

# Summer 2019 Registration Announcement



**411 B. H. Goethert Parkway**  
**Tullahoma, TN 37388-9700**  
**888-822-8874 ext. 37228**  
**[www.utsi.edu](http://www.utsi.edu)**



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## CALENDAR - SUMMER SEMESTER 2019

Priority Registration.....	February 20, 2019
Admission to Candidacy Forms for Summer 2019 Commencement.....	April 26, 2019
Summer 2019 Graduation Application Deadline submit online at MyUTK .....	April 26, 2019
Graduation Fee Payment Deadline (MS \$30, PhD \$75).....	April 26, 2019
Memorial Day Holiday .....	May 27, 2019
Priority Registration Payment Deadline 4:30 p.m. EST .....	May 28, 2019
<b>Late Registration and late fees (\$100 Late Fee) .....</b>	<b>May 30 – June 12, 2019</b>
Classes begin.....	May 30, 2019
Last Day to Final Register, Add, Change Grading Options or Drop Without a “W” ....	June 7, 2019
<b>Late Registration and late fees after 14<sup>th</sup> day (\$200 Late Fee).....</b>	<b>June 13, 2019 - Forward</b>
Preliminary Thesis/Dissertation Review Deadline .....	June 10, 2019
Independence Day Holiday.....	July 4, 2019
No Class Day .....	July 5, 2019
Last day to schedule final exam (dissertation students).....	July 9, 2019
Last day to take final exam (non-thesis/thesis/dissertation students) .....	July 16, 2019
Drop with a “W” .....	July 19, 2019
Electronic Thesis/Dissertation to TRACE (5:00 P.M. EST) .....	July 30, 2019
Submit report of final examination (Pass/Fail) form .....	July 30, 2019
Deadline for Submission of Admission to Candidacy for students	
Graduating Fall 2019 and Graduation Application.....	August 9, 2019
Deadline for removing "INCOMPLETE" grades .....	August 9, 2019
Classes End.....	August 9 2019
Exam Period (Exams are given during the regularly scheduled class meeting times.)	
Total Withdraw from the University Deadline .....	August 9, 2019
No Commencement Ceremony or Graduate Hooding – Graduation Date.....	August 10, 2019
Second thesis/dissertation deadlines	
Defense Completed by August 9, 2019	
Second Deadline Application Submitted by August 9, 2019	
<a href="https://gradschool.utk.edu/forms-central/">https://gradschool.utk.edu/forms-central/</a>	
and submit a new graduation application for Fall graduation	
Thesis/Dissertation Submitted and Accepted by August 20, 2019 (5:00 P.M. EST)	
(Student will receive diploma fall 2019 semester, but will not be required to register for thesis/dissertation credits)	

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## FALL SEMESTER 2019

Priority Registration.....	March 11, 2019
Late Registration .....	TBD
Classes Begin.....	August 21, 2019
Labor Day Holiday .....	September 2, 2019
Fall Break.....	October 17 - 18, 2019
No Class Day .....	November 27, 2019
Thanksgiving Break.....	November 28 – 29, 2019
Classes End.....	December 4, 2019
Study Period.....	December 5, 2019
Exam Period.....	December 6, 9 & 10, 2019
Graduate Hooding Ceremony (UTK) .....	December 12, 2019
Commencement (UTK) .....	December 13, 2019
Official Graduation Date.....	December 14, 2019

**Dates may be revised without notice. Please refer to the following sites for updates:**

[http://registrar.tennessee.edu/academic\\_calendar/index.shtml](http://registrar.tennessee.edu/academic_calendar/index.shtml)

<https://gradschool.utk.edu/graduation/>

**SUMMER SEMESTER 2019**

**EXAM SCHEDULE**

LAST DAY OF CLASSES.....August 9, 2019

FINAL EXAMS FOR SUMMER ARE GIVEN DURING THE REGULARLY SCHEDULED  
CLASS MEETING TIMES.

