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 中国  
**柴凤**

教授    博士生导师

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研究方向

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 203室

## 📖 讲授课程

### 1.电路 (本科生)

课程编码: T1060030

课程中文名称: 电路 I

课程英文名称: ELECTRIC CIRCUIT I

总学时: 96 讲课学时: 96

学 分: 5

先修课程: 工科数学分析 大学物理

课程简介:

电路课程是电子与电气信息类专业的一门专业基础核心课程。通过本课程的学习,使学生掌握电路理论的基本知识、电路分析计算的基本方法、电路实验的基本技能,培养学生科学思维和分析、解决工程实际电路问题的基本能力和素质,为后续专业课程的学习打下坚实的理论基础。

本课程将介绍电路的基本定律、定理、现象、基本分析和仿真方法及基本的电工实验方法。主要包括:基本电路元件;线性与非线性直流电路分析;电路定理及其应用;正弦与非正弦稳态电路分析;电路的频率特性与谐振电路分析;线性与非线性动态电路的时域及复频域分析;网络图论与网络方程;二端口网络,均匀传输线,磁路。

**course number: T1060030**
**total hours:96 lecture hours:96**
**course credit:5**
**required background: Mathematical analysis for engineering ,physics**
**Course Description:**

The ELECTRIC CIRCUIT is a core course specifically for the students of Electric and Electronics & Information. By learning this course, the students can acquire much knowledge of circuit, including the basic principals, basic methods of analysis and fundamental experimental ability. What's more, it can also enhance the students' capacity of logical analyzing and ability to solve practical circuit problems, which serves as a solid foundation for the learning of further relevant specialized courses.

This course will introduce the basic theory, principles, phenomena, analysis, methods of simulating and skills for experiment of the circuit. It contains: the basic circuit components; the analysis of linear and nonlinear DC; the theorems of circuits and its applications; the analysis of sine and non-sine stationary state circuit; the analysis of frequency characteristics and resonant circuit; the analysis of linear and nonlinear dynamic circuit in time-domain and complex frequency-domain; the network graph theory and network equations; two-port network; uniform transmission line and magnetic circuit.

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### 2.电能转换与收集技术(博士研究生课程)

Electrical Energy Conversion and Harvesting Technologies

先修课程: 电磁场理论, 现代电力电子技术, 电网络分析与综合

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**内容简介:**

本课程主要介绍能量转换及收集技术方面的相关背景、基本原理、理论模型、等效电路模型、集总参数模型、分布参数模型等知识。涉及电能转换技术及压电转换技术、风电转换技术和光电转换技术等新能源技术的基础知识，热点问题、研究成果和应用领域。微型能量收集器是目前研究热点，本课程将介绍电磁发电、压电和静电等换能机制和转换效率；除了热处理以外的大多数场合，能量收集多具有随机性或周期性，本课程亦将讨论储能系统中的重要问题及未来发展方向。

**主要教材:**

1. 沙山克.普里亚(S.Priya),丹尼尔.茵曼(D.J.Inman).《能量收集技术》.东南大学出版社, 2011.
2. 李传统.《新能源与可再生能源技术》.东南大学出版社,2005.

**Course Information for Doctors**

**Name of the Course:** Electrical Energy Conversion and Harvesting Technologies

**Requirement for the Course:** Electromagnetic fields theory, Modern power electronic technology, Electric network analysis and comprehensive

**Course Description:**

This course mainly introduces the related knowledge of the electrical energy conversion and harvesting technologies, which contains the background, the basic principles, the theoretical model, the equivalent circuit model, the lumped parameter model, the distributed parameter model and others. The new energy technology fields of the electrical energy conversion and piezoelectric conversion, the wind power conversion and photoelectric conversion, in which the basic knowledge, hot problem, research results and application are involved. Because the micro energy collector is the present study hotspot, this course will not only introduce the energy conversion mechanism and the conversion efficiency around the aspects of the electromagnetic power generation, piezoelectricity and static electricity, but also discuss the important problems and the future development direction in the energy storage system.

**Main teaching materials:**

1. Shashank Priya, Daniel J.Inman. 《Engery Harvesting Technologies》. Springer, 2009.
2. Li Chuantong. 《The new energy and renewable energy technology》. Southeast university press, 2005.

## 招生信息

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招收3名

博士招生:

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