Systems Thinking

Systems thinking, from a soft system’s perspective, is an approach to understanding the complexity which exists within all large organizations. Complexity arises as organizations try to solve problems or realize opportunities with multiple objectives, including the human dimension. Managers are faced with the dilemma of meeting potentially conflicting objectives of different stakeholders: as a result of complexity and wicked or messy problems. These terms a situation where more than one interacting problems arise.

System's thinking from a soft system's methodology includes the human activity system (HAS) early on in the analysis. Systems thinking is about how one balances the expectations of various stakeholders to achieve the required objectives, while at the same time making the system purposeful, i.e. a system that is self-regulating. This course is how one manager’s complexity and uncertainty in an unstructured environments and at the same type creating self-regulating systems, moving towards a learning organization.

**Course Objective**

Systems engineering is the evolving discipline that addresses the management of increasing complexity. The objectives of the course is to use soft systems thinking as an approach to problem solving/opportunity realization in a business context. The objective is to demonstrate to students how soft systems thinking puts the HAS (Human activity system) as a focal point to address areas of conflicting objectives. The approach is a soft systems approach focusing on the importance of the human dimension and how a systemic holistic approach can lead to conflict resolution.

The course aims to give an in-depth coverage of Systems in the context of contemporary operations, the module addresses the scope, impact and importance of systems engineering and the major decisions that need to be made in today's world of a globally connected organizations.

**Course Benefits**

- Establish an understanding of basic systems and systems engineering concepts and terms.
- Understanding systems engineering as a process and its relationship to program management life cycles.
- Understand useful theories, models, techniques, and tools and how these concepts relate to Soft systems methodologies.
- Develop an understanding of chaos theory and how this leads to structured chaos.
- Develop and use systems thinking tools for strategy, operations excellence, innovation, continuous improvement, etc.

**Course Outcomes**

- Problem solving.
- Application of scientific and engineering techniques.
- Experiments, investigation and data analysis.
- Professional & technical communication.
- Individual team and multi-disciplinary work
- Independent learning ability

**Target Audience**

All personnel involved in leadership positions who are faced with making decisions in complex environments. Typically personnel who are involved in change management, operations, innovation and process improvement. Some examples include personnel involved in IT, supply chain management, HR, engineering, business process management, etc. Typically personnel faced with complex decisions will benefit from this course.

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**Venue:** JASCO Office Park, Corner Alexandra Avenue and 2nd Street Halfway House Midrand, 1685

**Dr. Raj Siriram | Phone:** +27 82 894 6253 | **Work:** +27 11 622 3549 | **Email:** RAJ@ALPHA-CONCEPTS.COM
The course content encompasses at least the following:
1. Perspectives of systems and systems engineering.
2. History of the systems movement and introducing complexity.
3. System Concepts e.g. Root definitions, systems environment, system boundaries, rich and naïve picture analysis, etc.
4. The seven management tools for rich picture building.
5. The nine management and planning tools.
6. System engineering management plans
7. Typical applications of Systems thinking using cross functional disciplines
8. Design challenge on Systems engineering,
10. Systems Thinking a Total quality management.
11. Learning organizations and the futuristic view of the modern organization.

The course is a learning by doing course, students are given core material which they are expected to read and understand. Several case studies are given, students are to work in groups and present their analysis of the case studies using the core material discussed in class. The class is broken into groups depending on the number of students there are normally 3 to 4 groups of 5-8 students each. Students are given 4 to 7 case studies, which are to be worked through the duration of the course over a Five day period. While one group presents the material normally a 20 minute presentation. The other groups are required to critique the presentation thus creating a forum for debate and discussion. Students are also expected to submit a final report one week after course completion for evaluation, which is worth 50% for both the three day and five day course options.

Dr. Raj Siriram is Chief executive of Alpha concepts Pty (Ltd) a professional management and engineering consulting company, previously Operations executive at Plessey a Dimension Data company, Chief Information Officer at Dimension Data Middle East and Africa. He was also Divisional managing director at Siemens Ltd, Manufacturing systems manager at GE, Manufacturing manager at Alsthom. He has a wide range of industrial experience from business development, project management, Information technology, supply chain management, performance management, business engineering and manufacturing. He has turned and grown many business’s over the last 15 years of his 25 year working experience. Raj has more than 10 years experience at executive level. He is also a sessional lecturer at the University of the Witwatersrand. His research interests are in technology management, enterprise engineering, project management and systems engineering. Raj is a registered with the engineering council of South Africa. He holds a Ph.D. in Industrial Engineering from the University of Witwatersrand, in South Africa, School of Mechanical, Industrial and Aeronautical Engineering. He is also a member of the Institute of Directors, South African Institute of Industrial Engineers, Institute of Industrial Engineers (US) and many other professional bodies.
SESSION 1
REGISTRATION / COFFEE & TEA
8h30-9h00
SESSION 2
WELCOME & INTRODUCTION
9h00-9h15
SESSION 3
PERSPECTIVES OF SYSTEMS AND SYSTEMS THINKING. A TOM PERSPECTIVE
9h15-9h45
SESSION 4
HISTORY OF THE SYSTEMS MOVEMENT AND INTRODUCING COMPLEXITY
9h45-11h00
SESSION 5
COFFEE & TEA BREAK
11h00-11h20
SESSION 6
WORKING CASE STUDIES TO DEMONSTRATE SYSTEMS ENVIRONMENT, SYSTEM BOUNDARIES, RICH PICTURES, ETC.
11h20-13h00
SESSION 7
LUNCH
13h00-13h45
SESSION 8
DEFINITIONS AND CONCEPTS RELATED TO SYSTEMS HIERARCHIES, SYSTEM ENVIRONMENTS, ROOT DEFINITIONS, RICH PICTURE ANALYSIS, HUMAN ACTIVITY SYSTEMS, ETC.
13h45-15h30
SESSION 9
CONCLUSION OF THE DAY
15h30-16h00

SESSION 1
COFFEE & TEA
8h30-9h00
SESSION 2
QUESTIONS ARISING FROM THE PREVIOUS DAY
9h00-9h15
SESSION 3
THE SEVEN MANAGEMENT TOOLS FOR RICH PICTURE BUILDING
9h15-9h45
SESSION 4
THE NINE MANAGEMENT AND PLANNING TOOLS
9h45-11h00
SESSION 5
COFFEE & TEA BREAK
11h00-11h20
SESSION 6
CASE STUDIES TO DEMONSTRATE USE OF THE SEVEN RICH PICTURE BUILDING TOOLS & THE NINE MANAGEMENT AND PLANNING TOOLS
11h20-13h00
SESSION 7
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SESSION 8
DISCUSSION ON FINAL REPORT/ DESIGN CHALLENGE
13h45-15h30
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15h30-16h00
## COURSE REGISTRATION FORM

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<tr>
<th>COURSE NAME</th>
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- Please complete one form per delegate.
- Please complete all details on the forms below in clear block letters.
- Please ensure you send the relevant attachments so as not to delay your registration.
- Only fully completed registration forms can be processed all field must be completed.

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| PERSON PAYING ACCOUNT | |
| PERSON EMAIL | |
| PERSON CONTACT NUMBER | |

**PLEASE NOTE THAT ELECTRONIC INVOICES ARE SENT AS A FORM**

Banking details & pro forma invoices will be supplied on receipt of your completed registration form. Payment must be rendered before the start of the course.

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**SPECIAL DIETARY REQUIREMENTS?**

- I was contacted via E-mail/Phone
- I was contact by (Name & Surname)
- I Phoned Alpha Concepts to book

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