Lone Star College Program Learning Outcomes

**Associate of Arts/Associate of Science: 1. Communication**

**Program Learning Outcomes:**
Upon completion of the AA/AS Degree in Communication component area, students will be able to

1.1 Understand and demonstrate writing and speaking processes through invention, organization, drafting, revision, editing, and presentation.

1.2 Understand the importance of specifying audience and purpose and to select appropriate communication choices.

1.3 Understand and appropriately apply modes of expression, i.e., description expositive, narrative, scientific, and self-expressive, in written, visual, and oral communication.

1.4 Participate effectively in groups with emphasis on listening, critical and reflective thinking, and responding.

1.5 Understand and apply basic principles of critical thinking, problem solving and technical proficiency in the development of exposition and argument.

1.6 Develop the ability to research and write a documented paper and/or give an oral presentation.
### Associate of Arts/Associate of Science: 2. Humanities, Visual and Performing Arts

**Program Learning Outcomes:**
Upon completion of the AA/AS Degree in Humanities, Visual and Performing Arts component area, students will be able to

2.1 Demonstrate awareness of the scope and variety of works in the arts and humanities.

2.2 Understand those works as expressions of individual and human values within an historical and social context.

2.3 Respond critically to works in the arts and humanities.

2.4 Engage in the creative process or interpretive performance and comprehend the physical and intellectual demands required of the author or visual or performing artist.

2.5 Articulate an informed personal reaction to works in the arts and humanities.

2.6 Develop an appreciation for the aesthetic principles that guide or govern the humanities and arts.

2.7 Demonstrate knowledge of the influence of literature, philosophy, and/or the arts on intercultural experiences.
### Associate of Arts/Associate of Science: Social and Behavioral Sciences

**Program Learning Outcomes:**
Upon completion of the AA/AS Degree in Social and Behavioral Sciences component area, students will be able to

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Details</th>
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<tbody>
<tr>
<td>3.1</td>
<td>Employ the appropriate methods, technologies, and data that social and behavioral scientists use to investigate the human condition.</td>
</tr>
<tr>
<td>3.2</td>
<td>Examine social institutions and processes across a range of historical periods, social structures, and cultures.</td>
</tr>
<tr>
<td>3.3</td>
<td>Use and critique alternative explanatory systems or theories.</td>
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<tr>
<td>3.4</td>
<td>Develop and communicate alternative explanations or solutions for contemporary social issues.</td>
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<tr>
<td>3.5</td>
<td>Analyze the effects of historical, social, political, economic, cultural, and global forces on the area under study.</td>
</tr>
<tr>
<td>3.6</td>
<td>Comprehend the origins and evolution of U.S. and Texas political systems, with a focus on the growth of political institutions, the constitutions of the U.S. and Texas, federalism, civil liberties, civil and human rights.</td>
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<tr>
<td>3.7</td>
<td>Understand the evolution and current role of the U.S. in the world.</td>
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<tr>
<td>3.8</td>
<td>Differentiate and analyze historical evidence (documentary and statistical) and differing points of view.</td>
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<tr>
<td>3.9</td>
<td>Recognize and apply reasonable criteria for the acceptability of historical evidence and social research.</td>
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<tr>
<td>3.10</td>
<td>Analyze, critically assess, and develop creative solutions to public policy problems.</td>
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<tr>
<td>3.11</td>
<td>Recognize and assume one’s responsibility as a citizen in a democratic...</td>
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</table>
society by learning to think for oneself, by engaging in public discourse, and by obtaining information through the news media and other appropriate information sources about politics and public policy.

3.12 Identify and understand differences and commonalities within diverse cultures.

<table>
<thead>
<tr>
<th>Associate of Arts/Associate of Science: 4. Multicultural Competencies</th>
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<tbody>
<tr>
<td><strong>Program Learning Outcomes:</strong></td>
</tr>
<tr>
<td>Upon completion of the AA/AS Degree in Multicultural Competencies component area, students will be able to</td>
</tr>
<tr>
<td>4.1 Demonstrate knowledge of those elements and processes that create And define culture.</td>
</tr>
<tr>
<td>4.2 Develop an understanding of the values, practices, beliefs, and responsibilities of living in a multicultural world.</td>
</tr>
<tr>
<td>4.3 Develop cross-cultural understanding, empathy, and communication.</td>
</tr>
<tr>
<td>4.4 Demonstrate an understanding of the underlying unity of diverse cultural expressions and their influences on cross-cultural interactions.</td>
</tr>
</tbody>
</table>
Program Learning Outcomes:
Upon completion of the AA/AS Degree in Math component area, students will be able to

5.1 Apply arithmetic, algebraic, geometric, higher order thinking, and statistical methods to modeling and solving real-world situations.

