Architectural Design & Construction Center of Excellence

Continuing Education Construction & Trades Department

# WECM RUBRIC | Electrical ELPT 1315 - Electrical Calculations

|

Campus 5008 Fuqua St | W 6:00PM to 9:00PM | S 9:00AM to 12:00PM

Continuing Education Credit (CEC): | Course Contact Hours: 40 hours

### Instructor Contact Information

Instructor: TBA Office Phone TBA

Office: TBA Office Hours: Friday 12:00 pm – 2:00pm

Email: TBA Office Location: Virtual

Please feel free to contact me concerning any problems that you are experiencing in this course. Your performance in my class is very important to me. I am available to hear the concerns and just to discuss course topics.

## Instructor’s Preferred Method of Contact

Campus Phone Number (281) 286-2000, the preferred method of contact for class-related communication. I will respond to emails within 24 hours Monday through Friday; I will reply to weekend messages on Monday mornings.

### What’s Exciting About This Course

This course is the introduction to field experiences to an introductory inexperience Apprentice. From day one you will be taught exactly what an electrician working in the field should know, starting with the basics. Many experienced electricians did not learn ever the topics taught in this class.

### My Personal Welcome

We will learn together as a team.

### Prerequisites and/or Co-Requisites

**None. After the first class obtain the required Apprentice Electrician license from the State of Texas.**

**WECM RUBRIC ELPT 1315 is the first of eight classes.**

### TNGT Learning Management System

This section of **WECM RUBRIC** will be used in assignments, exams, and activities.

Apprenticeships combine paid on-the-job training with classroom instruction to prepare workers for highly skilled careers.

Workers benefit from apprenticeships by receiving a skills-based education that prepares them for good-paying jobs. Apprenticeship programs help employers recruit, build, and retain a highly skilled workforce.

The U.S. Department of Labor’s role is to safeguard the welfare of apprentices, ensure equality of access to apprenticeship programs, and provide integrated employment and training information to apprenticeship sponsors and the local employment and training community.

The [Office of Apprenticeship](https://www.dol.gov/agencies/eta/apprenticeship) within the [Employment and Training Administration](https://www.dol.gov/agencies/eta) can help both employees and employers get started with apprenticeship. Information is also available by subscribing to the Office of Apprenticeship's [email newsletter](https://service.govdelivery.com/accounts/USDOL/subscriber/new?topic_id=USDOL_111).

## Scoring Rubrics, Sample Assignments, etc.

Look at the TNGT website for the scoring rubrics for assignments, samples of class assignments, and other information to assist you in the course.

# Instructional Materials

### Textbook Information

The textbook listed below is ***required*** for this course.

**The Ugly’s Book Authors George and Sammy Hart. Edited by others.**

|  |
| --- |
| **ISBN-13** |
| **978-1284275919** |

**$20.00**

**Use all 4 years.**

### Online: Ugly’s Book PDF

### Other Instructional Resources

National Electrical Code Current Edition.

National Electrical Code Current Edition from NFPA online.

## Tutoring

TNGT provides free, confidential, and convenient academic support, including writing critiques, to TNGT students in an online environment and on campus. Tutoring is provided by TNGT personnel to ensure that it is contextual and appropriate. Visit the [website](https://artsurette2.wixsite.com/my-site-5) for services provided or visit in person Training the Next Generation Techs on each Wednesday 6 pm to 9 pm and Saturday 9 am to noon at 5008 Fuqua Street, Houston, Texas, 77048 phone (281) 286-2000

## Libraries

The TNGT Library System consists of 9 libraries and 6 Electronic Resource Centers (ERCs) that are inviting places to study and collaborate on projects. Librarians are available both at the libraries and online to show you how to locate and use the resources you need. The libraries maintain a large selection of electronic resources as well as collections of books, magazines, newspapers, and audiovisual materials. The portal to all libraries’ resources and services is the TNGT library web page at [HOME | My Site 5 (artsurette2.wixsite.com)](https://artsurette2.wixsite.com/my-site-5). Feel free to visit the Library at Training the Next Generation Techs each Wednesday 6 pm to 9 pm and Saturday 9 am to noon at 5008 Fuqua Street, Houston, Texas, 77048 phone (281) 286-2000.

