

# Software-centered University Program in Korea

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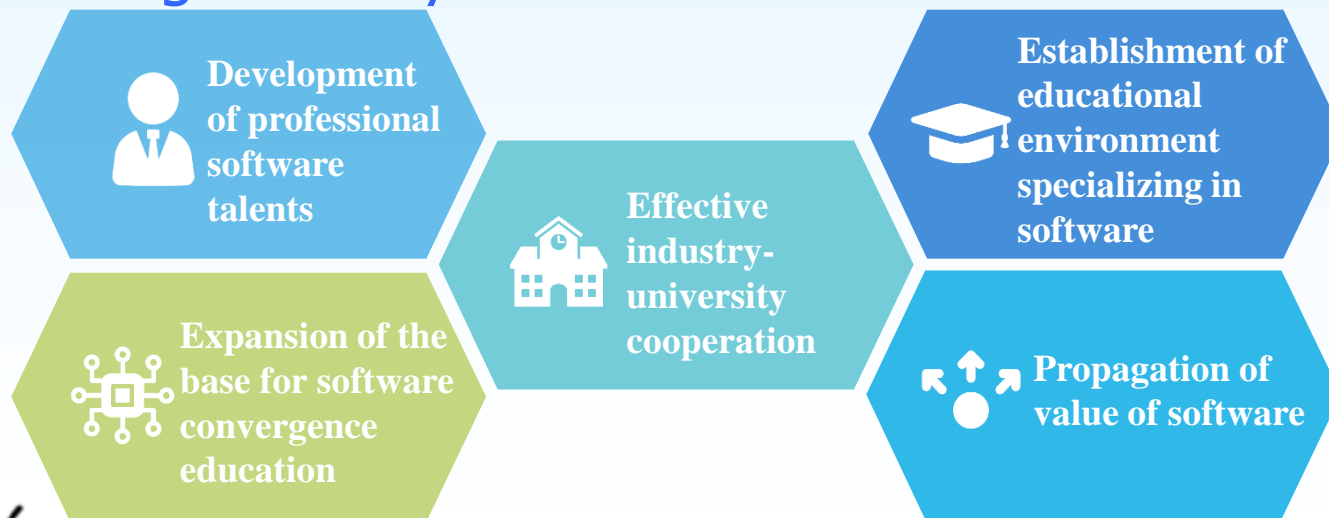
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SW중심대학

# OVERVIEW

- **Software-centered university program**
  - Started from 2015, funded by MSIT (Ministry of Science and ICT)
  - Software-centered University innovates university education centered on software and realizes the development of software talents and propagation of value through a major shift in the software education paradigm and system



# • Major status of program

## Status of support

**Start of project** 2015-

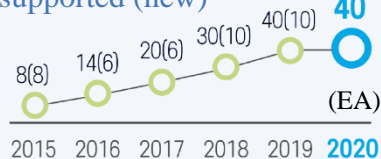
**Scale of support** 40 universities in total

**Total expenditure of support (accumulated)**  
KRW 253,300,000,000

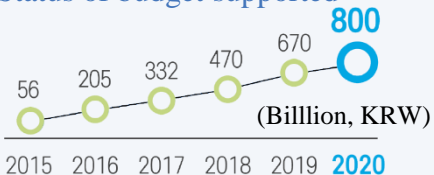
**Expenditure of support per university**  
Approx. KRW 2,000,000,000  
- Matching 20% of government support expenses

## Year-to-year status

**Number of universities supported (new)**



**Status of budget supported**



### Seoul/Gyeonggi

2015 Gachon University, Korea University, Sogang University, Sejong University, Ajou University, Sungkyunkwan University  
2016 Kookmin University, Dongguk University, Hanyang University, Seoul Women's University  
2017 Kyung Hee University, Kwangwoon University, Dankook University, Chung-Ang University  
2018 Konkuk University, Soongsil University, Hanyang University ERICA  
2019 Ewha Womans University, Sangmyung University, Hankuk University of Foreign Studies

