



Course Catalog 2020-
2021

Welcome to the... **GRANITE TECHNICAL INSTITUTE**

The Department of Career and Technical Education in Granite School District has a well-earned reputation for providing high-quality programs that are targeted at high-demand industries. To further this focus, the *Granite Technical Institute* offers courses in Health Science, Technology & Engineering, Information Technology, Biotechnology, Culinary Arts, Aviation, Agriculture and Home Building/Construction. The GTI offers classes in 2 period blocks only due to traveling time. Semester classes reward 1.00 credit and Year classes reward 2.00 credits.

The **mission** of the *Granite Technical Institute* is to support students in finding personal purpose, potential and a pathway to their future. This is accomplished by helping students achieve in their program and move seamlessly into further training and employment. Effort is made to directly align critical academic subjects with career and technical education courses, thus promoting real-world application of academic theory in such areas as mathematics, science and English. In addition, articulation and collaboration with Salt Lake Community College and other post-secondary institutions makes the transition to post high school education easier for students. Clear pathways of training have been designed to support student growth from the 9th through the 12th grades. Courses being offered during the 2018-2019 school year are included in the pages that follow.

CE ** Concurrent Enrollment College Course - Many of the courses offered here at the GTI are concurrent college courses; **11th and 12th grade** students can receive high school and college credit for successfully completing the course. It is the student's responsibility to apply to **Salt Lake Community College (\$40), Weber State (\$35), Utah Valley University (\$30), Utah State University (\$50)** (fees are non-refundable) by August 20th. Students must also pay (to the college) a \$5.00 fee per credit hour (non- refundable).

Busing will be provided for students twice daily from the student's home high school to the GTI. All courses listed in this catalog will be taught at the Granite Technical Institute (2500 South State Street) unless otherwise specified. This schedule is designed to accommodate two-period block enrollments. Students interested in registering for these courses should see the Career Center Coordinator at their high school. Questions regarding the Granite Technical Institute can be directed to Ben Anderson at 385-646-4350, email: bkanderson@graniteschools.org or Julie Bagley, GTI Counselor at 385-646-4629, email: jibagley@graniteschools.org

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HOW TO REGISTER

In order to register for any of the classes offered through the Granite Technical Institute, pick up an application in the Career Center of their high school. Once the application is complete and signed by both the student and their guardian return to the Career Center for review and approval by the Career Center Coordinator. The Career Center Coordinator will then help the student determine whether additional information is required and will help facilitate the scheduling process.

9th Grade student registration procedure still at the Jr. Highs.

Ninth grade students who wish to access designated courses must work out their class schedules individually with their guidance counselor. Fill out a C.T.E. application and return it to the guidance counselor who will then notify the appropriate high school. (Please note that the student will NOT be enrolled in the class(s) unless they turn in the application). Students must also arrange their own transportation to and from the nearest high school where they will catch the bus to the G.T.I. The bell schedules and the bus schedule for the G.T.I. are available at <http://gti.graniteschools.org>.

ACADEMIES OF BUSINESS

The most popular bachelor's degree in the United States is in Business (22% of all bachelor's degrees). The Academy of Finance is new this year to the G.T.I. The Academies are affiliated with SLCC to allow students to earn concurrent college credit. Students will enroll in two courses each semester. If students graduate from the Academies, they fulfill at least 1 Utah State Pathway. This program requires all students to be concurrently enrolled through Salt Lake Community College.

Did you know the Hospitality & Tourism is Utah's #2 industry, bringing in over \$6 billion in revenue to Utah's economy. The United States Bureau of Labor Statistics estimates that 1.3 million jobs will be added by the year 2020.

ACADEMY OF HOSPITALITY & TOURISM

Year (2 period block) 10-12 grade

\$25 fee per course required per semester

The Academy of Hospitality & Tourism is a two-year program for sophomores, juniors and seniors with career interests in the business of hospitality and tourism. The comprehensive curriculum includes business management, marketing, accounting, hospitality services, travel and tourism, desktop publishing, customer service, and business communication. Students take four semester classes each year for a two-year period.

Familiarization tours & job shadows are taken to expose the students to possible careers in the industry. Possible familiarization tours include: Arches National Park, Goblin Valley State Park, Zion National Park, Dead Horse Point, Canyonlands National Park, Bryce Canyon National Park, The Grand America Hotel, Marriott, Intercontinental Hotels Group & many others. Students can earn up to 9 college credits in this two-year program. Enrollment is open to any Granite School District student able to excel in college level coursework. Additional Fees may be incurred for optional field trips offered to students. **Concurrent Enrollment through SLCC and Weber State. Students must apply for admission to both colleges.**

***College books are an additional cost.**

Fall 2020 Semester Courses:

Marketing 1030: Introduction to Marketing CE
Hospitality & Tourism I

Spring 2021 Semester Courses:

Sports & Entertainment Marketing
Customer Service CE (Weber) PS1403

Fall 2021 Semester Courses:

Lodging & Recreation
Intro to Business: BUS 1010 CE

Spring 2022 Semester Courses:

Business Communications I*
Event Planning

ACADEMY OF FINANCE

Year (2 period block) 11-12 grade

\$25 fee per course required per semester

The Academy of Finance is a two-year program for juniors and seniors who are interested in a career in the business of financial services. The curriculum includes economics, accounting, financial planning and products, banking, and marketing. Students take four semester classes each year during their junior and senior years. Students can earn up to 21 college credits in this two-year program. Enrollment is open to any Granite School District student able to excel in college level coursework. *College books are an additional cost.

Fall 2020 Semester Courses:

Marketing 1030: Introduction to Marketing CE
Accounting I CE ACCT 1110

Spring 2021 Semester Courses:

Accounting II CE ACCT 1120
Customer Service CE (Weber) PS1403

Fall 2021 Semester Courses:

Intro to Business: BUS 1010 CE
Economics: ECO 1010 CE

Spring 2022 Semester Courses:

Business Communications I*
Personal Finance: FIN 1050** CE

*English Credit (.50 credit for senior English)

**Financial Literacy Credit

ACADEMY OF EDUCATION

ORIENTATION TO EDUCATION CE **

Semester 11-12 grade

\$20 Course fee required per semester

(Taken with Teaching as a Profession 2 = 2 period block)

Teaching as a career - challenges and rewards, history, philosophies, social issues, legal issues, job availability, and governance. Preparation for acceptance into a teacher education program. Field experience required. All students will have time in an elementary classroom as part of this class.

This course offers concurrent enrollment through SLCC EDU1010 3.0 credit hours. Student is responsible to register and pay for concurrent enrollment classes at SLCC.

