

# CURRICULUM CHANGE PROPOSAL

## APPROVAL PAGE

Proposal Title: BS MME Senior Project Courses Catalog Changes

College: College of Engineering

Department: MMBME

### DEPARTMENT CHAIR

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I have read the enclosed proposal and approve this proposal on behalf of the department.

**Stella A Quinones**

Digitally signed by Stella A Quinones  
DN: cn=Stella A Quinones, o=UTEP, ou=MMBME,  
email=stellaq@utep.edu, c=US  
Date: 2020.11.24 15:22:12 -07'00'

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

### COLLEGE CURRICULUM COMMITTEE CHAIR

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I have read the enclosed documents and approve the proposal on behalf of the college curriculum committee.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

### COLLEGE DEAN

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I have read the enclosed documents and approve the proposal on behalf of the college. I certify that the necessary funds will be allocated by the college in support of this proposal.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

**From:** [Granda, Virginia D](#)  
**To:** [Rivera, Julie A](#)  
**Cc:** [Everett, Louis](#); [Love, Norman D](#)  
**Subject:** FW: UG Proposals Approved by COECC  
**Date:** Monday, January 11, 2021 5:31:27 PM  
**Attachments:** [image027.png](#)  
[image001.png](#)  
[image002.png](#)  
[image003.png](#)  
[image004.png](#)  
[image005.png](#)  
[image006.png](#)  
[image028.png](#)  
[image029.png](#)  
[image030.png](#)  
[image031.png](#)  
[ECE--Proposal-Minor-Comp-Eng.pdf](#)  
[ENGR-Curriculum-Change-Proposal--Fall-2021-Catalog.pdf](#)  
[ME--Electro-Mechanical-Concentration-in-MECH.PDF](#)  
[MME\\_Senior\\_Project\\_Proposalv3.pdf](#)  
[MME--BME\\_3303\\_Proposal.pdf](#)  
[image009.png](#)

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Dear Julie,

Please find the UG Proposals that have been approved by our college.

Let us know when they will be discussed by the UGCC.

FYI, Dr. Love will be presenting the ENGR Proposal (the second one on the list).

Best Regards,

Virginia



**Virginia Granda-Becker**  
Coordinator for Academic Affairs and Undergraduate Studies  
  
College of Engineering  
The University of Texas at El Paso  
500 W. University Ave  
El Paso, TX 79968  
Office: (915) 747-8011  
[www.utep.edu/engineering/eec](http://www.utep.edu/engineering/eec)

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**From:** [Nava, Patricia A.](#)  
**Sent:** Monday, January 11, 2021 5:16 PM  
**To:** Love, Norman D <ndlove@utep.edu>  
**Cc:** Granda, Virginia D <granda@utep.edu>  
**Subject:** RE: UG Proposals Approved by COECC

All of these are approved.

PN



**Patricia A. Nava, Ph.D.**

Interim Dean  
Professor of Electrical and Computer Engineering  
El Paso Electric Professor in Education  
UTEP Distinguished Teaching Professor

College of Engineering  
The University of Texas at El Paso  
500 West University Avenue  
El Paso, TX 79968-0521  
Office: 915-747-6917  
Fax: 915-747-5437  
[utep.edu/engineering](http://utep.edu/engineering)



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**From:** Love, Norman D  
**Sent:** Monday, January 11, 2021 5:05 PM  
**To:** Nava, Patricia A. <[pnav@utep.edu](mailto:pnav@utep.edu)>  
**Cc:** Granda, Virginia D <[granda@utep.edu](mailto:granda@utep.edu)>  
**Subject:** FW: UG Proposals Approved by COECC

Dear Dr. Nava,

I approve of the attached proposals.

I have attached the corrected versions of the proposals to this email for your review.

Norman



**Norman Love, Ph.D.**

Associate Dean for Academic Affairs and Undergraduate Studies  
Professor of Mechanical Engineering  
Provost's Faculty Fellow, University Honors Program

College of Engineering  
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[utep.edu/engineering/eec/index.html](http://utep.edu/engineering/eec/index.html)



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**From:** "Granda, Virginia D" <[granda@utep.edu](mailto:granda@utep.edu)>  
**Date:** Monday, January 11, 2021 at 11:14 AM  
**To:** Norman Love <[ndlove@utep.edu](mailto:ndlove@utep.edu)>  
**Subject:** FW: UG Proposals Approved by COECC

Good morning Dr. Love,

Please find attached the UG proposals that were approved by our COECC and its chair.

Can you please reply letting me know if you approve them?

If you would like, can you please forward them to the Dean for her approval?

Best Regards,

Virginia



**Virginia Granda-Becker**  
Coordinator for Academic Affairs and Undergraduate Studies  
College of Engineering  
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500 W. University Ave  
El Paso, TX 79968  
Office: (915) 747-8011  
[www.utep.edu/engineering/eec](http://www.utep.edu/engineering/eec)

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**From:** Everett, Louis  
**Sent:** Monday, January 11, 2021 10:58 AM  
**To:** Granda, Virginia D <[granda@utep.edu](mailto:granda@utep.edu)>  
**Subject:** FW: UG Proposals Approved by COECC

Yes these are approved by the committee. I also approve them

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**From:** Granda, Virginia D <[granda@utep.edu](mailto:granda@utep.edu)>  
**Sent:** Monday, January 11, 2021 10:04 AM  
**To:** Everett, Louis <[leverett@utep.edu](mailto:leverett@utep.edu)>  
**Subject:** UG Proposals Approved by COECC

Good morning Dr. Everett,

Attached are the UG proposals that were approved by our COECC in December.