### Daejeon/Chungcheong

2015 Chungnam National University  
2016 KAIST  
2018 Sun Moon University, Woosong University  
2019 Chungbuk National University, Pai Chai University, Hoseo University

### Gwangju/Jeonbuk

2017 Chosun University  
2018 Waonkwang University

### Gangwon

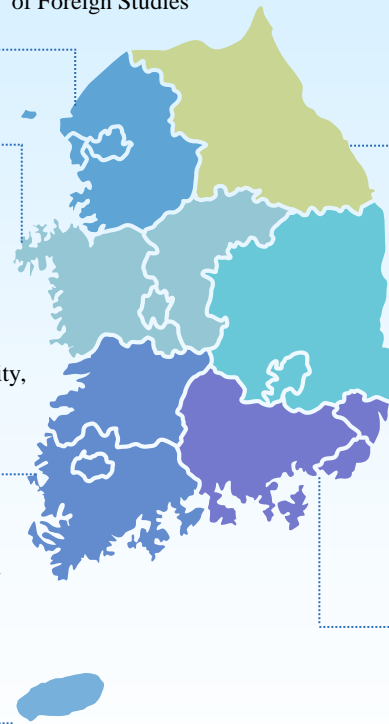
2018 Kangwon National University, Hallym University  
2019 Yonsei University Wonju

### Daegu/Gyeongbuk

2015 Kyungpook National University  
2017 Handong University  
2019 Daegu Catholic University, Andong National University

### Busan/Gyeongnam

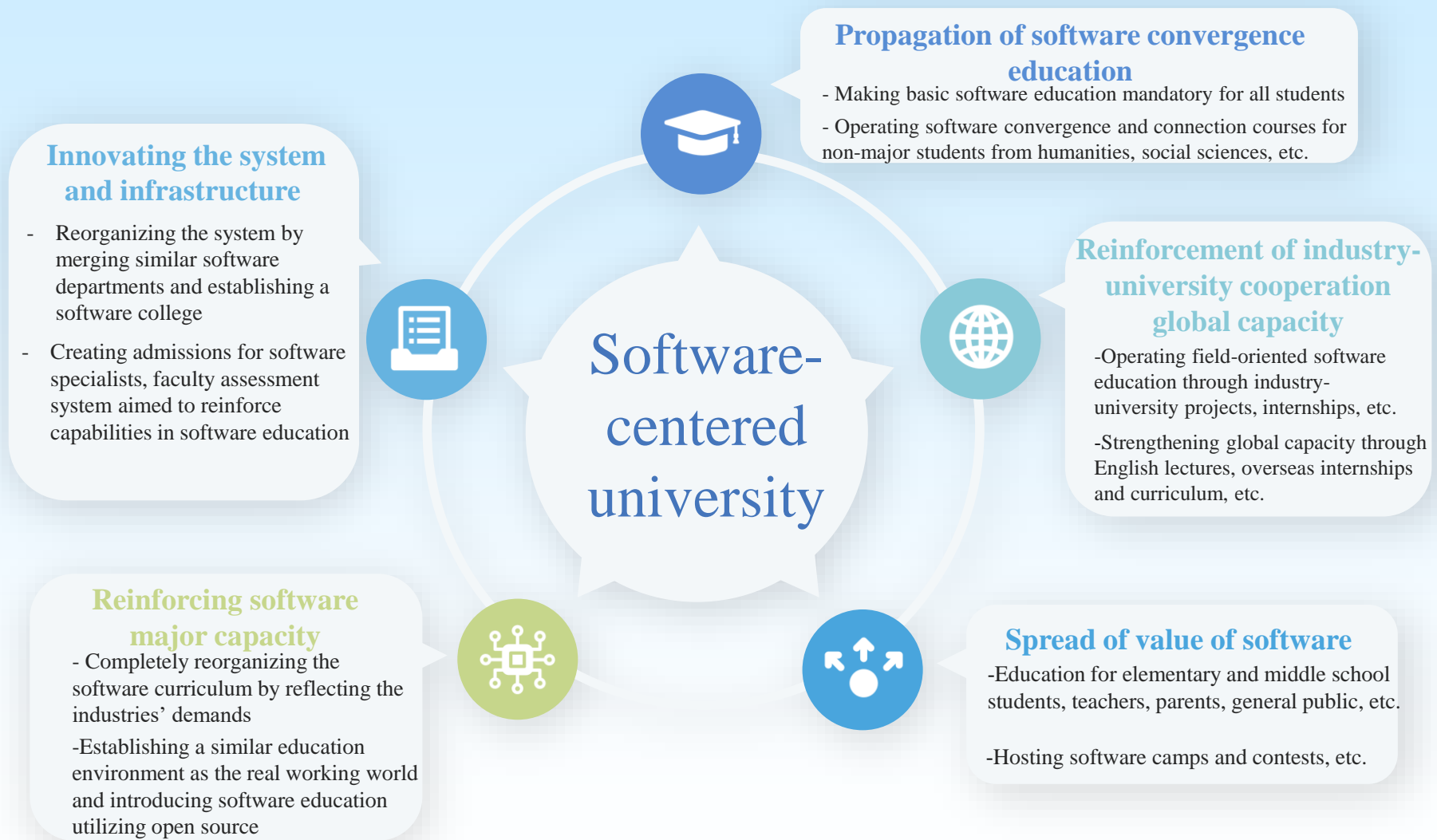
2016 Pusan National University  
2018 Tongmyong University  
2019 Dongseo University



