



STEM Course Syllabus

COURSE: *ADM 201*

COURSE TITLE: Materials Science

Credits: 3

INSTRUCTOR:

TERM:

DAY(S) AND TIME(S):

OFFICE HOURS:

OFF. LOCATION:

EMAIL:

TELEPHONE:

Course Description: This course is an introduction to materials science. Topics include physical and mechanical properties of materials including metal alloys, plastics, rubbers, ceramics, glass, and composites. Students learn standard techniques for measuring mechanical properties including ASTM D638 Tensile Test, ASTM D2240 Hardness Test, ASTM D5630 Ash Test, ASTM D3418 Melting Point and Crystallization Point Test, ASTM D256 Impact TEST and ASTM D648 Heat Deflection Test.

Students' Learning Outcomes/ Objectives (SLO)

Upon successful course completion students will be able to:

1. Apply [the](#) scientific method to solve materials science problems;
2. Perform American Standard Testing and Methodology (ASTM) tests including ASTM D638 Tensile Test, ASTM D2240 Hardness Test, ASTM D5630 Ash Test, ASTM D3418 Melting point and Crystallization point test, ASTM D256 Impact and ASTM D648 Heat Deflection Test;
3. Explain the properties of different types of material;
4. Describe the structure of a polymeric materials;
5. Maintain a safe and organized work space;
6. Record laboratory information.

Text:

1. Textbook:
James Shackelford, Introduction to Materials Science for Engineers, 8th Edition,
Pearson;
ISBN-13: 978-0-13-382665-4, ISBN-10: 0-13-382665-1
2. Supplementary readings materials (available in the HCCC library):
ASTM D638, ASTM D2240, ASTM D5630, ASTM D3418, ASTM D256 and
ASTM D648.

Course Outline:

week	Topic	SLO
1	Bonding and Crystalline Structure	1, 3, 4
2	Imperfection in Materials Lab: Metallic Contamination Analysis	1, 2, 3, 5, 6
3	Mechanical Behavior Lab: ASTM D638 Tensile Test	1, 2, 3, 5, 6
4	Thermal Behavior Lab: ASTM 3418 Melting Point and Crystallization Point Measurement	1, 2, 3, 5, 6
5	Exam I and Metal Alloys	1, 3
6	Failure Analysis Lab: ASTM D256 Impact Test	1, 2, 4, 5, 6
7	Ceramics and Glasses	1, 3
8	Plastics and Rubbers Lab: ASTM D2240 Hardness Test	1, 2, 3, 4, 5, 6
9	Composites Lab: ASTM D5630 Ash Test	1, 2, 3, 4, 5, 6
10	Exam II and Lab: ASTM D648 Heat Deflection Test	2, 5, 6
11	Electronic Materials Lab: Thermal Couples	1, 3, 5, 6
12	Optical Materials Lab: UV Absorbance	1, 3, 5, 6
13	Magnetic Materials Lab: Ferromagnetism	1, 3, 5, 6
14	Smart Materials	1, 2, 3, 4
15	Final Exam	

Grading:

Homework Assignment:	10%
Exam 1:	20%
Exam 2:	20%
Final Exam:	20%
Lab*	30%

The grade scale for this class will be as follows:

93 – 100	= A
90-92.9	= A-
87-89.9	= B+
84-86.9	= B
80-83.9	= B-
76-79.9	= C+
70-75.9	= C
65-69.9	= D
Below 65	= F

Hudson County Community College (HCCC) deeply values its students, faculty, staff, and community members and is committed to being proactive and exceeding minimal requirements in the protection of the health and safety of all during the COVID-19 pandemic and always. HCCC takes the safety and well-being of the students, faculty, and staff seriously and has taken measures to ensure that course sections offered on-ground are offered in a safe and caring environment.

HCCC believes that safety during a pandemic is a shared responsibility and that all individuals must do their part. In an effort to protect the health and safety of its students, faculty, staff, and community members, HCCC has implemented the following protocols. Any individual who fails to adhere to these protocols will be required to leave the campus.

Face Masks: In alignment with Governor Murphy's Executive Orders 155 and 163, face coverings/masks must be worn inside all HCCC buildings. Some classes may require students, faculty, and staff to wear face shields due to the nature of materials handled in the course.

