| Course Content | |
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| Course Title (English) | Stochastic Processes and Applications |
| Course Title (Chinese) | 隨機程序及應用 |
| Credit | 3 |
| Instructor | Prof. Char-Dir Chung 鐘嘉德 教授 |
| Outline | 1. Review of Random Variables (Papoulis, Chaps. 1-7, and class note)<br>2. Introduction to Random Processes: General Concepts and Spectral Analysis (Papoulis, Chap. 9, and class note)<br>3. Gaussian Random Vectors and Gaussian Random Processes (Larson & Shubert, class note)<br>4. Signal Representation -- Karhunen-Love Expansion (Papoulis, Chap. 11, and class note)<br>5. Narrowband Processes and Bandpass Systems (Davenport and Root, and class note)<br>6. Poisson Processes (Larson & Shubert, Leon-Garcia, and class note)<br>7. Markov Processes and Markov Chains (Larson & Shubert, Leon-Garcia, and class note)<br>8. Queuing Systems (Leon-Garcia)<br>9. Random Walk Processes and Brownian Motion Processes (Leon-Garcia) |
| Goal | The purpose of this course is to provide students with a solid and pertinent mathematical background for thoroughly understanding digital communications and communication networks. It is a prerequisite for advanced study of numerous communication applications, including wireless communications, mobile communications, communication networks, spread spectrum |

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| | communications, satellite communications, optical communications, radar and sonar signal processing, signal synchronization, etc. The students majoring in communications and networks are strongly recommended to take this course. The course consists of lectures organized in class notes. |
| English Teaching | ■ YES ☐ NO |
| Teaching Material | ■ English ☐ Chinese |