

Big Data Management and Application

Harbin Institute of Technology

** The information below is extracted from the curriculum for current Chinese students at the university, which will be adjusted for international students according to relevant requirements as appropriate. Therefore, please refer to the curriculum used in the year of entry as the final curriculum.*

I. Program Overview

University/School: School of Management, Harbin Institute of Technology

Major: Big Data Management and Application

II. Teaching Outcomes

This programme aims to develop talents with strong confidence and professional ethics who are equipped with solid theoretical foundation and practical skills, being able to identify, analyse and resolve problems with an innovative mind.

III. Core Discipline

Management Science and Engineering, Business Administration, Applied Economics.

IV. Subject Foundational Modules and Subject Core Modules

The subject basic modules are compulsory courses for all majors in the economic management pilot class. The subject core modules are compulsory courses.

Subject Foundational Modules:

Management Foundation, Microeconomics, Accounting Foundation, Marketing, Financial Marketing, Macroeconomics, Management Information Systems, Organizational Behavior, Strategic Management, Leadership and Communication, International Business, Financial Management, Operations Research, Applications Statistics, Business Data Analysis, Legal Ethics and Social Responsibility.

Subject Core Modules:

Big Data Infrastructure, Object-oriented Programming, Database System, Multivariate Statistical Analysis and R Modeling, Time Series Analytics, Text Analytics and Text Mining, Data Warehouse and Data Mining, Online Social Media Marketing Analysis, Quantitative Financial Method.

V. Duration, Degree Awarding and Graduation Credits Requirements

Duration: 4 years

Degree Awarding: Bachelor Degree in Management

Graduation Credits Requirements: The students need to meet the requirements in terms of moral, intellectual, and aesthetic aspects. For graduation, students should complete all taught modules and practice with required credits (58 credits for modules in general education, 84-87 credits for subject-related modules, 10 credits for modules in personal development), and pass the thesis defense.

VI. Curriculum

Curriculum (Year 1)

Semester	Module Code	Module Title	Credits	Total Hours Allocation						Assessment
				Total Hours	Taught	Experiment	Computer	Exercises	Out of Class	
Autumn	FL12001	College English	1.5	36	32				4	Exam
	MA21003	Calculus B (1)	5.5	88	80			8		Exam
	MA21012	Algebra and Geometry B	4.0	64	54			10		Exam
	MX11021	Ideological and Moral Cultivation and Basic Law Education	2.5	40	40					Test
	PE13001	Physical Education	1.0	32	32					Test
	CS14003	College Computer – Introduction to Computational Thinking C	2.0	32	32					Test
	EM31001	Management Foundation	2.0	32	32					Exam
	AD15001	Military Training and Theories	3.0	3W						Test
			21.5	324+3W	302			18	4	
Spring	FL12002	College English	1.5	36	32				4	Exam
	MA21004	Calculus B (2)	5.5	88	80			8		Exam
	MX11022	Outline of Chinese Modern History	2.5	40	40					Exam
	AD11011	Ideological and Moral Cultivation and Basic Law Education – Practice Module	0.5	8					8	Test
	PE13002	Physical Education	1.0	32	32					Test
	EM31002	Accounting Foundation	2.5	40	40					Exam
	EM31003	Marketing	2.0	32	32					Exam
	EM31004	Microeconomics	3.0	48	48					Exam
	EM31005	Financial Market	2.0	32	32					Test
	EM31008	Organizational Behavior	2.0	32	32					Test
	MX11025	Situation and Policies (1)	0.5	8	8					Test
		Cultural Quality Education Lecture	1.0	16	16					Test
		22.0	380	360			8	12		
Summer	EM44001	Innovation and Entrepreneurship Practice	1.0	1W						Test
		Cultural Quality Education Core Module	3.0	48	48					Test
		4.0	48+1W	48						
Notes	1. Select one of the two: Financial Market OR Organizational Behavior 2. Cultural Quality Education Modules: 10 credits required for 4-year program: 5 credits of core Modules, 4 credits of Optional Modules (MOOC included), 1 credit of relevant lectures (8 lectures) (refer to school's list for detailed Modules); 3. Innovation and Entrepreneurship Practice: an Personal Development Module									

Curriculum (Year 2)

