Course Requirements for BTM Graduate Program

Course	Academic Year	Mandatory General	Major		Research	Total
			Mandatory	Elective		
Master's Program	2015 and thereafter	3+1AU	6	at least 15 credits	at least 9 credits (Seminar 2↑)	at least 33 credits
	admitted in 2014	3+1AU	6	at least 15 credits	at least 9 credits	at least 33 credits
	admitted in 2013 or before	3+1AU	3	at least 18 credits	at least 9 credits	at least 33 credits
Doctoral Program (MS-PhD Integrated Degree Program)	2015 and thereafter	3+1AU	6	at least 27 credits	at least 30 credits (Seminar 4↑)	at least 66 credits
	admitted in 2014	3+1AU	6	at least 27 credits	30 credits	at least 66 credits
	admitted in 2013 or before	3+1AU	3	at least 30 credits	at least 30 credits	at least 66 credits

Admission Year	Master's Program	Doctoral Program (MS-PhD Integrated Degree Program
2015 and thereafter	❑ **Master's Program (at least 33 credits)** ㅇMandatory General : 3 credits and 1AU - CC010 Special Lecture on Leadership/ non-credit, this applies to students entering KAIST in 2002 and later; general scholarship students and international students are excluded) - CC020 Ethics and Safety I(1AU) - One course (3 credits) from CC500 Scientific Writing, CC510 Introduction to Computer Application, CC511 Probability and Statistics, CC512 Introduction to Materials and Engineering, CC513 Engineering Economy and Cost Analysis, CC522 Introduction to Instruments, CC531 Patent Analysis and Invention Disclosure ㅇ Mandatory Major : 6 credits - MSB500 Advanced Statistics for Management - MSB510 Innovation Management and Strategy ㅇ Elective : at least 15 credits (Select at least 12 credits from MSB graduate courses, MSB500 level or above) ㅇ Research : at least 9 credits - 2 seminar credits are required (International students and general scholarship students are exempt from seminar requirements)	❑ **Doctoral Program (at least 66 credits)** ㅇMandatory General : 3 credits and 1AU - CC020 Ethics and Safety I(1AU) - One course (3 credits) from CC500 Scientific Writing, CC510 Introduction to Computer Application, CC511 Probability and Statistics, CC512 Introduction to Materials and Engineering, CC513 Engineering Economy and Cost Analysis, CC522 Introduction to Instruments, CC531 Patent Analysis and Invention Disclosure ㅇ Mandatory Major : 6 credits - MSB500 Advanced Statistics for Management - MSB510 Innovation Management and Strategy ㅇElective : at least 27 credits (Select at least 21 credits from MSB graduate courses, MSB500 level or above) - It is mandatory to take at least one course from the following courses: MSB601 Research Methodologies I, MSB701 Advanced Econometrics, MSB702 Research Methdologies II. ㅇ Research : at least 30 credits - 4 seminar credits are required (International students and general scholarship students are exempt from seminar requirements)

