

Expect Excellence Apprenticeship Program

Level 2 – Semester 2 (Course 2B)

This semester advances apprentices' application of the National Electrical Code (NEC) in bonding and grounding, wiring methods, conductors, enclosures, raceways, devices, luminaires, and equipment. Content is grouped into broad topics for clarity while aligning with the detailed syllabus items you provided.

Course Objectives

- Apply NEC requirements for bonding, grounding, and wiring methods in residential and commercial contexts.
- Analyze conductor sizing, insulation types, and ampacity/derating applications.
- Interpret NEC requirements for enclosures, box fill, cable types, and raceway systems.
- Install and evaluate devices, switchgear, luminaires, and equipment per NEC Articles during on-the-job training.

Course Topics and Hours

Topic	Hours	Description
Bonding & Grounding	8	NEC Article 250 — Grounding electrode systems, bonding jumpers, conductor sizing.
Wiring Methods	6	NEC Article 300 — General requirements; securing/supporting; protection from physical damage.
Conductors	4	NEC Article 310 — Conductor types, insulation, ampacity tables, adjustment/derating.
Enclosures & Box Fill	6	NEC Articles 312 & 314 — Cabinet/panelboard enclosures; box sizing and conductor fill.
Cable Types	4	NEC Arts. 320, 330, 334, 336, 338, 340 — AC, MC, NM, TC, SE, UF cable applications.
Raceways (Conduit Families)	6	NEC Arts. 342, 344, 348, 350, 352, 356, 358, 362 — IMC, RMC, FMC/LFMC, PVC, LFNC, EMT/ENT.
Surface & Concealed Raceways	2	NEC Arts. 376, 380, 386 — Surface metal/nonmetal raceways and auxiliary gutters.
Flexible Cords & Fixture Wires	2	NEC Arts. 400 & 402 — Uses permitted, limitations, fixture wire types and sizing.

Switches & Receptacles	4	NEC Arts. 404 & 406 — Switch requirements; receptacle ratings, locations, and GFCI/AFCI scope.
Switchgear & Luminaires	4	NEC Arts. 408 & 410 — Switchboards/panelboards; luminaire installation and wiring space.
Appliances & Electric Heat	2	NEC Arts. 422 & 424 — Nameplate data, OCPD, conductor sizing for appliances/electric heat.
Review, Flex Day & Exams	4	Comprehensive review and final examinations covering Articles 250–424.

Total Contact Hours: 52

Instructional Method

The Expect Excellence Apprenticeship Program follows the Mike Holt curriculum, utilizing his textbooks and supporting materials. Classes are delivered virtually via Zoom. Students are required to keep their cameras on and remain visible. Instructors take roll at the beginning, middle, and end of each session, and student participation is required to ensure accountability. Assignments are given each class session and are graded and recorded through the program's Learning Management System (LMS), D2L.