Semester	Module Code	Module Title	Credits	Total Hours Allocation						Assessment
				Total Hours	Taught	Experiment	Computer	Exercises	Out of Class	
Autumn	MX11023	An Introduction to Mao Zedong Thought and Theoretical System of Socialism with Chinese Characteristics	4.0	64	64					Exam
	FL12003	College English	1.5	36	32				4	Exam
	PE13003	Physical Education	0.5	16	16					Test
	MA21017	Probability and Mathematical Statistics C	3.0	48	48					Exam
	EM31007	Management Information System	2.5	40	32		8			Exam
	EM31009	Strategy Management	2.0	32	32					Exam
	EM31010	Macroeconomics	3.0	48	48					Exam
	EM31011	International Business	2.0	32	32					Test
	EM31012	Leadership and Communication	2.0	32	32					Test
	AD11012	Outline of Chinese Modern History – Practice	0.5	8					8	Test
		Personal Development Module	1.0	16	16					Test
		22.0	364	344		8		12		
Spring	MX11024	Introduction to Basic Principles of Marxism	3.0	48	48					Exam
	FL12004	College English	1.5	36	32				4	Exam
	PE13004	Physical Education	0.5	16	16					Test
	EM31013	Financial Management	2.5	40	40					Exam
	EM31019	Law, Ethics and Social Responsibility	1.5	24	24					Test
	EM31015	Applied Statistics	3.0	48	40		8			Exam
	EM31016	Operational Research	3.0	48	48					Exam
	EM31017	Econometrics	3.0	48	32		16			Test
	EM31018	Business Data Analytics	2.0	32	24	8				Test
	EM34502	Interdisciplinary Comprehensive Training	1.0	24	8		16			Test
		Cultural Quality Education Module	1.0	16	16					Test
		Personal Development Module	1.0	16	16					Test
	MX11026	Situation and Policies (2)	0.5	8	8					Test
		20.5	364	332	8	24		4		
Summer		Subject Optional Module (See Table below)	1.0	16	16					Test
		Cultural Quality Education Module	1.0	16	16					Test
		Personal Development Module	2.0	32	32					Test
			4.0	64	64					
Notes	<ol style="list-style-type: none"> Select one of two: Econometrics OR Business Data Analytics Personal Development Modules: 10 credits required for 4-year program: 4 credits of innovation and entrepreneurial modules, at least 2 credits of subject modules in other disciplines, and 4 credits of subject optional modules, non-subject introductory modules, non-subject core modules, or postgraduate modules Subject Optional Modules: Please refer to Table below for credit requirements for subject optional modules and specific module titles. 									

Curriculum (Year 3)

Semester	Module Code	Module Title	Credits	Total Hours Allocation						Assessment
				Total Hours	Taught	Experiment	Computer	Exercises	Out of Class	
Autumn	EM32301	Big Data Infrastructure	2.0	32	32					Test
	EM32103	Object-oriented Programming	2.0	32	32					Exam
	EM32101	Database System	2.0	32	32					Exam
	EM32104	Multivariate Statistical Analysis and R Modeling	2.0	32	24		8			Exam
	EM32305	Time Series Analytics	2.0	32	24		8			Exam
	MX11027	Situation and Policies (3) (Special Tutoring about Socialism Thought with Chinese Characteristics in the New Age of President Xi Jinping, Part One)	0.5	8	8					Test
	AD11013	An Introduction to Mao Zedong Thought and Theoretical System of Socialism with Chinese Characteristics – Practice Module	1.0	16					16	Test
		Subject Optional Module (See Table below)	2.0	32	32					Test
		Cultural Quality Education Module	1.0	16	16					Test
		Personal Development Module	2.0	32	32					Test
			16.5	264	232		16		16	
Spring	EM32208	Data Analytics and Text Mining	2.0	32	32					Exam
	EM32108	Data Warehouse and Data Mining	2.0	32	32					Exam
	EM32308	Online Social Media Marketing Analysis	2.0	32	32					Test
	EM32309	Quantitative Financial Method	2.0	32	32					Exam
		Subject Optional Module (See Table below)	2.0	32	32					Test
		Cultural Quality Education Module	1.0	16	16					Test
		Personal Development Module	2.0	32	32					Test
			13.0	208	208					
Summer	EM34101	Industry Internship	4.0	4W						Test
			4.0	4W						

Curriculum (Year 4)

