



**PANJAB UNIVERSITY, CHANDIGARH-160014 (INDIA)**

**(Estd. under the Panjab University Act VII of 1947-enacted by the Govt. of India)**

**FACULTY OF BUSINESS MANAGEMENT AND**  
**COMMERCE**

**OUTLINES OF TESTS SYLLABI AND COURSES OF READING**  
**FOR**

**MASTER OF BUSINESS ADMINISTRATION (BIOTECHNOLOGY)**  
**MBA (BIOTECHNOLOGY)**

**FOR THE EXAMINATION 2012-13**

**SYLLABI FOR MASTER OF BUSINESS ADMINISTRATION (BIOTECHNOLOGY )  
FOR THE EXAMINATION OF 2012-2013**

*Note:*

1. Examination in each subject will be of 3 hours duration except for Strategic Management (MBABT7201).
2. The duration of Strategic Management (MBABT7201) will be 4 hours.
3. Maximum Marks for external/written examination is 50 marks and internal assessment is 50 marks except for seminar and workshop courses.

**Instructions to the paper setters: (Except for MBABT7201: Strategic Management).**

*IF THERE ARE TWO UNITS:* Set 10 questions in all. Five questions from each unit. The students are required to answer five questions in all selecting at least 2 questions from each unit.

*IF THERE ARE FOUR UNITS:* Set 10 questions in all. Two or three questions from each unit. The students are required to answer five questions in all selecting at least one question from each unit.

*N.B:* Use of non-programmable calculators by the students in the Examination Hall is allowed. The calculators will not be provided by the University.

**SCHEME OF EXAMINATION FOR MBA  
(BIOTECHNOLOGY)**

Subject Code	Paper Title	Marks
<b>FIRST SEMESTER</b>		
MBABT6101	BUSINESS ECONOMICS	100
MBABT6102	BUSINESS STATISTICS	100
MBABT6103	MANAGEMENT ACCOUNTING	100
MBABT6104	ORGANISATIONAL BEHAVIOUR	100
MBABT6105	MARKETING MANAGEMENT	100
MBABT6106	WORKSHOP ON BUSINESS COMPUTING	50
MBABT6107	WORKSHOP ON BUSINESS COMMUNICATION	50
	<b>TOTAL</b>	<b>600</b>
<b>SECOND SEMESTER</b>		
MBABT6201	BUSINESS ENVIRONMENT	100
MBABT6202	HUMAN RESOURCE MANAGEMENT	100
MBABT6203	OPERATIONS MANAGEMENT	100
MBABT6204	FINANCIAL MANAGEMENT	100
MBABT6205	LEGAL ASPECT OF BUSINESS	100
MBABT6206	WORKSHOP ON RESEARCH METHODOLOGY	100
MBABT6207	SUMMER TRAINING REPORT AND VIVA-VOCE*	100

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\* At the end of the examination of 2<sup>nd</sup> Semester the students will undergo compulsory summer training for a period of 6-8 weeks. Every student will submit the Summer Training Report within two weeks from the start of teaching for 3<sup>rd</sup> Semester.

MBABT6208	COMPREHENSIVE VIA-VOCE**	100
		TOTAL <u>800</u>
<b>THIRD SEMESTER</b>		
MBABT7101	ENTREPRENEURIAL DEVELOPMENT AND NEW ENTERPRISE MANAGEMENT	100
MBABT7102	PROJECT PLANNING, ANALYSIS AND MANAGEMENT	100
MBABT7103	BUSINESS PROCESS RE-ENGINEERING	100
MBABT7104	GLOBAL SUPPLY CHAIN MANAGEMENT	100
MBABT7105	SEMINAR ON PRINCIPLES OF BIOTECHNOLOGY	100
MBABT7106	WORKSHOP ON BIOTECHNOLOGICAL OPERATIONS	100
		TOTAL <u>600</u>
<b>FOURTH SEMESTER</b>		
MBABT7201	STRATEGIC MANAGEMENT	100
MBABT7202	CUSTOMER RELATIONSHIP MANAGEMENT AND SALES MANAGEMENT	100
MBABT7203	TOTAL QUALITY MANAGEMENT	100
MBABT7204	SEMINAR ON BIOTECHNOLOGICAL PROCESSES	100
MBABT7205	RESEARCH PROJECT***	100
MBABT7206	COMPREHENSIVE VIVA-VOCE****	100
MBABT7207	SEMINAR ON INTELLECTUAL PROPERTY RIGHTS AND BIOTECHNOLOGY	50
MBABT7208	WORKSHOP ON INSTRUMENTATION IN BIOTECHNOLOGY	50
		TOTAL <u>700</u>

