

## Descriptions of Courses

### □ Undergraduate

#### MSB200 Introduction to Business Management

This course is established for students to understand the company's effective/efficient management and approaches in a constantly competing environment. With the understanding of company's essence, management activities, and conceptual frame of management, students will examine the latest trends in management, organizational changes, innovation, and entrepreneurship.

#### MSB201 Statistical Analysis for Business

This course discusses some statistical analysis tools in undergraduate levels of business for a variety of applications in accounting, finance, marketing, production and others areas. Topics include regression analysis, analysis of variance, goodness-of-fit test, time series analysis, sampling methods, some statistical decision theory, and non-parametric methods.

#### MSB235 Financial Management

Financial Management is concerned with the maintenance and creation of economic value. Corporations raise funds from financial markets (financing decisions) and invest them to create value (investment decisions). The objective of this class is to study how those financing and investment decisions are made by corporations with an eye toward creating value. The class covers financial analysis and planning, valuation of securities, capital budgeting, risk and return relationship and opportunity cost of capital, alternative corporate financing and capital structure, etc.

#### MSB236 Marketing

Marketing for engineering students shows how important marketing activities are to science and engineering students. This course educates students' overall basic concepts and major issues on marketing, and based on the learned concepts and through cases of technology oriented corporation, students will enhance their learning effectiveness by linking real-life marketing and marketing theories.

#### MSB237 Introduction to MIS

This course is designed to provide a broad overview of the fundamental concepts of information systems for students. The course includes the basic concepts of computer hardware, software, databases, data communication networks, Internet, various information systems and other emerging technologies. It also covers the history of computing and different scientific views towards IT to understand the interrelationships between technologies and society.

#### MSB238 Organizational Behavior

This course is to provide students with an understanding of the fundamental theories and practices of organization and its people. The main content comprise of two parts. One part is mainly for issues related to individuals and groups in an organization including motivation (recruitment, learning, evaluation, and rewards), job design, job adaptation, and group behavior. Another content covers issues of organizational management such as organizational structure, processes (communication, decision-making), leadership, and organizational development.

#### MSB301 Econometrics

This course will provide students with an opportunity to learn basic methods of multiple regression analysis. Estimation and testing hypotheses are the primary concerns of this course. Topics covered in this course are multiple regression, structural change, and time series analysis.

#### MSB316 Macroeconomics

This course is concerned with the construction of macroeconomic theories that can explain and predict variations in aggregate (economy-wide) variables, such as GNP, unemployment, the general price level, interest rates, growth rates, and the exchange rate. The course material and class organization stress the development of the tools and background necessary for your field courses.

#### MSB337 Advanced Topics in MIS

Discussion and analysis of current topics and developments in information systems and e-Business. It includes

systems development, user behaviors, e-commerce, web 2.0, and knowledge management for successful business. Students are required to develop deep knowledge on advance topics of MIS in this course

#### MSB341 Operations Research

This course provides the Operations Research (OR) based design, analysis, modeling and algorithms for solving key problems arising in engineering and non-engineering (business) areas. The course will cover fundamental items such as Linear Programming, Network Analysis, Dynamic Programming, Game Theory, Integer Programming and Nonlinear Programming. In particular, application of OR techniques to telecommunications network design including both wireline- and wireless systems) will be presented and illustrated.

#### MSB343 Business Strategy

This class is concerned with a theoretical framework of exploring strategic alternatives which guide a firm toward future success and regulate the decisions of managers and the behaviors of employees. The class discussion will identify the effective ways to analyze external and internal contexts, explore strategic options related to competition, diversification, or globalization, etc., and understand organizational problems of strategy implementation. The understandings of strategic management could also contribute significantly to in-depth discussions of innovation, marketing activity, and organizational behavior in each firm level.

#### MSB354 Operations Management

The basic theory of operations management will be introduced from a knowledge management viewpoint. Fundamental theories and innovative techniques on the management of production and service operations which is the foundation of scientific management are discussed.

