Day 1

Optimisation and its Applications:

Linear and Integer Programming & Embedded DSS

Monday, 23rd of March 2009

LINEAR PROGRAMMING MODELLING

Time	TOPIC
9:00-9:30	REGISTRATION AND COFFEE
9:30-9:40	**Introduction and Overview**
9:40-10:30	**Introduction to LP terminology, model representation and mathematical relations** *Gautam Mitra*
10:30-11:00	COFFEE BREAK
11:00-11:30	**An Introduction to Modelling via AMPL Studio** • An equational model is illustrated by capturing its structure *Cormac Lucas*
11:30-12:00	**An Introduction to AMPL Syntax** *Christian Valente*
12:00-12:30	**Efficient / Structured Modelling** *Leela Mitra*
12:30-13:15	**Workshop (I): Financial Model** • Participants investigate an introductory financial model *Cormac Lucas, Leela Mitra, Katharina Schwaiger, Christian Valente*
13:15-14:15	LUNCH
14:15-14:45	**Using EXCEL as a data source for MP Modelling** *Christian Valente*
14:45-15:15	**Goal Programming/Elastic Constraints** *Katharina Schwaiger*
15:15-15:30	TEA BREAK
15:30-16:00	**Bond Stripping problem: an LP formulation** *Leela Mitra*
16:00-17:00	**Workshop (II): Family of Financial Models** • Participants model and investigate the family of models introduced using AMPL and FortMP • Link with MS Excel *Cormac Lucas, Leela Mitra, Katharina Schwaiger, Christian Valente*
17:00-17:15	Discussion and Feedback

Day 2

Optimisation and its Applications:

Linear and Integer Programming & Embedded DSS

Tuesday, 24th of March 2009

ADVANCED MP MODELLING

Time	TOPIC
9:00 - 9:30	COFFEE
9:30 -10:30	**Mixed Integer Programming Problems** • Integer problems involving binary variables, semi-continuous variables, special ordered set variables are introduced. A few discrete programming problems are explained *Gautam Mitra*
10:30-11:00	**Discrete Optimization Problems and their Algorithms: A Graph Theoretic Perspective** *Parthasarathi Dasgupta*
11:00-11:30	COFFEE BREAK
11:30-12:15	**Case Study: IP with Buying Threshold** • An IP Model with semi-continuous variables is introduced *Cormac Lucas*
12:15-12:45	**Introduction to AMPL Scripting Functionalities** *Cormac Lucas*
12:45-13:45	LUNCH
13:45-14:45	**Workshop (III): MIP Models** • Participants model and investigate the family of models introduced in the previous session, using AMPL and FortMP *Cormac Lucas*
14:45-15:15	**Introducing AMPL COM** • AMPL-COM is aimed to embed models in applications *Christian Valente*
15:15-15:45	TEA BREAK
15:45-16:30	**Part (I) Heuristic for Solving Integer Programs using AMPL Script** *Cormac Lucas*
16:30-17:00	**Part (II) Constructing an Efficient Frontier:** **Script and AMPL-COM implementations** *Christian Valente*
17:00-17:15	Discussion and Feedback

Day 3

Decision making under uncertainty:

Stochastic Programming

Wednesday, 25th of March 2009

INTRODUCTION TO SP

Time	TOPIC
9:00 - 9:30	REGISTRATION AND COFFEE
9:30 -10:30	**Stochastic Programming: optimum decision making under uncertainty: an overview** *Gautam Mitra*
10:30-11:00	**Stochastic Programming and Risk Measures** *Leela Mitra*
11:00-11:30	**Portfolio Allocation When Some Stock Returns Have Heavy Tails** *Arnab Kumar Laha*
11:30-12:00	COFFEE BREAK
12:00-12:45	**Two Stage SP: Expected Value, Scenario Analysis and Deterministic Equivalent Approaches** *Katharina Schwaiger, Christian Valente*
12:45-13:30	Lunch
13:30-14:30	**Hands-on Modelling: Expected Value, Wait and See, and Two-Stage SP Models : An ALM Model** *Cormac Lucas, Leela Mitra, Katharina Schwaiger, Christian Valente*
14:30-15:15	**Stochastic Extensions to AMPL: SAMPL and SPInE** *Christian Valente*
15:15-15:45	**SPInE example: An ALM model expressed in SAMPL** *Christian Valente*
15:45-16:00	TEA BREAK
16:00-17:00	**Workshop on SPInE: Hands on Some Models in SAMPL** *Cormac Lucas, Leela Mitra, Katharina Schwaiger, Christian Valente*
17:00-17:30	**Robust Optimization and its Applications in Finance** *Sanjeet Singh*

Day 4

Decision making under uncertainty:

Stochastic Programming

Thursday, 26th of March 2009

INTRODUCTION TO SP

Time	TOPIC
9:00-9:30	COFFEE
9:30-10:00	**Stochastic Programming and Scenario Generation: A (DSS and Simulation) Modelling Perspective** *Gautam Mitra*
10:00-10:30	**Scenario Generation: Overview and Desirable Properties** *Leela Mitra*
10:30-11:00	COFFEE BREAK
11:00-12:30	**Workshop on SPInE: Hands on stochastic models** *Cormac Lucas, Leela Mitra, Katharina Schwaiger, Christian Valente*
12:30-13:30	LUNCH
13:30-14:00	**Title..Title..** *Ashok Banerjee*
14:00-14:30	**Long-Short Portfolio Optimization in the Presence of Variance and Conditional Value at Risk** *Ritesh Kumar*
14:30-15:00	**Mixture model etc etc** *Leela Mitra*
15:00:15:30	**Solution Methods for Stochastic Programming** *Gautam Mitra*
15:30-15:45	TEA BREAK
15:45-17:00	**Hands on: Chance Constraint and Integrated Chance Constraint formulations of Dakota and ALM models** *Cormac Lucas, Leela Mitra, Katharina Schwaiger, Christian Valente*
17:00-17:15	**Discussion and feedback**