

Course Outline

Electrical Trades AC Fundamentals 40S

INSTRUCTOR:	Mr. Nick Gordon
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PREREQUISITES:	All 20S and 30S electrical courses
COURSE DESCRIPTION:	Students are led deeper into an understanding of electrical theory. More time is devoted to a greater mastery of use of the Canadian Electrical Code book. Time is spent reviewing learned wiring techniques and developing a mastery of those techniques. Time is also provided for instruction on any new concepts or trade related material. Emphasis is put on the students to prepare themselves for entering an apprenticeship. (Formerly AC Circuits)
GENERAL OBJECTIVES	Link to Curriculum
UNIT OF STUDY	Students will be introduced to the following: -Safety concepts and safety procedures -Safe and proper use of tools and equipment -Determine proper tool for particular application -Identification, selection, installation, maintenance, and management of devices and materials -Demonstrate a proper understanding of electrical theory and go much further into developing an understanding of AC related components and related theory and the advantages of AC over DC -Demonstrate an understanding of the design, layout, and interpretation of branch circuits and systems -Demonstrate the procedures used to install and terminate branch circuits and systems -Read, interpret, and communicate information -Demonstrate an understanding of the testing, troubleshooting, and documentation of branch circuits and systems -Use sustainable practices when designing branch circuits (efficient use of materials) -Demonstrate awareness of ethical and legal standards -Demonstrate an understanding of electrical codes -Demonstrate fundamental employability skills -Demonstrate an awareness of cultural competence and its importance in the workplace -Demonstrate an understanding of the business operation of an electrical trades facility -Demonstrate Critical thinking skills in planning procedures, analysis, and diagnosis -Understand the evolution, technological progression, and emerging trends in the electrical trades -Apply the knowledge and skills from mathematics. -Apply the knowledge and skills from the sciences -Describe apprenticeship, education, career opportunities, professional organizations, and working conditions related to electrical trades technology and associated fields. -Demonstrate an awareness of the effects of energy-saving electrical devices installed in alternative wiring methods.

	-Demonstrate an awareness of the advantages (in terms of sustainability) of using raceways over cable.
EVALUATION FORMAT	Students are evaluated upon the completion of every assignment. The assignments are all graded by the use of a rubric so that grading remains fair and consistent.
ASSESSMENT GUIDELINES (formative & summative)	It is advised that the students proceed through the assignments in the order provided, as they do increase in difficulty, and skills learned in the earlier ones will be used in the later ones. <u>Evaluation</u> <u>Summative assessment:</u> <u>Quiz: 5%</u> Quizzes will be done throughout the year to test a student's knowledge of theory and concepts. Quizzes include the topics of safety, tools, materials, electrical concepts, and electrical code. <u>Test: 15%</u> Tests will be done throughout the year to test a student's understanding of theory and concepts. Quizzes include the topics of safety, tools, materials, electrical concepts, and electrical code. <u>Classwork: 15%</u> Students will explore in depth the Canadian Electrical Code that guides wiring practices. Topics explored include wiring methods, circuit loading, voltage drop, breaker sizing, and service sizing, wire sizing, conduit fill, and box fill. <u>Demonstration: 15%</u> Students will demonstrate their understanding of theory, practical, and safety practices. Project assessment will be done as assignments are finished. Throughout the semester the students will be told approximately where they should be according to assignment progression. <u>Course Completion: 50%</u> A Completion (comp) mark will be given to you after you have completed ALL your assignments. This mark will count as 50% of your overall mark. Absolutely all assignments have to be completed. Students are given ample class time to complete assignments. You will also work on an RTM building if given the opportunity. Time spent there will contribute to your completion mark. <u>INCOMPLETE Course.</u> Under special circumstances an incomplete may be granted for a course. It will be the instructor's discretion whether an incomplete is granted or not. If it is granted, the student will be given a specific date by which the missing assignments must be completed, or they will receive a final failing mark. If you <i>diligently worked throughout the semester</i> and feel you might not finish all assignments, DON'T GIVE UP! Come talk with me and we can develop a plan that will help you to be successful. This plan may involve extra work time, extended time frame or a decrease in assignments.

Formative assessment: weight (0).

Formative assessment is done daily with feedback to students about their work. Students can ask about their work. Students will be asked to evaluate their own assignments prior to the instructor's evaluation. This method is used to develop critical thinking skills within the students. Why? Students are more motivated to learn. Students take responsibility for their own learning. Students learn valuable lifelong skills such as self-evaluation, self-assessment, and goal setting. A formative assessment will also be made on the General objective as well as the Essential skills needed for employment. This could include Creativity, communication, critical thinking, digital citizenship, and more.

**LEARNING
BEHAVIOURS:**

Students will be able to progress through curriculum, activities, and assignments at their own pace. Students must therefore develop good time management skills and be able to work well independently in order to be successful. Students are expected to exhibit the appropriate level of respect for peers, instructor, facilities, tools, and equipment.

Personal management skills	Uses class time effectively; works independently; completes homework and assignments on time
Active participation in learning	Participates in class activities; self-assesses; sets learning goals
Social responsibility	Works well with others; resolves conflicts appropriately; respects self, others and the environment; contributes in a positive way to communities

**CLASS
EXPECTATIONS:****1.Student Expectations****a. RESPECT**

1. Every person (teacher and students)
2. The workplace (do not abuse tools or work area, keep area tidy)
3. Yourself

b. You (and you alone) are responsible for your work so use your time WISELY.

c. If you are not sure, please ASK for help, TALK to the instructor if you are having problems.

d. Come to class ready to work.

e. CLEAN up after yourself, I am not your mother.

f. Set your GOALS for each subject and class.

Also see [SVRSS beliefs](#)

	2. <u>Classroom Procedures</u> a. Late: 1. Being on time means being in your seat at the start of class (not running in the door). This is a direct correlation to point “a” above: Respect! b. Absentees 1. Even if approved by Parents/Guardians, you still need to complete assignments. 2. You are responsible to finish assignments and work that you have missed. c. Food 1. Food and drinks are permitted in class at the desks unless the privilege is being abused. Food and drink are not allowed in the cubicle areas. d. Leaving the class 1. Ask permission before you leave and use the sign class sign-out sheet. Only one student can leave at a time. I am accountable for your whereabouts during this class and need to know who is out of the room at all times.
Digital Citizenship:	As per the new provincially mandated cell phone policy, Grade 9 to 12 students are banned from cell phone use during class time on campus and off campus but are permitted to responsible use of cell phones during break times and lunch. If used during class time, the first offense will result in confiscation of the cell phone for the period. The second offense will result in the cell phone being taken to the office.
Safety:	Behave in a safe manner, protecting yourself and others. Follow the safety instructions attached to the equipment in class. Do not abuse tools or equipment. Use tools in an appropriate method. Always ensure that you are using your PPE (safety glasses, etc.) Students will <u>never</u> be asked to pick up parts or material for the class.
Please Note:	Students will be provided with a single pair of safety glasses at the start of the semester. They will be responsible for their condition and whereabouts. This is part of a level 1 accredited program. If a student is seeking to graduate with their level 1 credit, a minimum mark of 70% is required.