Summer 2018
Registration Announcement

411 B. H. Goethert Parkway
Tullahoma, TN  37388-9700
www.utki.edu
888-822-8874 Ext. 37228
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## CALENDAR - SUMMER SEMESTER 2018

<table>
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<tr>
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<tr>
<td>Priority Registration</td>
<td>February 21, 2018</td>
</tr>
<tr>
<td>Admission to Candidacy Forms for Summer 2018 Commencement</td>
<td>April 27, 2018</td>
</tr>
<tr>
<td>Summer 2017 Graduation Application Deadline submit online at MyUTK</td>
<td>April 27, 2018</td>
</tr>
<tr>
<td>Graduation Fee Payment Deadline (MS $30, PhD $75)</td>
<td>April 27, 2018</td>
</tr>
<tr>
<td>Memorial Day Holiday</td>
<td>May 28, 2018</td>
</tr>
<tr>
<td>Priority Registration Payment Deadline 4:30 p.m. EST</td>
<td>May 29, 2018</td>
</tr>
<tr>
<td>Late Registration and late fees ($100 Late Fee)</td>
<td>May 31, 2018</td>
</tr>
<tr>
<td>Classes begin</td>
<td>May 31, 2018</td>
</tr>
<tr>
<td>Last Day to Final Register, Add, Change Grading Options or Drop Without a “W”</td>
<td>TBD</td>
</tr>
<tr>
<td>Late Registration and late fees after 14th day ($200 Late Fee)</td>
<td>June 14, 2018</td>
</tr>
<tr>
<td>Preliminary Thesis/Dissertation Review Deadline</td>
<td>June 15, 2018</td>
</tr>
<tr>
<td>Independence Day Holiday</td>
<td>July 4, 2018</td>
</tr>
<tr>
<td>Last day to schedule final exam (dissertation students)</td>
<td>July 6, 2018</td>
</tr>
<tr>
<td>Last day to take final exam (non-thesis/thesis/dissertation students)</td>
<td>July 13, 2018</td>
</tr>
<tr>
<td>Drop with a “W”</td>
<td>TBD</td>
</tr>
<tr>
<td>Electronic Thesis/Dissertation to TRACE (5:00 P.M. EST)</td>
<td>July 27, 2018</td>
</tr>
<tr>
<td>Submit report of final examination (Pass/Fail) form</td>
<td>July 27, 2018</td>
</tr>
<tr>
<td>Deadline for Submission of Admission to Candidacy for students</td>
<td>August 10, 2018</td>
</tr>
<tr>
<td>Graduating Fall 2018 and Graduation Application</td>
<td>August 10, 2018</td>
</tr>
<tr>
<td>Deadline for removing &quot;INCOMPLETE&quot; grades</td>
<td>August 10, 2018</td>
</tr>
<tr>
<td>Classes End</td>
<td>August 10, 2018</td>
</tr>
<tr>
<td>Exam Period (Exams are given during the regularly scheduled class meeting times.)</td>
<td>August 10, 2018</td>
</tr>
<tr>
<td>Total Withdraw from the University Deadline</td>
<td>August 10, 2018</td>
</tr>
<tr>
<td>No Commencement Ceremony or Graduate Hooding – Graduation Date</td>
<td>August 11, 2018</td>
</tr>
<tr>
<td>Second thesis/dissertation deadlines</td>
<td>August 10, 2018</td>
</tr>
<tr>
<td>Defense Completed by August 10, 2018</td>
<td>August 10, 2018</td>
</tr>
<tr>
<td>Second Deadline Application Submitted by August 10, 2018</td>
<td>August 10, 2018</td>
</tr>
<tr>
<td>Thesis/Dissertation Submitted and Accepted by August 17, 2018 (5:00 P.M. EST)</td>
<td>August 17, 2018</td>
</tr>
<tr>
<td>(Student will receive diploma fall 2018 semester, but will not be required to register for thesis/dissertation credits)</td>
<td>August 17, 2018</td>
</tr>
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## FALL SEMESTER 2018

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Priority Registration</td>
<td>March 19, 2018</td>
</tr>
<tr>
<td>Late Registration</td>
<td>August 22, 2018</td>
</tr>
<tr>
<td>Classes Begin</td>
<td>August 22, 2018</td>
</tr>
<tr>
<td>Labor Day Holiday</td>
<td>September 3, 2018</td>
</tr>
<tr>
<td>Fall Break</td>
<td>October 4 - 5, 2018</td>
</tr>
<tr>
<td>Thanksgiving Break</td>
<td>November 22 – 23, 2018</td>
</tr>
<tr>
<td>Classes End</td>
<td>December 4, 2018</td>
</tr>
<tr>
<td>Study Period</td>
<td>December 5, 2018</td>
</tr>
<tr>
<td>Exam Period</td>
<td>December 6, 7 &amp; 10, 2018</td>
</tr>
<tr>
<td>Graduate Hooding Ceremony (UTK)</td>
<td>December 13, 2018</td>
</tr>
<tr>
<td>Commencement (UTK)</td>
<td>December 14, 2018</td>
</tr>
<tr>
<td>Official Graduation Date</td>
<td>December 15, 2018</td>
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Dates may be revised without notice. Please refer to the following sites for updates:
- [https://gradschool.utk.edu/graduation/graduate-hooding-ceremony/](https://gradschool.utk.edu/graduation/graduate-hooding-ceremony/)
- [http://registrar.tennessee.edu/academic_calendar/index.shtml](http://registrar.tennessee.edu/academic_calendar/index.shtml)
SUMMER SEMESTER 2018
EXAM SCHEDULE

LAST DAY OF CLASSES.................................................................August 10, 2018

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 2018

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.

