year to year



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Example Postsecondary Opportunities

Apprenticeships

Industrial Engineering Technician Apprenticeship

Associate Degrees

- Manufacturing Engineering Technology/ Technician
- Robotics Technology/Technician

Bachelor's Degrees

- **Electrical and Electronics Engineering**
- Engineering, General

Master's, Doctoral, and Professional Degrees

- Electrical and Electronics Engineering
- Engineering, General

Additional Stackable IBCs/Licensures

- Professional Engineer (PE License)
- Engineer in Training Certification (EIT)



Example Aligned Occupations

Civil Engineering Technologists and

Technicians Median Wage: \$61,138 Annual Openings: 765 10-Year Growth: 11%

Aerospace Engineers

Median Wage: \$115,694 Annual Openings: 483 10-Year Growth: 18%

Mechanical Engineers

Median Wage: \$99,937 Annual Openings: 1,755 10-Year Growth: 19%

Data Source: TexasWages, Texas Workforce Commission. Retrieved 3/8/2024.



For more information visit: https://tea.texas.gov/academics/college-career-and-militaryprep/career-and-technical-education/programs-of-studyadditional-resources

ENGINEERING - ENGINEERING FOUNDATIONS:

INTRODUCTION TO ENGINEERING DESIGN - IED (PLTW)

Grades: 9-12 Prerequisite: None

This course provides students with opportunities to be creative and to apply decision-making and problem-solving skills to design problems. Students use powerful computer hardware and software (Inventor) to develop 3-D models or solid renderings of objects, Using a Computer Aided Design System, students learn the product design process through creating, analyzing, rendering and producing a model. Students will learn elementary engineering concepts and will explore career opportunities in design engineering as they develop portfolios to display and present their designs.

ENGINEERING SCIENCE

Grades: 10-12 Prerequisite: Introduction to Engineering Design - IED (PLTW)

This course provides an overview of the various fields of science, technology, engineering, and mathematics and their interrelationships. Students will use a variety of computer hardware and software applications to complete assignments and projects. Upon completing this course, students will understand the various fields and will be able to make informed decisions regarding a coherent sequence of subsequent courses. Further, students will have worked on a design team to develop a product or system. Students will use multiple software applications to prepare and present course assignments. This course satisfies a high school science graduation requirement and students shall be awarded one credit for successful completion of this course.

ENGINEERING DESIGN AND PRESENTATION I

Grades: 11-12 Prerequisite: Engineering Science

Students enrolled in Engineering Design and Presentation I will demonstrate knowledge and skills of the design process as it applies to engineering fields and project management using multiple software applications and tools necessary to produce and present working drawings, solid model renderings, and prototypes. Through implementation of the design process, students will transfer advanced academic skills to component designs. Additionally, students will explore career opportunities in engineering, technology, and drafting and what is required to gain and maintain employment in these areas.

ENGINEERING DESIGN AND DEVELOPMENT (PLTW)

Grades: 12 Prerequisite: Engineering Design and Presentation I

Engineering Design and Development (EDD) is an open-ended engineering research course in which students work in teams to design and develop an original solution to a well-defined and justified open-ended problem by applying an engineering design process using the knowledge and skills they developed in previous courses. EDD is appropriate for 11th and 12th-grade students. Students will perform research to select, define, and justify a problem. After carefully defining the design requirements and creating multiple solution approaches, teams of students select an approach, create, and test their solution prototype. Student teams will present and defend their original solution to an outside panel. This course prepares students for college, a career, or the military by helping them become better problem-solvers. Students learn how to manage projects and further develop their transferable skills, such as communication and ethical reasoning.

Credit: 1

Credit: 1

Credit: 1



Health Science Career Cluster

The Health Science career cluster focuses on planning, managing, and providing therapeutic services, diagnostics services, health informatics, support services, and biotechnology research and development. This career cluster includes occupations ranging from medical assistant, registered nurse, and physical therapist to forensic science technician and athletic trainer.

Statewide Program of Study:

Diagnostic and Therapeutic Services – CNA/Phlebotomy/PCT)

The Diagnostic and Therapeutic Services program of study focuses on occupational and educational opportunities associated with diagnosing and treating acute, episodic, or chronic illness independently or as part of a healthcare team. This program of study includes exploration of patient treatment and rehabilitative programs that help build or restore daily living skills to persons with disabilities or developmental delays.

Secondary Courses for High School Credit

Level 1	• Principles of Health Science – AC – 1 Credit
Level 2	• Medical Terminology – DC – 1 Credit
Level 3	• Health Science Clinical – CE – 2 Credit
Level 4	• Practicum in Health Science – PCT - CE - 2 Credits
Additional Courses	 Anatomy and Physiology - Reg/DC – 1 Credit Medical Microbiology - 1 Credit Pathophysiology – 1 Credit

*Articulated Credit (AC) / Continuing Education (CE) / Dual Credit (DC) Certification offerings can vary from year to year



Aligned Advanced Academic Courses

AP Biology	AP Chemistry
IB Biology SL	IB Chemistry SI
IB Biology HL	IB Chemistry H

Dual Credit

AP or IB

Dual credit offerings will vary by local education agency.

Students should be advised to consider these course opportunities to enrich their preparation. AP or IB courses not listed under the Secondary Courses for High School Credit section of this framework document do not count towards concentrator/completer status for this program of study.

Work-Based Learning and Expanded Learning Opportunities

Work-Based	Learning
	Activities

- Intern with a medical assistant at a community clinic, hospital, assisted living, or long-term care facility
 - Participate in job shadowing experiences such as Emergency Medical Services (EMS) ride along or hospital/clinical job
 - Participate in Health Occupation Students of America (HOSA) or SkillsUSA
 - Participate in Advanced Medical Ambulance Bus (AMBUS) event or Community Emergency Response Team (CERT) event

Aligned Industry-Based Certifications

- Certified Nurse Aide (CNA)
- Patient Care Technician

Expanded Learning

Opportunities

Phlebotomy Technician



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Example Postsecondary Opportunities

Apprenticeships

Medical Assistant

Associate Degrees

- **Emergency Medical Technology**
- Radiologic Technology/Science

Bachelor's Degrees

- **Emergency Medical Technology**
- Medical Insurance Coding

Master's, Doctoral, and Professional Degrees

- Medicine
- **Occupational Therapy**

Additional Stackable IBCs/License

Registered Diagnostic Medical Sonographer



Example Aligned Occupations

Medical Assistants

Median Wage: \$36,834 Annual Openings: 11,638 10-Year Growth: 29%

Dental Hygienists

Median Wage: \$79,663 Annual Openings: 1,352 10-Year Growth: 32%

Physician Assistants

Median Wage: \$127,332 Annual Openings: 974 10-Year Growth: 41%

Data Source: TexasWages, Texas Workforce Commission. Retrieved 3/8/2024.



For more information visit:

https://tea.texas.gov/academics/college-career-and-militaryprep/career-and-technical-education/programs-of-studyadditional-resources



HEALTH SCIENCE - CERTIFIED NURSE AIDE/PHLEBOTOMY/PATIENT CARE TECHNICIAN:

PRINCIPLES OF HEALTH SCIENCE - AC (HPRS 1201) Grades: 9 Prerequisite: None

The Principles of Health Science course is designed to provide an overview of the therapeutic, diagnostic, health informatics, support services, and biotechnology research and development systems of the health care industry.

HPRS 1201 – An overview of the roles of various members of the healthcare system, educational requirements, and issues affecting the delivery of health care.

MEDICAL TERMINOLOGY - DC (HITT 1305 & HITT 1353) Grades: 10 Prerequisite: Principles of Health Science

The Medical Terminology course is designed to introduce students to the structure of medical terms, including prefixes, suffixes, word roots, singular and plural forms, and medical abbreviations. The course allows students to achieve comprehension of medical vocabulary appropriate to medical procedures, human anatomy and physiology, and pathophysiology.

HITT 1305 – Study of word origin and structure through the introduction of prefixes, suffixes, root words, plurals, abbreviations and symbols, surgical procedures, medical specialties, and diagnostic procedures.

HITT 1353 – Concepts of privacy, security, confidentiality, ethics, healthcare legislation, and regulations relating to the maintenance and use of health information.

HEALTH SCIENCE CLINICAL - CE

(NURA 1001 + NURA 2005) Grade Placement: 11-12

Prerequisites: Medical Terminology – DC + Complete Galveston College Health Requirements/Background Check Corequisite: Health Science Theory. This course must be taken concurrently with Health Science Theory and may not be taken as a stand-alone course.

The Health Science Clinical course is designed to provide for the development of advanced knowledge and skills related to a wide variety of health careers. Students will employ hands-on experiences for continued knowledge and skill development.

NURA 1001 – Train to become a Certified Nurse Aid (CNA) in a long-term care facility. Course topics include residents' rights, communication, safety observation, reporting and basic comfort and care. Clinical hours are scheduled at various times by the instructor.

NURA 2005 - Clinical Lab for NURA 1001

PRACTICUM IN HEALTH SCIENCE - CE (PLAB 1023 + PLAB 1060 & NUPC 1020) Grades: 12

Prerequisites: Health Science Clinical - CE + Complete Galveston College Health Requirements/Background Check

The Practicum in Health Science course is designed to give students practical application of previously studied knowledge and skills. Practicum experiences can occur in a variety of locations appropriate to the nature and level of experience.

PLAB 1023 – Get started as an entry-level phlebotomist and prepare for your certification exam with the National Healthcare Association (NHA). Study the skills used in the performance of a variety of blood collection methods. Clinical hours are scheduled at various times by the instructor and may need to be simulated due to COVID-19 restrictions.

PLAB 1060 – Clinical Lab for PLAB 1023

NUPC 1020 – This course is a capstone course that encompasses and reviews the skills needed for aides, EKG techs, and phlebotomists. Students will have the opportunity to earn the credentials needed to work as a Patient care Technician (PCT) in most major medical facilities.

Credit: 1

Credit: 1

Credits: 2

ANATOMY AND PHYSIOLOGY

Grades: 11-12 Prerequisite: Biology and one credit in Chemistry, IPC or Physics

The Anatomy and Physiology course is designed for students to conduct laboratory and field investigations, use scientific methods during investigations, and make informed decisions using critical thinking and scientific problem solving. Students in Anatomy and Physiology will study a variety of topics, including the structure and function of the human body and the interaction of body systems for maintaining homeostasis. <u>This course satisfies a high school science graduation requirement and students shall be awarded one credit for successful completion of this course.</u>

ANATOMY AND PHYSIOLOGY - DC

(BIOL 2401 & BIOL 2402) Grades: 11-12 Prerequisite: Biology and one credit in Chemistry, IPC or Physics + TSIA Satisfied in literacy.

The Anatomy and Physiology course is designed for students to conduct laboratory and field investigations, use scientific methods during investigations, and make informed decisions using critical thinking and scientific problem solving. Students in Anatomy and Physiology will study a variety of topics, including the structure and function of the human body and the interaction of body systems for maintaining homeostasis. *This course satisfies a high school science graduation requirement and students shall be awarded one credit for successful completion of this course.*

BIOL 2401 – Study of the structure and function of human anatomy, including the neuroendocrine, integumentary, musculoskeletal, digestive, urinary, reproductive, respiratory, and circulatory systems. Content

may be either integrated or specialized. The first of a two-semester course sequence introducing the normal structure and function of the human body, its cells, tissues, organs, and organ systems. Major body systems to be studied in this course include the integumentary, skeletal, muscular, and nervous systems. This course serves as a foundation for students of Associate Degree in Nursing, Allied Health disciplines and physical education majors.

BIOL 2402 – Study of the structure and function of human anatomy, including the neuroendocrine, integumentary, musculoskeletal, digestive, urinary, reproductive, respiratory, and circulatory systems. Content

may be either integrated or specialized. The second of a two-semester course sequence introducing the normal structure and function of the human body, its cells, tissues, organs, and organ systems. Major body systems to be studied in this course include the endocrine, circulatory, respiratory, digestive, excretory, and reproductive systems. This course serves as a foundation for students of Associate Degree in Nursing, Allied Health disciplines and physical education majors.

MEDICAL MICROBIOLOGY

Grade: 11-12 Prerequisite: Biology, Chemistry and at least one credit from a course in the Health Science Career Cluster

The Medical Microbiology course is designed to explore the microbial world, studying topics such as pathogenic and non-pathogenic microorganisms, laboratory procedures, identifying microorganisms, drug-resistant organisms, and emerging diseases. <u>This course satisfies a high school science graduation requirement and students shall be awarded one credit for successful completion of this course</u>.

PATHOPHYSIOLOGY Grade: 12

Prerequisite: Biology, Chemistry and at least one credit from a level 2 course in the Health Science Career Cluster (preferably, Anatomy and Physiology)

The Pathophysiology course is designed for students to conduct laboratory and field investigations, use scientific methods during investigations, and make informed decisions using critical thinking and scientific problem solving. Students in Pathophysiology will study disease processes and how humans are affected. Emphasis is placed on prevention and treatment of disease. *This course satisfies a high school science graduation requirement and students shall be awarded one credit for successful completion of this course.*

Credit: 1

Credit: 1

Galveston College CONTINUING EDUCATION 409-944-1344 | CE@GC.EDU

GALVESTON COLLEGE - CE - OPEN

STEP 1: COMPLETE BACKGROUND CHECK

Annual background checks no more than 60 days prior to class start date are required to ensure the safety of patients treated by students in the clinical education programs. The reports are typically completed within 3-5 business days; however, you must submit your order in sufficient time for the report to be reviewed by the program coordinator or associated clinical site prior to starting the rotation. The background check is conducted by PreCheck, Inc., a firm specializing in the health care industry.

All Students must have a satisfactory criminal history; this is obtained through Student Check at <u>www.mystudentcheck.com</u>. The following may disqualify a student from the Continuing Education Healthcare Programs at Galveston College (GC) Programs: felony convictions, misdemeanor convictions involving crimes against persons: felony deferred adjudications for the sale possession, distribution, or transfer of narcotics or controlled substance; and registered sex offender, etc. Students with any criminal history must complete and submit their criminal history check report to the Director of CE for additional evaluation, which is necessary to determine eligibility into the GC program and access to clinical sites. This process can take several weeks, so please do not delay. If a student is ruled ineligible for a CE program, the money spent on a criminal history check and with Student Check is non-refundable. If the student has any concerns with their criminal history, before enrolling we encourage the student to print at a minimal fee a less detailed report at<u>https://records.txdps.state.tx.us/DpsWebsite/CriminalHistory/</u>

GETTING STARTED

Follow link to <u>MyStudentCheck (https://candidate.precheck.com/StudentCheck?schoolid=15593</u> Cost approx. \$59.00

(Applicable state sales tax will be collected based on the location of your school.)

- Confirm the school name matches: Galveston College CE OPEN
- Select your program from drop down menu, and then select background check.
- Log in with your username and password or please create a new account.
- Enter the required information, provide authorization, and continue to enter payment information.
- If you need further assistance, please contact PreCheck at <u>StudentCheck@PreCheck.com</u>.
- You will be provided with a receipt and confirmation page when your order is placed.

- 1. What does PreCheck do with my information? Your information will only be used for the services ordered. Your credit will not be investigated and your name will not be given out to any businesses.
- 2. I selected the wrong school, program or incorrect information. Please email <u>StudentCheck@PreCheck.com</u> with the details.
- Do I get a copy of the backgroundreport? Yes, go to <u>www.mystudentcheck.com</u>, log in, and select Check Status.
- 4. I was denied entry into a program because of information on the report, who can Icontact?

Call PreCheck's Adverse Action hotline at 800-203-1654.

STEP 2: SUBMIT DOCUMENTS TO C.E. OFFICE!

Review and submit your health requirements: How to find your healthcare records: <u>https://www.cdc.gov/vaccines/adults/vaccination-records.html</u> The following documentation is required for admission into of the Continuing Education Healthcare Programs at Galveston College. The documentation listed below must be submitted to the CE Office. The cost for creating a student check account is not included in your course tuition and varies per program. The penalty for falsifying information on this application is immediate withdrawal without a refund. Results are good for 1 year.

Required Documentation for CE HEALTHCARE Programs

Item	Nurse Aide	PHLEB.	EKG	Clinical Medical Assistant	РСТ	Massage	Notes
DOCUMENTS							
RELEASE FORM:	Required	Required	Required	Required	Required	Required	
Copy of Photo ID	Required	Required	Required	Required	Required	Required	Must be a signed state ID
Copy of Social Security Card	Required	Optional	Optional	Optional	Optional	Required	May be ITIN residency card
Transcripts/GED *		Required*	Required*	Required*	Required*	Required*	* N/A for high school students
Healthcare providers CPR Card	Provided	Required	Required	Required	Required	Required	
Criminal Background Check*	Required	Required	Required	Required	Required	Required	*w/release form if HS student
HIPPA Training Modules						Required	
Employability Status Check	GC Staff						
Physical Exam Form	Required	Required	Required		Required	Required	
Drug Screening* (5 panel)		Required*		Required*	Required*		*within 30 days of class start
IMMUNIZATIONS							
TB BLOOD TEST (Interferon Gold)	Required	Required	Required	Required	Required	Required	CNA accept PPD skin test
Chest X-ray (if applicable)							
TDAP (tetanus, diphtheria, pertussis)	Required	Required	Required	Required	Required	Preferred	Within 10 years
MMR (two doses)	Required	Required	Required	Required	Required	Preferred	
Hepatitis B Series * may be 2-3	Required	Required	Required	Required	Required	Preferred	* Series
Flu (Influenza) vaccine * Current	Required	Required	Required	Required	Required	Required	* Exempt summer
Varicella or date of infection*	Required	Required	Required	Required	Required	Preferred	* Or Date/Year of Chicken pox
Meningitis *						Required	* Massage (under age 22)
Covid-19* (highly recommended)	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended	*recommended



Health Science Career Cluster

The Health Science career cluster focuses on planning, managing, and providing therapeutic services, diagnostics services, health informatics, support services, and biotechnology research and development. This career cluster includes occupations ranging from medical assistant, registered nurse, and physical therapist to forensic science technician and athletic trainer.

