

### Curriculum for Master of Management Science and Engineering (Chinese program)

This program applies to graduate students who study for Master of Science in Management Science and Engineering, Department of Industrial Engineering, Tsinghua University, for Master of Industrial and Systems Engineering.

#### 1. Courses and activities

Note: √ represents any of the compulsory courses on the left (if without special remarks) or any of the optional courses as required in the bracket or notes; - represents no courses required on the left.

No.	Course	Credits	Semester	Management Science and Engineering
<b>(1) Public compulsory courses</b>				<b>5 credits</b>
60680021	Dialectics of Nature	1	Autumn	√ (Hong Kong, Macao & Taiwan students may apply for exemption without credits <sup>(1)</sup> )
60680012	A Study of the Theory and Practice of Socialism with Chinese Characteristics	2	Autumn	
60640012	First Foreign Language	2	Autumn	√ (Students may apply for exemption with credits <sup>(2)</sup> )
60610162	Elementary Chinese	2	Autumn	-
60610172	Intermediate Chinese	2	Spring	
60610182	Advanced Chinese	2	Autumn	
60610082	Chinese Culture and Society	2	Autumn	-
<b>(2) Compulsory activities</b>				<b>2 credits</b>
69990021	Literature Review and Topic Selection Report	1		√
69990031	Academic Activities <sup>(4)</sup>	1		
60160050 60160060	Thesis Study <sup>(5)</sup> (1-4)	0	Spring/ Autumn	

60160070					
60160080					
<b>(3) Compulsory courses and limited optional courses</b>				<b>≥15 credits</b>	
80160393	Quantitative Analysis	3	Autumn	-	
70160513	Decision Making	3	Autumn		
To be opened	A study of Chinese Industries: Advanced Manufacturing and Modern Services	3	Autumn	√	
80160232	Advanced Statistics	2	Autumn	√	
70160014	Advanced Operations Research	4	Autumn		
70160613	Ergonomics	3	Autumn	-	
70160033	Production Management	3	Spring		
80160223	Logistics and Supply Chain Management	3	Spring		
80160382	Human Factors Measurement	2		(optional courses ≥ 6 credits)	
80160332	Advanced Human Factors	2			
80160372	Data Analysis for Human Factors Research	2			
80160192	Modern Inventory Management Theory	2	Spring		
80160152	Distribution System Modeling and Analysis	2			
90160122	Game Theory and Behavioral Decision Making	2	Autumn		
90160112	Stochastic Optimization	2	Spring		
<b>(4) Optional courses</b>					
70160023	Quality Engineering	3	Autumn		-
80160363	Engineering and Technology Management	3	Spring		
80160033	Enterprise Information Resources Management	3	Spring		
80160283	Systematic Product Design and Development	3	Autumn		
80160182	Theory of Traffic Engineering and Management	2	Spring	√	
80160062	Production Scheduling Theory and Algorithms	2	Spring		
80160172	Advanced Quality Management	2	Spring		
80160032	Enterprise Information Resources Management	2	Spring		
				(optional courses must total the required credits)	

80160132	Human-Machine Interaction	2	Spring	
80160052	Modern Safe Engineering	2	Spring	
80160022	Work Organization	2	Spring	
70160602	Data Analysis Methods	2	Autumn	
90160203	Reliability Engineering and Risk Management	3	Spring	
	Extended Scope Courses <sup>(6)</sup>			√ (to be approved, not more than 6 credits)
<b>Intercollegiate Exchange and Mutual Recognition Courses</b>				<b>≥0 credit</b>
Attendance in cooperative exchange projects approved by Tsinghua University for recognized courses				Credits may be accomplished subject to confirmation by the teaching director
<b>(5) Academic and professional quality course</b>				<b>1 credit</b>
60160021	Industrial Engineering Ethics	1	Spring/ Autumn	compulsory

Notes:

- (1) Students unable to accomplish corresponding credits due to exemption should choose other optional courses so as to total credits as required in the program;
- (2) The exemption of such course may be applied for as per the exemption conditions and methods provided under the graduate guide;
- (3) Such course may be substituted by a course within the same group under the graduate guide;
- (4) Students should take part in at least 10 academic lectures and keep attendance records;
- (5) During the enrolled study period at Tsinghua University, all graduate students should opt for such series courses from grade two until graduation or the end of normal school years;
- (6) Extended scope courses are provided to encourage master students to opt for courses in relation to their studies from other courses of the department or from the core courses of other departments. Such courses may substitute limited optional courses or optional courses subject to approval by supervisors or the teaching director.

## **2. Course exemption and substitution**

Students who have taken courses similar to the target courses may be exempted from such target courses with corresponding credits subject to review by their course teachers or the teaching director.

Discipline courses (including compulsory, limited optional and optional courses) may be substituted by students with other courses of the Department of Industrial Engineering or discipline courses of other departments depending on their own conditions under the guidance of supervisors or the program head subject to approval by the teaching director.

The application for exemption and substitution of all courses should be submitted to the office of educational affairs within the first 3 weeks after a school year and will be executed subject to approval by the teaching director. Courses without approval are not allowed to be exempted or substituted.

## **3. Graduate thesis research**

In order to ensure the quality of master thesis research, all graduate students should study *Graduate Thesis Research* series courses from grade two until graduation or the end of normal school years. Prior to the end of each semester, thesis supervisors should evaluate the progress of the student thesis research work and submit it to the teaching office. The Teaching Committee will evaluate and confirm the grades of *Graduate Thesis Research* based on the feedback of supervisors (passed or not). Students who fail to pass two courses will be dealt with as per the Graduate Student Status Management Regulations. Students who fail to pass one course before graduation thesis defense should submit the application for the re-confirmation of the grades of *Graduate Thesis Research* and may have their unsatisfactory grades modified to passage subject to agreement by supervisors with signing and approval by the Teaching Committee.

## **4. Degree thesis**

Students should complete the thesis work plan and topic selection report two semesters before thesis defense and carry out thesis research for at least one year. All theses will be submitted for review and defended as per the management requirements of the Department of Industrial Engineering on Master's Degree in Engineering.

The purpose of degree thesis is to enhance students' comprehensive capacity in applying knowledge and innovation in scientific research. Thesis topics include, but are not limited to, academic research topics

and applied research topics. Thesis topics should be determined on the basis of full communications with supervisors.

### **5. Publication of academic papers**

Master students should complete at least one academic paper in relation to thesis design up to the publication requirements.