## Supplementary Instruction

Supplemental Instruction is an academic enrichment and support program that uses peer-assisted study sessions to improve student retention and success in historically difficult courses. Peer Support is provided by students who have already succeeded in completion of the specified course, and who earned a grade of A or B. Find details at [HOME | My Site 5 (artsurette2.wixsite.com)](https://artsurette2.wixsite.com/my-site-5)Please visit Training the Next Generation Techs on each Wednesday 6 pm to 9 pm and Saturday 9 am to noon at 5008 Fuqua Street, Houston, Texas, 77048 phone (281) 286-2000.

# Course Overview

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### Core Curriculum Objectives (CCOs)

The core objectives are competencies and skills important to all students. Instruction in the core objectives described below is woven into the core curriculum. Training the Next Generation of Techs System has specified that the course address the following core objectives:

* ***Critical Thinking***: Students will demonstrate the ability to engage in inquiry and analysis, evaluation and synthesis of information, and creative thinking.
* ***Communication Skills***: Students will demonstrate effective development, interpretation and expression of ideas through written, oral, and visual communication.
* ***Quantitative and Empirical Literacy***: Students will demonstrate the ability to draw conclusions based on the systematic analysis of topics using observation, experiment, and/or numerical skills.
* ***Social Responsibility***: Students will demonstrate cultural self-awareness, intercultural competency, civil knowledge, and the ability to engage effectively in regional, national, and global communities.

### Program Student Learning Outcomes (PSLOs)

The student will be able to:

* How to work safely around exposed electrical equipment.
* Basic Electricity Laws.
* Motor control circuit wiring.
* Transformer case wiring.
* Basic wire ampacity sizing.
* Basic raceway and conduit sizing.
* Basic safety laws.
* Motor branch circuit wiring.

### Course Student Learning Outcomes (CSLOs)

Upon completion of **WECM RUBRIC ELPT 1315**, the student will be able to:

### Learning Objectives

The student will: learn how to basically work around experienced electricians and assist in electrical installations.

# Student Success

Expect to spend at least twice as many hours per week outside of class as you do in class studying the course content. Additional time will be required for written assignments. The assignments provided will help you use your study hours wisely. Successful completion of this course requires a combination of the following:

* Reading the textbook
* Attending class in person.
* Completing assignments
* Participating in class activities

There is no shortcut for success in this course; it requires reading (and probably re-reading) and studying the material using the course objectives as your guide.

### Instructor and Student Responsibilities

As your instructor, it is my responsibility to**:**

* Provide the grading scale and detailed grading formula explaining how student grades are to be derived.
* Facilitate an effective learning environment through learner-centered instructional techniques.
* Provide a description of any special projects or assignments.
* Inform students of policies such as attendance, withdrawal, tardiness, and make up.
* Provide the course outline and class calendar which will include a description of any special projects or assignments.
* Arrange to meet with individual students before and after class as required.

As a student, it is your responsibility to**:**

* Attend class in person.
* Participate actively by reviewing course material, interacting with classmates, and responding promptly in your communication with me.
* Read and comprehend the textbook.
* Complete the required assignments and exams.
* Ask for help when there is a question or problem.
* Keep copies of all paperwork, including this syllabus, handouts, and all assignments
* Attain a raw score of at least 25% on the departmental final exam.
* Be aware of and comply with academic honesty policies in the TNGT Handbook.

# Assignments, Exams, and Activities

### Homework: Weekly Field Reports.

### Quizzes/Reports. Every class, report exactly what you have done at work this last week. Report type Electrical Work and any Safety Incidents.

