MBA Program in Telecom Management

"Telecom technology wars have diminished in importance with increased standardization over IP, while the war for users is just heating up"
- IDC Report, February 2007

Telecommunication markets are being revolutionized by the rapid adoption of broadband technologies, wireless technologies, Internet Protocol (IP)-based networks, and by the convergence of previously distinct voice, data, and video networks. Over the past two decades, most worldwide telecommunications markets have completed the transformation from monopoly to competition. The innovative telecom technologies and services coming into the market can provide significant benefits to consumers and businesses. Service providers are operating in a fast-changing environment driven by technology, competition and regulatory change. End users are demanding fast, personalized, easy-to-use communications. Worldwide telecommunications and communications equipment market forecast indicate strong growth in existing markets of $280 billion in 2006 are anticipated to reach $630 billion by 2012. Key needs for telecom operators are higher volumes and new services to sustain revenue growth and improved cost efficiency to protect margins. The telecom market is expanding substantially in some regions of the world while it is consolidating or moving up the service value ladder in other regions. Now again, it is gearing up for unprecedented growth due to advancement in IP and data technologies, falling price points and emergence of Next generation networks (NGNs). Global trend looks very positive, particularly with the eventual takeoff of NGN networks based on IMS, SIP, and soft-switching in Asia and in North America following the lead taken by Europe, Japan and Korea. Today's business decision-makers need deeper understanding of the markets they operate in. Along with thorough insight about the markets and its inherent dynamics, they should also be abreast of the latest events in their area of operation as they face unprecedented challenges created by extremely competitive environment. There is tremendous competition between existing and new telecom service providers. This is due to incumbents are trying to retain their market share while new players are aggressively pursuing higher market share. In order to be commercially viable, both incumbent carriers and new entrants are making efforts to out pace competition by diversifying into innovative value added services, trying innovative strategies and applying innovative business models, while other carriers are moving towards high growth developing markets of Asia, Africa and Latin America with the help of mergers and acquisitions. There are many questions that need answers, what technologies and platforms should be supported and when? What features and types of solutions should be added and when? Which product lines be consolidated or vertical be looked upon? How solution providers position themselves? How to bill consumers for them? And how to regulate an environment where telecom, computing and broadcasting are all combined on one platform. This MBA Program in Telecom Management is devised to prepare the students to handle all such challenges in the fastest growing networking and telecom industry. The program provides comprehensive, theoretical, practical and real life knowledge associated to telecom business as demanded by the industry today and for the future.

Program

This autonomous, four semester, 24-month, 78 Credits, full-time MBA Program in Telecom Management is designed to equip the students to accept the responsibilities in:
- Business Management empowered by advances in ICTs
- Managing Networking and Telecom enterprises
- Entrepreneurship in Telecom Sectors
- Converging Next Generation Communication Networks
- International Business and Marketing for Telecom
- Career Advancement of Professionals

Program Structure

- Successful completion requires 78 Credits.
- The program is distributed over four semesters.
- The entire curriculum is distributed over four levels to aim at transcending the students' level of understanding for corporate readiness. The levels are respectively, Foundation, Core, Advanced, and Internship/Mini-project.
- Students have to carryout two months internship/mini-project in specified semester to consolidate the knowledge acquired during the study.

Program Pedagogy

All courses are designed to address the key areas like theoretical foundation, practical relevance and the real life problem solving approach. To achieve that courses will be delivered using collaborative learning process through classroom lectures, laboratory sessions, assignments, student seminars, lectures by industry experts, case studies, relevant industry visits and internship/mini-project.

Distinctive Features

- Complete course curriculum designed to meet modern Telecom Business Management requirements.
- Theory and laboratory sessions to gain experience of practical situations in carrier class networks and convergence technologies.
- Enough emphasis of communication and presentation skills
- Exposure to the internetworking, access and backbone telecom technologies.
- Exposure to global telecom regulations, policies and standards.
- Exposure to Enterprise Resource Planning
- Coverage of operation support systems and billing support systems.
- Tandem teaching methodology, integrating management and telecom - theory and practice with emphasis on case studies and simulations.
- Expert lectures, seminars, and case studies by leading experts from industries.
- An option to work on projects, which require working with faculty members and students from other streams such as advanced networking and telecommunications, wireless technologies, software technologies, embedded systems, VLSI and other business management programs.

Eligibility

- Graduates with a Bachelor's Degree (with minimum 50 percent marks) of at least four years' duration in Electrical / Electronics / Communication / Computer Science / Information Technology or equivalent
- Basic knowledge of Communication Systems and Programming

Program Commencement

The program commences in July / October.

