

2023-2024 Career Academy & Technical Center Registration Guide



1221 College Drive



1200 College Drive

Dale Hoerauf, Director
www.bismarckcte.org
701-323-4340

QUICK GUIDE

Title of Course	Freshman	Soph.	Jr.	Sr.
AC Electronics *@	X	X	X	X
Advanced Medical Careers *		X	X	X
Agri-Science		X	X	X
Applied Mechanics	X	X	X	X
Architectural Design		X	X	X
Analog Electronics *@		X	X	X
Auto Collision I		X	X	X
Auto Collision II *@			X	X
Automotive Technology I		X	X	X
Automotive Technology II*			X	X
Aviation I		X	X	X
Aviation II * @			X	X
Botany/Horticulture		X	X	X
Building Systems	X	X	X	X
Building Systems II	X	X	X	X
Carpentry Framing		X	X	X
Carpentry Interior		X	X	X
Certified Nursing Assistant *			X	X
Computer Hardware/I.T. Essentials	X	X	X	X
Creative Engineering I		X	X	X
Creative Engineering II		X	X	X
Cybersecurity		X	X	X
DC Electronics @	X	X	X	X
Digital Art & Photography @		X	X	X
Digital Electronics *@		X	X	X
Energy & Power Production		X	X	X
Foundations of Technology	X	X	X	X
Graphic Design @		X	X	X
Intro to Agriculture	X	X	X	X
Intro to Computers/Intro to I.T.	X	X	X	X
Intro to Drones & Career Applications		X	X	X
Intro to Nursing (dual credit only)				X
Medical Careers	X	X	X	X
Medical Terminology (online)			X	X
Prevention and Care of Athletic Injuries *			X	X
Robotics	X	X	X	X
Tech Design/3D Modeling		X	X	X
Welding I		X	X	X
Welding II *			X	X
CTE Internship*#			X	X
Capstone Seminar *#				X

* = Course has a prerequisite (check course description)

@ = Articulation class

Classes meet for 90 minutes (2 high school class periods)

Bussing is provided for BPS students

Table of Contents

North Dakota State Scholarship – Page 4

Agriculture Career Cluster - Page 4 - 5

Agri Science (Science Credit)
Applied Mechanics
Botany/Horticulture
Introduction to Agriculture

Manufacturing Cluster – Pages 6 - 7

AC Electronics
Analog Electronics
DC Electronics
Digital Electronics
Welding I
Welding II

Art and Communication Cluster - Page 8

Digital Art & Photography
Graphic Design

Health Science Cluster - Pages 9 - 11

Advanced Medical Careers
Certified Nursing Assistant
Intro to Nursing
Medical Careers
Medical Terminology
Prevention and Care of Athletic Injuries

Information Technology Cluster - Page 11-12

Intro to Computers/Intro to I.T.
Computer Hardware/I.T. Essentials
Cybersecurity

Science, Technology, Engineering, and Math Cluster (STEM) - Pages 12 - 14

Architectural Design
Building Systems I
Building Systems II
Creative Engineering I
Creative Engineering II
Energy and Power Production
Foundations of Technology
Robotics
Tech Design/3D Modeling

Construction Career Cluster – Page 14 - 15

Carpentry Framing
Carpentry Interior

Transportation Cluster - Pages 15-16

Automotive Technology I
Automotive Technology II
Automotive Collision I
Automotive Collision II
Aviation I
Aviation II
Intro to Drones & Unmanned Aerial Systems
Carpentry Framing
Carpentry Interior

Extended Learning Opportunities - Page 17

Capstone Seminar
Internship

EmPower[Ed] Flyer – Page 18

Free BPS bussing is provided for students to and from Career Academy classes and BHS, CHS, and LHS

North Dakota State Scholarship Information

Coordinated Plans of Study and North Dakota State Scholarship Opportunities

Coordinated Plans of Study exist for eight career and technical education program areas through Bismarck Public Schools: Agriculture, Business Education, Family and Consumer Science, Medical Careers, Information Technology, Marketing Education, Technology Education, and Trade, Industry, and Technical Education (**Coordinated Plans of Study and the specific pathways preface each program area in this registration guide**). Students who choose to focus their coursework in a specific CTE area may be eligible upon graduation for a **North Dakota Career and Technical Education Scholarship, up to \$6,000.00**, which is awarded to students who meet specific criteria and choose to attend a post-secondary institution in North Dakota.

Specific eligibility requirements for the scholarship can be found at <https://www.nd.gov/dpi/parentscommunity/students/academic-and-cte-scholarship>.