Please reply if you approve these proposals as the COECC chair.

Best Regards,

Virginia



**Virginia Granda-Becker**

Coordinator for Academic Affairs and Undergraduate Studies

College of Engineering  
The University of Texas at El Paso  
500 W. University Ave  
El Paso, TX 79968  
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[www.utep.edu/engineering/eec](http://www.utep.edu/engineering/eec)

## UNDERGRADUATE CURRICULUM CHANGE MEMO

**Date:** November 5, 2020

**From:** Stella A. Quinones, Chair, MMBME Department

**Through:** Louis Everett, Chair of Curriculum Committee,  
College of Engineering

**Through:** Norman Love, Associate Dean for Academic Affairs and  
Undergraduate Studies, College of Engineering

**Through:** Patricia Nava, Interim Dean, College of Engineering

**To:** Art Duval, Chair of University Curriculum Committee

Stella A  
Quinones

Digitally signed by Stella A  
Quinones  
DN: cn=Stella A Quinones,  
o=UTEP, ou=MMBME,  
email=stellaq@utep.edu, c=US  
Date: 2020.11.24 15:22:45 -07'00'

**Proposal Title:** BS MME Senior Project Courses Catalog Changes

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On November 5, 2020, the MMBME Department Faculty voted in favor of splitting the current senior projects course MME 4419 into a 2 semester course series with course numbers MME4219 and MME 4220. Therefore, the MME 4419 course will be deleted from the BS MME curriculum and MME 4219 and MME 4220 will be added to replace MME4419. The MME4219 and MME 4220 courses will each include a 1 hour lecture and a 3 hour lab per week. This will allow students to interact more with their team and industry mentors, will be in line with other engineering senior project courses in the college, and will allow for interdisciplinary collaborations between groups in other engineering departments.

**Included in this curricular proposal are the following documents:**

- Course Deletion Form – to remove MME 4419
  - MME 4419 Metallurgical and Materials Engineering Design
- Course Addition Form – to add MME 4219 and MME 4220
  - MME 4219 Senior Design Project 1
  - MME 4220 Senior Design Project 2
- Syllabi for Courses Added
  - MME 4219 Senior Design Project 1
  - MME 4220 Senior Design Project 2



## COURSE ADD

All fields below are required

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College : College of Engineering

Department : MMBME

Rationale for adding the course:

The senior projects course MME 4419 will be split into a 2 semester course series, MME4219 and MME 4220. Therefore, the MME 4419 course will be deleted from the BS MME curriculum and MME 4219 and MME 4220 will be added to replace MME4419. The MME4219 and MME 4220 courses will each include a 1 hour lecture and a 3 hour lab per week. This will allow students to interact more with their team and industry mentors, will be in line with other engineering senior project courses in the college, and will allow for interdisciplinary collaborations between groups in other engineering departments.

All fields below are required

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Subject Prefix and # MME 4219

Title (29 characters or fewer): Senior Design Project 1

Dept. Administrative Code : 1984

[CIP Code](#) 14.2001.00.06

Departmental Approval Required Yes No

Course Level UG GR DR SP

Course will be taught: Face-to-Face Online Hybrid

How many times may the course be taken for credit? (Please indicate 1-9 times): 1

Should the course be exempt from the "Three Repeat Rule?" Yes No

Grading Mode: Standard Pass/Fail Audit

Description (600 characters maximum):

Students will develop a group design project for a client and present a critical design review before the end of the semester. The project will integrate the understanding of the scientific and engineering principles underlying the four major elements of the field: structure, properties, processing, and performance related to material systems appropriate to the field. Students will apply experimental, computational and statistical methods to solve materials problems including selection and design with realistic constraints.

Contact Hours (per week): 1 Lecture Hours 3 Lab Hours Other

Types of Instruction (Schedule Type): Select all that apply

- |  |  |
|--|--|
| <input checked="" type="checkbox"/> A Lecture    | <input type="checkbox"/> H Thesis                              |
| <input checked="" type="checkbox"/> B Laboratory | <input type="checkbox"/> I Dissertation                        |
| <input type="checkbox"/> C Practicum             | <input type="checkbox"/> K Lecture/Lab Combined                |
| <input type="checkbox"/> D Seminar               | <input type="checkbox"/> O Discussion or Review (Study Skills) |



- E Independent Study
- F Private Lesson

- P Specialized Instruction
- Q Student Teaching

**Fields below if applicable**

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If course is taught during a part of term in addition to a full 16-week term please indicate the length of the course (ex., 8 weeks):

TCCN (Use for lower division courses) :

Prerequisite(s):		
Course Number/ Placement Test	Minimum Grade Required/ Test Scores	Concurrent Enrollment Permitted? (Y/N)
MME 3413	C	N
MME 3407	C	N

Corequisite Course(s):

Equivalent Course(s):

Restrictions:	
Classification	Senior
Major	MME

## COURSE ADD

All fields below are required

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College : College of Engineering

Department : MMBME

Rationale for adding the course:

The senior projects course MME 4419 will be split into a 2 semester course series, MME4219 and MME 4220. Therefore, the MME 4419 course will be deleted from the BS MME curriculum and MME 4219 and MME 4220 will be added to replace MME4419. The MME4219 and MME 4220 courses will each include a 1 hour lecture and a 3 hour lab per week. This will allow students to interact more with their team and industry mentors, will be in line with other engineering senior project courses in the college, and will allow for interdisciplinary collaborations between groups in other engineering departments.

