

## FOUNDATION COMMITMENT AGREEMENT

THIS FOUNDATION COMMITMENT AGREEMENT (this "Agreement") is entered into as of March 15, 1993 between VINOD GUPTA CHARITABLE FOUNDATION, a Nebraska not-for-profit corporation (the "Foundation") and INDIAN INSTITUTE OF TECHNOLOGY, Kharagpur, India ("IIT").

### PRELIMINARY STATEMENTS

Foundation and IIT entered into that certain Memorandum of Understanding dated November 16, 1991 (the "Memorandum") pursuant to which Foundation agreed to provide IIT with certain financial support in connection with IIT establishing a School of Business Management (the "School"). Foundation and IIT desire to supersede the understanding set forth in the Memorandum by entering into this Agreement.

### AGREEMENT

Section 1. *Annual Contributions.* Subject to the terms and conditions set forth in this Agreement, Foundation shall contribute to IIT annually for ten years the sum of \$190,000 in immediately available funds (the "Annual Contributions"). The Annual Contributions shall begin on April 1, 1994 and continue on the first day of April each year thereafter through April 1, 2003.

Section 2. *Lump Sum Contribution.* In addition to the contributions described in Section 1 of this Agreement, and subject to the terms and conditions set forth in this Agreement, Foundation shall contribute to IIT on April 1, 2003 the sum of \$1,900,000 in immediately available funds (the "Lump Sum Contribution"). IIT shall invest, and reinvest, the Lump Sum Contribution in perpetuity in government securities or in securities which are of comparable safety and security, and the interest generated by such securities shall be used by IIT solely to pay operating expenses of the School.

Section 3. *Obligations of IIT.* The following will be the obligations of IIT:

- (a) The School shall be named and operated continuously as the "Vinod Gupta School of Business Management."
- (b) The School shall have been established and shall be operating substantially in accordance with the requirements set forth in the attached Exhibit A.

*John J. Gupta*

(c) The Annual Contributions and the Lump Sum Contributions will be used solely for the payment of the School's operating expenses.

(d) IIT's representations, warranties and covenants set forth in Section 4 of this Agreement shall be true and correct.

Section 4. *Representations and Warranties.* IIT represents, warrants and covenants to Foundation, as of the date of this Agreement and at the time of each Annual Contribution and the Lump Sum Contribution as follows:

- (a) IIT is organized and operated exclusively for charitable, scientific, literacy or educational purposes;
- (b) No part of IIT's net earnings enure to the benefit of any individual; and
- (c) IIT has not nor will it attempt to influence legislation or participate in, or intervene in (including the publishing or distributing of statements) any political campaign on behalf of (or in opposition to) any candidate for public office.

Section 5. *Default.* IIT shall be in default under this Agreement if it shall breach any provision of this Agreement and, following Foundation's notice to IIT of such breach and the passage of 30 days following delivery of such notice to IIT, IIT fails to cure the breach. Upon the occurrence of such a default, Foundation may, in its sole discretion, terminate this Agreement and upon such termination all obligations of Foundation to IIT shall be terminated.

Section 6. *Assignment or Delegation.* No rights, obligations or duties of IIT hereunder may be assigned or delegated.

Section 7. *Severability.* Should any provision of this Agreement be deemed unenforceable by a court of competent jurisdiction, the unenforceable provision shall be considered severed from this Agreement and the remainder shall remain in force.

Section 8. *Entire Agreement.* This Agreement contains and constitutes the entire agreement of the parties regarding the subject matter hereof, and there are no other agreements, written or oral, between the parties affecting the subject matter hereof. This Agreement supersedes in its entirety the Memorandum.

Section 9. *Notices.* All notices or other communications to be given hereunder shall be given in writing and delivered by (i) certified mail, return receipt requested, (ii) personal delivery, or (iii) overnight express carrier addressed as follows:

If to IIT: Indian Institute of Technology  
Kharagpur, 721 302, India  
Attention: Director

If to  
Foundation: Vinod Gupta Charitable Foundation  
5711 South 86 Circle  
Omaha, Nebraska 68127  
Attention: President  
Telecopy: 1-402-339-0265

With a  
copy to: Steven W. Seline, Esq.  
Kutak Rock  
1650 Farnam Street  
Omaha, NE 68102

or to such other address furnished by either party to the other in writing at any time and from time to time for such notice purposes. Any notice served by either party on the other shall be deemed effective the fifth business day following deposit in the mail if sent by certified mail, return receipt requested, when received, if delivered personally, or the next business day following deposit with an overnight express carrier.

