NEWTON HIGH SCHOOL

BROOKS REGIONAL CENTER for CAREER & TECHNICAL EDUCATION

COURSE DESCRIPTION BOOK

for

AREA WIDE SCHOOLS

2024-2025

PATHWAYS and COURSES

Newton High School Funding Streams 24-25

Course Name	.5 Weighting
Adv Modern Ag Mechanics	X
Aerospace Engineering	X
Ag Equipment Construction	X
Ag Power Mechanics	X
Agriscience	X
Animal Health/Vet Tech	X
Biotechnology in Ag	X
Civil Engineering and Architecture	X
Equine Science (Horse Mgmt)	X
Horticulture I/II	X
Intro to Engineering Design	X
IT Essentials	X
Modern Ag Mechanics	X
Plant and Animal Science	X
Pre-Vocational Welding	X
Principles of Engineering	X
Small Engines	X
	Excel in CTE
Agribusiness	X
Animal Science	X
Auto I/II/III	X
Certified Medication Aide (CMA)	X
Certified Nursing Assistant (CNA)	X
Computer-Aided Manufacturing	X
Drones	X
Electrical Tech I/II	X
Emergency Medical Tech (EMT)	X
Fire Science	X
Machine I/II	X
Networking Systems	X
Principles in Precision Machine	X
Router Basics	X
Welding I/II	X

.5 weighted

1. **You** pay **tuition** to Newton
2. **You receive .5 funding for students**

Excel in CTE - KBOR tuition reimbursement

1. Your students are concurrently enrolled through NHS and HCC
2. Your school/students pay **NO** tuition
3. Neither school can count the students for .5 funding

AGRICULTURE

uine Science
orse Management and Functions)
Credits: 1.0
Grade Level: 11, 12
Pre-Requisites: Tech Ag Science
Dual credit: No
Club: FFA
Description: Horse Management and Functions is an application level course in the Animal Science Pathway. In this course, students take an in-depth look into the horse industry. Students will learn about horse breeds, anatomy, health, nutrition, facilities and training. FFA participation is strongly encouraged.

Agriscience I
- Credits: 1.0
- Grade level: 9, 10, 11, 12
- Pre-Requisites: None
- Dual Credit: No
- Club: FFA

Description: This course covers the fundamental skills of welding, Ag mechanics, livestock, crop production, agriscience occupations and careers, introductions to CDEs, SAEs and leadership in FFA is an integral part of the course. The onsite outdoor lab enhances classroom learning. Students will become knowledgeable of and have the opportunity to participate in local, state, and national FFA activities. Students will be required to purchase welding gloves, pliers, and safety glasses.

Plant & Animal Science
- Credits: 1.0
- Course Number(s) 85121, 85122
- Grade Levels: 10, 11, 12
- Pre-Requisites: None
- Pathway(s): Agricultural Science
- Course Fees: None
- Dual Credit Available: No
- Clubs: FFA

Description: This course provides content related to both animal production and plant production, providing comprehensive coverage of the production functions of the agricultural industry. Topics such as care and management of farm animals, crop production and harvesting, plant and animal insect and disease control, efficient resource management and farm management and food processing. FFA membership is strongly encouraged. Students will participate in FFA activities such as Agronomy, Livestock, and Meat Evaluation. This course is good preparation for the Animal Science course.

Horticulture I
- Credit: 1.0
- Course Number(s): 8191, 8192
- Grade Levels: 10, 11, 12
- Pre-Requisites: Tech Ag or Plant and Animal Science
- Pathway(s): Ag Sciences, Plant Systems
- Course Fees: None
- Dual Credit Available: No
- Clubs: FFA

Description: This course provides students with an opportunity to study greenhouse management, landscaping, turf management, and fruit and vegetable production. Students will propagate, grow bedding plants, operate the school greenhouse, and complete a landscape design. Some introduction to forestry and environmental careers is included.