Admission Year	Master's Program	Doctoral Program (MS-PhD Integrated Degree Program
2014	❑ **Master's Program (at least 33 credits)** ㅇMandatory General : 3 credits and 1AU - CC010 Special Lecture on Leadership/ non-credit, this applies to students entering KAIST in 2002 and later; general scholarship students and international students are excluded) - CC020 Ethics and Safety I(1AU) - One course (3 credits) from CC500 Scientific Writing, CC510 Introduction to Computer Application, CC511 Probability and Statistics, CC512 Introduction to Materials and Engineering, CC513 Engineering Economy and Cost Analysis, CC522 Introduction to Instruments, CC531 Patent Analysis and Invention Disclosure ㅇ Mandatory Major : 6 credits - MSB500 Advanced Statistics for Management - MSB510 Innovation Management and Strategy ㅇ Elective : at least 15 credits (Select at least 12 credits from MSB graduate courses, MSB500 level or above) ㅇ Research : at least 9 credits	❑ **Doctoral Program (at least 66 credits)** ㅇMandatory General : 3 credits and 1AU - CC020 Ethics and Safety I(1AU) - One course (3 credits) from CC500 Scientific Writing, CC510 Introduction to Computer Application, CC511 Probability and Statistics, CC512 Introduction to Materials and Engineering, CC513 Engineering Economy and Cost Analysis, CC522 Introduction to Instruments, CC531 Patent Analysis and Invention Disclosure ㅇ Mandatory Major : 6 credits - MSB500 Advanced Statistics for Management - MSB510 Innovation Management and Strategy ㅇElective : at least 27 credits (Select at least 21 credits from MSB graduate courses, MSB500 level or above) - It is mandatory to take at least one course from the following courses: MSB601 Research Methodologies I, MSB701 Advanced Econometrics, MSB702 Research Methdologies Ⅱ. ㅇ Research : at least 30 credits
2013 or before	❑ **Master's Program (at least 33 credits)** ㅇMandatory General : 3 credits and 1AU ㅇ Mandatory Major : 3 credits - MSB500 Advanced Statistics for Management ㅇ Elective : at least 18 credits (Select at least 12 credits from MSB graduate courses, MSB500 level or above) ㅇ Research : at least 9 credits	❑ **Doctoral Program (at least 66 credits)** ㅇMandatory General : 3 credits and 1AU ㅇ Mandatory Major : 3 credits - MSB500 Advanced Statistics for Management ㅇElective : at least 30 credits - It is mandatory to take at least one course from the following courses : MSB601 , MSB701, MSB702 ㅇ Research : at least 30 credits

※ Credits (for general courses and major courses) earned in the Master's Program can be included in the Doctoral Program (except research credits).

※ In the case of MS-PhD integrated students, they must take CC010 Special Lecture on Leadership.

※ Graduate Students must take and complete the three core courses (Principles of Accounting, Financial Management, Marketing).

- Students who have completed core courses above in the undergraduate or the graduate programs, can either get an exemption from completion of the courses or take other courses instead, by getting the approval from the Undergraduate Head Professor beforehand.
- The Exempted core course credits taken in the undergraduate program cannot be recognized as graduate credits.

