THE UNIVERSITY OF HONG KONG

Department of Industrial and Manufacturing Systems Engineering

MSc (IELM) List of course offered 2016-2017

(The below list is NOT finalized.)

IELM6002. Operations management
Elements of operations strategies; quantitative forecasting models; strategic decisions; planning products, processes, technologies, and facilities; selection and management of production technology; capacity planning and facility location; production planning systems; aggregate planning; master production scheduling; inventory systems; material requirement planning; shop floor planning and control; Just-In-Time manufacturing.

IELM6004. Industrial project management *
Fundamental of project management; PMBOK’s project management framework; Project initiating, planning, executing, monitoring and controlling, and closing; Project integration management; Project scope management; CPM/PERT techniques for project time management, resource allocation and cost management; Earned value analysis for project tracking; Application of techniques such as EMV, decision tree analysis, and Monte Carlo simulation in project risk management, human resource management, communication, procurement and quality management for industrial projects; Project change control and management; Project team-building; Case studies in logistics and manufacturing industries.

IELM6030. Ergonomics

IELM6034. Operational research techniques
IELM6037. **Costing and finance**
Cost terms and purposes, allocation and absorption of overheads, cost volume analysis, product costing, activity-based costing, budgetary control and standard costing, variance analysis, cost for decision making. Capital investment appraisal including discount cash flow, net present value and internal rate of return, risk analysis. Interpretation of financial statements, ratio analysis, fund flow statement, sources of funds, management of working capital.

IELM6042. **Quality management** *

IELM6044. **Supply chain management** *
Supply chain characterisation; operation objectives; distribution channels; channel design considerations; logistics network design. Inventory management; risk pooling; distribution strategies. Strategic alliances; international issues in supply chain management; coordinating product and supply chain design; customer value. Information technology; decision support systems; the value of information in supply chains. Case studies and contemporary topics on supply chain management; the beer game.

IELM6045. **Global operations and logistics** *
Global operations and logistics strategies, strategic changes required by globalization, the strategic framework for global operations, the role of logistics in global operations and marketing strategies; global operations and logistics planning, supplier network development, physical distribution, global logistics network design, global supply chain management, risk management in global operations; management of global operations and logistics, operations analysis of global supply chains, information management for global logistics, performance measurement and evaluation in global logistics.

IELM6046. **Supply management** *
Purchasing in the supply chain, strategic purchasing, implementation and evaluation of strategy; purchasing organisation in a corporation, impact of e-procurement; out-sourcing, supplier selection, partnership with suppliers; pricing agreement, price analysis; global sourcing.

IELM6048. **Terminal and warehousing operations** *
Materials handling systems, automated storage and distribution systems, hardware and software, routing. Case studies from cargo terminals. Warehouse management systems, missions, functions, receiving and shipping operations planning, dock design, storage space, layout and location planning, order picking. Cost and performance analysis in logistics and warehouse management. Material handling principles, system design, selection of handling equipment, unit load design. Automation of warehouse and material handling systems, costing and audits. Applications of modelling and simulation for warehouse design and optimisation. Logistics security, logistics park and third party logistics service providers.

IELM6051. **Fundamentals of law for logistics**
The module focuses on five areas of law essential to industrial and logistics managers: contracts, agency, shipping law, negligence and dispute resolution; overview of sources of law and legal structure of businesses; elements of a binding contract; duties of an agent, including common carriers, employees and professionals; claims arising in international shipment of goods, arbitration, mediation or litigation and venue for dispute resolution.
IELM7011. Supply chain and logistics finance
Basics of financial markets; sources and channels for supply chain and logistics finance; financing conditions. Financial derivatives for managing risks; risk measures; theories and methods of financial hedging. Supply chain risks arising from global manufacturing, trading and logistics activities: uncertain price, demand and exchange rates; financing of logistics businesses and risks; development of risk hedging models: price models, demand models, optimal hedging policies.

IELM7012. Physical internet
Logistics network history and topology, organisation and performance, logistics networks sustainability, asset utilization. Interconnection principles; Digital Internet, Physical Internet, Internet of Things. Physical Internet components: containerisation diversity, modularity, handling and sorting. Logistics information capture, publication, EPCglobal standards. Flow routing and assets management in open-loop supply networks. Collaborative logistics business models, small scale cooperative game with transferable utility, Shapley value and core solution, big scale collaboration models, mechanism design, combinatorial optimisation. Case studies, web search, serious game.

IELM7013. Digital enterprises and e-commerce
Overview and development of e-business; e-business technologies and solutions: appraisal and selection, implementation and adoption; Enterprise information and knowledge portals, virtual enterprises; Roles of e-business in enterprise development and integration; corporate social accountability and responsibility standards; digital technologies for product design and development; cryptographic algorithms for corporate data and IP protection; mobile technology and electronic payment, smart cards, RFID and NFC.
(Students who have passed “IELM6047 Digital enterprises” are not allowed to take this module.)

IELM7014. Organisation management and strategy
(Students who have passed “IELM6027 Organisation theory and behavioural science” are not allowed to take this module.)

IELM6025. Project (4 modules)

IELM7035. Dissertation (4 modules)

* Approved for reimbursement from the Continuing Education Fund (CEF).

July 4, 2016