- **41 universities in 2021**

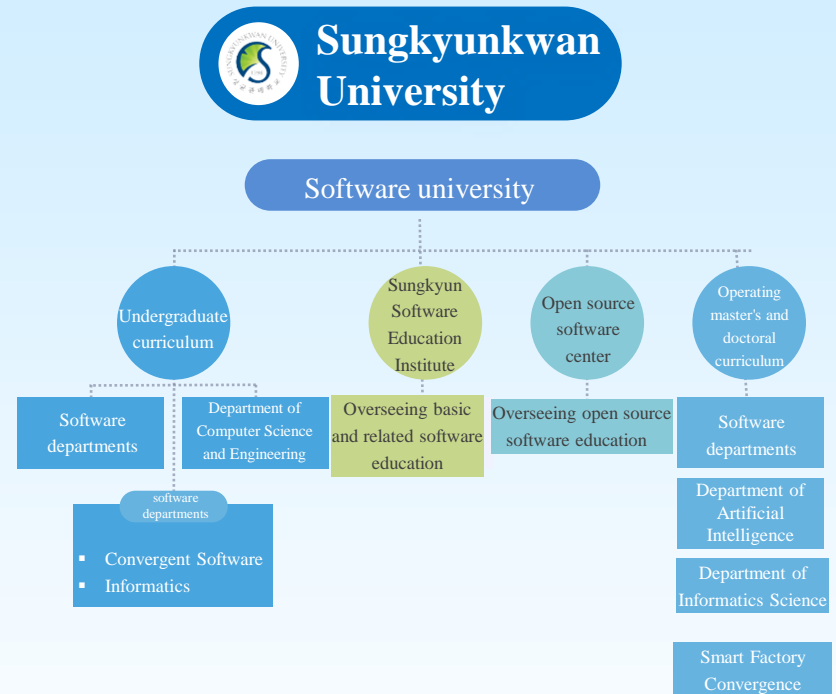


# • Key missions



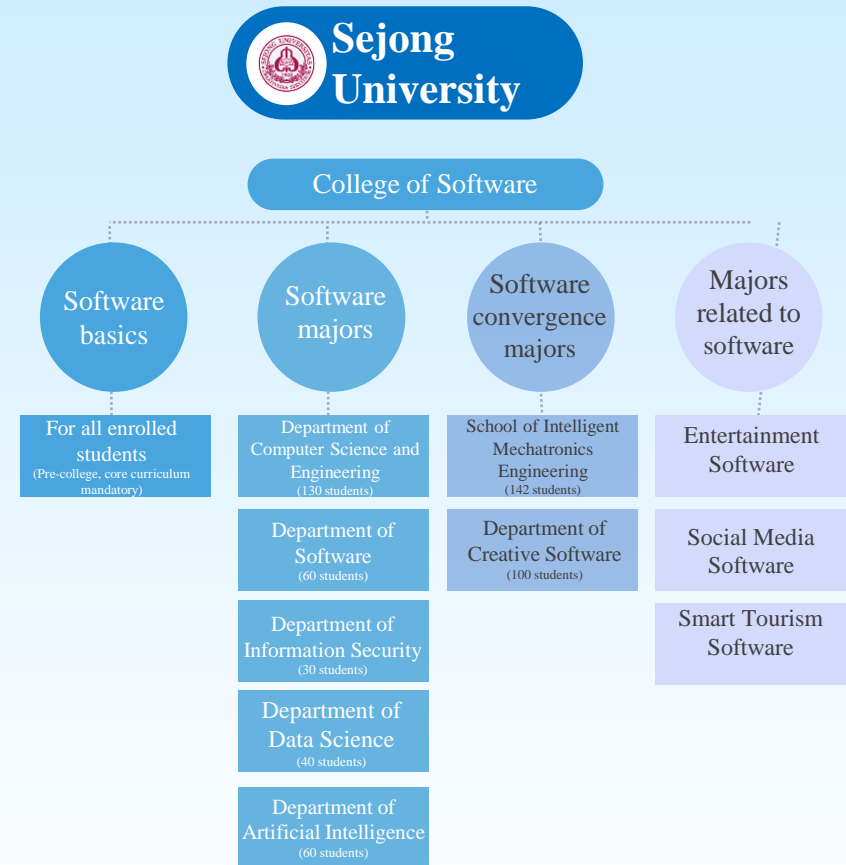
- **Innovate university system and infrastructure for software-centered education**

- Merging similar software-related departments to establish a different education system and pursue innovative restructuring compared to existing departments
- Inducing to set up special selection criteria for students talented in software by creating special admissions for software specialists



- Increased to 150 thanks to the merger of the Department of Computer Science and Engineering (2017) and increase in the number of students admitted (15 students, 2018)
- Establishing the [software education control tower](#) for the entire university

- **Improve SW+X education in all majors**
  - Propagating basic software education in all fields within the university
  - Making it mandatory for each university to operate specialized **software convergence curriculum** (related or double majors) in which non-major students who have completed basic software education and now wish to enroll in intensive curriculum can participate



- One of the largest software convergence colleges in the nation (562 students)
- Expanded and reorganized into 5 software major departments (Department of Artificial Intelligence to be created in 2021)

- **Reinforcement of field-oriented education for software major students**