TEACHING AS A PROFESSION 2

Semester 11-12 grade

\$20 Course fee required per semester

(Taken with Orientation to Education CE = 2 period block)

This course is designed for students to learn, observe, and experience how an educator uses instructional strategies to successfully manage a classroom. Students will learn the importance of teaching as a profession. Students will learn to apply instructional strategies and create learner appropriate activities that inspire the enjoyment of learning. As part of the concurrent class students will discuss challenges and rewards, history, philosophies, social issues, legal issues, job availability, and governance. This course also prepares students for acceptance into a teacher education program. Field experience required.

LIFESPAN HUMAN DEVELOPMENT CE **

Semester 11-12 grade

\$20 Course fee required per semester

Fundamentals of growth and development from preconception to old age and death are explored. The domains of physical, cognitive, and social-emotional growth for each age in the life cycle are explored in a variety of contexts. *This course offers concurrent enrollment through SLCC FHS 1500, 3.0 credit hours.* Student is responsible to register and pay for concurrent enrollment classes at SLCC.

TEACHING AS A PROFESSION 3

Semester 11-12 grade

\$20 Course fee required per semester

This course is designed to familiarize students with professional expectations and responsibilities of an educator. Students will create an electronic unit plan portfolio that includes classroom management plans, formative and summative assessments, technology in the classroom, data collection and analysis, and a variety of lesson plans. Students will also be in schools and classrooms to practice skills with professional educators.

AGRICULTURAL SCIENCE

Agriculture is the nation's largest employer, with more than 21 million people working in some phase of industry from growing food and fiber to selling it in the supermarkets. The mission of Agricultural Science and Technology Education is to prepare students for employment and/or continuing education opportunities in the field of agriculture. This is accomplished through technical instruction in the classroom, experiential education in the laboratory, the Supervised Agricultural Experience Program, and through leadership and personal development in FFA (Future Farmers of America-student organization).

ANIMAL SCIENCE I

Semester (2 period block) 9-12 grade

\$30 course fee required per semester

Animal Science will provide students with the opportunity to explore the many aspects of the livestock industry. During this course, students will study breeds of dairy cattle, beef cattle, equine, sheep, swine, and poultry. Students will look at animal breeding and reproduction, housing facilities, proper management practices, and feeding and nutrition. Judging and showing of some of these livestock breeds will also be included. FFA involvement is recommended for all students enrolled in this course. **This course may also be taken to fulfill a third science credit requirement.**

ANIMAL SCIENCE II

Semester (2 period block) 11-12 grade

\$30 course fee required per semester

Prerequisite: Animal Science 1 or Equine Science

Students will develop knowledge and skills in a wide range of animal agriculture principles, including anatomy and physiology, health maintenance, waste disposal and facilities. The efficient production and effective management of selected animal enterprises are covered, including beef and dairy cattle, swine, sheep, goats, poultry and equine. Practices in veterinary medicine and those associated with small animal care are included. FFA involvement is recommended for all students enrolled in this course.

FLORICULTURE AND GREENHOUSE MANAGEMENT

Semester (2 period block) 9 - 12 grade

\$30 Course fee required per semester

This intensive course in greenhouse operation and management prepares students to produce commercial plant species in a controlled environment and to manage commercial and experimental greenhouse operations. Studies will also include: basic plant biological systems, soil science, plant propagation, and floral design.

EQUINE SCIENCE 1 & 2

Semester (2 period block) 9-12 grades

\$30 Course fee required per semester

This course prepares students to care for horses and horse equipment; to train horses for various work and athletic or entertainment roles; and to manage horse training, breeding, and housing programs and facilities. **This course may also be taken to fulfill a third science credit requirement.**

INTRO TO HORTICULTURE

*Semester (2 period block) 11-12 grades CE ** (PURE)*

This course is an introduction to the production of nursery, greenhouse, fruit, and vegetable crops. Residential and commercial landscape construction and management will be explored, and students will learn about interior plants, arboriculture, turf science, landscape plant materials, and home gardening. This class is one of the first requirements for the USU Horticulture Major and fulfills a Breadth Life Science requirement at USU. Utah State concurrent enrollment credit PSC 1800-3 credits). **This course may also be taken to fulfill a third science credit requirement.**

LANDSCAPE MANAGEMENT/ NURSERY OPERATION

Semester (2 period block) 9-12 grade

\$30 Course fee required per semester

Students will develop knowledge and skills in nursery operation and landscape management practices that will prepare the students to select appropriate plant materials and to design, install, and maintain interior and exterior plantings and hardscapes. They will also learn to maintain the facilities and equipment associated with this industry.

NATURAL RESOURCE SCIENCE I

Semester (2 period block) 9-12 grade

\$10 Course fee required per semester

This introductory course is designed to give students knowledge and skills related to production, management, and conservation of natural resources. Students explore such topics as ecology, range resources, waste management, and land use. Students will also be introduced to various careers in Natural Resource Science such as fish and game officer, water technician, and park manager. Hands-on field experience is emphasized at weekly trips to Wheeler Farm and other sites. **This course may also be taken to fulfill a third Science credit requirement.**

NATURAL RESOURCE SCIENCE II

Semester (2 period block) 10-12 grade

\$10 Course fee required per semester

Prerequisite: Natural Resource Science I

This course builds upon knowledge and skills gained in Natural Resource Science I. In addition, it covers such topics as the biological, environmental, and economical importance of renewable natural resources, and forest and range products. Students will also be introduced to various careers in Natural Resource Science such as fish hatchery manager, wildlife officer, hunting outfitter/guide. Hands-on field experience is emphasized at weekly trips to Wheeler Farm and other sites. **This course may also be taken to fulfill a third Science credit requirement.**

VETERINARY ASSISTANT 1

Semester (2 period block) 10-12 grade

\$30 Course fee required per semester

Prerequisite (one of the following): Animal Science I or Equine Science

This course is designed to encourage students to pursue a career in large animal veterinary practice. The program will focus on the following areas of study: safety and sanitation in veterinary science, veterinary terminology, anatomy and physiology, clinical examinations, hospital procedures, parasitology, Course oratory techniques, animal nutrition, principles of disease, animals in society, career exploration, and animal management.

Students enrolled in this program will also have leadership opportunities through the FFA, a component that will be integrated into the vet assistant course. This course provides entry-level skills for those students who want to enter an occupation right out of high school and provides the background necessary for students interested in pursuing a professional degree. Course oratory activities provide students with the hands-on experience and skills needed to participate in the exciting field of veterinary medicine. **This course may also be taken to fulfill a third science credit requirement.**

AVIATION PROFESSIONAL PILOT PROGRAM

In cooperation with Utah Valley University, high school students may enroll in the aviation courses listed below and receive concurrent enrollment credit from UVU. Exceptions to this format must be arranged through the G.T.I. administration.