Section 10. *Nonwaiver.* No delay, forbearance or neglect by Foundation or IIT in the enforcement of any of the conditions of this Agreement or any of IIT's or Foundation's rights or remedies hereunder shall constitute or be construed as a waiver thereof. No waiver of any of the conditions of this Agreement by IIT or Foundation shall be effective unless expressly and affirmatively made and given by IIT or Foundation, as the case may be, in writing.

Section 11. *Amendments.* This Agreement may not be modified or amended, except by an agreement in writing signed by the parties hereto.

IN WITNESS WHEREOF, the parties have caused this Agreement to be executed as of the date and year first above written.

VINOD GUPTA CHARITABLE FOUNDATION

By Vinod Gupta March 15, 1993

Vinod Gupta, Director

By Jon D. Hoffmaster

Jon D. Hoffmaster, Director

By Terry Fairfield

Terry Fairfield, Director

By Gautam Gupta

Gautam Gupta, Director

INDIAN INSTITUTE OF TECHNOLOGY

By Kasturi Lal Chopra

Director : Kasturi Lal Chopra

Director,

Indian Institute of Technology

By Not Applicable

Chairman of Board of Governors

Witnessed By:

Sudesh Chander  
Registrar : Sudesh Chander

**EXHIBIT A**  
**OPERATING REQUIREMENTS**

1. ***Masters Program.*** The School will offer a Masters Program in Management in accordance with the curriculum described in the attached Schedule I. The Master Program will award a masters degree of business management or business administration. Admission to the Masters Program will be given in the following order of preference:
  - (a) engineering graduates with at least two years of engineering work experience;
  - (b) B. Tech (Hon.) students of IIT who have completed certain prescribed additional course requirements;
  - (c) graduates in engineering from other institutions; and
  - (d) practicing industrial managers of long-standing with requisite nonengineering qualifications.
2. ***Executive Development Program.*** The School will offer an Executive Development Program in accordance with the curriculum described in the attached Schedule II.
3. ***Faculty.*** The School will have a full time faculty consisting only of members recognized in the academic and business communities for their expertise in the areas of financial management, economics, accounting, marketing management, business policy, business law and personnel management.
4. ***Dean.*** The School will be headed by a Dean appointed by and reporting to the Director of IIT.
5. ***Accreditation.*** Within three years of the date of this Agreement, the School shall have received the necessary accreditation awarded to graduate business schools in India.
6. ***Facilities.*** IIT shall provide all facilities required for the operation of the School, including, without limitation, classroom facilities; access to IIT's library system; computer facilities; communication facilities; faculty and support staff offices; technology laboratories; and the Continuing Education Complex.

SCHEDULE I

**CURRICULUM FOR  
M.Tech in (Business) Management**

The 18 month M.Tech Course in (Business) Management is designed to meet the tests of both academic rigour and practical applicability. Students completing this can opt for further studies or a professional career.

**The programme consists of**

- » Core courses to be covered in the autumn and spring semesters.
- » Specialisation courses to be covered in the 16 weeks immediately following the spring semester (extending into a small portion of the following autumn semester).
- » Thesis to be carried out in the remaining part of the autumn semester.

Core courses represent the fundamental levels of competence that the M.Tech student in management must demonstrate before proceeding with the specialisation. These courses are designed to provide a basic understanding of the different functional areas of management and their interrelationship together with the integration of the firm with its *surrounding political, social, legal and economic environments*.

**Subjects of study in Core Programme**

1. Probability and Statistics
2. Micro and Macro Economics
3. Social, Political and Technological Environment
4. Legal Aspects of Business
5. Accounting and Finance I
6. Marketing Management
7. Human Resource Management
8. Operations Management
9. Quantitative Methods
10. Strategic Management
11. Management Information and Database Management systems
12. Computers for Management Laboratory (sessional)
13. Communication Skills (sessional)

## **COURSE CONTENT**

### **1. Probability and Statistics**

Sets and probability; Mathematical expectation; Special Probability distributions; Sampling theory; Estimation theory; Tests of hypothesis and significance; Regression and correlation; Analysis of variance.

### **2. Micro and Macro Economics**

Theory of demand; Theory of Production and Cost; Price determination under different market structures such as competition, monopoly, oligopoly; Theory of income distribution.