****Coordinated Plans of Study to choose from to complete the two credit plan of study scholarship requirement preface each program area in this registration guide.**

Agriculture Career Cluster

Coordinated Plans of Study for North Dakota Career and Technical Education Scholarship		
AGRICULTURE EDUCATION		
*For the most current information regarding Coordinated Plans, go to cte.nd.gov/coordinated-plans-study *		
Agriculture, Food & Natural Resources Career Cluster		
Power, Structural & Technical Systems		
Course Code	Description	No. of Credits
01011	Introduction to Agriculture	1
01021	Agri Science	1
01043	Applied Mechanics-Sem. 1	1
01044	Applied Mechanics-Sem. 2	1
01995	Supervised Agricultural Experience (SAE)	½ - 2
Must complete at least 2 credits		

AGRI-SCIENCE

BPS Career Academy

Grade Placement: 10, 11, 12.....1 credit (Block Class).....Semester 1 or 2

Alternative Credit: Fulfills one science credit for graduation; however, this one semester course will fulfill only 1/2 college entrance science requirement credit.

This agri-science technology course is intended to introduce students to scientific, production, and mechanical concepts of agriculture and to relate it to today's technology. It includes the study of agricultural plants, animals, soils, ag business, horticulture, pesticides, computers, and food technology. Field trips to various Ag related businesses may be taken throughout the semester. Leadership through the FFA is an integral part of this course.

APPLIED MECHANICS

BPS Career Academy

Grade Placement: 9, 10, 11, 12.....2 credits (Block Class).....Full Year

Lab Fee: \$20

Leather boots, welding gloves, and safety glasses are required. Coveralls or old set of clothes strongly suggested.

This program includes: tool identification, the study of small engine repair, repair using oxyacetylene, MIG and arc welding, and building of small metal projects. Further studies include: agriculture carpentry, building of small & medium wood projects & buildings, surveying, construction techniques and materials, concrete, plumbing, electricity, and utilities. The use of hand and power tools for projects is also included in the mechanics program. Leadership through FFA is an integral part of this course.

BOTANY/HORTICULTURE (Science Credit)

BPS Career Academy

Grade Placement: 10, 11, 12.....2 credits (Block Class) Full year

Alternative Credit: Fulfills up to two science credits for graduation; however, both semesters of this course will fulfill only one college entrance science requirement credit. Successful completion of both semesters of Botany/Horticulture are required to fulfill the biology requirement for graduation.

This course, offered at the CTE Center on the BSC campus, is designed to give hands-on instruction in skills related to nurseries, greenhouses, florist shops, lawn services, landscaping, park and landscape maintenance, gardening, and fruit production.

INTRODUCTION TO AGRICULTURE

BPS Career Academy

Grade Placement: 9, 10, 11, 12.....1 credit (Block Class).....Semester 1 or 2

This applied course is designed to introduce students to agriculture, its applications, and leadership development as the core foundation of the Agriculture Education program. Individual units will familiarize the student with safety and proper use of tools and equipment; animal selection and genetic traits; soil and plant relationships; basic business management and financial skills. Other topics include: soils, horticulture, nursery, natural resources/wildlife management, and biotechnology. Emphasis is on developing problem solving skills applied to real world problems. FFA and leadership skills are an integral part of this course.

Free BPS bussing is provided for students to and from Career Academy classes and BHS, CHS, and LHS

Manufacturing Cluster

Coordinated Plans of Study for North Dakota Career and Technical Education Scholarship

TRADE, INDUSTRY & TECHNICAL EDUCATION

For the most current information regarding Coordinated Plans go to cte.nd.gov/coordinated-plans-study

Manufacturing Career Cluster

Production			Manufacturing Production Process Development		
Course Code	Description	No. of Credits	Course Code	Description	No. of Credits
17236	Welding I	1 or 2	17150	DC Electronics	1
17237	Welding II	2	17150	AC Electronics	1
			17151	Analog Electronics	2
			17152	Digital Electronics	2
17950	Trade & Industry Capstone	1 or 2	17950	Trade & Industry Capstone	1 or 2
Must complete at least 2 credits			Must complete at least 2 credits		

DC ELECTRONICS

BPS Career Academy

Grade Placement: 9, 10, 11, 12.....1 credit (Block Class).....Semester 1 or 2

Students will have the opportunity to earn college credits through the articulation process

Today's electrical engineers, technologists and technicians continue to change the way we live. This hands-on course allows students to work in a lab environment where they will build, analyze and troubleshoot basic electronic circuits. The study of the concepts of current, voltage and resistance through problem solving and schematic drawings as they apply to DC circuits analysis. The lab portion of the course provides hands-on verification of the theory presented in class.

AC Electronics

BPS Career Academy

Grade Placement: 9, 10, 11, 12.....1 credit (Block Class).....Spring Semester

Prerequisite: DC Electronics.

Students will have the opportunity to earn college credits through the articulation process

This is a continuation of the concepts learned in DC Electronics. The study of dB, complex numbers, RC, RL and RLC circuits, resonance, and passive and active filters. The lab portion of the course is lab/lecture, which provides hands-on verification of the theory presented in class.

ANALOG ELECTRONICS

BPS Career Academy

Grade Placement: 11, 12.....2 credits (Block Class).....Full Year

Prerequisite: DC & AC Electronics (Formerly Electronics I)

Students will have the opportunity to earn college credits through the articulation process.