Health Screening: HCCC requires all individuals on campus to complete a two-step health screening process. Step 1 will require the completion of a health questionnaire prior to entering any of HCCC's buildings. If an individual passes this step, they move to Step 2, which consists of an on-campus temperature check. Thermal mirrors will be located at the entrance of each HCCC building. Individuals will approach the thermal mirror, and the device will signal if the individual's temperature is above the 100.4-degree Fahrenheit threshold. If an individual fails Step 2 of the screening process, the individual will be advised to wait in a well-ventilated designated area for 15 minutes before re-testing. If an individual fails the second temperature check, entrance to campus will be denied. HCCC's security officers will provide the individual with a document that clearly indicates next steps.

Navigating HCCC Buildings: Please note that all HCCC buildings will have separate entrances and exits. Stairwells will be one-way and elevators will have a limited capacity per ride. Signage with directions will be posted throughout buildings. Please follow signage accordingly.

Timeliness: Due to potential delays resulting from temperature screening protocols and the maintenance of social distance in lobbies, stairwells, and elevators, students are advised to allow for adequate time to get to class.

Workspaces: Classroom seating and lab stations will adhere to the 6-foot social distancing guidelines established by the CDC. The maintenance of a clean workspace within a classroom and lab setting is a responsibility we all share. All Personal Protective Equipment (PPE), disinfecting wipes, and any other miscellaneous garbage must be disposed of in the appropriate garbage receptacles. All backpacks, coats, and any other miscellaneous items must be placed under the table/desk, under the student's chair, or in designated space for such items, such as a locker room.

Food and Drink: No eating or drinking or chewing gum will be permitted in any classroom or lab. Culinary students will need to follow proper kitchen protocols regarding preparation and tasting of food. If a student needs to eat or drink, they should leave the building and eat outside. Grab-and-Go options will be available at certain campus cafes, but no seating will be available in the buildings. Upon re-entering the building, individuals' temperatures will be screened again before they are permitted to return to the classroom or lab.

Social Distancing: Occupancy of classrooms, labs, bathrooms, and common areas must follow all posted signage regarding occupancy limits and social distancing within any of those spaces. Please be mindful and respectful of others when leaving the classroom during class time as well as when entering and exiting the building. Between class sessions, instructional spaces (i.e., classrooms and labs) will be cleaned and disinfected and should not be occupied during that time.

Additional Resources: Please visit <http://www.hccc.edu/returntocampus/> for additional information.

CELL PHONE USE POLICY

Cell phones are not allowed during exams.

MANDATORY USE OF HCCC EMAIL ADDRESS

Members of the HCCC community are required to check their official HCCC email address in order to stay current with College and course communications. All college business communication between faculty, students, and staff must be sent via an official HCCC email address. If an employee or student elects to forward or link his/her HCCC email to a separate and private account, that individual remains responsible for all material transmitted to that account. Employees of HCCC shall not be responsible for any material that remains undelivered, due to defects in the private non-HCCC accounts. Failure in the operations of private email accounts shall not be cause for excuse from communications between the student and the employee. Students that encounter difficulty with HCCC email should view the FAQ's section on the Portal.

INCOMPLETE

An INCOMPLETE grade for the course is given under specific conditions when a student, because of serious and unexpected reasons, cannot complete the requirements of the course. For example, if a student did not attend the final because of illness his or her excuse must be verified by a physician. Other absences from other assigned activities must be made up at another appointed time. To arrange for an incomplete grade, the student must see the instructor before final exam, so proper documentations could established and submitted to Division and The office of Academic Affairs.

DISABILITY SUPPORT SERVICES:

Students with disabilities who believe that they might need accommodations in this class are encouraged to contact Disability Support Services at (201) 360-4157, as soon as possible to better ensure that such accommodations are implemented in a timely fashion. All disabilities must be documented by a qualified professional such as a Physician, Licensed Learning Disabilities Teacher Consultant (LDTC), Psychiatrist, Psychologist, Psychiatric Nurse, Licensed

Social Worker or Licensed Professional Counselor, who is qualified to assess the disability that the student claims to have and make recommendations on accommodations for the student. All information provided to the Disability Support Services Program will be confidential between the program, professors involved with the student and individual student.

