ENG 195-501: Introduction to Engineering

Fall 2026 | August 17 - December 12 | Online course delivered through Canvas

Instructor	Dr. Chandan Kumar
Email	ckumar@unm.edu
Help Sessions	Wednesdays, 2:00-3:00 PM (Zoom link posted in Canvas)
Division Chair	Andy Taylor, MECS Division Chair - ataylor19@unm.edu

Course Delivery

This is an online course delivered through Canvas. All coursework - including readings, videos, assignments, quizzes, discussions, projects, and exams - is completed through Canvas and approved testing centers according to posted deadlines.

Weekly modules guide your progress. You are responsible for completing all required activities by their deadlines.

Credit Hours

3 credit hours. Expect approximately 9 hours per week of total coursework, including readings, videos, assignments, quizzes, project work, and exam preparation.

Prerequisites

None.

Course Description

Introduction to Engineering helps students explore engineering fields, degree pathways, problem-solving methods, design processes, professional expectations, teamwork, and the role engineers play in society. Students gain foundational skills in mathematics, physics, technical communication, and engineering tools.

Student Learning Outcomes

By the end of the course, students will be able to:

- Identify major engineering fields and describe pathways into engineering degrees and careers.
- Apply structured engineering problem-solving and design processes to open-ended problems.
- Use basic technical tools for calculations, data interpretation, modeling, and communication.

- Explain the importance of mathematics, physics, ethics, sustainability, and trade-offs in engineering decisions.
- Prepare clear technical writing and presentations for engineering audiences.
- Collaborate professionally in online teams and reflect on group dynamics.

Required Materials

Technical Requirements

- Laptop, tablet, or personal computer
- High-speed internet
- Updated web browser
- Microsoft Office (free for UNM students)
- Ability to scan or convert written work to PDF (Adobe Scan recommended)

UNM Resources

- Laptop rentals: UNM Valencia Library
- Software downloads: http://it.unm.edu/software/index.html
- Update contact information in LoboWeb

Web Conferencing Guidelines

Web conferencing is used for help sessions or appointments. Students should:

- Use a USB headset when possible.
- Ensure stable internet.
- Dress appropriately for class interactions.
- Use a UNM-supported Zoom account.

Attendance and Participation Expectations

Attendance is measured through regular engagement in Canvas, including:

- Accessing weekly modules
- Completing readings, videos, assignments, quizzes, and exams
- Participating in discussions and reflections
- Meeting deadlines consistently

Failure to engage may result in being dropped from the course.

Submission Expectations

Written Work Requirements

All written assignments, quizzes, and projects must:

- Be neat, legible, and well-organized.
- Show all work for partial credit.
- Include clear reasoning and justification.
- Be submitted as PDF files in Canvas.

PDF Conversion

Acceptable methods:

- Scanner or printer
- Adobe Scan app

Unacceptable methods:

- Images pasted into Word and saved as PDF
- Emailing assignments instead of submitting in Canvas
- Submitting non-PDF files

Course Policies

Participation Policy (10%)

Participation reflects your consistent engagement with the course through Canvas. Because this is an online course delivered through Canvas, participation is measured through weekly involvement in course activities rather than physical attendance.

You earn participation points by completing weekly engagement tasks such as:

- Discussion/reflection posts
- Short module activities, including practice problems, reading checks, and mini-tasks
- Viewing assigned videos and reading posted materials
- Completing non-graded checkpoints
- Accessing weekly modules on time
- Responding to instructor communication when required

A typical week includes one discussion or reflection, one short activity or practice task, and engagement with posted readings/videos. Each week contributes to your participation grade.

Students may be flagged for non-participation if they miss two required activities in the first three weeks or miss three consecutive weekly required activities. Students flagged for non-participation may be dropped from the course.

Assignments (20%)

Assignments reinforce weekly concepts and foundational engineering skills. They include problem-solving tasks, short written responses, technical exercises, and applied practice.

All assignments must be submitted by the posted deadline, uploaded as PDF files, show all work for full or partial credit, be neat and legible, and include clear reasoning and justification.