Working of macro-economic system; Concepts such as national income and product; Theory of income determination; The economic role of Government; Fiscal policy; Monetary policy and banking system; Economic growth, unemployment; inflation; balance of payments.

Use of econometric models in business and government; Methods of econometric estimation; Single equation and simultaneous equation models; Least and maximum likelihood methods.

### **3. Social, Political and Technological Environment**

Focuses a common orientation towards business as a unit in a complex social, political and technological domain in national and international perspective.

Industrial sociology; factory system; Development of Society; Industrial Revolution; Political and social history of India before and after colonialism; Business in pre-British, British and after British India; Five year plans; Development of Industrial and Business policies; Trends in the past 40 years.

History of science and Technology; Mechanisation and automation; social impacts; Technology impact on business; Information revolution; Technology forecasting and choice of appropriate technology; Technology policy issues.

### **4. Legal Aspects of Business**

Course is to create an awareness of the law pertaining to industrial relations, marketing, financing, accounting policy and purchase decisions in which a business operates.

Contract act; Company law; Sale of goods act; Negotiable instruments act; Patents and trademarks acts; Income tax and wealth tax; Central and local sales taxes; Transfer of property act; Constitutional provisions regarding control and regulation of industries and foreign exchange regulations act; Bonus act 1975; Central excise and sea customs act; import export regulations.

Major provisions of Factory act; Industrial Disputes Act; Workmen Compensation act; Payment of wages act; Trade union act; Securities and exchange regulation

## 5. Accounting and Finance I

Basic accounting concepts; Preparation of financial statements; Classification of costs; Allocation, apportionment and absorption; Cost centres; Different costing systems; Cost analysis for managerial decisions.

Finance function – relationship with other functional areas; Ratio analysis, risk-return trade-off; Financial forecasting – proforma, income statement and balance sheet, cash-flow forecasting under uncertainty, financial planning; Working capital management; Time value of money, Investment analysis – cash flow determination, cost of capital, capital budgeting methods, processes and system, capital rationing, Capital structure planning – operating and financial leverage, Dividend policy.

## 6. Marketing Management

Overview of marketing – Importance and scope of marketing; Environments for marketing strategies; Markets and segmentation – market segmentation and sales forecasting; Consumer and organisational buying behaviour; Product and pricing strategy – Product and service concepts; Pricing concepts and practices; Placement Strategy- Channels and wholesaling; Retail marketing; Distributing goods; Promotion Strategy – Advertising sales promotion and publicity; Marketing Research.

## 7. Human Resource Management

Relationship between personal function and the overall operation of the firm; Human Resources Planning; Role of Government; Effect of environment at enterprise level; Labour participation in management; Job evaluation; Work motivation and productivity; Compensation administration; labour policy and labour legislation; Human Resources Development; Selection, Appraisal and Training; Labour – management relations.

## 8. Operations Management

Production/Operations systems and processes – Productivity of Operations – work study and work measurement – human factors in work system design – Plant location, layout and maintenance, Operations planning and control; materials management; manufacturing technology options and choice; quality management.

## 9. Quantitative Methods

Deterministic OR models and solution techniques; mathematical modeling; Linear programming and extensions – Dynamic and integer programming; Non linear optimisation; Game theory and Network optimisation; Queueing theory; Discrete event simulation with computer support.

## 10. Strategic Management

Emphasis on strategic planning. Point of view is that of top management. The scope and discussion is that of total enterprise and not that of departments or enterprise functions. Basic concepts discussed include – concept of strategy, setting corporate objectives, evaluation of corporate strengths and weaknesses, strategic planning, corporate planning and corporate development, the mechanics and implementation of planning, corporate modelling, planning

and control, resource allocation, acquisitions and divestiture, consideration of alternative theories of planning / control and strategic management; environmental scanning and incorporation of critical external factors in the planning process; implementational aspects of strategic planning.

#### 11. Management Information and Database Management systems

Framework for the design of MIS – MIS perspective, structure of MIS; characteristics of management control systems; approach to developing computer based MIS, information technology, office automation, local area networks, and computer communications; Information System Analysis and Design – elements of computer system analysis and design; systems, life cycle; data flow diagram; data dictionary; tools for representing process logic; system implementation.

