

Nontraditional Manufacturing
EML 6323 Sections CAMP, 1FE2, 2FED
Class Periods: MWF, 4th period, 10:40 am-11:30 am
Location: NEB 100
Academic Term: Spring 2026

Instructor:

Hitomi Greenslet
hitomiy@ufl.edu
352-392-0812
Office Hours: MWF, 11:45 am-12:35 pm, UF Zoom or 483 Wertheim Lab

Teaching Assistant/Peer Mentor/Supervised Teaching Student:

Please contact through the Canvas website

- Hunter Enos, henos@ufl.edu, UF Zoom, office hours

Course Description

Focusing on nontraditional additive and subtractive manufacturing processes using electrical, chemical, ultrasonic, magnetic, and photonic energy—including processes and equipment

Course Pre-Requisites / Co-Requisites

Graduate standing

Course Objectives

Upon completion of this course, students should be able to demonstrate the following:

- A descriptive and qualitative understanding of advanced (nontraditional) manufacturing processes
- The ability to rapidly and accurately perform manufacturing engineering evaluations and analyses
- The ability to survey, understand, and present advanced knowledge and information relevant to the current trends in nontraditional manufacturing

Materials and Supply Fees

Please check One.UF.

Required Textbooks and Software

- *Advanced Machining Processes—Nontraditional and Hybrid Machining Processes*
Hassan El-Hofy
McGraw-Hill, 2005
ISBN 0-07-145334-2

Recommended Materials

- *Intelligent Energy Field Manufacturing: Interdisciplinary Process Innovations*
Wenwu Zhang
CRC Press, 2010
ISBN 978-1-4200710-1-6
- Journals including *ASME Journal of Manufacturing Science and Engineering*, *Annals of the CIRP*, *Precision Engineering*, etc.

Required Computer

Recommended Computer Specifications: <https://it.ufl.edu/get-help/student-computer-recommendations/>
HWCOE Computer Requirements: <https://www.eng.ufl.edu/students/advising/fall-semester-checklist/computer-requirements/>

Course Schedule

Week 1:	Introduction, Report preparation 1, Metrology, Abrasive technologies
Week 2:	Abrasive technologies, Ultrasonic machining
Week 3:	Ultrasonic machining, Water jet machining
Week 4:	Water jet machining, Abrasive jet machining
Week 5:	Abrasive water jet machining, Ice jet machining, Powder deposition technology
Week 6:	Powder deposition technology, Magnetic abrasive finishing
Week 7:	Magnetic abrasive finishing, Magnetorheological fluid finishing, Course review for Exam 1
Week 8:	Exam 1, Electrodischarge machining
Week 9:	Electrodischarge machining, Laser beam machining
Week 10:	Spring break
Week 11:	Laser beam machining, Electron beam machining
Week 12:	Electron beam machining, Plasma beam machining, Ion beam machining
Week 13:	Chemical milling, Photochemical milling, Electropolishing
Week 14:	Presentation
Week 15:	Presentation, Course review for final exam

Important Dates

Exam schedule

[On-campus students]

Exam 1: March 2, 2026 (10:40 am–11:30 am)

Final exam: May 1, 2026 (7:30 am–9:30 am)

[EDGE students]

Exam 1: March 2, 2026 (10:40 am)–March 3, 2026 (must be completed by 11:59 pm)

Final exam: May 1, 2026 (7:30 am)–May 2, 2026 (must be completed by 11:59 pm)

Note: See the attached course schedule for more detail. (Dates are subject to change—this is to serve as a guideline only.)

Attendance Policy, Class Expectations, and Make-Up Policy

Attendance policies

- Attendance is expected and encouraged for all students, but it will not be recorded.
- Excused absences must be consistent with university policies in the Graduate Catalog (<https://catalog.ufl.edu/graduate/regulations>), and they require appropriate documentation. Additional information can be found here: <https://gradcatalog.ufl.edu/graduate/regulations/>.

Class policies

- If you need to miss a class, please make appropriate arrangements with a classmate for class notes.
- Cheating or any other form of academic dishonesty will result in failure and prosecution according to University policies.
- Students are expected to conduct themselves in a manner that does not interfere with other students' learning. Disruptive or distracting behavior is prohibited, and Prof. Greenslet reserves the right to temporarily or permanently dismiss distracting students from the classroom.
- Students are responsible for all announcements, assignments, etc., made during lectures, including changes in the scheduling of lecture topics, homework assignments, and exams. Class absence is not a valid excuse for being unprepared.
- Any changes in the schedule or assignments will be communicated to the class via e-mail using your Gatorlink (@ufl.edu) e-mail address and the course website. You are responsible for monitoring your mailbox and the class website regularly for any class notices.

Homework policies

- Homework must be scanned and uploaded as **one digital file (PDF)** through the UF e-learning system **by the start** of class on the due date. **In general, late homework will not be accepted.**

- Homework must be neat and legible and show all major steps.
- Homework must have the assignment number, your name, and the date of submission in the upper right-hand corner of the first sheet.
- Homework must have the page number in the bottom right corner of every page.
- Multiple sheets must be placed in the proper order.
- Failure to adhere to the formatting requirements could result in loss of points.
- Failure to put your name in the document could result in 0 (zero) points. Note that your name in the filename does not count.
- You may discuss the homework with your classmates; however, all students must provide the solutions themselves. Copying of homework will be treated as academic dishonesty. Use of a solution manual or any online answer source is also considered dishonest.
- Each homework is worth 10 pts. 6 pts will be given for completion of the homework. There will be no partial credit for completion so every question must be answered to get the completion points. The remaining 4 pts will be given based on the answers to 2 randomly selected questions. Partial points may be given depending on the type of question.
- You have one week from the day grades are posted to dispute your homework grade with the instructor. Please note that penalties pertaining to the homework policies (e.g., which questions were graded for accuracy, the number of points for completion, and homework-format penalty points) cannot be disputed.