Animal Science
- Credits: 1.0
- Course Numbers: 81531, 81532
- Grade Levels: 10, 11, 12
- Pre-Requisites: Tech Ag
- Pathway(s): Animal Science, Agriculture Science
- Course Fees: Non
- Dual Credit Available: Yes
- Clubs: FFA

Description: This course will use a practical approach to the study of animals. It will integrate the concepts of biology with the field of agriculture. Animal Science will broaden a student's view and understanding of animal and biological science principles of focusing on daily life application. Learning is enhanced through the on-hands learning lab. Science and vocational outcomes will be incorporated into the course. Students will be introduced to the FFA organization, have the opportunity to become an active member and compete in related CDEs (career development experience) and are required to develop supervised agricultural experience programs:

Eligible for Regents Qualified Admissions –Livestock Management Jr. & Sr. concurrent enrollment with Hutch CC – NO TUITION. This course MAY count as one of the required science credits for graduation. A student may select Animal Science, Horticulture I or Horticulture II as one of the three science credits.

AGRICULTURE

Modern Ag Mechanics
- Credits: 1.0
- Course Number(s): 8181, 8182
- Grade Levels: 9, 10, 11, 12
- Pre-Requisites: None
- Pathway(s): Power, Structural & Technical Systems
- Course Fees: None
- Dual Credit Available: No
- Clubs: FFA

Description: This course of study will develop basic skills in Agricultural Mechanics. This will include leadership; power and hand tools, homestead electricity, safety and career orientation, structures, concrete, and plumbing. Leadership and personal development skills are taught through the integration of FFA career development skills and SAE (supervised agricultural experience) activities. This course cannot be repeated for credit.

Ag Power
- Credits: 1.0
- Course Number(s): 8187, 8188
- Pre-Requisites: Small Engines and Modern Ag Mechanics
- Pathway(s): Power, Structural, & Technical Systems
- Course Fees: None
- Dual Credit Available: No
- Clubs: FFA

Description: Ag Power Mechanics will give the student hands-on opportunities to repair and maintain internal combustion engines, electrical, and hydraulic systems. Scientific, mathematical, economic, and technical principles are reinforced in this course, as are communication and critical thinking skills. Work-based learning strategies appropriate for this course are field trips and activities in the school lab facility. Supervised agricultural experience SAE programs and FFA leadership activities are integral components of the course and provide many opportunities for practical application of instructional competencies.

Pre-Vocational Ag Welding
- Credits: 1.0
- Course Numbers: 8141, 8142
- Grade Levels: 10, 11, 12
- Pre-Requisites: Tech Ag and/or Modern Ag Mech
- Pathway(s): Animal Science; Power, Structural & Technical Systems
- Course Fees: None
- Dual Credit Available: No
- Clubs: FFA

Description: This course is designed for students wanting to explore the career of professional welder. Pre-Voc Ag Welding is competency-based (achieve skill levels at the individual's pace) covering shop safety, arc welding, MIG welding and Plasma Arc and CNC Plasma Cutting. Students will be introduced to the FFA organization, have the opportunity to become an active member and compete in related CDEs and be encourage to develop SAEs.

Small Engines
- Credits: 1.0
- Course Number(s): 8171, 8172
- Grade Levels: 11, 12
- Pre-Requisites: Pre-Vocational Welding
- Pathway(s): Power, Structural, & Technical Systems
- Course Fees: None
- Dual Credit Available: No
- Clubs: FFA

Description: In this course, students will develop basic topics covering theory, maintenance, tear-down and reassembly, troubleshooting and all major components of the basic systems of small gasoline engines. Other topics covered include tool and equipment identification, safety, and use. Leadership and personal development skills are taught through the integration of FFA career development skills and SAE activities.

Adv. Modern Ag Mechanics
- Credits: 1.0
- Course Numbers: 8183, 8184
- Grade Levels: 11, 12
- Pre-Requisites: Modern Ag Mechanics
- Pathway(s): Power, Structural, & Technical Systems
- Course Fees: None
- Dual Credit Available: No
- Clubs: FFA

Description: This is an upper level course with major emphasis on career skills in mechanics and engineering. Instruction will focus on extending skills developed in previous Ag Mechanics classes, focusing on student lead projects and individualized instruction. Students may construct or repair equipment in the area of their specialty. FFA membership is strongly encourages as students will participate in leadership activities at the District and State levels.

Ag Equipment Construction
- Credits: 1.0
- Course Number(s): 8185, 8186
- Grade Levels: 11, 12
- Pre-Requisites: Pre-Vocational Welding and Modern Ag Mechanics
- Pathway(s): Power, Structural, & Mechanics
- Course Fees: None
- Dual Credit Available: No
- Clubs: FFA

Description: Agriculture Equipment Construction is designed for juniors and seniors who want to study the design and operation of Ag equipment. Students will apply mechanical skills to the design and construction of agriculture equipment. Students will learn blueprint reading and technical reading for the purpose of construction and assembling agriculture equipment. FFA membership is required. Projects will be entered into the appropriate state or national competitive event for evaluation.