The features and capabilities of generalised data base management systems including system classification, Comparison of software features; Evaluation of different types of database management systems; distributed vs. centralised systems; data security; database approach to dealing with the changing corporate and personal information needs; Design and implementation of a database using a relational DBMS; Hierarchical, network and relational models; emphasis on issues of logical and physical design, database administration, concurrency control and maintenance.

#### 12. Computers for Management (Laboratory)

Basics of computer hardware; components and architecture; data and control flow; memory; peripheral devices; Sequential and random access devices; Networking; parallel processing.

Programming: Concepts of data structures; Analysis of algorithms; structured programming; Concepts of fields, records and files; Use of flow charts, decision tables, HIPPO charts and other tools; File handling and transaction processing; Programming practice (e.g. C); Operating systems for multi-user (e.g. UNIX) and Personal computers (e.g. DOS).

Computer Simulation – Modelling of real world systems; simulation languages and selection criteria; validation of the model; Design, implementation of discrete event simulation models; use of general purpose simulation languages; Presentation of results. Exercises to familiarise the student with the framework within which decision support systems (DSS) are developed; Study and analysis of real world situations.

#### 13. Communication Skills

Course is designed to help sharpen the skills of oral and written communication relevant to managerial situation

Exercises in expository, descriptive, argumentative, narrative and investigative writing; Instruction in logical analysis, assessment of evidence, delineation of assumptions and validation of solutions; Presentation of reports in clear and effective prose with emphasis on logic, structure, coherence and style; defining the problem and highlighting the options relevant to managerial decision making; Development of oral communication skills – persuasion, personality projection, methods of holding audience attention, visual aids, organisation and delivery.

**M. Tech IN (BUSINESS) MANAGEMENT**  
**Specialisation areas**

**1. ACCOUNTING AND FINANCIAL MANAGEMENT**

- AF1 Financial and Cost Accounting II
- AF2 Management Control Systems
- AF3 Corporate Finance
- AF4 Security Analysis and Investment Management
- AF5 Financial Theory and applications
- AF6 Project Management
- AF7 Financial Management (Sessional)

**2. MARKETING MANAGEMENT**

- MM1 Advanced Marketing Management
- MM2 Product and service policies
- MM3 Consumer Behaviour and Marketing Research
- MM4 Advertising and Promotion Strategy
- MM5 Sales and Distribution Management
- MM6 Industrial Marketing
- MM7 Marketing Management (Sessional)

**3. HUMAN RESOURCES MANAGEMENT**

- HM1 Personnel Policy and Management
- HM2 Industrial relations
- HM3 Compensation Management
- HM4 Organisational Development
- HM5 Labour Legislations
- HM6 Organisational behaviour
- HM7 Seminar

**4. OPERATIONS MANAGEMENT**

- OM1 Management of Production systems
- OM2 Materials Management
- OM3 Forecasting methods for management
- OM4 System Simulation
- OM5 Designing for quality
- OM6 Quality Management
- OM7 Production system Laboratory

## **5. SYSTEMS MANAGEMENT**

- SM1 System Analysis and Design
- SM2 Decision Support Systems
- SM3 On-line and Network-based Systems
- SM4 Intelligent Management Systems
- SM5 Computer Control of Systems and Processes
- SM6 Human Computer interaction
- SM7 Design of information system (project)

## **6. INTERNATIONAL MANAGEMENT**

- IM1 International Economics
- IM2 International Finance
- IM3 International Marketing
- IM4 International Industrial Relations
- IM5 The Firm in International Business
- IM6 International Business Law
- IM7 Seminar

## **7. BUSINESS POLICY**

- BP1 System Dynamics and Policy Planning
- BP2 Strategic Thinking and Corporate Vision
- BP3 Management Policy Simulation
- BP4 Methods for Long Range Forecasting
- BP5 Technology Management
- BP6 New Enterprise and Small Business Management
- BP7 Business Policy Seminar

## **ACCOUNTING AND FINANCIAL MANAGEMENT**

*Accounting treats the analysis of business transactions and the recording of their financial effects. Finance concerns with the ways in which individuals and firms allocate resources over time. Finance studies include examination of funding markets and processes for financing enterprises as well as effects of prices and interest rates on assets and liabilities.*

### **AF1 Financial and Cost Accounting II**

*Cost accounting budgeting and control: Control of manufacturing and non manufacturing expanses; performance appraisal, evaluation of cost control systems; Management accounting; Human resource accounting; Value-added planning and accounting; Corporate financial accounting; Company audit; statutory*

provisions; Inflation accounting; Indian financial system; Capital market and investment environment; Financing decisions; equity, debentures, rights issue; valuation of shares, assets and goodwill; Money markets: structure, functions, regulations; funds movement pattern; Working capital requirements and financing systems; working capital assessment; RBI credit scheme; credit and landing norms; Management of working capital in a dynamic environment.

