



**C
TL**

A New Challenge and Future Direction of Online Learning at Seoul National University

May 21, 2015

The 2nd Symposium on Teaching and Learning in East Asian Research University

Kim, Deogsu (Director of Center for Teaching and Learning at SNU)

 **Introduction**

 **Development of Lecture Videos at SNU**

 **Online Learning at SNU**

 **Future Work**



🌐 Online Learning based on Video Services

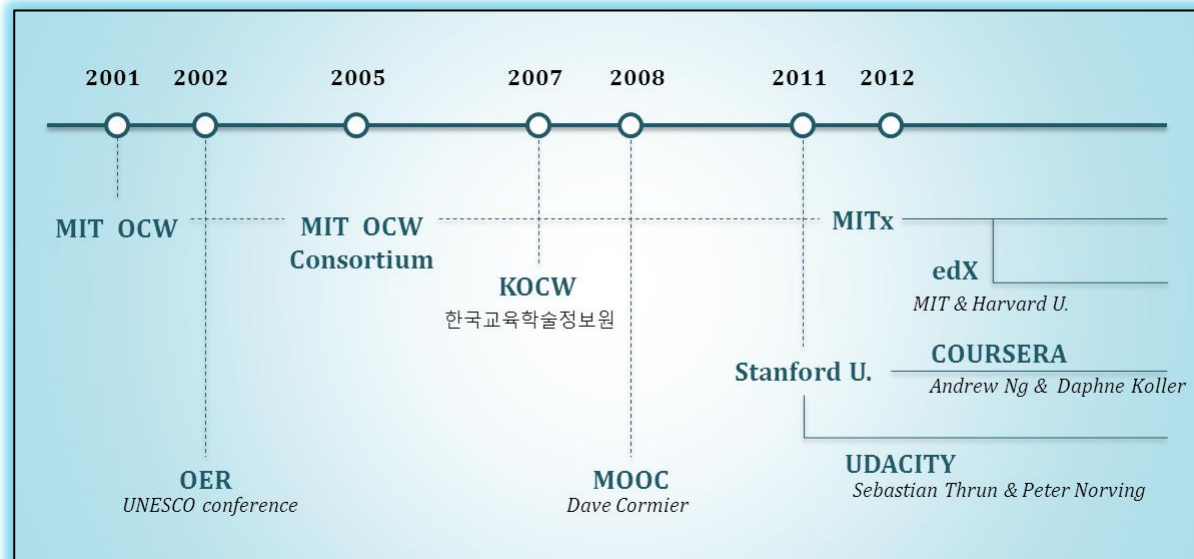


TALKS | IN LESS THAN 6 MINUTES
Peter Norvig: The 100,000-student classroom

FILMED FEB 2012 • POSTED JUN 2012 • TED2012



Changes of Online Learning Type



OCW type
(Open Courseware)

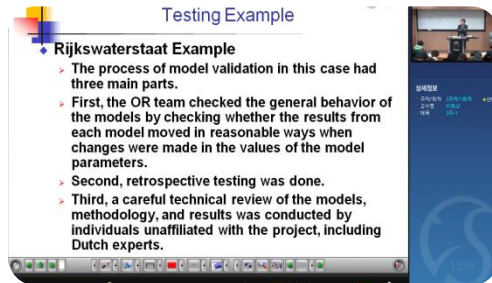
Opening & Providing
Educational Resources

MOOC type
(Massive Open Online Courses)

Running Courses
using Educational Resources

**Qualitative Improvement
of University Education**

Types of Developing Lecture Videos



General filming at Classroom

- Little manpower
- Easy development (little editing)
- Effective for repeated learning
- Lack of attention & learning presence



Filming at Studio

- Cyber university, e-Learning contents
- Need of editing
- Doubt in attention
- Lack of learning presence



High Quality Filming at Classroom

- Broadcasting images (filming using 4-5 cameras, editing, computer graphics)
- Attention & learning presence by switch of scenes, diverse shoot, and so on
- High cost
- Difficult development

Our Questions and Suggestions

- How did we develop lecture videos at SNU?
- What are guidelines for developing lecture videos at SNU?
- What types of projects have been running for online learning at SNU?
- What is the future work for online learning at SNU?