Analog Electronics will prepare students for a high-paying career after high school. This class is equipped with state-of-the-art equipment and taught by experienced professionals who will help you thoroughly learn designing, building, analyzing and trouble-shooting analog electronic circuits.

DIGITAL ELECTRONICS

BPS Career Academy

Grade Placement: 11, 12.....2 credits (Block Class).....Full Year

Prerequisite: DC Electronics (Formerly Electronics I)

Students will have the opportunity to earn 28-32 college credits through the articulation process.

Building on students understanding of basic electronics concepts, this course develops a thorough explanation of TTL and CMOS devices and their applications. Special attention given to related troubleshooting techniques and equipment. Students are introduced to microprocessor-based systems and microcomputers.

WELDING I

BPS Technical Center

Grade Placement: 10, 11, 12..... 1 credit (Block Class).....Semester 1 or 2

Requirements: Students must provide their own boots, coveralls/jacket, gloves, welding cap

This course provides a combination of classroom study and hands-on exploration of metal joining processes and techniques as well as an opportunity to learn multiple welding skills including: safe handling of welding equipment, Oxy-Acetylene welding, Oxy-Acetylene cutting, Shielded Metal Arc Welding, and Gas Metal Arc Welding. We will reinforce our classroom studies with hands-on projects that will be done in teams or individually with the use of welding equipment, hand and power tools, and other metal fabrication machines.

WELDING II

BPS Technical Center

Grade Placement: 11, 12.....2 credits (Block Class).....Full Year

Prerequisite: Welding I

Requirements: Students must provide their own boots, coveralls/Jacket, gloves, welding cap

This course will be an extension of the Welding I course. Added topics will be: Plasma torch cutting, Shielded and Gas Metal Arc welding in the vertical and horizontal positions, and Gas Tungsten Arc Welding. Scale drawings, measurements, and blueprint reading will be covered in this course as well as an emphasis on project fabrication, career-ready skills, and welding career exploration.

Free BPS bussing is provided for students to and from Career Academy classes and BHS, CHS, and LHS

Art and Communication Cluster

Coordinated Plans of Study for North Dakota Career and Technical Education Scholarship

TRADE, INDUSTRY & TECHNICAL EDUCATION

For the most current information regarding Coordinated Plans go to cte.nd.gov/coordinated-plans-study

Arts, A/V Technology & Communications Career Cluster

Visual Arts

Course Code	Description	No. of Credits
17072	Graphic Design	2
17073	Digital Art & Photography	2
17950	Trade & Industry Capstone	1 or 2
Must complete at least 2 credits		

DIGITAL ART and PHOTOGRAPHY

BPS Career Academy

Grade Placement: 10, 11, 12.....2 credits (Block Class).....Full Year

Lab Fee: \$25.00

Students are encouraged to explore the idea of finding visual solutions to creative problems. This class focuses on creating artwork in Adobe Photoshop, in addition to other Adobe programs such as Illustrator and Lightroom. Digital Photography is a main component of the class and students are given the opportunity to learn digital camera use and image editing. Projects include creating collages, album covers, and posters, and conducting photo shoots. **Students can possibly earn up to 12 Bismarck State College credits upon completion of both Digital Art & Photography and Graphic Design. Cost per credit is \$15.**

GRAPHIC DESIGN

BPS Career Academy

Grade Placement: 10, 11, 12.....2 credits (Block Class).....Full Year

Lab Fee: \$25.00

This course emphasizes graphic design principles, techniques, and software. Students will be introduced to the graphic design industry while working on real world projects. Creating artwork in Adobe Illustrator is a main focus of this class, but InDesign and Photoshop are also used as necessary. Students will use the Adobe CC software to create designs that can be printed on a wide variety of media right here in the classroom. Students will design logos, t-shirts, posters, advertisements, brochures, and books. **Students can possibly earn up to 12 Bismarck State College credits upon completion of both Digital Art & Photography and Graphic Design. Cost per credit is \$15.**

Free BPS bussing is provided for students to and from Career Academy classes and BHS, CHS, and LHS

Health Science Cluster

Coordinated Plans of Study for North Dakota Career and Technical Education Scholarship

HEALTH SCIENCES EDUCATION

For the most current information regarding Coordinated Plans, go to cte.nd.gov/coordinated-plans-study

Health Science Career Cluster

Diagnostic Services			Therapeutic Services		
Course Code	Description	No. of Credits	Course Code	Description	No. of Credits
07033	Medical Careers	1	07032	Certified Nursing Assistant	1
07034	Prevention & Care of Athletic Injuries	1	07033	Medical Careers	1
07035	Advanced Medical Careers	1	07035	Advanced Medical Careers	1
07036	Medical Terminology	½	07036	Medical Terminology	½
			07038	Intro to Nursing	1
17950	Trade & Industry Capstone	1 or 2	17950	Trade & Industry Capstone	1 or 2
Must complete at least 2 credits			Must complete at least 2 credits		