Statewide Program of Study:

Diagnostic and Therapeutic Services – Emergency Medical Technician (EMT)

The Diagnostic and Therapeutic Services program of study focuses on occupational and educational opportunities associated with diagnosing and treating acute, episodic, or chronic illness independently or as part of a healthcare team. This program of study includes exploration of patient treatment and rehabilitative programs that help build or restore daily living skills to persons with disabilities or developmental delays.

Secondary Courses for High School Credit

Level 1	 Principles of Health Science – AC – 1 Credit
Level 2	• Medical Terminology – DC – 1 Credit
Level 3	Health Science Clinicals – CE – 2 Credits
Level 4	Emergency Medical Technician–Basic – DC & CE – 2 Credits
Additional Courses	 Anatomy and Physiology – Reg/DC – 1 Credit Medical Microbiology – 1 Credit Pathophysiology – 1 Credit

*Articulated Credit (AC) / Continuing Education (CE) / Dual Credit (DC) Certification offerings can vary from year to year



Aligned Advanced Academic Courses

AP or IB	AP Biology IB Biology SL IB Biology HL	AP Chemistry IB Chemistry SL IB Chemistry HL
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Dual Credit

Dual credit offerings will vary by local education agency.

Students should be advised to consider these course opportunities to enrich their preparation. AP or IB courses not listed under the Secondary Courses for High School Credit section of this framework document do not count towards concentrator/completer status for this program of study.

Work-Based Learning and Expanded Learning Opportunities

Work-Based Learning	•	Intern with a medical assistant at a community clinic, hospital, assisted living, or long-term care facility
Activities	•	Participate in job shadowing experiences such as Emergency Medical Services (EMS) ride along or hospital/clinical job

- **Expanded Learning Opportunities**
- in job shadowing experiences such as Emergency vices (EMS) ride along or hospital/clinical job Participate in Health Occupation Students of America (HOSA) or SkillsUSA
- Participate in Advanced Medical Ambulance Bus (AMBUS) event or Community Emergency Response Team (CERT) event

Aligned Industry-Based Certifications

Emergency Medical Technician–Basic



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Example Postsecondary Opportunities

Apprenticeships

Medical Assistant

Associate Degrees

- **Emergency Medical Technology**
- Radiologic Technology/Science

Bachelor's Degrees

- **Emergency Medical Technology**
- Medical Insurance Coding

Master's, Doctoral, and Professional Degrees

- Medicine
- **Occupational Therapy**

Additional Stackable IBCs/License

Registered Diagnostic Medical Sonographer



Example Aligned Occupations

Medical Assistants

Median Wage: \$36,834 Annual Openings: 11,638 10-Year Growth: 29%

Dental Hygienists

Median Wage: \$79,663 Annual Openings: 1,352 10-Year Growth: 32%

Physician Assistants

Median Wage: \$127,332 Annual Openings: 974 10-Year Growth: 41%

Data Source: TexasWages, Texas Workforce Commission. Retrieved 3/8/2024.



For more information visit:



HEALTH SCIENCE – EMERGENCY MEDICAL TECHNICIAN (EMT):

PRINCIPLES OF HEALTH SCIENCE - AC (HPRS 1201) Grades: 9 Prerequisite: None

The Principles of Health Science course is designed to provide an overview of the therapeutic, diagnostic, health informatics, support services, and biotechnology research and development systems of the health care industry.

HPRS 1201 – An overview of the roles of various members of the healthcare system, educational requirements, and issues affecting the delivery of health care.

MEDICAL TERMINOLOGY - DC (HITT 1305 & HITT 1353)

Grades: 10 Prerequisite: Principles of Health Science

The Medical Terminology course is designed to introduce students to the structure of medical terms, including prefixes, suffixes, word roots, singular and plural forms, and medical abbreviations. The course allows students to achieve comprehension of medical vocabulary appropriate to medical procedures, human anatomy and physiology, and pathophysiology.

HITT 1305 – Study of word origin and structure through the introduction of prefixes, suffixes, root words, plurals, abbreviations and symbols, surgical procedures, medical specialties, and diagnostic procedures.

HITT 1353 - Concepts of privacy, security, confidentiality, ethics, healthcare legislation, and regulations relating to the maintenance and use of health information.

HEALTH SCIENCE CLINICAL - CE

(NURA 1001 + NURA 2005) Grade Placement: 11-12 Prerequisites: Medical Terminology – DC + Complete Galveston College Health Requirements/Background Check

Corequisite: Health Science Theory. This course must be taken concurrently with Health Science Theory and may not be taken as a stand-alone course.

The Health Science Clinical course is designed to provide for the development of advanced knowledge and skills related to a wide variety of health careers. Students will employ hands-on experiences for continued knowledge and skill development.

NURA 1001 – Train to become a Certified Nurse Aid (CNA) in a long-term care facility. Course topics include residents' rights, communication, safety observation, reporting and basic comfort and care. Clinical hours are scheduled at various times by the instructor.

NURA 2005 - Clinical Lab for NURA 1001

EMERGENCY MEDICAL TECHNICIAN (EMT) - BASIC – DC & CE (EMSP 1501/EMSP 1160 + EMSP 1091) Grades: 12

Prerequisites: Health Science Clinical – CE + Complete Galveston College Health Requirements/Background Check

Emergency Medical Technician (EMT)—Basic instructs students to meet and exceed the standard knowledge needed to be a valid Emergency Medical Technician. The curriculum includes skills necessary for a student to provide entry level emergency medical care, life support, and ambulance service. The EMT—Basic course is an introductory course to concepts, knowledge, and skills needed by EMTs in the areas of communications, transportation, and recordkeeping. Students interested in working in public safety, including fire, police, and ambulance operators will be capable of performing the job expectations of an EMT safely and effectively after the completion of this course.

EMSP 1501 – Preparation for certification as an Emergency Medical Technician (EMT). Includes all the skills necessary to provide emergency medical care at a basic life support level with an emergency service or other specialized services.

EMSP 1160 – A health-related work-based learning experience that enables the student to apply specialized occupational theory, skills, and concepts.

EMSP 1091 - Topics address recently identified current events, skills, knowledge, and/or attitudes and behaviors pertinent to the technology or occupation and relevant to the professional development of the student. This course was designed to be repeated multiple times to improve student proficiency.

Credit: 1

Credit: 1

Credits: 2

ANATOMY AND PHYSIOLOGY

Grades: 11-12 Prerequisite: Biology and one credit in Chemistry, IPC or Physics

The Anatomy and Physiology course is designed for students to conduct laboratory and field investigations, use scientific methods during investigations, and make informed decisions using critical thinking and scientific problem solving. Students in Anatomy and Physiology will study a variety of topics, including the structure and function of the human body and the interaction of body systems for maintaining homeostasis. <u>This course satisfies a high school science graduation requirement and students shall be awarded one credit for successful completion of this course.</u>

ANATOMY AND PHYSIOLOGY - DC

(BIOL 2401 & BIOL 2402) Grades: 11-12 Prerequisite: Biology and one credit in Chemistry, IPC or Physics + TSIA Satisfied in literacy.

The Anatomy and Physiology course is designed for students to conduct laboratory and field investigations, use scientific methods during investigations, and make informed decisions using critical thinking and scientific problem solving. Students in Anatomy and Physiology will study a variety of topics, including the structure and function of the human body and the interaction of body systems for maintaining homeostasis. *This course satisfies a high school science graduation requirement and students shall be awarded one credit for successful completion of this course.*

BIOL 2401 – Study of the structure and function of human anatomy, including the neuroendocrine, integumentary, musculoskeletal, digestive, urinary, reproductive, respiratory, and circulatory systems. Content

may be either integrated or specialized. The first of a two-semester course sequence introducing the normal structure and function of the human body, its cells, tissues, organs, and organ systems. Major body systems to be studied in this course include the integumentary, skeletal, muscular, and nervous systems. This course serves as a foundation for students of Associate Degree in Nursing, Allied Health disciplines and physical education majors.

BIOL 2402 – Study of the structure and function of human anatomy, including the neuroendocrine, integumentary, musculoskeletal, digestive, urinary, reproductive, respiratory, and circulatory systems. Content

may be either integrated or specialized. The second of a two-semester course sequence introducing the normal structure and function of the human body, its cells, tissues, organs, and organ systems. Major body systems to be studied in this course include the endocrine, circulatory, respiratory, digestive, excretory, and reproductive systems. This course serves as a foundation for students of Associate Degree in Nursing, Allied Health disciplines and physical education majors.

MEDICAL MICROBIOLOGY

Grade: 11-12 Prerequisite: Biology, Chemistry and at least one credit from a course in the Health Science Career Cluster

The Medical Microbiology course is designed to explore the microbial world, studying topics such as pathogenic and non-pathogenic microorganisms, laboratory procedures, identifying microorganisms, drug-resistant organisms, and emerging diseases. <u>This course satisfies a high school science graduation requirement and students shall be awarded one credit for successful completion of this course</u>.

PATHOPHYSIOLOGY Grade: 12

Prerequisite: Biology, Chemistry and at least one credit from a level 2 course in the Health Science Career Cluster (preferably, Anatomy and Physiology)

The Pathophysiology course is designed for students to conduct laboratory and field investigations, use scientific methods during investigations, and make informed decisions using critical thinking and scientific problem solving. Students in Pathophysiology will study disease processes and how humans are affected. Emphasis is placed on prevention and treatment of disease. *This course satisfies a high school science graduation requirement and students shall be awarded one credit for successful completion of this course.*

Credit: 1

Credit: 1

Galveston College CONTINUING EDUCATION 409-944-1344 | CE@GC.EDU

GALVESTON COLLEGE - CE - OPEN

STEP 1: COMPLETE BACKGROUND CHECK

Annual background checks no more than 60 days prior to class start date are required to ensure the safety of patients treated by students in the clinical education programs. The reports are typically completed within 3-5 business days; however, you must submit your order in sufficient time for the report to be reviewed by the program coordinator or associated clinical site prior to starting the rotation. The background check is conducted by PreCheck, Inc., a firm specializing in the health care industry.

All Students must have a satisfactory criminal history; this is obtained through Student Check at <u>www.mystudentcheck.com</u>. The following may disqualify a student from the Continuing Education Healthcare Programs at Galveston College (GC) Programs: felony convictions, misdemeanor convictions involving crimes against persons: felony deferred adjudications for the sale possession, distribution, or transfer of narcotics or controlled substance; and registered sex offender, etc. Students with any criminal history must complete and submit their criminal history check report to the Director of CE for additional evaluation, which is necessary to determine eligibility into the GC program and access to clinical sites. This process can take several weeks, so please do not delay. If a student is ruled ineligible for a CE program, the money spent on a criminal history check and with Student Check is non-refundable. If the student has any concerns with their criminal history, before enrolling we encourage the student to print at a minimal fee a less detailed report at<u>https://records.txdps.state.tx.us/DpsWebsite/CriminalHistory/</u>

GETTING STARTED

Follow link to <u>MyStudentCheck (https://candidate.precheck.com/StudentCheck?schoolid=15593</u> Cost approx. \$59.00

(Applicable state sales tax will be collected based on the location of your school.)

- Confirm the school name matches: Galveston College CE OPEN
- Select your program from drop down menu, and then select background check.
- Log in with your username and password or please create a new account.
- Enter the required information, provide authorization, and continue to enter payment information.
- If you need further assistance, please contact PreCheck at <u>StudentCheck@PreCheck.com</u>.
- You will be provided with a receipt and confirmation page when your order is placed.

- 1. What does PreCheck do with my information? Your information will only be used for the services ordered. Your credit will not be investigated and your name will not be given out to any businesses.
- 2. I selected the wrong school, program or incorrect information. Please email <u>StudentCheck@PreCheck.com</u> with the details.
- Do I get a copy of the backgroundreport? Yes, go to <u>www.mystudentcheck.com</u>, log in, and select Check Status.
- 4. I was denied entry into a program because of information on the report, who can Icontact?

Call PreCheck's Adverse Action hotline at 800-203-1654.

STEP 2: SUBMIT DOCUMENTS TO C.E. OFFICE!

Review and submit your health requirements: How to find your healthcare records: <u>https://www.cdc.gov/vaccines/adults/vaccination-records.html</u> The following documentation is required for admission into of the Continuing Education Healthcare Programs at Galveston College. The documentation listed below must be submitted to the CE Office. The cost for creating a student check account is not included in your course tuition and varies per program. The penalty for falsifying information on this application is immediate withdrawal without a refund. Results are good for 1 year.

Required Documentation for CE HEALTHCARE Programs

Item	Nurse Aide	PHLEB.	EKG	Clinical Medical Assistant	РСТ	Massage	Notes
DOCUMENTS							
RELEASE FORM:	Required	Required	Required	Required	Required	Required	
Copy of Photo ID	Required	Required	Required	Required	Required	Required	Must be a signed state ID
Copy of Social Security Card	Required	Optional	Optional	Optional	Optional	Required	May be ITIN residency card
Transcripts/GED *		Required*	Required*	Required*	Required*	Required*	* N/A for high school students
Healthcare providers CPR Card	Provided	Required	Required	Required	Required	Required	
Criminal Background Check*	Required	Required	Required	Required	Required	Required	*w/release form if HS student
HIPPA Training Modules						Required	
Employability Status Check	GC Staff						
Physical Exam Form	Required	Required	Required		Required	Required	
Drug Screening* (5 panel)		Required*		Required*	Required*		*within 30 days of class start
IMMUNIZATIONS							
TB BLOOD TEST (Interferon Gold)	Required	Required	Required	Required	Required	Required	CNA accept PPD skin test
Chest X-ray (if applicable)							
TDAP (tetanus, diphtheria, pertussis)	Required	Required	Required	Required	Required	Preferred	Within 10 years
MMR (two doses)	Required	Required	Required	Required	Required	Preferred	
Hepatitis B Series * may be 2-3	Required	Required	Required	Required	Required	Preferred	* Series
Flu (Influenza) vaccine * Current	Required	Required	Required	Required	Required	Required	* Exempt summer
Varicella or date of infection*	Required	Required	Required	Required	Required	Preferred	* Or Date/Year of Chicken pox
Meningitis *						Required	* Massage (under age 22)
Covid-19* (highly recommended)	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended	*recommended

Health Science Career Cluster

The Health Science career cluster focuses on planning, managing, and providing therapeutic services, diagnostics services, health informatics, support services, and biotechnology research and development. This career cluster includes occupations ranging from medical assistant, registered nurse, and physical therapist to forensic science technician and athletic trainer.

Statewide Program of Study:

NEW

Diagnostic and Therapeutic Services – Imaging Technology (Radiography)

The Diagnostic and Therapeutic Services program of study focuses on occupational and educational opportunities associated with diagnosing and treating acute, episodic, or chronic illness independently or as part of a healthcare team. This program of study includes exploration of patient treatment and rehabilitative programs that help build or restore daily living skills to persons with disabilities or developmental delays.

Secondary Courses for High School Credit

Level 1	 Introduction to Imaging Technology – AC – 1 Credit
Level 2	 Imaging Technology I – DC – 1 Credit + TBD
Level 3	Imaging Technology II – DC – 2 Credits
Level 4	 Practicum in Health Science – Imaging Technology (Radiography) – DC – 2 Credits
Additional Courses	 Medical Terminology – DC – 1 Credit Anatomy and Physiology – Reb/DC – 1 Credit Medical Microbiology – 1 Credit Pathophysiology – 1 Credit *Articulated Credit (AC) / Continuing Education (CE) / Dual Credit (DC) Certification offerings can vary from year to year
	Projectional radiography



Aligned Advanced Academic Courses

AP or IB	AP Biology IB Biology SL IB Biology HL	AP Chemistry IB Chemistry SL IB Chemistry HL
Dual Credit	Dual credit offerings will vary	by local education agency.

Students should be advised to consider these course opportunities to enrich their preparation. AP or IB courses not listed under the Secondary Courses for High School Credit section of this framework document do not count towards concentrator/completer status for this program of study.