### In-Class Activities. Snap Circuits 1 to 250 Exercises.

### Final Exam

### Additional Reading: National Electrical Code.

### Grading Formula

The HCC grading scales are:

F (Fail)

COM (Completed)

W (withdrawn)

I (Incomplete)

COM (Completed) is given in non-credit and continuing education courses.

The grade of "I" (Incomplete) is conditional. A student receiving an "I" must arrange with the instructor to complete the course work within six months of the end of the incomplete term. After the deadline, the "I" becomes an "F." Upon completion of the coursework, the grade will be entered as “COM” grade on the student transcript. All "I"s must be changed to grades within six months.

**INSTUCTOR GRADING CRITERIA**

Your instructor will conduct quizzes, exams, and assessments that you can use to determine how successful you are at achieving the course learning outcomes (mastery of course content and skills) outlined in the syllabus. Your instructor welcomes a dialogue on what you discover and may be able to assist you in finding resources on campus that will improve your performance.

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| --- | --- |
| **Assessment** | **Point Value** |
| Quizzes (x3) | 18% |
| Homework/Field Reports (x15)  | 15% |
| Exams (2) 10% each. | 20% |
| Hands On training in class (16 Hands On Training) |  32% |
| Class Attendance (Minimum Attendance must be 100% required) |  |
| Final Exam  | 15% |
| **Total** | **100%** |

## TNGT Grading Scale can be found on this site under Academic Information:

**|Course Calendar**

| **Week** | **Dates** | **AGENDA / ASSIGNMENTS**Assignments are due by dates indicated unless prior approval has been obtained |
| --- | --- | --- |
| 1 |  | Lecture / Report / Snap Circuit Hands On Labs |
| 2 |  | Lecture / Report / Snap Circuit Hands On Labs |
| 3 |  | Lecture / Report / Snap Circuit Hands On Labs |
| 4 |  | Lecture / Report / Snap Circuit Hands On Labs |
| 5 |  | Lecture / Report / Quiz / Snap Circuit Hands On Labs |
| 6 |  | EXAM / Snap Circuit Hands On Labs |
| 7 |  | Lecture / Report / Snap Circuit Hands On Labs |
|  8 |  | Lecture / Report / Snap Circuit Hands On Labs |
|  9 |  | Lecture / Report / Snap Circuit Hands On Labs |
|  10 |  | Lecture / Report / Snap Circuit Hands On Labs |
|  11 |  | Lecture / Quiz / Report / Snap Circuit Hands On Labs |
|  12 |  | EXAM / Snap Circuit Hands On Labs |
|  13 |  | Lecture / Report / Snap Circuit Hands On Labs |
|  14 |  | Lecture / Report / Snap Circuit Hands On Labs |
|  15 |  | Lecture / Report / Snap Circuit Hands On Labs |
|  16 |  | Lecture / Report / Snap Circuit Hands On Labs |
|  17 |  | Lecture / Report / Quiz / Snap Circuit Hands On Labs |
|  18 Final / All work due**Week 1: Introduction to Electricity** |
| * Learning how to work around electricity is important and exploring electrical careers.
* Understand safety basics for electrical work.
* Learn basic circuits.

**Week 2: Electrical Tools*** Get to know basic electrical tools and how to use them safely.
* Learn basic circuits.

**Week 3: Raceways and Fittings*** Learn about different types of raceways and how to connect them with fittings.
* Learn basic circuits.

**Week 4: Electrical Systems*** Understand how electrical systems work in occupancies.
* Understand power delivery from Utilities.
* Learn basic circuits.

**Week 5: Safety and Rules*** Focus on safety in electrical.
* Know the rules and regulations for electrical work.
* Learn basic circuits.

**Week 6: Utility Power*** Services, Feeders, Branch Circuits
* CenterPoint Energy Standards Manual.
* Learn basic circuits.

**Week 7: Grounding** * Basic grounding installation
* Basic types of grounding.
* Learn basic circuits.

**Week 8: Luminaires and Receptacles*** Discover different receptacles, switches and luminaries.
* Learn how to install receptacles, switches and luminaries.
* Learning basic circuits.