5.2 Represent and evaluate basic mathematical information verbally, numerically, graphically, and symbolically.

5.3 Expand mathematical reasoning skills and formal logic to develop convincing mathematical arguments.

5.4 Use appropriate technology to enhance mathematical thinking and understanding and to solve mathematical problems and judge the reasonableness of the results.

5.5 Interpret mathematical models such as formulas, graphs, tables and schematics, and draw inferences from them.

5.6 Recognize the limitations of mathematical and statistical models.

5.7 Develop the view that mathematics is an evolving discipline, interrelated with human culture, and understand its connections to other disciplines.
Associate of Arts/Associate of Science: 6. Natural Science

Program Learning Outcomes:
Upon completion of the AA/AS Degree in Natural Science component area, students will be able to

6.1 Understand and apply methods and appropriate technology to the study of natural sciences.

6.2 Recognize scientific and quantitative methods and the differences between these approaches and other methods of inquiry and to communicate findings, analyses, and interpretation both orally and in writing.

6.3 Identify and recognize the differences among competing scientific theories.

6.4 Demonstrate knowledge of the major issues and problems facing modern science, including issues that touch upon ethics, values, and public policies.

6.5 Demonstrate knowledge of the interdependence of science and technology and their influence on, and contribution to, modern culture.
## Associate of Arts in Teaching

**Program Learning Outcomes:**
Upon completion of the AAT Degree, students will be able to

1. Demonstrate knowledge of legal and ethical requirements in American Education

2. Analyze a variety of issues that influence learning

3. Identify the effect of diversity with respect to learning and assessment

4. Demonstrate effective communication skills through collaborative work with peers and school officials

5. Apply critical-thinking skills to solve problems, regarding educational concerns
### Associate of Applied Science: Accounting

**Program Learning Outcomes:**
Upon completion of the Accounting Program, the students will be able to

1. Analyze and evaluate economic events that apply to the preparation of financial statements.
2. Identify and interpret relevant accounting information to support managerial decisions.
3. Prepare commonly-filed federal tax documents and reports.

### Associate of Applied Science: Administrative Services

**Program Learning Outcomes:**
Upon completion of the Administrative Services Program, the students will be able to

1. Demonstrate proper Keyboarding techniques by producing documents using business software.
2. Create and edit documents such as letters, memos, and reports that are grammatically correct and are appropriately punctuated.
3. Demonstrate basic math skills by calculating percentages, payroll, discounts, etc.
Associate of Applied Science: Automotive Tech

Program Learning Outcomes:
Upon completion of the Automotive Tech Program, the students will be able to

1. Exhibit personal punctuality, appearance, work time management, and communication skills that maximize continued employment.

2. Develop and demonstrate shop safety.

3. Demonstrate electronic/electrical theory skills in assessing and diagnosing computer module-based automotive repairs.

4. Demonstrate skills to dismantle and recondition engines, transmissions, and other mechanical devices.

5. Perform the duties of an entry-level automotive technician.
### Associate of Applied Science: Biotechnology

**Program Learning Outcomes:**
Upon completion of the Biotechnology Program, the students will be able to

1. Utilize scientific protocols and current technologies relevant to the biotechnology industry to conduct safe laboratory experiments and to collect data that are appropriately validated and documented.

2. Maintain high standards of integrity, teamwork, interpersonal communication, and fairness in scientific practices and professional conduct.

3. Engage in active listening, oral, and written communication skills to follow procedures, maintain accurate laboratory notebooks, write lab reports, and give effective oral presentations to both scientific and non-scientific audiences.

### Associate of Applied Science: Business Administration

**Program Learning Outcomes:**
Upon completion of the Business Administration Program, the students will be able to

1. Demonstrate business writing skills to construct a properly formatted cover letter, report(s), and updated resume targeted to a specific position in the industry within which the student has targeted to work.

2. Demonstrate the ability to work effectively as a team member to plan, organize, and complete a project on time.

3. Demonstrate knowledge of basic business-related financial functions, including budgeting and financial statements.
### Associate of Applied Science: Computer Networking Cisco

**Program Learning Outcomes:**
Upon completion of the Computer Networking Cisco Program, the students will be able to

1. Design a multiprotocol environment.
2. Implement a multiprotocol environment.

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### Associate of Applied Science: Computer Networking Microsoft

**Program Learning Outcomes:**
Upon completion of the Computer Networking Microsoft Program, the students will be able to