AGRICULTURE

Vet Tech/Animal Health
- Credits: 1.0
- Course Number(s): 81541, 81542
- Grade Levels: 11, 12
- Pre-Requisites: Tech Ag and Animal Science
- Pathway(s): Animal Science
- Course Fees: None
- Dual Credit Available: No
- Clubs: FFA

Description: This course takes an in-depth look into animal health. Students will be exposed to a number of careers in animal health, including veterinarians, vet technicians, microbiologists, pathologists, geneticists, pharmacists, food scientists, and others. Students will be exposed to many different cells and tissues from a variety of species. The course will cover anatomy, physiology, and epidemiology. Laboratory activities will include live animal health checks and vaccination, artificial insemination, and stitch work. Students will be exposed to large and small animal species.

Agribusiness
- Credits: 1.0
- Course Number(s): 8123, 8124
- Grade Levels: 11, 12
- Pre-Requisites: Tech Ag and/or Plant & Animal Science
- Pathway(s): Animal Science, Agriculture Science, Power, Structural & Technical Systems, Plant Systems
- Course Fees: None
- Dual Credit Available: No
- Clubs: FFA

Description: Students in this course study careers in the agri-business industry which include, but are not limited to, careers in communications, displaying, advertising, physical distribution, selling and transportation. Skills are developed in recordkeeping, management, economics, and computer orientation as they relate to agri-business. Leadership is developed through participation in the FFA organization. Students are encouraged to have a crop, livestock, Ag Mechanics or Ag Science program or be employed by an agribusiness firm in the community.

Horticulture 2
- Credits: 1.0
- Course Number(s): 8193, 8194
- Grade Levels: 11, 12
- Pre-Requisites: Horticulture 1
- Pathway(s): Plant Systems
- Course Fees: None
- Dual Credit Available: No
- Clubs: FFA

Description: This course is designed to provide students with an overview of the Horticulture Industry. Emphasis is placed on information and skills needed in Horticulture Services, Landscape Contracting, Certified Nursery Professional, and Retail Florist. Students will be prepared to enter fields in the green industry. Topics of study include: Greenhouse management, recreational and turf grass management, basic florist design, pest control, floriculture, and marketing. Scientific, mathematical, economic, and technical principles are reinforced in the course, as are communication and critical thinking skills. Work-based learning strategies for this course are field trips and activities in the school greenhouse or lab facility. Supervised agricultural experience programs (SAE) and FFA leadership activities are integral components of the course and provide many opportunities for practical application of instructional competencies.

Biotechnology in Ag
- Credits: 1.0
- Course Number(s): 8125, 8126
- Grade Levels: 11, 12
- Pre-Requisites: Plant and Animal Science and Chemistry
- Pathway(s): Animal Science, Agriculture Science
- Course Fees: None
- Dual Credit Available: No
- Clubs: FFA

Description: Biotechnology in Agriculture is a class within the Ag Academy that focuses on many areas of industry, providing students with a background on the regulatory issues and agencies involved including the USDA and FDA. The course will also analyze ethical, legal, social, and cultural issues regarding the use of biotechnology in agriculture. Lab work will be stressed in the course. Students will develop an understanding of lab operations including record keeping, equipment operations and management, as well as the proper handling and use of biological materials. Labs procedures focusing on the isolation and purification of DNA and RNA, analysis of genetic samples using electrophoresis and PCR technologies, the production and use of antibodies and protein detections, as well as the importance of microbe detections in lab and industry settings, will all be included. This course is part of the Ag Academy science progression. This course does count for science credit. Juniors in the Ag Academy get preference for this class. All other juniors are accepted when space is available.

AUTOMOTIVE TECHNOLOGY

Automotive Technology I

- Credits: 2.0
- Course Numbers: 82011, 82012, 82013, 82014
- Grade Level: 10, 11, 12
- Prerequisites: Hutch CC application
- Pathway(s): Mobile Equipment Maintenance
- Course Fees: None
- Dual Credit: Yes – HCC
- Club: Skills/USA VICA

Description: Must enroll concurrently in 82011, 82012, 82013, and 82014. These classes also place student in enrollment at Hutchinson Community College – no cost. Courses 82011-82014 will prepare students with the following skills:

1. Shop safety and tool usage

2. Perform base engine mechanical repair, testing and maintenance on various types of engines.

3. Inspect and diagnose various engine performance systems.

4. Knowledge of the basic electrical/electronic system and the equipment needed to diagnose and service the basic electrical systems.