Work-Based Learning and Expanded Learning Opportunities

Work-Based Learning Activities	 Intern with a medical assistant at a community clinic, hospital, assisted living, or long-term care facility Participate in job shadowing experiences such as Emergency Medical Services (EMS) ride along or hospital/clinical job
Expanded Learning Opportunities	 Participate in Health Occupation Students of America (HOSA) or SkillsUSA Participate in Advanced Medical Ambulance Bus (AMBUS) event or Community Emergency Response Team (CERT) event

Aligned Industry-Based Certifications

• Limited Medical Radiologic Technologist

Galveston ISD does not discriminate on the basis of race, color, national origin, sex, disability or age in its programs or activities and provides equal access to the Boy Scouts and other designated youth groups. The following person has been designated to handle inquiries regarding the nondiscrimination policies: Deputy Superintendent of HR, Dyann Polzin, 3904 Avenue T, Galveston, Texas, 77550, 409-766-5100. dyannoolzin@gisd.org



Example Postsecondary Opportunities

Apprenticeships

Medical Assistant

Associate Degrees

- Emergency Medical Technology
- Radiologic Technology/Science

Bachelor's Degrees

- Emergency Medical Technology
- Medical Insurance Coding

Master's, Doctoral, and Professional Degrees

- Medicine
- Occupational Therapy

Additional Stackable IBCs/License

Registered Diagnostic Medical Sonographer



Example Aligned Occupations

Medical Assistants

Median Wage: \$36,834 Annual Openings: 11,638 10-Year Growth: 29%

Radiography

Median Wage: \$79,741 Annual Openings: 5,374 10-Year Growth: 28%

Physician Assistants

Median Wage: \$127,332 Annual Openings: 974 10-Year Growth: 41%

Data Source: TexasWages, Texas Workforce Commission. Retrieved 3/8/2024.



For more information visit: https://tea.texas.gov/academics/college-career-and-militaryprep/career-and-technical-education/programs-of-studyadditional-resources

HEALTH SCIENCE – IMAGING TECHNOLOGY (RADIOGRAPHY):

INTRODUCTION TO IMAGING TECHNOLOGY – AC (RADR 1309 & RADR 2313) Grades: 9

Prerequisite: None

The Introduction to Imaging Technology course provides students with an introduction to the basic principles, guidelines, and knowledge needed for members of the medical imaging field. This course will provide the student with an overview of radiography and its role within the health care system, including basic radiologic terminology, equipment, basic image production, patient positioning, and radiation safety. The student will study human anatomic structures and organs, as well as the standard positioning associated with the chest, abdomen, upper and lower extremities.

RADR 1309 – An overview of the historical development of radiography, basic radiation protection, an introduction to medical terminology, ethical and legal issues for health care professionals, and an orientation to the profession and to the health care system. Patient assessment, infection control procedures, emergency and safety procedures, communication and patient interaction skills, and basic pharmacology are also included.

RADR 2313 – Includes the effects of radiation on biological systems, genetic and subcellular interactions, and occupational exposure of radiologic personnel.

IMAGINING TECHNOLOGY I – DC (RADR 2209/BIOL 2401 + RADR 1411/MATH ELECTIVE)

Grades: 10

Prerequisite: Introduction to Imaging Technology - AC + TSIA Satisfied in BOTH Literacy and Math

The Imaging Technology I course provides students with the opportunity to learn about standard radiographic positioning and related medical terminology of the chest, abdomen, and upper and lower extremities. The course introduces students to the operation of X-ray equipment, analyzing X-rays, and maintaining diagnostic results. Imaging Technology I prepares students for college, career and military readiness by allowing the student the opportunity to obtain an industry certification, enter the workforce upon graduation from high school, or transition to a postsecondary institution with the prior knowledge to be successful in a radiology career field.

RADR 2209 – Equipment and physics of x-ray production. Includes basic x-ray circuits. Also examines the relationship of conventional and digital equipment components to the imaging process.

BIOL 2401 – Study of the structure and function of human anatomy, including the neuroendocrine, integumentary, musculoskeletal, digestive, urinary, reproductive, respiratory, and circulatory systems. Content

may be either integrated or specialized. The first of a two-semester course sequence introducing the normal structure and function of the human body, its cells, tissues, organs, and organ systems. Major body systems to be studied in this course include the integumentary, skeletal, muscular, and nervous systems. This course serves as a foundation for students of Associate Degree in Nursing, Allied Health disciplines and physical education majors.

RADR 1411 – An introduction to radiographic positioning terminology, the proper manipulation of equipment, positioning and alignment of the anatomical structure and equipment, and evaluation of images for proper demonstration of basis anatomy.

MATH ELECTIVE – Math 1314 is suggested, or you can select one courses from: MATH 1325, MATH 2312, MATH 2413, MATH 2414, MATH 2415, MATH 2318, MATH 2320, MATH 2321, or MATH 2305

IMAGINIING TECHNOLOGY II – DC (RADR 2401/RADR 1313 + RADR 1166/RADR 2305) Grades: 11

Prerequisite: Imagining Technology I - DC + TSIA Satisfied in Literacy

The Imaging Technology II Clinical course provides students with the opportunity to build upon the knowledge learned in Introduction to Imaging Technology and Imaging Technology I. The course prepares students to take the Limited Medical Radiologic Technician Licensing Exam (LMRT) by increasing their depth of knowledge in anatomy, radiology-based physics, positioning, radiation protection, radiation biology, patient care, ethics, imaging techniques, correcting imaging errors, image storage, and equipment while participating in clinical rotations. Additionally, students will identify errors within the radiographic image and describe how to correct the errors. Imaging Technology II Clinical incorporates a clinical component that allows students to gain hands-on experience.

RADR 2401 – A continuation of the study of the proper manipulation of radiographic equipment, positioning and alignment of the anatomical structure and equipment, and evaluation of images for proper demonstration of anatomy and related pathology.

RADR 1313 - Radiographic image quality and the effects of exposure variables.

RADR 1166 - Practical, general workplace training supported by an individualized learning plan developed by the employer, college, and student.



Credits: 2

Credit: 1 + TBD

RADR 2305 – Radiographic imaging technique formulation. Includes equipment, quality control, imaging quality assurance, and the synthesis of all variables in image production.

 PRACTICUM IN HEATLH SCIENCE – IMAGINING TECHNOLOGY (RADIOGRAPHY) - DC
 Credits: 2

 (RADR 1267 & RADR 1367)
 Grades: 12

Prerequisite: Imaging Technology II – DC + TSIA Satisfied in Literacy

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RADR 1267 – Practical, general workplace training supported by an individualized learning plan developed by the employer, college, and student.

RADR 1367 - Practical, general workplace training supported by an individualized learning plan developed by the employer, college, and student.

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GALVESTON COLLEGE - CE - OPEN

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(Applicable state sales tax will be collected based on the location of your school.)

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- Select your program from drop down menu, and then select background check.
- Log in with your username and password or please create a new account.
- Enter the required information, provide authorization, and continue to enter payment information.
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- You will be provided with a receipt and confirmation page when your order is placed.

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- 2. I selected the wrong school, program or incorrect information. Please email <u>StudentCheck@PreCheck.com</u> with the details.
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Required Documentation for CE HEALTHCARE Programs

Item	Nurse Aide	PHLEB.	EKG	Clinical Medical Assistant	РСТ	Massage	Notes
DOCUMENTS							
RELEASE FORM:	Required	Required	Required	Required	Required	Required	
Copy of Photo ID	Required	Required	Required	Required	Required	Required	Must be a signed state ID
Copy of Social Security Card	Required	Optional	Optional	Optional	Optional	Required	May be ITIN residency card
Transcripts/GED *		Required*	Required*	Required*	Required*	Required*	* N/A for high school students
Healthcare providers CPR Card	Provided	Required	Required	Required	Required	Required	
Criminal Background Check*	Required	Required	Required	Required	Required	Required	*w/release form if HS student
HIPPA Training Modules						Required	
Employability Status Check	GC Staff						
Physical Exam Form	Required	Required	Required		Required	Required	
Drug Screening* (5 panel)		Required*		Required*	Required*		*within 30 days of class start
IMMUNIZATIONS							
TB BLOOD TEST (Interferon Gold)	Required	Required	Required	Required	Required	Required	CNA accept PPD skin test
Chest X-ray (if applicable)							
TDAP (tetanus, diphtheria, pertussis)	Required	Required	Required	Required	Required	Preferred	Within 10 years
MMR (two doses)	Required	Required	Required	Required	Required	Preferred	
Hepatitis B Series * may be 2-3	Required	Required	Required	Required	Required	Preferred	* Series
Flu (Influenza) vaccine * Current	Required	Required	Required	Required	Required	Required	* Exempt summer
Varicella or date of infection*	Required	Required	Required	Required	Required	Preferred	* Or Date/Year of Chicken pox
Meningitis *						Required	* Massage (under age 22)
Covid-19* (highly recommended)	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended	*recommended

Health Science Career Cluster

NEW

The Health Science career cluster focuses on planning, managing, and providing therapeutic services, diagnostics services, health informatics, support services, and biotechnology research and development. This career cluster includes occupations ranging from medical assistant, registered nurse, and physical therapist to forensic science technician and athletic trainer.

Statewide Program of Study:

Diagnostic and Therapeutic Services – Surgical Technician

The Diagnostic and Therapeutic Services program of study focuses on occupational and educational opportunities associated with diagnosing and treating acute, episodic, or chronic illness independently or as part of a healthcare team. This program of study includes exploration of patient treatment and rehabilitative programs that help build or restore daily living skills to persons with disabilities or developmental delays.

Secondary Courses for High School Credit

Principles of Health Science – AC – 1 Credit	t
Medical Terminology – DC – 1 Credit	
Health Science Clinical – CE – 2 Credit	
Practicum in Health Science – Surgical Tech	n - DC – 2 Credits
Anatomy and Physiology - Reg/DC – 1 Cree Medical Microbiology - 1 Credit Pathophysiology – 1 Credit	dit
• • •	 Principles of Health Science – AC – 1 Credit Medical Terminology – DC – 1 Credit Health Science Clinical – CE – 2 Credit Practicum in Health Science – Surgical Tech Anatomy and Physiology - Reg/DC – 1 Credit Pathophysiology – 1 Credit Pathophysiology – 1 Credit

*Articulated Credit (AC) / Continuing Education (CE) / Dual Credit (DC) Certification offerings can vary from year to year



Aligned Advanced Academic Courses

AP Biology	AP Chemistry
IB Biology SL	IB Chemistry SI
IB Biology HL	IB Chemistry H

Dual Credit

AP or IB

Dual credit offerings will vary by local education agency.

Students should be advised to consider these course opportunities to enrich their preparation. AP or IB courses not listed under the Secondary Courses for High School Credit section of this framework document do not count towards concentrator/completer status for this program of study.

Work-Based Learning and Expanded Learning Opportunities

Work-Based	Learning
	Activities

- Intern with a medical assistant at a community clinic, hospital, assisted living, or long-term care facility
 - Participate in job shadowing experiences such as Emergency Medical Services (EMS) ride along or hospital/clinical job
 - Participate in Health Occupation Students of America (HOSA) or SkillsUSA
 - Participate in Advanced Medical Ambulance Bus (AMBUS) event or Community Emergency Response Team (CERT) event

Aligned Industry-Based Certifications

- Certified Nurse Aide (CNA)
- Patient Care Technician

Expanded Learning

Opportunities

Phlebotomy Technician



Galveston ISD does not discriminate on the basis of race, color, national origin, sex, disability or age in its programs or activities and provides equal access to the Boy Scouts and other designated youth groups. The following person has been designated to handle inquiries regarding the nondiscrimination policies: Deputy Superintendent of HR, Dyann Polzin, 3904 Avenue T, Galveston, Texas, 77550, 409-766-5100, dyannpolzin@gisd.org



Example Postsecondary Opportunities

Apprenticeships

Medical Assistant

Associate Degrees

- **Emergency Medical Technology**
- Radiologic Technology/Science

Bachelor's Degrees

- **Emergency Medical Technology**
- Medical Insurance Coding

Master's, Doctoral, and Professional Degrees

- Medicine
- **Occupational Therapy**

Additional Stackable IBCs/License

Registered Diagnostic Medical Sonographer



Example Aligned Occupations

Medical Assistants

Median Wage: \$36,834 Annual Openings: 11,638 10-Year Growth: 29%

Dental Hygienists

Median Wage: \$79,663 Annual Openings: 1,352 10-Year Growth: 32%

Physician Assistants

Median Wage: \$127,332 Annual Openings: 974 10-Year Growth: 41%

Data Source: TexasWages, Texas Workforce Commission. Retrieved 3/8/2024.



For more information visit:



HEALTH SCIENCE - SURGICAL TECHNICIAN:

PRINCIPLES OF HEALTH SCIENCE - AC (HPRS 1201) Grades: 9 Prerequisite: None

The Principles of Health Science course is designed to provide an overview of the therapeutic, diagnostic, health informatics, support services, and biotechnology research and development systems of the health care industry.

HPRS 1201 - An overview of the roles of various members of the healthcare system, educational requirements, and issues affecting the delivery of health care.

MEDICAL TERMINOLOGY - DC (HITT 1305 & HITT 1353) Grades: 10 Prerequisite: Principles of Health Science

The Medical Terminology course is designed to introduce students to the structure of medical terms, including prefixes, suffixes, word roots, singular and plural forms, and medical abbreviations. The course allows students to achieve comprehension of medical vocabulary appropriate to medical procedures, human anatomy and physiology, and pathophysiology.

HITT 1305 - Study of word origin and structure through the introduction of prefixes, suffixes, root words, plurals, abbreviations and symbols, surgical procedures, medical specialties, and diagnostic procedures.

HITT 1353 - Concepts of privacy, security, confidentiality, ethics, healthcare legislation, and regulations relating to the maintenance and use of health information.

HEALTH SCIENCE CLINICAL - CE

(NURA 1001 + NURA 2005) Grade Placement: 11-12

Prerequisites: Medical Terminology - DC + Complete Galveston College Health Requirements/Background Check Corequisite: Health Science Theory. This course must be taken concurrently with Health Science Theory and may not be taken as a stand-alone course.

The Health Science Clinical course is designed to provide for the development of advanced knowledge and skills related to a wide variety of health careers. Students will employ hands-on experiences for continued knowledge and skill development.

NURA 1001 - Train to become a Certified Nurse Aid (CNA) in a long-term care facility. Course topics include residents' rights, communication, safety observation, reporting and basic comfort and care. Clinical hours are scheduled at various times by the instructor.

NURA 2005 - Clinical Lab for NURA 1001

PRACTICUM IN HEALTH SCIENCE - SURGICAL TECHNICIAN (NON-TSIA SATISFIED) - DC Credits: 2 (MDCA 1309 & SRGT 1505)

Grades: 12

Prerequisites: Health Science Clinical - CE + Complete Galveston College Health Requirements/Background Check

The Practicum in Health Science course is designed to give students practical application of previously studied knowledge and skills. Practicum experiences can occur in a variety of locations appropriate to the nature and level of experience.

MDCA 1309 - Emphasis on structure and function of human cells, tissues, organs, and systems with overview of common pathophysiology.

SRGT 1505 - Orientation to surgical technology theory, surgical pharmacology and anesthesia, technological sciences, and patient care concepts.

NEW

Credit: 1

Credit: 1

PRACTICUM IN HEALTH SCIENCE - SURGICAL TECHNICIAN (TSIA 2 SATISFIED) - DC (SCIT 1307 & SRGT 1505)

Grades: 12

Prerequisites: Health Science Clinical - CE + Complete Galveston College Health Requirements/Background Check + TSIA Satisfied in Literacy

The Practicum in Health Science course is designed to give students practical application of previously studied knowledge and skills. Practicum experiences can occur in a variety of locations appropriate to the nature and level of experience.

SCIT 1307 - An applied systematic study of the structure and function of the human body. Includes anatomical terminology, cells, tissues, and the following systems: integumentary, skeletal, muscular, nervous, and endocrine. Emphasis on homeostasis.

SRGT 1505 – Orientation to surgical technology theory, surgical pharmacology and anesthesia, technological sciences, and patient care concepts.

ANATOMY AND PHYSIOLOGY

Grades: 11-12 Prerequisite: Biology and one credit in Chemistry, IPC or Physics

The Anatomy and Physiology course is designed for students to conduct laboratory and field investigations, use scientific methods during investigations, and make informed decisions using critical thinking and scientific problem solving. Students in Anatomy and Physiology will study a variety of topics, including the structure and function of the human body and the interaction of body systems for maintaining homeostasis. This course satisfies a high school science graduation requirement and students shall be awarded one credit for successful completion of this course.

ANATOMY AND PHYSIOLOGY - DC (BIOL 2401 & BIOL 2402)

Grades: 11-12 Prerequisite: Biology and one credit in Chemistry, IPC or Physics + TSIA Satisfied in literacy.

The Anatomy and Physiology course is designed for students to conduct laboratory and field investigations, use scientific methods during investigations, and make informed decisions using critical thinking and scientific problem solving. Students in Anatomy and Physiology will study a variety of topics, including the structure and function of the human body and the interaction of body systems for maintaining homeostasis. This course satisfies a high school science graduation requirement and students shall be awarded one credit for successful completion of this course.

BIOL 2401 - Study of the structure and function of human anatomy, including the neuroendocrine, integumentary, musculoskeletal, digestive, urinary, reproductive, respiratory, and circulatory systems. Content

may be either integrated or specialized. The first of a two-semester course sequence introducing the normal structure and function of the human body, its cells, tissues, organs, and organ systems. Major body systems to be studied in this course include the integumentary, skeletal, muscular, and nervous systems. This course serves as a foundation for students of Associate Degree in Nursing, Allied Health disciplines and physical education majors.

BIOL 2402 - Study of the structure and function of human anatomy, including the neuroendocrine, integumentary, musculoskeletal, digestive, urinary, reproductive, respiratory, and circulatory systems. Content

may be either integrated or specialized. The second of a two-semester course sequence introducing the normal structure and function of the human body, its cells, tissues, organs, and organ systems. Major body systems to be studied in this course include the endocrine, circulatory, respiratory, digestive, excretory, and reproductive systems. This course serves as a foundation for students of Associate Degree in Nursing, Allied Health disciplines and physical education majors.