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\*\* Comprehensive Viva-Voce of 2<sup>nd</sup> Semester would be based on papers taught in 1<sup>st</sup> and 2<sup>nd</sup> Semester.

\*\*\* The Research Project will start from 3<sup>rd</sup> Semester. Though marks for this project will be counted in the 4<sup>th</sup> Semester only.

\*\*\*\* Comprehensive Viva-Voce of the 4<sup>th</sup> Semester would be based on papers taught in 3<sup>rd</sup> and 4<sup>th</sup> Semester.

## FIRST SEMESTER

### MBABT6101: BUSINESS ECONOMICS

**Objective:** The objective of this course is to equip the students with basic knowledge of the concepts and tools of economic analysis as relevant for business decision making.

#### UNIT I

Nature and scope of business economics, concepts of economics and managerial decision making, demand theory and techniques for demand estimation, demand forecasting. Production function for single product, production function for multiple products, empirical evidence on the shape of cost curves, relevance of cost theories in business decision-making.

#### UNIT II

Market structure and degree of competition, profit maximization, price and output determination in the short-run and long run: in perfect competition, monopoly, monopolistic competition and oligopoly.

#### UNIT III

Utility analysis : types of utility, relationship between total utility and marginal utility, critical appraisal of law of diminishing marginal utility, explanation of law of equi-marginal utility, derivation of demand curve with the help of utility analysis, validity of utility analysis in modern times.

#### UNIT IV

Keynesian analysis: Keynesian theory of employment, consumption function, investment function, multiplier, relevance of Keynesian economics after 1936.

#### References

1. Ahuja, H.L., *Advanced Economics Theory*, S.Chand Group.
2. Browning, E.K. and Browning, J.M., *Micro Economic Theory and Applications*, John Wiley & Sons
3. Dean, J., *Managerial Economics*, Prentice Hall
4. Duncan, W.R. and Crook, J.N., *Managerial Economics*, Pearson Education
5. Koutsoyiannis, A., *Modern Micro-Economics*, Macmillan
6. Paul, S., Gupta, G. and Mote, V., *Managerial Economics*, Tata McGraw Hill
7. Varshney, R.L. and Maheshwari, K.L., *Managerial Economics*, Sultan Chand & Sons
8. Shapiro, E., *Macro Economics*, Galgotia Publishers.

## **MBABT6102: BUSINESS STATISTICS**

**Objective:** The objective of this paper is to acquaint the students with various statistical tools and techniques used to business decision making.

### **UNIT-I**

Construction of frequency distributions and their analysis in the form of measures of central tendency and variations, types of measures, skewness-meaning and co-efficient of skewness. Kurtosis. Index Numbers: Definition and Methods of Construction of Index Numbers; Tests of consistency, Base shifting, splicing and Deflation; Problems in construction, importance of index numbers in Managerial decision making.

### **UNIT-II**

Correlation analysis- Meaning & types of correlation, Karl Pearson's coefficient of correlation and spearman's rank correlation, regression analysis-meaning and two lines of regression ,relationship between correlation and regression co-efficient, time series analysis- measurement of trend and seasonal variations, time series and forecasting.

