

ARCT 144 Construction Estimating I 3 Credits

Course Description

This course is an introduction to residential material estimating. The basic principles of construction estimating are covered. Material lists, calculations, and costs are made for several different houses and a pole type construction.

Course Prerequisite / Co-Requisite (Course needs to be taken before or at the same time as ARCT 144)

ARCT133 – Residential Methods & Materials

Required Text

Basic Residential Construction Estimating Manual – This manual will be available to download in the Estimating Manual link under Course Home and under Doc Sharing within the online course. You may choose to print out the whole document or just print out the Units as needed until you receive a printed estimating manual in the mail.

Tools and Equipment:

Three ring binder

Calculator

Estimating sheets available to download in the Estimate Sheet link under Course Home.

Course Objectives

Upon successful completion of this course, the student will be able to:

1. Properly utilize construction estimate forms.
2. Show all work neatly on estimate forms.
3. Label all material descriptions neatly on estimate forms.
4. Identify units of measure for various construction materials.
5. Calculate earth quantities for trench, basement, trapezoid, and round excavations.
6. Calculate backfill for various excavations.
7. Calculate quantity and cost of concrete footings, foundation walls, and slabs.
8. Estimate quantity and cost of gravel fill and vapor barrier under slabs.
9. Calculate quantity and cost for concrete reinforcing.
10. Calculate quantity and cost for various brick masonry units.
11. Calculate quantity and cost for glass and concrete block masonry units.
12. Calculate quantity and cost of masonry reinforcing.
13. Calculate quantity of masonry sand and cement for mortar.
14. Estimate quantity and cost of foundation coating.
15. Calculate quantity and cost of anchor bolts.
16. Calculate quantity and cost of footing drains.
17. Calculate quantity and cost of pea rock.

18. Compute board foot measurements.
19. Calculate lineal feet and cost of sill plates and sill sealer.
20. Calculate quantity and cost of support columns and girders.
21. Calculate quantity, length and cost of floor joists and joist headers.
22. Calculate quantity and cost of pre-cut bridging and/or on-the-job cut bridging.
23. Calculate quantity and cost of floor truss systems.
24. Calculate length and cost of stair stringers
25. Calculate quantity and cost of stair treads and stair risers.
26. Calculate quantity and cost of stair handrail and handrail brackets.
27. Calculate quantity and cost of various sub-flooring.
28. Calculate lineal feet cost of top, tie, and sole plates.
29. Calculate quantity and cost of wall studs.
30. Calculate lineal feet and cost of window and door headers.
31. Calculate quantity and cost of various wall sheathing.
32. Calculate quantity, length and cost of gable end studs.
33. Calculate quantity, length, and cost of ceiling joists.
34. Calculate quantity, length, and cost of common gable roof rafters.
35. Calculate lineal feet and cost of ridge board.
36. Calculate quantity, length, and cost of collar beams.
37. Calculate quantity, length, and cost of hip rafters.
38. Calculate quantity, length, and cost of common hip roof rafters.
39. Calculate quantity and cost of roof trusses.
40. Calculate quantity and cost of various gable and hip roof sheathing.
41. Calculate lineal feet and cost of fascia nailer and fascia.
42. Calculate quantity and cost of roof edge, asphalt felt, starter roll and shingles.
43. Calculate lineal feet and cost of soffit nailer.
44. Calculate quantity and cost of soffits.
45. Calculate quantity, length, and cost of look-outs.
46. Estimate quantity and cost of house wrap (Tyvek).
47. Calculate quantity and cost of various siding.
48. Calculate quantity and cost of siding corners and trim pieces.
49. Calculate square feet and cost of wall and ceiling insulation.
50. Estimate quantity and cost of gypsum board, joint compound, and joint tape.
51. Calculate lineal feet and cost of base trim.
52. Calculate quantity and cost of various underlayment.
53. Compute quantity and cost of exterior door frames and doors.
54. Compute quantity and cost of interior door frames, doors, and door hardware.
55. Compute quantity and cost of garage doors, windows, and cabinetry.
56. Calculate quantity and cost of shelving material.
57. Identify applications of all materials for a Pole Barn.
58. Calculate quantity and cost of all materials for a Pole Barn.

