

Department of Industrial & Systems Engineering

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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.