MEDICAL TERMINOLOGY

Online Course

Grade Placement: 11, 12..... 1/2 credit..... Semester 1 or 2

(Students must be 16 years of age)

This course will be offered as a dual credit course with Bismarck State College through the CRACTC. It is offered in an online format with proctored tests. In this course, students will develop skills necessary for decoding commonly used medical terms. Students will learn the meaning of medical suffixes, prefixes and word roots. This medical terminology course covers the basic knowledge and understanding of medical language and terminology used by health care professionals. This course requires students to work independently and manage their time well. **Dual credit through BSC is available.**

MEDICAL CAREERS

BHS, CHS, LHS

Grade Placement: 9, 10, 11, 121 credit.....Full Year

This year-long course provides students with information relating to the educational and professional requirements for the various medical careers. Students will study the fundamentals of diseases, basic anatomy and physiology, and medical terminology. Students will become certified in the Healthcare Provider level of CPR/AED for the Professional Rescuer and American Heart Saver First Aid. **Dual credit from Bismarck State College is available (HPER 210).**

CERTIFIED NURSING ASSISTANT (CNA)

BPS Career Academy

Grade Placement: 11, 12.....1 credit (Block Class)..... Semester 1 or 2

Fee: \$20 plus cost of necessary vaccinations and TB testing if pursuing optional clinical experiences and state exam fee.

Prerequisite: Enrolled in or completion of Medical Careers. (May be waived per approval of administration.)

This course provides classroom instruction, skills lab practice, and clinical simulation to prepare the student for employment as a Certified Nursing Assistant in a skilled nursing facility, acute care, or home health care setting. Upon successful completion of the course requirements and classroom and skill hours, students are eligible to take the state CNA certification exam through Headmaster. Current necessary vaccinations and a background check are required per facility policy for OPTIONAL clinical opportunities. The student is responsible for transportation to tours, clinical sites, and the state exam fee. Optional clinical experience hours are scheduled outside of class time. **Dual credit through Bismarck State College (NURS100) is available.**

ADVANCED MEDICAL CAREERS

BPS Career Academy

Grade Placement: 10,11,12.....1 credit (Block Class).....Semester 1 or 2

Fee: \$20 plus cost of required vaccinations and TB testing, if pursuing optional job shadows.

Prerequisite: Enrolled in or completion of Medical Careers. (May be waived per approval of administration.)

This course is for students who are interested in exploring a wide range of medical careers. This exploration is done through research, professional guest speakers, college tours, clinical simulation labs and potential job shadows. The curriculum is designed to enhance student employability skills and professional medical career readiness. Job shadows are optional. If job shadowing, up-to-date vaccinations including influenza and possible COVID vaccination (per individual facility policy), a negative TB test and background check must be completed. The student is responsible for necessary vaccinations, testing, and transportation to job shadow and tour sites.

PREVENTION AND CARE OF ATHLETIC INJURIES

BPS Career Academy

Grade Placement: 11, 12.....1 credit (Block Class)..... Semester 1 or 2

Fee: \$20

Prerequisite: Medical Careers -or- Anatomy/Physiology course is recommended for supportive background knowledge but is not required.

An introductory course for students interested in the field of Sports Medicine. General principles covered include: prevention, recognition, and immediate care of athletic injuries; rehabilitation of athletic injuries; basic nutrition; HIPAA; hands-on activities - taping and wrapping techniques, goniometry. Classroom learning is enhanced through job shadowing. Job shadow experiences are outside of class time and the student is responsible for transportation to job shadow sites. **Dual credit through the University of Mary (KIN 151 & 238) or Bismarck State College (HPER 207) is available.**

INTRODUCTION TO NURSING-Dual credit only

BPS Career Academy

Grade Placement: 12.....1 credit (Block Class) Hybrid Schedule Semester 1 or 2

Fee: Dual credit costs

This course is for senior students interested in pursuing their nursing career through the University of Mary. Introduction to Nursing (NUR240) is an introductory prerequisite course for admission to the University of Mary's nursing program. The course introduces students to professional nursing roles and attributes. Standards of nursing care, therapeutic communication, and quality and safety concerns will be explored.

CAPSTONE-MEDICAL CAREERS

BPS Career Academy

Grade Placement: 11, 12....1 credit (Block Class) Hybrid Schedule..... Semester 1 or 2

Prerequisite: Students must have obtained two credits in the Medical Careers pathway. Students must apply for the Capstone and be approved by the instructor and the Career Advisor the semester prior to registration.

Capstone is a course that gives students an opportunity to receive credit for their hands-on experience in the community, their classrooms, and/or their jobs or internships in health care. Students will apply the knowledge and skills they obtained from their Medical Careers courses to real-world experiences. Students will have the opportunity to implement leadership skills through practical applications. Students will develop an individualized learning plan with their Capstone Instructor.