🕒 New Experiment at SNU: Best Lecture (2011-2012)



The World of Natural Science
(Hie-Joon Kim, 2011)



Understanding Modern Music
(SukWon Yi, 2012)

Filming Regular Courses in Live

- Learning presence
- Interaction

Development of High Quality Lecture Videos

- Using 3-5 cameras
- Full HD level

🌐 Online Video Courses Development (2013~)



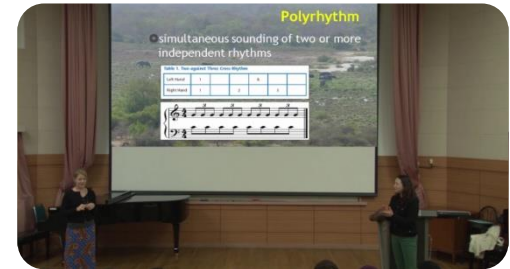
Background

- Supported by SNU Alumni Association
- Minimum 3 times development
- Funded half a billion won per one time



Development

- 1st year: 13 courses on spring 2013
- 2nd year: 9 courses on fall 2013
- 3rd year: 30 courses from fall 2014 to spring 2015

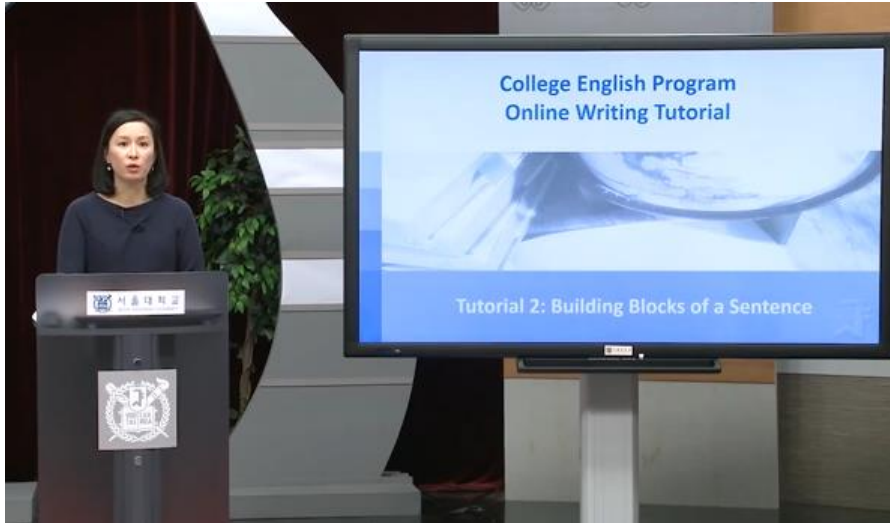


Service

- Total 34 Courses on spring 2015

Innovation of Educational Methods, Qualitative Improvement of Education & Sharing Knowledge

📺 Online Videos Development for Cultural Study since 2014



Promotion of University Level for Online Video Courses Development

Development Guideline

- **Considering Flexible Filming Line**
- **Using Computer Graphics**
- **Filming Students who Ask/Answer Questions**
- **Filming Experiments/Fields & Telecasting Them**
- **Adding Diverse Educational Materials**
- **Designing 10-minute modules by Subjects**

🕒 Guideline 1. Considering Flexible Filming Line



Methods

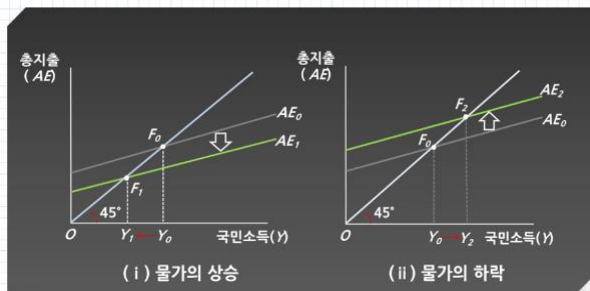
- Filming & editing with consideration for professor's moving & learning flow
- Filming & editing various scenes using 3-5 cameras