#### **AF2 Management Control Systems**

Basic structural variables that make up management control and their influence on managerial behaviour and decision making; Structural control variables such as Centralisation vs. decentralisation; divisional structure; the compensation system; the promotion system; the performance evaluation system; the internal market system; and the formal and informal decision making structures of the firm. Processes affected by these variable are planning, budgeting and current operations; Analysis of the interaction between management processes and control variables in different situations under varying macroeconomic conditions.

#### **AF3 Corporate Finance**

Study of major decision making areas of managerial finance and selected topics in the financial theory; Leasing, mergers and acquisition; Corporate reorganisations; Financial planning and working capital Management; Investment decision making under uncertainty; Cost of capital, Capital structure; Pricing of selected financial instruments and corporate liabilities; dividend policy.

#### **AF4 Security Analysis and Investment Management**

Asset valuation with special reference to securities issued by nonfinancial corporations; Stock valuation models; Security analyses at the industry and the company levels; inflation and security values; options and convertibles; fixed income securities; Principles of portfolio analysis; Corporate pension fund policies; investment objectives; optimal portfolio strategies; risk-return trade off estimation; evaluation of institutional investment performance; Use quantitative techniques such as simulation; regression and probability theory.

#### **AF5 Financial Theory and Applications**

Utility maximisation and choices involving risk; Quantification of risk and return; concepts of value; the investment; financing and dividend decisions of firms; asset pricing in perfect and imperfect markets; Case studies to illustrate the choice and timing of capital expenditures; business policies related to capital structure dividends, mergers, financial leasing and working capital management.

#### **AF6 Project Management**

Project identification; preliminary screening; Industrial licensing; market analysis; technical analysis; financial analysis; Social cost benefit analysis; Income-tax benefit analysis; Incentives offered; Role of financial Institutions; Project evaluation and selection; Project management organisation; role of project manager; project implementation, tendering; contracting,

vendor selection, project planning and scheduling; PERT and CPM; Resource allocation; time cost tradeoff; crashing; MIS for project control

#### **AF7 Financial Management (sessional)**

Case studies and Laboratory exercises in financial information systems

### **MARKETING MANAGEMENT**

*Marketing is a process whereby demands for products, services and ideas are anticipated, managed and satisfied. The Marketing manager does this by first analysing the market place behaviour of competitors and consumers and then designing products, promotion, pricing and distribution strategies.*

#### **MM1 Advanced Marketing Management**

Interaction between marketing strategy and tactics; role of market planning; process of competitive strategy analysis; techniques of marketing and marketing analysis, all cast within the context of marketing decision making process. models of sales response to single and multiple marketing instruments, models of competitive effects, problems of product mix and multiple territories under budget constraints; dealing with uncertainty

#### **MM2 Product and Service Policies**

New product development and management; Exploration of new developments in economics and management science for product planning; Implementing and customising techniques for new market situations; Defining markets; measuring consumer perceptions and preferences; generation of new product ideas and design of new products; new product advertising and pricing; forecasting sales and integration of marketing decisions with overall objectives of the firm.

#### **MM3 Consumer Behaviour and Marketing Research**

Dynamics of consumer behaviour; perception, motivation and attitudes of individuals; environmental (culture, social groups, the family) factors in the buying decision process; Theories of Applications of risk, adoption, diffusion, loyalty, symbolism, subliminal stimulation, and fear appeals; practical implications of these factors; Methods and techniques of marketing research; product research, advertising and media research, opinion and attitude research; Sampling; design of questionnaire; interviewing techniques; Analysis and interpretation of research data.

#### **MM4 Advertising and Promotion Strategy**

Advertising as a promotional force; emphasis on theory planning and resulting strategic and tactical decisions made by advertising executives; Examination of marketing communications as dialogue between producers and consumers and how promotional mix evolves; emphasis on advertising; sales promotion and branding;

### **MM5 - Sales and Distribution Management**

The nature of personal selling and the management of the sales force; emphasis on selection, recruitment and training of sales force; problems in the allocation of sales effort; supervision and control; Analysis of distribution systems and their management; Channel theory, channel conflict, channel development, administration and control; logistics; emerging trends in distribution.