### **UNIT-III**

Probability- Basic concepts and approaches, addition, multiplication and Bayes' theorem, probability distributions - meaning, types and applications, binomial, Poisson and normal distributions.

### **UNIT-IV**

Statistical inference: Concept of sampling distribution, parameter and statistics, standard error.

Theory of estimation: Point and interval estimation, construction and confidence limits for mean.

Tests of significance-Parametric v/s non-parametric tests, hypothesis testing, large samples, small samples- chi-square test, z-test, t-test, binomial test, analysis of variance. Independence of Attributes, Goodness of Fit and Test of Homogeneity. .

### **References**

1. Anderson, *Statistics for Business & Economics*, Thomson Learning, Bombay.
2. Anderson, *Quantitative Methods in Business*, Thomson Learning, Bombay.

3. Bhardwaj, R.S, *Business Statistics*, Excel Books
4. Gupta S.P. & Gupta M.P., *Business Statistics*, Sultan Chand & Sons, Delhi.
5. Levin & Rubin, *Statistics for Management*, Prentice Hall of India, New Delhi.

## **MBABT6103: MANAGEMENT ACCOUNTING**

**Objective:** The objective of this course is to acquaint the students about the role, concepts, techniques and methodology relevant to accounting function and to impart knowledge regarding the use of cost accounting information in managerial decision making.

### **UNIT – I**

Conceptual basis of accounting- Nature and purpose of accounting, basic accounting concepts and conventions underlying preparation of financial statements, forms of business organization, accounting records, balance sheet equation, completing accounting cycle, preparation of profit and loss account and balance sheet as per schedule-VI of companies act 1956.

### **UNIT – II**

Revenue recognition and measurement (AS-9), fixed assets (AS-10), inventory valuation (AS-2), depreciation accounting (AS-6), intangible assets accounting (AS-26), financial statement analysis: ratio analysis, common size statements, comparative analysis, trend analysis, cash flow analysis, accounting for price level changes, human resource accounting, social and environmental accounting.

### **UNIT – III**

Cost accounting objectives, cost accounting and management accounting, understanding and classifying costs, overhead allocation, preparation of cost sheet, introduction to methods of costing, techniques of costing: marginal costing and its managerial implications, budgetary control, standard costing and variance analysis.

### **UNIT – IV**

Contemporary issues in management accounting – Value chain analysis, activity based costing, activity based budgeting, target and life cycle costing, quality costing.

## References

1. Horngren, C.T., Sundem, G.L., Stratton, W.O. *Introduction to Management Accounting*”, Prentice Hall of India.
2. Khan, M.Y. and Jain, P.K. *Financial Management: Text and Problems*, Tata McGraw Hill.
3. Porwal, L.S., *Accounting Theory; An Introduction*, Tata McGraw Hill.
4. Ramachandran, N. and Kakani, R.K. *Financial Accounting for Management*, Tata McGraw Hill.
5. Swamy, N. R., *Financial Accounting: A managerial Perspective*, Prentice Hall of India.
6. Williams, J.R., Haka, S.F., Bettner, M.S. and Meigs, R. F. *Financial and Managerial Accounting: The Basis for Business Decisions*, Tata McGraw Hill.

## **MBABT6104: ORGANISATIONAL BEHAVIOUR**

**Objective:** This course emphasizes the importance of human capital in the organizations of today. It gives an insight to the students regarding individual and group behavior in any organization.

### **UNIT I**

Introduction to OB: concepts, foundations, contributing disciplines to OB, role of OB in management practices, challenges and opportunities for OB, OB in the context of globalization, scientific management and human relation tools: Hawthorne experiments, introduction to human behavior, perception, attitudes and job satisfaction

### **UNIT II**

Personality: meaning, determinants, theories, MBIT and big five model, leadership: theories, determinants, style and challenges to leadership in India, motivation and morale: concept and applications, communication: interpersonal communication, listening, feedback, counseling, organizational communication.