Effects

- Calling online learners' attention
- Focusing on lecture

Guideline 2. Using Computer Graphics

물가의 변화와 균형국민소득



Methods

- Adding presentation slide as whole scene
- Adding caption based on keywords

Effects

- Calling online learners' attention
- Supporting to understand learning contents

8. 우리는 누구인가?
 After thousands of light years' (),
 If the Arecibo message
 Encountered life extraterrestrial
 And probably quite (),
 Whether based on carbon
 Or its relative (),
 It will be truly remarkable
 And almost ().

규소 [silicon]
 원자번호 14의 원소 (기호 : Si). 정식명은 규소이지만 반도체와 관련되는 연구 및
 공업분야에서는 영어 그대로 실리콘이라 적고 부르는 것이 보통

📌 Guideline 3. Filming Students who Ask/Answer Questions



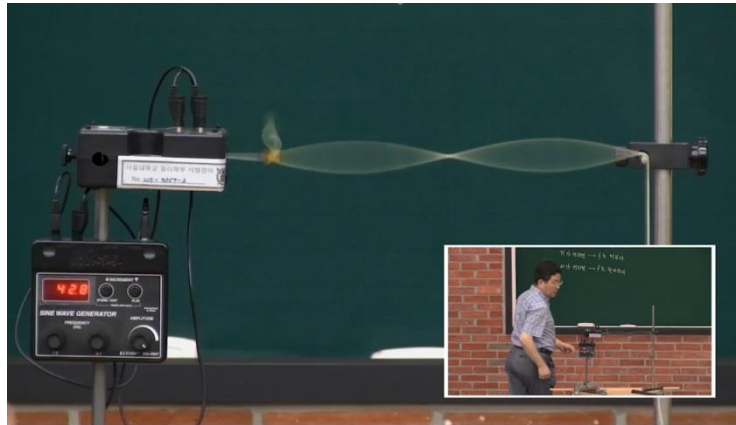
Methods

- Filming students who ask questions
- Filming students who answer questions

Effects

- Enhancing online learners' learning presence
- Supporting for online learners to experience vicarious interaction

🕒 Guideline 4. Filming Experiments/Fields & Telecasting Them



Methods

- Filming experiments and telecasting them in live
- Filming fields and telecasting them

Effects

- Calling online learners' attention
- Supporting for not only online learners but students to comprehend the contents of experiments & fields clearly

🕒 Guideline 5. Adding Diverse Educational Materials



Methods

- Adding educational materials such as film clip, literature, and so forth
- Including the origin and considering copyrights

Effects

- Calling online learners' attention
- Enforcement of educational competency

Guideline 6. Designing 10-minute modules by Subjects

3. Relational Model



1. What is a Relation? 17:51



2. Relational Database 21:15



3. Schema Diagram 11:23



4. Query Languages 07:36

Methods

- Dividing Class(75/150mins) into modules(about 10mins) with consideration for learning subjects

Effects

- Calling online learners' attention
- Supporting for online learners to study effectively using PC, smart devices

Learning Management System for Regular Courses

The screenshot shows the eTL LMS interface for a course titled '교수이론세미나' by Kim, Sunyoung Prof. The interface is divided into several sections:

- Course Summary:** Includes links for Course Home, Syllabus, and Participants.
- Activities:** Includes links for Assignments, Boards, Forums, and Resources.
- Course Administration:** Includes links for Student screen, Grades, Edit Settings, Reports, Group Settings, TA/Listener admission, Sending E-Mail, and Sending SMS.
- Summary:** Displays course announcements (공지사항), Q&A (질문답변), materials (자료실), and social discussions (사회적 토론).
- All week course:** Shows a weekly schedule with dates like 9/2 ~ 9/8 and 9/9 ~ 9/15, along with course topics such as 'Chapter 1. Teaching as a Design Science'.
- September 16 - September 22:** A section for a specific week's activities.
- September 23 - September 29:** A section for another week's activities, including 'Chapter 3. What Students Bring to Learning' and 'Chapter 4. What it Takes to Learn'.
- eTL Tutorial:** A section for tutorial content.
- Upcoming events:** Lists events like '하계 계절학기 수강신청' (Summer semester course registration) on Thursday, May 7, 12:00 AM.
- Recent activity:** Shows activity since Saturday, May 9, 2015, 03:28 PM.
- Calendar:** A calendar for May 2015 with a grid showing dates from 3 to 31.
- Events:** A section for course events, currently showing 'SNU' and 'Course'.

- Supporting Blended Learning (Online-Offline Learning)
- Moodle-based System
- Week to Online Learning focus on Lecture Videos

eTL(e-Teaching and Learning) (<http://etl.snu.ac.kr>)

Self Learning for SNU Students and the Public

The screenshot displays the SNUON website with the following elements:

- Header:** SNUON logo, navigation links for 'SNUON소개', '이용안내', and '목록보기'.
- Main Banner:** 'Share SNU Courses SNUON, for free.' with an image of students in a classroom.
- 인기 강좌 (Courses):** A row of four course cards:
 - 화학:** 물질과 화학반응의 본질과 원리 탐구 (기초교육원 > 실지웅)
 - 수학 및 연습 2:** 수학 및 연습 2 다변수 함수와 벡터장의 미적분 (기초교육원 > 김연목)
 - 데이터베이스:** 데이터베이스: 빅데이터 시대의 필수 정보관리 개론 (공과대학 > 이실규)
 - 음악의 원리:** 음악의 원리 (음악대학 > 전상혁)
- 인기 강의-강연 (Lectures):** A row of four lecture cards:
 - 나노소재(2007년 1학기):** 나노소재(2007년 1학기)
 - 반도체 물리학(2008년 2학기):** 반도체 물리학(2008년 2학기)
 - 교육상 수상자의 강의 노하우...:** 교육상 수상자의 강의 노하우...
 - 문학과 정신분석: 프로이트...:** 문학과 정신분석: 프로이트...

- Running 42 Courses from March to August 2015
- Developing 18 Courses at Present
- Planning to Develop about 15 Courses in Fall 2015

🕒 Registrant of SNUON Courses (excluding lectures)

- Top 10 Courses (Period: March 2015 ~ August 2015)

	Subject Name	#		Subject Name	#
1	Economic Statistics	361	6	College English 1	106
2	Chemistry	266	7	Introduction of Operating System	97
3	Economic Principles	258	8	The Newest Control Techniques	86
4	Economic Principles 2	208	9	Engineering Mathematics 1	83
5	Basic Physics 1	174	10	Mathematics for Humanities and Sociology 2	82

