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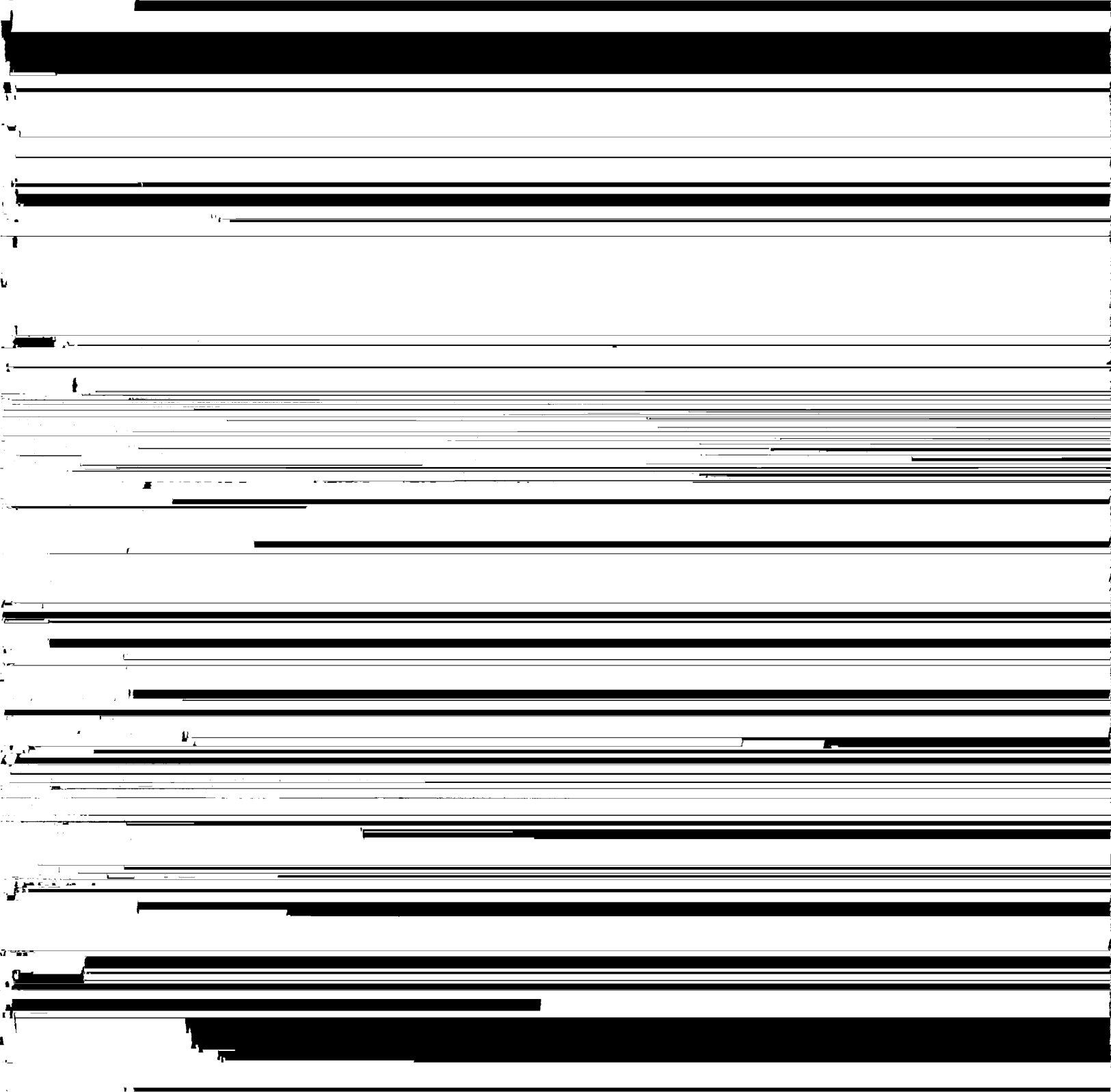
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Submit originals and one copy and electronic copy to **Governance/Faculty Senate Office**
See <http://www.uaf.edu/uafgov/faculty/cd> for a complete description of the rules governing curriculum & course changes.

CHANGE COURSE (MAJOR) and DROP COURSE PROPOSAL

SUBMITTED BY:

Department	Electrical & Comp Engr	College/School	CEM
Prepared by	Richard Wies	Phone	474-7071
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6. CURRENT CATALOG DESCRIPTION AS IT APPEARS IN THE CATALOG: including dept., number, title and credits

EE F408 Power Electronics
3 Credits Offered Spring

JUSTIFICATION FOR ACTION REQUESTED

The purpose of the department and campus-wide curriculum committees is to scrutinize course change and new course applications to make sure that the quality of UAF education is not lowered as a result of the proposed change. Please address this in your response. This section needs to be self-explanatory. If you ask for a change in # of credits, explain why; are you increasing the amount of material covered in the class? If you drop a prerequisite, is it because the material is covered elsewhere? If course is changing to stacked (400/600) explain higher level of effort and performance required

explain what has been done to ensure that the quality of the course is not compromised as a result.

