

**BOONE CAREER AND TECHNICAL CENTER ELECTRICITY SYLLABUS**

<b>SCHOOL:</b>	Boone Career and Technical Center	<b>INSTRUCTOR:</b>	Craig Bratcher
<b>ADDRESS:</b>	3505 Daniel Boone Parkway, Suite B, Foster, WV, 25081	<b>PHONE:</b>	(304)369-4585 (304)369-4586
<b>URL:</b>	<a href="http://www.gobctc.com">www.gobctc.com</a>	<b>EMAIL:</b>	nbratche@k12.wv.us

**COURSE DESCRIPTION** This course is designed to give students an understanding of DC and AC theory, test equipment, and household and commercial wiring design. Students will learn residential and commercial wiring and safety through lecture, worksheets, and hands-on experience how to use the National Electric Code book known as the NEC to prepare for their 1080-hour Journeyman’s State Electrical test. Troubleshooting skills are developed through wiring live booth projects, both simple and advanced. It is also intended to enhance troubleshooting skills used in everyday practice.

1. Relate the practical applications to classroom learning experiments and demonstrations.
2. To develop habits of self-reliance, self-discipline, and resourcefulness.
3. To establish a skills and knowledge level sufficient for an entry level job as an Journeyman electrician.
4. To develop the proper use of employability skills to sell yourself to a prospective employer.

**COURSE GOALS AND OBJECTIVES** This course will prepare students for an entry level position as an Apprentice or Journeyman Electrician along with articulation of credit to approve post-secondary institutions. This course is a two-year program with Core Curriculum and Electricity 1 taught during the first year.

**The first year** will include Electrical Safety, Ohms Law, introduction to the NEC and many hands-on Booth projects where the student will wire a Booth using blueprint reading knowledge and test the finished project after it’s completed.

**The second-year** advances to more opportunities to perfect your Electrical skills which include training in Service installations, more advanced Booth projects and more commercial conduit installation projects. During the 2<sup>nd</sup> year, students will have the opportunity to obtain industry certifications.

Students will work toward assigned competencies to find employment, receive college articulation credit, and/or receive certification in an Electrical career. The student is always expected to act in a professional and ethical manner.

The following are the modules contained in the NCCER certification exam. By completing the Basic Safety and Electricity 1 modules with a minimum of 100% score and the remainder of the modules with a 75% score, you will be eligible to take the West Virginia State Fire Marshal Electrical Journeyman’s exam to obtain the WV State certification.

### **Core Curriculum Modules**

- I. Basic Safety
- II. Introduction to Construction Math
- III. Introduction to Hand Tools
- IV. Introduction to Power Tools
- V. Introduction to Construction Drawings
- VI. Basic Communication Skills
- VII. Basic Employability Skills
- VIII. Introduction to Materials Handling

### **Electricity 1 Modules**

- I. Orientation to Electrical Trades
- II. Electrical Safety
- III. Introduction to Electrical Circuits
- IV. Electrical Theory
- V. Introduction to the NEC
- VI. Device Boxes
- VII. Hand Bending
- VIII. Raceways and Fittings
- IX. Conductors and Cables
- X. Basic Construction Drawings
- XI. Residential Electrical Services
- XII. Electrical Test Equipment

### **Electricity 2 Modules**

- I. Alternating Current
- II. Motors: Theory and application
- III. Electric Lighting
- IV. Conduit Bending
- V. Pull and Junction Boxes
- VI. Conductor Installations
- VII. Cable Tray
- VIII. Conductor Terminations and Splices
- IX. Grounding and Bonding
- X. Circuit Breakers and Fuses
- XI. Control Systems and Fundamental Concepts

**ATTENDANCE  
POLICY AND  
GRADING**

Boone Career and Technical Center Places a high priority on attendance because the attendance pattern established by the student in school often sets an attendance pattern for employment. To benefit from the primary purpose of the school experience, it is essential that each student maintain regular and punctual attendance. Class attendance is necessary for learning and academic achievement as well as for developing the habits of **punctuality, dependability, and self-discipline demanded by business and industry.** Regular attendance in the Technology Center’s labs is essential to allow students to fully participate in class instruction, discussion and skill development. During the COVID-19 Pandemic, your participation is essential to stay on pace when doing remote learning either from the school or your home. Assignments are not busy work and must be turned on the date they are assigned.

Absences are set by the West Virginia State Board of Education and the State Fire Marshal. No more than six (6) per year or twelve (12) in two years are allowed in order to qualify to be a completer in the class and will be able to take the state Journeyman Electrician test after graduation. This includes all unexcused absences. Only Dr excuses or school activities excuses will be considered.

Grading is based on testing and the evaluations of attendance and finished Hands on Booth Projects according to the NCCER curriculum and NEC Code regulations.

**STUDENT  
ASSESSMENT**

Student grades will be assigned according to the table below.

