《数字逻辑与数字电路》课程中英文简介

Digital logical circuits

课程代码：070133B **Course Code：**070133B

课程名称：数字逻辑与数字电路 **Course Name：**Digital logical circuits

学时： 48 **Periods：** 48

学分： 3 **Credits：** 3

考核方式：考查 **Assessment：** Check

先修课程：计算机导论 **Preparatory Courses：**Introduction to

Computer System

数字逻辑与数字电路是一门讲述数字电子技术原理及应用知识的课程，旨在介绍构筑数字电路的基本单元的电路原理与设计，以及相关的扩展知识；数字逻辑与数字电路的知识架构主要由以下的几个方面组成：电路基础理论、数制与码制、逻辑代数基础、门电路、组合逻辑电路、时序逻辑电路、半导体存储器、可编程逻辑器件以及硬件描述语言。

数制与码制知识以及逻辑转换知识是组成数字逻辑这门课程的基本知识，为数字电路的原理提供预备知识；组合逻辑电路与时序逻辑电路是课程的核心部分，讲述了数字电路的原理与设计实现等内容；半导体存储电路则是在基本数字单元电路基础上构筑的扩展电路，是计算机电路中的重要组成部分；可编程逻辑器件则是介绍通用编程器件的逻辑设计；硬件描述语言则是介绍硬件电路的EDA设计的描述语言。

通过本课程的学习，培养学生具有分析、设计和开发数字逻辑电路单元的基本能力，使学生具备成为软件工程师所拥有的硬件知识，为学生的后续课程的学习奠定基础。

"Digital logic Circuits" is such a course which introduces digital logic principle and its application knowledge; The structure of this course mainly include: Circuits theory, Logical Algebra of Digital Circuit Basis, Gate Circuits, Combinational logic circuits, Flip-flop, sequential logic circuits, memory circuits, programmable logic circuits, VHDL language, Pulse-generating Circuit, Wave Shaping Circuit,　AD Conversion and DA Conversion.

Number and Code System, Logical Algebra of Digital Circuit Basis and Gate Circuits part are the basic knowledge of this course, they provide preliminary knowledge for later study; Combinational logic circuits and sequential logic circuits are the core knowledge parts of this course, they own the logic circuits principle and their implementation; Memory circuits is the extended part for basic logic circuits; Programmable circuits and VHDL are the other kind of logic knowledge style for logic circuits design.

With the study of this course, students are cultivated to analyze and design basic logic circuits, owe the enough hardware knowledge to be a software engineer, and have a good foundation for later study.