

Syllabus CVEG 5323

Structural Dynamics

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You can call me to my office number and if I am not there please send an email with a number to contact you. I will either email you or contact you by phone. I can use skype whenever it is necessary to see and talk.

Course Description:

Dynamics response of single and multidegree of freedom systems. Modal analysis. Response spectra. Computer programs for dynamic analysis. Design considerations for structures subjected to time-varying forces including earthquake, wind, and blast loads.

Required Textbook:

Include ISBN

Text Book: Class Handouts

Paz, M. and W. Leigh (2004), **Structural Dynamics: Theory and computation**, 5th Edition.

Course Goals/Objectives:

Learn to be proficient in the following topics:

1. *Introduction to structural dynamics*
2. *Single degree of freedom system*
3. *Rayleigh's method*
4. *Nonlinear dynamic analysis*
5. *Multi degree freedom system*
6. *Earthquake loading & structural dynamics*

Course Requirements:

Assignments: Assignments for each week would be due by midnight every Sunday

Projects: No projects for this class

Exams: Two in class exam and one final exam will be given for this class. The in class exams need to be proctored.

Presentations: None

Evaluation Procedures:

In-class exams 2 @ 100 ea.	= 200
Final Exam	= 200
Assignments	= 100

Total	<hr/> = 500
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A 90%+, B 80 to 89%, C 70 to 79%, D 60 to 69%, F 59 or less

Academic Honesty Policy:

- The University of Arkansas strives to be a center of academic excellence. As part of our Statement of Ethics, the University strives to preserve academic honor and integrity by repudiating all forms of academic and intellectual dishonesty, including cheating, plagiarism and all other forms of academic dishonesty. Academic dishonesty is unacceptable and is subject to a disciplinary response.
- Students who are caught cheating or committing plagiarism may be given a failing grade in the course by the professor and may be subject to dismissal or further discipline.
- Plagiarism is often misunderstood as referring only to passing off another's writing as one's own. The definition also extends to ideas and arguments taken from others' work without proper citing of the original source. It is also not permissible to construct papers or reports by merely "cutting and pasting" and then just citing another's work. In writing for homework or projects, you should read and learn, process information through your mind, relate ideas, and then express your take on the material you've read **in your own words**. Cite the references where you found your information. If you do use someone else's words, do so sparingly, use quotation marks, **and** cite.

The complete Academic Integrity Policy is available at the Provost and Vice Chancellor for Academic Affairs web site, <http://provost.uark.edu>.

Inclement Weather Policy:

Not applicable.

Class Procedures

The students can contact me through my email, office phone and skype. For skype if the students arrange a time to talk to me by email or phone. Then only I can keep the skype active.

In case of late assignments or taking the exam they need to work with me for extension or alternate dates. Unless previous permission is not worked out, late assignment will not be considered for grade. The extensions are based on individual situations.

Schedule:

Course Units/Calendar Table

Week	Chapters & Lectures Covered	Assignments, projects, papers, quizzes and exams	Due by Date (All homework assignments are due each Sunday, 11:55 PM CST)
1 1/11 to 1/17	Lectures 1, -8 (SDF)-1/11 to 1/31	<ul style="list-style-type: none"> • Assignment #1:HW#1-3 • 	ASS#1-Due 1/17
2 1/18 to 1/24	Lectures:9-17 (SDF)-2/3 to 2/21	<ul style="list-style-type: none"> • Assignment # 2: HW#3-5 • Exam#1 	ASS#2-Due 1/24 Take Exam #1-this week
3 1/25 to 1/31	Lectures: 18-25 (2/26 to 3/16)	<ul style="list-style-type: none"> • Assignment # 3: HW#6 to HW#8 • 	Ass#3-Due 1/31
4 2/1 to 2/7	Lectures: 26-30 (3/20 to 4/8)	<ul style="list-style-type: none"> • Assignment #4: HW#9 • Exam#2 	Ass#4-Due 2/7 Take Exam#2-this week
5 2/8 to 2/14	Lectures: 31-35 (4/10 to 4/20)	<ul style="list-style-type: none"> • Assignment #5: HW#10 	ASS#5-Due 2/14
6 2/15 to 2/21	Lectures: 36-39 (4/22 to 4/29)	<ul style="list-style-type: none"> • Assignment#6: HW#11 	ASS#6-Due 2/21
7 2/22 to 2/28	Lectures:	<ul style="list-style-type: none"> • Work on final project 	ASS#7-Due 2/28
8 3/1 to 3/5	Lectures:	<ul style="list-style-type: none"> • Final Exam 	Final exam this week-3/5 last day?

Caveat: changes to syllabus

“The above schedule and procedures in this course are subject to change in the event of extenuating circumstances.”

First email:

Welcome to the CVEG 5323.