**\*\*\*\* ATTENTION \*\*\*\***

ALL STUDENTS TAKING RECORDED COURSES  
CONTACT INSTRUCTOR FOR DATE AND TIME OF FINAL EXAM

**REGISTRATION ANNOUNCEMENT  
SPRING SEMESTER 2019**

**REGISTRATION PROCEDURE**

**GRADUATE ACADEMIC ADVISING**

Graduate students should contact your departmental faculty to arrange an advising appointment. If you're not accepted into a specific program, the assistant to the dean of graduate studies or the designee may act as your advisor. When the web registration system asks if you've discussed your program with your advisor, you must answer yes to continue with the registration process.

**REGISTRATION**

Students will register at <http://my.utk.edu>. You will need to log in using your NetID and your NetID password. If you do not know your NetID and NetID password, go to <http://onestop.utk.edu/your-classes/registering-for-classes/>.

\*Log in to MyUTK. You can find a link by looking under "M" on the A-Z index (<http://www.utk.edu/alpha/>) or by typing myutk.utk.edu directly into your browser. You will need to log in by typing utk\your NetID in the "username" field and then your NetID password in the "password" field.

\*Before you attempt to register, clear and pay any financial holds (parking tickets, library fines, fees, etc.).

\*Look under the "For Your Review" heading on the MyUTK portal page (located in the upper right-hand corner) for notification of any holds you may have.

\*Once you are logged into "My UTK," scroll down to "UTK Student Registration Links." Click on "Search for Classes" to look up sections and then register.

\*Print a copy of your schedule when you are finished registering.

If you have any questions, call the Office of the University Registrar at 865-974-2101 or contact Charlene Hane in Student Services room D-100, phone 931-393-7228, email [chane@utsi.edu](mailto:chane@utsi.edu).

**TOLL-FREE NUMBERS**

For a specific office: ..... 1-888-822-UTSI (8874) and the extension number.  
For general information: ..... 1-888-822-UTSI (8874)  
Admissions Office: ..... 1-888-822-UTSI (8874)-37234  
Budget and Finance Office: ..... 1-888-822-UTSI (8874)-37297  
Student Services..... 1-888-822-UTSI (8874)-37228

**APPLICATION FOR ADMISSION**

No student will be allowed to register unless a completed Application to the Graduate School of the University of Tennessee, Knoxville (UTK) is on file in the Registrar's Office. An Application for Admission to the UTK Graduate School must be completed online at <https://www.applyweb.com/utg> and accompanied by a \$60.00 non-refundable application fee

made payable to The University of Tennessee Space Institute. All applicants are required to provide one official transcript of all undergraduate and graduate records, GRE test scores and three letters of recommendation when applying. International applicants will also need to include TOEFL scores. GRE scores are a requirement of all departments at UTSI except the Master of Science degree in Industrial Engineering/Engineering Management concentration. Please select UT Space Institute if you plan to attend the Tullahoma campus location. All applications need to be submitted online to the office of Graduate Admissions Knoxville, TN.

Graduate Research Assistantship applications need to be submitted to Clara Ferguson, Office of Admissions and Recruiting, University of Tennessee Space Institute, MS-6, Tullahoma, TN 37388-9700. Assistantship applications must include GRE test scores and three letters of recommendation. All International applicants will need to provide TOEFL test scores in addition to GRE's. Official transcripts and test scores should be sent to College Code 1843, Graduate Admissions Office, 201 Student Services Building, Knoxville, TN 37996-0221. Once admitted, a full admission will not be granted until all official test scores and degree confirmation are received in the Graduate Admissions Office in Knoxville. Please contact Clara Ferguson at (931) 393-7234 or 888-822-8874 ext. 37234 if you have questions.

### **TOTAL WITHDRAWAL FROM THE UNIVERSITY**

If, after registering for classes and either returning your fee payment or your Confirmation of Attendance form to the Bursar's Office, you decide not to enroll for this term, you must immediately notify Charlene Hane, Student Services, at UTSI. If you withdraw officially on or before a Change of Registration deadline, but after the no "W" deadline for a particular session, the grade of "W" will be issued.

