

**MASTER SYLLABUS****2025-2026**

- A. Academic Division: Engineering Technology, Business & Criminal Justice Division
- B. Discipline: Engineering Technology
- C. Course Number and Title: ENGR 4050 Senior Technology Capstone
- D. Assistant Dean: Brooke Miller, M.B.A.
- E. Credit Hours: 3
- F. Prerequisites: 90 credit hours, MECT4050c, ENGR3980 or MECT4910
- G. Last Course/Curriculum Revision Date: Fall 2025
- H. Textbook(s) Title: No textbook required
- I. Workbook(s) and/or Lab Manual: None
- J. Course Description: This course will provide each student with the opportunity to work in a team environment to solve design problems and to utilize his/her knowledge in critical thinking. Students will reach design decisions and will make oral and professional presentations to their peers and to professionals at term's end. Students are expected to show evidence of significant individual contributions to team efforts, as well as due consideration of such design aspects as effectiveness, material selection, ergonomics, safety, cost, effect on the environment, ethics, ease of production, etc.
- K. College-Wide Learning Outcomes:

College-Wide Learning Outcome	Assessments -- How it is met & When it is met
Communication – Written	Project Proposal, Final Report Week 15. Communication Written VALUE Rubric
Communication – Speech	Oral Final Presentation. Communication – Speech VALUE Rubric
Intercultural Knowledge and Competence	Project Proposal – Intercultural Knowledge and Competence VALUE Rubric
Critical Thinking	Project Proposal, Progress Report, Final Report Week 15. Critical Thinking VALUE Rubric
Information Literacy	Project Proposal, Final Report Week 15. Information Literacy VALUE Rubric
Quantitative Literacy	Project Proposal, Final Report Week 15. Quantitative Literacy VALUE Rubric

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. Apply current knowledge and adapt to emerging applications of mathematics, science, engineering and technology,	Project proposal, progress reports, final report
2. Apply creativity in the design of systems, components or processes appropriate to program objectives,	Project proposal, progress reports, final report
3. Function effectively on teams,	Project proposal, progress reports, final report
4. Identify, analyze and solve technical problems,	Project proposal, progress reports, final report
5. Communicate effectively,	Project proposal, progress reports, final report, presentation
6. Create a plan for life-long learning	Project proposal, progress reports, final report
7. Demonstrate a respect for diversity and a knowledge of contemporary professional, societal and global issues	Project proposal, progress reports, final report
8. Demonstrate a commitment to quality, timeliness and continuous improvement.	Project proposal, progress reports, final report

ABET Outcomes:

- *Outcome b.* Ability to apply current knowledge
- *Outcome d.* Ability to apply creativity in design
- *Outcome e.* Ability to function on teams
- *Outcome f.* Ability to identify, analyze and solve problems
- *Outcome g.* Ability to communicate effectively
- *Outcome h.* Recognition of lifelong learning
- *Outcome l.* Understand professional, ethical and social responsibility
- *Outcome j.* Knowledge of professional, societal and global issues
- *Outcome k.* Commitment to quality and improvement

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

<https://ncstatecollege.edu/documents/President/PoliciesProcedures/PolicyManual/Final%20PDFs/14-081b.pdf>



Academic Division: EBC **Discipline:** Mechanical Engineering Technology
Course Coordinator: _____
Course Number: ENGR 4050 **Course Title:** Capstone
Semester / Session: Spring 2026 **Start / End Date:** 01/12/26 – 05/08/26

Instructor Information

Name: Mike Beebe **Credentials:** BS Degree Mechanical Engineering
Phone Number: 419 755 4800 **E-Mail Address:** msbeebe@ncstatecollege.edu
Office Location: NA **Office Hours:** Before Class or by appointment

