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|  FLORIDA ATLANTIC UNIVERSITY | COURSE CHANGE REQUEST Undergraduate Programs | UUPC Approval <u>1/29/24</u> UFS Approval _____ SCNS Submittal _____ Confirmed _____ Banner Posted _____ Catalog _____ |
| | Department Ocean & Mechanical Engineering College COECS | |
| Current Course Prefix and Number EGN 3365 | Current Course Title Engineering Materials I | |
| <i>Syllabus must be attached for ANY changes to current course details. See Checklist. Please consult and list departments that may be affected by the changes; attach documentation.</i> | | |
| Change title to: Change prefix From: _____ To: _____ Change course number From: _____ To: _____ Change credits* From: _____ To: _____ Change grading From: _____ To: _____ Change WAC/Gordon Rule status** Add <input type="checkbox"/> Remove <input type="checkbox"/> Change General Education Requirements*** Add <input type="checkbox"/> Remove <input type="checkbox"/> <small>*Review Provost Memorandum</small> <small>**WAC/Gordon Rule criteria must be indicated in syllabus and approval attached to this form. See WAC Guidelines.</small> <small>***General Education criteria must be indicated in syllabus and approval attached to this form. See GE Guidelines.</small> | Change description to: Change prerequisites/minimum grades to: EGN 3331, with a grade of C or above Change corequisites to: EGN 3331, with a grade of C or above Change registration controls to: Please list existing and new pre/corequisites, specify AND or OR and include minimum passing grade (default is D-). | |
| Effective Term/Year for Changes: Fall, 2024 | Terminate course? Effective Term/Year for Termination: | |
| Faculty Contact/Email/Phone | | |
| Approved by Department Chair <u>Pierre Philippe Beaujean</u> College Curriculum Chair <u>Hongbo Su</u> College Dean <u>[Signature]</u> UUPC Chair <u>Korey Sorge</u> Undergraduate Studies Dean <u>Dan Meeroff</u> UFS President _____ Provost _____ | Date _____ 1/5/2024 _____ 1/16/2024 _____ 1-16-24 _____ 1/29/24 _____ 1/29/24 _____ _____ | |

Email this form and syllabus to mjenning@fau.edu seven business days before the UUPC meeting.

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Florida Atlantic University
Course Syllabus**

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| 1. Course title/number, number of credit hours | |
| EGN 3365 – Engineering Materials 1 | # of credit hours 3 |
| 2. Course prerequisites, corequisites, and where the course fits in the program of study | |
| Prerequisite or Corequisites: Strength of Materials – EGN 3331, with a grade of C or above | |
| 3. Course logistics | |
| <p><i>Term:</i> Fall 2024 This is a classroom lecture course Class –Tu and Th: 9:30AM - 10:50AM LEC CM130</p> <p>This course has limited design content.</p> | |
| 4. Instructor contact information | |
| <i>Instructor's name</i> <i>Office address</i> <i>Office Hours</i> <i>Contact telephone number</i> <i>Email address</i> | Dr. Francisco Presuel-Moreno Engineering West (EG-36), Room 104 Tu and Th 11:05 am -12:05 pm (954)924-7236 fpresuel@fau.edu |
| 5. TA contact information | |
| <i>TA's name</i> <i>Office address</i> <i>Office Hours</i> <i>Contact telephone number</i> <i>Email address</i> | TBD |
| 6. Course description | |
| Course Description: Structure of material systems from the atomic, micro and macroscopic standpoints. Equilibrium and non equilibrium structures. Relationship between structure and electrical, thermal, mechanical and failure properties of metals, ceramics and polymeric materials. Strengthening mechanisms in materials. | |
| 7. Course objectives/student learning outcomes/program outcomes | |
| <i>Course objectives</i> | This course is designed to introduce the students to basic materials science with an emphasis on properties and how they are influenced by thermal and mechanical treatments. The students will be able to relate the microstructure of a material to its properties, and understand the effects of the environment on materials and the possible failure modes of structures. The students will be provided with demonstrations of various processes in the laboratory. |
| General Course Outcomes | A general understanding of the following topics: 1. Principles of materials engineering and structure/property relationships. 2. Classes and properties of engineering materials. 3. Materials selection for general engineering applications. |