### **UNIT III**

Group process: group and intergroup behaviour, group decision making, team management: types of teams, teams in modern workplace, team v/s group, power: concept, bases of power, distinction b/w power and authority, power distribution in organization, organizational

politics: concept, consequences, reasons and management of political behaviour, work stress: causes, organizational and extra organizational stressor, individual and group stressor, effect of stress, stress coping strategies.

#### UNIT IV

Conflict and inter-group behavior: sources of conflict, types of conflict, functional and dysfunctional aspects of conflict, approaches to conflict management, organizational culture: functions of OC, creating and sustaining of OC, development and implications of OC, organizational effectiveness: concept and approaches to OE, factors in OE, effectiveness through adaptive coping cycle, organizational health development, emotional intelligence.

#### References

1. Luthans, F., *Organisational Behavior*, McGraw Hill Inc.
2. Newstrom, J.W. and Davis, K., *Organizational Behavior-Human Behavior at work*, The McGraw Hill Companies, Inc.
3. Pareek, U., *Understanding Organizational Behaviour*, Oxford University Press, Delhi.
4. Robbins, S.P., Judge, T. and Sanghi, S., *Organizational Behavior*, Pearson Education.
5. Weiss, P., *Organisational Behaviour and Change*, West Group Publication.

### MBABT6105: MARKETING MANAGEMENT

**Objective:** The course aims at making participants understand concepts, philosophies, processes and techniques of managing the marketing operations of a firm with a view to better understand and appreciate the complexities associated with the marketing function.

#### UNIT I

Introduction to marketing: meaning, nature and scope of marketing, marketing philosophies, marketing management process, concept of marketing mix, market analysis: understanding marketing environment, consumer and organization buyer behaviour, market measurement and marketing research, market segmentation, targeting and positioning.



## UNIT II

Product planning and pricing: product concept, types of products, major product decisions, brand management, product life cycle, new product development process, pricing decisions, determinants of price, pricing process, policies and strategies.

## UNIT III

Promotion and distribution decisions: communication process, promotion tools: advertising, personal selling, publicity and sales promotion, distribution channel decisions-types and functions of intermediaries, selection and management of intermediaries.

## UNIT IV

Marketing organization and control: organizing for marketing, marketing implementation & control, ethics in marketing, emerging trends and issues in marketing: consumerism, rural marketing, societal marketing, direct and online marketing, green marketing, retail marketing, customer relation marketing.

### References

1. Czinkota, M.R. and Kotabe.M., *Marketing Management*, Vikas Publishing, New Delhi.
2. Douglas, J., Darymple, J. and Parsons, L.J., *Marketing Management: Text and Cases*, John Wiley and Sons.
3. Kotler, P., *Marketing Management: Analysis, Planning, Implementation & Control*, Prentice Hall of India, New Delhi.
4. Michael, J.E., Bruce, J.W. and William, J.S., *Marketing Management*, Tata McGraw Hill, New Delhi.
5. Perreault, W.D. and Jerome, E.M., *Basic Marketing*, Tata McGraw Hill, New Delhi.
6. Pride, W.M. and Ferrell, O.C., *Marketing: Concepts and Strategies*, Biztantra Press, Delhi.
7. Ramaswamy, V.S. and Namakumari, S., *Marketing Management: Planning, Control*, MacMillan Press, New Delhi.
8. Zikmund, A., *Marketing*, Thomson Learning, Mumbai.

## **MBABT6106: WORKSHOP ON BUSINESS COMPUTING**

**Objective:** The objectives of this paper are to develop skills in handling computer and use it as a strategic resource in management.

