



SYSTEMS THINKING AND MODELLING

This course introduces the most appropriate ways of visualising the complex interrelationships between the various parts of real-world problems, problems that continually change over time and are resistant to corrective action. The course provides solid foundations for developing strategies and managing many problems for which conventional reductionist ways of thinking are totally ineffective.

No prior knowledge is assumed. The course is valuable for anyone faced with continually changing problems in public or private sector organisations or communities. It is also valuable to those who wish to go on to develop skills in computational system dynamics modelling, perhaps by attending the *System Dynamics Modelling Practicum*.

Attendees receive comprehensive course notes, and "*Decision Making: Risk Management, Systems Thinking and Situation Awareness*", McLucas, A.C., 2003, Argos Press.

COURSE OUTLINE

Complexity, Decision Making and Organisational Environments

Nature of real-world problems - significance of detail and dynamic complexity for organisations and individuals

Relationship between systemic structure of problems and their behaviour over time

Recognition-primed and deliberate decisions

Managerial roles in organisations and organisational transformations

Managerial cognition; finite limits and strengths

Richness brought to understanding of a problem situation by accommodating a range of stakeholder perspectives

Environmental constraints on organisations and organisational decision makers

Bringing About Understanding of Complex Problem Situations

Techniques for eliciting and mapping implicit and explicit knowledge about a problem situation

Cognitive Mapping

Soft Systems Methodology (SSM)

Causal Loop Diagrams

Influence Diagrams

Communicating meaning and understanding of systems through use these maps and diagrams

Qualitative Methods for Strategy Development - Using The Iterative and Interactive Strategy Development (IISD) Methodology

Conducting elicitation, mapping and analysis workshops

Techniques for combining the views of disparate stakeholders

Identifying leverage points where small changes can make a big difference

Developing and testing strategic options

Relationship between qualitative systems thinking and quantitative system dynamics modelling techniques

Exercises

A series of graduated exercises cover the use of specific techniques, and insights enabled through eliciting knowledge and analysing systemic causality

Specific exercises develop skills in the use of alternate methods of causal mapping, leading to the development of strategic options for organisational transformation

Related Issues

The progression from qualitative 'soft systems' modelling to quantitative system dynamics modelling is examined