#### MSB356 Information Society

This course focuses on the introduction and analysis of information and knowledge society. Internet-based socio-economic paradigm displays various issues, such as digital divide, privacy, intellectual property right and cyber ethics. The main purpose of this course resides in the enhancement of critical analysis of the social, economic and ethical issues in the internet-based socio-economic environment.

#### MSB401 Management of Technology Innovation

The course is catered for managers and senior engineers who may be involved in new business development and R&D management for high-technology companies. The concepts and analytical frameworks are useful and relevant when you are in a business of managing technical-based resources and knowledge assets in a rapidly changing environment. Although some readings we use in this course present a certain level of technical details, the focus is on strategic management issues rather than the specific details of any particular technology. Nonetheless, students in the past have enjoyed learning the selection of technologies in terms of diversity and stages of evolution.

#### MSB402 International Economics

The Theory and Policy of International Economics is a natural extension of the principles of economics in a globalized environment. The class is basically a combination of the study of theory and real world application. Occasionally, the group and individual presentation and debate will be introduced.

#### MSB403 Innovation Strategy

This course is to learn dynamics and paradigms of innovation using multiple case studies. This course aims to make the students get familiar with key concepts such as the evolution path, the diffusion pattern, the value capture, and the implementation of the innovation, so that they become more effective in creating and nurturing innovation that is a crucial value creating engine in modern society.

#### MSB404 Technology Management

This course aims to provide students with in introduction of the key technology and innovation management challenges that students will face as engineer working in business. As a decision maker in technology related business, it is essential to understand notion of science and technology, patterns and sources of technological innovation, and mechanism of technological innovation. In addition, there will an emphasis on concept learning for technological management such as Product development process, R&D project management, Intellectual property management, outsourcing management, and role of CTO.

#### MSB406 Microeconomics

This course is concerned with the understanding of basic principles in microeconomics. Microeconomics considers how individuals, firms, the government, and other organizations make choices. By the end of semester, students should understand the main logical arguments used by economist to describe how the world works, and be able to use these tools to analyze business and public policy problems.

#### MSB411 Investments

The main objective of the course is to provide an overview of theories in investment such as portfolio theory and the valuation models. The valuation models include the Capital Asset Pricing Model and Arbitrage Model. Also, financial markets, financial instruments, and mutual funds and other investment companies are introduced. In addition, the financial derivatives such as options and futures securities and the related theory and markets are covered.

#### MSB412 Business Database Design & Management

This course is designed to provide an overview of business database from the perspective of the manager and system analyst. The focus of the course is on the use of relational database management systems (DBMS) to support the information management function of an organization. Microsoft Access will be used for database design practice. After completing this course successfully, students will be able to design and manage business database.

#### MSB413 Industrial Organization

This course studies the application of microeconomic theory in market and industries. It analyzes market and industries in the paradigm of market structure-conduct-performance. It introduces various concepts of market structure and conduct: natural monopoly, contestable market, entry barrier, economies of scale and scope, firm integration, price discrimination, tied sale, resale price maintenance market foreclosure, and other restraints on transactions. And it studies regulatory issues associated with the efficient and optimal market performances of industries.

#### MSB415 Game Theory

The aims of this course is to equip the students with the basic tools of game theory. This unit develops the basic models of strategic behavior in modern microeconomics. It builds a framework for the analysis in markets where the traditional price theory fails. Central in development are choice under uncertainty, choice in strategic situations and choice under asymmetric information. The theories are applied to the analysis of oligopolistic markets, markets for insurance, the theory of actions and other applications.

#### MSB416 E-Biz strategy for Korea

Korea's industry is at the crossroad of manufacturing capabilities due to emergence of Internet paradigm. This course looks at the issues associated with Korea's industrial development strategy to adopt into rapidly changing environment E-biz paradigm. The focus of learning in this course is to provide students with an appreciation 1) of the past development of industry strategy and its characteristics, 2) of the opportunities and threat within Internet revolution, 3) of institutional, organizational capability analysis, 4) of the new industry development strategies for e-biz

#### MSB421 Human Resources Management

This course will address the philosophies and practices of human resources management in Business. Students will learn the basic functions of HRM including recruitment, selection, performance evaluation, development, compensation and others.

