

M2795.005900

Aeroelasticity

1. Instructor: Prof. SangJoon Shin (Building 301Room 1418, ssjoon@snu.ac.kr)
2. Class date: Mondays, Wednesdays 2:00 – 3:15 PM
3. Classroom: Building 301Room 303
4. Assistant: Mr. Jin-Hyeong Kim (Building 301Room 1313, kjh05190@snu.ac.kr)
5. Office Hours: Prof. SangJoon Shin (Mondays, Wednesdays 4:00 – 5:00 PM)
6. Evaluation: Attendance (5%)
Examination (Mid 25%, Final 35%)
Homework Assignments (35%)
7. Textbook:
 - Lecture note
8. References:
 - Bisplinghoff, R. L., Ashley, H., and Halfman, R. L., " Aeroelasticity," Addison-Wesley, 1955; **Dover Publications, 1996**
 - Dowell, E. H., Crawley, E. F., Curtiss Jr., H. C., Peters, D. A., Scanlan, R. H., and Sisto, F., " A Modern Course in Aeroelasticity," 3rd Ed., Kluwer Academic Publishers, 1995
 - **Bisplinghoff, R. L. and Ashley, H., " Principles of Aeroelasticity," Dover Publications, 1975**
 - Bielawa, R. L., "Rotary Wing Structural Dynamics and Aeroelasticity," AIAA Education Series, 1992
 - Johnson, W., "Helicopter Theory," Princeton University Press, 1980
 - Hodges, D. H. and Pierce, G. A., "Introduction to Structural Dynamics and Aeroelasticity," Cambridge University Press, 2005.

9. Main contents: Upon aircraft structures, in an atmospheric flight, inertial, elastic, and aerodynamic loads will act, and a unique behavior will occur by an interaction among these loads. This may induce static and dynamic instability called “divergence” and “flutter.” In this class, an analytical methodology to estimate such loads will be treated and phenomena unique to fixed, rotary wing aircrafts and turbine engines. Also, an effort to alleviate these problems based on control methodologies will be introduced.

	Monday	Tuesday	Wednesday	Thursday	Friday
Week 1				9/1 Lecture 1	
Week 2		9/6 Lecture 2		9/8 Lecture 3	
Week 3		9/13 Lecture 4		9/15 Holiday	
Week 4		9/20 Lecture 5		9/22 Lecture 6	
Week 5		9/27 Lecture 7		9/29 No class	
Week 6		10/4 No class		10/6 No class	
Week 7		10/11 Lecture 8		10/13 Lecture 9	
Week 8		10/18 Lecture 10		10/20 Lecture 11	
Week 9		10/25 Lecture 12		10/27 Mid Exam	
Week 10		11/1 Lecture 13		11/3 Lecture 14	
Week 11		11/8 Lecture 15		11/10 Lecture 16	
Week 12		11/15 Lecture 17		11/17 No class	
Week 13		11/22 Lecture 18		11/24 Lecture 19	
Week 14		11/29 Lecture 20		12/1 Lecture 21	
Week 15		12/6 Lecture 22		12/8 Practice 23	
Week 16		12/13 Final Exam			