- Expanding practice courses to internalize major knowledge and develop work capabilities based on basic and core curriculum to which the global standards (ACM, IEEE) and the latest demands of the industries are reflected
- Establishing a similar environment as the real working world and utilizing the same tools to conduct lectures and practices



#### Field-oriented software major education

- Innovating live coding-based education in core subjects in major capabilities
- Finalizing the intensive software major track based on industries
- Expanding special lectures on common work capacity for undergraduate and graduate schools
- Increasing internship-related abroad programs

Summer  
semester I-  
SURF Program

Winter  
Vacation  
Research  
Bootcamp

Silicon Valley  
Internship-  
related Boot  
Camp

#### Expanding the operation of KMU-UCI Summer I-SURF program

- 60 students from 9 universities participated in 2019

#### Operating overseas advancement boot camp program

- Pursuing interviews and internships with local start-up companies

#### Hosting 51 conferences

- Hosting seminars and conferences with Silicon Valley developers



# Software value propagation

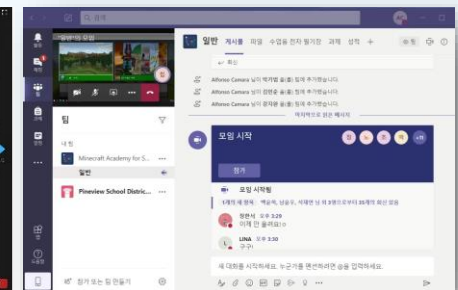
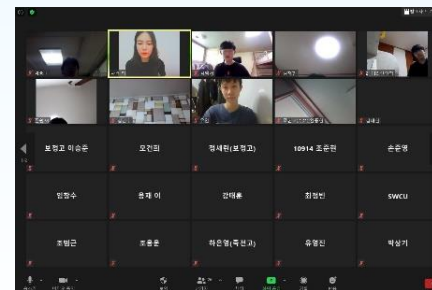
- Operating various software education and experience programs for K-12 students, parents, teachers and general public
- Developing and operating open-style online software curriculum such as OCW and MOOC that anyone including students from other universities and teenagers can access and use



