Tentative Syllabus – Subject to change according to circumstances

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Course Description
The aims of this course are to present the use of electronic devices to control and convert electric power. The basic principle of power conversion techniques and their applications will be introduced. Students will obtain the fundamental knowledge to simulate and model of different power electronics converters. Credit hours: 3 hrs.

Course Prerequisites
EENG 3520 Electronics II

Course Co-requisites
None

Class Schedule
Tuesdays and Thursdays 11:30 - 12:50 PM
Classroom: B190

Course Webpage
All the course related material will be posted on the course webpage which is available through Canvas (https://learn.unt.edu).

Instructor
- Dr. Ken, King Man Siu, Assistant Professor, Department of Electrical Engineering
- Office: NTRP B233
- Tel: (940) 369-7890
- Email: Kingman.siu@unt.edu
- Office Hours: Tuesday and Thursday 1:30 – 2:30 PM
- Additional appointments can be requested by email using your my.unt.edu account.

Assistant
- Mitul Mahendrabhai Parmar
- Email: MitulMahendrabhaiParmar@my.unt.edu
- Office: NTRP B250
- Office Hours: Tuesday and Thursday 2:30 – 4:30 PM

Assessments and Grading

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Percent of final grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homework</td>
<td>25%</td>
</tr>
<tr>
<td>Midterm 1</td>
<td>25%</td>
</tr>
<tr>
<td>Midterm 2</td>
<td>25%</td>
</tr>
<tr>
<td>Final Project</td>
<td>25%</td>
</tr>
<tr>
<td>Total possible</td>
<td>100%</td>
</tr>
</tbody>
</table>

Grading scale to obtain final letter grade from percentage
A = 90.0-100.0
B = 80.0-89.9
C = 70.0-79.9
D = 60.0-69.9
F = 0.0-59.9

- Keep all of your graded assignments, quizzes, and tests for study and review. I will make all the effort to return the graded assignments, but it’s your responsibility to collect back the graded assignments from the grader or the instructor if it is not given back to you.
- Grades cannot be changed after they have been electronically entered into the university’s system except for instructor error. Any extenuating circumstances that may adversely affect your grade must be brought to my attention before the final course grades are recorded.

Schedules of exams
- Midterm 1: Oct 19 11:30-12:50pm.
- Midterm 2: Nov 16/28 11:30-12:50pm.

Textbooks

Class Evaluation by Students
The SPOT (Student Perceptions of Teaching) evaluation is a requirement for all organized classes at UNT and is available for your input at the end of the semester.

Course Learning Outcomes
The Course Learning Outcomes (CLOs) are listed below and are evaluated by surveys of self-assessment from students at the beginning and end of the semester. The results become part of ABET accreditation reports of the EE department.

[CLO-1] Recognize the basic characteristics of power electronic devices and circuit components.
[CLO-2] Understand the power conversion technology of different converter topologies.
[CLO-3] Have the ability to analyze, design and simulate AC-DC rectifiers.
[CLO-4] Have the ability to analyze, design and simulate DC-DC converters.
[CLO-5] Have the ability to analyze, design and simulate DC-AC inverters.
[CLO-6] Understand the basic principles of power converter control.
[CLO-7] Know how to acquire power conversion concepts for different power system applications.

Course Technology and Skills Required for this Class
Students will need access to a set of minimum technological resources and skills to succeed in this class.

Minimum Technology Requirements
The students are required to have:

- Computer
- Reliable internet access and web browser
- Canvas Technical Requirements (https://clear.unt.edu/supported-technologies/canvas/requirements)

Computer Skills and Digital Literacy
Course-specific technical skills learners must have to succeed in the course:

- Using Canvas for accessing materials and grades, as well as submitting files if needed
- Converting files to PDF
- Using email with attachments
- Downloading and installing software
- Using spreadsheet programs
- Using software tools to conduct system-level simulation, such as PLECS

Technical Assistance
Here at UNT, we have a Student Help Desk that you can contact for help with Canvas or other technology issues.

