DEPARTMENT OF MATHEMATICS
CENTRAL UNIVERSITY OF KERALA
PERIYE CAMPUS, KASARAGOD

Minutes of the first Board of studies meeting held on Thursday, 28th August 2014 in the department of Mathematics in Room No.26 at 2.30 p.m.

The following members were present;

1. Prof. S. Kumaresan, Dept. of Mathematics, Hyderabad Central University, Hyderabad
2. Prof. Parameswaran Sankaran, Institute of Mathematical Sciences, CIT Campus, Taramani, Chennai- 600113
3. Dr Germina K.A., Head, Dept. of Mathematics, CUK, Kasaragod.
4. Dr Shaini Pulickakunnel, Assistant Professor, Department of Mathematics, CUK, Kasaragod.
5. Dr Tasleema T.M., Assistant Professor, Dept. of Computer Science, CUK, Kasaragod

The meeting started at 2.30 p.m. The Convenor Dr Germina welcomed the members and submitted the modified Course Structure and Syllabus approved by the Faculty Council, Department of Mathematics, CUK. She then briefed how and what modifications were done in the communicated Course Structure and Syllabus. Further, she reported the comments received from Prof. A. M. Mathai.

With the permission of the experts in the Board of Studies, the convenor invited Dr. Ali Akbar, Dr. S. Gnanavel, Dr. Arjun K. Rathie and Sri. Harilal N to join the B. S meeting. The committee commented on each and every paper and also on the course structure. The whole structure and Syllabus was thoroughly discussed. The revised version of the same was prepared and submitted for the approval. The members of the Board of Studies approved the revised course structure and syllabus. (A copy of the approved Course Structure and Syllabus is attached herewith). The committee decided to implement the revised course structure and syllabus from the academic year 2014-2015 onwards.

The members also commented on the Method of evaluation of M. Sc Mathematics Programme and requested to include the same in the minutes.

The experts strongly recommended that the mode of evaluation of examinations should be strictly internal.

Regarding the evaluation of the Dissertation there should be a 3-member committee consisting of HOD/ a nominee of HOD, the supervisor and one permanent faculty from the Department.

Dissertation should be initiated in third Semester as a reading course. The student has to submit his/her area of interest on or before 15 days from the commencement of the third semester to the HOD. Students with the help of the respective supervisor, select the topic of dissertation. Each student has to present two Seminars: one mid-semester seminar, another end-semester seminar. Also each student has to submit a report at the end of the third semester to the respective supervisor for evaluation.

The meeting was fruitful and Dr Shaini P. thanked the experts for their valuable suggestions and guidance.

The meeting came to a close at 6.00 p.m.

1. Prof. S. Kumaresan, Member, Expert in the Discipline
2. Prof. Parameswaran Sandaran, Member, Expert in the Discipline
3. Dr Shaini Pulickakunnel, Member, Asst. Professor from Dept. of Mathematics 28/8/2014
4. Dr Tasleema T.M., Member, Asst. Professor from Dept. of Computer Science 28/08/2014
5. Dr Germina K.A, Chairperson, Head, Department of Mathematics 28/8/2014

Operations Research

Code:**MSM5027**

Lectures : 2
Tutorials : 2
Practical : 0
Credits : 3

System of linear equations and inequations - Convex functions - formulation of linear programming problem - Theory of simplex method - Simplex Algorithm - Charnes M - Method - Two phase method Computational complexity of simplex Algorithm - Karmarkers Algorithm. Duality in linear programmingDual simplex method- Sensitivity analysis-Bounded variable problem - Transportation problem - Integrity property - MODI Method - Degeneracy - Unbalanced problem Assignment problem - Development of Hungarian method - Routing problems
Nature of Dynamic programming problem - Bellmanns optimality principle - Cargo loading problem - Replacement problem - Multistage production planning and allocation problem - Rectangular Games - Two ,persons zero sum games - Pure and mixed strategies-2 n and m 2 games - Relation between theory of games and linear programming Critical path analysis-Probability consideration in PERT. Distinction between PERT and CPM. Resources Analysis in networking scheduling - Time cost optimization algorithm - Linear programming formulation - Introduction to optimization softwares. Non -linear programming problems.

References

1. M.S. Bazaara, J.J. Jarvis and H.D. Sherali, Linear programming and Network flows , John Wiley, 2nd Edition, 2009.
2. M.S. Bazaara, H.D. Sherali and C.M. Shetty, Nonlinear programming Theory and Algorithms, John Wiley, 2nd Edition, 12006.
3. Taha, H. A., Operation Research- An Introduction , Prentice Hall India, 7th Edn., 2006
4. Hadley, G., Linear Programming, Narosa Book Distributors, 2002.

Optimization Techniques and Control Theory

Code:**MSM5028**

Lectures : 2
Tutorials : 2
Practical : 0
Credits : 3

Functions taking values in extended reals, proper convex functions, Subgradients, Directional derivative, Conjugate functions, Conjugate duality. Gradient descent method, gradient projection method, Newton's method, Conjugate gradient method.

Dynamic programming, Bellmam's principle of optimality, Allocation problem Cargo load problem, Stage coach problem.

Optimal control problem, Classical approach to solve variational problem, Pontryagin's maximum principle, Dynamic programming and maximum principle.

References

1. M.Avriel, Nonlinear Programming: Analysis and Methods, Dover Publications, New York, 2012.
2. O.Guler, Foundation of Optimization, Springer, 2010.
3. F.Hollier, G.J.Lieberman, Introduction to Operations Research, McGraw-Hill College, 2009.
4. D.Liberzon, Calculus of variation and Optimal Control Theory: A Concise Introduction, Princeton University Press, 2012.