Information Technology Cluster

Coordinated Plans of Study for North Dakota Career and Technical Education Scholarship

INFORMATION TECHNOLOGY EDUCATION

For the most current information regarding Coordinated Plans, go to cte.nd.gov/coordinated-plans-study

Information Technology Career Cluster

Network Systems			Information Support & Services			Programming & Software Development		
Course Code	Description	No. of Credits	Course Code	Description	No. of Credits	Course Code	Description	No. of Credits
27101	Intro to Computers/Intro to I.T.	1	27101	Intro to Computers/Intro to I.T.	1	27101	Intro to Computers/Intro to I.T.	1
27219	Computer Hardware/I.T. Essentials	1	27219	Computer Hardware/I.T. Essentials	1	27510	AP Computer Science Principles	1
27280	Cybersecurity	1	27280	Cybersecurity	1	27520	AP Computer Science A	1
						27122	Computer Programming I	½
						27280	Cybersecurity	1
Must complete at least 2 credits			Must complete at least 2 credits			Must complete at least 2 credits		

INTRO to COMPUTERS/INTRO TO I.T.

BPS Career Academy

Grade Placement: 9, 10, 11, 12.....1 credit (Block Class)..... Semester 1 or 2

This exploratory level course provides an exposure to careers and issues in Information Technology. Units prepare students for the industry recognized “Internet and Computing Core Certification” (IC3). This globally recognized certification provides students with the foundation of knowledge needed to excel in fields that involve computers and the internet. The IC3 Global Standard 3 reflects the most relevant skills for school and business today including: Computing Fundamentals, Key Applications, and Living Online. Students will also have introductory units on Cybersecurity and the Internet of Things (IoT).

COMPUTER HARDWARE/I.T. ESSENTIALS

BPS Career Academy

Grade Placement: 9, 10, 11, 12.....1 credit (Block Class).....Semester 1 or 2

Recommended: Intro to Computers

This course introduces students to computer hardware and operating systems. Students learn the functionality of hardware and software components as well as suggested best practices in maintenance and safety issues. Through hands-on activities and labs, students learn how to assemble and configure a computer, install operating systems and software, and troubleshoot hardware and software problems. In addition, an introduction to networking is included. This course helps the students prepare for CompTIA A+ certification.

CYBERSECURITY

BPS Career Academy

Grade Placement: 10, 11, 12.....1 credit (Block Class).....Semester 1 or 2

With billions of devices now online, new threats pop-up every second! In this class students will learn the basics of being safe online. Learn about different types of malware and attacks, and how organizations are protecting themselves against these attacks. Explore the career options in cybersecurity. **Dual Credit available upon request.**

Science, Technology, Engineering, and Math Cluster (STEM)

Coordinated Plans of Study for North Dakota Career and Technical Education Scholarship

TECHNOLOGY & ENGINEERING EDUCATION

For the most current information regarding Coordinated Plans, go to cte.nd.gov/coordinated-plans-study

Science, Technology, Engineering & Mathematics Career Cluster			Manufacturing Career Cluster		
Engineering & Technology			Manufacturing Production Process Development		
Course Code	Description	No. of Credits	Course Code	Description	No. of Credits
10094	Foundations of Technology	1	10111	Building Systems I	1
10410	Creative Engineering I	1	10111	Building Systems II	1
10338	Creative Engineering II	1	10259	Architectural Design	1
10411	Robotics Engineering	1	10260	Tech Design/3D Modeling	1
			10331	Energy & Power Production	1
			10411	Robotics Engineering	1
Must complete at least 2 credits			Must complete at least 2 credits		

ARCHITECTURAL DESIGN

BPS Career Academy

Grade Placement: 10, 11, 12.....1 credit (Block Class).....Semester 1 or 2

Architectural Design students will master the technical skills of the industry software, Computer Aided Drafting and Design (CADD), and in the process will produce architectural plans and 3D computer models. In addition, students will sketch floor plans, and build scale architectural models from sketches and blueprints. Bismarck-Mandan architects will provide professional insights into the architectural design process and local projects.

BUILDING SYSTEMS I

BPS Career Academy

Grade Placement: 9, 10, 11, 12.....1 credit (Block Class).....Semester 1 or 2

Lab Fee: \$25

If you enjoy any type of woodworking and construction, this class is for you. Students will explore how to use tools and machines used in construction and woodworking. You will learn about house framing where you will demonstrate cutting, fastening, and assembling walls. You will learn how to hang dry wall, do taping & texturing and how to fix holes in the wall. In addition, students will create a electrical circuit by running electrical wiring to the various lighting and outlets within the structure. Students will also learn about the different types of wood and wood composites to create different projects including working with the Dakota Woodturners on the wood lathe. Other units of study include concrete, laminate countertop replacement, and creating charcuterie boards.