Your lowest two assignment scores will be dropped automatically.

Late assignments are accepted only with a late pass.

Projects (10%)

You will complete one project this semester. The project applies the engineering design process to a real-world problem and includes:

- Problem definition
- Requirements
- Prototype or model
- Testing or evaluation
- Written report
- 8-10 minute recorded or live presentation

A detailed rubric will be posted in Canvas. Late passes may be used for the project.

Quizzes (10%)

Quizzes serve as mini practice exams, helping you simulate exam conditions and assess your understanding of recent material.

- Expect 4-5 quizzes throughout the semester.
- Quizzes are completed online in Canvas.
- Each quiz has a 60-90 minute time limit once started.
- Your lowest quiz score is dropped automatically.
- Quizzes cover only material for which assignment/project deadlines have already passed.
- Practice problems will be posted in Canvas.

Makeup and late policy: Quizzes cannot be submitted late, late passes cannot be used for quizzes, and quizzes cannot be made up after the deadline. You may take one quiz early per semester if warranted; approval is case-by-case.

Exams: Midterm (20%) and Final (30%)

This course includes two proctored, handwritten exams: a midterm exam during Week 8 and a final exam during finals week. Exams are not administered in Canvas.

Each exam is available during a multi-day exam window posted in Canvas. Students must schedule their exam at a UNM Testing Center or another approved university testing center during the posted window.

You may schedule your exam at:

- UNM Valencia Workforce Training Center
- UNM Main Campus Testing Center
- Another approved university testing center

If you wish to use a non-university testing center, you must request approval first.

- Students must schedule their exam appointment, arrive on time, follow testing center rules, provide valid ID, confirm the appointment with the proctor at least 48 hours before the exam window opens, and email the instructor and proctor in the same thread to confirm the appointment.
- During exams, you may bring one 3 x 5 index card written on both sides and pencils. You may not use calculators, phones, tablets, computers, notes, textbooks, or external reference materials. Occasionally, a formula may be provided if necessary.
- If your exam appointment is not confirmed 48 hours before the exam window opens, a printed exam will be prepared for you at the UNM-Valencia Workforce Training Center during the backup testing time posted in Canvas.
- Non-UNM testing centers may charge a fee, typically around $25.
- Exams cannot be taken late unless there is a documented family or medical emergency. If approved, you may take the exam early during office hours or at a UNM Testing Center. Vacations are not considered emergencies.

Late Pass Policy

You have 4 late passes for the semester. Each late pass allows you to submit one assignment or project up to 5 days late with no penalty.

Late passes cannot be used for quizzes or exams.

To use a late pass, email the instructor before the assignment deadline. No reason is required. After all late passes are used, no additional late submissions are accepted unless there is a documented emergency.

Submission Rules

All written work must be submitted as PDF files.

Acceptable PDF methods include a scanner/printer or the Adobe Scan app. Unacceptable methods include images pasted into Word and saved as PDF, emailing assignments instead of submitting in Canvas, or submitting non-PDF files.

Work must be legible, organized, complete, and justified with clear reasoning. Partial credit is awarded only when work is shown.

Communication With Instructor

The most reliable way to reach the instructor is email. Messages are checked multiple times daily Monday-Friday and occasionally on weekends.

Expect a response within 24-48 hours. If no response is received after 48 hours, please resend your email.

Grading Structure, Participation Policy, Weekly Schedule

Grading Structure

Component	Weight
Module quizzes/checkpoints	10%
Participation and discussion/reflection activities	10%
Assignments	20%
Midterm exam	20%
Final exam	30%
Final project and presentation	10%

Course Grade Scale

Cumulative Average	Final Grade
96.5-100+	A+
93-96.49	A
89.5-92.99	A-
86.5-89.49	B+
83-86.49	B
79.5-82.99	B-
76.5-79.49	C+
73-76.49	C
69.5-72.99	C-
66.5-69.49	D+
63.5-66.49	D
59.5-63.49	D-
Below 59.5	F

CR = 70-100%. NC = below 70%.

