

EEL 5490 Section 226D Class #13176
EEL 4495 Section 226B Class #13184

LIGHTNING

Fall 2018

Instructor: Dr. Vladimir A. Rakov

553 EB, Tel. 392-4242

E-mail: rakov@ece.ufl.edu

Website: <http://plaza.ufl.edu/rakov/>

Office Hours: M W F, 7th period (1:55 – 2:45 p.m.), 553 EB

Teaching Assistant: TBA

Course Website: <http://www.rakov.ece.ufl.edu/teaching/5490/5490.html>

3 credits, M W F, 6th period (12:50 – 1:40 p.m.), 328 BEN

Text:

Rakov, V.A. **Fundamentals of Lightning (FOL)**, Cambridge University Press, 2016

Rakov, V.A., **Lightning, Course Packet** (available at <http://www.rakov.ece.ufl.edu/teaching/5490/5490.html>)

EEL 5490/4495 Lightning (Fall 2018)

Course Sections	Number of Lectures	HW Due	Test	Section in Course Packet	Chapter/ Sections in Text (FOL)
1. Types of lightning discharges and lightning terminology	4	HA1 09/05	T1 09/07	1	1, App. 1, 4
2. Incidence of lightning to areas and structures	4	HA2 09/17	T2 09/19	2	2, Sect. 9.3
3. Electrical structure of thunderstorm clouds	6	HA3 10/03	T3 10/05	3	3, App. 2
4a. Properties of the negative lightning discharge to ground - I	5	HA4 10/19	T4 10/22	4a	4.1-4.3, 4.6, 4.10
4b. Properties of the negative lightning discharge to ground - II	4	HA5 10/31	T5 11/02	4b	4.4-4.5, 4.7-4.10, 9.3

Course Sections	Number of Lectures	HW Due	Test	Section in Course Packet	Chapter/Sections in Text (FOL)
5. Calculation of lightning electromagnetic fields	5	HA6 12/03	T6 12/05	5	5, App. 3
6. Modeling of lightning processes	3			-	6
7. Measurement of lightning electric and magnetic fields	2			-	7
8. Lightning locating systems and lightning protection	1	-	-	-	8,9
Final Exam, 13D (328 BEN)	-	-	Dec. 13 (Thursday) 3:00 – 5:00 p.m.	1-9	1-9, App. 1-4

EEL 5490/4495, Lightning

Fall 2018

In-class tests. Six tests are graded by TA, and each test accounts for **10%** of the overall grade for the course so that all five in-class tests account for **60%** of the overall grade.

Home assignments. Six home assignments are given. Home work turned in after **1 p.m.** on the due date is not accepted. Home work is graded by TA, and each assignment accounts for **2%** of the overall grade for the course so that all five home works account for **12%** of the overall grade.

Final exam is comprehensive and accounts for **28%** of the overall grade for the course. Problems on the final exam are of the same level of difficulty as those on the home assignments and tests.

$$G = 0.1(T1 + T2 + \dots + T6) + 0.02(HW1 + HW2 + \dots + HW6) + 0.28F$$

G = Overall grade for the course; T = Test grade;

HW = Home work grade; F = Final exam grade

$\geq 90\% \rightarrow A$; $\geq 86.67\% \rightarrow A-$; $\geq 83.33\% \rightarrow B+$; $\geq 80\% \rightarrow B$;
 $\geq 76.67\% \rightarrow B-$; $\geq 73.33\% \rightarrow C+$; $\geq 70\% \rightarrow C$; $\geq 66.67\% \rightarrow C-$;
 $\geq 63.33\% \rightarrow D+$; $\geq 60\% \rightarrow D$; $\geq 56.67\% \rightarrow D-$; $< 56.67\% \rightarrow E$