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| | 4. Implications of good and poor materials design or selection. | | | | | | | | | | | | | | | | |
| <i>Student learning outcomes & relationship to ABET (a-k or 1-7 objectives)</i> | <p>Course Outcomes: (Numbers in parentheses indicate correlation of the outcome with the appropriate program outcomes 1-7)</p> <p>1. The students will understand how the internal structure of a material (both at the micro and macro levels) controls the mechanical properties. (1,2,6)</p> <p>2. The students will understand how dislocation motion is responsible for permanent deformation in metals and how the ability to undergo slip influences the mechanical properties of the material. (1,2,6)</p> <p>3. The students will realize their ability to control the mechanical properties of materials through a variety of processes and the implications on materials selection and design. (1,2,6)</p> <p>4. The students will improve their writing skills through technical essay assignments summarizing laboratory procedures and demonstrations. (3)</p> | | | | | | | | | | | | | | | | |
| 8. Course evaluation method | | | | | | | | | | | | | | | | | |
| <p>1. Homework problems (3%),</p> <p>2. Participation and Attendance (2%)</p> <p>3. Quizzes (20%).</p> <p>4. Two mid-term exams during the term (25%+25%), plus an exam at the end of the term (25%).</p> | <p>Note: The minimum grade required to pass the course is C.</p> | | | | | | | | | | | | | | | | |
| 9. Course grading scale | | | | | | | | | | | | | | | | | |
| <p>Grading Scale:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 33%;">A [92.5-100</td> <td style="width: 33%;">C+ [77 -80)</td> <td style="width: 33%;">D- [60-63)</td> </tr> <tr> <td>A- [90-92.5)</td> <td>C [73 – 77)</td> <td>F <60</td> </tr> <tr> <td>B+ [87 - 90)</td> <td>C- [70 -73)</td> <td></td> </tr> <tr> <td>B [83 - 87)</td> <td>D+ [67 – 70)</td> <td></td> </tr> <tr> <td>B- [80-83)</td> <td>D [63 -67)</td> <td></td> </tr> </table> <p>[refers to \geq,) refers to <.</p> | | | A [92.5-100 | C+ [77 -80) | D- [60-63) | A- [90-92.5) | C [73 – 77) | F <60 | B+ [87 - 90) | C- [70 -73) | | B [83 - 87) | D+ [67 – 70) | | B- [80-83) | D [63 -67) | |
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| B- [80-83) | D [63 -67) | | | | | | | | | | | | | | | | |
| 10. Policy on makeup tests, late work, and incompletes | | | | | | | | | | | | | | | | | |
| <p>Make-up work for missed homework, quizzes, and exams may be negotiated prior to the due date of the assignment. In the case of a quiz or exam the due date is the scheduled start time of the exam or the class in which the quiz is to be taken.</p> | | | | | | | | | | | | | | | | | |
| 11. Special course requirements | | | | | | | | | | | | | | | | | |
| 12. Classroom etiquette policy | | | | | | | | | | | | | | | | | |
| <p>University policy requires that in order to enhance and maintain a productive atmosphere for education, personal communication devices, such as cellular phones and laptops, are to be disabled in class sessions.</p> | | | | | | | | | | | | | | | | | |
| 13. Disability policy statement | | | | | | | | | | | | | | | | | |
| <p>In compliance with the Americans with Disabilities Act Amendments Act (ADAAA), students who require reasonable accommodations due to a disability to properly execute coursework must register with Student Accessibility Services (SAS)—in Boca Raton, SU 133 (561-297-3880); in Davie, LA 203 (954-236-1222); or in Jupiter, SR 110 (561-799-8585)—and follow all SAS procedures.</p> | | | | | | | | | | | | | | | | | |
| 14. Honor code policy | | | | | | | | | | | | | | | | | |
| <p>Students at Florida Atlantic University are expected to maintain the highest ethical standards. Academic dishonesty is considered a serious breach of these ethical standards, because it interferes with the</p> | | | | | | | | | | | | | | | | | |

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university mission to provide a high quality education in which no student enjoys unfair advantage over any other. Academic dishonesty is also destructive of the university community, which is grounded in a system of mutual trust and place high value on personal integrity and individual responsibility. Harsh penalties are associated with academic dishonesty. See University Regulation 4.001 at www.fau.edu/regulations/chapter4/4.001_Code_of_Academic_Integrity.pdf

15. Counseling and Psychological Services Center

Life as a university student can be challenging physically, mentally and emotionally. Students who find stress negatively affecting their ability to achieve academic or personal goals may wish to consider utilizing FAU's Counseling and Psychological Services (CAPS) Center. CAPS provides FAU students a range of services – individual counseling, support meetings, and psychiatric services, to name a few – offered to help improve and maintain emotional well-being. For more information, go to: <http://www.fau.edu/counseling/>

16. Attendance Policy Statement

Students are expected to attend all of their scheduled University classes and satisfy all academic objectives as outlined by the instructor. The effect of absences on grades is determined by the instructor, and the University reserves the right to deal at any time with individual cases of non-attendance.

Students are responsible for arranging to make up work missed because of legitimate class absences, such as illness, family emergencies, military obligations, court-imposed legal obligations, or participation in University-approved activities. Examples of University-approved reasons for absences include participating on an athletic or scholastic team, musical and theatrical performances, and debate activities. It is the student's responsibility to give the instructor notice before any anticipated absences and within a reasonable amount of time after an unanticipated absence, ordinarily by the next scheduled class meeting. Instructors must allow each student who is absent for a University-approved reason the opportunity to make up work missed without any reduction in the student's final course grade as a direct result of such absence.

17. Required texts/reading

Textbook:
Smith, W. F. and Hashemi, J., Foundations of Materials Science and Engineering, 6th Edition, McGraw-Hill, 2018

18. Course topical outline, including dates for exams/quizzes, papers, completion of reading

Course Topics:

1. Atomic structure
2. Structural imperfections
3. Atomic movement
4. Mechanical testing
5. Solidification
6. Solid solutions
7. Mechanical working and heat treatment
8. Dispersion strengthening
9. Phase transformations
10. Metals and alloys
11. Corrosion
12. Ceramics
13. Polymers

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14. Failure Analysis

Tentative Test Dates:

1. Exam 1: Thursday September 27
2. Exam 2: Thursday October 25
3. Final: Thursday December 6 7:45am -10:15am (Comprehensive)