**Week 9: Troubleshooting*** Identify voltages.
* Practice meter reading.
* Learn basic circuits.

**Week 10: Final Projects and Review**IMPORTANT NOTICES AND DISCLAIMERS CONCERNING NFPA STANDARDS; 90.4.* Learn basic circuits.

**Week 11:*** Definitions NEC Article 100
* Learn basic circuits.

**Week 12 NEC T 250.66, T 250.102 C 1 & T250.122** * Learn basic circuits.

**Week 13 Branch Circuits** * Article T314.16
* Learn basic circuits.

**Week 14 Maintenance** * 110.2, 110.12, 110.14, 110.21
* Learn basic circuits.

**Week 15 Electricity clearances*** 110.26, 110.27 and T110.28
* Learn basic circuits.

**Week 16 Grounded Circuit*** 200
* Learn basic circuits.

**Week 17 Branch Circuits*** 210
* Learn basic circuits.

**Assessment and Evaluation:****Week 18** * Review what you've learned and receive certificates.

**This calendar may change**; any updates will be posted. You are responsible for obtaining and reading any updated course calendars. |

## Syllabus Modifications

The instructor reserves the right to modify the syllabus at any time during the semester and will promptly notify students in writing, typically by e-mail, of any such changes.

# Instructor’s Practices and Procedures

## Missed Assignments

It is each student's responsibility to ask for any missing assignments or makeup work due to absences from the class. Students will be given one day for each day's excused absence to complete the missing work.

## Academic Integrity

A student who is academically dishonest is, by definition, not showing that the coursework has been learned, and that student is claiming an advantage not available to other students. The instructor is responsible for measuring each student's individual achievements and for ensuring that all students compete on a level playing field. Thus, in our system, the instructor has teaching, grading, and enforcement roles. You are expected to be familiar with the University's Policy on Academic Honesty, found in the catalog. What that means is: If you are charged with an offense, pleading ignorance of the rules will not help you. Students are responsible for conducting themselves with honor and integrity in fulfilling course requirements. Penalties and/or disciplinary proceedings may be initiated by College System officials against a student accused of scholastic dishonesty. “Scholastic dishonesty”: includes, but is not limited to, cheating on a test, plagiarism, and collusion. Scholastic Dishonesty will result in a referral to the Dean of Student Services. See the link below for details

Here’s the link to the TNGT information about academic integrity (Scholastic Dishonesty and Violation of Academic Scholastic Dishonesty and Grievance):

## Attendance Procedures

*It is important that you come to class!* **Federal Law from the United States Labor Department requires 100% attendance.** Attending class regularly is the best way to succeed in this class. Research has shown that the single most important factor in student success is attendance. Simply put, going to class greatly increases your ability to succeed. You are expected to attend all lecture and labs regularly. You are responsible for materials covered during your absences. Class attendance is checked daily and is required by state regulation to obtain completion credit for the course.

## Student Conduct

As your instructor and as a student in this class, it is our shared responsibility to develop and maintain a positive learning environment for everyone. Your instructor takes this responsibility very seriously and will inform members of the class if their behavior makes it difficult for him/her to carry out this task. As a fellow learner, you are asked to respect the learning needs of your classmates and assist your instructor achieve this critical goal.

## Instructor’s Course-Specific Information (As Needed)

To be completed by the instructor.

## Electronic Devices

The use of electronic devices by students in the classroom is up to the discretion of the instructor. Any use of such devices for purposes other than student learning is strictly prohibited. If an instructor perceives such use as disruptive and/or inappropriate, the instructor has the right to ask the student to terminate such use. If the behavior continues, the student may be subject to disciplinary action to include removal from the classroom or referral to the dean of student services for further disciplinary action.