MEDICAL MICROBIOLOGY

PATHOPHYSIOLOGY

Grade: 11-12 Prerequisite: Biology, Chemistry and at least one credit from a course in the Health Science Career Cluster

The Medical Microbiology course is designed to explore the microbial world, studying topics such as pathogenic and non-pathogenic microorganisms, laboratory procedures, identifying microorganisms, drug-resistant organisms, and emerging diseases. This course satisfies a high school science graduation requirement and students shall be awarded one credit for successful completion of this course.

Grade: 12 Prerequisite: Biology, Chemistry and at least one credit from a level 2 course in the Health Science Career Cluster (preferably, Anatomy and Physiology)

The Pathophysiology course is designed for students to conduct laboratory and field investigations, use scientific methods during investigations, and make informed decisions using critical thinking and scientific problem solving. Students in Pathophysiology will study disease processes and how humans are affected. Emphasis is placed on prevention and treatment of disease. This course satisfies a high school science graduation requirement and students shall be awarded one credit for successful completion of this course.

Credit: 1

Credit: 1

Credit: 1

Credit: 1

Galveston College CONTINUING EDUCATION 409-944-1344 | CE@GC.EDU

GALVESTON COLLEGE - CE - OPEN

STEP 1: COMPLETE BACKGROUND CHECK

Annual background checks no more than 60 days prior to class start date are required to ensure the safety of patients treated by students in the clinical education programs. The reports are typically completed within 3-5 business days; however, you must submit your order in sufficient time for the report to be reviewed by the program coordinator or associated clinical site prior to starting the rotation. The background check is conducted by PreCheck, Inc., a firm specializing in the health care industry.

All Students must have a satisfactory criminal history; this is obtained through Student Check at <u>www.mystudentcheck.com</u>. The following may disqualify a student from the Continuing Education Healthcare Programs at Galveston College (GC) Programs: felony convictions, misdemeanor convictions involving crimes against persons: felony deferred adjudications for the sale possession, distribution, or transfer of narcotics or controlled substance; and registered sex offender, etc. Students with any criminal history must complete and submit their criminal history check report to the Director of CE for additional evaluation, which is necessary to determine eligibility into the GC program and access to clinical sites. This process can take several weeks, so please do not delay. If a student is ruled ineligible for a CE program, the money spent on a criminal history check and with Student Check is non-refundable. If the student has any concerns with their criminal history, before enrolling we encourage the student to print at a minimal fee a less detailed report at<u>https://records.txdps.state.tx.us/DpsWebsite/CriminalHistory/</u>

GETTING STARTED

Follow link to <u>MyStudentCheck (https://candidate.precheck.com/StudentCheck?schoolid=15593</u> Cost approx. \$59.00

(Applicable state sales tax will be collected based on the location of your school.)

- Confirm the school name matches: Galveston College CE OPEN
- Select your program from drop down menu, and then select background check.
- Log in with your username and password or please create a new account.
- Enter the required information, provide authorization, and continue to enter payment information.
- If you need further assistance, please contact PreCheck at <u>StudentCheck@PreCheck.com</u>.
- You will be provided with a receipt and confirmation page when your order is placed.

- 1. What does PreCheck do with my information? Your information will only be used for the services ordered. Your credit will not be investigated and your name will not be given out to any businesses.
- 2. I selected the wrong school, program or incorrect information. Please email <u>StudentCheck@PreCheck.com</u> with the details.
- Do I get a copy of the backgroundreport? Yes, go to <u>www.mystudentcheck.com</u>, log in, and select Check Status.
- 4. I was denied entry into a program because of information on the report, who can Icontact?

Call PreCheck's Adverse Action hotline at 800-203-1654.

STEP 2: SUBMIT DOCUMENTS TO C.E. OFFICE!

Review and submit your health requirements: How to find your healthcare records: <u>https://www.cdc.gov/vaccines/adults/vaccination-records.html</u> The following documentation is required for admission into of the Continuing Education Healthcare Programs at Galveston College. The documentation listed below must be submitted to the CE Office. The cost for creating a student check account is not included in your course tuition and varies per program. The penalty for falsifying information on this application is immediate withdrawal without a refund. Results are good for 1 year.

Required Documentation for CE HEALTHCARE Programs

Item	Nurse Aide	PHLEB.	EKG	Clinical Medical Assistant	РСТ	Massage	Notes
DOCUMENTS							
RELEASE FORM:	Required	Required	Required	Required	Required	Required	
Copy of Photo ID	Required	Required	Required	Required	Required	Required	Must be a signed state ID
Copy of Social Security Card	Required	Optional	Optional	Optional	Optional	Required	May be ITIN residency card
Transcripts/GED *		Required*	Required*	Required*	Required*	Required*	* N/A for high school students
Healthcare providers CPR Card	Provided	Required	Required	Required	Required	Required	
Criminal Background Check*	Required	Required	Required	Required	Required	Required	*w/release form if HS student
HIPPA Training Modules						Required	
Employability Status Check	GC Staff						
Physical Exam Form	Required	Required	Required		Required	Required	
Drug Screening* (5 panel)		Required*		Required*	Required*		*within 30 days of class start
IMMUNIZATIONS							
TB BLOOD TEST (Interferon Gold)	Required	Required	Required	Required	Required	Required	CNA accept PPD skin test
Chest X-ray (if applicable)							
TDAP (tetanus, diphtheria, pertussis)	Required	Required	Required	Required	Required	Preferred	Within 10 years
MMR (two doses)	Required	Required	Required	Required	Required	Preferred	
Hepatitis B Series * may be 2-3	Required	Required	Required	Required	Required	Preferred	* Series
Flu (Influenza) vaccine * Current	Required	Required	Required	Required	Required	Required	* Exempt summer
Varicella or date of infection*	Required	Required	Required	Required	Required	Preferred	* Or Date/Year of Chicken pox
Meningitis *						Required	* Massage (under age 22)
Covid-19* (highly recommended)	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended	*recommended



Health Science Career Cluster

The Health Science career cluster focuses on planning, managing, and providing therapeutic services, diagnostics services, health informatics, support services, and biotechnology research and development. This career cluster includes occupations ranging from medical assistant, registered nurse, and physical therapist to forensic science technician and athletic trainer.

Statewide Program of Study: Health Informatics

The Health Informatics program of study focuses on occupational and educational opportunities associated with the management and use of patient information in the healthcare field. This program of study includes exploration of computerized healthcare systems and the process of creating and maintaining hospital and patient records in accordance with regulatory requirements of the healthcare system. Students will also practice writing and interpreting medical reports.

health

Secondary Courses for High School Credit

	Pathophysiology – 1 Credit
Courses	 Medical Microbiology – 1 Credit
Additional	 Anatomy and Philosophy – Reg/DC – 1 Credit
Level 4	Healthcare Administration and Management – DC – 1 Credit
Level 3	Medical Intervention Evaluation and Research – DC – 1 Credit
Level 2	• Medical Terminology – DC – 1 Credit
Level 1	 Principles of Health Science – AC – 1 Credit

*Articulated Credit (AC) / Continuing Education (CE) / Dual Credit (DC) Certification offerings can vary from year to year



Aligned Advanced Academic Courses

AP or IB **AP Statistics**

Dual Credit Dual credit offerings will vary by local education agency.

Students should be advised to consider these course opportunities to enrich their preparation. AP or *IB courses not listed under the Secondary Courses for High School Credit section of this framework* document do not count towards concentrator/completer status for this program of study.

Work-Based Learning and Expanded Learning Opportunities

Work-Based Learning Activities	•	Intern with a medical records specialist or health services manager Job shadow a medical services manager to understand how services and facilities are managed
Expanded Learning Opportunities	•	Participate in HOSA, DECA, SkillsUSA, or BPA

Aligned Industry-Based Certifications

 Certified Billing and Coding Specialist (CBCS)

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409-766-5100. dvannpolzin@gisd.org



Example Postsecondary Opportunities

Apprenticeships

Medical Coder

Associate Degrees

- Health Information/Medical Records Technology
- Medical Assisting

Bachelor's Degrees

- Nursing Administration
- Medical Insurance Coding

Master's, Doctoral, and Professional Degrees

- Nursing Administration
- Hospital and Health Care Facilities Administration

Additional Stackable IBCs/License

Consumer Health Information Specialization - Level I



Example Aligned Occupations

Medical Secretaries/ Administrative Assistants

Median Wage: \$36,994 Annual Openings: 10,505 10-Year Growth: 21%

Medical Records Specialists

Median Wage: \$39,408 Annual Openings: 2,763 10-Year Growth: 18%

Medical and Health Services Managers

<u>Health Informatics</u>

Median Wage: \$102,937 Annual Openings: 4,787 10-Year Growth: 43%

Data Source: TexasWages, Texas Workforce Commission. Retrieved 3/8/2024.



For more information visit:

HEALTH SCIENCE – HEALTH INFORMATICS:

PRINCIPLES OF HEALTH SCIENCE - AC (HPRS 1201) Grades: 9 Prerequisite: None

The Principles of Health Science course is designed to provide an overview of the therapeutic, diagnostic, health informatics, support services, and biotechnology research and development systems of the health care industry.

HPRS 1201 - An overview of the roles of various members of the healthcare system, educational requirements, and issues affecting the delivery of health care.

MEDICAL TERMINOLOGY - DC (HITT 1305 & HITT 1353) Grades: 10 Prerequisite: Principles of Health Science

The Medical Terminology course is designed to introduce students to the structure of medical terms, including prefixes, suffixes, word roots, singular and plural forms, and medical abbreviations. The course allows students to achieve comprehension of medical vocabulary appropriate to medical procedures, human anatomy and physiology, and pathophysiology.

HITT 1305 - Study of word origin and structure through the introduction of prefixes, suffixes, root words, plurals, abbreviations and symbols, surgical procedures, medical specialties, and diagnostic procedures.

HITT 1353 - Concepts of privacy, security, confidentiality, ethics, healthcare legislation, and regulations relating to the maintenance and use of health information.

MEDICAL INTERVENTION EVALUATION AND RESEARCH - DC (HITT 2330 & MDCA 1309)

Grade Placement: 11-12 Prerequisites: Medical Terminology - DC

Medical Intervention, Evaluation, and Research further develops basic knowledge of health informatics, data management, and biotechnological advances and their connections in various healthcare settings. Topics include informatics in medical intervention and evaluation, electronic patient management systems, applications in medical diagnostics, best practices in billing and coding medical diagnosis and procedures, appropriate International Classification of Diseases (ICD) 10 codes, fraud prevention, and databases culminating in an extended learning experience. The demand and growth in the field precipitates a needed integration of multiple medical technologies and their impact on healthcare delivery.

HITT 2330 - Study of the pathology and general health management of diseases and injuries across the life span. Topics include etiology, symptoms, and the physical and psychological reactions to diseases and injuries. A study of drug classifications, actions, therapeutic uses, adverse effects, routes of administration, and calculation of dosages.

MDCA 1309 - Emphasis on structure and function of human cells, tissues, organs, and systems with overview of common pathophysiology.

HEALTHCARE ADMINISTRATION AND MANAGEMENT - DC (POFM 1327 & HITT 1341)

Grades: 12

Prerequisites: Medical Intervention Evaluation and Research - DC

Healthcare Administration and Management is designed to familiarize students with the concepts related to healthcare administration as well as the functions of management, including planning, organizing, staffing, leading, and controlling. Students will also demonstrate interpersonal and projectmanagement skills.

POFM 1327 - Survey of medical insurance including the life cycle of various claim forms, terminology, litigation, patient relations, and ethical issues.

HITT 1341 – Basic coding rules, conventions, and guidelines using clinical classification systems.

Credit: 1

Credit: 1

Credit: 1

ANATOMY AND PHYSIOLOGY

Grades: 11-12 Prerequisite: Biology and one credit in Chemistry, IPC or Physics

The Anatomy and Physiology course is designed for students to conduct laboratory and field investigations, use scientific methods during investigations, and make informed decisions using critical thinking and scientific problem solving. Students in Anatomy and Physiology will study a variety of topics, including the structure and function of the human body and the interaction of body systems for maintaining homeostasis. *This course satisfies a high school science graduation requirement and students shall be awarded one credit for successful completion of this course.*

ANATOMY AND PHYSIOLOGY - DC

(BIOL 2401 & BIOL 2402) Grades: 11-12 Prerequisite: Biology and one credit in Chemistry, IPC or Physics + TSIA Satisfied in literacy.

The Anatomy and Physiology course is designed for students to conduct laboratory and field investigations, use scientific methods during investigations, and make informed decisions using critical thinking and scientific problem solving. Students in Anatomy and Physiology will study a variety of topics, including the structure and function of the human body and the interaction of body systems for maintaining homeostasis. <u>This</u> course satisfies a high school science graduation requirement and students shall be awarded one credit for successful completion of this course.

BIOL 2401 – Study of the structure and function of human anatomy, including the neuroendocrine, integumentary, musculoskeletal, digestive, urinary, reproductive, respiratory, and circulatory systems. Content

may be either integrated or specialized. The first of a two-semester course sequence introducing the normal structure and function of the human body, its cells, tissues, organs, and organ systems. Major body systems to be studied in this course include the integumentary, skeletal, muscular, and nervous systems. This course serves as a foundation for students of Associate Degree in Nursing, Allied Health disciplines and physical education majors.

BIOL 2402 – Study of the structure and function of human anatomy, including the neuroendocrine, integumentary, musculoskeletal, digestive, urinary, reproductive, respiratory, and circulatory systems. Content

may be either integrated or specialized. The second of a two-semester course sequence introducing the normal structure and function of the human body, its cells, tissues, organs, and organ systems. Major body systems to be studied in this course include the endocrine, circulatory, respiratory, digestive, excretory, and reproductive systems. This course serves as a foundation for students of Associate Degree in Nursing, Allied Health disciplines and physical education majors.

MEDICAL MICROBIOLOGY

Grade: 11-12 Prerequisite: Biology, Chemistry and at least one credit from a course in the Health Science Career Cluster

The Medical Microbiology course is designed to explore the microbial world, studying topics such as pathogenic and non-pathogenic microorganisms, laboratory procedures, identifying microorganisms, drug-resistant organisms, and emerging diseases. <u>This course satisfies a high school science graduation requirement and students shall be awarded one credit for successful completion of this course</u>.

PATHOPHYSIOLOGY Grade: 12

Prerequisite: Biology, Chemistry and at least one credit from a level 2 course in the Health Science Career Cluster (preferably, Anatomy and Physiology)

The Pathophysiology course is designed for students to conduct laboratory and field investigations, use scientific methods during investigations, and make informed decisions using critical thinking and scientific problem solving. Students in Pathophysiology will study disease processes and how humans are affected. Emphasis is placed on prevention and treatment of disease. <u>This course satisfies a high school science graduation requirement</u> and students shall be awarded one credit for successful completion of this course.

Credit: 1

Credit: 1



Health Science Career Cluster

The Health Science career cluster focuses on planning, managing, and providing therapeutic services, diagnostics services, health informatics, support services, and biotechnology research and development. This career cluster includes occupations ranging from medical assistant, registered nurse, and physical therapist to forensic science technician and athletic trainer.

Statewide Program of Study: Biomedical Science

The Biomedical Science program of study focuses on occupational and educational opportunities associated with the study of biology and medicine. This program of study includes researching and diagnosing diseases, pre-existing conditions, and other determinants of health. Students will also practice patient care and communication.

Secondary Courses for High School Credit

Level 1	•	Principles of Biosciences
		Anatomy and Dhysiology / Luma

Level 2	•	Anatomy and Physiology/Human Body Systems (PLIW)– Reg/DC – I Credit
Level 3	•	Pathophysiology/Medical Interventions (PLTW) – 1 Credit
		Quality Accurance for Biosciences (Diamodical Innovation (DITM) 1 Credit

Quality Assurance for Biosciences /Biomedical Innovation (PLTW)– 1 Credit Level 4 UTMB Biomedical Research

> *Articulated Credit (AC) / Continuing Education (CE) / Dual Credit (DC) Certification offerings can vary from year to year



Aligned Advanced Academic Courses

AP or IB	
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AP Biology IB Biology SL IB Biology HL

AP Chemistry IB Chemistry SL IB Chemistry HL

Dual Credit Dual credit offerings will vary by local education agency.

Students should be advised to consider these course opportunities to enrich their preparation. AP or IB courses not listed under the Secondary Courses for High School Credit section of this framework document do not count towards concentrator/completer status for this program of study.

Work-Based Learning and Expanded Learning Opportunities

Work-Based Learning Activities	 Intern with a biological or medical scientist at a healthcare organization or health research company to learn scientific testing methods Shadow a clinical laboratory technician to observe laboratory testing processes
Expanded Learning	Participate in Health Occupations Students of
Opportunities	America (HOSA)

Aligned Industry-Based Certifications

Biotechnician Assistant Credentialing Exam • Medical Laboratory Assistant (BACE)

Medical Laboratory Technician

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Example Postsecondary Opportunities

Apprenticeships

Medical Laboratory Technician

Associate Degrees

Biotechnology **Biological Sciences**

Bachelor's Degrees

- Biology
- Cellular and Molecular Biology

Master's, Doctoral, and Professional Degrees

- Forensic Science and Technology
- **Biomedical Sciences**

Additional Stackable IBCs/License

Cytotechnologist



Example Aligned Occupations

Medical Equipment Preparers

Median Wage: \$38,827 Annual Openings: 519 10-Year Growth: 18%

Forensic Science Technicians

Median Wage: \$56,971 Annual Openings: 249 10-Year Growth: 22%

Biological Technicians

Median Wage: \$45,787 Annual Openings: 879 10-Year Growth: 14%

Data Source: TexasWages, Texas Workforce Commission. Retrieved 3/8/2024.