CE ** Concurrent Enrollment College Course

1st Semester classes

PRIVATE PILOT GROUND SCHOOL CE **

Semester (2 period block) 11-12 grade (must be 17 by the end of the semester)

\$40 Course fee required per semester

This course focuses on the study of aviation fundamentals, principals of flight, aircraft and engine operations, weather, navigation, and radio communications as required by FAA regulations. Students will be prepared to begin flight training. This course must be taken for UVU concurrent enrollment credit AVSC 1100, 4.0 credits.

PRIVATE FIXED WING SIMULATOR LAB

(Taught in conjunction with Private Pilot Ground School)

Practical application in a simulation lab to include the information for private pilot flight maneuvers, procedures, and regulations for takeoff, cruise, traffic pattern operations, approach, emergencies, and cross-country operations. Time in the Simulator is based on size of the class. Taken concurrently with Private Pilot Ground School.

SURVEY OF AVIATION SCIENCE CE **

Semester (2 period block) 11-12 grade

\$30 Course fee required per semester

Designed for all students interested in aviation careers. Includes a general knowledge of aviation, historical events, and aerospace studies/development opportunities. Studies aviation and aerospace terminology, how aircraft and spacecraft fly, research and development of future systems, government and industry roles in the growth of aviation, and potential careers in aviation. This course must be taken for UVU concurrent enrollment credit AVSC 1010, 2.0 credits.

2nd Semester classes

DRONE: REMOTE PILOT PREP CE **

Semester (2 period block) 11-12 grade (must be 17 by the end of the semester)

\$40 Course fee required per semester

This course covers the history, safety, rules, and regulations, as well as the design and construction of small unmanned aerial systems (UAS). This course must be taken for USU concurrent enrollment credit, AV 1900: Drones History, Rules and Remote Pilot License Preparation 2.0 credits, AV 1910: Drones: Flight Labe 1.0 credits.

AIR TRANSPORTATION MANAGEMENT CE **

Semester (2 period block) 11-12 grade

\$30 Course fee required per semester

Presents the managements skills necessary to be a fixed based operator and entry-level manager for scheduled airlines in the national aviation system. Teaches management functions, marketing, financing, organization and administration, flight operations, maintenance, safety and liability. Provides hands-on experience of management styles through evaluations and critiques of local airlines and airport facilities. Includes a student's simulated model of an FBO and related management operations as a final project. This course must be taken for UVU concurrent enrollment credit AVSC 2150, 3.0 credits, for qualified 11th and 12th grade students.

BIOTECHNOLOGY/BIOMANUFACTURING

CE ** Concurrent Enrollment College Course

BIOTECH RESEARCH CE ** (PURE)

Year (2 period block) 11–12 grades

\$30 Course fee required per semester

This hands-on introductory course provides opportunity for students to explore the exciting emerging world of biotechnology. It provides a solid foundation for students who wish to pursue careers in fields such as bioengineering, biotechnology, and biological science among others.

Developing marketable, hands-on lab skills is the course's primary objective. This objective is met as students work at the lab bench on such topics as DNA structure, gene expression, protein synthesis, recombinant DNA strategies, DNA testing, DNA sequencing, forensics, and bioethics. This course must be taken for UVU concurrent enrollment credit BTEC1010, 3.0 credits. **This course may be taken to fulfill a third science credit requirement.**

BIOMANUFACTURING 1/ MANUFACTURING PRINCIPLES 1

Semester (2 period block) 10–12 grades

\$40 Course fee required per semester

This course offers hands-on projects designing and building medical devices. Learn 3D printing on the first day of class. Fieldtrips to Utah's most elite medical device engineering, manufacturing and compliance testing companies happen. Understand why FDA regulations and quality systems are important to the medical device industry. Learn the principles and benefits of LEAN (today's industry standard), Six sigma and continuous improvement (Kaizen) in manufacturing. Students will create engineering drawings, use precision measuring instruments, and use CNC manufacturing equipment. Students will learn and demonstrate current technical and engineering professional workplace skills. Career planning and continuous learning skills are acquired. This course may be taken for CTE credit or to fulfill additional science credit requirement.

This course may be taken for CTE credit or to fulfill a third science credit requirement.

CONSTRUCTION TRADES

This is a comprehensive construction experience where students, under the supervision of experienced, licensed contractors, help construct an entire house while participating in all phases of home construction or participate in a variety of commercial construction projects. Students may specialize in residential carpentry, commercial carpentry, electrical, or plumbing, with the ability to participate in all of these trades. This is an excellent experience for those interested in construction related careers, including construction management, or for those who want building and remodeling experience. Apprenticeship programs are available. **Transportation is provided to the construction site.**

ELECTRICAL TRADES CE **

Year (2 period block) 10–12 grades

\$15 Course fee required per semester

This is a comprehensive electrical experience where students are under the supervision of an experienced and licensed electrical contractor. Students will be engaged in the wiring of a home, which includes: the rough and finish wiring, electrical service, and all phone and data. Students will also experience many commercial projects around the district where they will learn conduit bending and the differences between residential and commercial wiring. In addition to hands-on projects, students will also learn the National Electrical Code and Electrical Theory. This class provides great experience for those interested in electricity and those who may want to be part of basic electrical installations and remodeling. Apprenticeship programs are available. This course may be taken for SLCC concurrent enrollment credit ELI 1110, 6.0 credits, for qualified 11th and 12th grade students.

HOME BUILDING (RESIDENTIAL CARPENTRY) CE **

Year (2 period block) 10–12 grades

\$20 Course fee required per semester

Prerequisite: 10th graders must have completed Construction Trades 1 or 2 before taking Homebuilding.

This is both an introductory and second year class that is designed to provide the student with a solid base of understanding and experience in the carpentry trade. Students will be exposed to this trade by constructing a residential home off site (bussing provided). This course will involve students with hands-on and learning activities in the building process from digging the foundation to shingling the roof. Other opportunities include: plan reading, concrete work, all phases of framing, insulation, drywall, hanging doors & windows, interior doors and trim work, exterior finishes, painting.

Construction Management is addressed and the class is also offered as a Salt Lake Community Concurrent class for sophomores, juniors & seniors. This class is fun and will provide valuable training and experience that can be used in a career or for personal remodeling or construction projects. This course may be taken for SLCC concurrent enrollment credit CMGT1320, 4.0 credits and CMGT 1330, 4.0 credits, CMGT 1410, 2.0 credits for qualified 11th and 12th grade students.

PLUMBING

\$15 Course fee required per semester

Year (2 period block) 10–12 grades

This is a comprehensive construction experience where students, under the supervision of an experienced licensed contractor, participate in a variety of commercial construction projects. Students may specialize in plumbing with the opportunity to participate in all trades. This is an excellent experience for those interested in construction-related careers, including construction management, or for those who want building and remodeling experience. Apprenticeship programs are available.