1. Design a Microsoft Active Directory infrastructure design including physical and logical components.
2. Implement a Microsoft Active Directory infrastructure design including physical and logical components.
3. Maintain a Microsoft Active Directory infrastructure design including physical and logical components.
<table>
<thead>
<tr>
<th>Associate of Applied Science: Computer Programming Specialist</th>
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<tbody>
<tr>
<td><strong>Program Learning Outcomes:</strong></td>
</tr>
<tr>
<td>Upon completion of the Computer Programming Specialist Program, the students will be able to</td>
</tr>
<tr>
<td>1. Design a logical plan for the development of a software solution.</td>
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<tr>
<td>2. Implement software solutions.</td>
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<td>3. Provide appropriate documentation in software solutions.</td>
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<tr>
<th>Associate of Applied Science: Cosmetology (Facial)</th>
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<tbody>
<tr>
<td><strong>Program Learning Outcomes:</strong></td>
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<tr>
<td>Upon completion of the Cosmetology (Facial) Program, the students will be able to</td>
</tr>
<tr>
<td>1. Demonstrate proper sanitation and safety practices as required by Texas state law governing estheticians.</td>
</tr>
<tr>
<td>2. Demonstrate knowledge of proper business practices as related to the successful operation of a cosmetology business.</td>
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<tr>
<td>3. Demonstrate competency in written theory and related practical applications required for completion of Esthetics program and Esthetics licensing examination.</td>
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<tr>
<td>4. Demonstrate technical proficiency equal to the requirements for entry-level positions in the Esthetics field.</td>
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</tbody>
</table>
**Associate of Applied Science: Cosmetology (Instructor)**

**Program Learning Outcomes:**
Upon completion of the Cosmetology (Instructor) Program, the students will be able to

1. Demonstrate competency in written theory and related practical applications required for completion of the Cosmetology program and Cosmetology Instructor licensing examination.

2. Demonstrate instructional proficiency equal to the expectations of entry-level cosmetology instructors.

3. Demonstrate proper sanitation and safety procedures as required by Texas state law governing the practice of cosmetology.

4. Demonstrate knowledge of proper business practices as related to the successful operation of a cosmetology business.

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**Associate of Applied Science: Cosmetology (Operation)**

**Program Learning Outcomes:**
Upon completion of the Cosmetology (Operation) Program, the students will be able to

1. Demonstrate competency in written theory and related practical applications required for completion of the Cosmetology program and Cosmetology licensing examination.

2. Demonstrate technical proficiency equal to the requirements for entry-level positions in cosmetology.

3. Demonstrate proper sanitation and safety procedures as required by Texas state law governing the practice of cosmetology.

4. Demonstrate knowledge of proper business practices as related to the successful operation of a cosmetology business.
### Associate of Applied Science: Dental Hygiene

**Program Learning Outcomes:**
Upon completion of the Dental Hygiene Program, the students will be able to

1. Facilitate the development of entry-level dental hygienists who possess comprehensive knowledge and skills to render competent professional dental hygiene patient care to the public.

2. Apply the legal and ethical standards of the practice of dental hygiene.

3. Develop the ability to critically evaluate scientific literature for use in providing evidence-based dental hygiene care.

4. Exemplify the role of the dental hygienist in the community through clinical enrichment experiences and volunteer activities.

5. Teach students to seek lifelong learning by continuing their education.

6. Foster a commitment of professional development through an active role in professional associations.

### Associate of Applied Science: Echocardiography

**Program Learning Outcomes:**
Upon completion of the Echocardiography Program, the students will be able to

1. Apply the principles of physics and instrumentation during the operation of sonographic equipment.

2. Develop a plan and demonstrate commitment to professional growth and career development.

3. Practice principles of safety while delivering competent patient care in a timely manner.
### Level 1 Certificate: Electrician

**Program Learning Outcomes:**
Upon completion of Electrician certification, the students will be able to

1. Interpret electrical blueprints.
2. Demonstrate proper electrical safety procedures.
3. Determine electrical values for circuits using Ohms Law.
4. Explain the proper installation of devices according to the National Electrical Code (NEC).
5. Demonstrate proper grounding methods and calculate overcurrent protection.

### Associate of Applied Science: Emergency Medical Services Professions

**Program Learning Outcomes:**
Upon completion of the Emergency Medical Services Professions Program, the students will be able to

1. Comprehend, apply, analyze, and evaluate information relative to the role of an entry-level Paramedic.
2. Demonstrate technical proficiency in all of the skills to fulfill the role on an entry-level Paramedic.
3. Demonstrate personal behaviors consistent with the profession and employer expectations of an entry-level Paramedic.
Program Learning Outcomes:

Upon completion of the Engineering Tech Design (Architectural) Program, the students will be able to

1. Interpret designs and communicate effectively both through oral and written means.

2. Solve engineering and survey problems by applying fundamental knowledge of mathematical, computational, scientific and engineering concepts.

3. Demonstrate modern drafting techniques such as orthographic and isometric projection, section and auxiliary view.

4. Explain and evaluate sustainable design of construction systems, techniques, and processes.

5. Apply codes, ADA requirements, manufacturing standards, tables, and specifications in designing residential, commercial and metal buildings.

6. Interpret and investigate site parameters and the design process for building design.
**Program Learning Outcomes:**

Upon completion of the Engineering Tech Design (Mechanical) Program, the students will be able to

1. Interpret designs and communicate effectively both through oral and written means.

2. Solve engineering and survey problems by applying fundamental knowledge of mathematical, computational, scientific and engineering concepts.