BUILDING SYSTEMS II

BPS Career Academy

Grade Placement: 9, 10, 11, 12.....1 credit (Block Class).....Semester 1 or 2

Prerequisite: Building Systems I

Lab Fee: \$25

If you enjoyed Building Systems, this class should be added to the list. Building II will add to your knowledge in the construction field by introducing careers and developing skills in floor coverings and installation, tile setting, plumbing countertop construction and repair, roofing, heating, ventilation and air conditioning, underground sprinkler systems, security systems (locks and cameras), and brick/stone mason work. We will cover tools, materials and vocabulary in all these trade areas. Small project at the end of the semester.

CREATIVE ENGINEERING I

BPS Career Academy

Grade Placement: 10, 11, 12.....1 credit (Block Class)Semester 1 or 2

*Prerequisite: 10th grade **Students must have successfully completed one Career Academy or Tech Center class***

Are you considering a career in engineering? A major focus of this class will be on understanding what engineers do and how they solve problems. You will learn about the engineering design process, and how to use a CAD program to design 3D models that will be printed on a 3D printer. Students will work in teams on a design problem (arcade game), and in the process will experience the engineering design process. Students will be able to make engineering choices for their projects based on their skills and what they have learned.

CREATIVE ENGINEERING II

BPS Career Academy

Grade Placement: 10, 11, 12.....1 credit (Block Class)Semester 1 or 2

*Prerequisite: 10th grade **Students must have successfully completed Creative Engineering I***

A major focus of this class will be on the exploration of careers in engineering. You will have the opportunity to do job shadows and career Explorations at local facilities where you can meet people in the engineering field, ask questions, and create contacts for the future. You will enhance your CAD program skills for prototyping and using the 3D printer. Students can work individually or in teams on a design problem. Students will be able to make engineering choices for their projects based on their skills.

ENERGY & POWER PRODUCTION

BPS Career Academy

Grade Placement: 10, 11, 12.....1 credit (Block Class) Semester 1 or 2

If you are interested in the energy industry, then look at what this class has to offer. Hands-on activities include tool safety, building wind turbines, solar cars, catapults, hydroelectric turbines; pneumatics, duct tape boats, and a LED light project that you get to take home. Tours that may be possible are of the BSC Energy Center, a power plant, and a job-shadow day at Coteau Freedom Mine where you can ride-along in the coal hauling trucks and in the dragline. Students will learn how to use various motors, gears, and mechanisms that utilize a variety of energy sources. You will examine various forms of energy including mechanical, chemical, nuclear, electrical, and heat energy.

FOUNDATIONS OF TECHNOLOGY

BPS Career Academy

Grade Placement: 9, 10, 11, 12.....1 credit (Block Class) Semester 1 or 2

Lab Fee: \$25

Do you like building things? Do you like working with your hands? Learn through group and individual activities that engage in STEM activities by creating ideas, developing innovations, and engineering practical solutions. Some hands-on activities that are possible: tool safety, CADD designed Co2 car dragsters, manufacturing in the wood shop with the mini-lathe & building a small wood project, laser engraver, vinyl cutter, t-shirt design, bridge design, building robots.

ROBOTICS

BPS Career Academy

Grade Placement: 9, 10, 11, 12.....1 credit (Block Class) Semester 1 or 2

The Robotics experience will provide the student with an overall study of robotic construction. The class will study the physics and mechanical systems and aspects through relevant activities and projects. The robotic equipment used for this class will be Vex and REV Robotics systems. Projects to be built may include gear plate, square bot, crane, manipulator, stair climber and REV kit.

TECH DESIGN/3D MODELING

BPS Career Academy

Grade Placement: 10, 11, 12.....1 credit (Block Class).....Semester 1 or 2

Lab Fee: \$25

Students will develop skills necessary for the designing and modifying of products and projects. Students will use 3D printers, laser cutters and other machines to produce models and prototypes of the designed product. This class allows individual students the creativeness throughout the designing and building phase of their project. Solidworks is a professional design software program used in this class.

Construction Career Cluster

Coordinated Plans of Study for North Dakota Career and Technical Education Scholarship

TRADE, INDUSTRY & TECHNICAL EDUCATION

For the most current information regarding Coordinated Plans, go to cte.nd.gov/coordinated-plans-study.

Architecture & Construction Career Cluster

Construction

Course Code	Description	No. of Credits
17100	Carpentry Framing	2
17117	Carpentry Interior	2
17950	Trade & Industry Capstone	1 or 2

Must complete at least 2 credits

CARPENTRY FRAMING

BPS Technical Center Grade

Placement: 10, 11, 12.....2 credits (Block Class).....Full Year

Students in this class participate in the actual construction of a house to be built on-site. Students will get valuable hands-on experience in floor, wall, and roof framing, sheathing, insulating, siding, metal soffit system, window and exterior door installation. Students will design and draw a floor plan for a house. Proper safety methods and appropriate use of carpentry tools are stressed throughout the course.

