

# MI/IE

## PROFESSIONAL BODIES IN HK



### HKIE-MI

As a professional and learned body, the Manufacturing and Industrial Division of the Hong Kong Institution of Engineers (HKIE) arranges a broad range of activities with the following objectives:

- To promote the use of MI technology and management practices
- To facilitate exchange of information and ideas among members and kindred societies
- To raise the standing and visibility of the MI engineering profession

To facilitate the organization of activities, four interest groups are established namely (i) Engineering and Logistics Management, (ii) Lean and Green Manufacturing, (iii) Quality and System and (iv) Technology.

[www.mi.hkie.org.hk](http://www.mi.hkie.org.hk)

### IET

The Institution of Engineering & Technology (IET) is one of the world's leading professional societies for the engineering and technology community, with members in 127 countries. It provides a global knowledge network to facilitate the exchange of ideas and promote the positive role of science, engineering and technology.

The Manufacturing and Industrial Engineering Section (MIES) is one of the six sections established in IET Hong Kong Branch. It aims to promote the advancement of manufacturing and industrial engineering technology in Hong Kong. MIES regularly organizes seminars, technical talks and visits focusing on MI technology and management practices.

[www.theiet.org.hk](http://www.theiet.org.hk)

### IIE HK

Institute of Industrial Engineers (Hong Kong) (IIE HK) is an affiliated chapter of the worldwide Institute of Industrial Engineers, representing industrial engineering professionals in Hong Kong. Regular meetings, seminars and firm visits are organized with the aim of promoting productivity and efficiency.

For members planning a professional development, there is a variety of training courses. To keep abreast of the industry and market, latest journals, publications and information of conferences are made available. In addition, lots of networking opportunities created with social activities and joint-society functions are filling our year plan.

[www.iiehk.org](http://www.iiehk.org)

### SME

The Society of Manufacturing Engineers (SME) is the world's leading professional society advancing manufacturing knowledge and influencing more than half a million manufacturing practitioners annually.

Through its communities, publications, exhibitions and professional development resources, SME promotes an increased awareness of manufacturing engineering and keeps manufacturing professionals up to date on leading trends and technologies. Headquartered in Michigan, the Society has members in more than 70 countries and represents manufacturing practitioners across all industries.

[www.sme.org](http://www.sme.org)

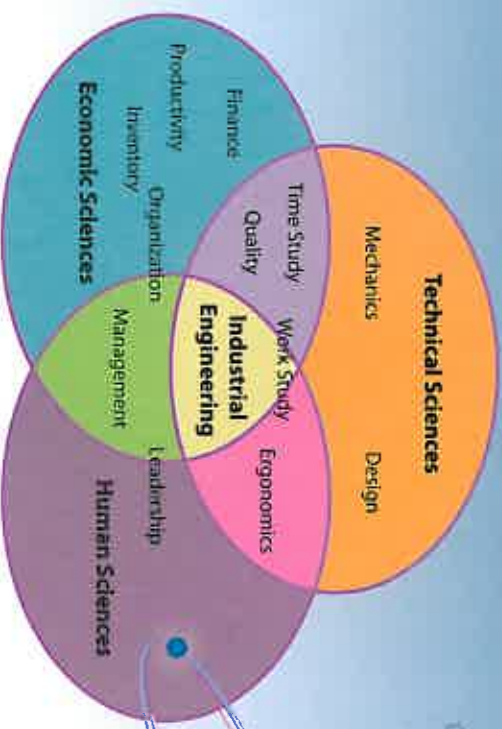
# What's

# MI/IE?

Manufacturing Engineering (ME) is to understand, apply and control the methods and processes required in the manufacturing of a product.

Industrial Engineering (IE) has many common aspects with ME but it focuses more on system design and human behavior. IE is concerned with the design, improvement and installation of integrated systems of five "M's", i.e. Manpower (Human Resources), Material, Machine, Method (covering information) and Money (e.g. energy consumption).

