MTEN 101 – Introduction to Materials Engineering

Otto H. York Department of Chemical and Materials Engineering
New Jersey Institute of Technology

Instructor: Dr. Joshua Young, Assistant Professor of Chemical and Materials Engineering
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Class Schedule:
Date and Time: Wednesdays, 1pm to 2pm EST
Location: CKB 313

Course Description: This course provides an introduction to the field of materials engineering and to the Otto H. York Department of Chemical and Materials Engineering. Topics include the program curriculum, student professional societies, undergraduate research, and cooperative education (co-op) opportunities, and learning about materials engineering profession and career pathways. Also included are lectures by MTEN faculty integrated with research laboratory tours and hands-on research experience.

List of Topics:
- What does a Materials Engineer do?
- Materials Engineering profession and career pathways - CME Department policies and MTEN program
- Materials Engineering faculty and research areas
- Undergraduate research opportunities
- Cooperative education opportunities
- Innovation in engineering
- Ethics and professionalism

Student Learning Outcomes:
- Learn about Materials Engineering profession and career pathways
- Meet with MTEN faculty and learn about their research
- Get familiar with undergraduate research and cooperative education opportunities
- Understand departmental policies and MTEN program
- Develop an academic plan and resume
- Understand the concepts of ethics and professionalism
- Get familiar with the path towards innovation in engineering
- Identify laboratory safety risks and follow safety protocol

Grading and Assignments: The final grade for the course is divided as follows:
- Regular Assignments = 50% of grade
  - Short 1 page reports are due the Tuesday (by 11:59pm) after they are assigned. They should be submitted to Canvas.
- Final Project = 50% of grade
  - The final project consists of choosing an application of interest to you and researching materials that are used in it. Topics should be approved by Prof. Young. More details will be provided.

Academic Integrity: Academic Integrity is the cornerstone of higher education and is central to the ideals of this course and the university. Cheating is strictly prohibited and devalues the degree that you are working on. As a member of the NJIT community, it is your responsibility to protect your educational investment

by knowing and following the academic code of integrity policy that is found at: http://www5.njit.edu/policies/sites/policies/files/academic-integrity-code.pdf.

Please note that it is my professional obligation and responsibility to report any academic misconduct to the Dean of Students Office. Any student found in violation of the code by cheating, plagiarizing or using any online software inappropriately will result in disciplinary action. This may include a failing grade of F, and/or suspension or dismissal from the university. If you have any questions about the code of Academic Integrity, please contact the Dean of Students Office at dos@njit.edu.

Generative AI Policy: The use of generative AI as a tool to advance learning is allowed for this course. However, the use of generative AI as a shortcut to bypass the learning process is not permitted. Specifically, using content (ideas, words, processes, and results) not written by oneself (including by generative AI) and sharing it as one's work is considered plagiarism in the context of this course and will be reported as detailed under Academic Integrity. Furthermore, generative AI is not considered a source of information; specific information cited should be accompanied with by a peer-reviewed academic publication or equivalent.

Detailed Schedule:

Week	Topics	Assignment
1 – 1/22	- Introduction	
2 – 1/29	- Young group introduction	Group visit report
3 – 2/5	- York Center Tour	
4 – 2/12	- Makerspace Tour	York Center / Makerspace report
5 – 2/19	- Guvendiren group lab presentation	
6 – 2/26	- Guvendiren group lab tour	Group visit report
7 – 3/5	- McEnnis group presentation	
8 – 3/12	- McEnnis group lab tour	Group visit report
9 – 3/19	SPRING BREAK, NO CLASS	
10 – 3/26	- Chintersingh group presentation	
11 – 4/2	- Chintersingh lab tour	Group visit report
12 – 4/9	- Zhao group presentation	Sign up for MRS and SAMPE
13 – 4/16	- Zhao group lab tour	Group visit report Final presentation
14 – 4/23	- Final presentations	
15 – 4/30	- Industry panel	
16 – 5/7	FRIDAY CLASSES MEET, NO CLASS	