4.2.15.2 Degree Requirements

The modules in the programme are divided between core and foundation areas (of which there are currently two). The modules in the core area represent the fundamental knowledge of concepts and methodology that distinguish the Systems Design & Management (SDM) programme from other programmes. The modules in the foundation areas have been selected from existing graduate modules to provide essential and supporting knowledge from management science and engineering.

A full-time or part-time candidate for the degree of MSc (SDM) must successfully complete a Programme of study consisting of 40 MCs:
1. All four core modules (16 MCs);
2. The remaining 24 MCs can be obtained from the list of elective modules, divided into two foundation areas; a minimum of 8 MCs is to be obtained from each foundation area.

For graduation, a student:
1. Must obtain a minimum CAP of 3.00 (B-) for the best modules equivalent to 40 MCs; and
2. Must obtain at least 40 MCs of which at least 30 MCs must be at a graduate level within the subject or in related disciplines and the remaining credits may be from other levels in the same or other disciplines subject to the approval of the Programme Manager.

Modules

The proposed programme consists of four core modules (total of 16 MCs) and a list of electives drawn from existing modules taught by the Faculty of Engineering (with the exception of two elective modules from the NUS Business School). Three of the core modules cover the fundamental concepts and methods in designing and managing engineering systems, and have been specially created for the programme. The current electives have been divided into two areas to provide foundation knowledge in two areas: (a) system methodology and management; and (b) system application.

Core Modules
The following are core modules and are 4 MCs each. Candidates have to take all the modules in this list.
SDM5001 Systems Architecture
SDM5002 Systems Engineering
SDM5003 Knowledge Management
SDM5004 Systems Engineering Project Management

Electives
The electives are organised into two different foundation areas. All the modules are 4 MCs unless otherwise stated. Candidates have to take at least two modules from the list in each foundation area.

Systems methodology and management
SDM5010  Model-Based Systems Engineering  
BMA5004A  Management & Organisation (2 MCs)  
MT5007  Management of Technological Innovation  
MT5009  Analyzing Hi-Technology Opportunities  
MT5011/  Finance for Engineering & Technology Management; (or  
IE5003  Cost Analysis and Engineering Economy); (or  
CE5603  Engineering Economics and Project Evaluation)  
MT5012  Marketing of Hi-Tech Products and Innovation  
MT5013  Global Innovation Management  
MT6001  Research in Technology & Innovation Management  
IE5202  Applied Forecasting Methods  
IE5203  Decision Analysis  
IE5404  Large Scale Systems Engineering  
IE5409  Topics in Systems Engineering  
PP5240  Applied Policy Analysis  

**Systems application**

BMA5010A  Managing Operations (2 MCs)  
TP5026  Transportation Management & Policy  
TP5028  Intermodal Transportation Operations  
CE5804  Global Infrastructure Project Management  
ME5602  Manufacturing Systems Engineering  
ME5205  Energy Engineering  
MT5002  Management of Industrial R&D  
MT5003  Creativity and Innovation  
MT5004  User centred Engineering and Product Development  
MT5006  Strategic and New Product Development; (or  
IE5211  New Product Management)  
MT5016  Business Models for Hi-Tech Products  
IE5401  Industrial Logistics  
CN5191  Project Engineering  
EE5702R  Advanced Power Systems Analysis  
ESE5102  Sludge & Solid Waste Management  
TD5101  Specification of Complex Hardware/ Software Systems  
SDM5990  SDM Research Project (8 MCs)