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 for two 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 2018 must remove all **INCOMPLETE GRADES** by August 10, 2018. 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 2017-2018 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 Spring and Fall semesters.

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 Jennifer Boyles in the Business and Finance Office at jboyles@utss.edu 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 29, 2018 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 http://hilltopics.utk.edu/index.html

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.
AEROSPACE ENGINEERING

AE  500  Thesis (1-15)
002 CRN 81620  Abedi
003 CRN 81621  Balas
004 CRN 81622  Brooks
005 CRN 81623  Moeller
009 CRN 81627  Schmisseur
010 CRN 81628  Solies
011 CRN 81629  Vakili
013 CRN 81631  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 81635  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 81636  Abedi
002 CRN 81637  Balas
003 CRN 81638  Brooks
004 CRN 81901  Moeller
005 CRN 81902  Schmisseur
006 CRN 81903  Solies
007 CRN 81904  Vakili
008 CRN 81905  Zhang

Repeatability: May be repeated. Maximum 6 hours.
Comment(s): Enrollment limited to students in problems option.
Registration Permission: Consent of advisor.
Tools for random data analysis (including types of random data, mean values, mean-square values, probability density and distribution functions, moments and characteristic functions, spectral and correlation analyses); bias and random error estimates in data measurements; input-output system models; measurement examples.

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

**Grading Restriction:** P/NP only.

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

### BIOMEDICAL ENGINEERING

**BME 500 Thesis (1-15)**

- **SEC. 010 CRN 82502 Johnson**

**Grading Restriction:** P/NP only.

**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 83917 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.

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

**Credit Level Restriction:** Graduate credit only.

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


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  84437  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  82503  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  80004  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  80005  UTSI students participating at Tullahoma
        002  CRN  80006  UTSI students participating elsewhere
        003  CRN  80007  UTK students participating elsewhere

TIME:  Tuesday & Thursday  1:00 - 3:30  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  82090  Simonton
        004  CRN  83593  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  80103  (Video Recorded)

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.

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.

IE 603 Advanced Design and Analysis of Experiments

SEC. 001 CRN 83669 (Record Only)

TEXT: Instructor will provide electronic files through Canvas

Recommended Books:
Statistics for Experimenters, Box, G.E.P., Hunter, J.S. and Hunter, W.G.; John Wiley & Sons
The Design and Analysis of Industrial Experiments, edited by O.L. Davies; Hafner Publishing Company

TIME: Tuesday & Thursday 1:00 – 3:30 E-111
PROF: Dr. Alberto Garcia

Fundamental theory, concepts and procedures required in the efficient design and analysis of industrial experiments. Specific topics discussed include: review of fundamental principles of the design of experiments and ANOVA methodology, introduction to linear statistical models, experimental design models, cross classification models, two-way classification models, mixed models, specialized designs allowing multiple restrictions on randomization with or without replication, orthogonal arrays, symmetric and mixed full and fractional factorial experiments, response surface methodology, and Taguchi methods.

(DE) Prerequisite(s): 516.
Registration Restriction(s): Minimum student level – graduate.

MECHANICAL ENGINEERING

ME 500 Thesis (1-15)
SEC. 002 CRN 80170 Abedi
004 CRN 80171 Balas
023 CRN 80196 Brooks
024 CRN 80197 Moeller
027 CRN 80200 Schmisseur
028 CRN 80201 Solies
029 CRN 81949 Vakili
030 CRN 81950 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 80203 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 80205  (Video Recorded)
TEXT: Advanced Linear Algebra for Engineers with MATLAB; Sohail A. Dianat and Eli S. Saber;
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. Vector spaces: spanning
sets, orthogonality, matrix decompositions, linear transformations. Eigenvalues and eigenvectors:
characteristic polynomials, singular value decomposition. The Cayley-Hamilton theorem: matrix

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 80218  Abedi
002 CRN 80219  Balas
003 CRN 80220  Brooks
004 CRN 82047  Moeller
005 CRN 82048  Schmisseur
006 CRN 82049  Solies
007 CRN 82050  Vakili
008 CRN 82051  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  599  Special Topics in ME: Data Measure & Analysis (Same as AE 599 003 CRN 82487) (3)
SEC. 002 CRN 82877
TEXT: Random Data: Analysis and Measurement Procedures; Julius S. Bendat and Allan G. Piersol;
TIME: Monday, Wednesday & Thursday  9:30 – 10:45    E-113
PROF: Dr. Phillip Kreth

Tools for random data analysis (including types of random data, mean values, mean-square values, probability density and distribution functions, moments and characteristic functions, spectral and correlation analyses); bias and random error estimates in data measurements; input-output system models; measurement examples.

Repeatability: May be repeated. Maximum 6 hours.
Registration Permission: Consent of instructor.

ME  600 Doctoral Research and Dissertation (3-15)
SEC.  002 CRN 80229 Abedi
      003 CRN 80230 Balas
      004 CRN 80231 Brooks
      005 CRN 80232 Moeller
      020 CRN 80247 Schmisseur
      025 CRN 80253 Solies
      026 CRN 82460 Vakili
      028 CRN 82703 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 81193 Davis
      003 CRN 81195 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 82150 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 81205 Davis
      003 CRN 81207 Parigger
Grading Restriction: P/NP only.
Repeatability: May be repeated.
Registration Restriction(s): Minimum student level – graduate.