



پردیس دانشکده های فنی
دانشکده مهندسی برق و کامپیوتر

Analog Signal Processing			Course Title and Number
3 unit credit	ECE Dept.	Elective	نوع درس
Graduate			Level
1) Digital Signal Processing 2) Electronics 3			Pre requisites
<p>[1] Design of Analog Integrated Circuits and Systems, Laker & Sansen, McGraw-Hill, 1994.</p> <p>[2] Analog MOS Integrated Circuits for Signal Processing, R. Gregorian and G. C. Temes, John Wiley & Sons, Inc., 1989.</p> <p>[3] CMOS Analog Circuit Design, Phillip A. Allen and Douglas R. Holberg, 2nd Edition, Oxford University Press, 2002.</p> <p>[4] Analog Design Essentials, Willey M.C. Sansen, Springer, 2006</p>			References
Omid Shoaee, ECE Dept. University of Tehran			Lecturers
			Course Objectives
<p>Switched-capacitor (SC) circuits are introduced and analyzed using the Z- transform and charge-transfer analysis. A SC sample-and-hold circuit is analyzed. Then first- and second-order SC filters, FIR filters, ladder filters, and non-ideal effects in SC filters are covered. Continuous-time CMOS filters are also presented.</p> <p>The topics of the course are as follows:</p> <p>Switched-Capacitor (SC) Circuits Simple sample & hold Charge transfer equations, Z-transform analysis SC integrators, active SC filters, S-to-Z transforms Sampling effects, $\sin x/x$, decimation/interpolation, SWITCAP SC ladder filters FIR filters, SC gain circuits kT/C noise, op-amp noise, double correlated sampling,</p>			Course Outline/ Syllabus

chopping system and circuits SC common-mode feedback Continuous-Time Filters R-C active filters MOSFET-C filters Transconductance-C (Gm-C) filters Tuning									
Homework requiring computer simulation will be carried out by the student. One midterm and a final will be given.	Homework/Computer Assignments								
Two Computer Switched-Capacitor Circuits Design Projects	Projects								
<table border="0" style="width: 100%; text-align: center;"> <tr> <td>Project</td> <td>30%</td> </tr> <tr> <td>Assignments</td> <td>10%</td> </tr> <tr> <td>Midterm Exam</td> <td>20%</td> </tr> <tr> <td>Final Exam</td> <td>40%</td> </tr> </table>	Project	30%	Assignments	10%	Midterm Exam	20%	Final Exam	40%	Grading
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Omid Shoaie	Organizer								