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课程编号 Course number	30230654
课程名： Course Name:	信号与系统（英） Signals & Systems
总学时： Total Credit Hours:	64
总学分： Total Credits:	4
课程内容简介： Course Description:	归类整理了在信息科学中基本的信号和系统分析的数学工具，将数学理论和信息系统中的物理问题相结合，搭建起从数学方法到物理问题的桥梁。是信息领域最重要的"专业"基础课之一。信号表示与系统分析紧密联系，掌握几种基本分析工具：基本工具：卷积（和）、连续傅里叶变换、离散傅里叶变换、拉普拉斯变换、Z变换；系统表示：微分方程、差分方程、状态方程、系统函数、频率响应；信号表示：频谱、功率谱、相关函数等。 This paper classifies and sorts out the basic mathematical tools of signal and system analysis in information science, combines mathematical theories with physical problems in information systems, and builds a bridge from mathematical methods to physical problems. It is one of the most important "professional" basic courses in the field of information. Signal representation is closely related to system analysis, and several basic analysis tools are mastered: basic tools: convolution (sum), continuous Fourier transform, discrete Fourier transform, Laplace transform, Z-transform; System representation: differential equations, difference equations, equations of state, system functions, frequency response; Signal representation: spectrum, power spectrum, correlation functions, etc.
Course Description	This course covers the signal representation/analysis, especially how to represent the complex signals in simple format either in time or frequency domain. Based on that, it also covers how signals behave after passing through various linear, time-invariant systems. It consists of following individual yet highly related sessions including Introduction, time-domain analysis on the linear, time-invariant systems, signal representation in frequency domain (Fourier analysis & Fourier transform), Laplace Transform, Discrete time-domain signals, Z-Transform, Discrete & Fast Fourier transform, the state space analysis of the linear systems, and etc. This course focuses on the basic theory and analytical method from time-domain to transform domain, from continuous to discrete, from the description of single-input-single-output to the state variables. It will lay down a solid foundation for the further study for courses including Digital Signal Processing, Stochastic Process, Communication Circuit, Principle of Communication. The requisite courses include calculus, linear algebra, complex variable functions, principles of electric circuits。
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进度安排： Schedule:	
考核方式： Assessment Method:	考试 examination
教材及参考书： Textbooks and reference books:	郑君里等，信号与系统，第三版 A.V.Oppenheim, et al, 《Signals and Systems》, Prentice Hall, 1997。 Zheng Junli et al., Signals and Systems, 3rd Edition A.V. Oppenheim, et al, Signals and Systems, Prentice Hall, 1997.
主教材： Main Textbook:	
参考书： Reference book:	
合开教师： Co-opening Teachers:	
选课指导： Course Selection Guidance:	
先修要求： Prerequisites:	
教师教学特色： Teachers' Teaching Characteristics:	
Office Hour：	
成绩评定标准： Grading Criteria:	
教学日历： Teaching Calendar:	查看教学日历 View the teaching calendar