Selection Process

The selection of an applicant for the course is based on the following:

- Application forms shall be scrutinized for academic profile in line with the eligibility criteria
- Scores received at the Graduation level
- Scores received at the "Accepted Qualifying Examinations" like GRE / GMAT / XAT / CAT / GATE & Performance in the Entrance Test
- Personal Interview

Evaluation and Certification

- Continuous evaluation and performance improvement program
- Course-wise Credits
- Balanced assessment based on internals, mid-term test, laboratory and final theory examinations and project
- Detailed transcripts along with certificate

Placement Assistance

- Career guidance at the institute
- Pre-placement facilitation / development and Campus Interview by leading Industries
- Active interface with Technology and user companies
-

Basic Courses

COM 001: LIFE SKILLS DEVELOPMENT

This basic course prepares students for the rigors of the master's level program and professional careers that will follow. The course is divided into 9 sections that will be conducted throughout the program. The course stresses on: communication and presentation, leadership development, working in teams, time management, negotiation skills, stress management through yoga, multicultural and diversity management and offsite experiential learning. The ultimate objective of this course is to develop individuals with high Intelligence, Emotional and Spiritual Quotients (IQ, EQ and SQ).

COM 002: FOREIGN LANGUAGE (Level 1)

In order to equip students to take up global careers, a choice of foreign languages as a major subject is offered. Medium of instruction is English.

Foundation Courses

MBA501: FINANCIAL STATEMENT ANALYSIS (3 Credits)

This course focuses on the service activity designed to gather and communicate financial information about business entities to make informed decisions as to how best to use available resources. Students will be introduced to basic accounting principles and conventions, accounting standards, costing and budgeting, financial reporting and recent developments in accounting. This course will also emphasize the understanding, interpretation and use of important accounting statements such as the Profit and Loss, Balance Sheet, Sources and Application of Funds and Cash Flow Statements.

MBA504: MANAGERIAL COMMUNICATION (3 Credits)

An in-depth, intensive and practically oriented study of the effective use of Managerial Communication in an organization. Topics include writing skills, presentation skills, group discussion skills, interview skills, soft skills, interpersonal skills, communication in organizational settings, communicating in teams and meetings, group dynamics, business etiquette and cross cultural communication.

MBA 531: PRINCIPLES OF MANAGEMENT AND THE BUSINESS ENTERPRISE (3 Credits)

An introduction to the principles and practices of management so as to understand the tasks and functions of management in a global environment. Topics include Evolution of management, Functional areas of business, Team concept, MBO, Organization Structure, PERT, JIT, TQM, Quality Circles, Motivation, Business Ethics and policy making.

MBA541: ORGANIZATION BEHAVIOR (3Credits)

An introduction to how individuals, groups and structure affect the behavior within organizations and how such knowledge can be used to improve the organization's effectiveness. Topics include values, attitudes, personality, perception, motivation, leadership, communication, ethics, power and politics and foundations of group behavior.

MBA561: BUSINESS STATISTICS (3 Credits)

This course focuses on basic statistics – theory and methods to be applied in most of the other MBA courses that follow. Topics include univariate and bivariate descriptive statistics, elementary probability theory, the Bernoulli, Poisson and Normal data generating processes, the Binomial, Poisson and Normal probability distributions, the concepts of population and sample, elementary sampling theory and methods, population parameters and sample statistics, introduction to estimation, inference and hypothesis testing, and introductory regression analysis.

ITM501: PROGRAMMING METHODOLOGIES (2 Credits, T=1 L=1)
This course introduces to different types of programming structures and program processing like interpretation and compilation. Focuses on the procedural and object oriented programming techniques using C and C++ with objective to learn basic data types, control structures, iterations, functions, arrays, pointers and object oriented programming using concepts of classes, inheritance, polymorphism, and memory management.

ITM504: DATABASE TECHNOLOGY (2 Credits, T=1 L=1)
This course focuses on of the role of database systems in information management, and the theoretical and practical issues that influence the design and implementation of database management systems and languages. The entity-relationship modeling, normalization of data and SQL to create, update, modify and query a database are extensively covered.

TCM501: INTRODUCTION TO TELECOM INDUSTRY (1 Credit)
This course focuses on the evolution of telecom industry starting from government owned to completely private sector. It discusses the overview of various telecom domains, issues, challenges, business growth, and strategies. It also gives glimpse on the foreseen challenges on telecom business due to convergence of the telecom networks and its future perspective.