CARPENTRY INTERIOR

BPS Technical Center

Grade Placement: 10, 11, 12.....2 credits (Block Class).....Full Year

Students in this class will learn and apply techniques in drywall installation and finishing at the carpentry house. The students will learn cabinet building and installation procedures as well as other woodworking techniques. Students will also learn how to cut, assemble, install, and finish all interior woodwork and countertop in a typical house. This will include hanging interior doors, trimming doors and windows, and installation of baseboard. Proper safety methods and appropriate use of carpentry tools and equipment are stressed throughout the course.

Transportation Cluster

Coordinated Plans of Study for North Dakota Career and Technical Education Scholarship

TRADE, INDUSTRY & TECHNICAL EDUCATION

For the most current information regarding Coordinated Plans, go to cte.nd.gov/coordinated-plans-study.

Transportation, Distribution & Logistics Career Cluster

Transportation Operations			Facility and Mobile Equipment Maintenance		
Course Code	Description	No. of Credits	Course Code	Description	No. of Credits
17812	Aviation I	2	17030	Auto Collision I	2
17813	Aviation II	2	17031	Auto Collision II	2
17814	Intro to Drones & Unmanned Aerial Systems	1	17032	Automotive Technology I	2
			17037	Automotive Technology II	2
17950	Trade & Industry Capstone	1 or 1	17950	Trade & Industry Capstone	1 or 2
Must complete at least 2 credits			Must complete at least 2 credits		

AUTO COLLISION I

BPS Technical Center

Grade Placement: 10, 11, 121 credit (Block Class),.....Semester 1 or 2

Required: Safety glasses, welding gloves (available for purchase or supply your own), instructor approved work boots and clothing.

Students will learn safe work procedures, basic tool handling, usage and repair procedures in the following areas: wire welding, basic sheet metal repair, materials used in auto body repair, body construction, glass installation, and refinishing materials and techniques.

AUTO COLLISION II

BPS Technical Center

Grade Placement: 11, 12.....2 credits (Block Class).....Full Year

Prerequisite: Auto Collision I

Required: Safety glasses, welding gloves (available for purchase or supply your own), instructor approved work boots and clothing.

Students will expand their knowledge of auto collision repair through instruction in minor frame repair, wire feed welding, panel replacement, glass installation, basic collision damage repair and refinishing. Students will use many of the specialty tools used in major auto body repair and will learn the use of water bourn paints.

Students will also learn about the insurance industry and how to write estimates.

Free BPS bussing is provided for students to and from Career Academy classes and BHS, CHS, and LHS

AUTOMOTIVE TECHNOLOGY I

BPS Technical Center

Grade Placement: 10, 11, 12.....2 credits (Block Class).....Full Year

Course Titles: Auto Shop Orientation, Engine diagnosis, Electrical/Electronic Systems, Suspension and Steering Student Requirements: Instructor approved full-leather work boots, OSHA approved clear lens safety glasses, locker padlock if desired

The focus of Auto Tech I is the fundamentals of today's more complicated automobile engines, electronics and suspension systems. Students will learn proper safety techniques, as well as the use of specialized equipment in the diagnosis and repair of these systems. The program maintains ASE Certification under the direction of ASE Master Certified Technicians. Students are encouraged to work on their own personal vehicles as course guidelines direct. The goal of the course is to prepare students to become entry level technicians in the area of maintenance and light repair. Participation in SkillsUSA is recommended.

AUTOMOTIVE TECHNOLOGY II

BPS Technical Center

Grade Placement: 11, 12.....2 credits (Block Class).....Full Year

Prerequisite: Automotive Technology I

Course Titles: Brakes, Heating and Air conditioning, Engine Performance, Manual Drivetrain and Axles, Automatic Transmission and Transaxle. Student Requirements: Instructor approved work boots, OSHA approved clear lens safety glasses, locker padlock if desired

Automotive Technology II completes the automobile training bumper to bumper. This class is also an ASE certified program with the goal of preparing students to become entry level Maintenance and Light Repair Technicians. Students are strongly encouraged to enroll in both Automotive Technology I and II to accumulate a thorough working knowledge of the automobile. Work on students' vehicles is also encouraged as course work dictates. Participation in SkillsUSA is recommended.

AVIATION I

BPS Career Academy

Grade Placement: 10, 11, 12.....2 credits (Block Class).....Full Year

Students are provided with an understanding of the science of flight and include the history and possible career paths within the aviation industry. Aviation covers physics, the relationships of weight and balance, principles of navigation and flight control, ground and airport operations and services, and Federal Aviation Administration regulations. Each student gets to have the opportunity for a demonstration flight in the district's Cessna 150.

AVIATION II

BPS Career Academy

Grade Placement: 11, 12.....2 credits (Block Class).....Full Year

Prerequisite: Aviation I

Students will be prepared to pass the Federal Aviation Administration (FAA) private pilot oral and skills examinations. Other topics include advanced systems, engineering and aerodynamics and aircraft certification.