UIT Help Desk: UIT Student Help Desk site (http://www.unt.edu/helpdesk/index.htm)
Email: helpdesk@unt.edu
Phone: 940-565-2324
In Person: Sage Hall, Room 130
Walk-In Availability: 8am-9pm
Telephone Availability:
  - Sunday: noon-midnight
  - Monday-Thursday: 8am-midnight
  - Friday: 8am-8pm
  - Saturday: 9am-5pm
Laptop Checkout: 8am-7pm
For additional support, visit Canvas Technical Help (https://community.canvaslms.com/docs/DOC-10554-4212710328)

Course Topics
- Introduction to Power Electronics Systems
- AC-DC Rectifiers
- DC-DC Converters
- DC-AC Inverters
- Power Semiconductor Switches
- Basic Electrical and Magnetic Circuit Concepts
- Cooling System and Thermal Model
- Modeling of Power Electronic Converters
• Fundamentals of Feedback Control
• Practical Converter Design Considerations
• Applications of Power Electronic Converters

Course Policies

Syllabus Change Policy
Information provided in the syllabus is subject to change according to circumstances.

Grades
All grades for the course will be final. No extra credit assignments or work will be considered after the final grade has been recorded.

Attendance
Attendance to class is required.

COVID-19 Impact on Attendance
While attendance is expected as outlined above, it is important for all of us to be mindful of the health and safety of everyone in our community, especially given concerns about COVID-19. Please contact me if you are unable to attend class because you are ill, or unable to attend class due to a related issue regarding COVID-19. It is important that you communicate with me prior to being absent so I may make a decision about accommodating your request to be excused from class.

If you are experiencing any symptoms of COVID-19 (https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/symptoms.html) please seek medical attention from the Student Health and Wellness Center (940-565-2333 or askSHWC@unt.edu) or your health care provider. UNT also requires you to contact the UNT COVID Hotline at 844-366-5892 or COVID@unt.edu for guidance on actions to take due to symptoms, pending or positive test results, or potential exposure. While attendance is an important part of succeeding in this class, your own health, and those of others in the community, is more important.

Class Participation
Students are encouraged to participate during lectures.

Late Work
Problem sets are to be submitted by the due date and time. Late work is not accepted.

Examination Policy
No make-up examinations will be given.

Assignment Policy
Instructions, due dates, submittal format for each assignment will be given in Canvas. If submittal is required online, consider submitting assignments ahead of the due date to avoid potential last minute technical difficulties, including server unavailability. If you experience technical difficulties at the due date and time, you should immediately contact the instructor and the Student Helpdesk helpdesk@unt.edu or 940.565.2324.

Instructor Responsibilities and Feedback
As an instructor I strive to help students learn, providing clear instructions for assessments, answering questions about assignments, identifying additional resources as necessary, providing grading information, reviewing and updating course content. I aim to return graded work to you within one week after the due date. Normally, I do my best to respond to Email questions within a 24-hour timeframe.

UNT policies

Rules of Engagement
Rules of engagement refer to the way students are expected to interact with each other and with their instructors. Here are some general guidelines:
- While the freedom to express yourself is a fundamental human right, any communication that utilizes cruel and derogatory language based on race, color, national origin, religion, sex, sexual orientation, gender identity, gender expression, age, disability, genetic information, veteran status, or any other characteristic protected under applicable federal or state law will not be tolerated.
- Treat your instructor and classmates with respect in any communication, even when their opinion differs from your own.
- Speak from personal experiences. Use “I” statements to share thoughts and feelings. Try not to speak on behalf of groups or other individual’s experiences.
- Use your critical thinking skills to challenge other people’s ideas, instead of attacking individuals.
- Avoid using all caps while communicating digitally. This may be interpreted as “YELLING!”
- Be cautious when using humor or sarcasm in emails or discussion posts as tone can be difficult to interpret digitally.
- Avoid using “text-talk”.
- Proofread and fact-check your sources.
- Keep in mind that online posts can be permanent, so think first before you type.

See these Engagement Guidelines (https://clear.unt.edu/online-communication-tips) for more information.

**Academic Integrity Policy**

**Academic Integrity Standards and Consequences.** According to UNT Policy 06.003, Student Academic Integrity, academic dishonesty occurs when students engage in behaviors including, but not limited to cheating, fabrication, facilitating academic dishonesty, forgery, plagiarism, and sabotage. A finding of academic dishonesty may result in a range of academic penalties or sanctions ranging from admonition to expulsion from the University. Examples of categories of academic dishonesty are:

**A. Cheating.** The use of unauthorized assistance in an academic exercise, including but not limited to:

- use of any unauthorized assistance to take exams, tests, quizzes or other assessments;
- dependence upon the aid of sources beyond those authorized by the instructor in writing papers, preparing reports, solving problems or carrying out other assignments;
- acquisition, without permission, of tests, notes or other academic materials belonging to a faculty or staff member of the University;
- dual submission of a paper or project, or re-submission of a paper or project to a different class without express permission from the instructor;
- any other act designed to give a student an unfair advantage on an academic assignment.