MI draws upon specialized skills in the mathematical, physical and social sciences, pertaining to both the economical use of technology and the management of resources for the best quality and reliability.

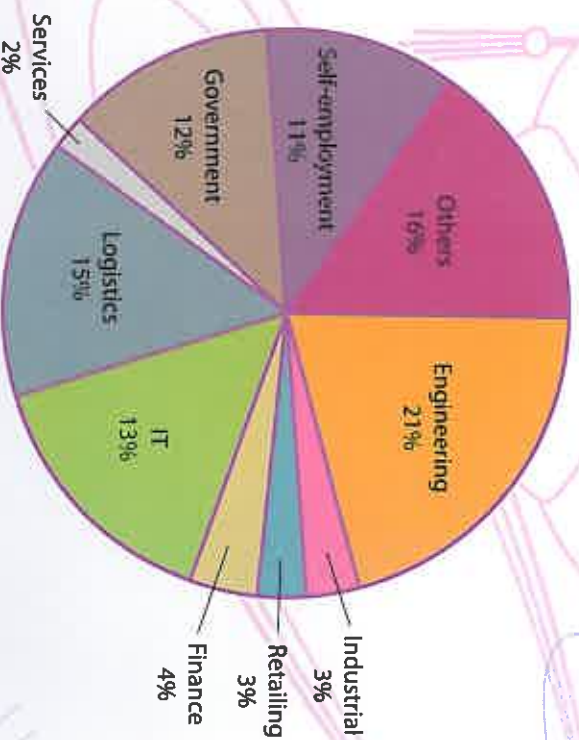


Everything we use today, except those in its natural state, is a product of manufacturing process compounded with the associated services. IE techniques, such as facilities design, ergonomics, time and method study and various kinds of productivity improvement techniques etc. can be applied not only in manufacturing process but also in service or business operations.

## FIELDS OF WORK FOR MI/IE

Of the wide range of engineering disciplines, few cover the range and diversity of work applications and career possibilities as manufacturing and industrial engineering. A survey of HKU graduates (IMSE) in 2010 revealed the following findings:

### What field is your first job in?



One fifth of MI/IE graduates got their first job in the engineering field. The other two common fields of first job are logistics and IT. Besides, some graduates are employed by the government or even themselves or their families. Also a few percentages of the graduates work in industrial, retailing or finance field. The result reflects the wide array of working fields covered by the MI/IE graduates.

Source: Career Survey by Chain Magazine, Issue 8, 2010  
A student editorial board in the Department of Industrial and Manufacturing Systems Engineering  
The University of Hong Kong

## PREVAILING METHODOLOGY OF MI/IE

### Jargons

**Lean:** A systematic approach to identifying and eliminating waste and non-value added activities through continuous improvement, flowing the product at the pull of customers in pursuit of perfection.

**Six Sigma:** An improvement methodology focusing on improving customer satisfaction by reducing chronic and significant variability.

**TOC (Theory of Constraints):** A systematic approach to focusing a few physical leverage points where improvement in the constraint's performance translates directly into the overall system performance.

**TRIZ (Theory of Inventive Problem Solving):** A problem-solving, analysis and forecasting tool derived from the study of patterns of invention in the global patent literature.

**Green Manufacturing:** Multidisciplinary approaches aimed at reducing energy and material consumption.

### How it works?

Every system has unnecessary steps which don't add any value to the final products, we can use Lean tools to eliminate them. Every system has at least one bottleneck which limits the system's ability to get more of its goal, we need the TOC approach to manage them. Every system has variations which prevent it from working effectively, we need Six Sigma techniques to identify and get rid of them.



MI also places emphasis on green/sustainability and creativity/innovation. Green Manufacturing cuts across every aspect, including information decisions, process technologies, energy consumption, material selection, and material flow. Previously, attention is drawn to cost, function, and quality. Now, other dimensions are added which include sustainability and corporate social responsibility. Also, creativity and innovation have become lexicons of MI. Systematic approaches such as TRIZ are adopted to find innovative solutions for sharpening one's competitive edge.