- 59. Identify application of various construction materials.
- 60. Understand prints well enough to do an accurate take-off of material.

Course Policies and Procedures

Access Policy: Computer Failures and Viruses

Online students must maintain computer access at all times to the online course. Lack of computer access as an excuse for late work or missed exam/quiz will NOT be accepted. Review the [Computer Access Policy](#) to learn how you can take a proactive approach to your online success.

Student Attendance

Regular attendance and completion of all assignments, on time and as scheduled, is important to your success in this course. An online student who does not regularly attend their online class for a period of seven consecutive days may be dropped from the course. Attendance is evidenced by weekly completion of assignments and/or participation in online discussions. Efforts to contact inactive students are attempted as soon as each semester begins; however, if there is no response from the student and inactivity continues, a drop will be enacted. See the entire NDSCS Attendance Policy at www.ndscs.edu/online-attendance.

If your instructor is unexpectedly unavailable and may be delayed in reviewing or correcting assignments, you will be notified of this as a sign of courtesy and respect.

Online Student Participation and Conduct Guidelines

The practices of courtesy and respect that apply in the traditional classroom also apply online. However, the expectations and practice differ in the online classroom to greater extent. Review the Online Student Participation and Conduct Guidelines (**Appendix A**) to learn of these expectations.

Assignments

Please follow the order of units as each unit will build onto the next one and will be accessible according to the schedule posted within the online course.

Assignments and quizzes within each chapter are **due within specified time frames**. Refer to the Schedule for specific due dates.

Assignments not completed by the specified deadline but submitted late will have **10% of grade points deducted** at instructor's discretion.

No points will be assigned for incomplete assignments. Be prepared to spend **at least four (4) hours per week** in the online class, studying, and completing assignments.

Submitting Assignments

All assignments should be turned in via **Dropbox** unless otherwise specified. You are **strongly encouraged** to make hard copies of your assignments and communications with the instructor to avoid losing data in the case of technical issues. *At the first sign of problems*, contact your Internet Service Provider (ISP) immediately.

It is your responsibility to access the class on another computer in the event of hardware or software problems. If your problems are not cleared up within 12 hours, contact your instructor to make other arrangements.

Proctored Exams

There are NO Proctored exams in ARCT144.

Tie to Program Assessment Outcomes

To introduce the students to residential construction estimating and to develop the student's knowledge of material applications and standard units of measure for estimating purposes.

Student-Instructor Communications

While an online class is available 24 hours a day and offers greater flexibility for the student and instructor, keep in mind that your instructor will not be available 24 hours a day. Instructors will check email, voicemail, and Cyber Office messages on a regular basis, but there may be times when they are unavailable due to other commitments and job responsibilities. Email, voicemail, or Cyber Office Messages will be responded to as time allows. As a general rule, you can expect your direct questions to be answered within 24 hours during week days.

When sending an email, please include your full name so your instructor knows who they are responding to. Often, the email address does not indicate who is sending the message.

Student E-Mail Accounts

NDSCS students are to use an NDSCS email account exclusively to ensure the lines of communication with your instructor and NDSCS are not broken, which often happens with other email providers. You can access your email account by following instructions at www.ndscs.edu/It-Setup. If you need help accessing your NDSCS email, contact the NDSCS IT Service Desk at 800-342-4325 ext 3333 or ndscs.servicedesk@ndscs.edu.

To make your NDSCS email account your preferred email address, log into your CampusConnection account and check the "preferred" box by campus email.