### **MM6 Industrial Marketing**

Industrial buyer behaviour; buyer-seller relationship; interaction product policy and market segmentation, distribution and selling systems; Selection of marketing channels, formulating market strategies for industrial products and services; Pricing of industrial goods; Organisation and management of industrial sales force; Industrial advertising and sales promotion; Selling to the Government Industrial marketing regulations.

### **MM7 Marketing Management (sessional)**

Sessional in New Product Development and laboratory exercises in Marketing Information Systems

## **HUMAN RESOURCES MANAGEMENT**

*This package of subjects focuses on the design and implementation of personnel policies and programmes to effectively employ organisational human resources. Courses discussed train the student in the use, maintenance and development of personnel.*

### **HM1 Personnel Policy and Management**

Corporate objectives and personnel function; Personnel policy; manpower planning; Requirements forecasting; Recruitment; Selection; Training; Development and Exit policy; Career planning; Job rotation; promotion policy; Motivation - Theories and practice; Quality circle; job enrichment; Participative management; Financial packages for motivation.

### **HM2 Industrial relations**

Industrial relations: Social, political and management dimensions; Labour union movement; historical perspectives and trends; collective bargaining; administration of contracts; Industrial disputes and laws; Global perspectives on industrial laws.

### **HM3 Compensation Management**

Economic and behavioural theories of compensation; Corporate compensation policy; Job evaluation; Compensation levels; wage boards and tribunals; wages and sharing gains of productivity; Design of incentive schemes; Relationship between wages productivity and other performance indices of a firm; Legal aspects of compensation and global perspectives on compensation laws.

#### **HM4 Organisational Development**

Behavioural issues in organisational effectiveness; individual and group dynamics; motivation, morale, conflict, leadership, communication and attitude changes; Techniques of organisational design; OD intervention for changes and development; Organisation: Roles, components, varieties and structure; Techniques of analysing organisation; Organisation in Indian and International context.

#### **HM5 Labour Legislation**

Evolution of labour legislation in India; Industrial relations, social security and welfare legislations; Fundamental concepts within the framework of industrial jurisprudence; Legal control of industrial disputes; laws dealing with work stoppages, strikes, lockouts and closures; laws leading to disciplinary action and legal constraints on such action; Labour welfare legislations in India; Collective bargaining, trends and legal status; Impact of labour legislation on organisation functioning.

#### **HM6 Organisational behaviour**

Organisation – Role, components and structure; models of analysing organisational phenomenon; organisational and business variables; organisations in Indian context; institutions and structures; perception, attitudes and motives, commitment, values, creativity and other personality factors; profile of a manager; Interpersonal trust; understanding the other person; interpersonal communication, listening, feedback, concealing, transactional analysis; self-fulfilling prophecy; leadership; motivating people; working in teams; Organisational structure and integrating interpersonal and group dynamics.

#### **HM7 Seminar**

### **OPERATIONS MANAGEMENT**

*Operations Management is a functional field concerning all enterprises: public and private; service or manufacturing related. Managerial decisions in the operations function and inter-relationships with other organisational functions provide the basis of study for this area. Study lays emphasis in improving competitiveness of the products and services through better quality management.*

#### **OM1 Management of Production systems**

Procedures and models that enhance productivity and effectiveness of operations over medium and short horizons; Japanese management approaches; Capacity planning; Aggregate production planning and master scheduling; material requirements planning (MRP); scheduling and controlling of operations; line of balance; developments related to computer aided manufacturing, robotics, Group Technology and flexible manufacturing systems, automated material handling etc

### **OM2 Materials Management**

Introduction; Systems approach; Aggregate inventory behaviour; purchasing policy and procedures; Source selection and vendor rating; Hand to mouth, forward and speculative buying; Stores management; Codification; Standardisation; variety reduction; value analysis; Issue and receipts; accounting; information systems; Determination and disposal of surplus.

### **OM3 Forecasting methods for management**

Theory and practice of forecasting; Smoothing and decomposition time series methods; regression techniques; auto regressive and moving average time series methods; Qualitative and technological forecasting approaches; Cost and performance characteristics of the various forecasting methods.

### **OM4 System Simulation**

Modelling of real world systems; Choice of probability distributions for system inputs; validation of simulation models; Analysis of simulation output data. Application of simulation methodology to solve problems in the area of operations management.