3. Demonstrate modern drafting techniques such as orthographic and isometric projection, section and auxiliary view.

4. Create detail and assembly drawings to industry standards including Bill of Materials using 2-D Computer-Aided Design and Drafting and 3-D parametric solid modeling software.

5. Demonstrate mechanical engineering concepts that would include geometric dimensioning and tolerancing, manufacturing materials and design process.
<table>
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<tr>
<th>Program Learning Outcomes:</th>
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<tbody>
<tr>
<td>Upon completion of the Engineering Tech Design Program, the students will be able to</td>
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</table>

1. Demonstrate competence in the operation of basic hydraulic and pneumatic systems; and the use of flow meters and pressure gauges; interpret schematics and troubleshoot systems; display a systematic approach to troubleshooting; and design a schematic drawing of a working system.

2. Demonstrate competence in the operation and programming of automated control systems.

3. Possess the skills needed to be able to work with different mechanical rotating equipment.
### Level 1 Certificate: Basic Structural Firefighter

**Program Learning Outcomes:**
Upon completion of the Basic Structural Firefighter Certificate, the students will be able to

1. Demonstrate minimum standards required to sit for state certification exam as defined by the Texas Commission on Fire Protection.

2. Demonstrates mastery of all the 6 objectives as defined within the Texas Commission on Fire Protection Performance Standards:
   - Communications
   - General
   - Hazardous Materials
   - Rescue
   - Prevention
   - Fire Ground Operations

### Associate of Applied Science: Fire Science Technology

**Program Learning Outcomes:**
Upon completion of the Fire Science Technology Program, the students will be able to

1. Apply standard firefighting management and instructional techniques.

2. Apply the concepts within the National Fallen Firefighters Foundation Life Safety Initiatives and Fire Service Educational programs.

3. Apply knowledge concepts contained in the National Incident Management system, the National Fire Protection Association standards, the International building Code, and the Life Safety Code.
### Associate of Applied Science: Game Design and Simulation Designer (Artist)

**Program Learning Outcomes:**
Upon completion of the Game Design and Simulation Designer (Artist) Program, the students will be able to

1. Deliver a portfolio that demonstrates entry-level skills within their concentration.

2. Evaluate and review games to ascertain quality of design, playability, interest and appeal.

3. Demonstrate industry professionalism and the ability for continuous growth through membership in industry organizations, attendance at industry-related conferences and participation in professional social networking.

### Associate of Applied Science: Game Design and Simulation Developer (Programming)

**Program Learning Outcomes:**
Upon completion of the Game Design and Simulation Developer (Programming) Program, the students will be able to

1. Deliver a portfolio that demonstrates entry-level skills within their concentration.

2. Evaluate and review games to ascertain quality of design, playability, interest and appeal.

3. Demonstrate industry professionalism and the ability for continuous growth through membership in industry organizations, attendance at industry-related conferences and participation in professional social networking.
### Associate of Applied Science: General Sonography

**Program Learning Outcomes:**
Upon completion of the General Sonography Program, the students will be able to

1. Apply the principles of physics and instrumentation during the operation of sonographic equipment.

2. Develop a plan and demonstrate commitment to professional growth and career development.

3. Practice principles of safety while delivering competent patient care in a timely manner.

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### Associate of Applied Science: Geographic Information Systems (GIS)

**Program Learning Outcomes:**
Upon completion of the Geographic Information Systems Program, the students will be able to

1. Demonstrate essential skills required for spatial data collection, and the creation of spatial datasets, utilizing techniques such as GPS field data collection, digitizing, and internet research.

2. Demonstrate essential skills required for the management of GIS data, utilizing tools such as attribute queries, location queries, and relational join.

3. Demonstrate essential skills required for the spatial analysis within the GIS, using tools such as proximity functions, overlay processes, raster statistical functions.

4. Demonstrate essential skills required for the production of cartographic deliverables, utilizing techniques for the proper and effective use of map elements and cartographic design.
5. Create final reports of GIS analysis and present reports and maps to an audience.

**Associate of Applied Science: Health Information Technology**

**Program Learning Outcomes:**
Upon completion of the Health Information Technology Program, the students will be able to

1. Apply clinical vocabularies and terminologies used in the organizations health information.

2. Apply policies and procedures for the use of clinical data required in reimbursement and prospective payment systems.

3. Apply Human Resource Management and Team Leadership skills to effectively supervise and lead others.

4. Perform analysis of health records to evaluate compliance with regulations and standards.

5. Apply content laws, accreditation, licensure and certification standards related to health information initiatives from the national, state, local and facility levels.

