

MAE351 진동 공학 (Mechanical Vibrations, 3:0:3)

2004년 봄학기

1. 담당 교수 사무실 및 연락처:

- 박윤식 (기계공학과 교수)
- 기계공학동 Rm#4107, Ph: 3020, E-mail: yspark@kaist.ac.kr

2. 강의시간: 매주 화, 목요일 오후 14:30 ~ 16:00

3. 강의실: 창의학습관 (정문술 빌딩 옆) 205호

4. 교재: S. S. Rao, Mechanical Vibration, 4th ed., Prentice Hall, 2004

5. 성적산출:

중간고사 = 35%, 기말고사 = 35%, 숙제 = 30%

출석(필수) = 총점의 15% 까지 감산할 수 있음.

6. 담당 조교 사무실 및 연락처:

김수현 (dukesoo@kaist.ac.kr): Rm#4115, Ph 3060

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7. 숙제

- Due day 내에 제출해야 함, 기한 이후는 접수 불가
- 숙제물의 제출처 및 채점 후 수령처는 학과의 숙제함 (기계공학동 2층)

8. 공지 사항 및 숙제 모범답안 게시물을 위한 홈페이지:

<http://sdac.kaist.ac.kr/lectures>

MAE351 Mechanical Vibrations

Lecture Schedule of Spring Semester 2004

Date	Topics	Remarks
3/2(T)	Course orientation, Fundamentals of Vibration, History of Vibration	1.1 – 1.3
3/4(Th)	Basic Concepts and Vibration Modeling, Modeling Elements	1.4 – 1.9
3/9(T)	Harmonic Motion and Fourier Analysis	1.10 – 1.11
Home Work #1		Due Date: 3/16
3/11(Th)	SDOF System: Undamped Free Vibration	2.1 – 2.3
3/16(T)	SDOF System: Viscously Damped Free Vibration	2.4 – 2.6
3/18(Th)	SDOF System: Non-viscously Damped Free Vibration	2.7 – 2.8
Home Work #2		Due Date: 3/25
3/23(T)	SDOF System: Undamped Forced Vibration	3.1 – 3.3
3/25(Th)	SDOF System: Damped Forced Vibration	3.4 – 3.5
3/30(T)	SDOF System: Base Excitation, Rotating Unbalance	3.6 – 3.7
4/1(Th)	SDOF System: Non-viscously Damped Forced Vibration, Dynamic Stability Analysis	3.8 – 3.11
Home Work #3		Due Date: 4/8
4/6(T)	Response under General Forces	4.1 – 4.3
4/8(Th)	Convolution Integral	4.4 – 4.5
4/13(T)	Response Spectrum, Laplace Transform	4.6 – 4.7
Home Work #4		Due Data: 4/20
4/15(Th)	No Class (National Election Day)	
4/20(T)	Mid-term Examination (14:30 – 16:30)	
4/22(Th)	No class	Mid-term Period

Date	Topics	Remarks
4/27(T)	Vibration Measurement	10.1 – 10.3
4/29(Th)	2 DOF System, Free Vibration	5.1 - 5.4
5/4(T)	Coordinate Coupling, Principal Coordinate	5.5
5/6(Th)	Forced Vibration, Semi-definite System	5.5 – 5.7
Home Work #5		Due Date: 5/13
5/11(T)	Balancing of Rotating Machines	9.1 – 9.9
5/13(Th)	Vibration Reduction	9.7 – 9.9
5/18(T)	Vibration Isolation, Dynamic Absorber	9.10 – 9.11
Home Work #6		Due Date: 5/25
5/20(Th)	MDOF System: Modeling, Influence Coefficient	6.1 – 6.4
5/25(T)	Energies in Matrix Form, Generalized Coordinates	6.5 – 6.6
5/27(Th)	Lagrange's Equations, Equations in Matrix form	6.7 – 6.8
6/1(T)	Eigenvalue Problems	6.9 – 6.10
6/3(Th)	Expansion Theorem, Modal Analysis	6.11 – 6.14
6/8(T)	MDOF System: General Cases	6.15
Home Work #7		Due Date : 6/15
6/10(Th)	Determination of Natural Frequencies and Mode Shapes	7.1 – 7.4
6/15(T)	Final Examination (14:30 – 16:30)	