**B. Plagiarism.** Use of another’s thoughts or words without proper attribution in any academic exercise, regardless of the student’s intent, including but not limited to:

- the knowing or negligent use by paraphrase or direct quotation of the published or unpublished work of another person without full and clear acknowledgement or citation.
- the knowing or negligent unacknowledged use of materials prepared by another person or by an agency engaged in selling term papers or other academic materials.

**C. Forgery.** Altering a score, grade or official academic university record or forging the signature of an instructor or other student.

**D. Fabrication.** Falsifying or inventing any information, data or research as part of an academic exercise.

**E. Facilitating Academic Dishonesty.** Helping or assisting another in the commission of academic dishonesty.

**F. Sabotage.** Acting to prevent others from completing their work or willfully disrupting the
academic work of others.

**ADA Policy**
UNT makes reasonable academic accommodation for students with disabilities. Students seeking accommodation must first register with the Office of Disability Accommodation (ODA) to verify their eligibility. If a disability is verified, the ODA will provide a student with an accommodation letter to be delivered to faculty to begin a private discussion regarding one’s specific course needs. Students may request accommodations at any time, however, ODA notices of accommodation should be provided as early as possible in the semester to avoid any delay in implementation. Note that students must obtain a new letter of accommodation for every semester and must meet with each faculty member prior to implementation in each class. For additional information, see the ODA website (https://disability.unt.edu/).

**Prohibition of Discrimination, Harassment, and Retaliation (Policy 16.004)**
The University of North Texas (UNT) prohibits discrimination and harassment because of race, color, national origin, religion, sex, sexual orientation, gender identity, gender expression, age, disability, genetic information, veteran status, or any other characteristic protected under applicable federal or state law in its application and admission processes; educational programs and activities; employment policies, procedures, and processes; and university facilities. The University takes active measures to prevent and investigate such conduct and takes remedial action when appropriate.

**Emergency Notification & Procedures**
UNT uses a system called Eagle Alert to quickly notify students with critical information in the event of an emergency (i.e., severe weather, campus closing, and health and public safety emergencies like chemical spills, fires, or violence). In the event of a university closure, please refer to Canvas for contingency plans for covering course materials.

**Retention of Student Records**
Student records pertaining to this course are maintained in a secure location by the instructor of record. All records such as exams, answer sheets, and assignments submitted during the duration of the course are kept for at least one calendar year after course completion. Course work completed via the Canvas online system, including grading information and comments, is also stored in a safe electronic environment for one year. Students have the right to view their individual record; however, information about student’s records will not be divulged to other individuals without proper written consent. Students are encouraged to review the Public Information Policy and the Family Educational Rights and Privacy Act (FERPA) laws and the University’s policy. See UNT Policy 10.10, Records Management and Retention for additional information.

**Acceptable Student Behavior**
Student behavior that interferes with an instructor’s ability to conduct a class or other students' opportunity to learn is unacceptable and disruptive and will not be tolerated in any instructional forum at UNT. Students engaging in unacceptable behavior will be directed to leave the classroom or Zoom meeting and the instructor may refer the student to the Dean of Students to consider whether the student’s conduct violated the Code of Student Conduct. The University's expectations for student conduct apply to all instructional forums, including University and electronic classroom, labs, discussion groups, field trips, etc. Visit UNT’s Code of Student Conduct (https://deanofstudents.unt.edu/conduct) to learn more.