TCM502: DATA COMMUNICATION AND NETWORKS (2 Credits)
This course provides an understanding of local area networks as well as internetworking technologies and the associated protocols. Students will learn fundamental concepts of communication protocol stacks: OSI and TCP/IP, features and different protocols for different layers, IP addressing schemes, subneting, LAN, MAN, WAN fundamentals, circuit and packets switching, multiplexing, networking devices, network protocols, standards, Internet, Intranet, PPP, network security and allied technologies.

TCM503: INTRODUCTION TO TELECOM TECHNOLOGIES (2 Credits)
This course shall emphasis on developing an understanding of the underlying principles of telecommunication transmission, evolution of telecommunication systems, switching systems and networks, switching techniques, stored program control, traffic engineering, grade of service, blocking probability, numbering and charging plan. It also covers the communication technologies such as ISDN, X.25, frame relay, ATM, B-ISDN, SONET / SDH, advanced voice communication techniques such as voice over IP, Media Gateway Control Protocol, H.323, SIP, and future of multimedia services. QoS issues in telecom and allied topics.

TCM504: NETWORKING LABORATORY (1 Credit)
This laboratory consists of assignments and hands-on related to networking and telecom technologies studied during the semester. Students will be exposed the associated hardwares and softwares in the laboratory sessions.

Core Courses

MBA611: ENTERPRISE RESOURCE PLANNING – I (3 Credits)
This course would enable the students to understand the concept of Enterprise Resource Planning or ERP; its functional modules and their inter-relationships. The managerial and technical issues in planning, designing, implementing, and extending enterprise systems and technologies will be an integral part of the course. Further, the course will include orientation to the use of software for modeling and mapping business processes.

MBA621: CORPORATE FINANCIAL MANAGEMENT (3 Credits)
An introduction to the fundamental valuation techniques used in finance. Topics include the wealth maximization perspective, time value of money, capital budgeting and project evaluation, introduction to capital markets, risk, security valuation, corporate capital structure and the 'no arbitrage' argument.

MBA641: HUMAN RESOURCE MANAGEMENT (3 Credits)
An introduction to the HRM (also known as Personnel Management) function in organizations. Topics include job and content analysis, selection, recruitment, compensation, orientation, training and development of the work force, performance management, workplace and occupational health and safety, industrial relations and their legal framework.

MBA651: MARKETING MANAGEMENT (3 Credits)
An introduction to the Marketing function in organizations. This course provides exposure to the basic concepts and terminology in Marketing Management – the 4 P's of Marketing, consumer behavior, segmentation, channels, product life cycle, pricing and marketing strategy. It will serve as a base for other courses in Marketing, which are primarily application oriented in nature.

TCM611: MANAGERIAL ECONOMICS (2 Credits)
The course is designed to equip the students with knowledge and skills necessary to tackle the complex strategic decisions related to economics. It covers the fundamentals of managerial economics, scope of macro-and microeconomics, demand and supply, costs of production and the organization of the firm, market structure and output decisions, pricing strategies and allied topics.

ITM601: INFORMATION MANAGEMENT SYSTEMS (2 Credits)
This course focuses on the various information management concepts and practice in the industry like MIS, EIS, DSS, GDSS. Students will learn the theory of these approaches and practical would be conducted on various tools providing a wide scope to understand the functioning and purpose of each of these concepts.

TCM612: WIRELESS TECHNOLOGIES (2 Credits)
This course gives the introduction to wireless technologies and its evolution. Its begins with discussion on antennas and propagation, spread spectrum theory, cellular mobile telephone architecture, characterization of wireless channel, including path loss and fading effects. It also discusses the role of various organizations such as ITU, IEEE, ETSI, TIA/EIA, ANSI and others, which are involved in standardization of wireless technologies. In the latter part of the subject, the introduction to the technologies such as 802.11 standards (WiFi), Bluetooth, 802.16 (WiMax), GSM, cdmaOne, GPRS, EDGE, 1xRTT, 1xEVDO, 1xEVDV, CDMA2000, UMTS and MANETs and senor area is also covered.

