课程编号：1713000850

课程名称：气体放电技术及应用

学分/学时：2/32

先修课程:《电磁学》、《电工电子学》

适用专业：应用物理学

课程性质：限选

教 材：武占成等 编著．气体放电（第 1 版）．国防工业出版社，2012 年

主要参考书 ：菅井秀郎等 编著．等离子体电子工程学（第 1 版）．科学出版社，2005 年

内容简介:（600 字以内）

由气体放电形成等离子体的技术已经在工业领域获得了广泛应用，气体放电技术已成为构建先进等离子体源最基本、最重要的手段。《气体放电技术及应用》课程主要介绍的就是现代科技中所涉及的一些常用的人工气体放电方法，主要有辉光放电技术、电弧放电技术、电晕放电技术、射频放电技术、微波放电技术、介质阻挡放电技术及其典型等离子体源等内容，并尽可能多地介绍国内外与气体放电及其应用相关的最新技术和取得的最新研究成果。课程的指导思想是以实用技术基础为主，注重知识的应用性，同时也补充讲授一些必要的基础理论知识，培养学生具有一定的解决和探索该方面实际问题的能力。本课程是高等学校应用物理专业的一门应用技术基础拓展性课程，其先修课程为《电工学》。

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Course Description

College of Science

Course Code: 1713000850

Course Name: Gas Discharge Technologies and Application

Credit/Hours: 2/32

Textbooks: Zhancheng Wu. Gas Discharge. National Defence Industry Press, 2012

Reference Books: Hideo Sugai. Plasma electronics engineering. Science Press, 2005

Course Description:

Plasma generated by gas discharge technologies have been used in industrial fields. Gas discharge technologies have become the most essential and important technical means of plasma generation. The course of GAS DISCHARGE TECHNOLOGIES AND APPLICATION cover a lot of artificial gas discharge methods in modern science and technology, including glow discharge, arc discharge, corona discharge, Radio frequency discharge, Microwave discharge, Dielectric barrier discharge and advanced plasma source, et al. At the same time, the latest technologies and research results for gas discharges and their applications are introduced as many as possible. The objectives of course mainly focus on the foundation of practical technologies and the knowledge applications, meanwhile the necessary basic theories are added in the course. With the studies of course, the ability of students to solve the practical problems will be improved. The course is a application technical foundational and developmental course for the fourth-year undergraduates with a good background in electricity and electronics engineering whose specialties belong to application physics specialties group.