For more information visit:



HEALTH SCIENCE - BIOMEDICAL:

PRINCIPLES OF BIOSCIENCES

Grades: 9-12 Prerequisite: None

The course provides an introduction and serves as an overview of the biomedical sciences through exciting "hands on" projects and problems. Student work involves the study of human medicine, research processes and an introduction to bioinformatics. Students investigate the human body systems and various health conditions including heart disease, diabetes, sickle cell disease, hypercholesterolemia, and infectious diseases.

ANATOMY AND PHYSIOLOGY/HUMAN BODY SYSTEMS (PLTW)

Grades: 10-12 Prerequisite: Biology and one credit in Chemistry, IPC or Physics

The Anatomy and Physiology course is designed for students to conduct laboratory and field investigations, use scientific methods during investigations, and make informed decisions using critical thinking and scientific problem solving. Students in Anatomy and Physiology will study a variety of topics, including the structure and function of the human body and the interaction of body systems for maintaining homeostasis. This course satisfies a high school science graduation requirement and students shall be awarded one credit for successful completion of this course.

ANATOMY AND PHYSIOLOGY/HUMAN BODY SYSTEMS (PLTW) - DC (BIOL 2401 & BIOL 2402)

Grades: 10-12 Prerequisite: Biology and one credit in Chemistry, IPC or Physics + TSIA Satisfied in literacy.

The Anatomy and Physiology course is designed for students to conduct laboratory and field investigations, use scientific methods during investigations, and make informed decisions using critical thinking and scientific problem solving. Students in Anatomy and Physiology will study a variety of topics, including the structure and function of the human body and the interaction of body systems for maintaining homeostasis. This course satisfies a high school science graduation requirement and students shall be awarded one credit for successful completion of this course.

BIOL 2401 - Study of the structure and function of human anatomy, including the neuroendocrine, integumentary, musculoskeletal, digestive, urinary, reproductive, respiratory, and circulatory systems. Content

may be either integrated or specialized. The first of a two-semester course sequence introducing the normal structure and function of the human body, its cells, tissues, organs, and organ systems. Major body systems to be studied in this course include the integumentary, skeletal, muscular, and nervous systems. This course serves as a foundation for students of Associate Degree in Nursing, Allied Health disciplines and physical education majors.

BIOL 2402 – Study of the structure and function of human anatomy, including the neuroendocrine, integumentary, musculoskeletal, digestive, urinary, reproductive, respiratory, and circulatory systems. Content

may be either integrated or specialized. The second of a two-semester course sequence introducing the normal structure and function of the human body, its cells, tissues, organs, and organ systems. Major body systems to be studied in this course include the endocrine, circulatory, respiratory, digestive, excretory, and reproductive systems. This course serves as a foundation for students of Associate Degree in Nursing, Allied Health disciplines and physical education majors.

PATHOPHYSIOLOGY/MEDICAL INTERVENTIONS (PLTW)

Grades: 11-12

Prerequisite: Biology, Chemistry and at least one credit from a level 2 course in the Health Science Career Cluster (preferably, Anatomy and Physiology)

The Pathophysiology course is designed for students to conduct laboratory and field investigations, use scientific methods during investigations, and make informed decisions using critical thinking and scientific problem solving. Students in Pathophysiology will study disease processes and how humans are affected. Emphasis is placed on prevention and treatment of disease. This course satisfies a high school science graduation requirement and students shall be awarded one credit for successful completion of this course.

QUALITY ASSURANCE FOR BIOSCIENCES/BIOMEDICAL INNOVATION (PLTW)

Grades: 12

Prerequisite: Biology, Chemistry, and completion of at least one course within the Biomedical pathway Special Note: This is a research-based opportunity at UTMB, 4 Hours a week.

Quality Assurance for the Biosciences is designed to introduce the student to quality principles and regulatory affairs as they apply to the biotechnology, biopharmaceutical, and the biomedical device industries.

Each problem is staged as a mission - a unique set of tasks to work through to achieve their desired objective. Students are presented with a Mission File – a case brief, a list of completion tasks, links to available resources, as well as a reflection section. Working through the missions not only exposes students to current issues in biomedical science, but it also provides skills-based instruction in research and experimentation - tools students will use to design innovative solutions to real-world problems. Students will use what they learn in these missions as they develop and implement their independent project at the end of the year.

Credit: 1

Credit: 1

Credit: 1



Hospitality and Tourism Career Cluster

The Hospitality and Tourism career cluster focuses on the management, marketing, and operations of restaurants, lodging, attractions, recreation events, and travel-related services. This career cluster includes occupations ranging from reservation and transportation ticket agent to event planner and general manager.

Statewide Program of Study: Culinary Arts

The Culinary Arts program of study focuses on occupational and educational opportunities associated with the planning, directing, or coordinating activities of a food and beverage organization or department. This program of study includes opportunities involved in directing and participating in the preparation of food.

Secondary Courses for High School Credit

Additional Courses	Food Science – 1 Credit
Level 4	• Advanced Culinary Arts – DC – 2 Credits
Level 3	• Culinary Arts – DC – 2 Credits
Level 2	• Introduction to Culinary Arts – DC – 1 Credit
Level 1	 Principles of Hospitality and Tourism – AC – 1 Credit

*Articulated Credit (AC) / Continuing Education (CE) / Dual Credit (DC) Certification offerings can vary from year to year



Aligned Advanced Academic Courses

AP or IB

AP Chemistry IB Chemistry SL

Dual Credit

it Dual credit offerings will vary by local educational agency.

Students should be advised to consider these course opportunities to enrich their preparation. AP or IB courses not listed under the Secondary Courses for High School Credit section of this framework document do not count towards concentrator/completer status for this program of study.

Work-Based Learning and Expanded Learning Opportunities

Work-Based Learning Activities	 Shadow a director of a non-profit that produces and delivers food for communities in need Intern at a catering company and learn about food production for large-scale events Work part-time in a restaurant as a line cook or chef
Expanded Learning Opportunities	 Participate in FCCLA Participate in SkillsUSA Participate in American Culinary Association or the Texas Restaurant Association

Aligned Industry-Based Certifications

- Food Safety and Science Certification
- ServSafe Manager

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Example Postsecondary Opportunities

Associate Degrees

- Culinary Arts
- Baking and Pastry Arts

Bachelor's Degrees

- Hotel/Motel Administration/Management
- Culinary Science

Master's, Doctoral, and Professional Degrees

- Organizational Leadership
- Foodservice Systems Administration/Management

Additional Stackable IBCs/License

Food Manager License



Example Aligned Occupations

Bakers

Median Wage: \$29,466 Annual Openings: 2,942 10-Year Growth: 26%

Chefs and Head Cooks

Median Wage: \$44,761 Annual Openings: 950 10-Year Growth: 37%

General and Operations Managers

Median Wage: \$83,220 Annual Openings: 25,450 10-Year Growth: 23%

Data Source: TexasWages, Texas Workforce Commission. Retrieved 3/8/2024.

https://tea.texas.gov/academics/college-career-and-militaryprep/career-and-technical-education/programs-of-studyadditional-resources



HOSPITALITY & TOURISM - CULINARY ARTS:

PRINCIPLES OF HOSPITALITY AND TOURISM - AC (HAMG 1321) Grades: 9-12 Prerequisites: None

Principles of Hospitality and Tourism introduces students to an industry that encompasses lodging, travel and tourism, recreation, amusements, attractions, and food/beverage operations. Students learn knowledge and skills focusing on communication, time management, and customer service that meet industry standards. Students will explore the history of the hospitality and tourism industry and examine characteristics needed for success in that industry.

HAMG 1321 - An exploration of the elements and career opportunities within the multiple segments of the hospitality industry.

INTRODUCTION TO CULINARY ARTS - DC (IFWA 1217 & CHEF 1205) Grades: 10-12 Prerequisites: Principles of Hospitality & Tourism - AC

Introduction to Culinary Arts will emphasize the principles of planning, organizing, staffing, directing, and controlling the management of a variety of food service operations. The course will provide insight into the operation of a well-run restaurant. Introduction to Culinary Arts will provide insight into food production skills, various levels of industry management, and hospitality skills. This is an entry level course for students interested in pursuing a career in the food service industry. This course is offered as a classroom and laboratory-based course.

IFWA 1217 - Skill development in basic mathematical operations and study of their applications in the food service industry. Topics include percentages, weights and measures, ratio and proportion, weights and measures conversions, determination of portion costs for menu items and complete menus, portion control, and the increase and decrease of standard recipes.

CHEF 1205 - A study of personal cleanliness; sanitary practices in food preparation, causes, investigation, control of illness caused by food contamination (Hazard Analysis Critical Control Points); and workplace safety standards.

(CHEF 1301 & CHEF 2302) Grades: 11-12 Prerequisites: Introduction to Culinary Arts - DC

Culinary Arts begins with the fundamentals and principles of the art of cooking and the science of baking and includes management and production skills and techniques. Students can pursue a national sanitation certification or other appropriate industry certifications. This course is offered as a laboratory-based course.

CHEF 1301 - A study of the fundamental principles of food preparation and cookery to include brigade system, cooking techniques, material handling, heat transfer, sanitation, safety, nutrition, and professionalism.

CHEF 2302 - Instruction in the preparation of stocks, soups, classical sauces, contemporary sauces, accompaniments, and the pairing of sauces with a variety of foods.

ADVANCED CULINARY ARTS - DC (CHEF 1302 & PSTR 1301) Grades: 12 Prerequisites: Culinary Arts - DC

CULINARY ARTS - DC

Advanced Culinary Arts will extend content and enhance skills introduced in Culinary Arts by in-depth instruction of industry-driven standards to prepare students for success in higher education, certifications, and/or immediate employment.

CHEF 1302 - Introduction to the principles of planning, preparation, and presentation of nutritionally balanced meals. Alternative methods and ingredients will be used to achieve a healthier cooking style. Modify recipes and substitute ingredients to reduce calories, sugar, fat, and sodium; create recipes using healthy techniques; identify common food allergies and special dietary needs; relate nutritional guidelines to diets and recipe production.

PSTR 1301 - Fundamentals of baking including dough, quick breads, pies, cakes, cookies, tarts, and doughnuts. Instructions in flour, fillings, and ingredients. Topics include baking terminology, tool and equipment use, formula conversions, functions of ingredients, and the evaluation of baked products.

FOOD SCIENCE Grades: 11-12

Prerequisites: Biology, Chemistry and at least one credit from a level 2 course or higher in the Hospitality & Tourism Career Cluster

In Food Science, students examine the nature and properties of foods, food microbiology, and the principles of science in food production, processing, preparation, and preservation; use scientific methods to conduct laboratory and field investigations; and make informed decisions using critical thinking and scientific problem solving. This course provides students a foundation for further study that leads to occupations in food and beverage services; the health sciences; agriculture, food, and natural resources; and human services. This course satisfies a high school science graduation requirement and students shall be awarded one credit for successful completion of this course.

Credit: 1

Credits: 2

Credit: 1

Credit: 1



Hospitality and Tourism Career Cluster

The Hospitality and Tourism career cluster focuses on the management, marketing, and operations of restaurants, lodging, attractions, recreation events, and travel-related services. This career cluster includes occupations ranging from reservation and transportation ticket agent to event planner and general manager.

Statewide Program of Study: Lodging and Resort Management

The Lodging and Resort Management program of study focuses on occupational and educational opportunities associated with the logistical and operational management of lodging and resorts. This program of study addresses human resources, financial analysis, and marketing.

Secondary Courses for High School Credit

Level 1	•	Principles of Hospitality and Tourism – AC – 1 Credit
Level 2	•	Introduction to Event and Meeting Planning – DC – 1 Credit
Level 3	•	Hospitality Services – DC – 2 Credits
Level 4	•	Practicum in Hospitality Services – DC – 2 Credits

*Articulated Credit (AC) / Continuing Education (CE) / Dual Credit (DC) Certification offerings can vary from year to year



Aligned Advanced Academic Courses

Dual Credit Dual credit offerings will vary by local education agency.

Students should be advised to consider these course opportunities to enrich their preparation. AP or IB courses not listed under the Secondary Courses for High School Credit section of this framework document do not count towards concentrator/completer status for this program of study.

Work-Based Learning and Expanded Learning Opportunities

Work-Based	 Intern at a resort to learn about customer service and
Learning Activities	lodging management Work part-time at a theme park or hotel Shadow an event planner at a local convention center
Expanded Learning Opportunities	 Participate in FCCLA Participate in SkillsUSA Participate in DECA

Aligned Industry-Based Certifications

Certified Hospitality and Tourism Management Professional



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Example Postsecondary Opportunities

Associate Degrees

- **Culinary Arts**
- Tourism and Travel Services Management

Bachelor's Degrees

- Hospitality Administration/Management
- Parks, Recreation, and Leisure Facilities Management

Master's, Doctoral, and Professional Degrees

- **Organizational Leadership**
- **Tourism and Travel Services Management**

Additional Stackable IBCs/License

Hospitality and Food Service Management



Example Aligned Occupations

Reservation and **Transportation Ticket Agents** and Travel Clerks

Median Wage: \$48,000 Annual Openings: 2,031 10-Year Growth: 17%

Meeting, Convention, and **Event Planners**

Median Wage: \$49,428 Annual Openings: 1,070 10-Year Growth: 25%

General Operations Managers

Median Wage: \$83,220 Annual Openings: 25,450 10-Year Growth: 23%

Data Source: TexasWages, Texas Workforce Commission. Retrived 3/8/2024.



https://tea.texas.gov/academics/college-career-and-militaryprep/career-and-technical-education/programs-of-studyadditional-resources

HOSPITALITY & TOURISM – LODGING & RESORT MANAGEMENT:

PRINCIPLES OF HOSPITALITY AND TOURISM - AC (HAMG 1321) Grades: 9-12 Prerequisites: None

Principles of Hospitality and Tourism introduces students to an industry that encompasses lodging, travel and tourism, recreation, amusements, attractions, and food/beverage operations. Students learn knowledge and skills focusing on communication, time management, and customer service that meet industry standards. Students will explore the history of the hospitality and tourism industry and examine characteristics needed for success in that industry

HAMG 1321 - An exploration of the elements and career opportunities within the multiple segments of the hospitality industry.

INTRODUCTION TO EVENT AND MEETING PLANNING - DC (HAMG 1313 & HAMG 2330) Grades: 10-12

Prerequisites: Principles of Hospitality & Tourism - AC

This course will introduce students to the concepts and topics necessary for the comprehensive understanding of the fundamentals of the meetings, conventions, events, and exposition industries. The course will review the roles of the organizations and people involved in the businesses that comprise the Meetings, Events, Expositions and Convention (MEEC) industry.

HAMG 1313 - Functions of front office operations as they relate to customer service. Includes a study of front office interactions with other departments in the lodging operations.

HAMG 2330 – Analyze the economic impact of the conventions industry; describe and compare the various types of conventions, exhibitions, conferences, and the marketing tools used for pre-planning strategies; and assess requirements for food and beverage service, meeting room set-ups, and post-meeting evaluations.

HOSPITALITY SERVICES - DC (HAMG 1324 & HAMG 2188) Grades: 11-12

Prerequisites: Introduction to Event and Meeting Planning - DC

Hospitality Services provides students with the academic and technical preparation to pursue high-demand and high-skill careers in hospitality related industries. The knowledge and skills are acquired within a sequential, standards-based program that integrates hands-on and project-based instruction. Standards included in the Hospitality Services course are designed to prepare students for nationally recognized industry certifications, postsecondary education, and entry-level careers. In addition, Hospitality Services is designed so that performance standards meet employer expectations, enhancing the employability of students. Instruction may be delivered through laboratory training or through internships, mentoring, or job shadowing.

HAMG 1324 - Principles and procedures of human resource management in the hospitality industry.

HAMG 2188 -- Internship/Job Training for HAMG 1324

PRACTICUM IN HOSPITALITY SERVICES - DC (HAMG 2305 & HAMG 2189) Grades: 12 Prerequisites: Hospitality Services - DC

Practicum in Hospitality Services is a unique practicum experience to provide opportunities for students to participate in a learning experience that combines classroom instruction with actual business and industry career experiences. Practicum in Hospitality Services integrates academic and career and technical education; provides more interdisciplinary instruction; and supports strong partnerships among schools, businesses, and community institutions with the goal of preparing students with a variety of skills in a fast-changing workplace. Students are taught employability skills, including job-specific skills applicable to their training plan, job interview techniques, communication skills, financial and budget activities, human relations, and portfolio development. Practicum in Hospitality Services is relevant and rigorous, supports student attainment of academic and technical standards, and effectively prepares students for college and career success.

HAMG 2305 – Career-related activities encountered in the student's area of specialization offered through an individualized agreement among the college, employer, and student. Under the supervision of the college and employer, the student applies specialized occupational theory, skills and concepts, including specialized materials, tools, equipment, procedures, regulations, law, and interactions within and among political, economic, environmental, social and legal systems associated with the industry. Students will demonstrate legal and ethical behavior, safety practices, interpersonal and teamwork skills, and appropriate written and verbal communication skills using the terminology of the hospitality industry.

