Solving Multi-Mode Resource-Constrained Project Scheduling Problems via Bee Colony Algorithm

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Abstract:
Multimode resource-constrained project scheduling problem (MRCPSp) is a type of resource-constrained project scheduling problem (RCPSP). In this problem the projects involves activities that condition each other and there is constraint of resources, both renewable and non-renewable. Each activity can be executed in more than one mode, each mode requiring a different resource. This problem is among the NP-Hard ones; therefore, scholars have always been eager to find a solution for it. In this study bee colony algorithm has been proposed as a solution. No other research has used bee colony algorithm for this problem before, and the present article is innovating this solution. We have solved the standard problems in the existing literature via this algorithm and have compared our results with the results created by the best and newest algorithms which are usually used for these problems in order to testify the strength of bee colony algorithm in this regard. The results demonstrate successful performance of bee colony algorithm for solving MRCPSP.

Keywords:
Project Scheduling, Resource-constrained, Multimode, Bee Colony Algorithm

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Assessment of the Effectiveness of Project Manager’s Communication with Members of Project Using DEMATEL Technique

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Abstract:
In this research, after an in-depth study of the exiting literature and experts’ judgments and views, the important criteria and measures for project manager’s communication have been identified and prioritized via AHP technique. In order to have a more exact consideration of the research, the model has been improved by DEMATEL technique. This reviewed analytic hierarchical process methodology provides the validity that meets the model’s claim. The effective criteria prioritized in this communication model using DEMATEL technique consist of conceptual skills, decision making skills, management skills, leadership skills, respect of ethical values, individual & team work skills, conversation skills, and writing skills. The findings of this research could play a pivotal role in increasing the awareness of the Iranian organizations’ managers, particularly project managers, towards accomplishing these criteria and improving the necessary skills according to the importance and priorities of these criteria.

Keywords:
Effective Communication, Managerial Skills, DEMATEL Technique, Project Management.

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Using Fuzzy Approach in determining Multi-Level Lot-Sizing Decisions, Multiple Items with Limited Capacity in Systems Based on Material Requirements Planning (MRP)

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Abstract:
In a complex multi-level supply chain, material requirements planning (MRP) systems are the most commonly used for production planning and material supply decision making. Nowadays, most large manufacturing companies use the MRP in the process of their production management. Since MRP depends strongly on its inputs, so the smallest change in one of its inputs can cause too much change in its calculation. In many cases, because of demand uncertainty, limited resources, and unknown costs, using the classical methods seem unreasonable to solve these problems. In this research a new method, using a fuzzy expert system in estimating fuzzy parameters, is provided for determining multi-level lot-sizing decisions, multiple items with limited capacity, medium-term production planning with limited capacity, multi-product, multi-level and multi period manufacturing environment. Considering uncertainty in parameters, a fuzzy linear programming, using $\alpha$ - cut concept, is developed to transform the fuzzy model into a crisp linear programming. Finally, the developed model is tested in a home appliances manufacturing company.

Keywords:

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A Survey of the Effects of Working Conditions, Job Relations and Attitude Towards Safety on Job Accidents and Unsafe Work Behaviors

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Abstract:
Job accidents have always been an important problem in workplaces. In recent literature on job safety, organizational aspects of work accidents have been. This study aims to examine the attitudes of workers, supervisors, and managers towards safety in workplaces, and to analyze the relationship between unsafe behaviors and work accidents.
A questionnaire methodology is used to measure personnel’s attitude towards and understanding of safety. The data were analyzed using factor analysis, hierarchical multiple regression and analysis of variance (ANOVA).
According to the findings, there is not any significant relationship between safety culture and work accidents and unsafe behaviors. But the workplace has a significant relationship with work accidents and unsafe behaviors. Also, there is a significant relationship between job relations and work accidents and unsafe behaviors. According to the finding of hierarchal regression, the variables of age, occupation and safety culture are not identified as significant predictors, but workplace and job relations are. There is not any important difference about safety in various levels of organization.

Keywords:
Safety culture, job relations, job accidents, unsafe work behaviors

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Analysis of the Effects of Social Networks on Entrepreneurial Opportunity Identification

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Abstract:
In this study the effects of social networks on entrepreneurial opportunity identification has been analyzed. To do so, necessary information was collected via questionnaires from top entrepreneurs and was analyzed. For external validation of the questionnaire, Cronbach alpha method was used. Results show that the three sources of social information and informal networks, mentors, and professional communities have a positive impact on identifying entrepreneurial opportunities. Also, the three variable of personal efficacy, information processing ability, and entrepreneur quotient affect the relation between social networks and opportunity identification. The relation of personal efficacy is negative, and those of information processing ability are positive. According to the results of path analysis techniques, the modifying effect of the three variables of personal efficacy, information processing ability, and entrepreneur quotient on the relation between social networks and opportunity identification is produced through the variable of "participation in professional communities", and they have no effect on the relation between the informal networks and trainers (consultants) with opportunity finding.