All fields below are required

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Subject Prefix and # MME 4220

Title (29 characters or fewer): Senior Design Project 2

Dept. Administrative Code : 1984

[CIP Code](#) 14.2001.00.06

Departmental Approval Required Yes No

Course Level UG GR DR SP

Course will be taught:  Face-to-Face  Online  Hybrid

How many times may the course be taken for credit? (Please indicate 1-9 times): 1

Should the course be exempt from the "Three Repeat Rule?" Yes No

Grading Mode: Standard Pass/Fail Audit

Description (600 characters maximum):

The project will integrate the understanding of the scientific and engineering principles underlying the four major elements of the field: structure, properties, processing, and performance related to material systems appropriate to the field. Students will apply experimental, computational and statistical methods to solve materials problems including selection and design with realistic constraints. Teams provide status reports to the course instructor or client on a bi-weekly basis. This course will culminate in a formal presentation to peer groups, faculty members and industry stakeholders.

Contact Hours (per week): 1 Lecture Hours 3 Lab Hours Other

Types of Instruction (Schedule Type): Select all that apply

- |                                       |            |                            |                      |
|---------------------------------------|------------|----------------------------|----------------------|
| <input checked="" type="checkbox"/> A | Lecture    | <input type="checkbox"/> H | Thesis               |
| <input checked="" type="checkbox"/> B | Laboratory | <input type="checkbox"/> I | Dissertation         |
| <input type="checkbox"/> C            | Practicum  | <input type="checkbox"/> K | Lecture/Lab Combined |

- D Seminar
- E Independent Study
- F Private Lesson

- O Discussion or Review (Study Skills)
- P Specialized Instruction
- Q Student Teaching

**Fields below if applicable**

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If course is taught during a part of term in addition to a full 16-week term please indicate the length of the course (ex., 8 weeks):

TCCN (Use for lower division courses) :

Prerequisite(s):		
Course Number/ Placement Test	Minimum Grade Required/ Test Scores	Concurrent Enrollment Permitted? (Y/N)
MME 4219	C	N
MME 4316	C	Y

Corequisite Course(s):

Equivalent Course(s):

Restrictions:	
Classification	Senior
Major	MME

**The University of Texas at El Paso**  
**College of Engineering**  
**Department of Metallurgical, Materials and Biomedical Engineering**  
**Syllabus**

**Course Prefix and Number:** MME 4219

**Course Title:** Senior Design Project 1

**Credit Hours:** 2 Credit Hours

4 Total Contact Hours

3 Lab Hours

1 Lecture Hours

**Prerequisite Courses:** (MME 3413 w/C or better) AND (MME 3407 w/C or better)

**CATALOG DESCRIPTION:** Students will develop a group design project for a client and present a critical design review before the end of the semester. The project will integrate the understanding of the scientific and engineering principles underlying the four major elements of the field: structure, properties, processing, and performance related to material systems appropriate to the field. Students will apply experimental, computational and statistical methods to solve materials problems including selection and design with realistic constraints.

**COURSE DESCRIPTION:** Metallurgical and Materials Engineering Design and Practice (Parts 1 and 2) integrates concepts from all areas of materials science and metallurgical engineering into a practical senior-level capstone course with a focus on design practice. Students are expected to participate in group project assignments to apply knowledge acquired during their engineering education toward the generation of real-world design solutions. The fundamentals of requirements specification, experimental design, materials selection, materials processing and project execution will serve as the common structure in the development of the design project to be presented for critical peer review at the end of Part 2 of this course series. Successful completion of both design courses will require the students to demonstrate effective communication skills, both oral and written.

Part 1 of this course series will involve lectures on modern materials design practice and the application of analytical tools as part of the design process, specifically failure modes and effects analysis (FMEA) and hazards analysis (HA). Case studies on relevant design successes and failures will be presented throughout the semester. During Part 1 of this course, students will be expected to develop a group design project concept and present a critical design review (CDR) before the end of the semester.

**TOPICS TO BE COVERED**

- Metallurgical and materials engineering design and problem solving
- Requirements definition
- Design of experiments

- Materials selection process
- Project management review – cost and scheduling of technical projects
- Engineering project proposal development and review methodologies
- Engineering ethics and the role of Professional Engineers
- Technical Report Writing and Presentation

## **COURSE ASSIGNMENTS AND GRADING**

Part 1 of this course series involves periodic assignments, some of which are applicable to all students in the course, and others which are tailored toward the individual design groups. There will be no exams as part of this course series, and there are only 2 primary deliverables: assignments and the group Critical Design Review document & presentation during finals week at the end of the semester.

40% CDR document (due Finals Week)  
 40% CDR presentation (due Finals Week)  
 20% Homework Assignments

### **Grade Distribution:**

100-90 = A    89-80 = B    79-70 = C    69-60 = D    59 and Below = F

## **DEADLINES FOR HOMEWORK AND EXAMS**

All homework assignments must be uploaded to Blackboard by 11:59 PM (mountain) on the due date listed. Late submissions will not be accepted and will be given a grade of zero.

Students are strongly encouraged to NOT wait until the last minute to submit assignments and exams to avoid delays due to technical issues, and to allow sufficient time to contact the Help Desk to resolve any issues encountered. Email submissions of assignments or exam solutions will only be accepted in the case of truly exceptional circumstances, and with prior notification.