HAMG 2189 - Career-related activities encountered in the student's area of specialization offered through an individualized agreement among the college, employer, and student. Under the supervision of the college and employer, the student applies specialized occupational theory, skills and concepts, including specialized materials, tools, equipment, procedures, regulations, law, and interactions within and among political, economic, environmental, social and legal systems associated with the industry. Students will demonstrate legal and ethical behavior, safety practices, interpersonal and teamwork skills, and appropriate written and verbal communication skills using the terminology of the hospitality industry.

Credit: 1

Credit: 1

Credits: 2



Human Services Career Cluster

The Human Services career cluster focuses on preparing individuals for employment in career pathways that relate to families and human needs, such as counseling and mental health services, family and community services, personal care services, and consumer services. This career cluster includes occupations ranging from community health workers to cosmetologists and nutritionists.

Regional Program of Study: Cosmetology and Personal Care Services

The Cosmetology and Personal Care Services regional program of study focuses on occupational and educational opportunities associated with providing beauty and personal care services. This program of study includes managing personal care facilities and coordinating or supervising personal service workers.



Secondary Courses for High School Credit

Level 1	Business Information Management I – 1 Credit
Level 2	Entrepreneurship - 1 Credit
Level 3	 Introduction to Cosmetology – DC – 1 Credit Cosmetology I + Cosmetology I Lab – DC – 3 Credits
Level 4	 Esthetics – DC – 2 Credits Cosmetology II - DC - 2 Credits

*Articulated Credit (AC) / Continuing Education (CE) / Dual Credit (DC) Certification offerings can vary from year to year



Aligned Advanced Academic Courses

Dual Credit Dual credit offerings will vary by local educational agency.

Students should be advised to consider these course opportunities to enrich their preparation. AP or IB courses not listed under the Secondary Courses for High School Credit section of this framework document do not count towards concentrator/completer status for this program of study.

Work-Based Learning and Expanded Learning Opportunities

Work-Based Learning Activities	 Work part-time in a salon, spa, or barbershop Participate in an apprenticeship at a salon to become an apprentice stylist
Expanded Learning Opportunities	Tour a salon, spa, or barbershopParticipate in SkillsUSA

Aligned Industry-Based Certifications

Cosmetology Operator License



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Example Postsecondary Opportunities

- Apprenticeships
- Apprentice Stylist

Associate Degrees

- Cosmetology Operator
- Esthetics and Skin Care

Additional Stackable IBCs/License

- Class A Barber
- Eyelash Extension Specialist
- Hair Weaving Specialist



Example Aligned Occupations

Hairdressers, Hairstylists, and Cosmetologists

Median Wage: \$27,286 Annual Openings: 8,014 10-Year Growth: 25%

Skincare Specialists

Median Wage: \$35,112 Annual Openings: 778 10-Year Growth: 38%

First-Line Supervisors of Personal Service Workers

Median Wage: \$36,795 Annual Openings: 2,253 10-Year Growth: 29%

Data Source: TexasWages, Texas Workforce Commission. Retrieved 3/8/2024.



https://tea.texas.gov/academics/college-career-andmilitary-prep/career-and-technical-education/programs-ofstudy-additional-resources

HUMAN SERVICES - COSMETOLOGY:

BUSINESS INFORMATION MANAGEMENT I

Grades: 9-12 Prerequisite: None

In Business Information Management I, students implement personal and interpersonal skills to strengthen individual performance in the workplace and in society and make a successful transition to the workforce and postsecondary education. Students apply technical skills to address business applications of emerging technologies, create word-processing documents, develop a spreadsheet, formulate a database, and make an electronic presentation using appropriate software.

ENTREPRENEURSHIP I

Grades: 10-12 Prerequisites: None

In Entrepreneurship, students will gain the knowledge and skills needed to become an entrepreneur. Students will learn the principles necessary to begin and operate a business. The primary focus of the course is to help students understand the process of analyzing a business opportunity, preparing a business plan, determining feasibility of an idea using research, and developing a plan to organize and promote the business and its products and services. In addition, students will understand the capital required, the return on investment desired, and the potential for profit.

INTRODUCTION TO COSMETOLOGY & COSMETOLOGY I + LAB - DC (CSME 1501/CSME 1410 & CSME 1354/CSME 1543)

Grades: 11 Prerequisites: Preferred Entrepreneurship I

In Principles of Cosmetology Design and Color Theory, students coordinate integration of academic, career, and technical knowledge and skills in this laboratory instructional sequence course designed to provide job-specific training for employment in cosmetology careers. Students will attain academic skills and knowledge as well as technical knowledge and skills related to cosmetology design and color theory. Students will develop knowledge and skills regarding various cosmetology design elements such as form, lines, texture, structure and illusion or depth as they relate to the art of cosmetology. Instruction includes sterilization and sanitation procedures, hair care, nail care, and skin care and meets the TDLR requirements for licensure upon passing the state examination. Analysis of career opportunities, license requirements, knowledge and skills expectations, and development of workplace skills are included.

CSME 1501 - An overview of the skills and knowledge necessary for the field of cosmetology.

CSME 1410 - Introduction to the theory and practice of hair cutting. Topics include terminology, implements, sectioning and finishing techniques.

In Cosmetology I, students coordinate integration of academic, career, and technical knowledge and skills in this laboratory instructional sequence course designed to provide job-specific training for employment in cosmetology careers. Instruction includes sterilization and sanitation procedures, hair care, nail care, and skin care and meets the Texas Department of Licensing and Regulation (TDLR) requirements for licensure upon passing the state examination. Analysis of career opportunities, license requirements, knowledge and skills expectations, and development of workplace skills are included. Cosmetology I Lab provides instruction and content directly aligned to the licensure requirements as established by the Texas Department of Licensing and Regulation (TDLR).

CSME 1354 - Introduction to hair design. Topics include the theory and applications of wet styling, thermal hair styling, and finishing techniques.

CSME 1543 - Presentation of the theory and practice of nail services. Topics include terminology, application, and workplace competencies related to nail services.

COSMETOLOGY II & ESTHETICS - DC (CSME 1453/CSME 2401 & CSME 1547/CSME 2541) Grades: 12

Prerequisites: Introduction to Cosmetology & Cosmetology I + Lab - DC

In Cosmetology II, students will demonstrate proficiency in academic, technical, and practical knowledge and skills. The content is designed to provide the occupational skills required for licensure. Instruction includes advanced training in professional standards/employability skills; Texas Department of Licensing and Regulation (TDLR) rules and regulations; use of tools, equipment, technologies and materials; and practical skills.

CSME 1453 - Presentation of the theory and practice of chemical reformation including terminology, application, and workplace competencies.

CSME 2401 - Presentation of the theory, practice, and chemistry of hair color. Topics include terminology, application, and workplace competencies related to hair color.

Students enrolled in Esthetics will explore the practical skills of a skin care professional, including introduction to the treatment environment, basic facial treatments, hair removal, corrective skin care treatments, makeup application, special effects makeup application and the technology likely to be performed in a salon, spa, or clinical setting.

CSME 1547 - In-depth coverage of the theory and practice of skin care, facials, and cosmetics

CSME 2541 - Preparation for the state licensing examination.

Credit: 1

Credit: 1

Credits: 4



Information Technology Career Cluster

The Information Technology (IT) career cluster focuses on the design, development, support, and management of hardware, software, multimedia, and systems integration services. This career cluster includes occupations ranging from Software Developer and Programmer to Cybersecurity Specialists and Network Analysts.

Statewide Program of Study: Cybersecurity

The Cybersecurity program of study focuses on occupational and educational opportunities associated with planning, implementing, upgrading, or monitoring security measures for the protection of computer networks and information. This program of study includes responding to computer security breaches and viruses and administering network security measures.

Secondary Courses for High School Credit

Level 1	AP Computer Science Principles – 1 Credit
Level 2	• AP Computer Science A – LOTE – 1 Credit
Level 3	 Networking + Lab – DC – 2 Credits
Level 4	 Practicum in Science, Technology, Engineering, and Mathematics (STEM) – DC – 2 Credits

*Articulated Credit (AC) / Continuing Education (CE) / Dual Credit (DC) Certification offerings can vary from year to year



Aligned Advanced Academic Courses

AP or IB

AP Computer Science Principles AP Computer Science A

Dual credit offerings will vary by local education agency. Dual Credit

Students should be advised to consider these course opportunities to enrich their preparation. AP or IB courses not listed under the Secondary Courses for High School Credit section of this framework document do not count towards concentrator/completer status for this program of study.

Work-Based Learning and Expanded Learning Opportunities

Work-Based Learning Activities	 Intern at a local bank, hospital, or government office to develop skills in implementing security measures Interview with an information security analyst to learn how they plan for, monitor, and upgrade security measures at their organization
Expanded Learning Opportunities	 Participate in a Hackathon Participate in TSA or SkillsUSA

•	Particip	oate in	TSA c	or Skillsl	JSA

Aligned Industry-Based Certifications

- CompTIA A+ Certification
- CompTIA Network+



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Examples Postsecondary Opportunities

Associate Degrees

- Computer and Information Systems Security
- Computer Programming

Bachelor's Degrees

- **Computer Science**
- **Computer Software Engineering**

Master's, Doctoral, and Professional Degrees

- **Computer and Information Systems** Security/Auditing/Information Assurance
- Computer Software Engineering

Additional Stackable IBCs/License

Certified Ethical Hacker (CEH)



Example Aligned Occupations

Computer User Support **Specialists**

Median Wage: \$51,411 Annual Openings: 5,757 10-Year Growth: 21%

Software Developers

Median Wage: \$111,705 Annual Openings: 15,324 10-Year Growth: 36%

Information Security Analysts

Median Wage: \$110,268 Annual Openings: 1,719 10-Year Growth: 49%

Data Source: TexasWages, Texas Workforce Commission, Retrieved 3/8/2024.



resources

For more information visit: https://tea.texas.gov/academics/college-career-and-militaryprep/career-and-technical-education/programs-of-study-additional-

INFORMATION TECHNOLOGY - CYBERSECURITY:

AP COMPUTER SCIENCE PRINCIPLES

Grades: 9-12 Prerequisite: Algebra I

In this course, students will learn to design and evaluate solutions and to apply computer science to solve problems through the development of algorithms and programs. They will incorporate abstraction into programs and use data to discover new knowledge. Students will also explain how computing innovations and computing systems, including the Internet, work, explore their potential impacts, and contribute to a computing culture that is collaborative and ethical. This course does not have a designated programming language. Teachers have the flexibility to choose a programming language(s) that is most appropriate for their students to use in the classroom.

AP COMPUTER SCIENCE A - LOTE

Grades: 10-12 Prerequisite: Algebra I and AP computer Science Principles

This course introduces students to computer science through programming. Fundamental topics in this course include the design of solutions to problems, the use of data structures to organize large sets of data, the development and implementation of algorithms to process data and discover new information, the analysis of potential solutions, and the ethical and social implications of computing systems. The course emphasizes object-oriented programming and design using the Java programming language. *This course satisfies a high school math graduation requirement and students shall be awarded one credit for successful completion of this course.*

NETWORKING + LAB - DC (ITSC 1425 & ITNW 1425) Grades: 11-12 Prerequisite: AP Computer Science A - LOTE

In Networking, students will develop knowledge of the concepts and skills related to data networking technologies and practices to apply them to personal or career development. To prepare for success, students will have opportunities to reinforce, apply, and transfer knowledge and skills to a variety of settings and problems. In Networking Lab, students will develop knowledge of the concepts and skills related to telecommunications and data networking technologies and practices to apply them to personal or career development. To prepare for success, students must have opportunities to reinforce, apply, and transfer knowledge and skills to a variety of settings and problems.

ITSC 1425 - Current personal computer hardware including assembly, upgrading, setup, configuration, and troubleshooting.

ITNW 1425 - Instruction in networking technologies and their implementation. Topics include the OSI reference model, network protocols, transmission media, and networking hardware and software.

PRACTICUM IN STEM - DC (ITSC 1405 & ITMT 1457) Grades: 12 Prerequisite: Networking + Lab – DC

Practicum in STEM is designed to give students supervised practical application of previously studied knowledge and skills. Practicum experiences can occur in a variety of locations appropriate to the nature and level of experience.

ITSC 1405 - Introduction to personal computer operating systems including installation, configuration, file management, memory, and storage.

ITMT 1457 - A study of administrative tasks needed to maintain a Windows Server operating system including user and group management, network access and data security. Topics include how to implement, configure and manage Group Policy infrastructure, Group Policy objects (GPOs) using links, security groups, WMI filters, loopback processing, preference targeting and troubleshooting policy application.

Credit: 1

Credit: 1

Credits: 2



Information Technology Career Cluster

The Information Technology (IT) career cluster focuses on the design, development, support, and management of hardware, software, multimedia, and systems integration services. This career cluster includes occupations ranging from Software Developer and Programmer to Cybersecurity Specialists and Network Analysts.

Statewide Program of Study: Programming and Software Development

The Programming and Software Development program of study focuses on occupational and educational opportunities associated with researching, designing, developing, testing, and operating systems-level software, compilers, and network distribution software for medical, industrial, military, communications, aerospace, business, scientific, and general computer applications. This program of study includes creating, modifying, and testing the codes, forms, and script that allow computer applications to run.

Secondary Courses for High School Credit

Level 1	Computer Science I – 1 Credit
Level 2	Computer Science II – 1 Credit
Level 3	Computer Science III – 1 Credit
Level 4	 Practicum in Science, Technology, Engineering, and Mathematics (STEM) – 2 Credits
Additional	 AP Computer Principles – 1 Credit

Courses • AP Computer Science A – LOTE – 1 Credit

*Articulated Credit (AC) / Continuing Education (CE) / Dual Credit (DC)

Certification offerings can vary from year to year



Aligned Advanced Academic Courses

AP Calculus AB AP Statistics IB Mathematics Applications and Interpreta	tion SL
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Dual Credit Dual credit offerings will vary by local education agency.

Students should be advised to consider these course opportunities to enrich their preparation. AP or IB courses not listed under the Secondary Courses for High School Credit section of this framework document do not count towards concentrator/completer status for this program of study.

Work-Based Learning and Expanded Learning Opportunities

Work-Based Learning Activities	 Intern at a local IT company to develop skills in programming and coding Shadow a software developer to learn how they create and improve software to support efficient processes at their company
Expanded Learning	 Program and create a game Participate in SkillsUSA or TSA

Aligned Industry-Based Certifications

- Certified Entry-Level Python Programmer (PCEP)
- Oracle Certified Associate Java SE 8 Programmer



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Example Postsecondary Opportunities

Apprenticeships

Computer Programmer Apprenticeship

Associate Degrees

 Computer Programming
 Web Page, Digital/Multimedia and Information Resources Design

Bachelor's Degrees

- Data Science
- Computer Engineering

Master's, Doctoral, and Professional Degrees

Management Science Computer Seftware Engineerin

Computer Software Engineering

Additional Stackable IBCs/License

• AWS Certified Developer Associate



Example Aligned Occupations

Computer User Support

Specialists Median Wage: \$51,411 Annual Openings: 5,757 10-Year Growth: 21%

Software Developers

Median Wage: \$111,705 Annual Openings: 15,324 10-Year Growth: 36%

Computer Programmers

Median Wage: \$87,997 Annual Openings: 1,176 10-Year Growth: 4%

Data Source: TexasWages, Texas Workforce Commission. Retrieved 3/8/2024.



For more information visit: https://tea.texas.gov/academics/college-career-and-militaryprep/career-and-technical-education/programs-of-studyadditional-resources

INFORMATION TECHNOLOGY - PROGRAMMING AND SOFTWARE:

COMPUTER SCIENCE I

COMPUTER SCIENCE II

COMPUTER SCIENCE III

PRACTICUM IN STEM

Prerequisite: Computer Science II

Prerequisite: Computer Science I

Grades: 10-12

Grades: 11-12

Grades: 9-12 Prerequisite or Corequisite: Algebra I

This course is designed to foster students' creativity and innovation by presenting opportunities to design, implement and present meaningful programs through a variety of media. Students will collaborate with one another, their instructor and with various electronic communities to solve the problems presented throughout the course. This course teaches the foundations of computer science and basic programming in JavaScript, with an emphasis on helping students develop logical thinking and problem-solving skills. The course is visual, dynamic, and interactive, making it engaging for new coders and those interested in careers in the computer industry.

This course will foster students' creativity and innovation by presenting opportunities to design, implement, and present meaningful programs through a variety of media. Students will collaborate with one another, their instructor, and various electronic communities to solve the problems presented throughout the course. Through data analysis, students will identify task requirements, plan search strategies, and use computer science concepts to access, analyze, and evaluate information needed to solve problems. By using computer science knowledge and skills that support the work of individuals and groups in solving problems, students will select the technology appropriate for the task, synthesize knowledge, create solutions, and evaluate the results. Students will learn digital citizenship by researching current laws and regulations and by practicing integrity and respect. Students will gain an understanding of computer science through the study of technology operations, systems, and concepts.

This course utilizes tools and writing programs for acquiring, cleaning, analyzing, exploring, and visualizing data; making data driven inferences and decisions; and effectively communicating results. Learning data manipulation, data analysis with statistics and machine learning, data communication with information visualization, working with big data using scalable techniques.

Grades: 12 Prerequisite: Computer Science III

Practicum in STEM is designed to give students supervised practical application of previously studied knowledge and skills. Practicum experiences can occur in a variety of locations appropriate to the nature and level of experience.