❒ Table of Curriculum for BTM Graduate Program

Classification	Subject No.	Subject Name	Lecture:Lab.: Credit (assignment)	Faculty	Semester	Remark
Mandatory General Course	CC010	Special Lecture on Leadership	1:0:0		Spring.Fall	
	CC020	Ethics and Safety I	1AU		Spring.Fall	
	CC500	Scientific Writing	3:0:3		Spring.Fall	
	CC510	Introduction to Computer Application	2:3:3		Spring.Fall	
	CC511	Probability and Statistics	2:3:3		Spring.Fall	choose
	CC512	Introduction to Materials and Engineering	3:0:3		Spring.Fall	1
	CC513	Engineering Economy and Cost Analysis	3:0:3		Spring.Fall	
	CC522	Introduction to Instruments	2:3:3		Fall	
	CC531	Patent Analysis and Invention Disclosure	3:0:3		Spring.Fall	
Mandatory Major Course	MSB500	Advanced Statistics for Management	3:0:3(6)	Park MC	Spring	*BAT500
	MSB510	Innovation Management and Strategy	3:0:3(6)	Jung JY Kim WJ	Fall	
Elective Course	MSB504	Microeconomics	3:0:3(6)	Kwon YS Chae SC	Fall	*BAT504
	MSB530	Accounting Principles	3:0:3(6)	Jung YH	Spring	*BAT664
	MSB535	Technology Management and Corporate Finance	3:0:3(6)	Hang SH	Spring	*BAT676
	MSB536	Marketing for Hi-tech company	3:0:3(6)	Lee,EH	Fall	*BAT651
	MSB537	Digital Innovation and IT Management	3:0:3(6)	Zo,HJ	Spring	*BAT556
	MSB538	Managing Innovative Organization	3:0:3(6)	Lee,SJ	Fall	*BAT604
	MSB542	Management Science	3:0:3(6)	Choi,MK	Fall	
	MSB552	Corporate Strategy and Design Process	3:0:3(6)	Kim.WJ	Fall	*ID510
	MSB554	Smart Business Application and Development	3:0:3(6)	Roh,JJ	Fall	*CS541
	MSB556	Future and Technology : New Media Technology and Business Strategies	3:0:3(6)	Jung,JY	Fall	*EE572
	MSB601	Research Methodology in Business and Technology Management	3:0:3(6)	Song,CH	Fall	*BAT605
	MSB613	Network Economics	3:0:3(6)	Lee,DH	Spring	*BAT600
	MSB615	Game Theory with Applications	3:0:3(6)	Kwon,YS	Fall	*BAT511
	MSB630	Managerial Accounting	3:0:3(6)	Jung,YH	Fall	*BAT665
	MSB635	Investments Theory	3:0:3(6)	Nam,CG	Spring	*BAT673
	MSB638	Strategic Management Theory of Technology Innovation	3:0:3(6)	Jung,HJ	Spring	*BAT661
	MSB644	Supply Chain Innovation	3:0:3(6)	Roh,JJ	Spring	*BAT671
	MSB656	Theory of Information Policy	3:0:3(6)	Staff	Fall	*BAT617
	MSB701	Advanced Econometrics	3:0:3(6)	Min,HG	Fall	*BAT701
	MSB702	Research Methodologies Ⅱ	3:0:3(6)	Nam,CG	Spring	*BAT895
	MSB703	Business Analytics for Innovation Management	3:0:3(6)	Lee,CH	Fall	
	MSB716	Innovation & Global Financial Markets	3:0:3(6)	Min,HG	Spring	
	MSB736	Advanced Quantitative Marketing	3:0:3(6)	Kim,HJ	Spring	
	MSB813	Telecommunications Economics	3:0:3(6)	Lee,DH	Spring	*BAT602
	MSB830	Research on Performance Management	3:0:3(6)	Jung,YH	Fall	
	MSB835	Advanced Technology Innovation and Financial Management	3:0:3(6)	Han,SH	Spring	
	MSB836	Marketing science seminar	3:0:3(6)	Lee,EH	Spring	
	MSB837	Doctoral Seminar in Digital Innovation and IT Management	3:0:3(6)	Zo,HJ	Spring	
	MSB838	Advanced Seminar on Theories of Innovative Organization	3:0:3(6)	Lee,SJ	Fall	*BAT803
	MSB881	Advanced Special Topics Ⅰ in Business and Technology Management	3:0:3(6)	Staff	Spring.Fall	
	MSB882	Advanced Special Topics Ⅱ in Business and Technology Management	2:0:2(4)	Staff	Spring.Fall	
	MSB883	Advanced Special Topics Ⅲ in Business and Technology Management	1:0:1(2)	Staff	Spring.Fall	
Research	MSB960	M.S Thesis				
	MSB980	Ph.D Thesis				

Classification	Subject No.	Subject Name	Lecture:Lab.: Credit (assignment)	Faculty	Semester	Remark
	MSB965	Individual Study (M.S)				
	MSB985	Individual Study (Ph.D)				
	MSB966	Seminar (M.S)				
	MSB986	Seminar(Ph.D)				

※ Note: * stands for substituable courses

※ 500 level courses are not opened to undergraduate students without MSB554 (Smart Business Application and Development).

❒ Description of Courses for BTM Graduate Program

MSB500 Advanced Statistics for Management

The course emphasizes formulating models and using them for decision-making prediction. Topics include probability theory, sampling, estimation, hypothesis testing, regression analysis, analysis of variance, and some more techniques such as factor analysis, cluster analysis, if time permits. For all the issues, both theoretical and practical aspects through case studies will be emphasized.

MSB504 Microeconomics

Microeconomics is a field of economics that studies consumer and firm behaviors scientifically. Consumers and firms make decisions to accomplish their goals under constraints. More specifically, microeconomics studies the ways to make better decisions choices) when resources such as budget, time, information, clean water, etc. are limited. This course is composed of three parts: consumer theory, firm theory, and externality. Students will study various topics intuitively rather than mathematically.