### **OM5 Designing for Quality**

Taguchi's concept of loss function; Off-Line design techniques; Fractional design of experiments; Principal components and interaction effects analysis; s/n ratio analysis; Tolerance design; in-line quality design methods; Response surface methods; EVOP, methods to improve process capability; Inspection and maintenance scheduling.

### **OM6 Quality Management**

Quality measurement and management; Relationship between quality and productivity of an organisation; Total quality management; Zero defect programme, Approaches of Juran, Deming

ISO 9000: Philosophy and implementation; Process Control Acceptance Sampling; Quality circles; Team approach to problem solving; Case studies in design and implementation of Quality management programmes.

### **OM7 Production System Laboratory**

## **SYSTEMS MANAGEMENT**

*This stream is designed to provide an integrated exposure to the skills necessary for the development of systems that support management planning and control using computers.*

### **SM1 System Analysis and Design**

Management perspective on system design and development, Integrating computer technology, information analysis, Logical design, physical design and implementation; System development life cycle; Tools and techniques of Systems

analysis and design including structured systems analysis and design; CASE tools; Business systems planning; Information requirements analysis; Roles and responsibilities of specialists and users in centralised and distributed local area networks.

#### **SM2 Decision Support Systems**

Systems development to improve effectiveness of managerial decision making and capabilities; Alternative development paradigms and methodologies; Database; model base and user interface design; DSS tools; Case studies in DSS development.

#### **SM3 On-line and Network-based Systems**

Survey of computer hardware, software, telecommunications and database technology; Distributed processing, Networking of computers, Data Communication Technologies; Design, configuration and implementation of on-line computer networks; utilities, command and control systems for networks; study of practical situations.

#### **SM4 Intelligent Management Systems**

Alternative AI knowledge representation and search methodologies; Examination of expert systems for management including rule and frame-based systems, certain and uncertain reference, expert system feasibility and development, available commercial systems and their applications.

#### **SM5 Computer Control of Systems and Processes**

Computer process control: The computer process interface; interface hardware; computer process monitoring; Types of computer process control; Direct digital control; Supervisory computer control; programming for computer process control; Computer Networks for manufacturing: Hierarchy of computers in manufacturing; Local area networks; Manufacturing automation protocol.

#### **SM6 Human Computer interaction**

Design aspects of human-computer interaction; basic aspects, cognitive models of users, software alternatives, Device alternatives, documentation alternatives, development approaches; Methods for determining user requirements, gaining user commitment; fulfilling user needs; user developed software tools; problem reporting/problem resolution and quality control; Ergonomic aspects in interface and display designs.

#### **SM7 Design of information system (project)**

### **INTERNATIONAL MANAGEMENT**

*Designed to acquaint the student develop an understanding of international business activity and the functioning of multinational corporations. The thesis work for students of this stream provides scope for an in-depth analysis of a business problem in a selected foreign environment.*

### **IM1 International Economics**

Foreign exchange and balance of payments; international monetary arrangements and policy; theory of international trade; role of tariffs and restrictions in international trade; Neoclassical model of international trade; theory of comparative advantage; role of trade barriers; balance of payments; foreign exchange; macroeconomic policy in an open economy.

### **IM2 International Finance**

Multinational business; international monetary system, bases for world trade; foreign investment; emphasis on distinction between international and domestic business operations.

### **IM3 International Marketing**

Decision making in firms engaged in more than one national market; market entry strategies; Applying marketing principles in foreign markets; review of currency markets; Developing specific markets in foreign countries; Development of skills in identifying and evaluating opportunities in foreign markets; Developing and adapting marketing strategies to specific national needs and coordinating strategies for global marketing.

### **IM4 International Industrial Relations**

Study of labour organisations and their structure and interrelationship with the social and economic systems in foreign countries.

### **IM5 The Firm in International Business**

Causes for differences in international and domestic business with particular emphasis on cultural, legal and political aspects; Problems of firms engaged in international business including motivation for production and foreign operations; International tax management and international marketing management in contrasted with domestic operations of comparable firms.

### **IM6 International Business Law**

Legal aspects of trade across national boundaries; regulation of persons, investment and trade under national and international law; protection of foreign investments; role of multinational enterprises and organisations.