### **GRADES**

Students may obtain their grades through the web at MyUTK or contact Charlene Hane, Student Services, Office D-100, (931) 393-7228.

### **GRADUATE STUDENTS CHANGE OF REGISTRATION AFTER THE DEADLINE**

To change registration in any way after the deadline, a graduate student must present a request, signed by the instructor(s) and adviser as evidence of their knowledge of the request to Charlene Hane, Student Services at UTSI. Graduate students must verify that ALL changes have been approved by their academic adviser. If the Office of Graduate Student Services approves the change of registration, the change will be noted on the student's permanent record. **THE DROP DEADLINE FOR GRADES AND THE DROP DEADLINE FOR FEE REFUNDS ARE NOT THE SAME.**

### **FULL-TIME STUDENTS**

Students enrolled in at least 9 semester hours during the Fall/Spring/Summer semesters are considered full-time. Full-time enrollment of 9 hours for two consecutive semesters or 6 hours for three consecutive semesters is required to full fill the admission to candidacy doctoral degree residency requirement. Graduate Research Assistants (GRAs) must be enrolled for 9 hours during the Fall/Spring semesters and 6 hours during the Summer. GRAs must also enroll in one of the MABE 595 seminars or a PHYS 599 seminar each semester in which seminars are offered, unless a waiver is granted by the Associate Executive Director.

## **REMOVAL OF INCOMPLETE GRADES**

All Incomplete Grades (I) must be removed prior to graduation. The instructor, in consultation with the student, decides the terms for the removal of the I, including the time limit for removal. If the I is not removed within one calendar year, the grade will be changed to an F. The course will not be counted in the cumulative grade point average until a final grade is assigned. No student may graduate with an I on the record. Students planning to graduate Spring Semester 2019 must remove all INCOMPLETE GRADES by August 9, 2019. Contact Charlene Hane, Student Services, to remove an Incomplete Grade.

## **REPEATING A COURSE**

No graduate student may repeat a course for the purpose of raising a grade already received, with the exception of a NC course. A graduate student cannot do additional work nor repeat an examination to raise a final grade.

## **ADMISSION TO CANDIDACY**

### **MASTER OF SCIENCE DEGREE:**

Each M.S. student, including IE Capstone Project students, is responsible for submitting a completed and signed Admission to Candidacy Application at least one semester prior to receiving the degree.

Candidacy committee changes or course changes must be submitted to the committee chairman using a Revision form. If changing from a thesis option to a non-thesis option or vice versa, a new Admission to Candidacy Application must be submitted. All forms must be processed through Student Services.

### **DOCTORAL DEGREE:**

A Doctoral Committee should be formed during the student's first year of doctoral study. Any changes to the doctoral committee (deletions or additions) must be submitted to the Committee Chairman using a Revision form for approval. Each doctoral student is responsible for submitting a completed Admission to Candidacy form signed by the doctoral committee at least one semester prior to receiving the degree. All forms must be processed through Student Services.

## **CONTINUOUS ENROLLMENT**

All degree-seeking graduate students are expected to make a full commitment to their graduate and professional study in order to ensure that they can complete all degree requirements without unnecessary delay. Graduate students are therefore required to maintain an active status through continuous enrollment from the time of first enrollment until graduation.

Continuous enrollment is maintained by registering for a minimum of one graduate credit hour per semester (excluding the summer, unless stipulated otherwise by the program or department). However, students who have started taking dissertation hours (course 600) must maintain a minimum of three credit hours per semester during all semesters, including the summer, as stipulated in the policy on "Registration for Course 600 (Doctoral Research and Dissertation)" in order to comply with the Continuous Enrollment requirement (see under Doctoral Programs for details).



The minimum enrollment for international students may be different, and international students always need to check with the Center for International Education (CIE) in order to determine what minimum enrollment they need to maintain in order to satisfy all enrollment requirements attached to their specific visa.

