

# 2021-2022 Career Academy & Technical Center 9<sup>th</sup> Grade Registration Guide

---



1221 College Drive



1200 College Drive

Dale Hoerauf, Director  
[www.bismarckcte.org](http://www.bismarckcte.org)  
701-323-4340

## QUICK GUIDE

Title of Course	Freshman	Soph.	Jr.	Sr.
AC Electronics (formerly Electronics I) *@	X	X	X	X
Applied Mechanics	X	X	X	X
Building Systems	X	X	X	X
Building Systems II	X	X	X	X
Computer Hardware	X	X	X	X
DC Electronics (formerly Electronics I) @	X	X	X	X
Foundations of Technology	X	X	X	X
Intro to Agriculture	X	X	X	X
Intro to Computers (Formerly Intro to Computer Software)	X	X	X	X
Robotics	X	X	X	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 5**

Applied Mechanics

Introduction to Agriculture

**Manufacturing Cluster – Pages 6 - 7**

AC Electronics (formerly Electronics I)

DC Electronics (formerly Electronics I)

**Information Technology Cluster - Page 11-12**

Computer Hardware

Intro to Computers

**Science, Technology, Engineering, and**

**Math Cluster (STEM) - Pages 12 - 14**

Building Systems

Building Systems II

Foundations of Technology

Robotics

**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.**

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

# Agriculture Career Cluster

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

## APPLIED MECHANICS

**BPS**

### Career Academy

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

***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, farm engine maintenance and tune up, repair using oxyacetylene, MIG and arc welding, repair of farm machinery 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.**

## 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](http://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	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	½ or 1	17950	Trade & Industry Capstone	½ or 1
<b>Must complete at least 2 credits</b>			<b>Must complete at least 2 credits</b>		

#### DC ELECTRONICS (formerly Electronics I)

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 (formerly Electronics I)

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.

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

# Information Technology Cluster

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

### INFORMATION TECHNOLOGY

\*For the most current information regarding Coordinated Plans, go to [cte.nd.gov/coordinated-plans-study](http://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	½ - 1	27101	Intro to Computers	½ - 1	27101	Intro to Computers	½ - 1
27219	Computer Hardware	½ - 1	27219	Computer Hardware	½ - 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
<b>Must complete at least 2 credits</b>			<b>Must complete at least 2 credits</b>			<b>Must complete at least 2 credits</b>		

#### COMPUTER HARDWARE

**BPS Career Academy**

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

*Recommended: Intro to Computer Software*

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.

#### INTRO to COMPUTERS (Formerly Intro to Computer Software)

**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).

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

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

### TECHNOLOGY EDUCATION

\*For the most current information regarding Coordinated Plans, go to [cte.nd.gov/coordinated-plans-study](http://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	1
10410	Creative Engineering: (Technological Design)	1	10111	Building Systems II	1
10338	Creative Engineering: (Advanced Design Application)	1	10259	Architectural Design	1
10411	Robotics Engineering	1	10260	Tech Design/3D Modeling	1
			10331	Energy & Power Production	1
			10411	Robotics Engineering	1
<b>Must complete at least 2 credits</b>			<b>Must complete at least 2 credits</b>		

### BUILDING SYSTEMS

**BPS Career Academy**

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

*Lab Fee: \$20*

If you enjoy any type of woodworking and construction this class is for you. Students will explore how to use tools and machines used for building in construction. Students will demonstrate by cutting, fastening, assembling and framing walls for siding, windows and doors; dry walling, mudding, taping, and texturing along with fixing holes in the wall. Students will learn the different types of woods and wood composites. In addition, students run electrical wiring to outlets and switches and the various lighting and electrical circuits. Projects using stone, and concrete are introduced. Plumbing will be introduced by setting toilets and sinks, running vents and p-traps, and working with PVC, pex and copper. As the semester finishes all students will design, create, and build a small final project.

### BUILDING SYSTEMS II

**BPS Career Academy**

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

*Prerequisite: Building Systems*

*Lab Fee: \$20*

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, 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.

**FOUNDATIONS OF TECHNOLOGY**

**BPS Career Academy**

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

*Lab Fee: \$20*

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, rockets, 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, and an energy & power unit with a possible tour of Coteau, Antelope Valley Station, and Dakota Gasification Company in Beulah.

**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 and bluetooth control. 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 Robotics systems. Robots to be built may include the crane, square bots, speed bot, stair climbers along with robotic arms and possible battle bots.

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