Department of Industrial & Systems Engineering

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Introduction

Industrial & Systems Engineering (ISE for short) is concerned with the analysis, design, and control of large scale complex systems consisting of people, material, information, equipment, and money. Examples of such systems are manufacturing plants, transportation and logistics systems, mobile communication systems, hospitals, IT service firms (formerly known as SI companies), and financial firms. Industrial & systems engineering draws upon specialized knowledge and skills in the mathematical, physical, and social sciences together with the principles and methods of engineering analysis and design to specify, predict, and evaluate the results to be obtained from such systems. ISE has greatly contributed to the advancement of modern industrialized society ever since the industrial revolution.

In the early stages of ISE, the division of labor by Adam Smith, the principles of scientific management by
Frederick Taylor, and the mass productionline of Henry Ford are major landmarks that provided the foundation of ISE. During World War II, OR (Operations research) and statistical methods were introduced in the design and operation of sophisticated systems. In the latter part of the 20th century, information technology was added as the most important tool of ISE, resulting in computer-integrated manufacturing and e-Business. In the new millennium, KAIST is taking a leading role in defining ISE discipline for the new era by widening the application areas to encompass service industries such as the healthcare and financial industries.