Dept. of Convergence Design & Technology

This department was established to take on researching and developing a fashionable smart fashion offering customized service according to the purposes of users through a "differentiation" strategy instead of a "me-too" strategy in the wearable device form whose sales had been limited to ancillary smartphone products. The goal of the department is to develop a flexible electronics-based module system and smart fashion platform that would allow users to choose a specialized module for each function according to their purposes, attach and detach it, and reorganize it.

❑ **Convergence Design Major Course**

Convergence Design Major aims to cultivate professional manpower for convergence design to propose the methodology and criticism, seeking for a new design based on basic design principles and engineering (electronic engineering, computer science, and materials science). That is to say, we produce high-quality human resources of academic field with both theoretical basis and realistic sense of design and promote development of convergence design.

❑ **Convergence Electronic, Materials, and Computer Science Major Course**

Convergence Electronic, Materials, Computer Science Major aims to cultivate professional manpower for convergence between engineering and design to propose the methodology and criticism, seeking for a new engineering design based on basic design principles and engineering (electronic engineering, computer science, and materials science). For the purpose, this program provides the basic understanding of engineering principles and industrial design which lead to creation of design and devices for smart fashion. It also offers the research experience and course work required for convergence between engineering and design.

☐ **Courses**

❑ **Core Courses**

· **Convergence research (3)**

Graduate students are doing research on modular smart fashion in terms of convergence, which consists of design, engineering, and marketing. Students are urged to pursue an research and scientific writing with the guidance of faculty members.

· **Convergence technology seminar (3)**

Several experts in various areas such as electronic enginnering, computer engineering, materials science and engineering, fashion design, industrial design will

give lectures in convergence technology's point of view. Students will study basics and applied knowledges on various fields.

· **Convergence technology and management (3)**

This lecture is composed of three parts. First part is to introduce typology of technology management, and basic concept and characteristics of technology innovation. Second part introduces strategic management of innovation process such as]managing R&D teams, projects, and organizations, based on theories of technological innovation. The last part includes cases and issues associated with technology management, e.g. R&D management, new product development, high tech marketing, and management of innovation output.

· **Convergence creative project (3)**

The aims of this course is to develop creative content, product, or service that has high degree of completion, meets sensitivity of consumers, and improves value of one's life. Each project group chooses a project that is proposed by institutions, companies, or students themselves. And they should perform overall process containing planning, design, production, and marketing. The final outcome will be shown to publics in the form of exhibition, showcase and others.

· **Independent Study (3)**

In this course, smart fashion research will be understood as an independent discipline. Characteristics of smart fashion research will be studied based on convergence technology. Basic principles, structure, process required for writing thesis paper and research paper will be learned, applicable research methods for smart fashion research fields will be explored. Students will experience methods for writing thesis paper through writing research proposal, and examine optimal research methods in accordance with personal research theme.

❑ **Convergence Design Major Course**

· **Emotional design trend research (3)**

It is a convergence project course designed to predict trends in the future society, write a future scenario based on them, and propose creative ideas about smart fashion products and services through multidisciplinary convergence.

· **Design and technology seminar (3)**

This course will focus on industrial design related to the analysis and principles of human emotional signal. Students will study the basic concept of emotional design, sensitivity measurement method, and human signal analysis.

· **Fashionology convergence project (3)**

It focuses on convergence researches to investigate design, technology, and market strategies and develop prototypes through the development of creative user-centric content on the topic of smart fashion.

· **Emotional interface design (3)**

This course provides a comprehensive overview of the user interface and user experience design process, and is intended to familiarize students with the concepts and techniques necessary to make user interface and user experience design an integral part of developing media interfaces. The course provides students with an opportunity to acquire the skills and hands-on experience they need to design, develop, and evaluate media interfaces from a user-centered design perspective.

· **Transmedia content (3)**

This course is designed to enhance student's integrated perspective on design, humanities and technologies. It provides insights about methodologies for planning and developing cultural content and mobile & interactive technologies by using stories, images, text, design trend, audio and film. Relying upon analyzing case studies, students have a chance to draw out their own creativity both in developing an user-scenario and in designing a content prototype.

❑ **Convergence Electronic, Materials, and Computer Science Major Course**

· **Advanced open source software (3)**

Advanced Open Source Software is a subject dealing with definition, concept, and properties of open source software. It generally uses the principles of the open source, and practices in the community of open source software using the self-developed software. Through advanced open source software, students learn that source code which is developed in a collaborative public manner provides the rights to study, change, and distrubute the software to anyone and for any purpose.