### **CONSEQUENCES OF NON-ENROLLMENT WITHOUT LEAVE OF ABSENCE**

Graduate students who do not maintain continuous enrollment as stipulated in the "Continuous Enrollment" policy will lose their active student status. A student who has lost his or her active status without having been granted a Leave of Absence for the period of non-enrollment ahead of time will not be allowed to continue in his her graduate program until readmitted. (see policy on "Readmission" in the Graduate Catalog for more details).

Non-enrollment other than during an approved Leave of Absence (LOA) does not alter or affect any of the milestone deadlines, such as admission to candidacy, time to degree, etc.

Upon approval for readmission to complete the interrupted degree program, students will be retroactively enrolled in every semester of missed enrollment for one graduate credit hour of Course 502 or for three graduate credit hours of Course 600 (whichever is appropriate). Students will be responsible for paying the past tuition charges and fees as well as the current university per semester late registration penalty. All past due charges will need to be paid before the Graduate School will approve the student for any future enrollment.

### **FINAL EXAM FOR NON-THESIS, CAPSTONE PROJECT STUDENTS, THESIS AND DISSERTATION STUDENTS**

A candidate presenting a thesis or dissertation must pass a final oral examination on all work offered for the degree. The examination is scheduled through Student Services. Failure to notify Student Services of the examination date will put the student at risk for graduating that semester. Final examinations not properly scheduled MUST be repeated. The final draft of the thesis must be distributed to the committee members at least two weeks prior to the date of the final examination. In case of a grade of "Fail", the candidate may not apply for re-examination until the following semester. The result of the second examination is final.

### **UT POLICY ON INSURANCE FOR INTERNATIONAL STUDENTS**

All foreign national students registered with the University of Tennessee, Knoxville, are required to have comprehensive medical insurance. The policy for the 2018-2019 academic year is provided by United HealthCare Student Resources. The premium must be paid before registration. Contact the Student Services Office (room D-100 ext. 37228) for further information.

### **GENERAL SEMINAR**

A number of seminars of interest to all UTSI students and general public will be offered throughout the semester.

### **FINAL EXAM DATES**

Final exams for summer semester are given during the regularly scheduled class meeting time.

## FINANCIAL CALENDAR, FEES, REFUNDS, AND TUITION

Please click <http://onestop.utk.edu/tuition-fees/> link to the most current information. You may also contact Tonya Travis in the Business and Finance Office at [ttravis@utsi.ed](mailto:ttravis@utsi.ed) or phone number 931-393-7297.

The UTSI Budget and Finance Accounts Receivable Office will no longer accept payment for tuition and fees by credit card. All students will need to login to MyUTK One Stop to make secure payments online. Priority registration payment deadline is May 28, 2019 by 4:30 p.m. Eastern Time.

Please see One Stop - Paying Tuition and Fees webpage for more details <http://onestop.utk.edu/pay/>.

### Credit or Debit Cards

There is a 2.75% service fee for these payments. UT has a contract with an outside vendor to provide this service. The vendor retains the fee in full.

## HONOR STATEMENT

The following Honor Statement is signed by all students applying to The Graduate School:

"An essential feature of The University of Tennessee, Knoxville is a commitment to maintaining an atmosphere of intellectual integrity and academic honesty. As a student of the University, I pledge that I will neither knowingly give nor receive any inappropriate assistance in academic work, thus affirming my own personal commitment to honor and integrity."

For official information on all UTK Graduate School policies, refer to the current UTK Graduate Catalog available at <http://catalog.utk.edu>. The student handbook "Hilltopics" is available online at <https://hilltopics.utk.edu/>

**The University of Tennessee Space Institute reserves the right to cancel any class with an insufficient number of students, or for other reasons.**

## THE UNIVERSITY OF TENNESSEE POLICY ON A DRUG-FREE CAMPUS AND WORKPLACE

In support of the Drug-Free Workplace Act of 1988 (Public Law 100-690) and the Drug-Free Schools and communities Act of 1989, the University of Tennessee is notifying all students, faculty, and staff of the following university policy approved by the UT Board of Trustees on 21 June 1990.