## **TECHNOLOGY REQUIREMENTS**

Course content is delivered via the Internet through the Blackboard learning management system. Students should ensure their UTEP e-mail account is working and that they have access to the Web and a stable web browser. Google Chrome and Mozilla Firefox are the best browsers for Blackboard; other browsers may cause complications. When having technical difficulties, update your browser, clear your cache, or try switching to another browser.

For office hour discussions on MS Teams, students will need to have access to a computer/laptop with a webcam and a microphone. Students will need to download and/or update the following software: Microsoft Office 365, available free to registered UTEP students. Ensure computer hardware and software are up-to-date and able to access all parts of the course. Click the following link for more information about [Microsoft Office 365](#).

**Important:** If technical difficulties are encountered beyond the normal scope of troubleshooting, please contact the UTEP [Help Desk](#), as they are trained specifically in assisting with technological needs of students. Please do not contact the instructor for this type of technical assistance.

## **COURSE COMMUNICATION**

- **Email:** UTEP email is the best way to contact me. I will make every attempt to respond to your e-mail within 24 hours of receipt. When emailing me, be sure to email from your UTEP student account and please include the course title in the subject line. In the body of your email, clearly state your question. At the end of your email, be sure to include your first and last name along with your university identification number.
- **Discussion Boards:** If you have a question that you believe other students may also have, please post it in the Help Board of the discussion boards inside of Blackboard. Please respond to other students' questions if you have a helpful response.
- **Announcements:** Check the Blackboard announcements frequently for any updates, deadlines, or other important messages.

## **NETIQUETTE**

As we have all learned by experience, communication online can sometimes be challenging. It's possible to miscommunicate what we mean or to misunderstand what our classmates mean given the lack of body language and immediate feedback. Therefore, please keep these netiquette (network etiquette) guidelines in mind. Failure to observe them may result in disciplinary action.

- Always consider audience. This is a college-level course; therefore, all communication should reflect polite consideration of other's ideas.
- Respect and courtesy must be provided to classmates and to the instructor at all times. No harassment or inappropriate postings will be tolerated.
- When reacting to someone else's message, address the ideas, not the person. Post only what anyone would comfortably state in a face-to-face situation.
- Blackboard is not a public internet venue; all postings to it should be considered private and confidential. Whatever is posted on in these online spaces is intended for classmates and professor only. Please do not copy documents and paste them to a publicly accessible website, blog, or other space.

## **ATTENDANCE AND PARTICIPATION**

Attendance in the course is determined by participation in the learning activities of the course. Your participation in the course is important not only for your learning and success but also to create a community of learners. Participation is determined by completion of the following activities:

- Reading/viewing all course materials to ensure understanding of assignment requirements
- Clear evidence of participation in project group assignments and collaboration
- Participating in the presentation of the CDR during Finals Week.



## **COURSE DROP POLICY**

According to UTEP Curriculum and Classroom Policies, “When, in the judgment of the instructor, a student has been absent to such a degree as to impair his or her status relative to credit for the course, the instructor may drop the student from the class with a grade of “W” before the course drop deadline and with a grade of “F” after the course drop deadline.” See academic regulations in the UTEP Undergraduate Catalog for a list of excused absences. Therefore, if I find that, due to non-performance in the course, you are at risk of failing, I will drop you from the course. I will provide 24 hours advance notice via email.

Alternatively, if you feel that you are unable to complete the course successfully, please let me know and then contact the [Registrar’s Office](#) to initiate the drop process. If you do not, you are at risk of receiving an “F” for the course.

## **ACCOMMODATIONS POLICY**

The University is committed to providing reasonable accommodations and auxiliary services to students, staff, faculty, job applicants, applicants for admissions, and other beneficiaries of University programs, services and activities with documented disabilities in order to provide them with equal opportunities to participate in programs, services, and activities in compliance with sections 503 and 504 of the Rehabilitation Act of 1973, as amended, and the Americans with Disabilities Act (ADA) of 1990 and the Americans with Disabilities Act Amendments Act (ADAAA) of 2008. Reasonable accommodations will be made unless it is determined that doing so would cause undue hardship on the University. Students requesting an accommodation based on a disability must register with the [UTEP Center for Accommodations and Support Services](#) (CASS). Contact the Center for Accommodations and Support Services at 915-747-5148, or email them at [cass@utep.edu](mailto:cass@utep.edu), or apply for accommodations online via the [CASS portal](#).

## **SCHOLASTIC INTEGRITY**

Academic dishonesty is prohibited and is considered a violation of the UTEP Handbook of Operating Procedures. It includes, but is not limited to, cheating, plagiarism, and collusion. Cheating may involve copying from or providing information to another student, possessing unauthorized materials during a test, or falsifying research data on laboratory reports. Plagiarism occurs when someone intentionally or knowingly represents the words or ideas of another as ones' own. Collusion involves collaborating with another person to commit any academically dishonest act. Any act of academic dishonesty attempted by a UTEP student is unacceptable and will not be tolerated. All suspected violations of academic integrity at The University of Texas at El Paso must be reported to the [Office of Student Conduct and Conflict Resolution \(OSCCR\)](#) for possible disciplinary action. To learn more, please visit [HOOP: Student Conduct and Discipline](#).

## **CLASS RECORDINGS**

The use of recordings will enable you to have access to class lectures. Our use of such technology is governed by the Federal Educational Rights and Privacy Act (FERPA) and UTEP’s acceptable-use policy. A recording of class sessions will be kept and stored by UTEP, in accordance with FERPA and UTEP policies. Your instructor will not share the

recordings of your class activities outside of course participants, which include your fellow students, teaching assistants, or graduate assistants, and any guest faculty or community-based learning partners with whom we may engage during a class session. You may not share recordings outside of this course. Doing so may result in disciplinary action.