#### MSB422 Entrepreneurial Mindset

By exposing students to a diverse group of entrepreneurs, this course aims to reassure students who might lack self confidence in their entrepreneurial qualities and encourage them to think carefully about where and how they could best deploy their abilities.

#### MSB431 Managerial Accounting

This course will address the philosophies and practices of human resources management in Business. Students will learn the basic functions of HRM including recruitment, selection, performance evaluation, development, compensation and others.

#### MSB436 Marketing Research

Marketing research serves as a central basis for marketing strategy and firm profitability. Therefore it is critical for a manager to understand marketing research and to be able to specify what needs to be studied, how to study it, and how to interpret the results. This course presents an overview of marketing research in terms of needs, definition, process, analysis and report.

#### MSB440 Legal Aspects and Cases of Entrepreneurship

This course is taught by a legalist who is in charge of science and technology venture enterprise with case studies. This course introduces legal conflict cases about laws related to science and technology and venture enterprise and administration.

#### MSB441 Patent Law and Management

Intellectual properties including patent right are studied through this class to be proceeds from research activities of individuals and entrepreneurs. Studies are focused on procedure of obtaining the patent right from research activities to issue of letters patent and management on how to benefit from IP rights after granted or registered.

#### MSB442 Laws on Cultural contents and Intellectual Properties

This course plans to help students to have basic understanding about necessary law knowledge dealing with cultural contents like computer software, web-page, game, animation, and movies. Students will learn from developing, producing, and distributing cultural contents to laws that cultural contents developers and producers need to know such as copyrights, trademark rights, laws related to domain name, the rights of likeness, defamation of character, privacy, and laws related to illegal competence prevention through lectures and case studies.

#### MSB443 Negotiation and Contention Management

Negotiation and contention management is a hands-on, skill-oriented class which addresses two topics of central importance to anyone who seeks to succeed or to survive, in an organizational environment. The concepts presented in the course are introduced to prepare for or reflect on the succession of exercises or simulations.

#### MSB445 International Business

The study of international business is concerned with the challenges, opportunities and problems that corporations face in the context of a global economy. The growing interdependence of the world economies in the last 50 years has rendered an understanding of international competition an essential element of any firm's strategic and operational planning. Whether directly involved in foreign markets or not, all business today is exposed to international competitive forces that can have serious consequences for their performance and their survival.

**MSB446 Supply Chain Management**The basic theory of supply chain management will be introduced from a knowledge management viewpoint. Main topics of the lecture will be focused on the management of supply chain which is the infrastructure of off-line manufacturing and the introduction of various cases in order to analyze the strategic cooperation of on-off line industry.

**MSB450 Entrepreneurship & Venture Business**Entrepreneurship and venture business has an important role in training entrepreneurship to science and engineering students and in emphasizing the importance of venture business and enterprise. This course, after training students with basic concepts and entrepreneurship, will enhance the understanding of real-life venture businesses and enterprises through case studies.

**MSB451 Venture Formation Practice**Venture is one of the core of the business in 21st Century. This course covers key issues in venture creation including business idea development, business model, growth strategy, business plan, and fundraising strategy, etc. Concurrently, students work in teams throughout the whole semester in simulating venture formation, which ends up with business plan presentation at the end of the semester. Some successful entrepreneurs and venture capitalists will be invited in the class to share their experiences and insights.

#### MSB452 Business Model

Powerful business model will be a prerequisite for the success of business idea in business reality. Effective business modelling is supported by knowledge and insights on market opportunity and firm competences. This task requires the essential parts of theoretical frameworks of diverse fields of business administration such as the understandings of innovation, market, strategic focus, organizational competences, etc. Special attention could be paid to disruptive business or internet business model. The class will be organized to introduce major types of business models and listen to onsite experience and insightful understanding of business managers.

#### MSB472 China's Economic Development

This course deals with rapid development of Chinese economy and its impacts on other countries including Korea. Technology, economy, history, culture, socio-political issues will be discussed in order to find a win-win strategy between China and Korea.