Automotive Technology II

- Credits: 2.0
- Course Number(s): 82111, 82112, 82113, 82114
- Grade Levels: 11, 12
- Prerequisites: Automotive Tech I
- Pathway(s): Mobile Equipment Maintenance
- Course Fees: None
- Dual Credit: Yes – HCC
- Clubs: Skills/USA VICA

Description: Must enroll concurrently in 82111, 82112, 82113, and 82114. These classes also place student in enrollment at Hutchinson Community College – no cost. Courses 82111-82114 will prepare students with the following skills:

1. Shop safety and tool usage.

2. Inspection, diagnostics, and servicing of steering and suspension systems, including checking and adjusting alignment.

3. Examination, identification, and repair of braking systems, including the hydraulic and the anti-lock braking systems.

Automotive Technology III – Drivetrain Technology

- Credits: 1.0
- Course Numbers: 82151, 82152
- Grade Levels: 12
- Prerequisites: Automotive Technology I completion and either completion or concurrent enrollment with Automotive Technology II
- Pathway(s): Mobile Equipment Maintenance
- Course Fees: None
- Dual Credit Available: Yes – HCC
- Clubs: Skills/USA VICA

Description: This is a comprehensive technical course designed to teach students the hands-on skills involved in maintenance, diagnosis, and repair of the drivetrain components including transmissions, differentials, axles, and other components. This class will concentrate on lab activities and projects that will increase student understanding. This class also places students at Hutchinson Community College – no cost.

Automotive Technology III – Mobile HVAC

- Credits: 1.0
- Course Numbers: 82161, 82162
- Grade Levels: 12
- Prerequisites: Automotive Technology I completion and either completion or concurrent enrollment with Automotive Technology II
- Pathway(s): Mobile Equipment Maintenance
- Course Fees: Non
- Dual Credit Available: Yes – HCC
- Clubs: Skills/USA VICA

This is a comprehensive technical course designed to provide students with the basic and advanced theory of operation, service, and repair of the heating, air conditioning, and vehicle cooling systems.

CONSTRUCTION AND DESIGN

ıtro to Industrial Technology
- Credits: 0.5
- Course Numbers: 70105, 70106
- Grade Levels: 9, 10, 11, 12
- Prerequisites: None
- Pathway(s): Construction & Design
- Course Fees: None
- Dual Credit Available: No
- Clubs: N/A

Description: This course is designed to introduce students to a variety of skills related to materials and processes. The module based course will cover the basic concepts in circuitry, computer aided design, machining, welding, and woodworking while learning digital fabrication tools such as 3D printers, CNC routers, and Laser engravers. Project management tools will be utilized to help students learn and practice time management skills. Competency based grading will be utilized.

Woodworking I
- Credits: 1.0
- Course Number(s): 7011, 7012
- Grade Levels: 10, 11, 12
- Prerequisites: Intro to Industrial Technology
- Pathway(s): Construction & Design
- Course Fees: None
- Dual Credit Available: No
- Clubs: Skills USA - Cabinetmaking

Description: This full-year course is designed to introduce students to woods, material, processes and techniques used in machine woodworking tools and equipment. Students must provide their own clear safety glasses and tape measure. Eligible for local Fine Arts credit.

Woodworking II
- Credits: 1.0
- Course Numbers: 51385, 51386
- Grade Levels: 11, 12
- Prerequisites: Woodworking I and by application
- Pathway(s): Construction & Design
- Course Fees: None
- Dual Credit Available: No
- Clubs: SkillsUSA - Cabinetmaking

Description: This is an application level course designed to allow students to broaden their knowledge and understanding of the woodworking industry. Students will demonstrate knowledge learned from Woodworking I and utilize what they have learned in a shop setting. Students will design from start to finish a project of their own choosing (with instructor clearance) OR from orders that come into the course. Students will gain optimal shop experience with a variety of hands-on learning opportunities through the use of traditional equipment as well as CNC and laser operations.
Students must provide their own clear safety glasses and tape measure. Additional fees for individual projects will apply later in the school year. Eligible for local Fine Arts credit.