### **UNIT-1**

Overview of computer applications in public services, business and industry; Microsoft word – mail merge, hyperlinks and bookmark; Microsoft excel – mathematical calculation, sorting, filtering, pivoting, chart, macro, using financial accounting and statistical formulae; introduction to database and operational level of any one corporate database viz. prowess

### **UNIT II**

Network: services and its classification; knowledge management using internet; search engines, techniques to use search engine effectively; use of on-line databases (RBI/world bank/IMF etc.) in terms of data extraction and report generation; html – basic html tags, web page designing using any software; application of computers in project management: features, capabilities & limitations of project management software (with reference to popular software viz. ms – project)

### **References**

1. Basandra, S. K., *Computers Today*, Galgotia Books.
2. Meredith, J. R. and Mantel, S. J., *Project management : A Managerial approach*, John Wiley and Sons.
3. Powell, T.A., *The Complete Reference to HTML*, McGraw-Hill Osborne Media
4. Rajaraman, V., *Fundamentals of Computers*, Prentice-Hall.
5. Ram, B., *Computer Fundamentals*, New Age Publications
6. Sinha, P.K. and Sinha, P., *Foundation of computing*, BPB Publications, New Delhi.
7. Taxali, R., *PC Software Made Simple*, Tata McGraw Hill.

## **MBABT6107: WORKSHOP ON BUSINESS COMMUNICATION**

**Objective:** The course aims at developing the communication skills of students – both written communication and oral communication. The students will also be taught how to analyze cases and prepare case reports.

## UNIT – I

An introduction to business communication, elements of the communication models, types of communication, barriers to communication, principles of written communication, Business letters: their basic qualities, mechanics of letter writing, and specific types of letters, internal communication through memos, minutes and notices.

## UNIT – II

Principles of oral communication, speeches: speech of introduction, of thanks, occasional speeches, theme speech, mastering the art of giving interviews in the following: selection or placement interview, appraisal interview, exit interview, group communication: meetings and group discussions, report writing, principles of effective presentations including use of audio-visual media, business and social etiquette.

### References

1. Courtland, B. L. and Thill, J.V., *Business Communication Today*, Pearson Education.
2. Lochar, K.O. and Maczmarch, S.K., *Business communication: Building Critical Skills*, Tata McGraw Hill Companies.
3. Murphy, H.A. and Hilderbrand, W. and Thomas, P.J., *Effective business communication* Tata McGraw Hill Companies.
4. O'Rourke, J.S., *Management communication: A case analysis approach*, Pearson Education.
5. Rao, S.S., *Handbook for writers and editors*, Vikas Publishing House Pvt. Ltd
6. Raymond, L. and Flatley, M., *Basic communication: skills for empowering the internet generation*, Tata McGraw Hill.

## SECOND SEMESTER

### MBABT6201: BUSINESS ENVIRONMENT

**Objective:** Judicious decision making in a business organization requires the proper knowledge of the environment in which it has to function. This course aims at orienting the students with all the external environmental forces which affect the decision making process of an organization.

## UNIT I

Concept of business environment: its significance and nature, interaction matrix of different, environment factors, process of environmental scanning, environmental scanning of important industries of India viz. tractors pharmaceutical industry, food processing, electronics fertilizers steel, soft drinks, and TV.

## UNIT II

Economic environment: the philosophy, strategy and planning in India, monetary policy and their impact on Indian business, industrial policy foreign trade policy and their impact on Indian business, political environment: relation between business and government of India. Constitutional provisions related to business, concept of state intervention in business, ideology of different political parties, bureaucracy and Indian business.

## UNIT III

Technological environment, policy for research and development in India, appropriate technology, debate of technology v/s labour, MNC as a source of transfer to technology and its implication, institutional infrastructure for exports in India, India's export-import policy, global business environment, significance of foreign investment in India, opportunities and threats in WTO and the new international trading regime, tariff and non tariff barriers in global trade.

## UNIT – IV

Socio-cultural environment in India: salient features of Indian culture values and their implication for Indian business, middle class in India and its implications on industrial growth in India, consumerism as emerging force, social responsibility of business, business ethics and Indian business, impact of mass media on Indian business, changing role of rural sector in India: rural income and rural demand of consumer durable.