<b>A</b>	<b>90 – 100</b>
<b>B</b>	<b>80 – 89.5</b>
<b>C</b>	<b>70 – 79.5</b>
<b>D</b>	<b>60 - 69.5</b>
<b>F</b>	<b>0 – 59.5</b>

**CERTIFICATE /  
COURSE  
REQUIREMENTS**

Attendance and Class Participation  
Completion of All Assignments  
Completion of Assigned Readings and Work Sheets  
Following Safety and Clean – Up Duties

**CERTIFICATIONS**

- NCCER Core
- NCCER Electricity 1
- Forklift Training
- 1080 Hour Completers Certificate
- Journeyman State Test
- EDGE Credit
- OSHA 10
- NOCTI

**COURSE****1<sup>st</sup> Year Juniors**

**CALENDAR  
(Timeline for  
skills check offs)  
Students who  
attend regularly  
and possess  
determination  
should be on  
track with this  
skills check off  
timeline. If a  
student should  
fall behind they  
will be afforded  
the opportunity  
to make up any  
work they have  
missed or fell  
behind on.**

Week 1 Basic Core Safety- Core  
Week 3 Electrical Theory/ Ohms Law-Core  
Week 5 Intro to Construction Drawings-Core  
Week 6 Intro to Hand Tools-Core  
Week 7 Intro to Electric Circuits-Ele 1  
Week 8 Booth Project #1  
Week 9 Booth Project # 2  
Week 10 Intro to Power Tools- Core  
Week 12 Conductors and Cables-Ele 1  
Week 14 Booth Project # 3  
Week 15 Thanksgiving Break  
Week 16 Hand Bending-Ele 1  
Week 17 Booth Project # 4  
Week 19 Christmas Break  
Week 20 Christmas Break  
Week 21 Conduit Bending- Ele 2/ Booth Project #5  
Week 23 Residential Electrical Services- Ele 1  
Week 24 Booth Project # 5  
Week 25 Prepare for Skills In-House Competition  
Week 26 Skills In-House  
Week 28 Race ways and fittings- Ele 1  
Week 30 Construction Math- Core  
Week 33 Basic Communications Skills- Core  
Week 34 Spring Break  
Week 35 Basic Employability Skills- Core  
Week 36 Booth Project # 6,7,8

**Special note:** During the COVID- 19 Pandemic Some classes will be done in accordance with Schoology. Students will need to check their Schoology accounts daily for lessons, memos, comments, testing and grades.

## 2<sup>nd</sup> Year Seniors

Week 1 Electrical Safety Review- Ele 1  
Week 2 Booth Project Review, Hands on Proj  
Week 3 Ohms Law review/ Alternating Current- Ele 2  
Week 5 Booth Project #1  
Week 7 Booth Project # 2  
Week 9 Motors Theory- Ele 2  
Week 11 Motor Report/ Home Made motor  
Week 13 Booth Project # 3  
Week 14 Prepare for Skills In-House Competition  
Week 15 Thanksgiving Break  
Week 16 In-House Skills USA Competition  
Week 17 Control Systems and Fundamental concepts  
Week 19 Christmas Break  
Week 20 Christmas Break  
Week 21 NEC Code Practice  
Week 23 Booth Project/ School Project  
Week 26 Conductor termination and splices- Ele 2  
Week 27 Residential Services- Ele 1  
Week 29 Booth Project # 5  
Week 30 Skills USA/ Grounding and Bonding  
Week 32 NEC Practice for Journeyman's State test  
Week 34 Spring Break  
Week 35 NEC Preparedness/ End of School activates/ Senior Testing  
NOTE: Test dates for OSHA -10 and NOCTI have not been established as of this date.  
**Special note:** During the COVID- 19 Pandemic Some classes will be done in accordance with Schoology. Students will need to check their Schoology accounts daily for lessons, memos, comments, testing and grades.

### INSTRUCTOR INFORMATION

Mr. Bratcher has over 40 years 'of experience in the Electrical and HVAC fields and is the owner of his own company. Mr. Bratcher has over 18 years as an instructor at the Boone Career and Technical Center. Mr. Bratcher is a Master Electrician and an EPA Certified HVAC Technician. He is EDGE Certified through the West Virginia State Board of Education for EDGE collage credit hours to be used toward a college degree. He has been a Boone County resident for over 59 years and presently lives in Peytona with his wife Vickie. He is a 1979 graduate of Sherman High School.

**LETTER TO THE STUDENT**

*Electricity Student:*

*Welcome to the electrifying world of Electricity. You will be introduced to; well what makes the world work. Can you imagine a world without electricity? It would be a dark place for sure. You will learn what electricity is, where it comes from, how to harness it and make it work by wire's, switches, breakers, etc. You will learn how to work safely around electricity, knowing what to do and what NOT to do around it. With dedication and hard work, by the end of these next two years you will have learned enough knowledge to pass the West Virginia State Fire Marshall's Journeyman's test that will help you get that high paying job you want after graduation. So, hang on, it's going to be a fun ride.*

*Sincerely,  
Mr. Craig Bratcher  
Secondary Electricity Instructor*

**RESOURCES AND READINGS**

- NCCER Core Curriculum
- NCCER Electricity Level 1
- NCCER Electricity Level 2
- NEC Electric Code Book

**The instructor reserves the right to make adjustment to this syllabus as needed.**

Student Signature: \_\_\_\_\_

Date; \_\_\_\_\_

Parent Signature: \_\_\_\_\_

Date: \_\_\_\_\_

**Title IX ADA 504 Notice**

Boone career and Technical Center (BCTC) does not discriminate basis of race, color, religion, national origin, gender, sexual orientation, disability, age, or marital status in any of its policies, procedures or practices as required by Title IX, Section 504 and ADA regulations. For inquiries concerning Title IX, please contact the BCS Safe Schools Director Anthony Tagliente at 304-369-8276. Or ataglient@k12.wv.us. For inquiries concerning 504/ADA please contact the Director of Exceptional Children, Mary Knapp at 304-369-8245 or [mknapp@k12.wv.us](mailto:mknapp@k12.wv.us). Inquiries may also be submitted in writing to the following Director's at Boone County Schools 69 Avenue b Madison, WV 25130.