Economy

Natural Science

Engineering

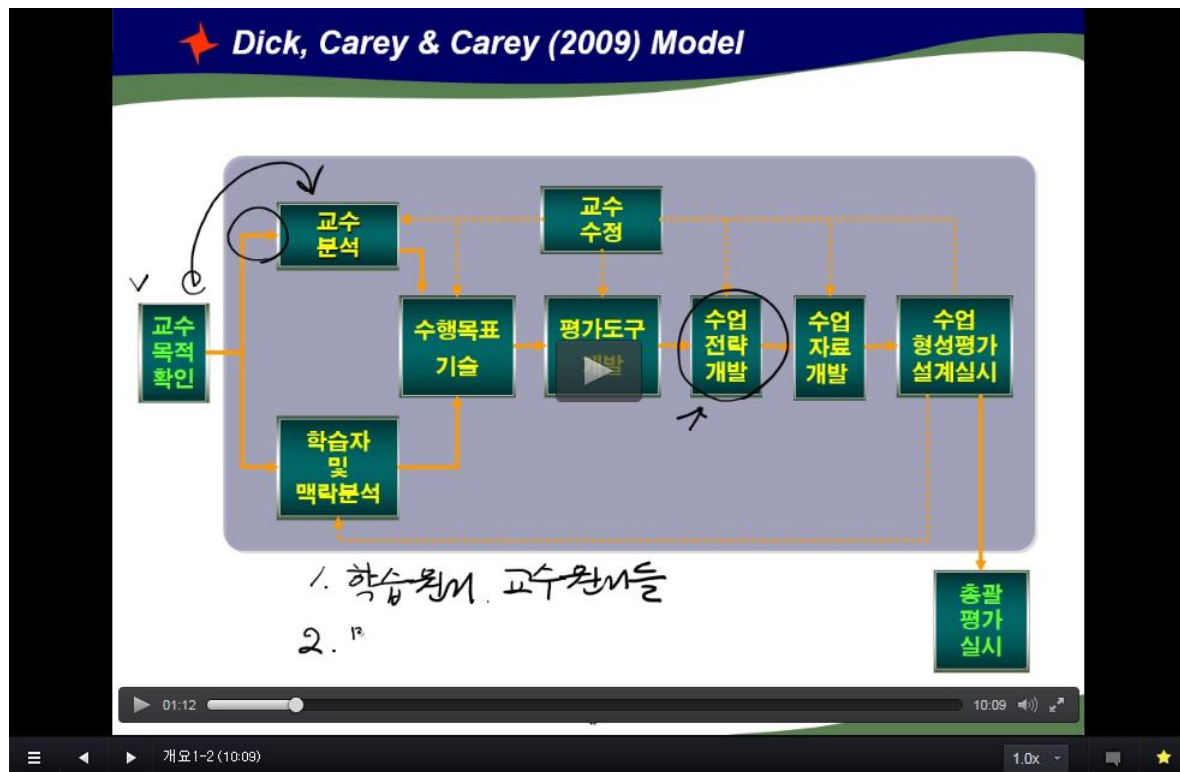
Flipped Classroom[Learning]

1주차 [March2일 - March8일]

- ▶ 개요 1-1 12:27
- ▶ 개요 1-2 10:09
- ▶ 개요 1-3 16:14
- ▶ 교수체제설계요구분석2_1 24:34

2주차 [March9일 - March15일]

- ▶ 교수체제설계요구분석2_2 25:15
- ▶ 교수체제설계요구분석2_3 08:24
- ▶ 요구분석 면담사례(1) 12:25
- ▶ 요구분석 면담사례(2) 04:29
- ▶ 교수분석3_1 13:56
- ▶ 교수분석3_2 16:48



Ex. Course "Instructional System Design"

🔄 Flipped Learning at SNU

- Running 2 Courses as Pilot Project in fall 2013



Mathematics & Practice 2

- : For freshmen of undergraduate
- : Basic liberal art requirement
- : 18 students in the department of math education