### **IM7 Seminar**

## **BUSINESS POLICY**

*The policy-oriented courses deal with institutions from the point of view of general management. Study is aimed to develop skills in managers operating in profit and non profit institutions in adapting plans and strategies to changing environments.*

### **BP1 System Dynamics and Policy Planning**

Systems concepts and system dynamics; Evolution of system dynamics as system

enquiry methodology; strategy modelling; approach and procedure and techniques – a comparative study; conceptual models, suitability of system dynamics for policy analysis; qualitative system dynamics; Physical resources conversion modules; causal loop diagramming; qualitative study of model behaviour and policy recommendation; cases; Quantitative system dynamics; flow diagramming, model formulation; Mathematical features of DYMOSIM/DYNSMAP/DYNAMO; Examples; model validation; Policy design; Algorithms for resource allocation and dynamic policy option selection; Optimisation with SD models.

#### **BP2 Strategic Thinking and Corporate Vision**

Developments in strategic planning, highlighting the importance of strategic vision; Scenarios as a major new tool for thinking about the general future environment; Major concepts and tools of competitive analyses; Generation, examination and testing of strategic visions; selection of viable strategic options; Frameworks for strategy planning under conditions of complexity and uncertainty, taking a cognitive and methodological perspective.

#### **BP3 Management Policy Simulation**

Computerised team decision making simulation – the Strategic Management Game – used to illustrate top management policy and planning issues; including long term responsibility for results, integration of the different functional areas, decisions involving uncertainty and competitive environment. Policy statements, advertising presentations, preparation and presentation of a strategic plan and peer performance evaluation.

#### **BP4 Methods for Long Range Forecasting**

A variety of forecasting techniques are discussed including judgemental methods such as Delphi; extrapolation methods such as exponential smoothing; econometric methods such as single equation regression analysis; Segmentation and bootstrapping etc. Implementing new forecasting methods in organisations, gaining acceptance of forecasts; evaluating forecasting models and selection of forecasting models.

#### **BP5 Technology Management**

Government policy and its impact on technological development; Technology life cycles and managerial implications; Selection of Technology; Adaptation and assimilation of Technology; Technological innovation; Technology transfer to the user; Management of R & D, manufacturing and marketing interfaces.

#### **BP6 New Enterprise and Small Business Management**

Development/initiation of technological ventures, particularly the business planning and market analysis necessary for raising capital and commencing operations. Emphasis will be on venture analysis, financing mechanisms and development of a business plan from the perspective of an individual entrepreneur and within the established corporation.

#### **BP7 Business Policy Seminar**

## SCHEDULE II

### EXECUTIVE DEVELOPMENT PROGRAMMES

The basic objectives of these Programmes is given on page 3.

Every year the School of Management will conduct Executive Development Programmes in the following broad areas:

1. Flag-Ship Executive Development Programmes for senior executives

i) Managing Competition and Technological Change

Technological innovation, Technology Forecasting and impact assessment, Management of Technology, Advanced Manufacturing and Technology Policy, Life Cycle Costing, Replacement and Upgradation of Technology, Technology - Industry structure and pattern of competition.

ii) Total Quality Management

TQM philosophy, Managing global competitive edge through quality, Product innovation and quality design, Zero defect, Juran's and Deming's approaches, Involvement and motivation through quality movement, ISO 9000, Managing quality management policy changes

2. Executive Development Programmes for improving productivity in specific sectors of economy such as:

Iron and Steel, Mining, Power, Agriculture, Banking, Public Systems, Health Care, Transportation etc.

3. Management Development Programmes to promote entrepreneurial skills in those aspiring to be owner managers of small business units. Topics include:

Strategy formulation, Improving efficiency and Profitability, transition from informal to formal methods of planning and control, Small Scale Industry development policy of Government, Role of supporting agencies, Decisions regarding product and technology selection, pricing and promotion and marketing, Preparation of Feasibility Study reports and sources of financial support, Small group behaviour and motivational aspects, tax considerations.

4. Executive Development Programmes of longer duration to refine and sharpen problem solving abilities in middle level managers in areas such as:

Strategy and International Management; Policy planning through system dynamics, Economic policy and Business Decisions, Corporate Finance, International Financial Policy

Logistics and International Sourcing, Creative Marketing strategy, Management of International Business, Strategic Management Systems for Planning and Control, Information Technology and Managerial Effectiveness, Management of Multi-business Corporations, Marketing, Accounting and Finance, Operations and Technology, Computer skills and information systems, International Business, Quantitative decision making

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