ELECTRICAL TECH

ELECTRICAL TECH I

(year 1 offered 2024-2025)

- Credits: 4.0
- Course Number(s):
- Grade Levels: 11, 12
- Prerequisites: Intro to Industrial Technology
- Course Fees: None
- Dual Credit Available: Yes – HCC
- Clubs: None

Description: This course, Electrical Tech I is the first year program of a two-year preparatory program designed to place students directly into the electrician industry. Students enroll concurrently as a Hutch CC (no tuition) student to receive college credit and potentially earn a certificate. Students attend Monday through Friday for 3 hours per day. Students will complete Cert A courses on the Newton High campus and a hybrid session at HCC in Hutchinson with transportation provided. Students will complete courses in the comprehensive electrical program that covers courses in AC/DC circuits, Industrial Wiring, PLC, Electrical Maintenance, Industrial Fluid Power, Fundamentals of Motor Controls and Mechanical Maintenance Skills. Students could potentially enter into an apprenticeship program at the end of the spring semester and into the summer (between Junior and senior year). Positive work behaviors such as regular attendance, leadership, teamwork, and communication skills will be emphasized.

ELECTRICAL TECH II

(year 2 not offered 2024-2025)

- Credits: 4.0
- Course Number(s):
- Grade Levels: 11, 12
- Prerequisites: Intro to Industrial technology
- Course Fees: None
- Dual Credit Available: Yes – HCC
- Clubs: None

Description: Electrical Tech II is the second year program designed to place students directly into the electrician industry. Students enroll concurrently as a Hutch CC (no tuition) student to receive college credit and potentially earn a certificate. Students attend Monday through Friday for 3 hours per day. Students will complete Cert B courses at the HCC campus with transportation provided. Students will complete courses in AC/DC circuits, Industrial Wiring, PLC, Electrical Maintenance, Variable Frequency Drives and Electric Motors, Industrial Fluid Power, Fundamentals of Motor Controls and Technical Math. This course can potentially align for an apprenticeship with an electrical business. Positive work behaviors such as regular attendance, leadership, teamwork, and communication skills will be emphasized.

ENGINEERING

Engineering Design
- Credits: 1.0
- Course Number(s): 7053-7054
- Grade Levels: 10, 11, 12
- Prerequisites: Introduction to Industrial Technology or teacher approval
- Pathway(s): Engineering and Applied Mathematics
- Course Fees: None
- Dual Credit Available: Yes
- Clubs: RailerRobotics, SkillsUSA

Description: Students will apply math, science and engineering standards to hands-on projects. They will work both individually and in teams to design solutions to a variety of problems using 3-D modeling software and document their work in an engineering workbook.

Principles of Engineering
*Weighted Course
Class of 2024 & 2025 only
- Credits: 1.0
- Course Number(s): 70551, 70552
- Grade Levels: 11, 12
- Prerequisites: Introduction to Industrial Technology or teacher approval
- Pathway(s): Engineering and Applied Mathematics
- Course Fees: None
- Dual Credit Available: No
- Clubs: RailerRobotics and SkillsUSA

Description: Students will apply math, science, and engineering concepts to problems that challenge them to explore a broad range of engineering topics, including mechanisms, the strength of structures and materials, and automation. Students develop skills in problem solving, research, and design while learning strategies for design process documentation, collaboration, and presentation.

Civil Engineering and Architecture I
*Weighted Course
Class of 2024 & 2025 only
- Credits: 1.0
- Course Number(s): 70615-70616
- Grade Levels: 11, 12
- Prerequisites: None
- Pathway(s): Engineering and Applied Mathematics
- Course Fees: None
- Dual Credit Available: No
- Clubs: RailerRobotics, SkillsUSA

Description: Students learn important aspects of building and site design and development. They apply math, science, and standard engineering practices to design both residential and commercial projects and document their work using 3-D architectural design software.

Engineering Design and Development
*Weighted Course
Class of 2024 & 2025 only
- Credits: 1.0
- Course Numbers: 70611, 70612
- Grade Levels: 11, 12
- Prerequisites: Engineering Design or Principles of Engineering or teacher approval
- Pathway(s): Engineering and Applied Mathematics
- Course Fees: None
- Dual Credit Available: Yes
- Clubs: RailerRobotics, SkillsUSA

Description: The knowledge and skills students acquire through the Engineering program come together in Engineering Design and Development as they identify an issue and then research, design, and test a solution, ultimately presenting their solution to a panel of engineers. Students apply the professional skills they have developed to document the design process from problem identification to solution presentation.