SW camp for K-12



SW lecture for citizens

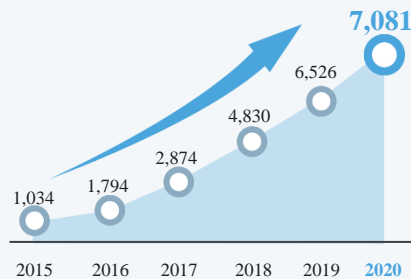


Untact SW/AI coding camp

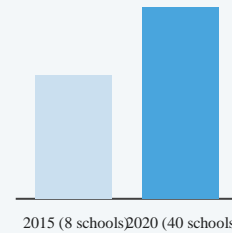
# • Major achievements



## Expansion of admissions capacity for software departments



34.9% increased (33 students)  
on average per university

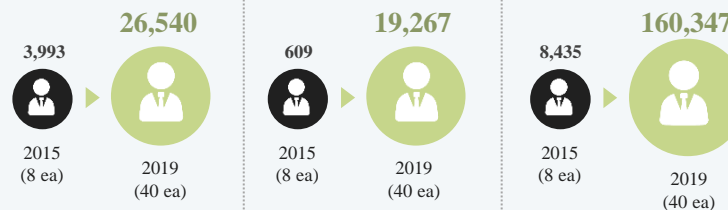


## Merger of software-related departments and establishment of colleges

College of Computing, Hanyang University (2017)  
College of Computing, Sungkyunkwan University (2017)  
Department of Software, Sejong University (2017)  
College of Software Convergence, Dankook University (2018)  
College of Computer Science & Software, Chung-Ang University (2019)  
College of Software Convergence, Dongseo University (2020), etc.

16 universities in total

## Benefiting personnel (enrolled students)



## Status of operation of subjects

Software major (3,608 courses)  
Software convergence (2,022 courses)

Basic software curriculum for non-major students (543 lectures)

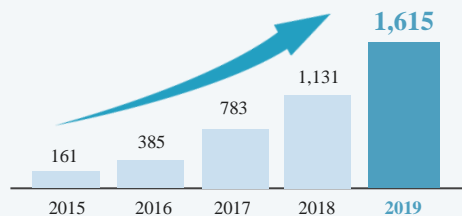
Software textbook development (407 cases)

※ Based on 40 schools as of 2019

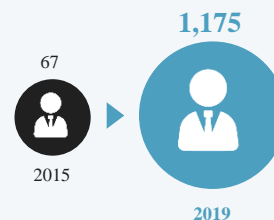
# • Major achievements (continue)



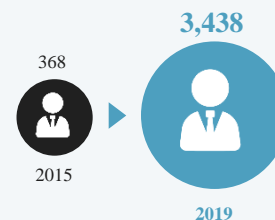
## Industry-university cooperation projects



## Internship



## Overseas education

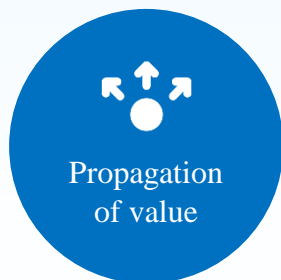


## Achievement in operation of software-related majors

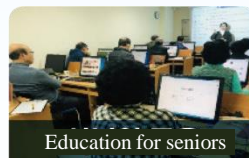
Category	2016	2017	2018	2019
Courses opened (average)	41 (2.9)	78 (3.9)	162 (5.4)	236 (5.9)
Subjects opened (average)	258 (18.4)	1,125 (56.3)	2,020 (67.3)	2,022 (50.6)
Number of students enrolled (persons)	6,603	9,795	15,516	19,267

## Establishment of software convergence majors (departments)

Department of Creative Software, Sejong University (2017)  
 School of Software Convergence, Dankook University (2018)  
 Artificial Intelligence Convergence major, Sogang University (2019), etc.



