Washington State University
MAJOR CURRICULAR CHANGE FORM - - NEW/RESTORE COURSE

- ☐ **Please attach rationale for your request, a complete syllabus**, and explain how this impacts other units in Pullman and other campuses (if applicable).
- ☐ **Obtain all required signatures with dates.**
- ☐ **Provide original stapled packet of signed form/rationale statement/syllabus** PLUS **10 stapled copies** of complete packet to the **Registrar's Office**, campus mail code 1035.
- ☐ **Submit one electronic copy of complete packet** to wsu.curriculum@wsu.edu.

Requested **Future** Effective Date: Fall 2016 (term/year) Course Typically Offered: Fall

DEADLINES: For fall term effective date: **October 1st**; for spring or summer term effective date: **February 1st**. See instructions.

NOTE: Items received after deadlines may be put to the back of the line or forwarded to the following year. Please submit on time.

☒ **New Course** ☐ Temporary Course ☐ **Restore Course**

course subject/crosslist	course no.	title
ECE	525	Experimental Methods for Electrical Engineering

Credit hrs	lecture hrs per week	lab or studio hrs per week	prerequisite
3	3	-	None

Description for catalog: Design and experiments; data analysis methods; statistical testing, dynamic measurements; uncertainty analysis, yield concepts; data acquisition; probability distributions; and report writing.

Additional Attributes: Check all that apply.

☐ Crosslisting (between WSU departments)* ☐ Conjoint listing (400/500):_____

☐ Variable credit:_____ ☐ Repeat credit (cum. max. hrs):_____

Special Grading: ☐ S, F; ☐ A, S, F (PEACT only); ☐ S, M, F (VET MED only); ☐ H, S, F (PHARMACY, PHARDSCI only)

☐ Cooperative with UI ☐ Other (please list request): _____

The following items require prior submission to other committees/depts. (SEE INSTRUCTIONS.)

☐ Request to meet Writing in the Major [M] requirement **(Must have All-University Writing Committee Approval.)**

☐ Request to meet UCORE in _____ **(Must have UCORE Committee Approval › › See instructions.)**

☐ Special Course Fee_____ **(Must submit request to University Receivables.)**

Contact: Feng Zhao Phone number: (360) 546-9187 Campus mail code:_____

Email: feng.zhao@wsu.edu Instructor, if different:_____

8/28/15	9/1/15	
Chair/date	**Dean/date**	**All-University Writing Com / date**
Chair (if crosslisted/interdisciplinary)*	**Dean (if crosslisted/interdisciplinary)***	**UCORE Committee Approval Date**
Catalog Subcommittee Approval Date	**GSC or AAC Approval Date**	**Faculty Senate Approval Date**

***If the proposed change impacts or involves collaboration with other units, use the additional signature lines provided for each impacted unit and college.**

ECE 525 Experimental Methods for Electrical Engineering

Rationale

This course is being created in order for students to learn how to design and conduct well-formulated experiments with consideration of the impact in their research, and also learn data analysis methods and understand typical measurement techniques. The knowledge is central to all electrical engineering postgraduate students.

It does not affect other units in Pullman and other campuses.

ECE 525 Experimental Methods for Electrical Engineering
Course Syllabus

Description: Design of experiments; data analysis methods; statistical testing; dynamic measurements; uncertainty analysis; yield concepts; data acquisition; probability distributions; and report writing

Credits: 3

Prerequisite: Graduate standing

Prerequisite by Topic: None

Required Texts: Experimental Methods for Engineers, 8th Edition, by J. P. Holman, McGraw-Hill, ISBN-13: 978-0071181655

Instructor: Dr. Feng Zhao

Office: VECS 201P
Phone: (360) 546-9187
Email: feng.zhao@wsu.edu
Office hours: Tue 2:00pm-3:00pm
Lectures: VECS 104, MW 2:00pm-3:15pm

Course Description
This course is application-oriented and covers topics such as design of experiments; data analysis methods; statistical testing; dynamic measurements; uncertainty analysis; yield concepts; data acquisition; probability distributions; and report writing.

Course Procedures
There will be three hours of lecture each week. Reading and homework from the required textbook will be assigned. One project on "data acquisition and data analysis" will be assigned.

Attendance Policy
Lecture attendance is highly encouraged but not required. Students are nevertheless responsible for knowing any and all material presented in lecture.