First of all, please send your phone number and when I can call etc. So that in case we need to talk we can talk. Also please feel free to give me a call when things are not clear.

1. **Watching the videos:** There are totally 39 recordings. Please arrange your time so that each week you watch at the least 6 recordings/week for 7 week. I didn't include the last week here.
2. **Home work:** The home works are in the class discussions. So please watch your recordings to get the HW. Also see the details in the next page.
3. **Class Notes:** Trying to send via zip file.
4. **Class lecture write up:** You can get it from the zip file in the remote computer. This is the one, I write in the class and I want you to print it and make a book for reference. This is where homework details will be available. Each problem set or assignments in the previous page schedule has several HW and in the class discussion they are called HW.)
5. **Class programs:** Send it by zip file.
6. I will keep the program and class notes in the first remote computer (**Cveg-tecp.ddns.uark.edu**) as a zip file and you can copy them via remote access. The details are provided below. The zipfile file is in **c:\selvam**
7. For visualization you will use **tecplot remotely** to a computer in our department. In case you have issues you can contact our technician Mr. Chris Boyd.
8. I will email the exam and you will take the **exam by honor** system. Then you will email me.
9. Email me **your contact info and CV** (like phone number, where you work etc.) so that I know more about you and also I can talk to in case of clarifications etc.
10. I am planning to have **weekly one meeting via MS-Team**. Let us discuss before the school starts to fix the time. I want you to participate and ask questions. We can also discuss individually if needed.
11. Since I taught some time ago I don't remember all the details. When you talk to me or correspond with me please help me to locate myself before our discussions. Remember you watch the video and I am not.
12. I am listing the recoding date that are valid in a table in the next page and also some detail on the HW#.
13. I wish you all the best in finishing the course in time.

Programs for the class:

Ni1d.exe
Dft-class.exe
Jacobi.exe
Modal.exe
Sresb.exe
Pf.exe

Remote access using remote desktop connection detail:

Install Global connect VPN Client from: <https://libraries.uark.edu/access/vpn.asp>

Always run the VPN client before you access by remote desktop connection from windows.

Then you can connect the following two computers using remote desktop connection.

The two computers that can be remoted into for Tecplot are:

Cveg-tecp.ddns.uark.edu

Cveg-tecp-w02.ddns.uark.edu

1. The tecplot access or provided above.
2. If you don't use the tecplot please **log out of tecplot** as well as from that computer accessed by remote access.

CVEG5323-Sp-2020-notes

of lectures from Bb

Total lecture recorded-39

1. 1/13
2. 1/15
3. 1/17
4. 1/22
5. 1/24
6. 1/27
7. 1/29
8. 1/31
9. 2/3
10. 2/5
11. 2/7
12. 2/10
13. 2/12
14. 2/14
15. 2/17
16. 2/19
17. 2/21
18. 2/24-Exam#1-no recording-remove the one in Bb (L#18 for me)
19. 2/26-called L#19
20. 2/28-called –L#19-repeated twice
21. 3/2
22. 3/4
23. 3/6
24. 3/9
25. 3/11
26. 3/13-no recording-no class
27. 3/16-not sure what I did with HW#9 & #10(MDF-sine & EL). Later I renamed #9 & #10 as ELF & modal weight.
28. 3/18-Exam#2-no recording-remove the one in Bb (L#26 for me-cancelled one class 3/13 & repeatedL#-2/26 & 2/28)
29. 3/20
30. 3/30
31. 4/3-(4/1-forgot to record)
32. 4/6
33. 4/8
34. 4/10
35. 4/13
36. 4/15
37. 4/17
38. 4/20
39. 4/22
40. 4/24
41. 4/27

42. 4/29-L#41 for me (include-2 mess up-has to be 43?-4/1 no recording but there was a class-then it is 42)

43.

HW# & p#

HW#1-period-p10c-problem from VIT-class notes-p10

HW#2-impact loading-p18c-VIT-p17

HW#3-damping-p26c-VIT-p

HW#4-harmonic loading-p26c-3.4,3.7& 3.8 from text book (tb)

HW#5-response spectra-p37c-

Exam#1-after L#15-p52c-L#18-Exam#1-no lecture

HW#6-p58c-orthogonality of the modes & Rayleigh's method

HW#7-p62c-MDF to SDF

HW#8-p63c-Jacobi program

HW#9-p66c-p8.6-sine (ask the TV class students-what we did on these two works)

HW#10-p72c-p8.5-earthquake

Exam#2-L#26-no lecturer-p79c-3/18/20

Confusion on HW# & submission-above HW#9 & 10 did they submit

HW#9-ELF-p86c

HW#10-p86c-Modal weight & base shear

HW#11-p86c-forces and shear at each level

Final exam-flexible building-EL