INTRO TO DRONES & CAREER APPLICATIONS

BPS Career Academy

Grade Placement: 10,11, 12.....1 credit (Block Class).....Semester 1 or 2

The Unmanned Aircraft Systems course will prepare students with a basic understanding of commercial unmanned aircraft operations (drones). Part of the course will include Professional UAS Certification (part 107), aerial photography and processing, basic electrical and coding, and basic drone engineering along with drone racing.

Extended Learning Opportunities

CAPSTONE SEMINAR

BPS Career Academy

Grade Placement: 12.....1 or 2 credits (Block Class).....Semester or Full Year

Prerequisite: Must receive teacher approval **prior to registration** & have completed three to four credits (depending on program area) in a Career Pathway

This course serves as a culminating and integrative experience designed specifically to provide an opportunity to expand upon knowledge gained in a career pathway. It is a project-based course that will focus on the design process to a finished product by incorporating 21st Century Skills, such as critical thinking and problem solving. The course will consist of a major project where the student must be able to demonstrate all that they have learned in their program of study. Each capstone project will incorporate the broader community, some aspect of “giving back” to others, which will provide students the opportunity to connect their project to the community and apply their learning to the real world.

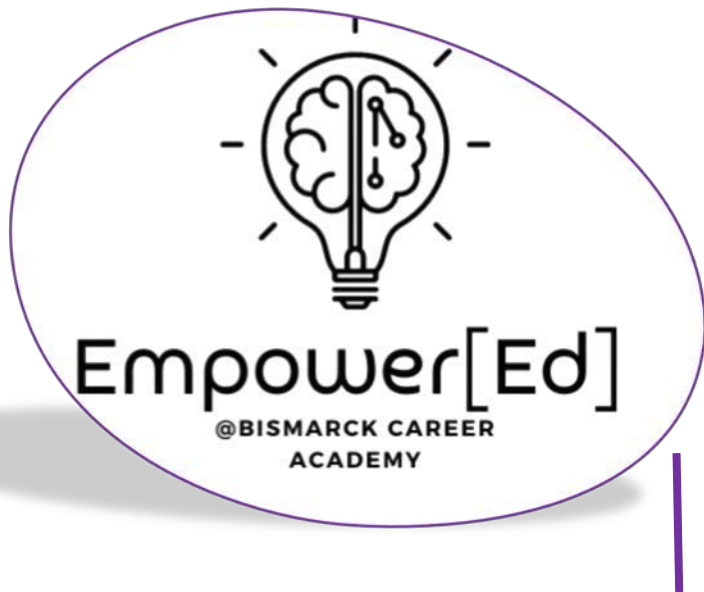
INTERNSHIP

Grade Placement: 11, 12.....May earn up to 2 credits.....Semester 1 or 2

Prerequisite: Must meet with Career Advisory **prior to registration** & must have earned one full credit in a specific pathway of a CTE Coordinated Plan of Study. Internship must relate to the career area specific to the pathway in which the full credit was completed.

An internship may be a paid or unpaid job experience. All program requirements must be completed and **approved prior** to registration for the class. Deadline for fall semester is May 15th & deadline for spring semester is December 15th. To begin the application process, schedule an appointment with your career advisor. Transportation to and from the training site is the responsibility of the student. Students must be enrolled in a minimum number of courses at their respective schools in addition to the internship. Students must complete 75 hours of work for ½ credit.

Free BPS bussing is provided for students to and from Career Academy classes and BHS, CHS, and LHS



What are Empower[Ed] learners saying?

"This is the first time in a while I have been truly excited to go to school."

"Once I started, it was better than I could have imagined."

"This has allowed me to pursue and further my passions while helping the community and still gaining credits for core classes."

Do the *work* you need to do for *school* in a *school* that *works* for you!

What do I need to be in the Empower[Ed]? *You just have to want to!*

- CTE interest
- A drive to take initiative, explore your passions, and learn.
- A junior or senior
- Parent/Guardian(s) agreement

Can I still take courses and participate in activities at my current high school? *Absolutely!*

Empower[Ed] isn't a replacement for the high school experience, it's an addition to it! In fact, we encourage you to participate in all the great experiences from sports to clubs to electives that your school has to offer.

Is Empower[Ed] right for me? *Can you answer "yes" to any of these?*

- Do you want to add value to your community?
- Do you enjoy hands on learning?
- Are you looking for something to make you stand out?
- Are you bored or unsure of what to do after high school?
- Do you want to be more independent & self motivated?

What credits can I earn?*

ENGLISH COURSES

- English 11
- English 12

MATH COURSES

- Integrated Math III

SOCIAL STUDIES COURSES

- Government
- Economics
- U.S. History

SCIENCE

- Integrated Science

PE

- Outdoor Leadership & Fitness

**other classes may be available upon request*

Talk to your counselor or
Career Advisor to apply...
...or visit

<https://sites.google.com/bismarckschools.org/em-powered/home>

For more information!