Theory for Nonlinear System

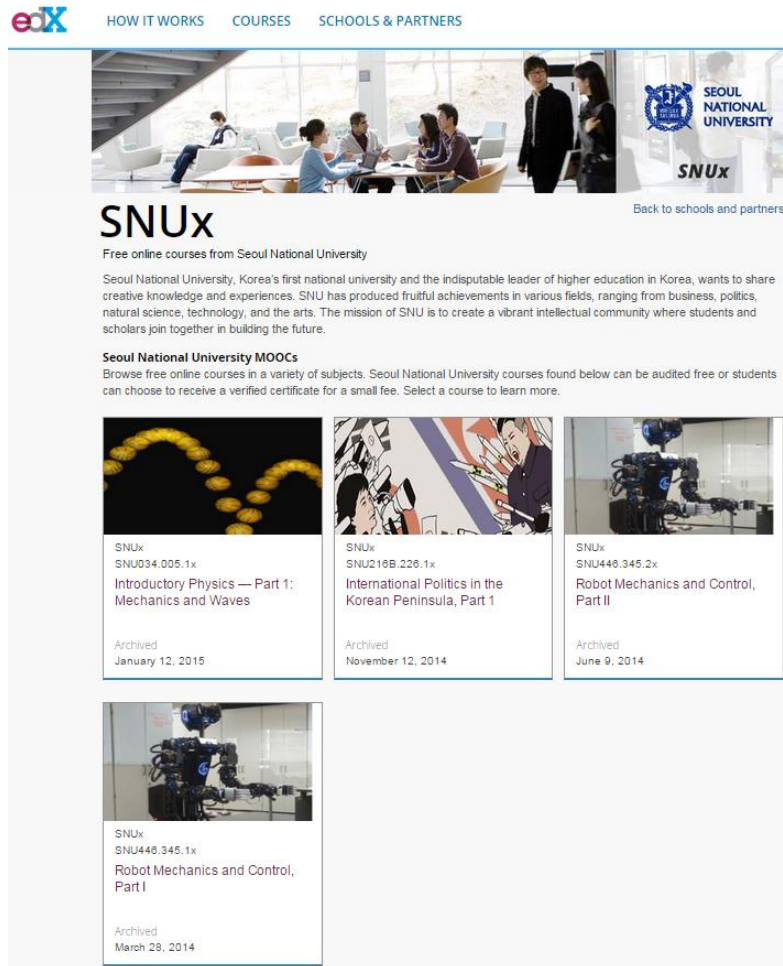
- : For graduate student
- : Major elective
- : 12 students (11 is in engineering college.)

🔄 Flipped Learning at SNU

• Students' Responses about Flipped Learning

	Mathematics & Practice 2	Theory for Nonlinear System
Strength	<ul style="list-style-type: none"> • Participating in mathematical investigation actively • Reaching new understanding by the interaction between TA or among other students • Learning how to learn by watching lecture video under own control 	<ul style="list-style-type: none"> • Repeated Learning by lecture video • Animated Interaction in class
Weakness	<ul style="list-style-type: none"> • Taking a long time to study • Difficulty of understanding because of one-way lecture video • Lack of discuss time 	<ul style="list-style-type: none"> • Taking a long time to study • Lack of explanation about next learning content's concept and context

Global MOOC (Massive Open Online Courses)

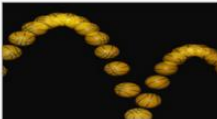





The screenshot shows the SNUx page on the edX platform. At the top, there are navigation links for 'HOW IT WORKS', 'COURSES', and 'SCHOOLS & PARTNERS'. Below the navigation is a banner image of students in a modern classroom setting, with the SNUx logo and 'SEOUL NATIONAL UNIVERSITY' text. The main heading is 'SNUx' with a sub-heading 'Free online courses from Seoul National University'. A paragraph describes SNU as Korea's first national university and its mission. Below this, there is a section for 'Seoul National University MOOCs' with a brief description. Four course cards are displayed, each with a thumbnail image, course ID, title, and archive date.