HEALTH SCIENCE

Certified Nursing Assistant (CNA)

- Credits: 1.0
- Course Number(s): 76502
- Grade Levels: 10, 11, 12
- Prerequisites: Requires an Accuplacer reading score of 14 or better AND a sentence skills/writing score of 40 or better. Highly recommend Human Body Systems or Anatomy and Physiology be taken before this course.
- Course Fees: Free tuition. Student responsible for textbook.
- Dual Credit Available: Yes – HCC
- Clubs: HOSA

Description: Fundamental knowledge of the aging process with emphasis on meeting the physical needs requirements of geriatric residents of health care facilities including ethics, communication, normal and aging body system functions, nutrition, diseases, observation skills, documentation, personal care skills and their adequate performance. Students must pass both theory and clinical portions of the course. Students are required to do clinicals OUTSIDE of school hours. Please plan accordingly. Students will also take a state board test at the end of the course, and if passed, will receive their CNA license.

4.5 College credit hours through HCC. CLOCK HOURS are mandated by the State Board of Healing Arts. Students CANNOT miss more than 5 hours of class time.

Students ENROLLING AND QUALIFYING for dual credit courses who DROP them AFTER April 15th will be assessed a $25 fine. After Jun 1, they will be assessed a $50 fine.

Emergency Medical Tech (EMT)

- Credits: 2.0
- Course Number(s): 80901, 80902, 80903, 80904
- Grade Levels: 12
- Prerequisites: None
- Course Fees: Free tuition. Student is responsible for textbook.
- Dual Credit Available: Yes – HCC
- Clubs: HOSA

Description: Human Body Systems or Anatomy and Physiology are strongly encouraged and can be taken concurrently.

Concepts of emergency care that prepare an entry-level provider and primary staff from basic life support ambulance services. Information and techniques necessary for certification as an Emergency Medical Technician (EMT) in the State of Kansas and National Registry of EMT.

10 college credit hours through Hutch CC. CLOCK HOURS are mandated by the State Board; students CANNOT miss more than 10% of class time.

Students ENROLLING AND QUALIFYING for dual credit courses who DROP them AFTER April 15th will be assessed a $25 fine. After Jun 1, they will be assessed a $50 fine.

Certified Medication Aide (CMA)

- Credits: 1.0
- Course Number(s): 36156
- Grade Levels: 12
- Prerequisites: CNA. Requires an Accuplacer Next Generation reading score of 231 or higher OR Accuplacer writing score of 40-120 and ACT reading score of 14 or higher.
- Course Fees: Free tuition. Student responsible for textbooks.
- Dual Credit Available: Yes – HCC
- Clubs: HOSA

Description: Fundamental knowledge of medications, their use, actions, side effects and dosage, documentation, wound management, and supervision skills for geriatric aides.

4.5 college credit hours through Hutch CC. CLOCK HOURS are mandated by the State Board; students CANNOT miss more than 10% of class time.

Students ENROLLING AND QUALIFYING for dual credit courses who DROP them AFTER April 15th will be assessed a $25 fine. After Jun 1, they will be assessed a $50 fine.

INFORMATION TECHNOLOGY – TECHNICAL

Γ Essentials

- Credits: 1.0
- Course Numbers: 51381, 51382
- Grade Levels: 9, 10, 11, 12
- Prerequisites: None
- Pathway(s): Network Systems
- Course Fees: None
- Dual Credit Available: No
- Clubs: E-Sports, BPA, and DECA

Description: IT Essentials Basics is a technical level course in the Network Systems pathway. It is designed to provide students with in-depth exposure to computer hardware and operating systems. Course topics include the functionality of hardware and software components as well as suggested best practices in maintenance and safety issues. Students will learn to assemble and configure a computer, install operating systems and software, and troubleshoot problems. This class will also teach students the skills needed to modify and build computers to meet their interests, such as gaming and video production.