MSB510 Innovation Management and Strategy

Management of innovation is defined as the set of activities associated with bringing high technology products to the marketplace. Innovation management strategy is aims to integrate management of market, industry, technological, organizational change to improve the competitiveness of firms and effective organization. In doing so, this course will examine on the basis of the dynamic firms capability framework- position in the competitive and national environment, Path for developing and exploiting technological trajectories, Process for strategic integration and learning.

MSB530 Accounting Principles

The objectives of this course are for graduate students to comprehend "accounting procedures" with which accounting information is gathered, processed and presented; to understand contents in companies' financial statements; and to apply to management functions with accounting numbers.

MSB535 Technology Management and Corporate Finance

The objective of this course is to study the basic concepts, theories, and current issues of corporate finance and apply the materials to technology management. Students are required to write individual research proposals related to technology management and corporate finance including literature reviews, research hypothesis development, data collection, empirical analysis, interpretation of empirical results, and conclusion. In addition, as a group project, students conduct technology valuation using the currently developed technology. Students are required to make presentations of both academic papers and technology valuation project at the end of semester.

MSB536 Marketing for Hi-tech company

This course is concerned with the development, evaluation, and implementation of marketing management in complex environments for Hi-tech companies. The course deals primarily with an in-depth analysis of a variety of concepts, theories, facts, analytical procedures, techniques, and models. The course addresses strategic issues such as:

- What business should we be in?
- What are our long-term objectives?
- What is our sustainable marketing competitive advantage?
- Should we diversify?
- How should marketing resources be allocated?
- What marketing opportunities and threats do we face?
- What are our marketing organizational strengths and weaknesses?
- What are our marketing strategic alternatives?

MSB537 Digital Innovation and IT Management
This course is designed to provide a clear understanding of the various advanced management, organizational, and ethical issues of digital innovation for graduate students. Effective management of digital innovation and IT resources are becoming even more compelling and significant in light of Internet business. To achieve these objectives, a combination of various approaches including class lectures, case discussions, group projects and assignments will be offered.

MSB538 Managing Innovative Organization
We will focus on the skills and tools managers need to be successful in innovative organizations. The objectives of this course are to understand multiple theoretical and conceptual foundations of managing innovative organizations and apply scientific knowledge to lead and manage real-world innovative organizations.

MSB542 Management Science
Main purpose of this course is to provide fundamentals in management science. The course will cover introductory levels of linear programing, network theory, game theory, decision analysis, queueing theory and inventory analysis.

MSB552 Corporate Strategy and Design Process
This course aims to approach the design process from a broader business perspective. Beyond the traditional role of industrial design and designers, this project attempts to include developing business strategy as a design problem. By investigating and analyzing the market, company structure and business model, students engage in managerial decision-making process to develop business strategies.

MSB554 Smart Business Application and Development
The course is intended for graduate students to understand and develop smart business application running on smart phones. It provides a comprehensive guide covering programming technology on Mobile Internet, Mobile Security and Payment, Location based and Context Aware Services, Social Network Services, and Business Model Development Method through Case Study, Value Chain Analysis and Economic Feasibility Study. An application is proposed and developed by students as team consisting of business and engineering areas for the purpose of creating new application services and businesses.

MSB556 Future and Technology : New Media Technology and Business Strategies
The course will essentially provide basis of marriage between social sciences and engineering capabilities of students, hence: 1)Link understanding between future-oriented Business and Technology Strategies in Media and Broadcasting, 3)Emphasize importance of user considerations when identifying and designing disruptive technological solutions for future media society

MSB601 Research Methodology in Business and Technology Management
This is an introductory graduate level seminar on research methods in business, science, and technology. It deals with a variety of issues on research methods including research design, experiments, quasi-experiments, survey development, qualitative research methods, and others. This is to be explorative and thought-provoking mutual learning experiences by active engagements of all members of the class.