SNUx
Free online courses from Seoul National University

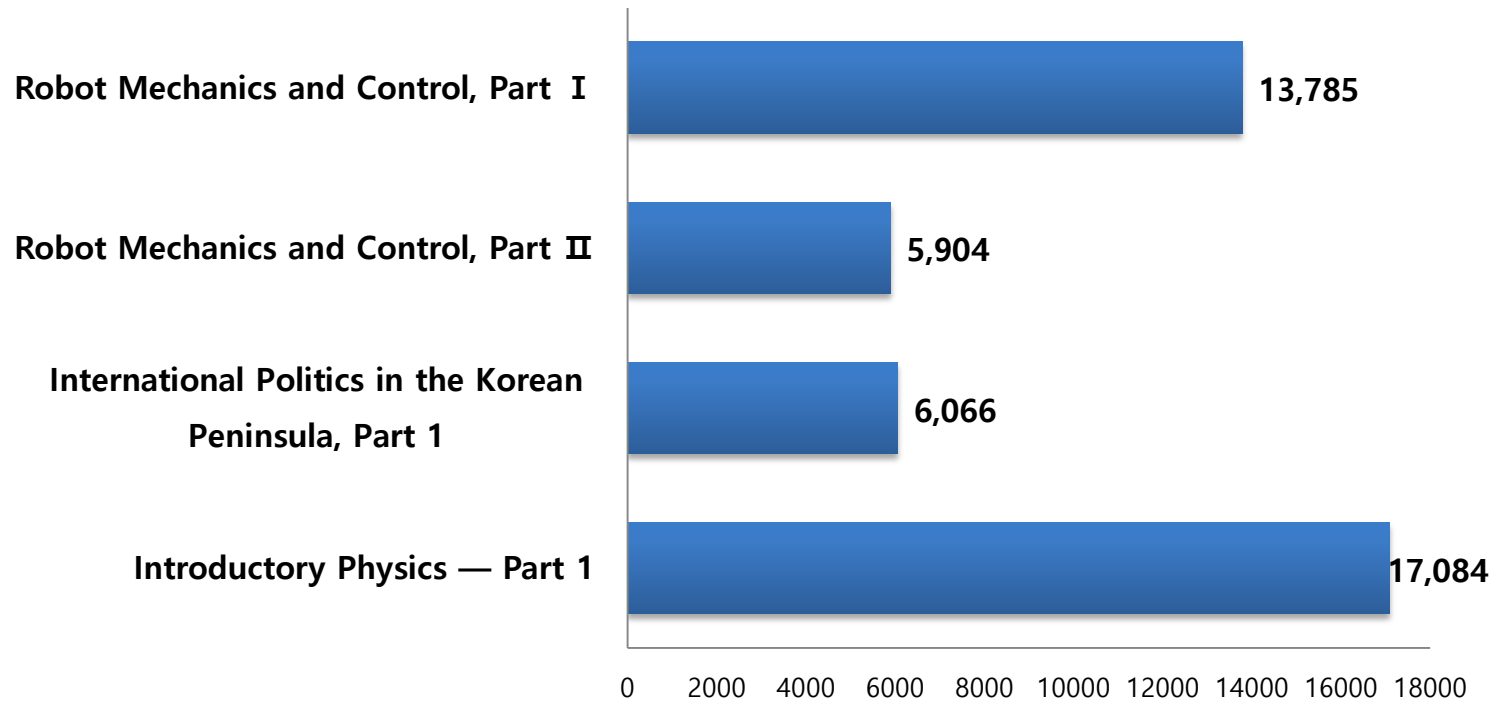
Seoul National University, Korea's first national university and the indisputable leader of higher education in Korea, wants to share creative knowledge and experiences. SNU has produced fruitful achievements in various fields, ranging from business, politics, natural science, technology, and the arts. The mission of SNU is to create a vibrant intellectual community where students and scholars join together in building the future.

Seoul National University MOOCs
Browse free online courses in a variety of subjects. Seoul National University courses found below can be audited free or students can choose to receive a verified certificate for a small fee. Select a course to learn more.

 SNUx SNU034.005.1x Introductory Physics — Part 1: Mechanics and Waves Archived January 12, 2015	 SNUx SNU2106.220.1x International Politics in the Korean Peninsula, Part 1 Archived November 12, 2014	 SNUx SNU446.345.2x Robot Mechanics and Control, Part II Archived June 9, 2014
 SNUx SNU446.345.1x Robot Mechanics and Control, Part I Archived March 28, 2014		

- Agreement between edX and SNU in May 2013
- Starting SNUx course from March 2014
- Finishing 4 SNUx courses