## Education for students, teachers and public



## Open online lectures

KMOOC lectures **51 cases opened**  
 OCW and other online lectures **225 cases opened**



# Thank You !

# SW/AI+X Education Program

- **Government-supported program**
  - SW+X
    - SW Maestro program, MSIT
    - Innovation Academy (Ecole 42 Seoul), MSIT
    - SWEET program for college of education, MOE: SW education enhancement (for pre-teachers)
  - AI+X
    - AI convergence major program for graduate school of education, MOE (for teachers)
    - AI education enhancement program for college of education, MOE (for pre-teachers)
- **Commercial SW/AI education services**
  - SPARTA CODING CLUB: Hanghae99, Jungle
  - NHN Academy: education for SW developer
  - programmers.com: online coding test

SW중심대학

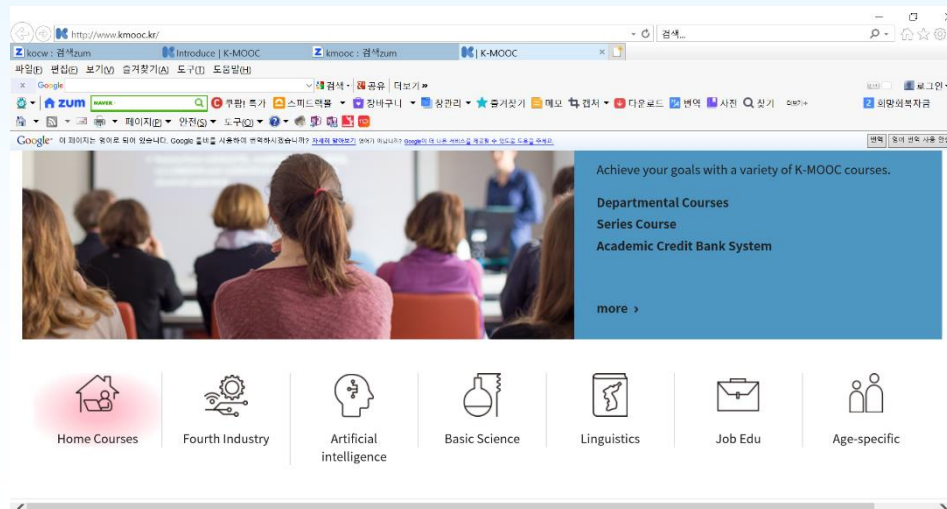
# Software Convergence of DKU

- **Key features of Dankook University**

- Strengthening basic software education for non-major students
  - Expanding mandatory liberal arts courses (6 credits) for all students
    - Creative Thinking and Coding, SW Overview, Major-specific SW/AI Utilization
- Reorganizing into the software education innovation system
  - Expand software majors to 5 departments
    - Department of Software, Dept of CE, Dept of Mobile Communication, Dept of Information Statistics, Dept of Security
    - Enhance POSE (Project, Open Source, English) + AI courses
  - Operate 5 software convergence majors (SW+X)
    - SW+economics+business administration, SW+contents, SW+bio, SW+law, global SW convergence major
  - Operate convergence majors, such as
    - SW convergence major
    - Multiple major, sub major, micro major

# MOOC in Korea

- **K-MOOC (<http://www.kmooc.kr/>)**
  - Korean MOOC established in 2015 as an open online service to provide free courses to anyone, anywhere
  - Provide more than 1,000 free online courses with English caption
  - Supported by NILE(National Institute for Lifelong Education), Korea



- **Each university runs their own MOOC program**

- D-MOOC (Dankook MOOC)



- **KOCW (<http://www.kocw.net/>)**

- KOCW (Korea Open Courseware) (Korean)

- Maintain free lecture videos donated by lecturers