#### MSB481 Special Topics I in Management Science

Covering additional information needed that other courses do not cover will be the specialty of this course. This course will be open flexibly.

#### MSB482 Special Topics II in Management Science

Covering additional information needed that other courses do not cover will be the specialty of this course. This course will be open flexibly.

#### MSB491 CEO Seminar

This seminar is open to KAIST students. Invited speakers will be renowned Chief Officers (e.g. CEO, CIO, CTO, CFO, etc.) in domestic and international corporations. Through this lecture, students will acquire leadership in business and economics.

### Master and Doctoral 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 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 Corporate Finance Theory

The objective of this course is to study the basic concepts, theories, and current issues of corporate finance and to introduce the researches in finance. The topics cover the areas of financial management decisions including capital budgeting, capital structure, dividend policy, IPO, M&A, corporate divestitures, valuations and other related issues. This course also covers some topics related to venture capital. This class is organized by lecture with advanced level through textbook and by seminar with classic and recent academic papers on the related topics. Upon a successful completion of this course, students are expected to have knowledge as a financial manager and understand the big picture of researches in finance. The purpose of term paper is to draw big picture of research paper in finance such as selecting topics, reviewing the related previous literature, collecting data, testing empirical analysis, interpreting the results, and making conclusion.

#### MSB536 Marketing management

This course is concerned with the development, evaluation, and implementation of marketing management in complex environments. 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 Management Information Systems

This course is designed to provide a clear understanding of the various advanced management, organizational, and ethical issues of IS for master students. Effective management of IT functions and IT resources is becoming even more compelling and significant in light on electronic (Internet) business. To achieve these objectives, a combination of various approaches including class lectures, case discussions, group projects and assignments will be offered.

#### MSB538 Organization Management

This course will address a variety of issues in Organizational Behavior and Organizational Theory. Thus, subjects to be covered will include motivation theories, individual differences, leadership, organization structure, strategy, inter-organizational relationships, organizational culture and others. It is a seminar class where students are expected to read academic journal articles beforehand and discuss their opinions in the class.

#### MSB542 Operations Research

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

#### MSB601 Research Methodologies I

This course provides basic knowledge of academic research for graduate students. This course covers diverse topics associated with academic research, including conceptualizing a research design, literature review, identifying variables, constructing hypotheses, data collection, instrument development, sampling, empirical analysis, etc. At the end of this semester, each student will complete a piece of his/her own international-conference-level paper in his/her field.

#### 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.

#### MSB614 Science, Technology and innovation policy

This course is to develop the understanding of the advanced innovation theory viewpoint on the issues of science, technology, innovation policy in order to give you more complete picture of the policy making process and outcomes. The course will be organized around four thematic blocks that will be examined sequentially: 1) notion: what is the nature of innovation, 2) framework level: what are the major theoretical foundation in systems of innovation, 3) policy design level: how can be promote and design innovation at the science, technology and innovation policy

#### 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.

#### MSB616 Global Financial Markets

Activities in financial markets have direct effects on individual's wealth, the behavior of business, and the efficiency of our economy. This course is designed to investigate i) the role of money on business cycle and inflation, ii) the structure of financial system and the foreign exchange market, and iii) conduct of monetary policy and budget deficit. iv) In addition, this course will introduce central concepts of international financial management.

#### 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.

#### MSB636 Marketing research

This course focuses on the generation of primary data to improve decisions. The course helps students determine when research should be conducted and on designing the appropriate means of gathering and interpreting information. The course examines a range of methods of data collection made possible and develops skills in converting data to useful information that will improve marketing efforts. The course uses client-based group projects, extensive assignments, and readings to develop conceptual, analytical and communication skills.

#### MSB638 Business Strategy

This class try to achieve in-depth understanding of strategic management theory which analyzes market opportunity and organizational competences, and explores or applies diverse strategic alternatives. Special attentions will be paid to emerging fields including digitalization, networking, and convergence as well as conventional fields including innovation, startup, growth, restructuring, and M&A. The class will be organized to develop in-depth academic insights for strategic management by covering major journal papers, articles, and books.

