



Engineering in Global Society

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| Course Code | | | |
| Class Times | Mon/Wed/Thu Type B(13:00~16:00) | Classroom | TBA |
| Equivalent Year Level | 1-4 | Course Credit | 3 |
| Instructor | Junseok Hwang | Sessions | 1-14 |
| Office | 37-320 | Email | junhwang@snu.ac.kr |

□ Instructor's Profile



JUNSEOK HWANG

Trained as a telecommunications engineer and information scientist, Prof. Junseok Hwang has been serving as a full professor of Seoul National University (SNU) and has contributed at College of Engineering through the Interdisciplinary Graduate Program of Technology Management, Economics, and Policy (TEMEP) since 2003. Prof. Hwang taught in the School of Information Studies at Syracuse University, New York (200-2003) before he joined to SNU. Concerning his work, Prof. Hwang seeks to build a world-wide platform

and partnership for sustainable value creation of ICT for the cause of humanity. Toward the end, he has been enthusiastically involved in leading global ICT trend, policy development, public leadership and entrepreneurship building through education, research works and public activities. Recently, he has authored new 7-book series (Korean version), Digitalogy, proclaiming new digital philosophy of this era.

Apart from contributing to the SNU College of Engineering, Prof. Hwang has been leading the International IT Policy Program (ITPP) in SNU as a program director with the dedicated mission of educating international IT policy specialists from around the globe. Through SNU TEMEP and ITPP, Prof. Hwang has educated and advised more than 200 post graduate government officials, public researchers, academic and industry leaders from about 50 countries as leaders of global ICT innovation and policy development all around world so far. With the world-wide network of TEMEP and ITPP, he hosts annual International Symposia on Green, Smart, Development and Vision (GSDV) to exhibit ICT policy research and practices as a part of global knowledge sharing and collaboration.

He has established an interdisciplinary research institute, entitled Institute of Smart Technology Information Culture and Knowledge (I-STICK) with the mission to explore and understand the social ecosystem composed of newly emerged knowledge, economics, and culture due to new technology development, and bring amendments to current technology centered human beings' generation and society. He is a member of *Academic Society for Appropriate Technology* and a NGO group called *Scientists and Engineers Without Borders*. Professor Hwang has been serving as an advising professor to the Institute of Global Social Responsibility of SNU since 2017.



Education

Ph.D. in Information Science and Telecommunications, University of Pittsburgh, U.S.A. 2000
M.S. in Telecommunications, University of Colorado, Boulder, Colorado, U.S.A. 1996
B.S. in Mathematics with minor in Economics, Yonsei University, Seoul, Korea. 1989

Experience

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| Director (2003-Date) | International IT Policy Program, Seoul National University, Seoul, Korea |
| Professor with Tenure (2010-Date) | Technology Management, Economics, and Policy Program, College of Engineering, Seoul National University, Seoul, Korea |
| Associate Professor (Oct. 2005 – 2010) | Technology Management, Economics, and Policy Program, College of Engineering, Seoul National University, Seoul, Korea |
| Assistant Professor (Aug. 2003 – Sep. 2005) | Technology Management, Economics, and Policy Program, College of Engineering, Seoul National University, Seoul, Korea |
| Assistant Professor (2000 – Aug. 2003) | Syracuse University, Syracuse, NY, <i>Assistant Professor</i> |
| Visiting Academic Research Fellow (May. 2001 – Aug. 2001) | Hewlett Packard Laboratories, Bristol, U.K. |
| Teaching Fellow (Mar. 1999 – 2000) | University of Pittsburgh, Pittsburgh, PA |
| Technical Research Staff (1992 – 1994) | Hyosung Computer, Center for Research and Development, Seoul, Korea |
| Hardware and System Hardware/Software Engineer (1989 – 1992) | Hyosung Computer, Center for Research and Development, Seoul, Korea |



Research and Project Interests

- Network Economics
- Network Performance and Efficiency
- Next Generation Internet
- Spectrum Allocation Policy
- Entrepreneurship Promotion
- Digital Economy and Innovation Policy
- Intellectual Property Management
- Science Technology Innovation Policy
- IoT and Smart Technology BM and Policy
- Large Scale Project Management
- Fourth Industrial Revolution Education
- Technological Innovation in Information and Communication Technology
- Telecommunication and Smart Media Policy
- Digital Convergence Policy
- Technology Leadership
- Knowledge and Intelligence Management
- Industry 4.0 Smart Nation Policy
- Appropriate Technology for Developing Economy and Community
- Engineering Ethics
- Sustainability of Technology Management

Recent Publication

Kim, H., Lee, H., & Hwang, J. (2017). Dividing network externality into the number of peers and users — focusing on sociability and enjoyment in online games, *Information Technology & People*.

