课程编号：1713000600

课程名称：光学

学分/学时：3.5/56

先修课程：高等数学、力学、电磁学

适用专业：应用物理学、物理学

课程性质：必修

教 材：姚启钧 编著.光学教程（第 4 版）. 高等教育出版社,2008 年

主要参考书 ：母国光 编著.光学（第 2 版）.人民教育出版社, 2009 年

内容简介：（600 字以内）

《光学》是高等学校物理、光电子信息类等专业本科生的一门专业基础课，其先修课程为《高等数学》、《力学》和《电磁学》，是原子物理、电动力学、量子力学及激光原理等课程的基础。光学是人们研究光的本性、产生、传播、接收以及光与物质相互作用的科学。本课程意在加强光学基本理论、基本方法的学习，使学生系统地掌握光学的主要物理规律及其在现代光学技术中的应用。本课程内容主要包括几何光学、波动光学及量子光学三部分。几何光学以光的直线传播为基础，研究光传播的基本规律和光通过光学系统、光学仪器成像的原理及应用。波动光学主要研究光的干涉、衍射和偏振现象及波动规律。量子光学以光的粒子性（量子性）为基础，研究光与物质的相互作用规律，包括光的吸收、色散、散射现象等。

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Course Description

College of Science

Course Code：1713000600

Course Name：Optics

Credit/Hours：3.5/56

Textbooks：Yao Qijun . Higher Education Press, 2008

Reference Books：Mu Guoguang. People’s Education Press, 2009

Course Description：

OPTICS is a specialized and foundational course for the undergraduates and is designed specially for the specialties group which involves physics and optoelectronic information etc.. Before optics is researched, advanced mathematics and electromagnetics should be studied. The course is a prerequisite for lots of courses, such as atomic physics, electromotion mechanics, quantum mechanics, laser theory , etc. The course aims to improve the related students understanding to optics and make them grasp the central law of optics and the application in modern science and technology. The course covers a wide range of the basic theories and foundational knowledge including geometrical optics, wave optics, and quantum optics. Mainly, geometrical optics is based on linear propagation of light, and researches the fundamental law of light propagation and imaging theory of optics systems and optics instruments. While wave optics involves some laws and phenomenon of interfere, diffraction and polarization. Mostly, quantum optics studies the interactive law among optics and medium, includes absorption, dispersion and scattering.