6. Apply procedure codes using CPT and HCPCS.

7. Identify and report privacy issues and problems.

8. Demonstrate ability to comprehend basic descriptive institutional and healthcare vital statistics.

9. Apply diagnosis and procedures codes using ICD 10 CM/PCS.

10. Apply policies and procedures to the use of networks, including intranet and internet applications to facilitate the electronic health record,
personal health record, public health and other administrative applications.

11. Utilize tools and techniques to monitor, report, and improve process.

12. Apply all coding rules and principles for case summaries and medical records.

### Associate of Applied Science: Human Services

**Program Learning Outcomes:**
Upon completion of the Human Services Program, the students will be able to

1. Demonstrate group management skills.

2. Explain the ethical principles of Competence, Professional Boundaries, Confidentiality, and Self-Determination as they relate to the helping professions.

3. Demonstrate basic interviewing/counseling skills.

4. Demonstrate knowledge of accepted principles of clinical documentation.

5. Differentiate between the Psychodynamic, Behavioral, Humanistic and Cognitive theoretical approaches as they relate to the counseling and helping professions.
# Associate of Applied Science: HVAC

## Program Learning Outcomes:

Upon completion of the HVAC Program, the students will be able to

1. Utilize tools of the trade to cut, bend, form, flare, solder and braze refrigeration copper tubing properly.

2. Utilize several techniques for locating refrigerant leaks and make repairs on a refrigeration system.

3. Operate a recovery machine to properly recover refrigerant from a refrigeration system to a recovery cylinder.

4. Charge refrigeration and air-conditioning system, properly.

5. Troubleshoot refrigeration and air-conditioning system.

6. Read, interpret and draw electrical schematic diagrams of HVAC equipment.

7. Test electronically and determine the conditions of controls and components of HVAC equipment with a multi-meter.

8. Take pressure temperature readings, graph linear measurements and perform mathematical calculations related to the HVAC trade.

9. Recognize tool / instruments of the HVAC Trade and know how to properly use them with HVAC equipment.
### Associate of Applied Science: Industrial Electronics Technology

**Program Learning Outcomes:**
Upon completion of the Industrial Electronics Technology Program, the students will be able to

1. Perform troubleshooting of electronic equipment using all available tools including multi-meters, oscilloscopes and schematic diagrams.

2. Analyze AC, DC and digital circuits and systems using applied mathematics and understanding of electronics theory.

3. Configure, troubleshoot and ensure data security for basic microprocessor and computer based control systems.

### Associate of Applied Science: Interior Design Technology

**Program Learning Outcomes:**
Upon completion of the Interior Design Technology Program, the students will be able to

1. Develop and present effective proposals utilizing appropriate design concepts, written materials and verbal presentation skills.

2. Apply media techniques appropriate to specific purpose and audience in the presentation of design solutions.

3. Develops design solutions that incorporate the principles and elements of design, ergonomics, anthropometrics, historical reference, and sustainability.

4. Produce design solutions that incorporate considerations of structural systems and methods building codes, lighting, and product selection.

5. Produces documents that satisfy industry business practice, project management and professional ethics.
**Associate of Applied Science: Interpreter Training Technology**

**Program Learning Outcomes:**
Upon completion of the Interpreter Training Technology Program, the students will be able to

1. Explain the interpreting process.

2. Explain the role of the interpreter and the client / interpreter relationship within the historical framework, responsibilities, and standard practices of the interpreting profession.

3. Interpret, transliterate, and sight translate, at a basic level, for English speakers, ASL speakers, and speakers who use a combination of ASL and contact signing.

4. Identify the tenets of the code of professional conduct and apply them according to standard practice.

5. Apply the specific skills, including language and interpersonal that are necessary for interpreting / transliterating / sight translating in the community and schools.
<table>
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<tr>
<th>Program Learning Outcomes:</th>
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<tbody>
<tr>
<td><strong>Upon completion of the Land Surveying &amp; Mapping Technology Program, the students will be able to</strong></td>
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</table>

1. Gather, record, process, and reduce measurement data using the equipment and hardware of the profession; then apply the proper statistical and mathematical adjustment methods to deal with the errors inherent in all measurements.

2. Utilize industry standard calculators, programmed and non-programmed, to statistical evaluations of traverse data, and reconcile any differences between record data, and measurement data to perform the necessary and appropriate adjustments.

3. Determine which GPS equipment and what GPS surveying methods would be best to use for a given project, plan date capture from satellite observations and then observe and use the information captured to determine the latitudes and longitudes of points on the earth.

4. Review a number of landmark court cases affecting boundary location and analyze a survey for the placement of a boundary line using evidence and the dignity of calls.

5. Complete either a Local Needs Capstone Exam Preparation course or a work-based internship that enables the student to apply specialized occupational theory, skills, and concepts while completing a learning plan developed by the college and the employer.
### Associate of Applied Science: Law Enforcement

**Program Learning Outcomes:**
Upon completion of the Law Enforcement Program, the students will be able to

1. Utilize research skills to effectively conduct exploratory research by synthesizing and applying researched information and prior knowledge to implementing solutions to issues concerning law enforcement, policy, and the community.