### References:

1. Adhikari, A., *Economic environment of business*, Sultan Chand & Sons
2. Adhikary, M., *Business Economics*, Excel Books, New Delhi.
3. Aswathappa, K., *Essentials of business environment*, Himalaya Publishing House.
4. Cherulinum, F., *Business Environment*, Himalaya Publishing House
5. Puri, V.K. and Misra, S.K., *Indian economy*, Himalaya Publishing House.

## **MBABT6202: HUMAN RESOURCE MANAGEMENT**

**Objective:** The course is designed to give an understanding of the various aspects of the management of human resources, their interaction in the execution of managerial functions and facilitating learning of various concepts and skills required for utilization and development of these resources for organizational functions.

### **UNIT I**

Human resource management: Functions, scope and models, HRM environment and environmental scanning, human resource planning, job analysis and job designing, recruitment, selection, induction and placement, training and development, job evaluation.

### **UNIT II**

Managing performance, potential management, fringe benefits and incentives: compensation management, promotion, demotion, transfer, separation and right sizing.

### **UNIT III**

Team management, empowerment management, creativity and decision making management, organisational learning and knowledge management, culture management, change management, managing ethical issues in human resource management, HRD audit.

### **UNIT IV**

E-HRM/HRIS; measuring intellectual capital, impact of HRM practices on organizational performance, implications for HRD, contemporary issues in human resource management, global HR practices.

### **References:**

1. Aswathappa, K., *Human Resource Management*, Tata McGraw-Hill.
2. Bratton, J. and Gold, J., *Human Resource Management: Theory and Practice*, Palgrave.
3. Dessler, G., *Human Resource Management*, Prentice-Hall.
4. Flippo, E., *Human Resource Management*, McGraw Hill.
5. Gomez-Mejia, L., *Managing Human Resources*, Pearson Education.
6. Ivantsevich, J., *Human Resource Management*, Tata McGraw-Hill.
7. Kandula, S. R., *Human resource Management in Practice*, Prentice Hall of India Pvt Ltd.

## **MBABT6203: OPERATIONS MANAGEMENT**

**Objective:** The objective of this paper is to acquaint the students with various quantitative techniques which are of great importance for quantitative decision-making.

### **UNIT I**

Operations research: evolution, methodology and role in managerial decision making, linear programming: meaning, assumptions, advantages, scope and limitations, formulation of problem and its solution by graphical and simplex methods, special cases in simplex method, infeasibility, degeneracy, unboundedness and multiple optimal solutions, duality.

### **UNIT II**

Transportation problems including transshipment problems: special cases in transportation problems, unbalanced problems, degeneracy, maximization objective and multiple optimal solutions, assignment problems including travelling salesman's problem, special cases in assignment problems: unbalanced problems, maximization objective and multiple optimal solutions.

### **UNIT III**

PERT/CPM: difference between PERT and CPM, network construction, calculating EST, EFT, LST, LFT and floats, probability considerations in PERT, time-cost trade-off, decision theory: decision making under uncertainty and risk, bayesian analysis, decision trees.

### **UNIT IV**

Game theory, pure and mixed strategy games, principle of dominance, two person zero sum game, queuing theory: concept, assumptions and applications, analysis of queue system, Poisson distributed arrivals and exponentially distributed service time models (MM1 and MMK), simulation; meaning, process, advantages, limitations and applications.

### **References:**

1. Kalavathy.S., *Operations Research*, Vikas Publishing House, New Delhi.
2. Kapoor, V.K., *Operations Research*, Sultan Chand & Sons, New Delhi.

3. Paneerselvam, R., *Operations Research*, Prentice Hall of India, New Delhi.
4. Sharma, J.K., *Operations Research: Theory and Applications*, Macmillan India Ltd, New Delhi.
5. Taha, H.A., *Operations Research: An Introduction*, Prentice Hall of India, New Delhi.
6. Vohra, N.D., *Quantitative Techniques in Management*, Tata McGraw Hill Publishing Company Ltd.