**Access to Information - Eagle Connect**
Students’ access point for business and academic services at UNT is located at: my.unt.edu. All official communication from the University will be delivered to a student’s Eagle Connect account. For more information, please visit the website that explains Eagle Connect and how to forward e-mail Eagle Connect (https://it.unt.edu/eagleconnect).
**Student Evaluation Administration Dates**

Student feedback is important and an essential part of participation in this course. The student evaluation of instruction is a requirement for all organized classes at UNT. The survey will be made available during weeks 13, 14 and 15 of the long semesters to provide students with an opportunity to evaluate how this course is taught. Students will receive an email from "UNT SPOT Course Evaluations via IASystem Notification" (no-reply@iasystem.org) with the survey link. Students should look for the email in their UNT email inbox. Simply click on the link and complete the survey. Once students complete the survey they will receive a confirmation email that the survey has been submitted. For additional information, please visit the SPOT website (http://spot.unt.edu/) or email spot@unt.edu.

**Sexual Assault Prevention**

UNT is committed to providing a safe learning environment free of all forms of sexual misconduct, including sexual harassment sexual assault, domestic violence, dating violence, and stalking. Federal laws (Title IX and the Violence Against Women Act) and UNT policies prohibit discrimination on the basis of sex, and therefore prohibit sexual misconduct. If you or someone you know is experiencing sexual harassment, relationship violence, stalking, and/or sexual assault, there are campus resources available to provide support and assistance. UNT’s Survivor Advocates can assist a student who has been impacted by violence by filing protective orders, completing crime victim’s compensation applications, contacting professors for absences related to an assault, working with housing to facilitate a room change where appropriate, and connecting students to other resources available both on and off campus. The Survivor Advocates can be reached at SurvivorAdvocate@unt.edu or by calling the Dean of Students Office at 940-565-2648. Additionally, alleged sexual misconduct can be non-confidentially reported to the Title IX Coordinator at oeo@unt.edu or at (940) 565 2759.

**Important Notice for F-1 Students taking Distance Education Courses**

**Federal Regulation**

To read detailed Immigration and Customs Enforcement regulations for F-1 students taking online courses, please go to the Electronic Code of Federal Regulations website (http://www.ecfr.gov/). The specific portion concerning distance education courses is located at Title 8 CFR 214.2 Paragraph (f)(6)(i)(G).

The paragraph reads:

(G) For F-1 students enrolled in classes for credit or classroom hours, no more than the equivalent of one class or three credits per session, term, semester, trimester, or quarter may be counted toward the full course of study requirement if the class is taken on-line or through distance education and does not require the student's physical attendance for classes, examination or other purposes integral to the completion of the class. An online or distance education course is a course that is offered principally through the use of television, audio, or computer transmission including open broadcast, closed circuit, cable, microwave, or satellite, audio conferencing, or computer conferencing. If the F-1 student's course of study is in a language study program, no online or distance education classes may be considered to count toward a student's full course of study requirement.

**The University of North Texas Compliance**

To comply with immigration regulations, an F-1 visa holder within the United States may need to engage in an on-campus experiential component for this course. This component (which must be approved in advance by the instructor) can include activities such as taking an on-campus exam, participating in an on-campus lecture or lab activity, or other on-campus experience integral to the completion of this course. If such an on-campus activity is required, it is the student’s responsibility to do the following:

1. Submit a written request to the instructor for an on-campus experiential component within one week of the start of the course.
(2) Ensure that the activity on campus takes place and the instructor documents it in writing with a notice sent to the International Student and Scholar Services Office. ISSS has a form available that you may use for this purpose. Because the decision may have serious immigration consequences, if an F-1 student is unsure about his or her need to participate in an on-campus experiential component for this course, s/he should contact the UNT International Student and Scholar Services Office (telephone 940-565-2195 or email internationaladvising@unt.edu) to get clarification before the one-week deadline.

Student Verification
UNT takes measures to protect the integrity of educational credentials awarded to students enrolled in distance education courses by verifying student identity, protecting student privacy, and notifying students of any special meeting times/locations or additional charges associated with student identity verification in distance education courses.
See UNT Policy 07-002 Student Identity Verification, Privacy, and Notification and Distance Education Courses (https://policy.unt.edu/policy/07-002).

Use of Student Work
A student owns the copyright for all work (e.g. software, photographs, reports, presentations, and email postings) he or she creates within a class and the University is not entitled to use any student work without the student’s permission unless all of the following criteria are met:

• The work is used only once.
• The work is not used in its entirety.
• Use of the work does not affect any potential profits from the work.
• The student is not identified.
• The work is identified as student work.

If the use of the work does not meet all of the above criteria, then the University office or department using the work must obtain the student’s written permission.