2. Apply techniques for effective written communication for a range of purposes.

3. Critically analyze the ethical, legal, political and social issues related to the community and law enforcement while considering multiple realistic constraints.

### Associate of Applied Science: Live Entertainment Technology

**Program Learning Outcomes:**
Upon completion of the Live Entertainment Technology Program, the students will be able to

1. Install audio / visual systems.

2. Program audio / visual systems.

3. Operate audio / visual systems.

4. Integrate themselves into the audio / visual workforce.
### Associate of Applied Science: Logistics Management

**Program Learning Outcomes:**
Upon completion of the Logistics Management Program, the students will be able to

1. Evaluate and specify the impact that alternative transportation methods have on distribution systems.

2. Communicate effectively, orally and in writing, as required in a business culture.

3. Conduct business in compliance with relevant national and international law, legislations, regulation, technology, safety requirements and professional standards in the international marketplace.

### Associate of Applied Science: Machining Technology

**Program Learning Outcomes:**
Upon completion of the Logistics Management Program, the students will be able to

1. Analyze technical issues as related to machine tool manufacturing.

2. Design a machined part for the development of technical requirements.

3. Develop machining resources to meet technical requirements.

4. Implement computer system solutions for the analysis, design and machining operations for the designed part in PLO2.

5. Evaluate manufacturing system problems, plans and solutions for cost effective production.

6. Communicate effectively to a group of peers the technical aspects of part manufacturing.
Level 1 Certificate: Massage Therapy

Program Learning Outcomes:
Upon completion of the Massage Therapy Program, the students will be able to

1. Exhibit successful professional behavior and competency learned during internship in order to successfully practice within the profession of massage therapy.

2. Demonstrate an understanding of the structures and functions of the human body relating to massage therapy.

3. Display proficiencies in the areas of palpation and application of massage therapy techniques.

4. Recognize the signs and symptoms for both the indications and contraindications for providing massage treatments.
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<th>Level 1 Certificate: Medical Assisting</th>
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<tr>
<td><strong>Program Learning Outcomes:</strong></td>
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<tr>
<td>Upon completion of the Medical Assisting Certificate, the students will be able to</td>
</tr>
<tr>
<td>1. Demonstrate knowledge of anatomy, physiology, and pathophysiology principles.</td>
</tr>
<tr>
<td>2. Demonstrate knowledge of Medical Assisting Clinical Procedures.</td>
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<tr>
<td>3. Demonstrate the effective utilization of communication and interpersonal relationship skills.</td>
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<tr>
<td>4. Demonstrate knowledge of basic Math and Pharmacology skills.</td>
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<tr>
<td>5. Identify skills required to develop and maintain professionalism.</td>
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<tr>
<td>6. Demonstrate knowledge of Medical Assisting Administrative Procedures.</td>
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<tr>
<td>7. Demonstrate knowledge of Medical Terminology and its applications.</td>
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<tr>
<td>8. Demonstrate knowledge of Medical Law and Ethics.</td>
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</table>
**Program Learning Outcomes:**
Upon completion of the Medical Radiologic Technology Program, the students will be able to

1. Demonstrate readiness to successfully complete (pass) the American Registry of Radiologic Technologists (ARRT) National Certification / Credentialing examination.

2. Demonstrate the ability to be certified and credentialed to practice Radiologic Technology within six months after graduation.

3. Demonstrate proficiency in communication skills.

4. Demonstrate proficiency in entry-level clinical skills.

5. Demonstrate critical thinking and problem solving ability.
Program Learning Outcomes:
Upon completion of the Network and Computer System Administrator Program, the students will be able to

1. Design a Microsoft Active Directory infrastructure design including physical and logical components.

2. Implement a Microsoft Active Directory infrastructure design including physical and logical components.

3. Maintain a Microsoft Active Directory infrastructure design including physical and logical components.

4. Design a multiprotocol environment.

5. Implement a multiprotocol environment.

### Associate of Applied Science: Nursing (AADN)

**Program Learning Outcomes:**

Upon completion of the Nursing (AADN) Program, the students will be able to

1. Provide individualized health care, based on the nursing process and a commitment to caring for culturally diverse patients and families across the life-span and wellness-illness continuum.

2. Utilize communication techniques effectively with patients, families, and health care team members.

3. Develop and implement teaching plans for patients and their families concerning promotion, maintenance and restoration of health.

4. Coordinate human and material resources for the provision of care for patients and families, in collaboration with patients, families, and other health care professionals.

5. Contribute to the improvement of nursing practice by serving as a role model and by adhering to high legal, ethical and professional standards.

6. Assume responsibility for personal and professional growth to enhance knowledge and skills for self and others through participation in continuing education activities.

