

Human Factors in Systems Engineering

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J. Kepler University Linz

1. Aims of the Course

Systems Engineering is largely a human-centered activity. Its success depends mostly on human involvement, ingenuity, motivation and team work. Systems are designed by humans and are provided with interfaces which again provide communications with humans. This course focusses on human beings and their behaviour in relation to the development and usage of software-intensive systems. Both aspects, development and usage, by necessity are subject to sociological and cultural influences. The focus is on two issues: General Human Cooperative Behavior and Cultural Differences. This is applied both to the development processes for software and to the appearance of the produced software itself. The course will create a basic understanding of the issues involved in order to make both systems development and system usage more human oriented. It is to be held in English using English foils and accompanying handouts.

2. Date and Time:

Preferred date: Feb. 9 – Feb. 13, daily
5 lectures of 90 minutes each.

3. Overview of Topics

Part 1: Basic Human Behaviour: This provides the basis: human behaviour - the individual, Transactional Analysis, groups, group dynamics and teams, human needs, Maslov pyramid, motivation, creativity., computers as capability enhancers, social computing

Part 2: Cultural Differences: following Hofstede&Hofstede and Hampden&Trompenaars: Cultural Dimensions, International System Development, human problems of outsourcing, Localization

Part 3: Human Factors of system development processes: Social Competence, Selfunderstanding and Ethic of developers, Project Managemet, the project leader, Evaluations and Critizing

Part 4: User-adequate software-intensive Systems: User-oriented methods and development strategies, Soft Systems Methodology (SSM).

A detailed Table of Contents is appended, also showing topics which are presented in the longerr lecture in Linz and not planned for presentation in Budapest.

4. Curriculum Vitae – em. Prof. Dr. G. Chroust; M.S.

Em. Prof. Dr. Gerhard Chroust, Institute of Systems Engineering and Automation,
J. Kepler Univ. Linz

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Current Position:

- Professor Emeritus for Systems Engineering and Automation at the Johannes Kepler University Linz (JKU), Austria

Main interest:

- Systems Engineering, especially Foundations and Human Factors
- Software Process Models, especially navigation and Product Line Management
- Composition of properties in CBD
- Emergence in technical artefacts
- Human Factors and Motivation in Software Engineering
- Localization

Career

1959-64 Technical University Vienna (Telecommunications)

graduated: Diplom-Ingenieur

1964-65 University of Pennsylvania, Philadelphia, USA (Computer Science)

graduated: Master of Science

1966-1991 IBM Laboratory Vienna (Formal Definition of PL/I, Vienna Definition Language, theory of compilers and compilation, assistant to Laboratory Director, microprogramming/firmware, system programming: PL/I Compiler for IBM 8100, Software Application Development Environments (ADPS), national language translation for ADPS, Product Support for ADPS)

1973-75 Technical University Vienna (Computer Science)

graduated: PhD.

1980 J. Kepler University Linz (Computer Science)

promoted: 'Dozent'

1980-91 Assistant Professor at the Kepler University Linz

1992 - 2007 Professor for 'Systems Engineering and Automation', Kepler University Linz. , Head of institute for 'Systems Engineering and Automation', Kepler University Linz

Since 2007: Professor emeritus

Publications

- 6 authored books
- 24 books/proceedings (editor)
- approx. 110 refereed scientific publications
- approx. 55 unrefereed scientific publications
- approx. 200 other publications
- numerous lectures and seminars

Human Factors in Systems Engineering

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