

Course Content

Course Title (English)	Advanced Digital Signal Processing
Course Title (Chinese)	高等數位訊號處理
Credit	3
Instructor	Prof. Jian-Jun Ding 丁建均 教授
Outline	<p>This course includes the following topics:</p> <ol style="list-style-type: none">(1) Digital filter design (including IIR, FIR, and Wiener filter design and signal reconstruction techniques)(2) Homomorphic signal processing (cepstrum and Mel-frequency cepstrum)(3) Vocal signal processing(4) Data compression (including rules for compression and coding techniques)(5) Fast algorithm design (including rules for fast algorithms and prime-factor algorithms for fast Fourier transforms)(6) Orthogonal transforms (including the Walsh transform, the number theoretic transform, and CDMA)(7) Others (including structural similarity, spectrum analysis methods, and the common senses of image processing and signal processing)
Goal	Reinforce the background knowledge of digital signal processing and its sub-topics. Different from the undergraduate courses, which focus on memory and calculation, in this course, we will train the ability for analyzing the advantages, disadvantages, physical meaning, and possible applications of each algorithm. We encourage students to think creatively.
English Teaching	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
Teaching Material	<input checked="" type="checkbox"/> English <input type="checkbox"/> Chinese