Semester	Module Code	Module Title	Credits	Total Hours Allocation						Assessment
				Total Hours	Taught	Experiment	Computer	Exercises	Out of Class	
Autumn	MX11028	Situation and Policies (4) (Special Tutoring about Socialism Thought with Chinese Characteristics in the New Age of President Xi Jinping, Part Two)	0.5	8	8					Test
	EM34122	Graduation Practice	8.0	8W						Test
		Subject Optional Module (See Table below)	2.0	32	32					Test
		Cultural Quality Education Module	1.0	16	16					Test
		Personal Development Module	1.0	16	16					Test
			12.5	72+8W	72					
Spring	EM34301	Graduation Project	14.0	14W						Test
		Cultural Quality Education Module	1.0	16	16					Test
			15.0	16+14W						

Subject Optional Modules

No.	Module Code	Module Title	Credits	Total Hours Allocation					Semester
				Total Hours	Taught	Experiment	Computer	Design	
1	EM33001	Business Etiquette	1.5	24	24				Spring/Autumn
2	EM33002	Creative Thinking and Method	1.5	24	24				Spring
3	EM33003	Real Estate Development and Operation	2.0	32	32				Spring
4	EM33004	Corporate Law System and Relevant Knowledge	1.5	24	24				Autumn
5	EM33005	Contract Management	2.0	32	32				Autumn
6	EM33006	Project Financing	1.5	24	24				Autumn
7	EM33007	Behavior and Simulation Research Tool	0.5	12			12		Autumn
8	EM33008	Game Theory and Strategic Thinking	2.0	32	32				Spring
9	EM33009	Urban Economy and City Development	2.0	32	32				Spring
10	EM33010	Introduction to Real Estate	1.5	24	24				Summer
11	EM33011	EXCEL Work and Business Application	0.5	12			12		Summer
12	EM33101	Information Resource Management	1.5	24	24				Spring
13	EM33201	C Programming	2.0	32	32				Autumn
14	EM33202	Programmed Trading	1.5	24	24				3 Spring
15	EM33204	Management System Simulation	2.0	32	24		8		Autumn
16	EM33205	Consumer Behaviors	1.5	24	24				3Spring
17	EM33206	Information System Security Project	1.5	24	24				3 Autumn
18	EM33207	Web System Development Technologies	2.0	32	32				Spring
19	EM33208	eCommerce Service and Operation Management	2.0	32	32				Spring
20	EM33209	eCommerce Supply Chain Management	2.0	32	32				3 Spring
21	EM33210	Fuzzy Mathematical Method in Economic Management	1.0	16	16				3 Spring
22	EM33211	Matab Implementation Method in Quantitative Analysis of Economic Management	2.0	32	32				Spring
23	EM33212	Optimization Software and Modelling Practice for Operational Research	1.5	24	16		8		3 Autumn
24	EM33406	Enterprise Management and Practice Simulation	1.0	24	8		16		Autumn
25	EM33404	Technological Disruption and Organizational Innovation	1.5	24	24				Spring
26	EM33405	Enterprise Study and Development Management	1.5	24	24				Spring
27	EM33501	Public Relations	2.0	32	32				Autumn
28	EM33502	Advertising	2.0	32	32				Autumn
29	EM33504	Marketing Practice Simulation	1.0	24	8		16		Autumn
30	EM33505	New Media Marketing	1.5	24	24				Spring
31	EM33506	Promotion Strategy	2.0	32	24		8		Autumn
32	EM33601	International Accounting	2.0	32	32				Spring/Autumn
33	EM33602	Advanced Financial Accounting Project	2.0	32	32				Spring/Autumn