Kim, K., Jung, S., Hwang, J., & Hong, A. (2017). A dynamic framework for analyzing technology standardization using network analysis and game theory. *Technology Analysis and Strategic Management*.

Oh, S., Hong, A., & Hwang, J. (2017). An analysis of CSR on firm financial performance in stakeholder perspectives. *Sustainability*, 9(6), 1023.

Na, H. S., Hwang, J., Hong, J. Y. J. & Lee, D. (2017). Efficiency comparison of digital content providers with different pricing strategies. *Telematics and Informatics*, 34(2), 657-663.

Additional Information

Telephone (office) +82-2-880-8679
(mobile) +82-10-9771-1222

Fax (office) +82-2-880-8389

E-mail junhwang@snu.ac.kr

Homepage <http://itpp.snu.ac.kr> <http://istick.snu.ac.kr> <http://igsdv.org>



□ Course Information

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| Course Description | <p>The course deals with the historical understandings & values, current issues & practices and future evolutions and prospects of engineering in global society. Especially, the course aims to prepare the students to develop their careers (both engineering students and non-engineering students) as the global leaders and innovators of the fourth industrial revolution era. It will review how the current engineering systems and practices have evolved through the various stages of industrial revolutions and their technical and social innovations. It will particularly review how the technological innovation will interact with social changes as the on-going development of new digital convergence (such as AI, Robotics, VR, Blockchain, Internet of Things, Smart Technologies, Platform Services etc) engineering progresses through various implementation and commercialization processes. Also, the course will investigate some recent relevant emerging problems and challenges for the leaders and professionals who are dealing with engineering systems and businesses in global society. In the course, those problems and challenges are classified in four selected key values (Green, Smart, Development and Vision) and students will be learning and developing the ethical and social responsibilities, various types of communication skills and technical competencies through innovative engineering cases and projects of those values with new ideas. Several groups of interests will be formed during the period of the course and interdisciplinary collaboration will be conducted to develop global engineering projects with real example of social and community problems. The course includes some individual activities through on-line media.</p> |
| Course Evaluation | <p>Assignment & class participation 20% Individual activity 30% Final group project 50%</p> <p>Attendance will be important for keeping up with class. Good attendance and active participation will be reflected in grade.</p> |
| Course Materials | Course materials will be provided in class. |
| Class Policy | Absolute grading will be given based on the performance and achievement of each individual student. |
| Etc. | The course will provide the opportunities that students can participate upcoming and on-going global appropriate technology practices and social responsibility activities. |



□ Course Schedule

Setting the value

Session 1 (Jun. 27, Wed) - Overview & Universal Values of Engineering in Global Perspectives: Green, Smart, Development and Vision_

Session 2 (Jun. 28, Thu) – Historical reviews of engineering innovation in global society. Recent development of engineering technologies and their problems.

Green

Session 3 (Jul. 2, Mon) – Chapter 1. Pollution of Air, Water, and Soil

Session 4 (Jul. 4, Wed) – Chapter 2. Waste Disposal Management

Session 5 (Jul. 5, Thu) - Chapter 3. Green Technology (Solar panel, Geothermal technology, Rainwater collection and purification system)

Smart

Session 6 (Jul. 09, Mon) – Chapter 4. Smart Environment (Smart city, campus and island)

Session 7 (Jul. 11, Wed) – Chapter 5. Smart Transportation

Session 8 (Jul. 12, Thu) – Chapter 6. Smart Production

Development

Session 9 (Jul. 16, Mon) – Chapter 7. Appropriate Technology

Session 10 (Jul. 18, Wed) – Chapter 8. Digital Dividends

Session 11 (Jul. 19, Thu) – Chapter 9. UN SDG Projects

Vision

Session 12 (Jul. 23, Mon) – Chapter 10. The 4th Industrial Revolution & Future Forecasting

Session 13 (Jul. 25, Wed) – Chapter 11. Global Leadership & Smart Entrepreneurship

Session 14 (Jul. 26, Thu) – Chapter 12. Social Responsibility & Contribution (the Contribution of Corporate Social Responsibility, Obligation to Provide the Solution for Society)

Session 15 (Jul. 27, Fri) – *Final Group Project*