AP COMPUTER SCIENCE PRINCIPLES

Grades: 9-12 Prerequisite: Algebra I

In this course, students will learn to design and evaluate solutions and to apply computer science to solve problems through the development of algorithms and programs. They will incorporate abstraction into programs and use data to discover new knowledge. Students will also explain how computing innovations and computing systems, including the Internet, work, explore their potential impacts, and contribute to a computing culture that is collaborative and ethical. This course does not have a designated programming language. Teachers have the flexibility to choose a programming language(s) that is most appropriate for their students to use in the classroom.

AP COMPUTER SCIENCE A - LOTE

Grades: 11-12 Prerequisite: AP Computer Science Principles

This course introduces students to computer science through programming. Fundamental topics in this course include the design of solutions to problems, the use of data structures to organize large sets of data, the development and implementation of algorithms to process data and discover new information, the analysis of potential solutions, and the ethical and social implications of computing systems. The course emphasizes object-oriented programming and design using the Java programming language. *This course satisfies a high school math graduation requirement and students shall be awarded one credit for successful completion of this course.*

Credit: 1

Credit: 1

Credit: 1

Credits: 2

Credit: 1

Law and Public Service Career Cluster

NEW

The Law and Public Service career cluster focuses on planning, managing, and providing legal services, public safety, protective services, and homeland security, including professional and technical support services. This career cluster includes occupations ranging from police officer and firefighter to political scientist and lawyer.

Statewide Program of Study: Paralegal Studies

The Legal Studies program of study focuses on topics such as legal research, legal writing, rules of procedure, case management, law office technology, and legal ethics. Areas of the legal system studied include aspects of family law, criminal law, and contract law.

Secondary Courses for High School Credit

Level 1	•	Business Information Management I – 1 Credit
Level 2	•	Principles of Law, Public Safety, Corrections, and Security – DC – 1 Credit (Projected 25-26)
Level 3	•	Legal Research and Writing & Advanced Legal Skills and Professions – DC – 2 Credits (Each class is a full year in a semester) (Projected 26-27)
Level 4	•	Business Law & Court Systems and Practices – DC – 2 Credits (Each class is a full year in a semester) (Projected 27-28)
Additional Courses	•	Forensic Science – 1 Credit

*Articulated Credit (AC) / Continuing Education (CE) / Dual Credit (DC) Certification offerings can vary from year to year



Aligned Advanced Academic Courses

Dual Credit Dual credit offerings will vary by local education agency.

Students should be advised to consider these course opportunities to enrich their preparation. AP or IB courses not listed under the Secondary Courses for High School Credit section of this framework document do not count towards concentrator/completer status for this program of study.

Work-Based Learning and Expanded Learning Opportunities

• Shadow a clerk in a courthouse to learn about civil litigation

Work-Based Learning Activities

- Intern at a law firm, working alongside a paralegal to produce and organize legal documents
- Work part-time as an administrative assistant at a local non-profit that provides legal aid

Expanded Learning Opportunities

Participate in Mock Trial



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Example Postsecondary Opportunities

Apprenticeships

Law Apprenticeship

Associate Degrees

- Paralegal StudiesCourt Reporting and Captioning

Bachelor's Degrees

- Legal Research
- Legal Studies

Master's, Doctoral, and Professional Degrees

- Juris Doctorate
- International and Comparative Law

Additional Stackable IBCs/Licensures

Paralegal



Example Aligned Occupations

Court Reporters

Median Wage: \$51,177 Annual Openings: 174 10-Year Growth: 11%

Paralegals and Legal

Assistants Median Wage: \$56,310 Annual Openings: 4,046 10-Year Growth: 23%

Lawyers

Median Wage: \$134,158 Annual Openings: 3,915 10-Year Growth: 19%

Data Source: TexasWages, Texas Workforce Commission. Retrieved 3/8/2024.



For more information visit: https://tea.texas.gov/academics/college-career-and-militaryprep/career-and-technical-education/programs-of-studyadditional-resources

LAW, PUBLIC SERVICE – PARALEGAL

BUSINESS INFORMATION MANAGEMENT I Grades: 9-12 Prerequisite: None

In Business Information Management I, students implement personal and interpersonal skills to strengthen individual performance in the workplace and in society and make a successful transition to the workforce and postsecondary education. Students apply technical skills to address business applications of emerging technologies, create word-processing documents, develop a spreadsheet, formulate a database, and make an electronic presentation using appropriate software.

PRINCIPLES OF LAW, PUBLIC SAFETY, CORRECTIONS & SECURITY - DC (CRIJ 1301 & CRIJ 1310)

Grades: 10-12 Prerequisite: None + TSIA Satisfied in literacy.

Principles of Law, Public Safety, Corrections, and Security introduces students to professions in law enforcement, protective services, corrections, firefighting, and emergency management services. Students will examine the roles and responsibilities of police, courts, corrections, private security, and protective agencies of fire and emergency services. The course provides students with an overview of the skills necessary for careers in law enforcement, fire service, protective services, and corrections.

CRIJ 1301 - Introduction to Criminal Justice gives students a broad understanding of the criminal justice system, including the roles of law enforcement, courts, and corrections. This course is for aspiring paralegals because it provides insight into how cases move through the justice system, the procedures followed, and the various parties involved knowledge that paralegals will use daily when assisting attorneys and preparing legal documents.

CRIJ 1310 - Fundamentals of Criminal Law introduces fundamental legal principles, criminal statutes, and legal processes directly relevant to the paralegal profession. Understanding the basics of criminal law is essential for paralegals, who often assist in drafting legal documents, researching statutes, and organizing case files. This course equips them with the legal foundation to effectively support attorneys in criminal cases.

LEGAL RESEARCH AND WRITING + ADVANCED LEAGAL SKILLS AND PROFESSIONS - DCCredits: 2(LGLA 1313 & LGLA 1301)Credits: 2

Grades: 11-12 Prerequisite: Principles of Law, Public Safety, Corrections & Security - DC + TSIA Satisfied in literacy.

Legal Research and Writing provides an introduction into the study and practice of legal writing and research. This course is designed to introduce students to the methods and tools used to conduct legal research, develop and frame legal arguments, produce legal writings such as briefs, memorandums, and other legal documents, study U.S. Constitutional law, and prepare for appellate argument(s).

LGLA 1313 - Introduction to Paralegal Studies provides students with a foundation for a paralegal career. This course introduces students to the roles and responsibilities of a paralegal, covering the skills and competencies required to assist attorneys. It emphasizes understanding the legal environment, ethical considerations, and the types of law paralegals encounter. This course prepares students for more advanced paralegal skills, equipping them with a basic understanding of legal terminology and the dynamics of working in a law office.

Advanced Legal Skills and Professions provides students with a foundation to understand the basic mechanics of the U.S. legal system. Building on prior instruction in constitutional issues and the basics of American court systems, this course provides insight into the practical application of the law, as well as civil and criminal procedure, giving students a hands-on opportunity to experience a variety of legal professions. Students will gain an understanding of the attorney-client relationship and the importance of confidentiality, discovery, pretrial motions, jury selection, opening statements, direct and cross examinations, proper use of objections and the rules of evidence, and closing arguments. By conducting elements of a full trial in a mock setting, students will also increase their ability to extemporize appropriately by thinking on their feet. Students will learn how to evaluate a set of facts and mold it into a coherent trial strategy, learning trial practice from the ground floor.

LGLA 1301 - Legal Research and Writing focuses on developing the ability to locate, interpret, and apply legal information, a core function of a paralegal's role. This course also emphasizes writing skills, such as drafting memos, preparing legal briefs, and constructing clear and concise legal documents. Research and writing is essential for paralegals, as these skills are foundational to supporting attorneys in case preparation and legal proceedings.

BUSINESS LAW + COURT SYSTEMS AND PRACTICES - DC

(LGLA 1345 & LGLA 1317) Grades: 12 Prerequisite: Legal Research and Writing + Advanced Legal Skills and Professions – DC + TSIA Satisfied in literacy.

Business Law is designed for students to analyze various aspects of the legal environment, including ethics, the judicial system, contracts, personal property, sales, negotiable instruments, agency and employment, business organization, risk management, and real property.



Credit: 1

Credit: 1

LGLA 1345 - Civil Litigation introduces high school students to the procedures for handling civil cases—key responsibilities for paralegals. The course covers important areas like filing legal documents, understanding the stages of a lawsuit, and managing case files, all of which are essential tasks for paralegals. Civil litigation processes enable paralegals to assist attorneys effectively throughout the pre-trial, trial, and post-trial phases, making this course critical for students aiming for a paralegal career.

Court Systems and Practices is an overview of the federal and state court systems. The course identifies the roles of judicial officers and the trial processes from pretrial to sentencing and examines the types and rules of evidence. Emphasis is placed on constitutional laws for criminal procedures such as search and seizure, stop and frisk, and interrogation.

LGLA 1317 - Law Office Technology prepares students to use legal management systems, timekeeping software, and tools for drafting legal documents—all of which streamline case handling in law firms. By mastering these technologies, students gain practical skills that are indispensable in supporting attorneys, organizing case files, and ensuring efficient legal processes. This foundational knowledge sets the stage for success in the AAS degree program and beyond in the paralegal profession.

FORENSIC SCIENCE

Credit: 1

Grades: 12

Prerequisite: One credit in biology, one credit in chemistry, integrated physics and chemistry, or physics.

Forensic Science is a survey course that introduces students to the application of science to law. Students learn terminology and procedures related to the collection and examination of physical evidence using scientific processes performed in a field or laboratory setting. Students also learn the history and the legal aspects of forensic science. <u>This course satisfies a high school science graduation requirement and students shall be awarded</u> one credit for successful completion of this course.



Manufacturing Career Cluster

The Manufacturing career cluster focuses on planning, managing, and performing the processing of materials into intermediate or final products and related professional and technical support activities such as production planning and control, maintenance, and process engineering. This career cluster includes occupations ranging from welder and machinist to industrial engineering technician and semi-conductor processing technician.

Statewide Program of Study: Robotics and Automation Technology

The Robotics and Automation Technology program of study focuses on occupational and educational opportunities associated with the assembly, operation, maintenance, and repair of electromechanical equipment or devices. This program of study includes exploration of a variety of mechanical fields, including robotics, refinery and pipeline systems, deep ocean exploration, and hazardous waste removal.

Secondary Courses for High School Credit

Level 1	Robotics I – 1 Credit
Level 2	Robotics II – 1 Credit
Level 3	Engineering Design and Presentation I (Robotics III) – 1 Credit
Level 4	 Practicum in Manufacturing (Robotics IV) – 2 Credits

*Articulated Credit (AC) / Continuing Education (CE) / Dual Credit (DC) Certification offerings can vary from year to year



Aligned Advanced Academic Courses

Dual Credit Dual credit offerings will vary by local education agency.

Students should be advised to consider these course opportunities to enrich their preparation. AP or IB courses not listed under the Secondary Courses for High School Credit section of this framework document do not count towards concentrator/completer status for this program of study.

Work-Based Learning and Expanded Learning Opportunities

Work-Based Learning Activities	 Intern with a robotics technician working at a manufacturing plant Shadow a PLC programmer
Expanded Learning Opportunities	 Tour a manufacturing facility Participate in SkillsUSA or TSA Build a robot and participate in a robotics competition



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Example Postsecondary Opportunities

Associate Degrees

- Instrumentation Technology
- Industrial Technology
- Robotics Technology
- Automation Engineer Technology

Bachelor's Degrees

- Mechanical Engineering
- Electrical Electronics Engineering
- Electrical, Electronic, and Communications Engineering Technology
- Electromechanical Engineering Technology

Master's, Doctoral, and Professional Degrees

- Mechanical Engineering
- Engineering/Industrial Management
- Industrial Engineering
- Electrical and Electronics Engineering



Example Aligned Occupations

Computer Numerically Controlled Tool Operators Median Wage: \$46,353 Annual Openings: 1,146 10-Year Growth: 10%

Semiconductor Processing Technicians Median Wage: \$36,902 Annual Openings: 621

Median Wage: \$36,902 Annual Openings: 621 10-Year Growth: 9%

Industrial Engineers Median Wage: \$100,000 Annual Openings: 1,898 10-Year Growth: 26%

Data Source: TexasWages, Texas Workforce Commission. Retrieved 3/8/2024.



For more information visit: https://tea.texas.gov/academics/college-career-and-militaryprep/career-and-technical-education/programs-of-studyadditional-resources

MANUFACTURING - ROBOTICS & AUTOMATION TECHNOLOGY:

Grades: 9-12 Prerequisite: Preferred Fundamentals of Computer Science In Robotics I, students will transfer academic skills to component designs in a project-based environment through implementation of the design

process. Students will build prototypes or use simulation software to test their designs. Additionally, students will explore career opportunities, employer expectations, and educational needs in the robotic and automation industry.

In Robotics II, students will explore artificial intelligence and programming in the robotic and automation industry. Through implementation of the design process, students will transfer academics skills to component designs in a project-based environment. Students will build prototypes and use software to test their designs. <u>This course satisfies a high school math graduation requirement and students shall be awarded one credit</u> for successful completion of this course.

ENGINEERING DESIGN & PRESENTATION I (ROBOTICS III)

Grades: 11-12 Prerequisite: Robotics II

ROBOTICS I

ROBOTICS II

Prerequisite: Robotics I

Grades: 10-12

Students enrolled in Engineering Design and Presentation I will demonstrate knowledge and skills of the design process as it applies to engineering fields and project management using multiple software applications and tools necessary to produce and present working drawings, solid model renderings, and prototypes. Through implementation of the design process, students will transfer advanced academic skills to component designs. Additionally, students will explore career opportunities in engineering, technology, and drafting and what is required to gain and maintain employment in these areas.

PRACTICUM OF MANUFACTURING (ROBOTICS IV)

Grades: 12 Prerequisite: Engineering Design & Presentation I (Robotics III)

Practicum in Manufacturing course is designed to give students supervised practical application of previously studied knowledge and skills. Practicum experiences can occur in a variety of locations appropriate to the nature and level of experience. Students in this course are on the competitive robotics team through VEX and are obligated to compete in designated weekend events and travel to state, national and world championship events around Texas and the United States.

Credit: 1

Credit: 1

Credit: 1



Manufacturing Career Cluster

The Manufacturing career cluster focuses on planning, managing, and performing the processing of materials into intermediate or final products and related professional and technical support activities such as production planning and control, maintenance, and process engineering. This career cluster includes occupations ranging from welder and machinist to industrial engineering technician and semi-conductor processing technician.

Statewide Program of Study: Welding

The Welding Program of Study focuses on the development and use of automatic and computer-controlled machines, tools, and robots that perform work on metal or plastic. CTE learners will learn how to modify parts to make or repair machine tools or maintain individual machines and how to use hand-welding or flame-cutting equipment.

Secondary Courses for High School Credit

Level 1	• Introduction to Welding – AC – 1 Credit	
Level 2	• Welding I – DC – 2 Credits	
Level 3	• Welding II + Lab – DC – 3 Credits	
Level 4	• Extended Practicum in Manufacturing – DC – 3 Credits	

*Articulated Credit (AC) / Continuing Education (CE) / Dual Credit (DC) Certification offerings can vary from year to year



Aligned Advanced Academic Courses

Dual Credit Dual credit offerings will vary by local education agency.

Students should be advised to consider these course opportunities to enrich their preparation. AP or IB courses not listed under the Secondary Courses for High School Credit section of this framework document do not count towards concentrator/completer status for this program of study.

Work-Based Learning and Expanded Learning Opportunities

Work-Based Learning Activities	Job shadow a welderIntern for a local welding company
Expanded Learning Opportunities	 Tour a welding shop Participate in SkillsUSA or TSA Participate in a welding project that benefits the community

Aligned Industry-Based Certifications

- AWS D1.1 Structural Steel
- AWS D9.1 Sheet Metal Welding



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Example Postsecondary Opportunities

Apprenticeships

Welding

Associate Degrees

- Welding Technology
- Building/Construction Site Management
- Operations Management and Supervision

Bachelor's Degrees

- Welding Technology
- Construction Management
- Project Management
- Building/Construction Site Management

Master's, Doctoral, and Professional Degrees

- Engineering
- Engineering/Industrial Management
- Manufacturing Engineering
- Construction Engineering



Example Aligned Occupations

Welders, Cutters, Solderers, and Brazers

Median Wage: \$48,177 Annual Openings: 6,792 10-Year Growth: 23%

First-Line Supervisors of Production and Operating Workers

Median Wage: \$62,584 Annual Openings: 5,926 10-Year Growth: 17%

Industrial Production Managers

Median Wage: \$119,691 Annual Openings: 1,296 10-Year Growth: 19%

Data Source: TexasWages, Texas Workforce Commission. Retrieved 3/8/2024.



<u>resources</u>

For more information visit: https://tea.texas.gov/academics/college-career-and-militaryprep/career-and-technical-education/programs-of-study-additional-

MANUFACTURING - WELDING:

INTRODUCTION TO WELDING – AC (WLDG 1313 & WLDG 1407)

Grades: 9-12 Prerequisite: None

Introduction to Welding will introduce welding technology with an emphasis on basic welding laboratory principles and operating procedures. Students will be introduced to the three basic welding processes. Topics include: industrial safety and health practices, hand tool and power machine use, measurement, laboratory operating procedures, welding power sources, welding career potentials, and introduction to welding codes and standards. Introduction to Welding will provide students with the knowledge, skills, and technologies required for employment in welding industries. Students will develop knowledge and skills related to welding and apply them to personal career development. This course supports integration of academic and technical knowledge and skills. Students will reinforce, apply, and transfer knowledge and skills to a variety of settings and problems. Knowledge about career opportunities, requirements, and expectations and the development of workplace skills will prepare students for future success.