## **PLAGIARISM DETECTING SOFTWARE**

Some of your course work and assessments may be submitted to SafeAssign, a plagiarism detecting software. SafeAssign is used to review assignment submissions for originality and will help you learn how to properly attribute sources rather than paraphrase.

## **COPYRIGHT STATEMENT FOR COURSE MATERIALS**

All materials used in this course are protected by copyright law. The course materials are only for the use of students currently enrolled in this course and only for the purpose of this course. They may not be further disseminated.

## **STUDENT RESOURCES**

### **Technology Resources:**

[Help Desk](#): Students experiencing technological challenges (email, Blackboard, software, etc.) can submit a ticket to the UTEP Helpdesk for assistance. Contact the Helpdesk via phone, email, chat, website, or in person if on campus.

### **Academic Resources:**

[UTEP Library](#): Access a wide range of resources including online, full-text access to thousands of journals and eBooks plus reference service and librarian assistance for enrolled students.

[University Writing Center \(UWC\)](#): Submit papers here for assistance with writing style and formatting, ask a tutor for help and explore other writing resources.

[Math Tutoring Center \(MaRCS\)](#): Ask a tutor for help and explore other available math resources.

[History Tutoring Center \(HTC\)](#): Receive assistance with writing history papers, get help from a tutor and explore other history resources.

[RefWorks](#): A bibliographic citation tool; check out the RefWorks tutorial and Fact Sheet and Quick-Start Guide.

### **Individual Resources:**

[Military Student Success Center](#): Assists personnel in any branch of service to reach their educational goals.

[Center for Accommodations and Support Services](#): Assists students with ADA-related accommodations for coursework, housing, and internships.

[Counseling and Psychological Services](#): Provides a variety of counseling services including individual, couples, and group sessions as well as career and disability assessments.

## WEEKLY CALENDAR (Subject to Change)

	Topic	Lecture	Assignments Due	Notes
Week 1	Course introduction, syllabus, and technology verification	N/A	Make sure you can connect to all course resources in Blackboard	Contact IT Help Desk for assistance as needed
Week 2	Introduction to the engineering design process	1	Individual assignment	
Week 3	Recognition of need and the definition of requirements	2	Individual assignment	
Week 4	Materials selection in the design process	3	Individual assignment	
Week 5	Introduction to the design of experiments, HA and FMEA processes	4	Individual assignment	Preliminary Project Teams identified
Week 6	Project management overview	5	N/A	Final Project Team membership confirmed
Week 7	Engineering project proposal development and review methods	6	Group Assignment	Project Teams identify 3 candidate project ideas
Week 8	Engineering ethics and the role of P.E.	7	Group Assignment	Project Teams downselect to final project topic
Week 9	Project Teams present topics for initial review and approval	N/A	Group Assignment	Presentations will be held via MS Teams

Week 10	Technical report writing and presentation (con't)	N/A	Group Assignment	Presentations will be held via MS Teams
Week 11	Technical report writing and presentation	8	N/A	
Week 12	Project Teams develop CDR package	N/A	Group Assignment	
Week 13	Project Teams develop CDR package	N/A	Group Assignment	
Week 14	Project Teams develop CDR package	N/A	Group Assignment	
Week 15	Project Teams develop CDR package	N/A	Group Assignment	
Finals Week	CDR Presentations	N/A	N/A	Presentations to be held via MS Teams

**The University of Texas at El Paso**  
**College of Engineering**  
**Department of Metallurgical, Materials and Biomedical Engineering**  
**Syllabus**

**Course Prefix and Number:** MME 4220

**Course Title:** Senior Design Project 2

**Credit Hours:** 2 Credit Hours

4 Total Contact Hours

3 Lab Hours

1 Lecture Hours

**Prerequisite Courses:** (MME 4219 w/C or better) AND (MME 4316 w/C or better can be taken concurrently)

**CATALOG DESCRIPTION:** The project will integrate the understanding of the scientific and engineering principles underlying the four major elements of the field: structure, properties, processing, and performance related to material systems appropriate to the field. Students will apply experimental, computational and statistical methods to solve materials problems including selection and design with realistic constraints. Teams provide status reports to the course instructor or client on a bi-weekly basis. This course will culminate in a formal presentation to peer groups, faculty members and industry stakeholders.

**COURSE DESCRIPTION:** Metallurgical and Materials Engineering Design and Practice (Parts 1 and 2) integrates concepts from all areas of materials science and metallurgical engineering into a practical senior-level capstone course with a focus on design practice. Students are expected to participate in group project assignments to apply knowledge acquired during their engineering education toward the generation of real-world design solutions. The fundamentals of requirements specification, experimental design, materials selection, materials processing and project execution will serve as the common structure in the development of the design project to be presented for critical peer review at the end of Part 2 of this course series. Successful completion of both design courses will require the students to demonstrate effective communication skills, both oral and written.

Part 2 of this course series will involve the project team's execution of the goals as documented and agreed upon in the Critical Design Review (CDR) prepared in Part 1. The project teams will be expected to demonstrate a high degree of autonomy in meeting the project goals throughout the semester, however each team will be responsible for providing a detailed status report and presentation to the course instructor (and industry mentor as applicable) on bi-weekly intervals. Part 2 will culminate in a formal presentation of the project execution to peer groups, faculty members and industry stakeholders.

