

DEPARTMENT OF ARCHITECTURE  
COLLEGE OF ENGINEERING  
SEOUL NATIONAL UNIVERSITY

SUBJECT PROGRAM 2022 SEMESTER 2

Subject Code/Name: **401.661/ Advanced Construction Technology**

Course/Year: Graduate

Lecture Room/ Time: Bldg 39 - 427/ 19:00 - 22:00 Tue

Lecturer: Prof. Park, Moonseo

Language: English

\* Lecture format: **Offline(Face to Face)** (Subject to change due to COVID-19.)

Week (date)	Lecture			Assignment/Term Project	
	Title	Teaching Core	Reference	Out	Due
1	Introduction	Simulation based project management	R1	A1: Problem definition and model conceptualization	
2	System Dynamics	SD Components, CLD Techniques	R2	A2: Oil crisis	A1
3	Where did gasoline go?	Identifying the stock and flow structure		A3: Formulation of a Simple model	A2
4	Dynamics of Stocks and Flows	Exploring dynamics of stock and flow structure	R3	A4: Special law on sex trade (성매매특별법)	A3
5	Pay or not to pay?	Standard Modelling Process I	R4		A3
6	Hard work vs. Smart work	Model quantification, Rework Cycle, Delay		A4: Rework cycle	
7	Term Project Proposal				
8	Controlling is not enough	Standard Modelling Process II	R5		A4
9	Daddy's dilemma (아빠의청춘)	Modeling practice			
10	Closing the loop	Dynamics of Simple Structures			
11	Construction Gaming	Understanding tradeoffs in construction, FT, Resource management, Ready Mixed Concrete Delivery	R6	TP1: System Understanding	
12	TP1 Discussion & Presentation			TP2: Dynamic Hypotheses	TP1
13	TP2 Discussion & Presentation			TP3: Policy Implications and Recommendation (Model Quantification and Flight Simulator Development: optional)	TP2
14	Term Project Final Presentation				TP3

## GRADING

Continuous Assessment: 100% (NO Exam)  
Assignments: 40%  
Term Project: 30% (only final presentation to be assessed)  
Quizzes, attendance etc: 30%

## 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)
- R6: Park, Moonseo, "Model-based Dynamic Resource Management for Construction Projects", Automation in Construction, 2005 vol 5
  
- **Main Textbook: "Business Dynamics", John D. Sterman, 2000, McGraw-Hill**

## OTHERS

- Lecture materials will be posted on the eTL (<http://etl.snu.ac.kr>).
- Assignments (A1 to A4) and one term project (TP1 to TP3) 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](http://www.vensim.com)