Networking Systems

- Credits: 1.0
- Course Number(s): 51383, 51384
- Grade Levels: 10, 11, 12
- Prerequisites: IT Essentials
- Pathway(s): Network Systems
- Course Fees: None
- Dual Credit Available: Yes
- Clubs: E-Sports, BPA, and DECA

Description: Networking Systems is a technical level course in the Network Systems pathway. It is designed to provide students with the opportunity to understand and work with hubs, switches, and routers. Students develop an understanding of LAN (local area network), WAN (wide area network), wireless connectivity, and internet-based communications with a strong emphasis on network function, design, and installation practices. Students acquire skills in the design, installation, maintenance, and management of network systems that may help them obtain network certification.

Router Basics

- Credits: 1.0
- Course Numbers: 51385, 51386
- Grade Levels: 11, 12
- Prerequisites: IT Essentials and Networking Systems
- Pathway(s): Network Systems
- Course Fees: None
- Dual Credit Available: Yes
- Clubs: E-Sports, BPA, and DECA

Description: This is a technical level course in the Network Systems Pathway. Students learn about router components, start-up, and configuration using CISCO routers, switches, and the IOS. This course also covers TCP/IP protocol, IP addressing, subnet masks, and network troubleshooting.

MANUFACTURING – PRECISION MACHINING

Principles of Precision Machining I
- Credits: 1.0
- Course Numbers: 82283, 82284
- Grade Level: 10
- Prerequisites: None
- Pathway(s): Manufacturing -- Machining
- Course Fees: None
- Dual Credit: No
- Club: None

Description: This course examines how parts are manufactured using conventional machining equipment such as lathes and mills. This class is a combination of hands-on and theory in producing products on precision manual equipment and then progress to the more advanced CNC machine tools in the production lab. This class is first in the progression toward college credit and the completion of the Precision Machining Program.

Precision Machining & CNC Fundamentals I
- Credits: 4.0
- Course Number(s): 82291, 82292, 82293, 82294, 82295, 82296, 82297, 82298
- Grade Levels: 11, 12
- Prerequisites: Application; Intro to Industrial Tech, and Principles of Precision Machining I
- Course Fees: None
- Dual Credit: Yes
- Clubs: SkillsUSA

Description: Areas of study will include safety, bench work, measuring and layout, lathe work, milling drilling, grinding materials, blueprint reading, introduction to CNC and modern manufacturing methods. Selecting the proper materials and tools, planning the project sequence according to the blueprints or written specifications, and forming the metal product while holding accuracies to within thousandths of an inch are skills obtained in this class. The understanding of dimensions, units of measure and measuring instruments is necessary for proficiency in machine technology. Jr. and Sr. concurrent enrollment with Hutch CC – NO TUITION. Eligible for local Fine Arts credit. Qualifies for math credit.

Precision Machining & CNC Fundamentals II
- Credits: 4.0
- Course Numbers: 82401, 82402, 82403, 82404, 82405, 82406, 82407, 82408
- Grade Levels: 11, 12
- Prerequisites: Application and Precision Machining & CNC Fundamentals I
- Pathway(s): Manufacturing – Machining
- Course Fees: None
- Dual Credit Available: Yes
- Clubs: SkillsUSA

Description: Emphasis will be placed on blueprint reading and related math skills. Instruction will be given on CNC (computer controlled machines), and SPC (statistical process control), a quality control system used in industry. This program will prepare students for direct entry into manufacturing or can also serve as recommendation for students wishing to pursue an engineering degree or other advanced technical training. Jr. and Sr. concurrent enrollment with HCC – NO TUITION. Eligible for local Fine Arts credit. Qualifies for math credit.

Computer-Aided Manufacturing
- Credits: 1.0
- Course Numbers: 82441, 82442
- Grade Levels: 11, 12
- Prerequisites: Application required and Precision Machining and CNC Fundamentals I
- Pathway(s): Manufacturing -- Machining
- Course Fees: None
- Dual Credit Available: Yes – HCC
- Clubs: SkillsUSA
- Description: This is a comprehensive technical level course designed to instruct students in the knowledge and skills needed to perform computer-aided tasks.

MANUFACTURING – WELDING TECHNOLOGY

Welding Technology I

- Credits: 4.0
- Course Numbers: 8301, 8302, 8303, 8304, 8305, 8306, 8307, 8308
- Grade Levels: 11, 12
- Prerequisites: Application and Intro to Industrial Technology
- Pathway(s): Manufacturing – Welding
- Course Fees: ~~$100.00~~ $200
- Dual Credit Available: Yes – HCC
- Clubs: SkillsUSA

Description: Welding I and II make up a two-year career preparatory program designed to place students directly into the welding industry. Students enroll concurrently as a Hutchinson Community College (no tuition) student to receive college credit and potentially earn a certificate. Students attend class Monday through Friday, three hours per day.