## TOPICS TO BE COVERED

- Metallurgical and materials engineering design and problem solving
- Requirements definition
- Design of experiments
- Materials selection process
- Project management review – cost and scheduling of technical projects
- Engineering project proposal development and review methodologies
- Engineering ethics and the role of Professional Engineers
- Technical Report Writing and Presentation

## COURSE ASSIGNMENTS AND GRADING

Part 2 of this course series involves independent group work, with bi-weekly status reports and presentations. The outcome of the status presentations may involve additional assignments depending on the progress of the group toward milestones as listed in the CDR. There will be no exams as part of this course series. The only deliverables in Part 2 are the bi-weekly status reports and the final project presentation/poster to be delivered during the last 2 weeks of the semester.

Note: The project teams are responsible for the logistics of scheduling the status report presentations. The teams will be graded on the professionalism of the presentation and status report content, as well as addressing any technical questions that arise.

50% Bi-weekly status reports and presentations

25% Final project presentation

25% Final project poster

### Grade Distribution:

100-90 = A    89-80 = B    79-70 = C    69-60 = D    59 and Below = F

## TECHNOLOGY REQUIREMENTS

Course content is delivered via the Internet through the Blackboard learning management system. Students should ensure their UTEP e-mail account is working and that they have access to the Web and a stable web browser. Google Chrome and Mozilla Firefox are the best browsers for Blackboard; other browsers may cause complications. When having technical difficulties, update your browser, clear your cache, or try switching to another browser.

For office hour discussions on MS Teams, students will need to have access to a computer/laptop with a webcam and a microphone. Students will need to download and/or update the following software: Microsoft Office 365, available free to registered UTEP students. Ensure computer hardware and software are up-to-date and able to access all parts of the course. Click the following link for more information about [Microsoft Office 365](#).

**Important:** If technical difficulties are encountered beyond the normal scope of troubleshooting, please contact the UTEP [Help Desk](#), as they are trained specifically in

assisting with technological needs of students. Please do not contact the instructor for this type of technical assistance.

## **COURSE COMMUNICATION**

- **Email:** UTEP email is the best way to contact me. I will make every attempt to respond to your e-mail within 24 hours of receipt. When emailing me, be sure to email from your UTEP student account and please include the course title in the subject line. In the body of your email, clearly state your question. At the end of your email, be sure to include your first and last name along with your university identification number.
- **Discussion Boards:** If you have a question that you believe other students may also have, please post it in the Help Board of the discussion boards inside of Blackboard. Please respond to other students' questions if you have a helpful response.
- **Announcements:** Check the Blackboard announcements frequently for any updates, deadlines, or other important messages.

## **NETIQUETTE**

As we have all learned by experience, communication online can sometimes be challenging. It's possible to miscommunicate what we mean or to misunderstand what our classmates mean given the lack of body language and immediate feedback. Therefore, please keep these netiquette (network etiquette) guidelines in mind. Failure to observe them may result in disciplinary action.

- Always consider audience. This is a college-level course; therefore, all communication should reflect polite consideration of other's ideas.
- Respect and courtesy must be provided to classmates and to the instructor at all times. No harassment or inappropriate postings will be tolerated.
- When reacting to someone else's message, address the ideas, not the person. Post only what anyone would comfortably state in a face-to-face situation.
- Blackboard is not a public internet venue; all postings to it should be considered private and confidential. Whatever is posted on in these online spaces is intended for classmates and professor only. Please do not copy documents and paste them to a publicly accessible website, blog, or other space.

## **ATTENDANCE AND PARTICIPATION**

Attendance in the course is determined by participation in the learning activities of the course. Your participation in the course is important not only for your learning and success but also to create a community of learners. Participation is determined by completion of the following activities:

- Clear evidence of participation in project group assignments bi-weekly status report presentations
- Participating in the final project presentation during the last two weeks of the semester

## **COURSE DROP POLICY**

According to UTEP Curriculum and Classroom Policies, “When, in the judgment of the instructor, a student has been absent to such a degree as to impair his or her status relative to credit for the course, the instructor may drop the student from the class with a grade of “W” before the course drop deadline and with a grade of “F” after the course drop deadline.” See academic regulations in the UTEP Undergraduate Catalog for a list of excused absences. Therefore, if I find that, due to non-performance in the course, you are at risk of failing, I will drop you from the course. I will provide 24 hours advance notice via email.

Alternatively, if you feel that you are unable to complete the course successfully, please let me know and then contact the [Registrar’s Office](#) to initiate the drop process. If you do not, you are at risk of receiving an “F” for the course.

### **ACCOMMODATIONS POLICY**

The University is committed to providing reasonable accommodations and auxiliary services to students, staff, faculty, job applicants, applicants for admissions, and other beneficiaries of University programs, services and activities with documented disabilities in order to provide them with equal opportunities to participate in programs, services, and activities in compliance with sections 503 and 504 of the Rehabilitation Act of 1973, as amended, and the Americans with Disabilities Act (ADA) of 1990 and the Americans with Disabilities Act Amendments Act (ADAAA) of 2008. Reasonable accommodations will be made unless it is determined that doing so would cause undue hardship on the University. Students requesting an accommodation based on a disability must register with the [UTEP Center for Accommodations and Support Services](#) (CASS). Contact the Center for Accommodations and Support Services at 915-747-5148, or email them at [cass@utep.edu](mailto:cass@utep.edu), or apply for accommodations online via the [CASS portal](#).

