

MATE130014	器件与集成电路原理	学分：4	周学时：4
	Principles of Devices and Integrated Circuits	总学时：72	
预修课程：半导体物理			
修读对象：材料物理专业三年级本科生			

中文课程简介（150 字以内）

课程 MATE130014.01 是材料科学系的专业必修课，课程主要包括：半导体物理基础知识，p-n 结，双极晶体管，金属-氧化物-半导体结构，MOS 场效应晶体管和集成电路原理简介。课程重点是双极和 MOS 晶体管的工作原理部分。集成电路原理简介主要包括：集成电路中常用的各种有源无源器件结构，集成电路设计简介以及典型的双极单元电路。课程设置为 4 学分。

英文课程简介

MATE130014.01 is a compulsory course of Materials Science Department. The topics covered include: semiconductor fundamentals, p-n junction, bipolar junction transistor, metal-oxide semiconductor, MOS field-effect transistor, and a brief introduction of integrated circuits. The course emphasizes working principle of Bipolar and MOS transistor. The part of introduction of ICs includes the structure of mainly used active and passive devices, a brief introduction of ICs design, and also an introduction of classical models of bipolar circuits. The course is worth 4 college credits.