ACADEMIC INTEGRITY

Academic Integrity Standards

Academic integrity is central to the pursuit of education. For students at HCCC, this means maintaining the highest ethical standards in completing their academic work. In doing so, students *earn* college credits by their honest efforts. When they are awarded a certificate or degree, they have attained a goal representing genuine achievement and can reflect with pride on their accomplishment. This is what gives college education its essential value.

Violations of the principle of academic integrity include:

- Cheating on exams.
- Reporting false research data or experimental results.
- Allowing other students to copy one's work to submit to instructors.
- Communicating the contents of an exam to other students who will be taking the same test.
- Submitting the same project in more than one course, without discussing this first with instructors.
- Submitting *plagiarized* work. *Plagiarism* is the use of another writer's words or ideas without properly crediting that person. This unacknowledged use may be from published books or articles, the Internet, or another student's work.

Violations of Academic Integrity

When students act dishonestly in meeting their course requirements, they lower the value of education for all students. Students who violate the college's policy on academic integrity are subject to failing grades on exams or projects, or for the entire course. In some cases, serious or repeated instances of academic integrity violations may warrant further disciplinary action.

Detailed information on the College's Academic Integrity policy may be found in the *HCCC Student Handbook*. The handbook also contains useful information for students on completing research projects and avoiding plagiarism.

Hudson County Community College has many supportive services available to help meet your goals. Below are resources available to you:

<p>SECURITY: Main Campus: 201-360-4080 North Hudson Campus: 201-360-4777</p>	<p>NATIONAL SUICIDE PREVENTION LIFELINE: 1-800-273-8255 CRISIS TEXT LINE: Text “HELLO” to 741-741</p>	
<p>IN AN EMERGENCY, PLEASE CONTACT SECURITY OR 911.</p>		
Department	Journal Square Campus	North Hudson Campus
<p>Counseling Services counseling@hccc.edu</p>	<p>201-360-4150 A Building, 2nd Floor https://my.hccc.edu/advisement</p>	<p>201-360-4627 1st Floor, Enrollment Center https://my.hccc.edu/advisement</p>
<p>Advising Services advising@live.hccc.edu</p>		
<p>Accessibility Services as@hccc.edu</p>	<p>201-360-4163 A Building, 2nd Floor https://my.hccc.edu/as</p>	<p>201-360-4163 1st Floor, Enrollment Center https://my.hccc.edu/as</p>
<p>Career Services career@hccc.edu</p>	<p>201-360-4184 A Building, 3rd Floor https://my.hccc.edu/career-services</p>	<p>201-360-4138 2nd Floor, Room 204 https://my.hccc.edu/career-services</p>
<p>Food Pantry foodpantry@hccc.edu</p>	<p>201-360-4701 J Building, Lower Level Room 002 my.hccc.edu/hudson-helps</p>	<p>201-360-4709 5th Floor, Room 513A my.hccc.edu/hudson-helps</p>
<p>Financial Aid financial_aid@hccc.edu</p>	<p>201-360-4200 A Building, 2nd Floor https://my.hccc.edu/fa</p>	<p>201-360-4214 1st Floor, Enrollment Center https://my.hccc.edu/fa</p>
<p>Information Technology Services itshelp@hccc.edu</p>	<p>201-360-4310 A Building, Lower Level https://my.hccc.edu/its</p>	<p>201-360-4309 3rd Floor, Room 309 https://my.hccc.edu/its</p>
<p>Library Journal Square librarian@hccc.edu North Hudson librarynhc@hccc.edu</p>	<p>201-360-4360 L Building, 1st Floor http://www.hccclibrary.net/</p>	<p>201-360-4623 3rd Floor http://www.hccclibrary.net/</p>
<p>Tutoring Center tc@hccc.edu</p>	<p>201-360-4187 L Building, Lower Level https://my.hccc.edu/tutoring</p>	<p>201-360-4779 7th Floor, Room 704 https://my.hccc.edu/tutoring/</p>
<p>Writing Center wc@hccc.edu</p>	<p>201-360-4370 J Building, Room 204 https://my.hccc.edu/tutoring</p>	<p>201-360-4779 7th Floor, Room 704 https://my.hccc.edu/tutoring/</p>