

<<机械原理>>

图书基本信息

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内容概要

本书是根据国家教育部制订的“高等工业学校机械原理课程教学基本要求”并结合作者多年教学和科研的成果而编写的。

本书以培养学生基本设计能力和创新设计能力为目标，强化解析法和机构综合内容，反映了机构学的新成果和发展趋势。

全书共十二章，包括绪论、平面机构结构分析、机械运动分析、平面连杆机构、凸轮机构、齿轮机构、轮系、其它常用机构、组合机构、机械平衡、机械系统的运转及其调速、机构系统创新设计。

大部分章节均附有相当数量的思考题和练习题。

为方便中国学生阅读，书末附有英中词汇对照表。

本书可作为高等工科院校本科机械类专业学生学习机械原理课程的教材及专业英语教材，也可供有关教师、学生及工程技术人员参考。

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章节摘录

版权页：插图：（1） Choose the kinematic chain to be as short as possible A shorter kinematic chain here means fewer links and kinematic pairs. This can reduce the cost of manufacture and the kinematic error. Efficiency can also be increased. （2） Use the mechanism with higher efficiency The efficiency of a kinematic chain is the product of the efficiencies of the component mechanisms if they are connected in series. Therefore, the kinematic chain transmitting the main power should not include a mechanism with lower efficiency. （3） Arrange the mechanisms in proper order Generally, the speed of working links are lower than the others and variable. Therefore, the mechanisms which convert the forms of motion (e. g. cam mechanisms and linkage mechanisms) are placed at the end of the kinematic chain, i. e. near the working link. In this way, the vibration of the mechanism can be reduced. In addition, the frictional transmitting mechanisms such as belt drives should be arranged near the motors where the speed is higher and the torque is lower. Such an arrangement can reduce the size of the driving system with overload protection and the prime mover can be located with more flexibility. （4） Choose reasonable transmission ratios Every mechanism should work within its applicable range of transmission ratio to ensure proper performance. Furthermore, careful choice of the transmission ratios can considerably reduce the size of the system. Obviously, the above hints can also be used in selection of the mechanisms or rough initial evaluation of the mechanism system.

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