### **SCHOLASTIC INTEGRITY**

Academic dishonesty is prohibited and is considered a violation of the UTEP Handbook of Operating Procedures. It includes, but is not limited to, cheating, plagiarism, and collusion. Cheating may involve copying from or providing information to another student, possessing unauthorized materials during a test, or falsifying research data on laboratory reports. Plagiarism occurs when someone intentionally or knowingly represents the words or ideas of another as ones' own. Collusion involves collaborating with another person to commit any academically dishonest act. Any act of academic dishonesty attempted by a UTEP student is unacceptable and will not be tolerated. All suspected violations of academic integrity at The University of Texas at El Paso must be reported to the [Office of Student Conduct and Conflict Resolution \(OSCCR\)](#) for possible disciplinary action. To learn more, please visit [HOOP: Student Conduct and Discipline](#).

### **CLASS RECORDINGS**

The use of recordings will enable you to have access to class lectures. Our use of such technology is governed by the Federal Educational Rights and Privacy Act (FERPA) and UTEP’s acceptable-use policy. A recording of class sessions will be kept and stored by UTEP, in accordance with FERPA and UTEP policies. Your instructor will not share the recordings of your class activities outside of course participants, which include your



fellow students, teaching assistants, or graduate assistants, and any guest faculty or community-based learning partners with whom we may engage during a class session. You may not share recordings outside of this course. Doing so may result in disciplinary action.

## **PLAGIARISM DETECTING SOFTWARE**

Some of your course work and assessments may be submitted to SafeAssign, a plagiarism detecting software. SafeAssign is used to review assignment submissions for originality and will help you learn how to properly attribute sources rather than paraphrase.

## **COPYRIGHT STATEMENT FOR COURSE MATERIALS**

All materials used in this course are protected by copyright law. The course materials are only for the use of students currently enrolled in this course and only for the purpose of this course. They may not be further disseminated.

## **STUDENT RESOURCES**

### **Technology Resources:**

[Help Desk](#): Students experiencing technological challenges (email, Blackboard, software, etc.) can submit a ticket to the UTEP Helpdesk for assistance. Contact the Helpdesk via phone, email, chat, website, or in person if on campus.

### **Academic Resources:**

[UTEP Library](#): Access a wide range of resources including online, full-text access to thousands of journals and eBooks plus reference service and librarian assistance for enrolled students.

[University Writing Center \(UWC\)](#): Submit papers here for assistance with writing style and formatting, ask a tutor for help and explore other writing resources.

[Math Tutoring Center \(MaRCS\)](#): Ask a tutor for help and explore other available math resources.

[History Tutoring Center \(HTC\)](#): Receive assistance with writing history papers, get help from a tutor and explore other history resources.

[RefWorks](#): A bibliographic citation tool; check out the RefWorks tutorial and Fact Sheet and Quick-Start Guide.

### **Individual Resources:**

[Military Student Success Center](#): Assists personnel in any branch of service to reach their educational goals.

[Center for Accommodations and Support Services](#): Assists students with ADA-related accommodations for coursework, housing, and internships.

[Counseling and Psychological Services](#): Provides a variety of counseling services including individual, couples, and group sessions as well as career and disability assessments.

## **WEEKLY CALENDAR**

	<b>Topic</b>	<b>Lecture</b>	<b>Assignments Due</b>	<b>Notes</b>
Week 1	Course introduction and review of expectations and deliverables	1	CDR updates and modifications due at the end of Week 1	
Week 3	Status Report #1	N/A	Email status report due to instructor 1 hour before in-person presentation	
Week 5	Status Report #2	N/A	Email status report due to instructor 1 hour before in-person presentation	
Week 7	Status Report #3	N/A	Email status report due to instructor 1 hour before in-person presentation	
Week 9	Status Report #4	N/A	Email status report due to instructor 1 hour before in-person presentation	
Week 11	Status Report #5	N/A	Email status report due to instructor 1 hour before in-person presentation	
Week 13	Status Report #6	N/A	Email status report due to instructor 1 hour before in-person presentation	

Week 15	Final Project Presentation Preparation	N/A	Practice presentation to instructor for feedback	
Finals Week	Final Project Presentations	N/A		

# BS in Metallurgical and Materials Engineering

- **Overview**
- **[4-Year Sample Degree Plan](#)**

Return to: [Degree Programs](#)

The Metallurgical and Materials Engineering undergraduate curriculum focuses on a strong materials science and engineering foundation, a deep understanding of how materials are processed, and how to tailor materials structure and properties to satisfy industrial needs and performance requirements. Students may choose a concentration in forensic engineering and materials performance, extractive and process metallurgy or biomaterials.

## Vision

Our vision is to provide a modern Metallurgical and Materials Engineering Program of the highest quality.

## Mission

The BS degree program in Metallurgical and Materials Engineering (MME) will serve two broad purposes: (1) to provide sufficient theory and hands-on experiences in metallurgical and materials engineering for a graduate to perform effectively, in industry or other employment; and (2) to provide opportunities for all types of students, while maintaining a high level of excellence as students progress through the curriculum. The MME program will also provide basic engineering skills for problem-solving and lifelong learning, along with good communication skills, both oral and written. MME faculty will maintain a balance between the applied and theoretical aspects, and will strive to provide pre-professional employment opportunities (either research experiences or internships) by continuously engaging industry in program activities with students.