CONSTRUCTION TRADES FOUNDATION 1

\$15 Course fee required per semester

Semester (2 period block) 9-10 grades

Construction Trades Foundation 1 is designed to introduce students to the basic skills needed for an entry-level position in the construction field. Students will be exposed to basic safety, which complies with OSHA-10 training. Students will work with construction math. They will be adding, subtracting, dividing, and multiplying whole numbers, fractions, and decimals, and explain their application to the construction trades. Students will learn about the safe use of hand and power tools used in the industry and will be familiarized with reading, interpreting, and applying construction drawings. Students will be taught about basic rigging. They will also be introduced to material handling and recognizing hazards associated with the construction industry. The communication skills needed for job interviews and working with co-workers and supervisors will be emphasized. This class will be a great experience for those interested in the construction industry.

CONSTRUCTION TRADES FOUNDATION 2

\$15 Course fee required per semester

Semester (2 period block) 9-10 grades

Construction Trades Foundation 2 provides students with the opportunity to explore many areas of the construction industry. Licensed contractors teach this class, and students will be able to work through learning modules at their own pace and in several areas. Students will be exposed to site lay out and distance measurements; concrete and masonry; floor systems; wall, ceiling, and roof framing; and roofing applications. They will be taught basic stair layout and exterior finish and will learn about electrical safety and residential electrical installation. Students will also be introduced to drain, waste and vent systems using plastic and copper pipe and fittings for residential construction. This is an excellent class for those who want to learn about the construction industry.

CRIMINAL JUSTICE

The Criminal Justice program is designed to prepare students for an exciting career in the field of law or law enforcement. Students will learn the basics of criminal justice, criminal law and corrections and how these subjects impact and interplay with current events. The Careers in Law Enforcement course will explore many diverse career opportunities that are available/possible including Police Officer, Swat Team member, Detective, k-9 Officer and other criminal justice related disciplines as well as careers with Federal Agencies such as FBI, Secret Service, DEA and ATF. Students will have the opportunity to meet professionals in criminal justice related fields and participate in a variety of criminal justice related activities. The courses in the Criminal Justice program are college level courses and include frank discussions of mature, adult subject matter.

INTRO TO CRIMINAL JUSTICE- CE ** (PURE)

Semester 11-12 grade

(Taken with Intro to Corrections = 2 period block)

This course explores theories, concepts and methods used to facilitate understanding, predicting and responding to issues of deviance and crime in America. Also includes development and evolution of components of the American Criminal Justice System, including the history of racial, ethnic and gender discrimination in charging, conviction, incarceration and employment. CTE credit or Elective credit: up to 2 credits total. *This course offers SLCC concurrent enrollment credit CJ 1010*, student is responsible to register and pay for concurrent enrollment classes at SLCC.

INTRO TO CORRECTIONS - CE ** (PURE)

Semester 11-12 grade

(Taken with Intro to Criminal Justice = 2 period block)

This course examines the history, function and administration of corrections in our criminal justice system. *This course offers SLCC concurrent enrollment credit CJ 1300, 3 credits*. Student is responsible to register and pay for concurrent enrollment classes at SLCC.

CRIMINAL LAW - CE ** (PURE)

Semester 11-12 grade

Taken with Career in Law Enforcement = 2 period block

This course examines crimes, defenses, and the historical origins and development of criminal law in our society. Topics include sources of substantive law, case law, classification of crimes, parties to crime and related topics. *This course offers SLCC concurrent enrollment credit CJ 1330.* Student is responsible to register and pay for concurrent enrollment classes at SLCC.

CAREER IN LAW ENFORCEMENT CE ** (PURE)

Semester 11-12 grade

This course provides an insight into the workings and hiring practices of various law enforcement agencies such as ATF, DEA, FBI and local, county, and state police agencies. *This course offers SLCC concurrent enrollment credit CJ 2540, 3 credits.* Student is responsible to register and pay for concurrent enrollment classes at SLCC.

CULINARY ARTS

It's no secret that the restaurant and food service industry is growing. In fact, it is estimated that from 2012 to 2020 the number of jobs in the restaurant and food service industry is projected to increase by 21 million, of which approximately 50,000 will be management positions!

CULINARY ARTS 1/PROSTART 1 CE **

Semester (2 period block) 10-12 grade

\$30 Course fee required per semester

Prerequisites: Foods 1 or Foods 2

This is an advanced culinary class that is an industry-driven curriculum preparing students for a career in restaurant and food service management. Students will learn and practice hands on skills dealing with safety and sanitation, industrial kitchen equipment, seasoning and cooking techniques, food preparation and exploration, management and front of the house basics. Students prepare a professional portfolio related to food services. Students will have the opportunity to receive a ServSafe managers certificate, Workplace Safety certificate and with completion of both ProStart 1 and ProStart 2, a National Restaurant Association Certificate. Students also have opportunities with FCCLA, ProStart and Skills USA to compete in culinary competitions for further exploration and skills in the food service industry. This course will strengthen comprehension of concepts and standards outlined in Sciences, Technology, Engineering and Math (STEM) education. *This course offers SLCC concurrent enrollment credit CHEF 1110, 3 credits.*

CULINARY ARTS 2/PROSTART 2

Semester (2 period block) 11-12 grade

\$30 Course fee required per semester

Prerequisites: Culinary Arts 1/Prostart 1

This is an advanced culinary class that is an industry-driven curriculum preparing students for a career in restaurant and food service management. Students will learn and practice hands on skills dealing with safety and sanitation, menu development and marketing, food preparation and exploration and cost control in a food service environment. Students will have the opportunity to receive a ServSafe managers certificate, Workplace Safety certificate and with completion of both ProStart 1 and ProStart 2, a National Restaurant Association Certificate. Students also have opportunities with FCCLA, ProStart and Skills USA to compete in culinary competitions for further exploration and skills in the food service industry. This course will strengthen comprehension of concepts and standards outlined in Sciences, Technology, Engineering and Math (STEM) education.

BAKING AND PASTRY

Semester (2 period block) 12 grade

Prerequisites: Prostart 1 and Prostart 2

\$30 Course fee required per semester

FIRE SCIENCE PROGRAM

This program prepares individuals to perform the duties of a firefighter. Instruction includes training in safety, firefighting, equipment operation, maintenance, and the principles of the fire science.

INTRODUCTION TO EMERGENCY SERVICES CE ** (PURE)

Year 11-12 grade

\$40 Course fee required per semester

(Taken with Principles of Fire & Emergency Services Safety = 2 period block)

REQUIREMENT: Due to some strenuous physical activities, the student must pass a physical entrance test and must obtain a physician's approval based on such requirements.