MSB613 Network Economics
This course aims to understand basic principles of network economics and study applications of the principles to real economies and business issues. We introduce network concept, structure, and principles including network externalities, excess inertia and excess momentum, positive feedback, path dependent process, and so on. We apply those principles to various economic, business, and policy issues; technology adoption, standardization, spatial pattern, network trade, discrepancy and instability, synchronization, self-organizing, complexity, etc.

MSB615 Game Theory with Applications
You make your decisions sometimes without worrying about the decisions of others, but in many cases the results of your decisions depend on others' decisions. This course is a course in which you learn a systematic and analytic approaches and frameworks for a better strategic decision making in interactive circumstances. In addition, this course fosters students' ability to analyze and handle the complexity involved in strategic decision-making process.

MSB630 Managerial Accounting
This course aims to understand cost flows, costing systems, and the use of cost information in managerial issues; and to get fundamental research ideas, topics, and methodologies regrading managerial accounting area. This course also provide how to apply cost information to practices, management functions, and managerial decision makings with mini cases.

MSB635 Investments Theory
The main purpose of this course is to analyze portfolio theory and the pricing model of securities in the financial markets. In addition to the valuation model such as Capital Asset Pricing Model, Arbitrage Pricing Model, bond valuation model, financial derivatives such as options and futures are introduced. Focussing on information and telecommunications industry, issues related to market efficiency, M&A, venture capital, and IPO are also covered in the class.

MSB638 Strategic Management Theory of Technology Innovation
Strategic management research deals with explaining and predicting firm-differential performance. Strategic management research is motivated by a particular set of phenomena expressed in fundamental questions like "why do some firms succeed, while others fail?, "what determines firm performance?," and to a lesser, normative extent, "what, if anything, can managers do about it?" We will study the questions using the lens of firm technological innovation. We will be focused on the implications of behavioral, institutional, and organizational perspectives, particularly as they apply to technology innovation.

MSB644 Supply Chain Innovation
One of the core process of 'Industry 4.0' is implementing smart technology into all the manufacturing and service processes, such as procurement, assembly, production, distribution, and retailing. Theories and cases related technological and managerial issues will be covered.

MSB656 Theory of Information Policy
This course provides the overview of the governments policies aimed at changing the nation and society by means of informatization. This course is designed to help students understand how the relation between globalization and informatization transform the world and its economic structure. This lecture also aims to help students equip the knowledge and perspective required to be a CEO in the near future. Related studies are political economics, theory of policy, theory of information society, and theory of information industry.

MSB701 Advanced Econometrics
Topics to be studied include specification, estimation, and inference in the context of models that include then extend beyond the standard linear multiple regression framework. After a review of the linear model, we will develop the asymptotic distribution theory necessary for analysis of generalized linear and nonlinear models. We will then turn to instrumental variables, maximum likelihood, GMM, and two step estimation methods. Inference techniques will be extended to include Wald, Lagrange multiplier and likelihood ratio tests. Modelling frameworks will include the linear regression model and extensions to models for panel data, multiple equation models.

MSB702 Research Methodology II
This class try to achieve in-depth understanding of the high level research methodologies which should be essential in writing empirical dissertation paper and conducting various researches in the field of business. The class covers empirical design focussing validities, and multivariate data analyses including ANOVA, Factor Analysis, Regression, Discriminant Analysis, Conjoint Analysis, Multidimensional Scaling, Structural Equation. etc.

MSB703 Business Analytics for Innovation Management
This course provides master level and Ph.D. level students with knowledge to empirically analyze commonly used econometrics and machine learning techniques, and to interpret its outcome. The topics to be discussed are mainly intended for technology marketing, Information Systems, and technology strategy areas. The

computer packages to be mainly lectured in class will be STATA and Python. etc.

MSB716 Innovation & Global Financial markets

The course covers the fundamentals of the macroeconomic environment of international financial management, discusses the financial environment in which the multinational firm and its managers must function, and covers foreign exchange management and financial management in a multinational firm.