Weekly Schedule

Week	Dates	Topic	Focus	Deliverables
Week 1	Aug 17-23	Introduction to Engineering	Disciplines, engineering in society, ethics, course orientation	Discussion/reflection
Week 2	Aug 24-30	Engineering Pathways and Student Success	Degree pathways, learning strategies, math and physics foundations	Discussion/reflection
Week 3	Aug 31-Sep 6	Engineering Problem Solving	Problem definition, brainstorming, decision matrices	Online Module Quiz 1 / Checkpoint
Week 4	Sep 7-13	Engineering Tools and Software	Spreadsheets, basic computation, data interpretation, CAD setup	Tool setup activity
Week 5	Sep 14-20	Electrical and Computer Engineering Basics	Circuits, logic systems, embedded systems	Discussion/reflection
Week 6	Sep 21-27	Mechanical and Civil Engineering Basics	Forces, motion, structures, materials	Discussion/reflection
Week 7	Sep 28-Oct 4	Chemical and Biological Engineering Basics	Processes, biotech, cross-disciplinary trade-offs	Online Module Quiz 2 / Checkpoint
Week 8	Oct 5-11	Midterm Review and Proctored Exam	Review Weeks 1-7; Fall Break Oct 8-9	In-person proctored midterm exam during the Canvas-posted multi-day window
Week 9	Oct 12-18	Engineering Design Process	Requirements, prototypes, testing, iteration	Discussion/reflection
Week 10	Oct 19-25	Technical Communication	Technical writing, visuals, short presentations	Discussion/reflection
Week 11	Oct 26-Nov 1	Sustainability and Modern Challenges	Renewable energy, climate, resilience, constraints	Online Module Quiz 3 / Checkpoint

Week	Dates	Topic	Focus	Deliverables
Week 12	Nov 2-8	Teamwork and Project Management	Virtual collaboration, roles, milestones, agile basics	Final project team/topic confirmed
Week 13	Nov 9-15	Project Development	Design proposal, early model/prototype, instructor feedback	Project plan/draft
Week 14	Nov 16-22	Testing and Revision	Evaluation against requirements; preparing results	Project draft due
Week 15	Nov 23-29	Project Refinement	Thanksgiving Break Nov 26-29	Project revisions; optional check-in
Week 16	Nov 30-Dec 6	Final Project Presentations and Review	Recorded or live presentations; final exam review	Final project report + presentation uploaded in Canvas
Finals Week	Dec 7-12	In-Person Proctored Final Exam	Comprehensive final exam	Final exam during the Canvas-posted multi-day window

Academic Integrity, Support Resources, Title IX, Final Notes

Academic Integrity and AI Use

All submitted work must be your own and must follow UNM academic honesty expectations, the UNM Student Code of Conduct, and the specific directions for each assignment.

Academic dishonesty includes, but is not limited to, dishonesty in quizzes, tests, or assignments; claiming credit for work not completed by you; plagiarism; unauthorized collaboration; misuse of academic materials; and improper use of AI or technology.

For this course, generative AI tools may be used only for minor learning support, such as brainstorming, outlining, grammar review, studying, or checking your understanding.

AI tools may not be used to complete quizzes, exams, final assignment text, calculations, assigned problem solutions, discussion posts, or team project contributions unless an assignment explicitly allows that use in writing.

If you use AI in an allowed way, you must disclose the tool, explain how it was used, distinguish your own work from AI-supported material, ensure accuracy and originality, and remain responsible for understanding everything you submit.

Unauthorized AI use, submitting AI-generated content without required acknowledgment, plagiarism, or other academic dishonesty may result in a zero on the assignment, a reduced or failing course grade, referral to the Dean of Students Office, and/or additional action through university procedures.

Respectful Online Communication

Students are expected to communicate respectfully and professionally in Canvas, email, live sessions, and group work. Disagreement should focus on ideas, not people. Harassment, discriminatory language, personal attacks, or disruptive conduct may be addressed through university student conduct procedures.

