

系统工程

基于Monte Carlo方法的PERT网络关键路线 和最关键活动分析

王卓甫, 丁继勇, 刘媛, 刘迅

河海大学工程管理研究所, 江苏 南京 210098

摘要:

在定义计划评审技术 (program evaluation and review technique, PERT) 网络局部关键活动、关键活动、关键路线和活动关键度的基础上, 提出了关键活动、关键路线的分析方法; 根据活动不确定性对项目计划工期影响的大小, 即活动敏感性指标的大小, 确定活动在项目进度控制中的重要程度; 在定义活动相对敏感性、活动敏感性的基础上, 利用全概率公式, 得到活动敏感性指标计算公式, 进而提出了最关键活动分析方法。算例表明, 利用本研究提出的方法可便捷地找出PERT网络的关键路线和最关键活动。

关键词: 计划评审技术 关键路线 关键活动 活动敏感性 蒙特卡罗方法

Analysis of critical path and most critical activity in PERT networks based on Monte Carlo method

WANG Zhuo-fu, DING Ji-yong, LIU Yuan, LIU Xun

Institute of Engineering Management, Hohai University, Nanjing 210098, China

Abstract:

On the basis of defining local critical activity, critical activity, critical path and activity criticality of the program evaluation and review technique (PERT) networks, the analysis methods of critical path and critical activity are put forward. According to the extent of influence on the planned project duration caused by the activity uncertainty, namely, the activity sensitivity index, the importance of each activity in project control is analyzed. After defining the activity relative sensitivity and activity sensitivity, by using the total probability theorem, the calculation formula of activity sensitivity index is created to further put forward the analysis method of the most critical activity. Example analysis shows that the critical path and the most critical activity in PERT networks can be easily identified with the proposed methods.

Keywords: program evaluation and review technique (PERT) critical path critical activity activity sensitivity Monte Carlo (MC) method

收稿日期 修回日期 网络版发布日期

DOI:

基金项目:

通讯作者:

作者简介:

作者Email:

参考文献:

本刊中的类似文章

1. 郭爱煌, 肖法, 黄宇胜, 尚秀辉. 互耦效应对MIMO/SA多天线系统信道容量的影响[J]. 系统工程与电子技术, 2011,33(9): 2085-2089

扩展功能

本文信息

- ▶ Supporting info
- ▶ PDF(946KB)
- ▶ [HTML全文]
- ▶ 参考文献[PDF]
- ▶ 参考文献

服务与反馈

- ▶ 把本文推荐给朋友
- ▶ 加入我的书架
- ▶ 加入引用管理器
- ▶ 引用本文
- ▶ Email Alert
- ▶ 文章反馈
- ▶ 浏览反馈信息

本文关键词相关文章

- ▶ 计划评审技术
- ▶ 关键路线
- ▶ 关键活动
- ▶ 活动敏感性
- ▶ 蒙特卡罗方法

本文作者相关文章

PubMed