This comprehensive welding program covers courses in both the theory and practical applications of Stick, Gas Metal Arc Welding (MIG), Gas Tungsten Arc Welding (TIG), oxyacetylene cutting, and shop safety.

Related areas that a student will complete in welding include air carbon arc gouging, plasma arc cutting, safe use of manufacturing equipment, shop math, and metallurgy. Positive work behaviors such as regular attendance, leadership, teamwork, and communication skills will be emphasized. These and other work skills will be accomplished through the student's participation in the SkillsUSA Student Organization.

Seniors who enroll in Welding I have the option of competing their second year through Hutchinson Community College (Newton Center).

Students are expected to provide their own work clothing and personal tools (see equipment list). $100.00 material fee required each year.

Welding Technology II

- Credits: 4.0
- Course Numbers: 8311, 8312, 8313, 8314, 8315, 8316, 8317, 8318
- Grade Levels: 11, 12
- Prerequisites: Application and Welding Technology I
- Pathway(s): Manufacturing – Welding
- Course Fees: $100.00
- Dual Credit Available: Yes – HCC
- Clubs: SkillsUSA

Description: Students attend Welding II class Monday through Friday for three hours per day and covers courses in Gas Metal Arc Welding (MIG), Gas Tungsten Arc Welding (TIG), blueprint reading, plasma arc cutting, pulse MIG welding, computer numerical control cutting machines, Metallurgy, and robotic welding operations. Students will demonstrate shop safety, positive work behaviors, communication skills and employment skills. Students will also gain experience on live welding projects. $100.00 materials fee required per year – due at the beginning of the course. Jr. and Sr. concurrent enrollment with Hutchinson Community College – NO TUITION. Qualifies for math credit.

Hutchinson Community College courses include: Welding Blueprint Reading, Shielded Metal Arc Welding II, Gas Metal Arc Welding II, Gas Tungsten Arc Welding II, Industrial Robotic Welding, and/or Flux Cored Arc Welding, Welding Inspection and Qualification. Total college credits = 16.

ELECTIVES

FIRE SCIENCE I AND II

- Credits: 1.0
- Course Number(s): 80951, 80952
- Grade Levels: 11, 12
- Prerequisites: Hutch CC Course
- Course Fees: Free tuition. Student is responsible for textbook.
- Dual Credit Available: Yes – HCC
- Clubs: None

Description: Fire Science I

FS110 Firefighter I: Beginning course leading to Firefighter I certification, including emergency medical care, fire behavior, firefighting equipment and rescue and safety procedures.

FS150 Hazardous Materials Operations: The knowledge and skills first-responding firefighter and EMS personnel need to safely respond to routine and non-routine emergencies that may involve hazardous materials.

Fire Science II

FS113 Firefighter II: A follow-up course to FS110 Firefighter I, leading to a Firefighter II certification, including fire behavior, firefighting equipment, rescue and safety procedures, fire department operations and management and emergency medical care.

FS115 Fire Ground Operations: This course covers basic fire ground operations, including live fire suppression, ventilation, and search and rescue.

8 college credit hours through Hutch CC. CLOCK HOURS are mandated by the State Board. Students CANNOT miss more than 10% of class time.

Students ENROLLING AND QUALIFYING for dual credit courses who DROP them AFTER April 15 will be assessed a $25 fine. After June 1, they will be assessed a $50 fine.

AVIATION

DRONES

- Credits: 0.5
- Course Number(s): 8197
- Grade Levels: 10, 11, 12
- Prerequisites: Application form and completion of Hutch CC course registration requirements
- Course Fees: None
- Dual Credit Available: Yes – HCC
- Clubs: SkillsUSA, VICA

Description: Drones is a CTE pathway course that will set students up to pass the PART 107 – Small Unmanned Aircraft Systems test. Taught be certified pilots, the class will be conducted using Hutchinson Community College's Dragon Zone (similar to Newton School Canvas) and extensive hands-on training. Flights under the tutelage of the instructors will be conducted indoors and outside of the school campus on a daily basis. In addition, the class will also involve the use of video editing software skills and an understanding of basic marketing skills in order for students to have a solid grounding in today's competitive market.