A course in power electronics design is needed to supplement the electrical engineering undergraduate senior design elective requirements for the power and controls option and student interest in emerging technology associated with power electronic devices and their use in modern electric power systems.

through the lecture portion of this course is similar to that presented EE 402/602, Power Electronics

ATTACH COMPLETE SYLLABUS (as part of this application).

The department and campus wide curriculum committees will review the syllabus to ensure that each of the items listed below are included. If items are missing or unclear, the proposed course change will be denied.

SYLLABUS CHECKLIST FOR ALL UAF COURSES

During the first week of class, instructors will distribute a course syllabus. Although modifications may be made throughout the semester, this document will contain the following information (as applicable to the

1. Course information:

Title, number, credits, prerequisites, location, meeting time
(make sure that contact hours are in line with credits).

2. Instructor (and if applicable, Teaching Assistant) information:

Name, office location, office hours, telephone, email address.

3. Course readings/materials:

Course textbook title, author, edition/publisher.

Supplementary readings (indicate whether required or recommended) and

University of Alaska Fairbanks
Electrical and Computer Engineering Department
EE 408/608 - Power Electronics Design
Spring 2012

Course Information:

Title: EE 408/608 Power Electronics Design (3+3)
Lecture Time: MWF (11:45AM-12:45PM) in Duckering 202

Prerequisites: COMM E121Y or COMM E141Y, EE 202, EE 224, EE 254, ENCL E111Y,

ENCL E211Y or ENCL 212Y or permission of instructor, senior standing

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Oral presentations will be graded according to content, voice, use of visual aides and format. There will be three presentations of at least 10 minutes each and one ~~presentation~~. Each presentation will be followed by a brief question

and answer period and instructor evaluation.

The percentages in the following grading criteria are based on the total points possible (1000) in the course.

Exam I	75 (7.5%)
Exam II	75 (7.5%)
Written/Oral	
Written	500 (50%)
Project Reports	
Proposal	5%
Mid Term Progress	5%
Draft Report	15%
Final Report	10%
Lab Reports	15%
Oral Presentations	150 (15%)
Proposal	3%
Mid Term Progress	3%
Final	9%
Project Performance	150 (15%)
Homework	50 (5%)
Total	1000(100%)

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Exams: Midterm exams are open book and closed notes with *two* 8.5x11 (INCHES) formula sheets allowed. Formula sheets cannot have solved problems and must be attached to the exam. **Laptops, cell phones, and calculators with communication capability (Bluetooth, etc.) are not permitted to be used during the exams.** Absences from exams must be preceded by a valid excuse. In the event of a valid excused absence it is the student's responsibility to contact the instructor to arrange for a make-up exam.

Cheating/Plagiarism: Cheating and plagiarism will not be tolerated and will result in failure of the course.

Attendance: As directly quoted from the 2011-2012 UAF Course Catalog under Academics/Attendance (page 48):

"You are expected to attend class regularly; unexcused absences may result in a

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EE 408/608 - Power Electronics Design - Final Exam Schedule - Spring 2012

All dates and topics are tentative. Exam dates are subject to change.

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Date	Topic	Date	Topic
Apr. 2 – Lecture #26 Switch-Mode Inverters: Single-Phase Full-Bridge with Voltage Cancellation; Switch Utilization; Voltage Output Ripple – Sections 8.3.2.4-8.3.2.6	Apr. 2 – Lab #10 Design Project Time	Apr. 4 – Lecture #27 Switch-Mode Inverters: Push-Pull Inverters; Switch Utilization – Sections 8.3.3-8.3.4	Apr. 6 – Lecture #28 Switch-Mode Inverters: Three-Phase Inverters and Voltage Source PWM – Sections 8.4.1
Apr. 9 – Lecture #29	Apr. 9 – Lab #11	Apr. 11 – Lecture #30	Apr. 13 – Lecture #31

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Senior/Graduate Design Project: Regulated DC Hard Drive Bay Power Supply Design

Objective:

The objective of this project is to design, simulate using PSPICE, and build a regulated dc power supply fed from a single phase AC source that meets the design requirements listed below. You will need to combine what you learn in the class lecture and laboratory and additional literature such as technical articles and/or materials from the textbook to complete this project.

Design Problem Statement:

source to power a hard drive bay in a server to store power systems data that is being uploaded from remote monitoring sites in 20 remote communities in Alaska. Each community has a single 1TB hard

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Team Approach:

You will be working in teams of two on this design project and each of the team members will have specific tasks that will be documented in a project workplan as part of the proposal. The instructor will sign off on each task in the workplan as it is completed.

Reports:

You are required to write four reports as part of the design project

- 1) **Proposal (Due: Monday, Feb. 7, 2010):** *You are required* to write a project proposal (5 pages or less) which lays out your intended design based on the given requirements. Include preliminary PSPICE schematics and necessary output text files. ***You will be required*** to submit a project workplan outlining the tasks for each team member as part of the proposal. You will meet with the instructor to discuss the proposal.
- 2) **Midterm Progress (Due: Monday, March 2, 2010):** *You are required* to write a midterm progress report (5 pages or less) which discusses your progress up to the time of the mid-term progress presentations. *You will meet with the instructor to discuss the mid-term progress.*

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Thesis Department of Engineering Department