

Course Content

Course Title (English)	Power Amplifier Design for Wireless Communications
Course Title (Chinese)	無線通訊功率放大器設計
Credit	3
Instructor	Prof. Tian-Wei Huang 黃天偉 教授
Outline	<p>0. IEEE PA paper study/ paper reading/ paper writing/ paper presentation</p> <p>1. Linear power amplifiers Class A amplifiers, Gain match and power match, Load-Pull, Loadline theory, Design examples.</p> <p>2. High-efficiency amplifiers Class AB/B/C/D/E/F amplifiers, PAE, “Knee” effect, Power matching, Overdrive, Switching mode amplifiers.</p> <p>3. Non-linear effects in RF PA Two-Tone analysis, P1dB/IP3/IM3, AM-to-PM effects.</p> <p>4. PA for broadband communication Digital modulation, CDMA/OFDM, Peak-to-average ratio, CCDF, EVM, BER.</p> <p>5. PA Layout and simulation PA design flow chart, Device selection, Circuit layout/modeling, Large-signal simulation</p> <p>6. Efficiency enhancement</p> <p>7. Linearization techniques</p> <p>8. PA architecture</p> <p>9. PA packaging and testing</p> <p>10. High-Yield amplifier design</p>

Goal	<p>0. IEEE PA paper study/ paper reading/ paper writing/ paper presentation</p> <p>1. Hands-on PA simulation/assembly/testing</p> <p>2. Power matching design</p> <p>3. PA Linearization</p> <p>4. PA design under heat-sinking consideration</p> <p>5. PA design under dc-power consideration</p>
English Teaching	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
Teaching Material	<input checked="" type="checkbox"/> English <input type="checkbox"/> Chinese