



North Central State College

MASTER SYLLABUS

2025-2026

A. Academic Division: Engineering Technology, Business & Criminal Justice Division

B. Discipline: Engineering Technology

C. Course Number and Title: ENGR2850 Engineering Economics & Organization

D. Assistant Dean: Brooke Miller, M.B.A.

E. Credit Hours: 3

F. Prerequisites: MATH1110

G. Last Course/Curriculum Revision Date: Fall 2025 Origin date: 07/28/2011

H. Textbook(s) Title:

Basic Engineering Economy

- Author(s): Blank & Tarquin
- Copyright Year: 2022
- Edition: 3rd
- ISBN: Print 9781260487077, eBook 9781259875984

I. Workbook(s) and/or Lab Manual: None, Class Handouts will be distributed

J. Course Description: A practical introduction to the economic analysis of capital investment. The economic portion of the course covers interest factors for present, annual, and future worth; rates of return; increment and sunk costs; and economic order quantity. The course also covers a broad overview of the operations of an industrial organization, emphasizing the relationship of basic functions and principles essential to efficient and profitable operation of industrial enterprises. Content covers such topics as organizational structure, production planning and control, purchasing, sales, personnel administration, ownership and financing, business ethics and compensation. (TAG # OES005)

K. College-Wide Learning Outcomes

College-Wide Learning Outcome	Assessments - - How it is met & When it is met
Communication – Written	Writing assignments – at mid semester and by finals week
Communication – Speech	
Intercultural Knowledge and Competence	
Critical Thinking	Homework assignments every third week, Midterm, Final Exam – at midterm and finals week
Information Literacy	Spreadsheet calculations, Week 3 and 9
Quantitative Literacy	Homework assignments every third week, Midterm, Final Exam – at midterm and finals week

L. Course Outcomes and Assessment Methods:

Upon successful completion of this course, the student shall:

Outcomes	Assessments – How it is met & When it is met
1. Compute depreciation by straight line, sum of years' digits, and declining balance methods.	Midterm & final examination
2. Convert an irregular set of cash flows into an equivalent annual series with any desired interest rate.	Midterm & final examination
3. Compute rate-of-return on a capital investment generating a regular or irregular set of Cashflows, on a before tax basis.	Midterm & final examination
4. Determine economic lot size by formula.	Midterm & final examination
5. Compare alternative investments on the basis of annual cost or present worth.	Midterm & final examination
6. Compare multiple alternatives on the basis of rate of return on incremental investment.	Homework assignment, Midterm & final examination
7. Determine present, future worth, or annual payments of investments using Functional Notation and Interest Tables.	Homework assignment, Midterm & final examination
8. Define, disparage, and defend functional specialization, product specialization and facilities specialization.	Midterm & final examination
9. Make a Gantt Chart to schedule a project efficiently	Midterm & final examination
10. Identify and discuss three common types of business ownership	Midterm & final examination
11. Construct a PERT Chart and identify the critical path.	Homework assignment
12. Identify and explain the various methods of generating capital in a business.	Midterm & final examination

M. Recommended Grading Scale:

NUMERIC	GRADE	POINTS	DEFINITION
93–100	A	4.00	Superior
90–92	A-	3.67	Superior
87–89	B+	3.33	Above Average
83–86	B	3.00	Above Average
80–82	B-	2.67	Above Average
77–79	C+	2.33	Average
73–76	C	2.00	Average
70–72	C-	1.67	Below Average
67–69	D+	1.33	Below Average
63–66	D	1.00	Below Average
60–62	D-	0.67	Poor
00–59	F	0.00	Failure

N. College Procedures/Policies:

North Central State College believes that every student is a valued and equal member of the community.* Every student brings different experiences to the College, and all are important in enriching academic life and developing greater understanding and appreciation of one another. Therefore, NC State College creates an inclusive culture in which students feel comfortable sharing their experiences.

Discrimination and prejudice have no place on the campus, and the College takes any complaint in this regard seriously. Students encountering aspects of the instruction that result in barriers to their sense of being included and respected should contact the instructor, assistant dean, or dean without fear of reprisal.

