

# Department of Industrial & Systems Engineering

URL : [ie.kaist.ac.kr](http://ie.kaist.ac.kr)  
Dept. Phone : +82-42-350-3102~4

## Introduction

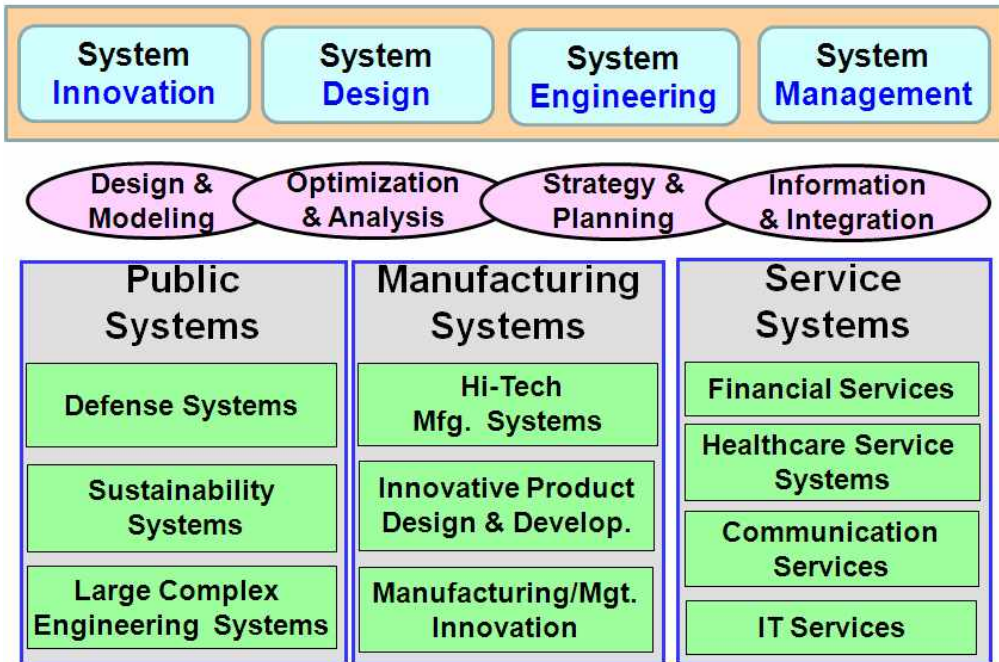
Industrial engineering (IE) has been concerned with analysis, design, and control for integrated systems of people, material, information, and equipment to achieve better quality, less cost, and higher speed. At the early stage around 100 years ago, it was initiated by advancements in system management & improvement methods such as Adam Smith's work specialization, Taylor's Principles of Scientific Management, and Ford's mass assembly line at the early stage. It has evolved to scientific, engineering methods for production management and control of workspaces and manufacturing enterprises. Since then, it has continually adopted or developed mathematical modeling & optimization methods for managerial decision or system problems called operations research (OR) and statistical analysis and quality control after World War II, computer integrated manufacturing (CIM) and information systems technologies in 1970's, and business processes and enterprise information system technologies in 1980's. The methods and technologies for system modeling, design, analysis, innovation, planning & control, and management also have been applied to service systems or public systems for information system services and consulting, telecommunication services, logistic services, transportation services, medical services, financial services, internet business, and defense systems. Therefore, the department changed the name to Industrial & Systems Engineering (ISysE) in 2008. While most other engineering disciplines deal with component technologies or systems, the department focuses on complex, large systems that combine the components or subsystems. Such system technologies are increasingly demanded as the technologies, society, and economic & business systems become more complicated and larger.

The problem areas of ISysE include manufacturing and service systems or enterprises and public or engineering systems. For manufacturing, ISysE focuses on high-tech manufacturing such as semiconductor/LCD manufacturing and mobile device manufacturing rather than conventional one, product design & development rather than production, and manufacturing & business innovation. The strategic focus of the service discipline is on financial services and medical services as well as telecommunication/mobile communication services and business information systems. The public systems include defense modeling & simulation systems, sustainable systems, and large engineering systems as well as transportation & supply chain systems. ISysE deals with system design & modeling, system optimization & analysis, system strategies and planning, and system information integration of such systems. The concept of ISysE can be summarized in the figure below.

As of December 2009, the department has 15 full-time faculty members, three emeritus professors, three adjunct professors, and four staff members. The department is continually recruiting new faculty members to reach 25 faculty members.

The department offers undergraduate, master and doctoral programs. The average numbers of undergraduate, master, and doctoral students each year are 40~60, 30~40, and 10~15, respectively. The graduates are working at almost every industry and research institutes. There are many successful graduates, including many CEOs and senior directors, especially in leading companies for consulting, information services, electronics & high-tech manufacturing, telecommunication/mobile communication services, and financial & investment services, national research institutes, and the government.

# Industrial & Systems Engineering



ISysE Model