THE OHIO STATE UNIVERSITY
COLLEGE OF ENGINEERING

Advanced Data Converters and Phase-Locked Loops

ECE 7020

Credit Hours:
3.00 - 3.00

Course Levels:
Graduate (5000-8000 level)

Course Components:
Lecture

Course Description:
A comprehensive overview of the most recent system architectures of data converters and phase-locked loops. Provides a good understanding how performance specifications and process technology limitations lead to implementation decisions. The presented principles are illustrated by examples and real life case studies.

Prerequisites and Co-requisites:
Prereq: 5021 or 5023, or permission of instructor.

Course Goals / Objectives:
- Learn various advanced mixed-signal integrated circuit design of data converters and phase locked loops.
- Learn the specifications, performance metrics and tradeoffs of data converters and phase locked loops.
- Learn the latest industrial trends and challenges pertaining to integration and semiconductor technologies.
- Apply the acquired theoretical knowledge to perform design projects using IC PDKs and simulation and design tools.

Course Topics:
- Basic definitions, main tasks of data converters and/or phase locked loops and the challenges facing their implementation in VLSI applications
- Performance metrics, limitations, and tradeoffs
- System and circuit architectures and models
- Practical design considerations
- Implementation examples and product data sheets

Designation:
Elective