It is the policy of the University of Tennessee to maintain a safe and healthful environment for its students and employees. Therefore, university policy prohibits the unlawful use, manufacture, possession, distribution, or dispensing of drugs ("controlled substances" as defined in the Controlled Substances Act, 21 U.S.C. 812) and alcohol on university property or during university activities.

Violation of this policy is grounds for disciplinary action--up to and including immediate discharge for an employee and permanent dismissal of a student. Federal and state laws provide additional penalties for such unlawful activities, including fines and imprisonment (21 U.S.C. 841

et seq.; T.C.A. 39-6-401 et seq.). Local ordinances also provide various penalties for drug- and alcohol-related offenses. The university is bound to take all appropriate actions against violators, which may include referral for legal prosecution or requiring the individual to participate satisfactorily in an approved drug use or alcohol abuse assistance or rehabilitation program.

**THE UNIVERSITY RESERVES THE RIGHT TO REVISE  
ANY INFORMATION LISTED IN THIS TIMETABLE OF CLASSES**

**The University of Tennessee Space Institute  
Summer 2019 Course Listings**

**AEROSPACE ENGINEERING**

AE	500	Thesis (1-15)	
	002	CRN 81599	Abedi
	003	CRN 81600	Balas
	004	CRN 81601	Brooks
	005	CRN 81602	Kreth
	009	CRN 81606	Moeller
	010	CRN 81607	Schmisser
	011	CRN 81608	Solies
	013	CRN 81610	Vakili
	014	CRN 81611	Zhang

*Grading Restriction: P/NP only.*

*Repeatability: May be repeated.*

*Credit Level Restriction: Graduate credit only.*

*Registration Restriction(s): Minimum student level – graduate.*

AE	502	Registration for Use of Facilities (1-15)	
SEC.	003	CRN 81614	Moeller

Required for the student not otherwise registered during any semester when student uses university facilities and/or faculty time before degree is completed.

*Grading Restriction: Satisfactory/No Credit grading only.*

*Repeatability: May be repeated.*

*Credit Restriction: May not be used toward degree requirements.*

*Credit Level Restriction: Graduate credit only.*

*Registration Restriction(s): Minimum student level – graduate.*

AE	590	Selected Engineering Problems (2-6)	
SEC.	001	CRN 81615	Abedi
	002	CRN 81616	Balas
	003	CRN 81617	Brooks
	004	CRN 81877	Kreth
	005	CRN 81878	Moeller
	006	CRN 81879	Schmisser
	007	CRN 81880	Solies
	008	CRN 81881	Vakili
	009	CRN 81882	Zhang

*Repeatability: May be repeated. Maximum 6 hours.*

*Comment(s): Enrollment limited to students in problems option.*

*Registration Permission: Consent of advisor.*

AE	600	Doctoral Research and Dissertation (3-15)	
SEC.	002	CRN 81619	Abedi
	003	CRN 81620	Balas
	004	CRN 81621	Brooks
	005	CRN 81622	Kreth
	011	CRN 81628	Moeller
	012	CRN 81629	Schmisser
	013	CRN 82132	Solies
	014	CRN 82635	Vakili
	015	CRN 82636	Zhang

*Grading Restriction: P/NP only.*

*Repeatability: May be repeated.*

*Registration Restriction(s): Minimum student level – graduate.*

### **BIOMEDICAL ENGINEERING**

BME	500	Thesis (1-15)	
SEC.	010	CRN 82446	Johnson

*Grading Restriction: P/NP only.*

*Repeatability: May be repeated.*

*Credit Level Restriction: Graduate credit only.*

*Registration Restriction(s): Minimum student level – graduate.*

BME	502	Registration for Use of Facilities (1-15)	
SEC.	002	CRN 83972	Johnson

Required for the student not otherwise registered during any semester when student uses university facilities and/or faculty time before degree is completed.