This course introduces the various duties within emergency services, including structural firefighting, wildland fire fighting, technical rescue, hazardous materials control, fire protection, fire investigations, and incident command. Develops basic emergency skills in hazard recognition, response organization, and fire extinguisher use. *This course offers concurrent through Utah Valley University, ESFF 1000 4.0 credit hours.* Student is responsible to register and pay for concurrent enrollment classes at UVU.

PRINCIPLES OF FIRE & EMERGENCY SERVICES SAFETY CE ** (PURE)

Year 11-12 grade

\$40 Course fee required per semester

(Taken with Introduction to Emergency Services = 2 period block)

REQUIREMENT: Due to some strenuous physical activities, the student must pass a physical entrance test and must obtain a physician's approval based on such requirements.

Introduces the basic principles and history related to the national firefighter life safety initiatives. Focuses on the need for cultural and behavior change throughout the emergency services. *This course offers concurrent through Utah Valley University ESFF 1120 3.0 credit hours.* Student is responsible to register and pay for concurrent enrollment classes at UVU.

GENERAL CONCURRENT CLASSES

CHEMISTRY WITH LAB CE ** (PURE)

Semester 11-12 grade

\$15 Course fee required per semester

This course is designed for students who want to obtain a basic understanding of chemistry. No previous knowledge in chemistry is needed. A foundation of basic chemical knowledge is provided for students who need to prepare for further study in chemistry as well as for students who only want an introductory survey course. Concepts covered include general chemistry principles such as chemical measurements, formulas, reactions, equations, solutions, states of matter, atomic structure and nomenclature. Quantitative problem-solving skills are developed and include the application of significant figures, dimensional analysis, stoichiometry, and ideal gas law calculations. The successful student will attain a modern scientific perspective on the world around them as well as new problem-solving skills that can be readily applied throughout their daily lives.

This course offers concurrent enrollment through SLCC CHEM 1010, 3.0 credit hour. Student is responsible to register and pay for concurrent enrollment classes at SLCC.

HEALTH SCIENCE TECHNOLOGY

CE ** Concurrent Enrollment College Course

Our Health and Medical Programs are some of our most popular as students recognize that there is a high demand for skilled health care professionals. Students can graduate from high school as a Nursing Assistant, Medical Assistant, EMT, or Pharmacist Technician and make \$9-\$14 an hour and be better prepared for nursing school, medical school, pharmacy school or any other medical profession.

CERTIFIED NURSE ASSISTING

Semester (2 period block) 11-12 grade

Requirement: You must be 16 yrs. old when you begin the course.

\$40 Course fee required per semester

Prerequisite: Medical Terminology with a passing grade of C or higher

This program is designed to prepare students for a career as a Healthcare Professional. Students are trained to perform routine nursing-related services to patients in hospitals or long-term care facilities under the training and supervision of a registered nurse or licensed practical nurse. Students learn basic nursing skills such as taking and recording vital signs, assisting with activities of daily living, patient observation, and recognizing abnormal changes in body functioning. General areas of study include: basic nursing skills, personal care skills, mental health and social service needs, care of cognitively impaired residents, basic restorative services and resident rights. This course requires a 46-50 hour clinical experience in a skilled nursing facility working with real patients, in addition to 110 classroom/theory hours on campus in the GTI CAN classroom. Clinical rotations last 8 weeks, and students will attend one day per week from either 3:00-8:00 p.m. or 4:00-9:00p.m.6:00 a.m.-2:00 p.m. Students must supply their own uniforms/scrubs. Also, students should purchase their own blood pressure cuff and stethoscope to practice vital signs outside the classroom. An additional .25 credit will be earned by completing clinical hours. Students must have good social skills, good attendance & punctuality, and the ability to transport themselves to their clinical experiences. **Students must provide a social security or IRS number in order to take the state C.N.A. exam.** If the student completes all classroom and clinical requirements, they can be recommended to take the State Certification exam, and become a Certified Nursing Assistant ready to work in the medical field. Some college and university nursing programs also require a CAN for admission to their medical programs. Cost for state certification exam is \$85. Maroon Scrubs are needed for Clinicals, which can be purchased for \$17 or checked out.

DENTAL ASSISTING I

Semester (2 period block) 12 grade

\$40 Course fee required per semester

Dental Assisting I: Introduces students to the field of dental assisting. Students will learn basic patient care skills in preparation to assist a dentist or dental hygienist in functions of a dental practice. Skills include: infection control procedures, patient preparation, examination, preventive care, dental materials, and restorative and specialty procedures.

DENTAL ASSISTING II

Semester (2 period block) 12 grade

\$40 Course fee required per semester

Prerequisite: Completion of Dental Assisting

Dental Assisting II: Students will complete their training with dental imaging, laboratory skills: bleaching trays, custom trays, sports guards, front office training in the Dentimax system and expanded function skills. Students will learn job-seeking skills to aid in obtaining a 90-hour externship for fourth term. **Dental Assisting I and II is NOT accredited through the Dental Assisting National Board (DANB).** CPR training is offered at the GTI for an additional cost.

EMR (Emergency Medical Responder) CE **

Semester 9-12 grades (PURE 11-12 Concurrent only)

\$40 Course fee required per semester

(Taken with Intro to Health Science & Technology = 2 period block)

This semester course provides students with advanced emergency medical information and skills. The course introduces students to a variety of career options in emergency medicine along with preparing students to take nationally recognized tests and certification in Advanced First Aid, CPR and Emergency Medical Response. Students will learn basic skills prior to enrolling in EMT, nursing assisting, medical assisting and dental assisting courses. This course offers Weber State University concurrent enrollment credit AT 2300, 3.0 credit hours.

EMT (Emergency Medical Technician) CE **

Year (2 period block) 12-grade

\$40 Course Fee required per Semester

This program prepares students to perform initial medical assessment, treatment, and comprehensive care in medical crises, under the general supervision of a coordinating physician. Instruction includes all aspects of basic health care, disease and disorder recognition, injury diagnosis, and emergency treatment procedures for various injuries and disease outbreaks. Students learn theory and then participate in extensive skill practice sessions with EMTs. Students will be registered with the Utah Bureau of Emergency Medical Services to become a Certified EMT. Students must have a social security number for state certification. Please see your class disclosure for a breakdown of possible additional fees. This course offers Salt Lake Community College concurrent enrollment credit HSEM 2300, 10.0 credit hours. **Students must provide a social security number in order to take the state Emergency Medical Technician exam.**

EXERCISE SCIENCE/SPORTS MEDICINE CE **

Semester (2 period block) 11-12 grade

\$35 Course fee required per semester

Prerequisite: Medical Terminology or EMR/ Intro to Health Science. Medical Anatomy & Physiology recommended.