* *Inclusive of race, color, religion, gender, gender identity or expression, national origin (ancestry), military status (past, present or future), disability, age (40 years or older), status as a parent during pregnancy and immediately after the birth of a child, status as a parent of a young child, status as a foster parent, genetic information, or sexual orientation*

Important information regarding College Procedures and Policies can be found on the [syllabus supplement](#) located at

<http://catalog.ncstatecollege.edu/mime/download.pdf?catoid=5&ftype=2&foid=3>



North Central State College
SYLLABUS ADDENDUM

Academic Division: Engineering Technology, Business & Criminal Justice
Course Coordinator: _____
Course Number: ENGR2850-900
Semester / Session: SP 2026 / Session

Discipline: Engineering Technology
Course Title: Engineering Economics & Organization
Start / End Date: 01/12/2026 thru 05/09/2026

Instructor Information

Name: J. Ross Justice
Phone Number: 419-755-4840
Office Location: Kehoe Building Rm 232.

Credentials: B.S. Engineering, MBA
E-Mail Address: rjustice@ncstatecollege.edu
Office Hours: Monday – 2:30pm to 5:30pm and Tuesday – 9:30am to 11:30am

I. Topical Timeline / Course Calendar (Subject to Change):

Weeks	Topics	Assignment	Due Date
1 & 2	- Foundations of Engineering Economics - Tabulated Factors (spreadsheet/calculator) to Account for the Time Value of Money	Topic Discussion; Homework Assignments; In-class Practice Assignments, Chapter exams.	At the close of Week #2
3 & 4	- Nominal & Effective Interest Rates - Present Worth Analysis	Topic Discussion; Homework Assignments; In-class Practice Assignments, Chapter exams.	At the close of Week #4
5 & 6	-Annual Worth Analysis - Use of AI in Engineering Analysis & Calculations	Topic Discussion; Homework Assignments; In-class Practice Assignments, Chapter exams.	At the close of Week #6
7 & 8	- Rate of Return Analysis - Cost Benefit Analysis	Topic Discussion; Homework Assignments; In-class Practice Assignments, Chapter exams.	At the Close of Week #7
9 & 10	-Public Sector Analysis - Gantt and PERT Charts	Topic Discussion; Homework Assignments; In-class Practice Assignments, Chapter exams.	At the Close of Week #8
11 & 12	- Break-even Analysis - Payback Analysis	Topic Discussion; Homework Assignments; In-class Practice Assignments, Chapter exams.	At the Close of Week #12
13 & 14	- Replacement & Retention Analysis - Organizational Structure	Topic Discussion; Homework Assignments; In-class Practice Assignments, Chapter exams.	At the Close of Week #13
15 & 16	- Engineering Ethics	Topic Discussion; Homework Assignments; In-class Ethical Scenario Assignments, Chapter exams.	At the Close of Week #16

II. Grading and Testing Guidelines:

Final Grade Calculation

Activity	Qty	Points	Percentage
On-line Discussions & In-class Exercises	Weekly	200	20%
Homework Assignments	Weekly	200	20%
Chapter Examinations	Bi-weekly	600	60%

III. Examination Policy:

1. The reasons for which a student will be excused from taking an examination _____
 - a. Hospitalization (with documented verification)
 - b. Death in the immediate family (with documented verification)
 - c. Personal illness or illness in immediate family - (doctor's excuse required).
2. A student who misses an examination for any reason is responsible for contacting the instructor for scheduling a time for the make-up exam.
3. No makeup opportunity will be given for absences of unscheduled quizzes and in-class exercises.
4. It is very important to notify your instructor AS SOON AS POSSIBLE if the student can not attend on an examination day.

Important note: If a student arrives late on an examination day, the student will only be allowed the remaining class time in order to complete the exam.

IV. Class Attendance and Homework Make-Up Policy:

Acceptance of late work is highly dependent upon student circumstances.

Acceptance of late work is at the sole discretion of the instructor. Acceptance of late work after one week will experience a 20% penalty.

Attendance is taken for each class session. Class attendance is critical to student success in this class.

There are no excused or unexcused absence. Students do not need to provide a reason for absence.

If a student is absent for a class session, it is the student's responsibility to obtain the class lecture notes and any handout material from other students.

Since some points are granted for attendance, students may be counted tardy or absent if the student arrives after the class has begun or if the student leaves before the class is dismissed.

V. Classroom Expectations:

1. a) Students are expected to demonstrate professional behavior and use language appropriate for a college classroom learning experience.
2. b) Cell phones must be put on silent mode (or vibrate mode) upon entering class. Students are not permitted to (hide!) their cell phones by resting them on their lap. Cell phones must be put in storage (i.e. out-of-sight in a backpack) or openly displayed on the student's desktop.
 - c) If a student must be available to take a phone call during class, please notify your instructor. If or when such a call occurs, the student must leave the class to take the call and return to the classroom when the important call is over.