Registrant of SNUx



Characteristics of SNUx Registrant

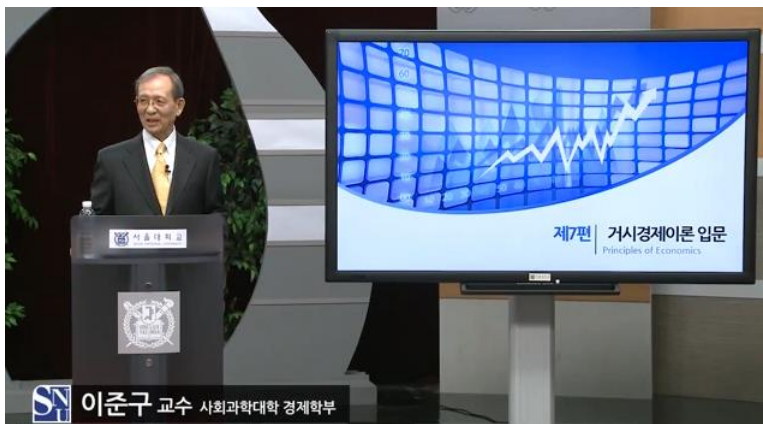
		SNUx				Whole MITx Courses	Whole HarvardX Courses
		Robot Mechanics and Control		International Politics in the Korean Peninsula, Part 1	Introductory Physics-Part 1: Mechanics and Waves		
		Part I	Part II				
Age	Mean (years)	24	24	27	26	27	28
	Below 25 (%)	61.9	58.2	40.0	46.6	41.7	35.6
	Over 41 (%)	7.6	8.6	13.0	14.6	14.6	19.5
Level of Education	Graduates (%)	39.5	38.8	41.6	34.5	34.7	33.0
	Over Master degree (%)	20.4	23.7	28.1	19.7	26.9	27.8
Female (%)		10.9	11.9	42.4	29.1	23.8	33.3
# of Nation		153	144	147	169	165	195

Characteristics of SNUx Registrant

		SNUx				Whole MITx Courses	Whole HarvardX Courses
		Robot Mechanics and Control		International Politics in the Korean Peninsula, Part 1	Introductory Physics-Part 1: Mechanics and Waves		
		Part I	Part II				
Top 10 registrant nationality of each course	India	23.7	20.6	4.2	13.9	15.7	8.2
	USA	15.9	16.9	23.6	29.5	26.3	35.0
	Egypt	5.4	4.2	-	-	-	-
	Brazil	3.1	2.5	2.4	2.8	3.2	2.8
	Mexico	2.5	2.2	-	2.1	1.7	-
	UK	2.4	2.5	4.5	4.0	4.1	4.4
	Germany	2.2	-	2.3	1.8	2.0	1.8
	Canada	2.2	2.2	3.1	3.1	2.8	3.5
	Spain	2.2	2.4	-	-	2.4	1.9
	China	2.1	3.1	3.2	-	-	3.8
	Russia	-	2.0	-	-	2.0	-
	Republic of Korea	-	-	12.5	1.7	-	-
	Australia	-	-	2.5	2.0	-	2.1
	Japan	-	-	2.4	-	-	-
France	-	-	2.5	-	-	1.6	
Pakistan	-	-	-	1.8	1.7	-	

🌀 Ongoing Project: K-MOOC (Korea MOOC)

- Ministry of Education Lead Project
- Primary Selection: 10 Universities
- 2 MOOCs of SNU since September 2015



Entering Economics



Universe and Life

Applying Diverse Instruction-Learning Method

- **Using Lecture Videos as Learning Material**
- **Spread of Flipped Learning**
- **Smart Learning with Smart Device and Classroom**

Running Credit Online Courses since the Winter 2015

- **Pilot Project**
- **Developing the Operation Model for Credit Online Courses considering Quality Management**

Advancing Systems for Effective Online Learning

- **Doubled the Number of Connection LMS with Smart Device in 2014 Compared to 2013.**
- **Updating Learning Systems that can Accommodate Various Contents and Devices**



Thank You!

서울대학교 교수학습개발센터
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Center for Teaching & Learning