This course is designed to teach students components of Exercise Science and Sports Medicine by exploring topics such as anatomy/physiology, medical terminology, injury evaluation, nutrition, rehabilitation, and sports psychology. The course also includes many taping procedure labs and other hands-on activities. Extracurricular opportunities such as Future Doctors and job shadowing externships, allow students to further investigate areas of medicine. This course offers concurrent enrollment through Utah Valley University, Pes 2400, 2.0 credit hours.

INTRO TO HEALTH SCIENCE & TECHNOLOGY

Semester 9-12 grades

(Taken with EMR = 2 period block)

This semester course is designed to create an awareness of career possibilities in health care and inform students of the educational options available for health science and health technology programs. Instruction includes beginning anatomy and physiology, medical terminology, medical ethics, diseases and disorders.

MEDICAL ASSISTING

Year (2 period block) 12-grade

\$30 Course fee required per semester

Prerequisite: Medical Terminology; Instructor strongly recommends Medical Anatomy & Physiology

When all requirements are met, this program prepares students to assist practitioners in the front office and clinical setting of a medical office. The rigorous curriculum covers: administrative areas such as bookkeeping, insurance matters, and general office management; and clinical duties such as assisting with physical exams, screenings, treatments and completing duties in the medical office laboratory. A 160-hour externship is required for completion of certificate. Students must have good social skills, excellent attendance, a desire to serve their community, and the willingness to learn. An application is required for this program, and lists specific expectations.

MEDICAL ANATOMY & PHYSIOLOGY CE **

Year (2 period block) 11-12 grades

\$15 Course fee required per semester

Create models of human systems. Explore through dissections and hands-on activities. Investigate how the human body changes with diseases and disorders. This course provides an exciting in-depth experience of the human body that includes medical terminology and medical ethics. Discover your future as a health care professional through job shadowing and service learning experiences. Prepare for success in a variety of health technology programs. **This course may also be taken to fulfill a third Science credit requirement.** Students are required to be concurrently enrolled through Weber State, HTHS 1120, 3 credits.

MEDICAL FORENSICS CE ** (PURE)

Semester (2 period block) 11-12 grades

\$30 Course fee required per semester

This course is designed to create an awareness of the branch of health science relating to medical forensics and working in a medical laboratory. Students will learn to identify, analyze, and process logically using deductive reasoning and problem solving. It focuses on introductory skills necessary to prepare students for the crime scene or crime lab investigation and medical lab work. This course offers SLCC concurrent enrollment credit CJ 1350, 3 credits. **This course may be taken for CTE credit or to fulfill a third science credit requirement.**

MEDICAL TERMINOLOGY CE **

Semester (2 period block) 9-12 grades

\$25 Course fee required per semester

Students should be able to read at or near grade level. This class consists of lecture and video presentations. Students learn the meanings and pronunciations of prefixes, roots, and suffixes that combine to form over 11,000 medical terms. This is essential knowledge for any health career. **Students can purchase a Medical Terminology book for \$25.** Medical Terminology is a prerequisite for Medical Assisting and Pharmacy Technician at the GTI and recommended for Certified Nurse Assisting, as well as for any ELL students who are planning on taking medical training courses. This course offers SLCC concurrent enrollment credit MA 1100, 3 credits.

PHARMACY TECHNICIAN

Year (2 period block) 12th grade

Pre or Co-requisite: Medical Terminology

\$40 Course fee required Per Semester

This program prepares students to support pharmacists by providing assistance during patient consultation, counter dispensing operations, and prescription preparation. Students will also be trained to keep patient and related health record information and to perform a wide range of practice-related duties for both retail and hospital-based pharmacies. Students must have good social skills, good attendance, and the ability to get themselves to their externship experiences. Students must have a social security number to qualify to take the licensure exam. The cost for exams are, National Exam PTCB \$129 or ExCPT \$105 (students need only do ONE test). State Licensure Fee \$99. **Students must maintain a "B" average and complete a 180-hour externship in addition to course work for successful licensure with the state of Utah. Students must provide a social security number in order to take the national exam and become licensed in the state of Utah. Trainee license is \$50.00 (Paid to DOPL).**

PHYSICAL THERAPY

Semester (2 period block) 11-12 grades

\$30 Course fee required per Semester

Prerequisite: Medical Terminology

This course introduces students to the field of physical therapy through the history, medical terminology, documentation, therapy treatments, and pertinent legal and ethical considerations of the profession. Healthcare for diverse population begins its thread in this course. Students will participate in clinical observations.

INFORMATION TECHNOLOGY

Information technology programs include the study, design, development, implementation, support and/or management of computer hardware, software applications, multimedia, computer-based information systems, and integration services. Information technology coursework is divided into four specialty strands. These include; Information Support & Services, Interactive Media, Network Systems, Programming and Software Development. Students may choose to take a sequence of courses in one specialization strand or they may take courses across each strand to gain a broader understanding of the information technology industry.

COMPUTER PROGRAMMING 1

Semester Class (2 period block) 9-12 grade

This semester course is an introduction to computer programming using C#. Students will learn problem solving and object-oriented programming as they design code and test your own programs. Students will learn C# syntax, graphical user interface (GUI) and simple program control and data structures. Students will produce a graphical game or a business application as their final project.

COMPUTER PROGRAMMING 2/MOBILE APPS CE **

Semester (2 period block) 10-12 grade

Prerequisite: Computer Programming 1

This course is designed to learn the JAVA programming language. It is a suitable class for advanced computer programmers who plan to further their information technology education in preparation for college and the workforce. In addition, this course is designed to take programming concepts and implement them into mobile device technology. Emphasis will be on completing individual and team based programming projects that demonstrate a student's ability to grasp new cell phone technology and Java. Students will build customized user interactive text messages, GPS map location, voice recorder, and mobile applications. This course offers SLCC concurrent enrollment credit CSIS 1030, 3 credits.

COMPUTER PROGRAMMING PROJECTS

Semester Class (2 period block) 11-12 grade

Prerequisite: Computer Programming 1

This is an advanced computer course for students who have completed Computer Programming 1 or Advanced Web Development. Students will develop code using **C#, SQL, PHP and JAVA script**. This opportunity is for students to build a **WEB server**, use a **relational and database with SQL** and program **Arduino microcontroller** projects. Note that this course is designed to strengthen their experience using current programming skills and to help students acquire marketable skills for **all professional work forces**.

INTRODUCTION WEB DEVELOPMENT

Semester Class (2 period block) 9-12 grade

This course is designed for students who desire an introduction to web development pages using HTML5, XHTML, Dynamic HTML, tables, frames, input forms and cascading style sheets. Prior web development is not a requirement for this course. Students will build their own personal websites and maintain their on-going structure and design changes.

