CHAPTER 30

MATHEMATICAL SCIENCES
OPERATIONAL RESEARCH

Doctoral Theses

396. AGGARWAL (Remica)
Some Optimization Models for Promotional Planning in Marketing.
Supervisor : Dr. P. C. Jha
Th 18969

Abstract

In the study problem of advertising multiple products of a firm in different media such as newspapers and internet websites in a segmented market have been considered. The problem has been formulated as a multi-objectives goal programming problem.A compromised solution is achieved using Goal Programming approach. The fuzzy predictions of the triangular fuzzy statistical data have been defuzzified using Heilpern's defuzzifier. Further the model is subject to fuzzy budget and reach constraints and therefore fuzzy optimization procedure is adopted to convert the problem to a crisp mathematical programming problem. Fuzzy goal programming approach is used to arrive to a compromise solution.

Contents

397. ARORA (Ritu)
Optimal Component Selection for Designing Fault Tolerant Modular Software System Under Recovery Block Scheme.
Supervisors : Dr. P. C Jha and Dr. Ompal Singh
Th 18967

Abstract

Focuses on optimization problems in software reliability. Various optimization problems on optimal component selection for designing fault tolerant modular software system under Recovery block scheme are studied and their solution methodology are presented with numerical example.

Contents

398. CHAUDHARY (Kuldeep)
Contributions to Stochastic Mathematical Modeling and Optimazation Problems in Software Reliability and Marketing.
Supervisors : Dr. P. C. Jha and Dr. Ompal Singh
Th 18965

Abstract

Deals with stochastic mathematical modeling and optimization problems in software reliability and marketing. The performance of the proposed models is validated on real life data sets existing in marketing literature. Various optimization problems of software and marketing are studied along their solution methodology.

Contents

399. GURJEET KAUR
Modeling of Testing Resource Allocation and Multi - Releases in Software Reliability.
Supervisors : Prof. P. K. Kapur and Dr. Anu G. Aggarwal
Th 18964

Abstract

Endeavours to apply techniques viz. Mathematical Modeling and Optimization Techniques in the field of Software Reliability. Majorly the problems formulated in this are non linear complex programming problems which are solved using soft computing technique of Genetic Algorithms.

Contents

400. INDUMATI
Contribution to Some Optimization Problems of Component Selection for Modular Software System and Release Time for System Testing.
Supervisors : Dr. P. C. Jha and Dr. Ompal Singh
Th 18970

Abstract

Endeavores to make meaningful contribution to software reliability engineering by formulating and solving the two main optimization models: software Release Time Optimization Problems serving the testing phase of SDLC and Optimal Components Selection Problems for Component Based Modular Software Systems serving design phase of the SDLC. The models applied for optimization purpose in this take into account many realistic factors like imperfect debugging and introduction of fault during the testing process by the testing team and its effect on the total software testing cost and its release.

Contents

fuzzy environment. 3. Optimal release policy for continuous SRGM's under fuzzy environment. 4. Optimal component selection for modules of software system of a component based modular software system. 5. Optimal component selection for modules of software system of a component based modular software system incorporating "build-or-buy" strategy. 6. Conclusions and directions for future research. 7. Appendices and References.

401. JAIN (Nidhi)
Some Contributions to Reliability Analysis of Repairable Systems.
Supervisor : Dr. Preeti Wanti Srivastava
Th 18966

Abstract

In the thesis some contributions to the reliability analysis of repairable systems in respect of their design and development phase, operational and maintenance phase under use accelerated environmental conditions using Parametric (classical) approach of Bayesian approach has been made the extensive computatioanl work involving estimation, prediction and simulation of complicated models dealt with in this thesis has been accomplished using *Mathematica* 6.0.

Contents

1. Reliability analysis of repairable systems. 2. Reliability prediction during development phase of a system. 3. A bounded intensity process reliability growth model in a bayes-decision framework. 4. Bayesian reliability analysis of a repairable system subject to overhauls with bounded failure intensity. 5. Optimum Ramp-stress accelerated life test for m identical repairable systems. 6. Optimum constant-stress partially accelerated life test for k identical repairable systems. 7. Future scope 8. References.

402. KHURANA (Dinesh Kumar)
Quantitative Approach to Human Resource Management.
Supervisors : Prof. P. K. Kapur and Dr. Anu G. Aggarwal
Th 19103

Abstract

Focuses on the quantitative approach to human resource plan

(HRP) in particular and human resource management in general.

Contents

1. Introduction. 2. Analysis of staff attrition & employee satisfaction. 3. Markov HR models. 4. Study on relationship between internship and job opportunities. 5. Utility based tool to assess overall effectiveness of HRD instruments. Conclusion and references.

403. TANDON (Abhishek)
Novel Approach for Modeling Software Reliability and Successive Generations of Technologies.
Supervisors : Prof. P. K. Kapur and Dr. Anu G. Aggarwal
Th 18968

Abstract

Discusses various mathematical models and optimisation problems in the areas of Software Reliability and Marketing. Software Reliability engineering and marketing makes use of mathematical models to manage and develop various processes involved in buiding reliable software and predicting the adoption process of products which comes in successive generation.

Contents

1. Introduction. 2. Modeling the effect of change point in software reliability and release time policies. 3. Software reliability growth modeling using stochastic differential equations. 4. Software reliability growth modeling incorporating the effect of up-gradations. 5. Two dimensional software reliability growth modeling. 6. Multi-generational innovation diffusion modeling. 7. Conclusion and future scope of research. 8. References.

M.Phil Dissertations

404. ARORA (Preeti)
Vendor-Buyer Coordination.
Supervisor : Dr. Chandra K. Jaggi

405. BAJAJ (Reema)
Diffusion Theory Models Incorporating Multiple Generations.
Supervisor : Dr. Ompal Singh

406. PANT (Manjul)
Aggregation of Experts' Opinions : A Review.
Supervisor : Dr. Preeti Wanti Srivastava

407. SHRIVASTAVA (Avinash Kumar)
Study of Unification Schemes for Software Reliability Growth Medels.
Supervisor : Dr. Anu G. Aggarwal

408. TIWARI (Vijay Kumar)
Decision Analysis Using Expected Value of Sample Information : A Review.
Supervisor : Dr. Preeti Wanti Srivastava