Dynamic Project Management & Control

2018 SNU INTERNATIONAL SUMMER SCHOOL

DESCRIPTIONS & OBJECTIVES

This subject module deals with vital knowledge required for project management and control under uncertainties. As most of recent work environment in companies are project-based, university students are expected to have a good understanding and knowledge on relevant issues such as project initiation, organization, planning, and control methods.

Furthermore, these days projects are getting bigger and more complex, thus it is especially useful to understand their dynamic features. In this context, the dynamic project management and control approach to be dealt with in this module provides students with a robust tool that can address all the complexity issues against increased uncertainties involved in the real project management world.

Early part of the lecture covers traditional project management domain knowledge including project initiation, planning, selection, and scheduling, while the main focus will be given to the dynamic project management and control approach with System Dynamics, which has been widely used as a strategic policy simulation tool in many consulting firms, since developed at MIT in the late 1950's.

LECTURE SCHEDULE

	Lecture			Assignment/Term Project	
	Title	Teaching Core	Reference	Out	Due
1	Introduction to Project Management	PJ fundamentals			
2	PJ Initiation and Planning	PJ initiation, Organization, Planning tools			
3	PJ Selection & Evaluation	PJ Selection and evaluation tools			
4	PJ Scheduling	Duration shortening tools			
5	Simulation based project management	Dynamic project management & control	R1	A1: Problem definition and model conceptualization	
6	System Dynamics	SD Components, CLD Techniques	R2	A2: Oil crisis	A1
7	Where did gasoline go?	Identifying the stock and flow structure		A3: Formulation of a Simple model	A2
8	Dynamics of Stocks and Flows	Exploring dynamics of stock and flow structure	R3	A4: 성매매특별법	A3
9	Pay or not to pay?	Standard Modelling Process I	R4		A4
10	Hard work vs. Smart work	Model quantification, Rework Cycle, Delay		A5: Rework cycle	
11	Controlling is not enough	Standard Modelling Process II	R5		A5
12	Daddy's dilemma (아빠의청춘)	Modeling practice		Term Project (TP) Proposal	
13	Closing the loop	Dynamics of Simple Structures		TP Development	
14	Term Project Final Presentation	TP discussions			

15	Final Exam				

GRADING

Continuous Assessment: 80%
Assignments: 50% (5 x 10%)
Term Project: 20% (only final presentation to be assessed)
Quizzes, attendance etc: 10%
Final Exam: 20%

READING

- R1: John D. Sterman, "System Dynamics Modelling for Project Management", MIT online publication at http://web.mit.edu/jsterman/www/SDG/project.html, 1992
- R2: Terry Williams et. Al, "The Effects of Design Changes and Delays on Project Costs", Journal of the Operational Research Society, Vol 46, pp 809-818, 1995
- R3: James M. Lyneis *, Kenneth G. Cooper, Sharon A. Els, "Strategic management of complex projects: a case study using system dynamics", System Dynamics Review, Vol. 17, No. 3, 2001
- R4: Pena-Mora, Feniosky; Park, Moonseo, " Dynamic Planning for Fast-Tracking Building Construction Projects", Journal of Construction Engineering and Management, Vol 127, Issue 6, 2001
- R5: Park, Moonseo, Yashada, "Model-based Construction Policymaking: Singapore Government's Policy to Diffuse Prefabrication to the Private Sector", Journal of Construction Engineering and Management, Submitted 2004 (to be distributed)

- **Main Textbook: "Business Dynamics", John D. Sterman, 2000, McGraw-Hill**

OTHERS

- Lecture materials will be posted in etl of SNU portal (http://portal.snu.ac.kr).
- Assignments (A1 to A5) and one term project will be done and assessed in a group of 3 students.
- Hard & soft copies (thru e-Class) of the assignments are to be submitted before lecture (* 50% deduction on marks will be applied to late submission).
- Modelling software, Vensim PLE is available at www.vensim.com