*Grading Restriction: Satisfactory/No Credit grading only.*

*Repeatability: May be repeated.*

*Credit Restriction: May not be used toward degree requirements.*

*Credit Level Restriction: Graduate credit only.*

*Registration Restriction(s): Minimum student level – graduate.*

BME	529	Applications of Linear Algebra in Engineering Systems (3)	
SEC.	001	CRN 81645	(Video Recorded)
TEXT:	<i>Advanced Linear Algebra for Engineers with MATLAB</i> ; Sohail A. Dianat and Eli S. Saber; CRC Press; Latest Edition; ISBN 978-1-4200-9523-4		
TIME:	Monday, Wednesday & Friday	9:30 – 10:45	E-111
PROF:	Dr. Monty Smith		

Fundamental concepts of linear algebra to problems in engineering systems: steady state and dynamic systems. Geometric and physical interpretations of relevant concepts: least square problems, LU, QR, and SVD decompositions of system matrix, eigenvalue problems, and similarity transformations in solving difference and differential equations; numerical stability aspects of various algorithms; application of linear algebra concepts in control and optimization studies; introduction to linear programming. Computer projects.

Methods of linear algebra with application to engineering problems. Systems of linear equations: matrix-vector notation, solutions to linear equations, determinants, matrix inversion, LU decomposition. Vector spaces: spanning sets, orthogonality, QR factorization, linear transformations. Eigenvalues and eigenvectors: characteristic polynomials, singular value decomposition. The Cayley-Hamilton theorem: matrix polynomials, functions of matrices. Optimization: least-squares and weighted least-squares methods.

*Cross-listed: (Same as Chemical and Biomolecular Engineering 529; Civil Engineering 529, Electrical and Computer Engineering 529; Environmental Engineering 529; Industrial Engineering 529; Materials Science and Engineering 529; Mechanical Engineering 529; Nuclear Engineering 529).*

*Comment(s): Graduate standing or consent of instructor required.*

BME 590 Selected Engineering Problems (2-6)  
SEC. 001 CRN 84234 Johnson

*Grading Restriction: Satisfactory/No Credit grading only.*

*Repeatability: May be repeated. Maximum 6 hours.*

*Comment(s): Enrollment is limited to students in the non-thesis option.*

*Credit Level Restriction: Graduate credit only.*

*Registration Restriction(s): Minimum student level – graduate.*

*Registration Permission: Consent of instructor.*

BME 600 Doctoral Research and Dissertation (3-15)  
SEC. 009 CRN 82447 Johnson

*Grading Restriction: P/NP only.*

*Repeatability: May be repeated.*

*Registration Restriction(s): Minimum student level – graduate.*

## **ENGINEERING MANAGEMENT**

EM 502 Registration for Use of Facilities (1-15)  
SEC. 001 CRN 80003 Simonton

Required for the student not otherwise registered during any semester when student uses university facilities and/or faculty time before degree is completed.

*Grading Restriction: Satisfactory/No Credit grading only.*

*Repeatability: May be repeated.*

*Credit Restriction: May not be used toward degree requirements.*

*Credit Level Restriction: Graduate credit only.*

*Registration Restriction(s): Minimum student level – graduate.*

EM 536 Project Management (3)  
SEC. 001 CRN 80004 UT Space Campus  
003 CRN 80006 UT Knoxville Campus  
004 CRN 80007 Distance Education Campus

TEXT: *Project Management: A Managerial Approach*; Jack R. Meredith, Samuel J. Mantel, Jr., Scott M. Shafer; John Wiley & Sons, Inc.; 9<sup>th</sup> Edition; ISBN 978-1-119-03197-0

TIME: Tuesday & Thursday 11:00 - 1:30 E-113

PROF: Dr. Sandra Affare

Development and management of engineering and technology projects. Project proposal preparation; resource and cost estimating; and project planning, organizing, and controlling: network diagrams and other techniques. Role of project manager: team building, conflict resolution, and contract negotiations. Discussion of typical problems and alternative solutions. Case studies and student projects.