Accessibility and Accommodations

UNM is committed to providing equitable access to learning opportunities for students with documented disabilities. The instructor's objective is to facilitate an inclusive course setting in which students have full access and opportunity to participate.

To engage in a confidential conversation about reasonable accommodations for this class or program, students may contact the UNM Accessibility Resource Center at arcsrvs@unm.edu or 505-277-3506.

UNM-Valencia students may also contact Valencia Accessibility Services at vcaccess@unm.edu or 505-925-8560. Sarah Clawson, Career and Accessibility Services Manager, may be reached at sjclawson@unm.edu or 505-925-8840.

Students should request accommodations as early as possible and make their accommodation letters available each semester. Approved accommodations are implemented through the appropriate UNM process and are not applied retroactively.

Student Support and Basic Needs

Academic support includes Math/STEM Center and Learning Commons tutoring, Canvas and UNM NetID support, Library services, Writing Center services, and other UNM-Valencia student support offices.

Students experiencing challenges related to food, housing, finances, technology, health, or personal hardship are encouraged to contact the instructor or appropriate UNM support offices for referral and assistance.

CARE Reporting: https://valencia.unm.edu/campus-resources/pasos/care-reporting/index.html

Additional resources include PASOS Resource Center (505-925-8546, pasos@unm.edu), LoboRESPECT Advocacy Center (505-277-2911), TimelyCare (24/7 virtual care), SHAC (505-277-3136), and Veterans Resource Center (505-277-3181).

Title IX and Inclusive Learning

Our classroom and university should be spaces of mutual respect, kindness, and support, without fear of discrimination, harassment, or violence.

The University of New Mexico prohibits discrimination based on sex, including gender, sex stereotyping, gender expression, and gender identity. Students may access confidential services through campus

resources such as the LoboRESPECT Advocacy Center, Women's Resource Center, and LGBTQ Resource Center.

UNM faculty and graduate teaching assistants are considered responsible employees. Responsible employees must communicate reports of sexual harassment, sexual misconduct, and sexual violence to the Office of Compliance, Ethics, and Equal Opportunity.

For more information about sexual misconduct, reporting obligations, and responsible employees, see UNM Administrative Policies UAP 2720 and UAP 2740 or contact Compliance, Ethics, and Equal Opportunity.

Students experiencing pregnancy-related conditions or related needs may contact ceeo@unm.edu. All students are welcome in this course regardless of citizenship or immigration status.

Health and Wellness

If you are ill or experiencing a wellness challenge, contact the instructor as soon as possible to discuss alternatives for course participation.

UNM is mask-friendly but not mask-required. If you have symptoms of COVID-19 or another contagious illness, please avoid in-person activities.

Credit-Hour Statement

This is a three credit-hour course. Expect approximately 9 hours per week of total coursework, including readings, videos, assignments, quizzes, project work, studying, and exam preparation.

Land Acknowledgement

The University of New Mexico sits on the traditional homelands of the Pueblo of Sandia. We honor the original peoples of New Mexico - Pueblo, Navajo, and Apache - and acknowledge their enduring stewardship of this land.

Citizenship and Immigration Status

All students are welcome in this class regardless of citizenship, residency, or immigration status. Your privacy will be respected if you choose to disclose your status.

UNM is committed to supporting all students, including undocumented members of our community.

Important Fall 2026 Dates

Date	Event
August 17	Classes begin
August 21	Last day for waitlist
August 28	Last day to add/change credit hours

Date	Event
September 4	Last day to drop without W
September 7	Labor Day
October 8-9	Fall Break
November 6	Last day to drop via LoboWeb
November 26-29	Thanksgiving Break
December 7-12	Finals Week
December 17	Grades due

Dates may change; check Canvas and UNM email regularly.

Final Notes

This syllabus outlines the course structure and expectations for Introduction to Engineering. Minor adjustments to topics, activities, or deadlines may occur to support learning; all changes will be announced in Canvas.

You are encouraged to ask for help, use campus resources, and stay engaged throughout the semester.