# TNGT Policies

Here’s the link to the TNGT Student Handbook [HOME | My Site 5 (artsurette2.wixsite.com)](https://artsurette2.wixsite.com/my-site-5) In it you will find information about the following:

|  |  |
| --- | --- |
| Academic Information | Incomplete Grades |
| Academic Support | International Student Services |
| Attendance, Repeating Courses, and Withdrawal | Health Awareness |
| Career Planning and Job Search | Libraries/Bookstore |
| Childcare | Police Services & Campus Safety |
| Disability Support Services | Student Life at HCC |
| Electronic Devices | Student Rights and Responsibilities |
| Equal Educational Opportunity | Student Services |
| Financial Aid TV (FATV) | Testing |
| General Student Complaints | Transfer Planning |
| Grade of FX | Veteran Services  |

## EGLS3

The EGLS3 (Evaluation for Greater Learning Student Survey System) will be available for most courses near the end of the term until finals start. This brief survey will give invaluable information to your faculty about their teaching. Results are anonymous and will be available to faculty and division chairs after the end of the term. EGLS3 surveys are only available for the Fall and Spring semesters. EGLS3 surveys are not offered during the Summer semester due to logistical constraints.

[HOME | My Site 5 (artsurette2.wixsite.com)](https://artsurette2.wixsite.com/my-site-5) Continuing Education courses do not use the EGLS³ evaluation system. However, we do provide course end evaluations which are also anonymous that are collected and use by the Office of Institutional Research for quality assurance purposes. Please be certain to request an evaluation form if you have not been provided with one.

## Campus Carry Link

Here’s the link to the TNGT information about Campus Carry: http://www.hccs.edu/departments/police/campus-carry/

## TNGT Email Policy

When communicating via email, TNGT requires students to communicate only through the TNGT email system to protect your privacy. If you have not activated your TNGT student email account, you can go to TNGT ID and activate it now.

# Office of Institutional Equity

Use the link below to access the TNGT office of Institutional Equity, Inclusion, and Engagement.

## Disability Services

TNGT strives to make all learning experiences as accessible as possible. If you anticipate or experience academic barriers based on your disability (including mental health, chronic or temporary medical conditions), please meet with a campus Abilities Counselor as soon as possible to establish reasonable accommodations. Reasonable accommodations are established through an interactive process between you, your instructor(s) and Ability Services. It is the policy and practice of TNGT to create inclusive and accessible learning environments consistent with federal and state law. For more information, please go to [HOME | My Site 5 (artsurette2.wixsite.com)](https://artsurette2.wixsite.com/my-site-5)

## Title IX

Training the Next Generation of Techs is committed to cultivating an environment free from inappropriate conduct of a sexual or gender-based nature including sex discrimination, sexual assault, sexual harassment, and sexual violence.  Sex discrimination includes all forms of sexual and gender-based misconduct and violates an individual’s fundamental rights and personal dignity.  Title IX prohibits discrimination on the basis of sex-including pregnancy and parental status in educational programs and activities.  If you require an accommodation due to pregnancy please contact an Abilities Services Counselor.  The Director of EEO/Compliance is designated as the Title IX Coordinator and Section 504 Coordinator.  All inquiries concerning TNGT policies, compliance with applicable laws, statutes, and regulations (such as Title VI, Title IX, and Section 504), and complaints may be directed to:

Eliot Doucet
Director EEO/Compliance
Office of Institutional Equity & Diversity
5008 Fuqua St
(281) 682-1533
Houston, TX 77048 or Institutional.Equity@hccs.edu

[HOME | My Site 5 (artsurette2.wixsite.com)](https://artsurette2.wixsite.com/my-site-5)

# Office of the Dean of Students

Contact the office of the Dean of Students to seek assistance in determining the correct complaint procedure to follow or to identify the appropriate academic dean or supervisor for informal resolution of complaints.

[HOME | My Site 5 (artsurette2.wixsite.com)](https://artsurette2.wixsite.com/my-site-5)

# Department Chair Contact Information

Eliot Doucet, Program Director | john.doe@hccs.edu | (281) 286-2000