Website
All course materials (lecture notes, assignments, etc.) will be available on the course Blackboard website at https://learn.wsu.edu/.

Learning Outcomes and Assessment

Student Learning Outcomes for this Course: **At the end of the course, the students should be able to:**	**Course Topics/Dates:** **The following date(s) will address this outcome :**	**Evaluation of Outcome :** **This outcome will be primarily evaluated by:**
Students will be able to design and execute experiments.	Week 1-3	Homework, project
Students will be able to collect data and analyze results from experiments.	Week 4-8	Homework, exams, project
Students will have knowledge in various measurement techniques	Week 9-13	Homework, exams
Students will be able to present experiment design and results through oral presentation and project report.	Week 14, 15	Project report, project presentation

Composition of final grade

The course grade will be determined by four verification project assignments as follows:

1. Project and presentation	25%
2. Homework	20%
3. Midterm	20%
4. Final exam	35%
Total	100%

Grading Scale (% of total score)

A	94-100	B	83-86	C	73-76	D	60-66
A-	90-93	B-	80-82	C-	70-72	F	< 59
B+	87-89	C+	77-79	D+	67-69		

Grades will be rounded up to the next point as letter grades for the course are assigned at the end.

Make-up Exam/Assignment Policy

All homework assignments are due on the specified due date in class. Late returns within 2 days will be accepted with 50% of points taken off automatically. No late returns more than 2 days will be accepted.

No make-up exam, assignments or quizzes will be given unless a medical or other emergency was the reason for missing the exam or the assignment. For any other reason you must first contact the instructor **before** missing an exam, a quiz or an assignment.

Design Project

During the semester, students will work on a term project based on the knowledge learnt from the course. Each student will identify a topic which is closely related to their research project for his/her master thesis, and apply "data acquisition and data analysis". Students will work individually. They start with performing a literature survey in that topic and develop experiments of their own. Following the experiment, students will acquire and analyze data from his/her experiment. A project report will be submitted and presentation will be given by students.

Project: Each student needs to design and perform a project, and acquire data from experiment and analyze the data. The topic is chosen by the student and needs to be related to his/her master thesis work. Project report needs to include (1) Executive Summary, (2) Background and Introduction, (3) Literature Review, (4) Methods of Approach, (5) Results and Discussion, (6) Conclusion, and (7) Bibliography. Project will be assigned in Week 7, and report is due in Week 14.

Academic Integrity

Academic integrity is the cornerstone of the university. Any student who attempts to gain an unfair advantage over other students by cheating, will fail the assignment and be reported to the Office Student Standards and Accountability. Cheating is defined in the Standards for Student Conduct WAC 504-26-010 (3).

Student with Disabilities

Reasonable accommodations are available for students with a documented disability. If you have a disability and need accommodations to fully participate in this class, please call the Access Center at (360) 546-9238 or van.access.center@wsu.edu. Accommodations may take some time to implement so it is critical that you contact the Access Center as soon as possible.

Emergency Notification System

WSU has made an emergency notification system available for faculty, students, and staff. Please register at zzusis with emergency contact information (cell, email, text, etc.). You may have been prompted to complete emergency contact information when registering for classes at RONet. In the event of a building evacuation, a map at each classroom entrance shows the evacuation point for each building. Please refer to it. Finally, in case of class cancellation campus-wide, please check local media, the WSU Vancouver web page and/or http://www.flashalert.net/. Individual class cancellations may be made at the discretion of the instructor. Each individual is expected to make the best decision for their personal circumstances, taking safety into account. Safety plan website.

Audio, video, digital, commercial note-taking and other recording during class

 During this course students are prohibited from making audio, video, digital, or other recordings during class, or selling notes to or being paid for taking notes by any person or commercial firm without the permission of the faculty member teaching this course.

ECE 525 Tentative Weekly Schedule

Week	Topics	Homework/Exam
1	Introduction; basic concepts	
2	Literature review	HW1
3	Experiment planning	
4	Uncertainty analysis	HW2
5	Statistical analysis	
6	Probability, expected distributions	HW3
7	Data acquisition	Project assigned
8	Data analysis	HW4, Midterm
9	Electrical measurements	HW5
10	Amplifiers, filters	
11	Temperature measurements	HW6
12	Wafer mapping, yield concept	
13	Dynamic measurements	HW7
	Thanksgiving week – no class	
14	Project presentation	Project report due
15	Project presentation	
16	Final exam	Final