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

Weeks	Topics	Assignment	Due Date
1 (1-15)	What is included in a Capstone Course, Review of Project Management and Class Requirements, Weekly Reports and meetings, and Final Report, Review Projects and review statement of work	Review assigned project information, create Gnatt Task chart for project Create Team and meet	1-22
2 (1-22)	Introduction to ISO Standards/Material Selection/Mechanical System Design	Quiz 1, weekly report,	1-29
3 (1-29)	Drawing Requirements and Manufacturing BOM	Quiz 2, weekly report	2-5
4 (2-5)	Geometric Tolerancing/Fasteners	Quiz 3, weekly report	2-12
5 (2-12)	Value Engineering	Weekly report	2-19
6 (2-19)	Sales and Marketing/Mid Term Report Prep	Weekly report	2-26
7 (2-26)	IP and Budget Development	Weekly Report	3-5
8 (3-5)	Soft Skills	Mid-term report Quiz 4	3-5 3-19
9 (3-12)	Spring Break (No class)		
10 (3-19)	Engineering Ethics	Quiz 5	3-26
11 (3-26)	Developing a Test Plan	Weekly Update Quiz 6	4-2
12 (4-2)	Work on Project	Weekly Update	4-9
13 (4-9)	Demonstration of final project product	Weekly Update	4-16
14 (4-16)	Final Report Writing	Weekly Update	4-23

Course Number: _____
Semester / Session: _____

Course Title: _____
Start / End Date: _____

Weeks	Topics	Assignment	Due Date
15 (4-23)	Oral Presentation Prep	Weekly update	4-30
16 (4-30)	Testing Event, work on final report		
17 (5-7)	Turn in Final Presentation and give oral presentation	Finalize report and presentation	5-8

II. Grading and Testing Guidelines:

Final Grade Calculation

Activity	Qty	Points	Percentage
Weekly Project Updates	11	23	15
Quiz	6	30	20
Drawings/BOM or software	1	100	20
Mid-Term/ Final Reports	2	100	25
Oral Presentation	1	24	20

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 _____
 - a. Upon return to class, see the instructor about making up examination.
 - b. No makeup times will be allowed unless you make prior arrangements with your instructor!
3. No makeup opportunity will be given for absences of unscheduled quizzes.

IV. Class Attendance and Homework Make-Up Policy:

1. Class attendance is necessary to acquire the knowledge required to _____
 - a. ensure the commitment to student success, attendance must be taken in all classes, regardless of modality, starting with the first day of the class. This is mandated by regulations established by the Department of Education and the Veterans Administration. Faculty are required to keep accurate records of attendance, and
 - b. Students are required to attend class and participate in their learning. Failure to attend class and/or participate in their learning may result in students being withdrawn from the class.
2. Students are responsible for _____
 - a. Students are expected to attend and participate in their classes; therefore, faculty must monitor student attendance and participation and incorporate these requirements into their course syllabi.
 - b. Student engagement is based on the "active pursuit" of learning which can be measured by class attendance, class participation (in class or online), taking required quizzes/examinations, and submission of work assignments or papers.

V. Classroom Expectations:

As a NC State Student, be it online or hybrid, your conduct in this course is subject to the NC State Student Code of Conduct. (Links to an external site.) As a future professional in your field, you will be expected to conduct yourself as a

Course Number: _____
Semester / Session: _____

Course Title: _____
Start / End Date: _____

professional in this course in ALL work and communications - be it assignments, discussion forums, Canvas Inbox, emails etc. This includes but is not limited to:

1. Being respectful of classmates' opinions, work and comments
Good test = Is this something I would/should say to a co-worker in person?
2. Being respectful in communications with the instructor
Good test = Is this something I would/should say to my boss in the workplace?
3. Being respectful of diversity
Good test = Is this a comment/joke that is at some other groups, ethnicity, political etc. expense? Note: Offensive "jokes", slurs or hate speech (Links to an external site.) will NOT be tolerated
4. Using Non-Profane, Appropriate Language
Good test = Is this language you would use in the workplace or in front of your grandmother?
5. Using proper. NON-"Text speak" Language to make Yourself Easily Understood Good test = Could my older boss understand what I have written?
6. Failure to conduct yourself as a professional and meet standards above in this course will result in the following consequences in this course:
 - 1st Instance = Written warning from the instructor documenting issue (No points deductions)
 - 2nd offense = Mandatory meeting with the instructor and or Department Chair or Division Dean (Related assignment/Participation subject to Point Deductions)

3rd offense: College Disciplinary procedures filed with the NC State Judicial Committee as a violation of the Student Code of Conduct.
(Course Grade subject to F)

Extreme or repeated unprofessional behavior will result in initiating college disciplinary procedures as outlined in the NC State Student Code of Conduct. (Links to an external site.) NCSC Disciplinary hearings can result in a variety of consequences, including and up to suspension or being expelled from the college.