Keywords:
Social Networks, Social Link, Entrepreneurial Alertness, Trainers, Opportunity Identification.

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Analysis of ERP Project Implementation Risk via Fuzzy Logic (Case study: A Company Engaged in Car Industry)

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Abstract:
The use of information systems is one of the important and effective factors for improving the competition level of organizations. Given the amount of money spent on the project and the statistic that shows more than 70 percent of these projects fail, precise analysis of the reasons for success and failure of these projects and identification of the risks involved is vitally important for companies. This research is an applicative one which tries to identify the risk factor of implementing ERP and the total risk of the project. The dependent variable in this research is the amount of risk involved in implementing ERP projects and the depended variable is the critical success factors of implementing ERP. After identifying and ranking the critical success factors in the case study, we prepare a questionnaire to identify the strength of each factor in the project risk and distribute them in 12 companies engaged in implementing the same project. Then, since the answers are subjective opinions, they are analyzed and compared via fuzzy logic. Finally, the amount of project implementing risk, which is now a one digit number can be spilt in eight ranks. The analysis shows that implementing this project falls within the weak failure probability area, and we must increase its success probability according to the suggestions provided.

Keyword:
Enterprise Resource Planning (ERP), Risk analysis, Fuzzy logic, Critical Success Factors (CSF).

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The Relationship between Human Factors of Entrepreneurship and Job Performance of Managers and Supervisors via Kuratku Model

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Abstract:  
considering their status and the effective role they play in Iran’s society and their own organization, Jahad keshavarzi managers, can increase their job performance by strengthen their individual entrepreneurial characteristics, in order to help economic growth, job creation, and decrease of unemployment. The purpose of this research is the study of the relationship between the human factors of entrepreneurship and job performance of the top and middle managers and the supervisors of Fars Province Jahad Keshavarzi via kuratku model concerning individual characteristics. The research method applied in this study is descriptive correlation, to determine the relationship between independent variables and dependent ones. Sample selection was done through stratified random sampling method proportionate to the size of the statistical community. To collect data, two types of questionnaire for entrepreneurship and job performance were prepared. Data analysis was done in two levels of descriptive statistics and inferential statistics, using SPSS software. Analysis of the findings related to the study showed that the correlation ratio between the desire to risk, desire for freedom of action, love of achievement, goal-orienteeers and internal control with job performance has been significant. So, the desire to risk, desire for freedom, and love of achievement, goal-orienteeers and internal control have a significant relationship with job performance. Multiple regression results showed that the variables of internal control, desire for freedom, love of achievement, and goal-orienteeers can predict job performance, and according to beta coefficient the best predictors of job performance are the variables of internal control, goal-orienteeers, love of achievement and desire for freedom of action.

Keywords:  
Entrepreneurship, Job Performance, Individual Characteristics.

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Application of Wavelet Analysis in Estimating Systematic Risk According to Capital Asset Pricing Model

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Abstract
The purpose of this research is to study the behavior of systematic risk (beta) and the relationship between systematic risk and stock returns according to capital asset pricing model within different time scales, to determine the ideal period for stock holding, and to study the significance of the concept of time scale for yield in the context of investment decisions via a new and innovative tool, namely the wavelet analysis tool. We have applied this tool to analyze the time series of daily stock returns of 80 companies listed in Tehran Stock Exchange from 1378 to 1386 using scale to scale method. To measure the beta of each share in each time scale, we have measured the wavelet variance of portfolio return of the market stocks and the wavelet covariance between portfolio return of the market stocks and stock returns of the studied companies. This study is descriptive (quasi-experimental) and the research project is post-event. For statistical analysis and hypothesis testing, regression method was used. The results of the study show that between the independent variable of systematic risk and the dependent variables of expected return of individual stocks and the expected return of stock portfolios there is no substantive and meaningful relationship. This means that beta coefficient plays no role in return description. But there is a meaningful relationship between historical and future systematic risk of individual stocks and stock portfolios in different time scales.

Keywords:
Capital Asset Pricing Model, Wavelets, Time-scale, Systematic Risk, Multi-scale Systemic Risk

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Forecasting Stock Prices via Combined Neural Networks

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Abstract:
Forecasting is a process of picturing the future condition according to existing data. For more than a decade, time series forecasting has been focused on, especially in finance management. The artificial neural network is a flexible learning method for time series forecasting. Stock price forecasting is possible by detecting the behavioral patterns of the process of the stock price fluctuation. In this paper, we focus on the development of an innovative stock market price forecasting model based on artificial neural network. The model contains two levels. First level neural networks, or the independent base forecasters, forecast stock prices, volume of transactions, and price changes. In second level, another neural network as combiner does the final forecasting according to the outputs of first level. For this purpose, we have used three types of data reported daily in Tehran stock exchange (TSE). One important aim of our research is to use various types of stock market data in order to achieve better forecasts. The practical results of the study show that combined neural networks model has a high precision and it is suitable for stock price forecasting.

Keywords:
Neural Networks, Combined Predictor, Stock Price, Volume of Transactions, Price Changes

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