Exam policies

- It is the students' responsibility to demonstrate their knowledge on exams. In order to be able to grade your work, it must be neat, be legible, and follow logical steps with all work shown. Partial credit may be given for work that can be followed and where the nature and magnitude of the mistake can be identified. No credit will be given for correct answers with insufficient indication of how they were obtained.
- Students should be aware that their work is submitted under the honor code pledge taken by UF students. The pledge is *On my honor, I have neither given nor received unauthorized aid in doing this assignment*. Students can learn more about the UF honor code at the UF Student Government website (<https://sccr.dso.ufl.edu/>).

[On-campus students]

The first exam will be held in the regular classroom during the regular class period on dates that will be announced later. The final exam will be held in the regular classroom at the time assigned by the Registrar.

[Off-campus students]

All exams will be held online. The details will be announced prior to the exam dates.

Project (report and presentation) policies

Subject:

[On-campus students]

Each team must choose a subject relevant to nontraditional manufacturing processes, survey the relevant literature, and summarize the chosen topic.

The number of students in each team will be determined based on the number of enrolled students.

[Off-campus students]

Each student must choose a subject relevant to nontraditional manufacturing processes, survey the relevant literature, and summarize the chosen topic.

Written-report preparation:

- Use the provided template. The report must follow the guidelines described in the template. The page number must be in the bottom right corner of each page.
- The report must have the date of submission in the upper-right-hand corner of the first sheet.
- The report must include the title, your name, abstract, introduction, main body of the report, conclusions, and at least ten (10) references.
- The report must be six (6) pages overall.
- The project progress will be checked step by step: (1) title and abstract, (2) outline, (3) list of references, (4) introduction, and (5) figures and tables. Each document (**PDF file**) must be submitted **by the team**

leader through the UF e-learning system **by the start** of class on the due date. In general, late submissions will not be accepted.

- **Plagiarism is not acceptable.** To learn how to prevent misconduct related to plagiarism, refer to <http://flexible.dce.ufl.edu/policies/#plagiarism>.

Written-report submission:

[On campus students]

- **Each student** must submit the complete final report (**PDF file**) and his/her own *Performance Evaluation Form* (**PDF file**) through the UF e-learning system **by the start** of class on the due date. In general, late submissions will not be accepted.

[Off campus students]

- Each student must submit the complete final report (**PDF file**) through the UF e-learning system **by the start** of class on the due date. In general, late submissions will not be accepted.

Oral presentation [**On-campus students only**]:

- The presentation must be prepared on PowerPoint slides (widescreen 16:9).
- The presentation slides must be numbered and must include the title, your name, main body of the presentation, and date of submission.
- The presentation must indicate sources as needed.
- **Plagiarism is not acceptable.** To learn how to prevent misconduct related to plagiarism, refer to <http://flexible.dce.ufl.edu/policies/#plagiarism>.
- The presentation slides (PowerPoint file) must be submitted **by the team leader** through the UF e-learning system **by the start** of class on the due date. In general, late submissions will not be accepted.
- **Each team** must give a presentation in class. The presentation schedule will be determined later.

Feedback (on written report and oral presentation) policies

All students are required to submit feedback.

Written report:

- Each student must choose another team's project report and write comments and suggestions about it.
- A feedback form (**PDF file**) must be submitted through the UF e-learning system **by the start** of class on the due date. In general, late submissions will not be accepted.

Oral presentation:

- All students must listen to all on-campus teams' presentations, evaluate them, and write comments and suggestions about them.
- A presentation-evaluation form (**PDF file**) must be submitted through the UF e-learning system **by the start** of class on the due date. In general, late submissions will not be accepted.

Evaluation of Grades

[On-campus students]

Assignment	Total Points	Percentage of Final Grade
Homework Sets (3)	10 each	15%
Project (report and presentation)	25	25%
Feedback (report and presentation)	5	5%
Exam 1	100	25%
Final Exam	100	30%
		100%

[Off-campus students]

Assignment	Total Points	Percentage of Final Grade
Homework Sets (3)	10 each	15%
Project (report only)	25	25%

Feedback (report and presentation)	5	5%
Exam 1	100	25%
Final Exam	100	30%
		100%

Grading Policy

[Grading scale]

Percent	Grade	Grade Points
93.4 - 100	A	4.00
90.0 - 93.3	A-	3.67
86.7 - 89.9	B+	3.33
83.4 - 86.6	B	3.00
80.0 - 83.3	B-	2.67
76.7 - 79.9	C+	2.33
73.4 - 76.6	C	2.00
70.0 - 73.3	C-	1.67
66.7 - 69.9	D+	1.33
63.4 - 66.6	D	1.00
60.0 - 63.3	D-	0.67
0 - 59.9	E	0.00

Academic Policies & Resources

To support consistent and accessible communication of university-wide student resources, instructors must include this link to academic policies and campus resources: <https://go.ufl.edu/syllabuspolices>. Instructor-specific guidelines for courses must accommodate these policies.

Commitment to a Positive Learning Environment

The Herbert Wertheim College of Engineering values varied perspectives and lived experiences within our community and is committed to supporting the University's core values.

If you feel like your performance in class is being impacted by discrimination or harassment of any kind, please contact your instructor or any of the following:

- Your academic advisor or Graduate Coordinator
- HWC OE Human Resources, 352-392-0904, student-support-hr@eng.ufl.edu
- Pam Dickrell, Associate Dean of Student Affairs, 352-392-2177, pld@ufl.edu