Download the UNT System Permission, Waiver and Release Form

Transmission and Recording of Student Images in Electronically-Delivered Courses

1. No permission is needed from a student for his or her image or voice to be transmitted live via videoconference or streaming media, but all students should be informed when courses are to be conducted using either method of delivery.

2. In the event an instructor records student presentations, he or she must obtain permission from the student using a signed release in order to use the recording for future classes in accordance with the Use of Student-Created Work guidelines above.

3. Instructors who video-record their class lectures with the intention of re-using some or all of recordings for future class offerings must notify students on the course syllabus if students' images may appear on video. Instructors are also advised to provide accommodation for students who do not wish to appear in class recordings.

Example: This course employs lecture capture technology to record class sessions. Students may occasionally appear on video. The lecture recordings will be available to you for study purposes.

No notification is needed if only audio and slide capture is used or if the video only records the instructor’s image. However, the instructor is encouraged to let students know the recordings will be available to them for study purposes.

Class Recordings and Student Likenesses
Synchronous (live) sessions in this course will be recorded for students enrolled in this class section to refer to throughout the semester. Class recordings are the intellectual property of the university or instructor and are reserved for use only by students in this class and only for educational purposes.
Students may not post or otherwise share the recordings outside the class, or outside the Canvas Learning Management System, in any form. Failing to follow this restriction is a violation of the UNT Code of Student Conduct and could lead to disciplinary action.

**Academic Support and Student Services: Mental Health**

UNT provides mental health resources to students to help ensure there are numerous outlets to turn to that wholeheartedly care for and are there for students in need, regardless of the nature of an issue or its severity. Listed below are several resources on campus that can support your academic success and mental well-being:

- [Student Health and Wellness Center](https://studentaffairs.unt.edu/student-health-and-wellness-center)
- [Counseling and Testing Services](https://studentaffairs.unt.edu/counseling-and-testing-services)
- [UNT Care Team](https://studentaffairs.unt.edu/care)
- [UNT Psychiatric Services](https://studentaffairs.unt.edu/student-health-and-wellness-center/services/psychiatry)
- [Individual Counseling](https://studentaffairs.unt.edu/counseling-and-testing-services/services/individual-counseling)

**Chosen Names**

A chosen name is a name that a person goes by that may or may not match their legal name. If you have a chosen name that is different from your legal name and would like that to be used in class, please let the instructor know. Below is a list of resources for updating your chosen name at UNT.

- [UNT Records](https://studentaffairs.unt.edu/care)
- [UNT ID Card](https://studentaffairs.unt.edu/care)
- [UNT Email Address](https://studentaffairs.unt.edu/care)
- [Legal Name](https://studentaffairs.unt.edu/care)

*UNT euIDs cannot be changed at this time. The collaborating offices are working on a process to make this option accessible to UNT community members.*

**Pronouns**

Pronouns (she/her, they/them, he/him, etc.) are a public way for people to address you, much like your name, and can be shared with a name when making an introduction, both virtually and in-person. Just as we ask and don’t assume someone’s name, we should also ask and not assume someone’s pronouns. You can [add your pronouns to your Canvas account](https://studentaffairs.unt.edu/care) so that they follow your name when posting to discussion boards, submitting assignments, etc.

Below is a list of additional resources regarding pronouns and their usage:

- What are pronouns and why are they important?
- How do I use pronouns?
- How do I share my pronouns?
- How do I ask for another person’s pronouns?
- How do I correct myself or others when the wrong pronoun is used?

**Additional Student Support Services**

- [Registrar](https://registrar.unt.edu/registration)
- [Financial Aid](https://financialaid.unt.edu/)
- [Student Legal Services](https://studentaffairs.unt.edu/student-legal-services)
- [Career Center](https://studentaffairs.unt.edu/career-center)
• Multicultural Center (https://edo.unt.edu/multicultural-center)
• Counseling and Testing Services (https://studentaffairs.unt.edu/counseling-and-testing-services)
• Pride Alliance (https://edo.unt.edu/pridealliance)
• UNT Food Pantry (https://deanofstudents.unt.edu/resources/food-pantry)

Academic Support Services
• Academic Resource Center (https://clear.unt.edu/canvas/student-resources)
• Academic Success Center (https://success.unt.edu/asc)
• UNT Libraries (https://library.unt.edu/)
• Writing Lab (http://writingcenter.unt.edu/)