7. Manage information using technology to support decision-making to improve patient care.
Level 2 Certificate: Nursing (Vocational Nursing)

Program Learning Outcomes:
Upon completion of the Nursing (VN) Certificate, the students will be able to

1. Provide patient centered nursing care for patients in structured health care settings who are experiencing common, well-defined health problems with predictable outcomes.

2. Utilize the nursing process, evidence-based practice and a commitment to caring for culturally diverse patients across the life span and wellness-illness continuum.

3. Apply a working knowledge of patient’s rights, protecting the rights and dignity of the patient and respecting the rights of others to have their own value system.

4. Utilize clinical reasoning and a problem-solving approach as the basis for decision-making in practice, based on application of scientific principles and clinical data.

5. Demonstrate responsibility and accountability for the quality of the care provided to patients and their families.

6. Utilize effective communication and collaborate with patients, families, and interdisciplinary health care team members.

7. Collaborate in the development and implementation of teaching plans for the patient and their families with common health problems and well defined health learning needs.

8. Assist in the coordination of human, information, and material resources in providing patient-centered care.

9. Accept and make assignments that take into consideration patient safety and organizational policy.

10. Adhere to the Texas Nursing Practice Act and Texas State Board of Nursing Rules that emphasize safety.
11. Function within the nurse’s legal scope of practice and in accordance with the policies and procedures of the employing health care institution or practice.

**Associate of Applied Science: Occupational Therapy Assistant**

**Program Learning Outcomes:**
Upon completion of the Occupational Therapy Assistant Program, the students will be able to

1. Select and implement evidence-based interventions to support participation in areas of occupations (e.g., ADL, education, work, play, leisure, social participation throughout the continuum of care.)

2. Gather information and formulate conclusions regarding the Client’s needs and priorities to develop a client-centered intervention plan.

3. Demonstrate professional standards and responsibilities to promote quality in practice.

4. Exhibit professional behaviors during the provision of occupational therapy services.
### Associate of Applied Science: Paralegal Studies

**Program Learning Outcomes:**
Upon completion of the Paralegal Studies Program, the students will be able to

1. Examine and evaluate ethical rules for paralegals and attorneys.

2. Research a legal issue resulting in a legal memorandum that correctly cites legal authorities.

3. Draft basic legal documents, including correspondence, basic pleadings, interrogatories, and a research memorandum.

4. Demonstrate the ability to identify and resolve ethical dilemmas that may be confronted in the workplace.

5. Enter the job market in the legal profession by drafting appropriate legal resumes and cover letters, setting up interviews and employing appropriate follow-up.

### Associate of Applied Science: Petroleum Data Technology

**Program Learning Outcomes:**
Upon completion of the Petroleum Data Technology Program, the students will be able to

1. Students will demonstrate understanding of oil and gas industry including upstream and downstream sectors, exploration, appraisal, drilling and well completion processes.

2. Students will be able to gather oil and gas data for a comprehensive data project and be able to interpret and present results in appropriate formats for business usage in cooperation with an industry mentor.

3. Students will communicate effectively with industry mentors using appropriate industry terminology.
Associate of Applied Science: Petroleum Field Service Technology

Program Learning Outcomes:
Upon completion of the Petroleum Field Service Technology Program, the students will be able to

1. Demonstrate competence in the operation of basic hydraulic and pneumatic systems; and the use of flow meters and pressure gauges; interpret schematics and troubleshoot systems; display a systematic approach to troubleshooting; and design a schematic drawing of a working system.

2. Demonstrate competence in the operation and programming of automated control systems.

3. Possess the skills needed to be able to work with different mechanical rotating equipment.

4. Explain industry's progression toward automation; employ control methods and procedures; operate motors and motor controls for automation; select appropriate sensors; and incorporate proper set-up, maintenance, and testing for automation.
## Associate of Applied Science: Pharmacy Technology

### Program Learning Outcomes:
Upon completion of the Pharmacy Technology Program, the students will be able to

1. Understand pharmacology principles by identifying the top 200 most commonly prescribed drugs by their drug classification, recognize their brand and generic names, therapeutic equivalences, dosage forms, strengths, and common to severe adverse effects.

2. Describe the various federal pharmacy laws, regulations, and professional standards related to storage, handling, waste, controlled substances, HIPPA, drug recalls, record-keeping, and documentation.

3. Demonstrate the understanding of pharmacy quality assurance procedures and documentation as it is related to pharmacy inventory management, infection control, risk management, communication channels, as well as productivity, efficiency, and customer satisfaction measures.

4. Demonstrate the knowledge of the medication order entry and fill process which includes the intake, interpretation, and data entry using accuracy in drug selection to promote medication safety, perform accurate dosage calculations, measure, label, package, and dispense to ensure proper pharmacy billing and reimbursement through third-party insurance while using specialized pharmacy information usage and applications.

