**King Fahd University of Petroleum and Minerals**

**Department of Electrical Engineering**

**EE 207: Signals and Systems (151, Fall Semester 2015)**

**Text Book:** Signals, Systems, and Transforms, 4th Ed. C. L. Phillips, J. M. Parr, and E. A. Riskin, 2008

**Course Instructor Office Tel Email Office Hours 11:00-11:55 AM SU TU TH**

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| **Wk** | **Dates** | **Chapter/Section Titles** | **Practice Problems** |
| 1 | 23 -27 Aug. | **Chapter 1: Introduction**  1.1: Introduction to Signals & Systems Examples  **Chapter 2: Continuous-Time Signals and Systems**  2.1: Transformation of Continuous-Time Signals |  |
| 2 | 30 Aug -3 Sep. | 2.2: Signal Characteristics  2.3: Common Signals in Engineering  2.4: Singularity Functions |  |
| 3 | 6-10 Sep. | 2.5: Mathematical Functions for Signals  2.6: Continuous-Time Systems  2.7: Properties of Continuous-Time Systems | HW#1: 2.2 (a) , 2.4 , 2.10, 2.21 (c) , 2.23 (a), 2.24 , 2.29 , 2.30 (a,b,c,e) |
| 4 | 13-17 Sep. | **Chapter 3: Continuous-Time Linear Time-Invariant Systems**  3.1: Impulse Representation of Continuous-Time Signals  3.2: Convolution for Continuous-Time LTI Systems |  |
|  |  | **Eid Haj 19-28 Sept** |  |
| 5 | 29 Sep- 1 Oct. | 3.3: Properties of Convolution  3.4: Properties of Continuous-Time LTI Systems  **Chapter 4: Fourier Series**  4.1: Function Approximation | HW#2: 3.2 , 3.4 (a,c) , 3.8 (a) , 3.15 , 3.20 , 3.22, 3.25 , 3.28 (a,b for Equation (ii)) |
| 6 | 4-8 Oct. | 4.2: Fourier Series  4.3: Fourier Series and Frequency Spectra |  |
| 7 | 11-15 Oct. | 4.5: System Analysis  4.6: Fourier Series Transformations  **Chapter 5: Fourier Transform**  5.1: Definition of the Fourier Transform | HW#3: 4.2 (a), 4.3 (i, ii), 4.5, 4.8 (b, f), 4.10 (a, c, e), 4.12 a, 4.13 (b, d), 4.19 (a, c, e), 4.22 |
|  | **Thursday 15 Oct.** | **Major Exam I ( up to the End of Chapter 4)** | **6:00-7:30 PM** |
| 8 | 18-22 Oct. | 5.2: Properties of the Fourier Transform  5.3: Fourier Transform of common Functions |  |
| 9 | 25-29 Oct. | 5.5: Applications of the Fourier Transform  5.6: Energy and Power Density Spectra  **Chapter 6: Applications of the Fourier Transform**  6.1: Ideal filters | HW#4: 5.8, 5.11, 5.12 (a), 5.17 (a, b, d), 5.19 (a, b, c, d, g), 5.27 |
| 10 | 1-5 Nov. | 6.3: Concept of Bandwidth  **Chapter 7: The Laplace Transform**  7.1: Definition of Laplace Transforms  7.2: Examples of Laplace transform |  |
| 11 | 8-12 Nov. | 7.3: Laplace Transforms of Functions  7.4: Laplace Transform Properties  7.6: Response of LTI Systems | HW#5: 7.6 (a, c, d, f), 7.13 (b), 7.14 (c, d), 7.15 (b, d, f) (ignore the Matlab part), 7.17 (a for the differential equation (iii)) |
|  | **Sunday 15 Nov.** | **Major Exam II ( covered material Ch5 up to the end of 7.6)** | **5:30-7:00 PM** |
| 12 | 15-19 Nov. | 7.7: LTI Systems Characteristics  **Signal Sampling and Reconstruction**  5.4: Sampling of Continuous-Time Signals | HW#6:7.24; 7.29(b) |
| 13 | 22-26 Nov. | 6.4: Reconstruction of Signals from Sampled Data **(up to page 300)**  **Chapter 10: Discrete-Time Linear Time-Invariant Systems**  10.1: Impulse Representation of Discrete-Time signals  10.2: Convolution for Discrete-Time Systems | HW#7: 6.14; 6.18; 6.24 |
| 14 | 29 Nov-3 Dec. | 10.3: Properties of Discrete-Time LTI Systems  10.4: Difference-Equation Models *(*up to equation 10.48)  **Chapter 11: The z-Transform**  11.1: Definition of z-Transform  11.2: Examples | HW#8: 10.2, 10.4, 10.5, 10.7 (b, c), 10.14 (a,b,c) |
| 15 | 6-10 Dec. | 11.3: z-Transforms of common Functions  11.4: z-Transform Properties  11.6: inverse z transform by long division and partial fraction expansion | HW#9: 11.1 (b,e,f), 11.3 (c,d,f), 11.14, 11.19 |
| 16 | 13 Dec | Review |  |
|  | **Monday Dec 28** | **Final Exam** | **8:00 AM** |

**Grading Policy:**

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| Class Work 20 % | |  |
| Exam I : 25% | Exam II: 25% | Final Exam: 30% |

**Notes:**

1. The course is coordinated.
2. Homework assignments will not be collected.
3. Attendance**:** Any student who misses more than 20% of the class meetings without an official excuse will receive a grade of DN in the course. To be acceptable, official excuses must be submitted to the instructor within one week of their date of issue.
4. There will be absolutely no make-ups for quizzes or exams.
5. Students caught cheating in quizzes, design project, or exams will be given a grade of F in the course and their case will be reported to higher authorities for possible dismissal from KFUPM.