System Dynamics Italian Chapter (SYDIC) Annual Report (July 2007- June 2008)

(Habib Sedehi)

The development of the System Dynamics Italian Chapter (*SYDIC*) new website has been concluded. The final version (www.systemdynamics.it) is now available and is in use since the beginning of 2008. The site was designed and developed involving both Engineering faculty students of Rome "Tor Vergata" University and BSc Communication Sciences faculty students of Rome "La Sapienza" University. The *SYDIC* website characteristics are detailed through a paper presented in the poster session at the Athens ISDC 2008[1].

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There has been continues academic and research activities, by the Chapter members, in the field all over the country. Following are those which were reported by *SYDIC* members:

University of Bologna – Faculty of Mathematical, Physical and Natural Sciences – Dynamics of Complex Organisations course[2]
http://www.eng.unibo.it/PortaleEn/Academic+programmes/Teachings/dettaglio.htm?AnnoAccademico=2006&IdComponenteAF=141346&CodDocente=035837&CodMateria=44759

Research activity in System Dynamics:

- Analysis of supply-chain dynamics using computer simulation.
- Analysis of the combination of computer simulation and mathematical analysis in conducting research (in cooperation with the Department of Mathematics).

Bachelor & Master Thesis in System Dynamics

University of Siena – Department of Social and Business Studies – Governance and Management Control degree course[3]
http://www.disas.unisi.it/?page=didattica&link=yes&l=s&l_mat=ins&g=1024&j=y

Research activity in System Dynamics:

- Improving strategic thinking with System Dynamics based Interactive Learning Environments. Period: 2007-10.
- Applying the Balanced Scorecard in a System Dynamics perspective. Period: 2007-09.

University of Pisa – Faculty of Computer Sciences – Department of Environmental Sciences – Environmental modelling course[4]

University of Rome "La Sapienza" – Faculty of Communication Sciences – Advanced degree in Enterprise Communication – System Theory and Dynamic Simulation Modelling full course[5]
Collaboration with Tor Vergata University in organising and supporting seminars for PhD graduated students (see below).

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[1] The System Dynamics Italian Chapter (SYDIC) community on the web: an online scientific community (S. Armenia, S.Dafano, H. Sedehi)
[2] Edoardo Mollona (emollona@cs.unibo.it)
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Research activity & Master Thesis in System Dynamics:

- Security & Safety Management
- ICT innovation management in the Government environment
- Dynamic and Web Marketing Management

SYDIC website:
System Dynamics Italian Chapter site's supporting design.

University of Rome "La Sapienza"– Master at Faculty of Statistics Sciences – Department of Data Intelligence and Strategic Decisions – Integrative lessons in SD[6]

University of Rome "Tor Vergata" – Faculty of Economics – Business Studies Department[7]

Research activity in public governance & policies, health care, cultural sector and SD

- Master in Management and Innovation for the Public Administration: introduction to System Thinking, modelling and simulating with System Dynamics (June 2008)
- A set of seminars on SD methodology and practice (November - December 2007) dedicated to the students of different PhD courses at "Tor Vergata" University; in the seminars, discussions were carried out about System Thinking and System Dynamics, regarding both the theoretical aspects (Paal Davidsen chaired the first day session), and the practical applications of SD (Production, Sustainable Development, Finance, Economy, Services, etc…)

University of Rome "Tor Vergata"– Faculty of Engineering – Department of Enterprise Engineering –Production Processes Modelling course and Master in Network System Engineering – Introduction to simulation" course[8].

- Business & Management Engineering, "Tor Vergata" University of Rome. Systems Services Models, light course: introduction to System Thinking and System Dynamics (February 2008)
- Master in Network Systems Engineering, light course: introduction to System Thinking, modelling and simulating with System Dynamics (September 2007)

Research & Thesis in System Dynamics:

- The paperless process in Italian Government Administration
- The human resource management in Software Projects
- The Beergame: A Microworld for Supply Chain multiplayer analysis
- Software project Open source and collaborative development

SYDIC website:
System Dynamics Italian Chapter site's re-engineering and site's community development.

University of Genoa – Faculty of Engineering; Production, Thermoenergy & Mathematical Modelling department[9] in collaboration with CNR(National Research Council)-ISSIA[10] and together with Cranfield University(UK) are developing (starting from June 2007) a PSS (Product Service Systems) SD model oriented to their economic, social and environmental evaluation.

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ENI Corporate University – Mattei School of Management – Master in Energy and Environmental Economics and Management - Integrative lessons in SD[11]

- Introduction to SD with some applications to energy and environment
- Energy and Environmental Modelling using SD

ENI S.p.A - Strategies and Development Department[12]

- Analysis and development of SD models in the European automotive sector's fuel consumption
- Study of the oil's asymmetrical production curve merging the Hubbert dictates and classical economists approach through SD modelling, evaluating the impact of economic conditions on reserves and their production rate

Massachusetts Institute of Technology (MIT) – NSE & ESD Department

PhD Graduate Student and Teaching Assistant in the risk and safety division[13]
Use of SD in the following main fields;

- Thermo-Hydraulic Design of Power Plants with specific focus on the use of SD model capable to detect accident evolution of nuclear power plants,
- Risk and Safety assessment and modelling (i.e. uncertainties propagation analyses, learning machines to detect patterns in the probability of failure of physical systems),
- Energy Markets Modelling (financial and competition model in the energy market).

Finally during this year a new *SYDIC* member[14] belonging to the Municipality of Verona has reported that in the main phases of a complex project, supporting the enhancement process of an important part of the public historical heritage of the Verona city, System Dynamics approach has been used. It's possible to find the information on the project (period and kind of activities, information about the Military Architecture considered in the project, first results and contacts on the site http://www.veronafortificata.it).

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