ADVANCED WEB DEVELOPMENT

Semester Class (2 period block) 9-12 grade

Prerequisite: *Introduction Web Development*

This course is designed to take fundamental concepts and technologies used in web development such as PHP, SQL XML, XHTML and create more sophisticated web sites with databases. Focus will be on completing team web-based projects that incorporate multimedia, JavaScript, PHP, database and Java Applets. Students will analyze different web designs and use more complex web tools that may include the Apache web server, other technologies and mobile devices. Students in this class will maintain a real world website and be responsible for providing new content and functionality.

INTRO TO 3D ANIMATION

Semester Class (2 period block) 10-12 grade

\$15 Course fee required per semester

This semester course offers an entry-level study of the basic principles of 3D and 2D animation. Subject matter includes: 2D animation, timing, secondary motion, stretch & squash, basic 3D modeling, texturing, lighting, UV mapping, rigging and animating a model. This course emphasizes artistic principles for those students interested in the 3D Industry. Students will learn basic principles such as layout and design, color theory, and basic drawing skills. In addition, animation planning, storyboard development, and the production process will be a large part of the course.

ADVANCED 3D ANIMATION

Semester Class (2 period block) 10-12 grade

\$15 Course fee required per semester

This semester course offers an advanced level study of the principles of 3D and 2D animation. This course is designed to prepare students for entry into an internship or a college course with the skills necessary to succeed in industry. Subject matter includes: advanced polygonal modeling, nurbs modeling, and advanced techniques for both game and movie industries, advanced lighting and texture, dynamics, environmental construction, advanced character rigging and animation. This course expounds on the *instructional* principles taught during the Intro to Animation class, but gives more time for student projects and critique. Students will continue to apply the art principles learned during the intro class, and the principles will be critiqued and applied to their final projects. Students will have the opportunity to work with Utah Valley University and Salt Lake Community College and interface and work with college professors to seamlessly transition into college and their desired field of study.

GAMING DEVELOPMENT FUNDAMENTALS

Semester (2 period block) 10-12 grade

\$15 Course fee required per semester

This course is designed to provide students with knowledge and project based experience of fundamental gaming development concepts relating to STEM. These concepts include game design, scripting, creation of digital assets, graphic resources animations, understanding hardware, problem solving, and critical thinking, collaboration, and project management.

DIGITAL MEDIA II (Projects class)

Semester (2 period block) 11-12 grade

\$15 Course fee required per semester

Prerequisite: *Advanced 3D Animation*

This semester course offers seniors an opportunity to create and complete a portfolio necessary for internships, college programs and the job application process. Students will have the opportunity to work with real world situations, producing products for both the school district and local businesses, helping to give substance to their portfolios. Students will be critiqued every two weeks to measure their progress, quality of work, and to receive direction as to the overall layout, design and professionalism of the end product. This class is designed after a senior level college studio class to prepare students for what they will encounter in college. In addition, this course will help students complete all necessary paperwork for entrance into college or an internship program. *Students wishing to take this course must make individual arrangements with the instructor.*

COMPUTER MAINTENANCE (A+) CERTIFICATION

Semester (2 period block) 9-12 grade

\$15 Course fee required per semester

In this course, students practice troubleshooting, maintenance, and upgrade of PCs. Course content covers setup, memory management, data back-up, and hardware/software diagnostic procedures. The course is designed to prepare students for the Comp TIA A+ certification exam. A+ certification is a testing program that certifies the competency of entry-level (9 month's experience) service technicians in the computer industry. Earning A+ certification means that the individual possesses the knowledge, skills, and customer relation skills essential for a successful entry-level computer service technician as defined by experts from companies across the industry. This course prepares students for the CompTIA 901 & 902.

LINUX FUNDAMENTALS

Semester (2 period block) 9-12 grade

\$15 Course fee required per semester

This semester course introduces students to the Fedora 20 Linux operating system. Students will learn initial concepts, installation, administration, system management, and X-window system, TCP/IP, SAMBA for both workstations and servers. This course also prepares the student for the CompTIA Linux+ certification exam.

NETWORKING +/CISCO (CCENT CERTIFICATION)

Semester (2 period block) 9-12 grade

\$15 Course fee required per semester

This course focuses on basic networking terms and concepts, the OSI model, transmission media, and protocols used by various vendors in LAN and WAN network implementation. This course is designed to prepare students for the CompTIA Network+ certification exam and is equivalent to 6 months of full time experience working with Peer-to-Peer and Server Client networks. Also, students will be introduced to CCENT (Beginning Cisco Certification). Students will learn to describe the operation of data networks, implement small switched networks, implement an IP addressing scheme and IP services to meet network requirements for a small branch office, implement small routed networks, explain and select administrative tasks requires for a WLAN, identify security threats to a network and describe ways to mitigate those threats, and implement WAN links.

SECURITY +

Semester (2 period block) 9-12 grade

\$15 Course fee required per semester

This course will prepare you to successfully pass the CompTIA Security+ Exam SYO-401. CompTIA Security Certification covers network security, compliance and operational security. Also, included is... access control, identity management, and cryptography.

TECHNOLOGY & ENGINEERING

The engineering technology program is a hands-on, project-based approach to learning that better prepares students for entrance into college engineering and/or engineering technology programs. Coursework uses real-world problem solving that answers the age-old student question, "Why do I need to know this?" There are five courses in the Engineering Technology Sequence. Course content is designed to help students explore how engineers and engineering technicians integrate math, science, and communications skills into their profession. Engineering Technology students will engage in the research, design, and construction of models/prototypes in a variety of areas including: electrical, fluid, structural, and mechanical systems.

ARCHITECTURAL DESIGN 1 & 2

Semester (2 period block) 9-12 grade

\$10 Course fee required per semester

Architectural Design 1 taught 1st semester, Architectural Design 2 taught 2nd semester = Year long class

If architecture, building construction, interior design, or civil engineering is your interest then this is the class for you. In this class you will learn the process of residential and commercial building design. Students will learn design and construction practices common to architecture. Students will gain knowledge in uniform building codes, blueprint reading, and architectural history. A focus will be placed on sketching, 2D and 3D CAD (Computer Aided Design) drawing. Students will practice using AutoCad and Revit, which are the most commonly, used design software packages used in the industry by Architects.

ARCHITECTURAL DESIGN 3

Semester (2 period block) 10-12 grade

\$10 Course fee required per semester

This course is designed as a continuation of architectural design studies. It is the third course in a sequence of courses that prepares individuals for careers in Architecture, Engineering and construction. Students will learn advanced techniques in Revit and AutoCAD software as well as commercial applications, materials and codes associated with construction. At the end of the architectural design sequence, students should be able to pass an industry exam and be prepared for an entry level position in an architectural office.

