

**Syllabus for the First Degree Programme in Mathematics
of the University of Kerala**

**Semester V
Operations Research (Open Course)**

CODE: MM 1551

Instructional hours per week: 2

No. of Credits: 2

Module 1 LINEAR PROGRAMMING: Formulation of Linear Programming models, Graphical solution of Linear Programs in two variables, Linear Programs in standard form - basic variable - basic solution- basic feasible solution -feasible solution, Solution of a Linear Programming problem using simplex method - Big-M simplex method.

Module 2 TRANSPORTATION PROBLEMS: Linear programming formulation - Initial basic feasible solution (Vogel's approximation method/North-west corner rule) - degeneracy in basic feasible solution - Modified distribution method - optimality test.

ASSIGNMENT PROBLEMS: Standard assignment problems - Hungarian method for solving an assignment problem.

PROJECT MANAGEMENT: Activity -dummy activity - event - project network, CPM (solution by network analysis only), PERT.

Module 3 QUEUEING MODELS: Examples of queues-queue discipline-Kendall's notation-analysis of steady state distribution and performance evaluation of $M/M/1$, $M/M/c/N$ - Erlang's loss formula.

TEXT: Ravindran - Philips - Solberg: Operations Research- Principles and Practice

REFERENCE:

Hamdy A Taha: *Operations Research*

DISTRIBUTION OF INSTRUCTIONAL HOURS:

Module 1: 12 hours; Module 2: 12 hours; Module 3: 12 hours