· **Open source hardware architecture (3)**

Open source hardware architecture is a subject dealing with definition, concept, and properties of open source hardware. It generally uses the principles of the open source, and practices in the community of open source hardware.

· **Networks and application (3)**

Students will understand the basic concept of network and study state-of-the-art network research areas such as next-generation wireless networks, next-generation IMS, SDR, cognitive radio networks, and cross-layer optimization methods.

· **Advanced multimedia (3)**

Advanced Multimedia lays the foundation for graduate students to build multimedia computing applications comprising images, video, and audio. The module covers the important multimedia computing methods by presenting comprehensive coverage of the underlying content processing, content transformation and resource optimization techniques in a variety of systems.

· **Interactive smart materials (3)**

In this course, graduate students will study the principles and application of interactive smart materials. Students will also research materials for smart fashion applications.

· **Convergence materials technology (3)**

In this course, graduate students will study the principles and application of interactive smart materials. Students will also research materials for smart fashion applications.

☐ **Faculty Members**

Kang, Hyunmo
KAIST, B.S.
KAIST, M.S.
KAIST, Ph.D.
Marketing
hmkang@kookmin.ac.kr

Kim, Ki-Doo
Sogang Univ., B.S.
Pennsylvania State Univ., M.S.
Pennsylvania State Univ., Ph.D.
Digital Signal Processing
kdk@kookmin.ac.kr

Kim, Sung Hyon
California Univ.,BA
Parsons The New School of Design.,BFA
Seoul National Univ., Ph.D
Fashion Design
kim_sunghyon@kookmin.ac.kr

Kim, Youn Hee
Honam Univ., B.S.
Ewha Womans Univ., M.S.
Kookmin Univ., Ph.D.
Fashion Design
shell62@kookmin.ac.kr

Kim, Jae-Hun
Seoul National Univ., B.S.
Seoul National Univ., M.S.
Seoul National Univ., Ph.D.
Materials Science and Engineering
jaehunkim@kookmin.ac.kr

Kim, Junho
POSTECH, B.S.
POSTECH, M.S.
POSTECH, Ph.D.
Computer Graphics
junho@kookmin.ac.kr

Nam, Won Suk
Kookmin Univ., B.S.
Kookmin Univ.Tehno Design, M.S.
Multimedia Science, Industrial Design, Interaction Design
name@kookmin.ac.kr

Oh, Jung Hun
Kookmin Univ., B.S
Kookmin Univ., M.S
Kookmin Univ., Ph.D
Electrical Engineering
omnistar@kookmin.ac.kr

Lee, Mi Jung
Seoul National Univ., B.S.
Seoul National Univ., M.S.
Univ. of Cambridge, Ph.D.
Wearable / Flexiable Electronics
mijung@kookmin.ac.kr

Lee, Hyunjung
POSTECH, B.S.
POSTECH, M.S.
POSTECH, Ph.D
Polymer Chemistry.
hyunjung@kookmin.ac.kr

Lee, Eun Jung
Seoul National Univ., B.S.
Seoul National Univ., M.S.
Seoul National Univ., Ph.D.
Fashion Marketing/Merchandising
elee@kookmin.ac.kr

Lee, Kyung Yong
Sungkyunkwan Univ., B.S.
University of Florida, Ph.D.
Distributed systems
leeky@kookmin.ac.kr

Min, Kyeong Sik
Korea Univ., B.S.
KAIST, M.S.
KAIST, Ph.D.
Semiconductor and Integrated Circuits
mks@kookmin.ac.kr

Yoon, Sang Min
Korea Univ., B.S.
Darmstadt University of Technology., Ph.D.
Pattern Recognition
smyoon@kookmin.ac.kr

Lee, Jae Gab
Seoul National Univ., B.S.
Seoul National Univ., M.S.
MIT, Ph.D.
Semiconductor and Materials
lgab@kookmin.ac.kr

Jang, Jung Sik
Kookmin Univ., B.S.
Kookmin Univ., M.S.
Kookmin Univ.Tehno Design, Ph.D.
Industrial Design, Mechatronics Design, Robot Design, Interaction Design
kmjanggo@kookmin.ac.kr

Lee, Ki Kwang
Seoul National Univ., BS
Seoul National Univ., MS
Oregon State Univ. Ph.D.
Human Factor Engineering
kklee@kookmin.ac.kr