### Educational Objectives

1. Graduates will secure employment and/or admission to a graduate program in metallurgical and materials engineering or related professions
2. Graduates will advance in their career by continuing lifelong learning and personal/professional development
3. Graduates work effectively as contributors and leaders on diverse, interdisciplinary teams enabling innovation at the leading edge of technology in an ever-changing global community.
4. Graduates will be more competitive as practicing professionals with broad understanding of material systems, associated manufacturing processes and engineering solutions.

The Metallurgical and Materials Engineering (MME) program offers a Bachelor of Science MME degree with an option to develop an expertise in one of the four concentrations.

- **Concentration 1: Forensic Engineering and Materials Performance**
- **Concentration 2: Extractive and Process Metallurgy**

- Concentration 3: Biomaterials
- Concentration 4: General Metallurgical and Materials Engineering

## Marketable Skills

The success of our students in their education at UTEP and in building and sustaining a career is our primary interest. Graduates in metallurgical and materials engineering often pursue careers in industries such as: oil & gas, R&D, aerospace, primary metals and biomedical components. The job functions of our engineers include: failure analysis, product development, quality assurance, and production management.

Students will develop the following marketable skills:

1. Communication: Reach mutual understanding through effective exchange of information, ideas, and feelings
2. Critical thinking: Analyze and evaluate issues in order to solve problems and develop informed opinions
3. Leadership: Step up, think, and act critically and creatively to bring others together to accomplish a common task
4. Network building: Project based learning, tours and formal interactions with industry partners
5. Problem-solving: Find solutions to difficult or complex issues
6. Research: Be able to search, investigate and critically analyze information in response to a specific research question
7. Teamwork: Participate as an effective, efficient member of a group in order to meet a common goal
8. Technical expertise: Hands-on experience with testing and analysis equipment

## Degree Plan

### BS in Metallurgical and Materials Engineering

Required Credits: 128

Code	Title	Hours
<b>University Core Curriculum</b>		
<a href="#">University Core Curriculum requirements (some of which are listed below)</a>		42
<b>Metallurgical &amp; Materials Engineering Designated Core (All courses listed require a grade of C or better.)</b>		
<a href="#">CE 2326</a>	Econ for Engrs & Scientists	3
<a href="#">CHEM 1305</a>	General Chemistry	3
<a href="#">CHEM 1306</a>	General Chemistry	3

Code	Title	Hours
<a href="#">MATH 1508</a>	Precalculus ((Listed if completed, but not required))	3-5
or <a href="#">MATH 1310</a>	Trigonometry and Conics	

**Additional Required Courses:**

<a href="#">CHEM 1105</a>	Laboratory for CHEM 1305	1
<a href="#">MATH 1411</a>	Calculus I	4
<a href="#">MATH 1312</a>	Calculus II	3
<a href="#">MATH 2313</a>	Calculus III	3
<a href="#">MATH 2326</a>	Differential Equations	3
<a href="#">PHYS 2420</a>	Introductory Mechanics	4
<a href="#">PHYS 2421</a>	Introductory Electromagnetism	4
Total Hours		22

**BSMME (Lower Division) (All courses require a grade of C or better.)**

Required Courses:

<a href="#">MME 1205</a>	Computation/Graph in Mater Sci	2
<a href="#">MME 1405</a>	Intro to Metal and Matls Eng	4
<a href="#">MME 2303</a>	Intro to Materials Sci & Engrg	3
<a href="#">MME 2305</a>	Material & Energy Balance	3
<a href="#">MME 2434</a>	Mechanics of Materials	4
Total Hours		16

**BSMME (Upper Division and Concentrations)**

Upper division and concentration courses- Total Hours		51
<b>Total BS MME Degree Hours</b>		<b>128</b>

Course List

Code	Title	Hours
<b>Metallurgical and Materials Engineering (Upper Division and Concentration Courses)</b>		
Required Courses:		
<a href="#">MME 3195</a>	Junior Professional Orintati <sup>c</sup>	1
<a href="#">MME 3306</a>	Rate Processes <sup>c</sup>	3
<a href="#">MME 3308</a>	Appl Chemical Thermodynamics <sup>c</sup>	3
<a href="#">MME 3309</a>	Circuits, Elect Mat & Devices <sup>c</sup>	3
<a href="#">MME 3406</a>	Nanofuctnl Physical Metallurgy <sup>c</sup>	4
<a href="#">MME 3407</a>	Mechanical Behavior of Matls <sup>c</sup>	4
<a href="#">MME 3413</a>	Materials Characterization <sup>c</sup>	4
<a href="#">MME 4303</a>	Metals Processing <sup>c</sup>	3
<a href="#">MME 4309</a>	Corrosion <sup>c</sup>	3
<a href="#">MME 4316</a>	Failure Analysis <sup>c</sup>	3
<a href="#">MME 4404</a>	Mat. Synthesis & Manufacturing <sup>c</sup>	4
<del><a href="#">MME 4419</a></del>	<del>Metal Materials Design &amp; Pract<sup>c</sup></del>	<del>4</del>
<del><a href="#">MME 4219</a></del>	<del>Senior Design Project 1</del>	<del>2</del>
<del><a href="#">MME 4220</a></del>	<del>Senior Design Project 2</del>	<del>2</del>
Concentration Elective Course I <sup>c</sup>		
Concentration Elective Course II <sup>c</sup>		
Concentration Elective Course III <sup>c</sup>		
Concentration Elective Course IV <sup>c</sup>		
Total Hours		51

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Course List

<sup>c</sup> Courses require a grade of C or better.

# Concentrations

Expand All Sections

Forensic Engineering and Materials Performance

Extractive and Process Metallurgy

Biomaterials

General MME

# University Core Curriculum