The NDSCS e-mail system provides students with an entire suite of services such as:

- 10 GB storage for email
- Instant messaging through Skype for Business
- Rich calendaring
- Photo sharing
- Multi-browser support
- SMS alerts to mobile phones

Grading Policies

All work that is not submitted by the stated due date will be docked 10%. If there are circumstances that prevent you from submitting work on time, contact me before the due dates.

Grading Scale

Letter grades will be awarded as follows:

LETTER GRADE	PERCENT
A	90-100%
B	80-89%
C	70-79%
D	60-69%

Grades for this course will be a cumulative grade consisting of discussions, assignments, quizzes, estimate quizzes, projects, and a comprehensive final test.

Academic Integrity

Integrity is an NDSCS core value and there is an expectation that all students, as members of the college community, adhere to the highest levels of academic integrity.

Dishonesty in class, laboratory, shop work or tests is regarded as a serious offense and is subject to disciplinary action by the instructor and dean of the respective division. For more information, refer to the NDSCS Student Planner or [College Catalog](#) under College Policies and Basic Regulations of Conduct (page 32).

Disabilities and Special Needs

If you have a disability for which you are or may be requesting an accommodation, you are encouraged to contact both your instructor and the **Student Accessibility Coordinator** (phone 671-2623, or toll-free 1-800-342-4325 ext. 3-2623) as early as possible in the term.

APPENDIX A ONLINE STUDENT PARTICIPATION AND CONDUCT GUIDELINES

Online courses are based on the premise that students learn best in a community. The instructor plays an important role, but this is a different role than most instructors play in the traditional, face-to-face classroom. While you may see a shift in the way classes work, you'll also notice that some things don't change: the practices of courtesy and respect that apply in the ordinary classroom also apply online, and may actually require more attention in this venue. Here are some guidelines:

1. **Get involved.** In the online environment, it's not enough to show up! Your voice must be heard in order to show your presence. Your comments are needed to add to the information, the shared learning, and the sense of community in each class.
2. **Be persistent.** Remember that for many this is a fairly new environment. Each instructor still sets the rules, and you need to abide by them; however, if you run into any difficulties, don't wait! Send your instructor an email immediately or post in the Discussion Area. Most problems are easily solved, but your instructor and your fellow students need to hear from you before they can help.
3. **Share tips, helps, and questions.** For many, taking online courses is a new experience. There are no dumb questions, and even if you think your solution is obvious, please share it by posting it in the Discussion Area. For every student who asks a question, there are 10 others wanting to know the same thing.
4. **Think before you push the Send button.** Did you say just what you meant? How will the person on the other end read the words? While you can't anticipate all reactions, do read over what you've written before you send it.
5. **Consider the context.** Remember that we can't see the grin on your face when you make a sarcastic comment, we can't see the concern on your face if you only say a couple of words, and we can't read your mind and fill in the gaps if you abbreviate your comments. So: help us "see" you by explaining your ideas fully.
6. **Ask for feedback.** Not sure how your ideas and comments will be taken? Remember there's a person on the other side. If you disagree with what someone has said, practice all your communication skills as you express that disagreement. "Flaming," or flying off the handle and ranting at someone is unacceptable; it is the equivalent of having a tantrum, something most of us wouldn't do in an onsite, face to face classroom.
7. **Act with respect.** Any discriminatory, derogatory or inappropriate comments are unacceptable and subject to the same disciplinary action that they would receive if they occurred in the face to face classroom. If you have concerns about something that has been said, please contact your instructor.
8. **Exercise integrity.** Plagiarism, cheating, and other violations of ethical student behavior are serious actions in a learning community. See Academic Integrity Policy in the course syllabus.
9. **Recognize the consequences.** Consequences of online student behavior that contradicts the NDSCS Academic Integrity policy will be addressed on an individual basis and in accordance with NDSCS Academic Integrity policy. Refer to the NDSCS Student Planner or College Catalog for more information.

*Adapted with permission from Dr. C. A. Keller, San Antonio College