MSB736 Advanced Quantitative Marketing

This course in intended for first year Ph.D. students and M.S students who will eventually pursue a Ph.D degree in quantitative marketing. We will cover topics relating to the analysis of data such as household scanner panel and physician level data (individual) and store data (aggregate). All topics are empirical in nature and very strong background and motivation for quantitative modeling are required. I will also strongly encourage students to conduct interdisciplinary research throughout the course. Once we have covered a topic in class, I will provide readings. There are 2 types of assignments for the class. The first is to implement each of the models discussed using the data I provide. Ph.D. students can use any software package such as R, SAS, Gauss, Matlab etc. as long as no canned routines are used. The other assignment for this class is a final paper-individual. This is intended only for Ph.D students registered for the class. Papers are due at the end of summer. It has to involve some piece of empirical research that uses the quantitative methods discussed in class

MSB813 Telecommunications Economics

This course is designed to understand basic principles of telecommunications industry and study applications of Microeconomics and Industrial Organization to telecommunications industry: market structure, demand structure, interconnection, pricing, competition and regulation, etc. It is also to discuss current policy issues and future of telecommunications industry such as network neutrality, facility and service-based competition, MVNO, bundling service, market foreclosure, DRM, convergence service, telecommunication expenditure, regulation and market growth, etc.

MSB830 Research on Performance Management

This course is designed for graduate students to understand various issues concerning the enterprise performance management. Students study successful factors for not only implementing performance management systems but also operating them continuously throughout papers and cases.

MSB835 Advanced Technology Innovation and Financial Management

The objective of this course is to study the basic concepts, theories, and current issues of corporate finance and apply the materials to technology management. The topics cover the areas related to corporate finance decisions including capital budgeting, capital structure, dividend policy, IPO, M&A, corporate divestitures, corporate valuation, technology valuation and other related issues. Students are required to write individual research proposals related to technology management and corporate finance including literature reviews, research hypothesis development, data collection, empirical analysis, interpretation of empirical results, and conclusion. In addition, as a group project, students conduct technology valuation using the currently developed technology. Students are required to make presentations of both academic papers and technology valuation project at the end of semester.

MSB836 Marketing science seminar

This course consists of supervised study and investigation of specific topics and problems in the field of marketing such as consumer behavior, business to business marketing, structural equation modeling, hi-tech marketing, and marketing models. In addition, students examine the philosohphy, concepts and methods of marketing research design. The focus of seminar is on the application of advanced scientific research methodology to marketing issues.

MSB837 Doctoral Seminar in Digital Innovation and IT Management

This seminar is designed to provide doctoral students with contemporary theories of digital innovation and IT management. Students will understand the phenomena related to the introduction, adoption, use, effects, and exploitation of digital innovation and IT management. Students will present a research proposal based on the provided theories.

MSB838 Advanced Seminar on Theories of Innovative Organization

This course analyzes the structural and behavioral aspects of innovative organizations. Macro issues covers organizational communication, organizational culture, and organizational change for innovation, whereas micro

issues include group dynamics, business ethics, power, work motivation, and decision making for innovation. Emphasis will be placed on understanding the conceptual and methodological strengths and weaknesses of the perspectives presented. This course is a student-centered seminar class.

MSB881 Advanced Special Topics Ⅰ in Business and Technology Management
This course provides studies of recent academic research papers and the research methodology on each industry and business areas of technology management to graduate students of Business and Technology Management major. This course is offered to cover additional business and technology management area which is not covered by regular courses. It will be opened flexibly.

MSB882 Advanced Special Topics Ⅱ in Business and Technology Management
This course provides studies of recent academic research papers and the research methodology on specific industry and business areas of technology management to graduate students of Business and Technology Management major. This course is offered to cover additional business and technology management area which is not covered by regular courses. It will be opened flexibly.

MSB883 Advanced Special Topics Ⅲ in Business and Technology Management
This course provides selected studies of recent academic research papers and the research methodology on specific industry and business areas of technology management to graduate students of Business and Technology Management major. This course is offered to cover additional business and technology management area which is not covered by regular courses. It will be opened flexibly.

MSB960 MS Thesis Research

MSB966 Seminar (MS)

MSB980 Ph.D Thesis Research

MSB986 Seminar (Ph.D)