*Recommended Background: Graduate standing in Engineering or Business.*

EM 600 Doctoral Research and Dissertation (3-15)  
SEC. 002 CRN 82056 Simonton  
004 CRN 83458 Yu

*Grading Restriction: P/NP only.*

*Repeatability: May be repeated.*

*Registration Restriction(s): Minimum student level – graduate.*

## INDUSTRIAL ENGINEERING

IE 529 Applications of Linear Algebra in Engineering Systems (3)  
SEC. 001 CRN 80101 (Video Recorded)  
TEXT: *Advanced Linear Algebra for Engineers with MATLAB*; Sohail A. Dianat and Eli S. Saber;  
CRC Press; Latest Edition; ISBN 978-1-4200-9523-4  
TIME: Monday, Wednesday & Friday 9:30 – 10:45 E-111  
PROF: Dr. Monty Smith

Fundamental concepts of linear algebra to problems in engineering systems: steady state and dynamic systems. Geometric and physical interpretations of relevant concepts: least square problems, LU, QR, and SVD decompositions of system matrix, eigenvalue problems, and similarity transformations in solving difference and differential equations; numerical stability aspects of various algorithms; application of linear algebra concepts in control and optimization studies; introduction to linear programming. Computer projects.

Methods of linear algebra with application to engineering problems. Systems of linear equations: matrix-vector notation, solutions to linear equations, determinants, matrix inversion, LU decomposition. Vector spaces: spanning sets, orthogonality, QR factorization, linear transformations. Eigenvalues and eigenvectors: characteristic polynomials, singular value decomposition. The Cayley-Hamilton theorem: matrix polynomials, functions of matrices. Optimization: least-squares and weighted least-squares methods.

*Cross-listed: (Same as Chemical and Biomolecular Engineering 529; Biomedical Engineering 529; Civil Engineering 529, Electrical and Computer Engineering 529; Environmental Engineering 529; Materials Science and Engineering 529; Mechanical Engineering 529; Nuclear Engineering 529).*

*Comment(s): Graduate standing or consent of instructor required.*

## MATHEMATICS

Math 535 Partial Differential Equations I (3) **CANCELLED**  
SEC. 001 CRN 85230

TEXT: *Partial Differential Equations of Mathematical Physics and Integral Equations*; Ronald B. Guenther and John W. Lee  
 TIME: Monday, Wednesday & Friday 1:00 – 2:15 E-113  
 PROF: Dr. K.C. Reddy

First order partial differential equations, classification of second order partial differential equations, properties of elliptic, parabolic and hyperbolic partial differential equations.  
*Recommended Background: One year of advanced calculus.*

## MECHANICAL ENGINEERING

ME	500	Thesis (1-15)	
SEC.	002	CRN 80168	Abedi
	004	CRN 80169	Balas
	023	CRN 80194	Brooks
	024	CRN 80195	Kreth
	027	CRN 80198	Moeller
	028	CRN 80199	Schmisser
	029	CRN 81924	Solies
	030	CRN 81925	Vakili
	032	CRN 82640	Zhang

*Grading Restriction: P/NP only.*

*Repeatability: May be repeated.*

*Credit Level Restriction: Graduate credit only.*

*Registration Restriction(s): Minimum student level – graduate.*

ME	502	Registration for Use of Facilities (1-15)	
SEC.	002	CRN 80201	Moeller

Required for the student not otherwise registered during any semester when student uses university facilities and/or faculty time before degree is completed.