TCM613: PRINCIPLES OF BROADBAND TECHNOLOGIES (2 Credits)
This course focuses on principles and the necessity of broadband technologies and networks. The topics covered include wire-line broadband access such as digital subscriber lines, leased lines, cable modems, integrated services Digital Network (ISDN), Asynchronous Transfer Mode, B-ISDN, DOCSIS standards, passive optical networks, FTTH and FTTx technologies, various customer premises equipments, home network solutions, introduction to wireless broadband access technologies: LMDS, MMDS, WLL, optical wireless and allied technologies

AST608: SOFTWARE ENGINEERING (2 Credits)
This course provides a comprehensive analysis of software engineering techniques and shows how it can be applied in practical software projects, with an object-oriented approach. This course extensively covers software process technology, system integration and requirements management.

TCM614: QUALITY MANAGEMENT SYSTEMS (2 Credits)
This course emphasizes on fundamentals, principles, techniques and implementation of total quality management (TQM) to ICT organizations. It also covers various TQM tools, models, and strategy for TQM, principles and practices of concurrent engineering, quality function, and allied topics.

TCM615: WIRELESS AND TELECOM LABORATORY (1 Credit)
This laboratory consists of assignments and hands-on related to wireless and telecom technologies studied during the semester. Students will be exposed the associated hardwares and softwares in the laboratory sessions.

Advanced Courses

MBA 711: ENTERPRISE RESOURCE PLANNING – II (3 Credits)
This course will enable the students to have a hands-on exposure to configuring and running some of the basic and core functional processes. The objective here is to make them understand the importance of business process integration with respect to the three basic business systems, namely, Accounting, Materials Management and Sales. The students will do a set of exercises using SAP as the ERP platform. The focus will be on the procurement and the sales cycles.

TCM711: INTERNATIONAL BUSINESS AND MARKETING FOR TELECOM (2 Credits)
This course describes and analyzes the structure and function of international money and capital markets, the economics of foreign exchange markets, export/import finance, and international financial institutions. It also examines the international business environment and management practices, international marketing management, considering the customer to the exporter to the multi-national or global firm.

TCM712: TELECOM STANDARDS, POLICIES AND REGULATIONS (2 Credits)
This course provides an understanding of the various telecom standards, and standardization bodies such as ITU, ANSI, TIA/EIA, IETF and others. It also focuses on major regulatory bodies and their policies that govern various types of telecommunications services, including the broadcast spectrum of radio, cellular, satellite, wireline telecom, Internet, and the rationale for such regulations and a critical view of regulatory issues, Indian telecom policy.

TCM713: CONVERGENCE OF TELECOM NETWORKS (2 Credits)
This course covers signaling in wire-line networks, Intelligent Network (IN) standards, and issues related to the converging telecommunication networks. It starts with the discussion with Signaling System Number-7 (SS7), Intelligent Network (IN) architecture, AIN, other architectures such as TINA and Parley. It also emphases on Next Generation Networks (NGNs), under which the convergence issues for PSTN/ISDN and various networking and telecom technologies and multiple play services, proposed architectures, IP Multimedia Subsystems (IMS) and associated services will be discussed discussed.

TCM714: TELECOM NETWORK MANAGEMENT AND SECURITY (2 Credits)
This course covers concepts of network management, performance measurements and security issues involved in widely deployed Network Management includes study of protocols such as SNMP, RSVP, concepts of traffic shaping and congestion management, Telecommunications Management Network (TMN), introduction to widely used network management systems such as Computer Associate's Unicenter. The topics covered on network security include security threats, attacks, firewall technologies, proxy services, Cryptography and hashing, tunneling protocols, public key encryption, authentication technologies, public key infrastructure, digital certificates, internet security protocols, wireless application protocol (WAP) security, various user authentication mechanisms like Kerberos, single sign on, introduction to ethical hacking and allied topics

TCM715: VALUE ADDED SERVICES IN TELECOM (2 Credits)
This course provides the understanding for developing telecom applications by using PERL, HTML and CGI. It focuses on development of value added applications such as games, extension of existing services for revenue generation for the service provider. This course includes assignments and case studies related to software development in telecom.

NTC 824: OSS AND BSS (2 Credits)
This course covers telecom network operations and management, traffic management, network management, service provisioning/activation, and service level agreements (SLAs). It also focuses on management issues such as implementing service level management, telecommunications management network (TNM) for OSS and BSS, telecom operations map (TOM), extended telecom

operations map (e-TOM), network inventory management, configuration management, fault management, web based telecommunications systems management, trouble ticketing, unified messaging service, operations and billing support systems, decision support systems, customer care and allied topics. Theory topics taught shall be supported with relevant case studies.