5. Demonstrate and identify the proper techniques in sterile and non-sterile compounding procedures in accordance to <USP 797> and <USP 795>, including proper handwashing, handling, disposal, documentation, product stability, selection, and use of compounding equipment.
## Associate of Applied Science: Physical Therapist Assistant

### Program Learning Outcomes:
Upon completion of the Physical Therapist Assistant Program, the students will be able to

1. Implement a treatment plan under the direction and supervision of a physical therapist.

2. Perform data collection and measurement techniques selected by a physical therapist.

3. Devise solutions to clinical problems and adopt treatment based on the plan of care established by a physical therapist.

4. Demonstrate professional behaviors when working with patients, families, colleagues, and other healthcare professionals.

5. Provide treatment in an ethical, legal, safe, and effective manner under the direction and supervision of a physical therapist.

6. Demonstrate habits that indicate the capability required to sustain professional development which supports the PTA profession.
### Associate of Applied Science: Process Technology

#### Program Learning Outcomes:
Upon completion of the Process Technology Program, the students will be able to

1. Apply critical thinking to research, evaluate, analyze, and synthesize information to solve problems related to process equipment, instrumentation, systems, and operations within the petrochemical, refining, power generation, pharmaceutical, food & beverage, and related manufacturing industries.

2. Demonstrate excellent communication skills (oral and written) to ensure optimal communication with shift co-workers, first line supervisors, maintenance personnel, safety personnel, contractors, and other members of the process site team.

3. Demonstrate knowledge of process technology and apply the technical skills necessary to operate complex process equipment and systems such as distillation, boiler, refrigeration, cooling tower, reactor, and similar unit operations.

4. Describe the typical hazards found in process plants, basic PPE, and the requirements of regulating bodies regarding safety, health, and environmental issues (OSHA, DOT, EPA, etc.).
Associate of Applied Science: Respiratory Care Therapist

Program Learning Outcomes:
Upon completion of the Respiratory Care Therapist Program, the students will be able to

1. Administer and implement safe, effective respiratory care under supervision of department managers, respiratory therapists and physician direction.

2. Establish and maintain effective interpersonal relationships and be able to function interdependently with allied personnel.

3. Function within legal and ethical guidelines and within his/her capabilities and limitations.

4. Identify the role of the Respiratory Care Therapist in relation to the health care team.

5. Demonstrate organizational skills competently.

6. Offer explanations to patients addressing the respiratory needs of the patient professionally and achieving patient comprehension.

7. Record observations and respiratory care provided, accurately.

8. Recognize the importance of rehabilitation.

9. Continue personal and career growth through continuing education and/or formal education.

10. Recognize and advise when appropriate and/or intervene when medical outcomes are at risk.

11. Practice community involvement through Service Learning activities.
**Level 1 Certification: Surgical Technology (Surgical Technologist)**

**Program Learning Outcomes:**
Upon completion of the Surgical Technology Program, the students will be able to

1. Employ sterile technique when self-gowning and/or gloving, and/or assisting other team members.

2. Demonstrate initial techniques for preparing instruments and supplies on the sterile field; drape furniture and equipment needed for the surgical procedure.

3. Perform duties within their scope of practice related to emergencies in OR setting; including demonstration of CPR technique.

4. Plan the intra-operative course for a patient undergoing an OB/GYN surgery; assemble supplies, equipment, and instrumentation needed for the procedure.
Level 3 Certification: Vascular Sonography

Program Learning Outcomes:
Upon completion of the Vascular Sonography Program, the students will be able to

1. Apply the principles of physics and instrumentation relative to vascular examinations during the operation of sonographic equipment.

2. Demonstrate competence while performing non-invasive vascular examinations in a laboratory setting.

Associate of Applied Science: Veterinary Technology

Program Learning Outcomes:
Upon completion of the Veterinary Technology Program, the students will be able to

1. Demonstrate a thorough knowledge of animal husbandry, medical and patient care in all common domestic species.

2. Perform patient management, diagnostic, nutritional, and anesthetic skills required of a registered veterinary technician.

3. Exhibit understanding of the laws and ethics pertaining to veterinary medicine in the State of Texas in order to perform in an ethical and professional manner.

4. Practice effective, professional communication through verbal, written and electronic methods.
### Associate of Applied Science: Visual Communication

**Program Learning Outcomes:**
Upon completion of the Visual Communication Program, the students will be able to

1. Utilize industry specific production process toward a final output.
2. Apply design principles to execute industry specific project objectives.
3. Research the field of study to prepare for an entry-level position.
4. Apply verbal and written communication to interpret client’s goals.

### Associate of Applied Science: Welding Technology

**Program Learning Outcomes:**
Upon completion of the Welding Technology Program, the students will be able to

1. Apply the ANSI standards for welding safety.
2. Produce welds using various processes to published industry standards.
3. Evaluate welds according to current industry standards.
4. Demonstrate professionalism in communication skills, work ethic and personal bearing.