34	EM33603	Financial Enterprise Accounting	2.0	32	32				Spring/Autumn
35	EM33604	Audit Practice and Case Study	2.0	32	32				Spring/Autumn
36	EM33606	Government and NPO Accounting	2.0	32	32				Spring/Autumn
37	EM33607	Internal Control	2.0	32	32				Spring/Autumn
38	EM33701	Cost Accounting	2.0	32	32				Spring/Autumn
39	EM33702	Financial Management of NPO	2.0	32	32				Spring/Autumn
40	EM33703	Management Accounting	2.0	32	32				Spring/Autumn
41	EM33707	Financial Management at Financial Enterprises	2.0	32	32				Spring/Autumn
42	EM33708	Accounting Information System	3.0	48	24		24		Spring/Autumn
43	EM33709	Capital Operation and Cases	2.0	32	32				Spring/Autumn
44	EM33710	Asset Valuation	2.0	32	32				Spring/Autumn
45	EM33711	Massive Financial Data Analytics	2.0	32	24		8		Spring/Autumn
46	EM33712	Tax Law	2.0	32	32				3Spring
47	EM33801	Theories and Practices of Investment Banking	2.0	32	32				3Autumn
48	EM33802	Venture Capital	2.0	32	32				3Spring
49	EM33804	Financial Time Series Analysis	2.0	32	24		8		3Autumn
50	EM33913	Advanced Business English A	1.5	24	24				Spring
51	EM33902	International Economic and Technological Cooperation	2.0	32	32				Autumn
52	EM33903	International Investment	2.0	32	32				Autumn
53	EM33904	Financial Economics	2.0	32	32				Autumn
54	EM33905	Economic Law	2.0	32	32				Autumn
55	EM33906	Case Study on Small and Medium Startups	2.0	32	32				Autumn
56	EM33914	Advanced Business English B	1.5	24	24				Spring
57	EM33915	Selected Articles of English Economic and Trade Journals	2.0	32	32				Spring
58	EM33909	Cross-border eCommerce	2.0	32	32				Spring
59	EM33910	Intellectual Property	2.0	32	32				Spring
60	EM33911	Intermediate Business English A	1.5	24	24				Autumn
61	EM33912	Intermediate Business English B	1.5	24	24				Autumn
62	EM33291	Practicum for Case Study on Small and Medium Startups	1.0	1W					Autumn
63	EM33292	Practicum for Foreign Business Correspondence	1.0	1W					Autumn
64	EM33293	Practicum for Cross-border eCommerce	1.0	1W					Spring

Notes: 7 credits for Subject Optional Modules in 4 years and 155 credits in total for the 4-year program.

VII. Curriculum category and credit proportion

Category	Modules	Credits	%	Total Credits	%
General Education	Public Foundational Modules	30.0	19.35	58.0	37.42
	General Modules of Arts and Science - Basic Modules in Mathematics and Natural Sciences	18.0	11.61		
	General Modules of Arts and Science - Cultural Quality Education Module	10.0	6.45		
Subject Education	Subject Foundational Modules	35.0	22.58	87.0	56.13
	Subject Core Modules	18.0	11.61		
	Subject Optional Modules	7.0	4.52		
	Internship	13.0	8.39		
	Graduation Project (Dissertation)	14.0	9.03		
	Personal Development Modules	10.0	6.45	10.0	6.45
Total		155.0	100	155.0	100

VIII. Credit requirements for Practice

Module Title	Hour/Week	Credits
Ideological and Political Modules Practice	32 hours	2.0
Military Training and Theories	3 weeks	3.0
Experiment	64 hours	3.5
Subject Project	1W	1.0
Internship	12 weeks	12.0
Graduation Project (Dissertation)	14 weeks	14.0
Innovation & Entrepreneurship Modules/Practice		4.0
Total	30 weeks +96 hours	39.5

IX. Credit requirements for Cultural Quality Education Module

Category	Credits
Core Cultural Quality Education	5.0
Optional Cultural Quality Education	4.0
Cultural Quality Education Lecture (8 times)	1.0
Total	10.0

X. Credit requirements for personal development modules

Category	Credits
Subject Foundational Modules for other majors	2.0
Subject Core Modules for other majors	
Subject Optional Modules	4.0
Postgraduate Modules	
Innovation & Entrepreneurship Modules	4.0
Innovation & Entrepreneurship Practice	
Total	10.0

Notes:

1. Innovation & Entrepreneurship Modules: Innovative Training Modules, Innovative Experiment Modules, Innovative Instruction Modules, Entrepreneurship Instruction Modules, Online Modules for Innovation and Entrepreneurship education, etc

2. Innovation & Entrepreneurship Practice: Project Study Plan, College students' Innovation & Entrepreneurship Training Program, Innovation and Entrepreneurship competition, Entrepreneurial Practice, Publication of Papers, Patents Application, etc

XI. Instructions

1. Credits for optional modules can be obtained through optional modules from school of management, subject core modules for other majors, subject foundational modules and subject cord moudles for other majors from School of management.
2. The credits of personal development module can not be lower than 10 credits. Apart from 4 credits for innovation & entrepreneurship modules and at leset 2 credits for modules for other majors from School of Management, the other 4 credits can be obtained from subject core modules for other majors, subject foundational modules and subject core modules for other majors from School of management and postgraduate modules.
3. To graduate, students should not only get credits of graduation requirements, but also they participate in national competition and get relevant awards as required.