BIOMANUFACTURING 1/ MANUFACTURING PRINCIPLES 1

Semester (2 period block) 10-12 grades

\$40 Course fee required per semester

This course offers hands-on projects designing and building medical devices. Learn 3D printing on the first day of class. Field trips to Utah's most elite medical device engineering, manufacturing and compliance testing companies happen. Understand why FDA regulations and quality systems are important to the medical device industry. Learn the principles and benefits of LEAN (today's industry standard), Six sigma and continuous improvement (Kaizen) in manufacturing. Students will create engineering drawings, use precision measuring instruments, and use CNC manufacturing equipment. Students will learn and demonstrate current technical and engineering professional workplace skills. Career planning and continuous learning skills are acquired. **This course may be taken for CTE credit or to fulfill a third science credit requirement.**

ENGINEERING PRINCIPLES 1 & 2

Semester (2 period block) 10-12 grade

\$15 Course fee required per semester

Thinking about Engineering? Learn the ways Engineering impacts the lives of individuals. Identify successful Engineering design processes, then develop fun hands-on projects. Find out how you as a Civil, Computer, Electrical, Bio, Chemical, Materials, or Mechanical Engineer can enhance the health and well-being of individuals. You will apply your basic math and science knowledge in hands-on projects for each engineering discipline. Engineering field trips happen, meet real Engineers. Develop the skills required in today's workplace. **This course may also be taken to fulfill a CTE or third science credit.**

ENGINEERING CAPSTONE (Projects class)

Semester (2 period block) 11-12 grade

\$15 Course fee required per semester

Prerequisite: Robotics and Automation

Students will develop product using the engineering design process. The course will require the use of 3D computer aided design (CAD) software, 3D prototype, model machinery (3D printer), and other shop equipment to design, prototype, and test their product. **This course may also be taken to fulfill a third science credit.** *Students wishing to take this course must make individual arrangements with the instructor.*

ELECTRONICS 1 & 2

Semester (2 period block) 9-12 grade

\$15 Course fee required per semester

This course covers basic electronics theory and logic for DC & Digital Electronics. Students will use computer simulations to learn about the logic of electronics as they design, test, and actually construct circuits and devices. This is a course in applied logic that encompasses the application of electronic circuits and devices. **This course may also be taken to fulfill a third science credit requirement.**

ELECTRONICS 3

Semester (2 period block) 10-12 grade

\$15 Course fee required per semester

Prerequisite: Electronics 1 & 2

Students will use computer simulations to learn about the logic of AC and Advanced Digital electronics including interfacing Raspberry Pi computers. Also, they design, test, and actually construct circuits and devices. This is a course in applied logic that encompasses the application of electronic circuits and devices. **This course may also be taken to fulfill a third science credit requirement.**

COMPOSITES 1

Semester 11-12 grade

\$20 Course fee required per semester

(Taken with Manufacturing Principles 1 = 2 period block)

Strength, stealth and speed – these are key words related to the composites industry. This course focuses on the properties and manufacturing of fiberglass-reinforced plastics and advanced composites. Composites 1 is the first in a two-part sequence of courses focusing on advanced materials and processing used in planes, cars, bicycles and many other products. The courses in this pathway include Manufacturing Principles 1, Manufacturing Principles 2, Composites 1 and Composites 2. These courses lead to entry-level technician positions in industry and are appropriate for students desiring college preparation in engineering.

MANUFACTURING PRINCIPLES 1

Semester 11-12 grade

\$20 Course fee required per semester

(Taken with Composites 1 = 2 period block)

The first in a sequence of courses offering “hands-on” experience producing useable items from wood, plastic, and composite material rough stock that meet a given set of design specifications. Students will use basic tools, equipment and operations found in manufacturing industries. Students will create engineering drawings, use precision measuring instruments, manufacturing equipment, machines, and materials to improve an existing design or manufacture original products. Products will comply with quality control standards. This course allows students to experiment with new technologies and assess application of processes, materials and products.

COMPOSITES 2

Semester 11-12 grade

(Taken with Manufacturing Principles 2 = 2 period block)

\$20 Course fee required per semester

Prerequisite: Composites 1

The course work for Manufacturing Principles includes discussion and work in the following areas: History and future of Advanced Composites, Systems and methods of production, Engineering problem solving, Employment possibilities, Safety and work standards, Product development, Design and manufacture individual projects, Marketing and mass production. Approximately 75% of the time is spent in the lab working on exercises and projects

MANUFACTURING PRINCIPLES 2

Semester 11-12 grade

(Taken with Composites 2 = 2 period block)

\$20 Course fee required per semester

Prerequisite: Manufacturing Principles 1

The course work for Manufacturing Principles includes discussion and work in the following areas: History and future of Advanced Composites, Systems and methods of production, Engineering problem solving, Employment possibilities, Safety and work standards, Product development, Design and manufacture individual projects, Marketing and mass production. Approximately 75% of the time is spent in the lab working on exercises and projects.

MECHANICAL (ETD) DESIGN 1 & 2

Semester (2 period block) 9-12 grade

\$10 Course fee required per semester

Engineer/Technical Design 1 taught 1st quarter & Engineer/Technical Design 2 taught 2nd quarter = Semester class

This exploratory class will introduce students to the process of engineering design. Students will focus on the language of engineering, which includes sketching, technical drawing, orthographic projection, geometry, dimensioning standards and drawing presentations used by industry. Students will be instructed on 2D and 3D CAD (**Computer Aided Design**). Students will practice with the latest CAD software used in the field including **AutoCAD**, **Solid Works** and **Solid Edge** as they complete hands on projects.

MECHANICAL (ETD) DESIGN 3

Semester (2 period block) 9-12 grade

\$10 Course fee required per semester

ROBOTICS 1

Semester (2 period block) 10-12 grade

\$15 Course fee required per semester

Recommendation: Engineering Principles or Engineer/Tech Design

Robotics & Automation is a lab-based, hands-on curriculum combining electrical, mechanical and engineering principles. Students will learn to design, build, program, and control robotic devices by applying science, technology, engineering and math concepts. A rigorous study and application of electrical concepts will include: sources of energy, electrical safety, use and identification of basic electronic components, sensors and actuators. Engineering concepts will include: mechanical design, prototype development, design testing, programming, and proper engineer documentation. Industrial automation, robotic applications and career opportunities will also be discussed.

ROBOTICS 2

Semester (2 period block) 10-12 grade

\$15 Course fee required per semester

Prerequisite: Robotics 1

Robotics & Automation is a lab-based, hands-on curriculum combining electrical, mechanical and engineering principles. Students will learn to design, build, program, and control robotic devices by applying science, technology, engineering and math concepts. A rigorous study and application of electrical concepts will include: sources of energy, electrical safety, use and identification of basic electronic components, sensors and actuators. Engineering concepts will include: mechanical design, prototype development, design testing, programming, and proper engineer documentation. Industrial automation, robotic applications and career opportunities will also be discussed.