## **MBABT6204: FINANCIAL MANAGEMENT**

**Objective:** To provide an understanding of the function, the roles, the goals and the processes of corporate financial management, covering the sourcing of finances and their issues in investment and operations

### **UNIT I**

Introduction: concept of finance, scope and objectives of finance, profit maximization vs. wealth maximization, functions of finance manager in modern age, financial decision areas, time value of money, risk and return analysis: CAPM, shareholders value creation, traditional and modern measures of financial performance: ROI, earning price ratio, SBA, EBA and MBA.

### **UNIT II**

Financing decision: long-term sources of finance, potentiality of equity shares, preference shares, debentures and bonds as sources of long-term finance; concept and approaches of capital structure decision: NI, NOI, traditional and Modigliani miller approach, cost of capital: cost of equity, preference shares, debentures and retained earnings, weighted average cost of capital and implications.

### **UNIT III**

Leverage analysis: financial, operating and combined leverage along with implications, EBIT-EPS analysis & indifference points, investment decision: appraisal of project; concept, process & techniques of capital budgeting and its applications, risk and uncertainty in capital budgeting.

## UNIT IV

Dividend decision: concept of retained earnings and ploughing back of profits, relevance and irrelevance theories of dividend decision: Walter's model, Gordon's model and Modigliani miller model, factors affecting dividend decision, overview of working capital decision: concept, components, factors affecting working capital requirement, working capital management: management of cash, inventory and receivables, introduction to working capital financing.

### References:

1. Damodaran, A., *Corporate Finance –Theory & Practice*, John Wiley and Sons, Inc.
2. Gitman, L.J., *Principles of Managerial Finance*, Pearson Education.
3. Horne, V., *Financial Management and Policy*, Pearson Education
4. Khan, M.Y. and Jain, P.K., *Financial Management*, Tata McGraw Hill.
5. Knott, G., *Financial Management*, Palgrave Macmillan.
6. Pandey, I.M., *Financial Management*, Vikas Publications.
7. Prasanna, C., *Fundamentals of Financial Management*, Tata McGraw Hill.

## MBABT6205: LEGAL ASPECTS OF BUSINESS

**Objective:** The objective of this course is to introduce the students with different legal aspects of business.

### UNIT – I

Corporate personality, features of company, registration and incorporation, memorandum of association, articles of association, prospectus, shares, shareholders and members, limited liability partnership.

### UNIT – II

Management of companies, directors, their appointment, duties, liabilities and powers, meetings of a company, borrowing power of the company, changes and their registration, prevention of oppression and mismanagement, winding up of a company, compulsory winding up and voluntary winding up.



### UNIT – III

Objectives of foreign exchange management act, provisions of FEMA dealing with regulation and management of foreign exchange, economic offences and penalties, intellectual property rights, objectives of SEBI, provisions of SEBI act dealing with takeover and substantial acquisition of shares, buyback of shares and investor protection.

### UNIT – IV

Objectives of Consumer Protection Act, 1986, rights of consumers, duties and obligations of business organization under Consumer Protection Act, objectives of Environment Protection Act 1986, duties and obligations of business organization under Environment Protection Act 1986, Competition Act, 2002.

#### References

1. Datey, V.S., *Student's guide to company laws 2001*.
2. Majumdar, A.K. and Kapoor, G.K., *Company law & practices*, Taxman Allied Services Pvt.Ltd.
3. Singh, A., *Company law*, Eastern Book Co, India.

### MBABT6206: WORKSHOP ON RESEARCH METHODOLOGY

**Objective:** To develop understanding of business research methodology from a user's perspective and a researcher's perspective. The practical aspects of research methodology will be emphasized. This will help prepare students for their summer training in which students are usually assigned projects that involve use of research methodology.