*Grading Restriction: Satisfactory/No Credit grading only.*

*Repeatability: May be repeated.*

*Credit Restriction: May not be used toward degree requirements.*

*Credit Level Restriction: Graduate credit only.*

*Registration Restriction(s): Minimum student level – graduate.*

ME	529	Applications of Linear Algebra in Engineering Systems (3)	
SEC.	001	CRN 80203	(Video Recorded)
TEXT:	<i>Advanced Linear Algebra for Engineers with MATLAB</i> ; Sohail A. Dianat and Eli S. Saber; CRC Press; Latest Edition; ISBN 978-1-4200-9523-4		
TIME:	Monday, Wednesday & Friday	9:30 – 10:45	E-111
PROF:	Dr. Monty Smith		

Fundamental concepts of linear algebra to problems in engineering systems: steady state and dynamic systems. Geometric and physical interpretations of relevant concepts: least square problems, LU, QR, and SVD decompositions of system matrix, eigenvalue problems, and similarity transformations in solving difference and differential equations; numerical stability aspects of various algorithms; application of



linear algebra concepts in control and optimization studies; introduction to linear programming. Computer projects.

Methods of linear algebra with application to engineering problems. Systems of linear equations: matrix-vector notation, solutions to linear equations, determinants, matrix inversion, LU decomposition. Vector spaces: spanning sets, orthogonality, QR factorization, linear transformations. Eigenvalues and eigenvectors: characteristic polynomials, singular value decomposition. The Cayley-Hamilton theorem: matrix polynomials, functions of matrices. Optimization: least-squares and weighted least-squares methods.

*Cross-listed: (Same as Chemical and Biomolecular Engineering 529; Biomedical Engineering 529; Civil Engineering 529, Electrical and Computer Engineering 529; Environmental Engineering 529; Industrial Engineering 529; Materials Science and Engineering 529; Nuclear Engineering 529).*

*Comment(s): Graduate standing or consent of instructor required.*

ME	590	Selected Engineering Problems (2-6)	
SEC.	001	CRN 80216	Abedi
	002	CRN 80217	Balas
	003	CRN 80218	Brooks
	004	CRN 82013	Kreth
	005	CRN 82014	Moeller
	006	CRN 82015	Schmisser
	007	CRN 82016	Solies
	008	CRN 82017	Vakili
	009	CRN 82018	Zhang

*Grading Restriction: Satisfactory/No Credit grading only.*

*Repeatability: May be repeated. Maximum 6 hours.*

*Comment(s): Enrollment limited to students in the problems option.*

*Registration Permission: Consent of advisor.*

ME	600	Doctoral Research and Dissertation (3-15)	
SEC.	002	CRN 80227	Abedi
	003	CRN 80228	Balas
	004	CRN 80229	Brooks
	005	CRN 80230	Kreth
	020	CRN 80245	Moeller
	025	CRN 80251	Schmisser
	026	CRN 82405	Solies
	028	CRN 82641	Vakili
	029	CRN 82642	Zhang

*Grading Restriction: P/NP only.*

*Repeatability: May be repeated.*

*Registration Restriction(s): Minimum student level – graduate.*

## PHYSICS

Phys	500	Thesis (1-15)	
SEC.	001	CRN 81183	Davis
	003	CRN 81185	Parigger

*Grading Restriction: P/NP only.*  
*Repeatability: May be repeated.*  
*Credit Level Restriction: Graduate credit only.*  
*Registration Restriction(s): Minimum student level – graduate.*

Phys 502 Registration for Use of Facilities (1-15)  
SEC. 002 CRN 82104 Davis

Required for the student not otherwise registered during any semester when student uses university facilities and/or faculty time before degree is completed.

*Grading Restriction: Satisfactory/No Credit grading only.*  
*Repeatability: May be repeated.*  
*Credit Restriction: May not be used toward degree requirements.*  
*Credit Level Restriction: Graduate credit only.*  
*Registration Restriction(s): Minimum student level – graduate.*

Phys 600 Doctoral Research and Dissertation (3-15)  
SEC. 001 CRN 81195 Davis  
003 CRN 81197 Parigger

*Grading Restriction: P/NP only.*  
*Repeatability: May be repeated.*  
*Registration Restriction(s): Minimum student level – graduate.*