

KING FAHD UNIVERSITY OF PETROLEUM AND MINERALS
ELECTRICAL ENGINEERING DEPARTMENT
First Semester (091)

EE 562 Digital Signal Processing I

• **Course Outline:**

1. **Introduction, Review and Background** (1.0 week)
2. **Discrete time signals and systems** (1.0 week)
3. **Z-Transform and applications** (2.0 weeks)
4. **Frequency analysis of signals and systems** (2.5 weeks)
5. **Discrete Fourier transform** (1.5 weeks)
6. **Fast DFT Algorithms** (1.0 week)
7. **Implementing discrete time systems** (1.0 week)
8. **Design of digital filters** (3.0 weeks)
9. **Sampling and Reconstruction** (1.0 week)
10. **Multirate DSP** (1.0 week)

- **Textbook:** John G. Proakis and Dimitris G. Manolakis, "Digital Signal Processing: Principles, Algorithms, and Applications," 3rd Ed., Prentice Hall, 1996.

• **References:**

1. S. K. Mitra, *Digital Signal Processing: A Computer-Based Approach*, 3rd Edition, McGraw Hill, 2006.
2. A. V. Oppenheim, R. W. Schaffer and J. R. Buck, *Discrete-Time Signal Processing*, 2nd Ed., Prentice Hall, 1999.
3. V. K. Ingle and J. G. Proakis, *Digital Signal Processing using MATLAB*, PWS Publishing Company, 1997.
4. J. H. McClellan, R. W. Schaffer and M. A. Yoder, *DSP First: A Multimedia Approach*, Prentice Hall, 1998.
5. K. G. Beauchamp, *Transforms for Engineers: A Guide to Signal Processing*, Clarendon Press, 1987.

- **Homework Assignments** will be issued about once every two weeks.

• **Grading Policy**

1. Homework 25 %
2. Midterm Exam 20 %
3. Project 25 %
4. Final Exam 30 %

- **Instructor:** Dr. Abdelmalek Zidouri, Office: 59/0078, Phone: 860-3677, E-mail: malek@kfupm.edu.sa