#### MSB644 Supply Chain Management

The basic theory of supply chain management will be introduced from a knowledge management viewpoint. Traditional supply chain management techniques for on-line and off-line companies will be discussed. Also, various innovative techniques will be studied through cases and academic journal papers.

#### MSB650 Information and Telecommunications Management

Strategic management issues related to information and telecommunications industry are discussed in this course. Some example issues are regulation, market characteristics, demand forecasting, diversification and vertical integration, strategic alliances, M&A, interconnection, and some current issues for emergent services. All issues are discussed based on the real cases.

#### 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.

#### MSB704 Advanced Microeconomic Analysis

Advanced Microeconomic Analysis is a course in which students learn the nuts and bolts of the consumer choice theory and production theory. After learning basics, students learn optimization and modeling techniques. This course is developed only for Ph.D. program students and requires students to take at least 500 level microeconomics, calculus and differential equations, and matrix and vector as prerequisites.

#### MSB730 Strategic Performance Management

The objectives of this class are to understand a variety of aspects of the corporate performance, cost analysis, and ROI evaluation issues as well as to study current practices of the corporate performance, cost analysis, and ROI evaluations and to apply theories and principles to the practices.

#### MSB810 Sectoral Innovation system

Of the newly industrialized countries, Korea has long been recognised as a successful follower, especially in the IT industry. Recently, however, the patterns of post catch-up innovation activities are observed in the IT products such as DRAM, Flash Memory, PDP, LCD in component areas and Wibro, T-DMB, CDMA in system areas. Moreover, Korea has been successful in implementing the standardization of MPEG and Wibro. The case study of IT products course will explore the linkage between successful mechanism and sectoral innovation system in Korea. In addition, throughout the course we will also investigate, with equal attention to, the unsuccessful IT product cases.

#### 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.

#### MSB824 E-Biz Strategy and Applications

This course is a seminar course for graduate students who are preparing thesis or research article in the area of e-Business. Several articles in each domain of e-Business are assigned to every weeks for discussion. Students will use knowledge acquired from the methodology course for preparing the report and presentation. All students are requested to complete a piece of his/her own international-conference-level paper (research proposal) at the end of this semester.

#### MSB830 Advanced Performances 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 Corporate Finance

The objective of this course is to study the current and classic theories in corporate finance, and to introduce the researches in corporate finance. The topics cover the areas of financial management decisions including capital budgeting, capital structure, dividend policy, IPO, M&A, corporate divestitures, valuations and other related issues. This class is organized by presentation of classical and recent academic papers on the related topics. Upon a successful completion of this course, students are expected to understand the big picture of researches in finance. The purpose of term paper is to draw big picture of research paper in finance such as selecting topics, reviewing the related previous literature, collecting data, testing empirical analysis, interpreting the results, and making conclusion.

#### MSB836 Advanced marketing research

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 philosophy, concepts and methods of marketing research design. The focus of seminar is on the application of advanced research methodology to marketing issues.

**MSB837 Advanced MIS**

The focus of this seminar is to engage in a critical examination and gain valuable understanding of a number of eclectic theories (in organizational areas) that often form the foundation for conducting contemporary/advanced research in Information Systems - IS. This seminar is designed to acquaint you with the theories used to examine phenomena related to the introduction, adoption, use, effects, and exploitation of information systems in organizations.

**MSB838 Advanced Organization and Management Theories**

This course analyzes the structural and behavioral aspects of organizations. Macro issues covers organizational life cycle, organizational communication, organizational culture, and planned change, while micro issues include group dynamics, management ethics, power, motivation, and decision making. Emphasis will be placed on understanding the conceptual and methodological strengths and weaknesses of the perspectives presented. It is a seminar class where students are expected to read academic journal articles beforehand and discuss their opinions in the class.

**MSB960 MS Thesis Research**

**MSB966 Seminar (MS)**

**MSB980 Ph.D Thesis Research**

**MSB986 Seminar (Ph.D)**