TCM716: TELECOM BUSINESS MANAGEMENT (2 Credits)

This course covers network rollout, capital expenditure, operational expenditure considerations, return on investments, payback period, integration of finance and operation, brand management: services, advertisements, spectrum management and auction, project management, time management, man power management, cost management and validation, order management, billing, inventory, customer care and also integration of applications using middle ware like TIBCO.

TCM717: TELECOM PROJECT MANAGEMENT (2 Credits)

This course introduces project management fundamentals and principles from the standpoint of the manager who must organize, plan, implement, and control non-routine activities to achieve schedule, budget and performance objectives for telecom domain. Topics include project life cycles, organization and charters; work breakdown structures; responsibility matrixes; as well as planning, budgeting and scheduling systems, planning and control methods.

MBA811: ENTERPRISE RESOURCE PLANNING – BUSINESS CASE (3 Credits)

This course will present a comprehensive business case scenario on the configuration of the functional modules of ERP using SAP. The objective here is improving the students' level of knowledge of business process integration with respect to the more functional processes of the business. The students configure and run additional modules like controlling, production and quality thereby creating a virtual firm in the ERP environment in order to enable them to test their business configuration with the basic functional cycles in accounting, inventory, sales, controlling, production and quality.

TCM718: TELECOM NETWORKS: INDIA AND GLOBAL PERSPECTIVE (2 Credits)

This course will focus on the telecom industry for India as well as global perspective, explaining the industry players and relations, the market dynamics, the current state of the sector, emerging technologies and challenges, convergence issues, the regulatory environment, the functioning of competition, the current outlook and the market challenges and opportunities from the view points such as vendors, service providers, industry, professionals and customers.

TCM719: TELECOM LABORATORY (1 Credit)

This laboratory consists of assignments and hands-on related to telecom technologies studied during the semester. Students will be exposed the associated hardwares and softwares in the laboratory sessions.

Internship/Mini Project

TCM901: INTERNSHIP / MINI-PROJECT (3 Credits)

Students can take up an industry-sponsored project or a research based in-house project leading to Master's level competency. For industry-sponsored projects, the Career Management Center facilitates interaction between students and the industry. Students are encouraged to work on projects that will enhance their understanding in certain technology domains in real-life scenario. The research project includes researching on the given/chosen seminar topic that will generally be state-of-the-art in the field and then delivering the seminar to peers and faculty along with its documentation in the prescribed IEEE format. Following the seminar the student has to undertake a research project under the guidance of tenure track/visiting faculty/and industry experts. The research project has to be submitted in the form of a dissertation that will be examined by experts nominated by the institute. The research project is the culmination of the student's learning in the institute and is expected to be of high standards as demanded by the industry from time to time.

Total Course Credits: 78

NOTE: Foreign language is an independent certificate program, compulsory for all students.

Course Structure

	Code	Course Name	Credits*
FOUNDATION	MBA501	Financial Statement Analysis	3
	MBA504	Managerial Communication	3
	MBA531	Principles of Management and the Business Enterprise	3
	MBA541	Organization Behavior	3
	MBA561	Business Statistics	3
	ITM501	Programming Methodologies	2
	ITM504	Database Technology	2
	TCM501	Introduction to Telecom Industry	1
	TCM502	Data Communication and Networks	2
	TCM503	Introduction to Telecom Technologies	2
	TCM504	Networking Laboratory	1
CORE	MBA611	Enterprise Resource Planning – I	3
	MBA621	Corporate Financial Management	3
	MBA641	Human Resource Management	3
	MBA651	Marketing Management	3
	TCM611	Managerial Economics	2
	ITM601	Information Management Systems	2
	TCM612	Wireless Technologies	2
	TCM613	Principles of Broadband Technologies	2
	AST608	Software Engineering	2
	TCM614	Quality Management Systems	2
	TCM615	Wireless and Telecom Laboratory	1
ADVANCED	MBA711	Enterprise Resource Planning – II	3
	TCM711	International Business and Marketing for Telecom	2
	TCM712	Telecom Standards, Policies and Regulations	2
	TCM713	Convergence of Telecom Networks	2
	TCM714	Telecom Network Management and Security	2
	TCM715	Value added Services in Telecom	2
	NTC824	OSS and BSS	2
	TCM716	Telecom Business Management	2
	TCM717	Telecom Project Management	2
	MBA811	Enterprise Resource Planning – Business Case	3
	TCM718	Telecom Networks: India and Global Perspective	2
	TCM719	Telecom Laboratory	1
Internship/ Mini Project	TCM901	Internship/Mini-Project	3

* 1 Credit Hr = 16 Class Hrs / 32 Lab Hrs in a semester.