WLDG 1313 - A study of industrial blueprints. Emphasis placed on terminology, symbols, graphic description, and welding processes. Includes systems of measurement and industry standards. Also includes interpretation of plans and drawings used by industry to facilitate field application and production.

WLDG 1407 - Basic welding techniques using some of the following processes: Oxy-fuel welding (OFW) and cutting, shielded metal arc welding (SMAW), gas metal arc welding (GMAW), gas tungsten arc welding (GTAW), and flux cored arc welding (FCAW).

WELDING I – DC (WLDG 1428 & WLDG 1434) Grades: 10-12 Prerequisite: Introduction to Welding – AC

Welding I provides the knowledge, skills, and technologies required for employment in metal technology systems. Students will develop knowledge and skills related to this system and apply them to personal career development. This course supports integration of academic and technical knowledge and skills. Students will reinforce, apply, and transfer knowledge and skills to a variety of settings and problems. Knowledge about career opportunities, requirements, and expectations and the development of workplace skills prepare students for future success.

WLDG 1428 – An introduction to shielded metal arc welding process. Emphasis placed on power sources, electrode selection, oxyfuel cutting, and various joint designs. Instruction provided in SMAW fillet welds in various positions.

WLDG 1434 – An introduction to the principles of gas tungsten arc welding (GTAW), setup/use of GTAW equipment, and safe use of tools and equipment. Welding instruction in various positions on joint designs.

WELDING II + LAB – DC (WLDG 2443 & WLDG 1435) Grades: 11-12 Prerequisite: Welding I – DC

Welding II builds on the knowledge and skills developed in Welding I. Students will develop advanced welding concepts and skills related to personal and career development. Students will integrate academic and technical knowledge and skills. Students will have opportunities to reinforce, apply, and transfer knowledge and skills to a variety of settings and problems. Welding II Lab introduces welding technology with an emphasis on basic welding laboratory principles and operating procedures. Topics include industrial safety and health practices, hand tool and power machine use, measurement, laboratory operating procedures, welding power sources, welding career potentials, and introduction to welding codes and standards. This course provides knowledge, skills, and technologies required for employment in welding industries. Students will develop knowledge and skills related to this system and apply them to personal career development. This course supports integration of academic and technical knowledge and skills to a variety of settings and problems. Knowledge about career opportunities, requirements, and expectations and the development of workplace skills prepare students for future success.

WLDG 2443 – Advanced topics based on accepted welding codes. Training provided with various electrodes in shielded metal arc welding processes with open v-groove joints in all positions.

WLDG 1435 - An introduction to welding of pipe using the shielded metal arc welding process (SMAW), including electrode selection, equipment setup, and safe shop practices. Emphasis on welding positions 1G and 2G using various electrodes.

Credit: 1

Credits: 2

EXTENDED PRACTICUM IN MANUFACTURING – DC (WLDG 2413 & WLDG 1317) Grades: 12

The Practicum in Manufacturing course is designed to give students supervised practical application of previously studied knowledge and skills. Practicum experiences can occur in a variety of locations appropriate to the nature and level of experience. The Extended Practicum in Manufacturing course is designed to give students supervised practical application of previously studied knowledge and skills. Practicum experiences can occur in a variety of locations appropriate to the nature and level of experience.

WLDG 2413 – Instruction using layout tools and blueprint reading with demonstration and guided practices with some of the following welding processes: oxy-fuel gas cutting and welding, shield metal arc welding (SMAW), gas metal arc welding (GMAW), flux-cored arc welding (FCAW), gas tungsten arc welding (GTAW), or any other approved welding process.

WLDG 1317 - A fundamental course in layout and fabrication related to the welding industry. Major emphasis on structural shapes and use in construction.



Transportation, Distribution, and Logistics Career Cluster

The Transportation, Distribution, and Logistics career cluster focuses on planning, management, and movement of people, materials, and goods by road, pipeline, air, rail, and water. It also includes transportation infrastructure planning and management, logistics services, and mobile equipment and facility maintenance. This career cluster includes occupations ranging from automotive mechanic, avionics technician, and automotive entrepreneur to pilots and logistics planning professionals.

Statewide Program of Study: Automotive

The Automotive and Collision Repair program of study focuses on the occupational and educational opportunities associated with servicing, repairing, and refinishing various types of vehicles. This program of study includes diagnosing and servicing vehicles and learning about processes, technologies, and materials used in reconstructing vehicles.

Secondary Courses for High School Credit

Level 1	•	Automotive Basics – 1 Credit
Level 2	•	Automotive Technology I: Maintenance and Light Repair – 2 Credits
Level 3	•	Automotive Technology II: Automotive Service – 2 Credits
Level 4	•	Diesel Equipment Technology & II – CE – 4 Credits

*Articulated Credit (AC) / Continuing Education (CE) / Dual Credit (DC) Certification offerings can vary from year to year



Aligned Advanced Academic Courses

Dual Credit

Dual credit offerings will vary by local education agency.

Students should be advised to consider these course opportunities to enrich their preparation. AP or IB courses not listed under the Secondary Courses for High School Credit section of this framework document do not count towards concentrator/completer status for this program of study.

Work-Based Learning and Expanded Learning Opportunities

Work-Based Learning Activities	 Shadow an automotive technician at a car dealership Intern at a rental car company and assist technicians with vehicle maintenance Work at a local automotive repair shop and hold both customer service duties and automatic repair duties 	
Expanded Learning Opportunities	 Join a related automotive association and attend events Participate in SkillsUSA 	
Aligned Industry-Based Certifications ASE Entry Level Automobile Maintenance and Light Repair • ASE Entry-Level Automobile Manual Drive Train and Axles		

- (MR) (MD) ASE Entry-Level Automobile Automatic ASE Entry-Level Automobile Service Technology ASE Entry-Level Automobile Suspension and Steering (SS) Transmission/Transaxle (AT) ASE Entry-Level Automobile Brakes (BR)
 - ASE Refrigerant Recovery and Recycling
- ASE Entry-Level Automobile Electronic/Electrical Systems (EE)
- ASE Entry-Level Automobile Engine Performance (EP)
- ASE Entry-Level Automobile Engine Repair (ER)
- ASE Entry-Level Automobile Heating and Air Conditioning (AC)
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409-766-5100, dyannpolzin@gisd.org



Example Postsecondary Opportunities

Apprenticeships

Automotive Technician Apprenticeship

Associate Degrees

- Automobile/Automotive Mechanics Technology
- Autobody/Collision and Repair Technology

Bachelor's Degrees

- Autobody/Collision and Repair Technology
- Heavy Equipment Maintenance Technology

Additional Stackable IBCs/License

Automobile and Light Truck Certification (A1 – A9)



Example Aligned Occupations

Automotive Service **Technicians and Mechanics**

Median Wage: \$44,809 Annual Openings: 6,285 10-Year Growth: 10%

Bus and Truck Mechanics and Diesel Engine Specialists

Median Wage: \$50,967 Annual Openings: 3,096 10-Year Growth: 19%

First-Line Supervisors of Mechanics, Installers, and Repairers

Median Wage: \$66,535 Annual Openings: 5,019 10-Year Growth: 19%



For more information visit:



TRANSPORTATION – AUTOMOTIVE:

AUTOMOTIVE BASICS

Grades: 9-12 Prerequisite: None

Students gain knowledge and skills in the safe application, design, production, and assessment of products, services, and systems. This knowledge includes the history, laws and regulations, and common practices used in the logistics of warehousing and transportation systems. Students should apply knowledge and skills in the application, design, and production of technology as it relates to the transportation, distribution, and logistics industries. This course allows students to reinforce, apply, and transfer their academic knowledge and skills to a variety of interesting and relevant activities, problems, and settings.

AUTOMOTIVE TECHNOLOGY I: MAINTENANCE & LIGHT REPAIR

Grades: 10-12 Prerequisite: Automotive Basics

Automotive services include knowledge of the function of the major automotive systems and the principles of diagnosing and servicing these systems. In Automotive Technology, students gain knowledge and skills in the repair, maintenance, and diagnosis of vehicle systems. This study allows students to reinforce, apply, and transfer academic knowledge and skills to a variety of interesting and relevant activities, problems, and settings. The focus of this course is to teach the theory of operation of automotive vehicle systems and associated repair practices.

AUTOMOTIVE TECHNOLOGY II: AUTOMOTIVE SERVICE

Grades: 11-12 Prerequisite: Automotive Technology I: Maintenance & Light Repair

Services include advanced knowledge of the function of the major automotive systems and the principles of diagnosing and servicing these systems. Students gain knowledge and skills in the repair, maintenance, and diagnosis of vehicle systems. This study allows students to reinforce, apply, and transfer academic knowledge and skills to a variety of interesting and relevant activities, problems, and settings. The focus of this course is to teach the theory of operation of automotive vehicle systems and associated repair practices. Students who excel in this course will have the opportunity to earn multiple automotive certifications and will also have the opportunity for placement at a General Motors dealership auto shop or employment.

DIESEL EQUIPMENT TECHNOLOGY I & DIESEL EQUIPMENT TECHNOLOGY II – CE (AUMT 1041/DEMR 1010 & AUMT 1045/DEMR 2012)

Grade: 12

Prerequisite: Automotive Technology II: Automotive Service

Diesel Equipment Technology I includes knowledge of the function and maintenance of diesel systems. Rapid advances in diesel technology have created new career opportunities and demands in the transportation industry. This course provides the knowledge, skills, and technologies required for employment in transportation systems.

AUMT 1041 – Theory of automotive climate control systems. Emphasis on the refrigeration cycle and diagnosis of system malfunctions. Includes manual and electronic climate control systems.

DEMR 1010 - An introduction to testing and repairing diesel engines including related systems and specialized tools.

Diesel Equipment Technology II includes knowledge of the function, diagnosis, and service of diesel equipment systems. Rapid advances in diesel technology have created new career opportunities and demands in the transportation industry. This course provides the advanced knowledge, skills, and technologies required for employment in transportation systems.

AUMT 1045 – diagnosis and repair of manual/electronic climate control systems. Includes the refrigeration cycle and EPA guidelines for refrigerant handling. May be taught manufacturer specific.

DEMR 2012 - Continuation of Diesel Equipment Technology I. Coverage of testing and repairing diesel engines including related systems and specialized tools.

Credit: 1

Credits: 2

Credits: 2

Transportation, Distribution, and Logistics Career Cluster



The Transportation, Distribution, and Logistics career cluster focuses on planning, management, and movement of people, materials, and goods by road, pipeline, air, rail, and water. It also includes transportation infrastructure planning and management, logistics services, and mobile equipment and facility maintenance. This career cluster includes occupations ranging from automotive mechanic, avionics technician, and automotive entrepreneur to pilots and logistics planning professionals.

Statewide Program of Study: Maritime, Distribution & Logistics

The Distribution, Logistics and Warehousing program of study focuses on educational and occupational opportunities associated with business planning and management aspects of distribution, logistics and warehousing. This program of study includes exploration of the history, laws, regulations, and common practices used in the logistics of warehousing and distribution systems.

Secondary Courses for High School Credit

Level 1	 Principles of Distribution and Logistics – DC – 1 Credit
Level 2	 Concepts of Distribution and Logistics Technology – DC – 1 Credit (Projected 25-26)
Level 3	 Occupational Safety and Environmental Technology I – DC – 1 Credit (Projected 26-27)
Level 4	 Practicum in Transportation Systems – DC – 2 Credits (Projected 27-28)

*Articulated Credit (AC) / Continuing Education (CE) / Dual Credit (DC) Certification offerings can vary from year to year



Aligned Advanced Academic Courses

Dual Credit

Dual credit offerings will vary by local education agency.

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Work-Based Learning and Expanded Learning Opportunities

Work-Based	Learning
	Activities

Expanded Learning

Opportunities

- Intern at a fulfillment center to learn about planning and distribution of goods
- Shadow an operations manager at a local company's warehouse to learn about the people and technology resources necessary to implement an operations plan
 - Attend transportation, distribution and logistics expos
 - Join the Transportation Association, Supply Chain Association, or Freight Forwarder and attend events with students

Aligned Industry-Based Certifications

Certified Logistics Technician (CLT)



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Example Postsecondary Opportunities

Apprenticeships

Motor Transport Operator Apprenticeship



Associate Degrees

- Logistics, Materials, and Supply Chain Management
- **Transportation and Mobility Management**

Bachelor's Degrees

- Transportation and Mobility Management
- Logistics and Supply Chain Management

Master's, Doctoral, and Professional Degrees

- Supply Chain Management
- Transportation and Mobility Management

Additional Stackable IBCs/License

- Commercial Driver's License
- Certified Supply Chain Professional



Example Aligned Occupations

Shipping, Receiving, and Inventory Clerks

Median Wage: \$36,363 Annual Openings: 7,293 10-Year Growth: 7%

Production, Planning, and **Expediting Clerks**

Median Wage: \$48,887 Annual Openings: 4,415 10-Year Growth: 21%

Transportation, Storage, and **Distribution Managers**

Median Wage: \$97,989 Annual Openings: 1,377 10-Year Growth: 22%

Data Source: TexasWages, Texas Workforce Commission. Retrieved 3/8/2024.



For more information visit:



Distribution, Logistics, and Warehousing

TRANSPORTATION - MARITIME, DISTRIBUTION AND LOGISTICS:

PRINCIPLES OF DISTRIBUTION & LOGISTICS – DC (LMGT 1319 & IBUS 1341) Grades: 9-12 Prerequisite: None

In Principles of Distribution and Logistics, students will gain knowledge and skills in the safe application, design, production, and assessment of products, services, and systems. This knowledge includes the history, laws and regulations, and common practices used in the logistics of warehousing and transportation systems. Students should apply knowledge and skills in the application, design, and production of technology as it relates to distribution and logistics industries. This course allows students to reinforce, apply, and transfer their academic knowledge and skills to a variety of interesting and relevant activities, problems, and settings.

LMGT 1319 – A systems approach to managing activities associated with traffic, transportation, inventory management, warehousing, packaging, order processing, and materials handling.

IBUS 1341 - International purchasing or sourcing. Includes the advantages and the barriers of purchasing internationally, global sourcing, procurement technology, and purchasing processes. Emphasizes issues of contract administration, location, and evaluation of foreign suppliers, total coast approach, exchange fluctuations, customs procedures, and related topics.

CONCEPTS OF DISTRIBUTION & LOGISTICS TECHNOLOGY – DC (Projected 25-26)

(LMGT 1321 & NAUT 1305) Grades: 10-12

Prerequisite: Principles of Distribution & Logistics - DC

In Concepts of Distribution and Logistics Technology, students will gain knowledge and skills in safe application, design, and assessment of technologies used in the supply chain and logistics industries. The students will apply knowledge and skills in using standard and emerging technologies in the field of logistics. This course allows students to understand, apply, and simulate the new technologies of distribution and logistics. The Concepts of Distribution and Logistics Technology course will provide students with a broader basis for understanding the technology of managing, storing, shipping, and receiving different materials. These technologies will include data base tracking and delivering software, equipment, and services used in the field. The course will develop the students' knowledge of distribution, logistics, and the supply chain.

LMGT 1321 - Introduces the concepts and principles of materials management to include inventory control and forecasting activities.

NAUT 1305 - Presentation of the maritime industry and ships used in the transportation of goods and services. Maritime nomenclature, and types, missions, and construction of vessels.

OCCUPATIONAL SAFETY AND ENVIRONMENTAL TECHNOLOGY I – DC (Projected 26-27) (OSHT 1301 & NAUT 1255) Grades: 11-12

Prerequisite: Concepts of Distribution & Logistics Technology - DC

During Occupational Safety & Environmental Technology (OSET) I, students will investigate the field of Occupational Safety and Health Administration and Environmental Technology, which is charged with the tasks of ensuring that business and industry provide a safe workplace, free from hazards and bringing about a reduction in the occurrence of job-related injuries and fatalities. Students will use safety resources and discover procedures for collaborating with business and industry regarding ways to increase employee safety and health, reduce workers' compensation insurance costs and medical expenses, decrease payout for return-to-work programs, reduce faulty products, and lower costs for job accommodations for injured workers

OSHT 1301 – An introduction to the basic concepts of safety and health.

NAUT 1255 – An in-depth coverage of the laws and regulations surrounding the maritime transportation industry, and how the industry responds and manages.

PRACTICUM OF DISTRIBUTION & LOGISTICS – DC (Projected 27-28) (LMGT 1425/NAUT 2310 & NAUT 1230)

Grades: 12 Prerequisite: Occupational Safety and Environmental Technology I - DC

Practicum in Distribution and Logistics is designed to give students supervised practical application of knowledge and skills. Practicum experiences can occur in a variety of locations appropriate to the nature and level of experience such as internships, mentorships, independent study, or laboratories. The Practicum can be either school lab based, or work based.

LMGT 1425 – Emphasis on physical distribution and total supply chain management. Includes warehouse operations management, hardware and software operations, bar codes, organizational effectiveness, just in time, and continuous replenishment.

NAUT 2310 – An introduction to vessel handling characteristics.

NAUT 1230 - A course for entry-level mariners to perform basic maintenance and minor repairs aboard vessels.

NEW

Credit: 1

Credit: 1

Credit: 1

Credits: 2

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