#### UNIT – I

Introduction to research in business, the research process, the research proposal, research design: classifications of research designs, exploratory research design, descriptive research design, causal research design.

#### UNIT – II

Use of secondary data in research, observation studies, surveys, measurement, measurement scales, designing questionnaires and schedules.

### UNIT – III

Sampling including determination of sample size, data collection and preparation, data entry hypothesis testing including one sample tests and two- Independent sample tests, report writing.

### UNIT – IV

Techniques of multivariate analysis, analysis of variance (one way only), discriminate analysis (direct method only), factor analysis, cluster analysis, multidimensional scaling, conjoint analysis.

#### References:

1. Cooper, D.R. and Schindler, P.S., *Business Research Methods*, Tata McGraw Hill Publishing Co.
2. Malhotra, N. and Dash, S., *Marketing Research: An Applied Orientation*, Pearson Education.
3. Sekaran, U., *Research Methods for Business: A Skill Building Approach*, John Wiley and Sons. Inc.
4. Rao, S., *Handbook for Writers and Editors*, Ahmadabad Academic Book Centre.
5. Zikmund, W.G., *Business Research Methods*, Cengage Learning.

### THIRD SEMESTER

#### **MBABT7101: ENTREPRENEURIAL DEVELOPMENT AND NEW ENTERPRISE MANAGEMENT**

**Objective:** The objective of the course is to provide conceptual and theoretical understanding about the development of entrepreneurship and its significance in Indian economy, and to highlight issues in new enterprise management.

#### UNIT I

Entrepreneurship: concept and definitions, entrepreneurship and economic development, classification and types of entrepreneurs, entrepreneurial competencies, factors affecting entrepreneurial growth: economic, non-economic factors, traits/qualities of entrepreneurs, intrapreneur, manager v/s entrepreneur.

## UNIT II

Elements for a programme, entrepreneurial training and development programmes, entrepreneurship orientation and awareness programme, evaluation of various EDP programmes, women entrepreneurs, steps taken by government, to promote EDP's, institutional entrepreneurial environment in India.

## UNIT III

Definition of MSME (*micro, small and medium enterprises*), rationale, objective, scope, role of MSME in economic development of India, significant provisions of MSME Act, 2006, mechanics of selling of new enterprise: size and location, optimum units: its meaning and determinants, size of industrial units in India, feasibility studies, technical, marketing and finance, managerial problems of new enterprises, production purchasing, financing, labour and marketing problems, facilities provided by different institutions and agencies in India, role of SMEs in global environment.

## UNIT IV

Role of support institutions: of director of industries, DIC, SIDO, SIDBI, small industries. Development Corporation (SIDC), SISI, NSIC, NIESBUD, state financial corporation (SFCs).

### References:

1. Desai, V., *Small – Scale Industries and Entrepreneurship*, Himalaya Publishing House.
2. Deshpande, M. V., *Entrepreneurship of Small Industries*, Deep and Deep publications, New Delhi.
3. Holt, D.H., *Entrepreneurship – New venture Creation*, Prentice Hall.
4. Kaulgud, A., *Entrepreneurship Management*, Vikas Publishing House, New Delhi.
5. Otes, D., *A Guide to Entrepreneurship*, Jaico Books Publishing House, New Delhi.
6. Theduri, B., *Entrepreneurship Development: An Analytical Study*, Akansha Publishing House, New Delhi.

## **MBABT7102: PROJECT PLANNING, ANALYSIS AND MANAGEMENT**

**Objective:** The objective of this course is to promote a sound understanding of the theory and practice of project management. More specifically it introduces students to the purpose, principles, problems and challenges, concepts, techniques, and practice of project management and its various facets; impart skills in project planning, execution and control methods; introduce students to project management software and applications.

### **UNIT I**

Planning and analysis overview: phases of capital budgeting, levels of decision making, resource allocation framework, key criteria for allocation of resource, elementary investment strategies, portfolio planning tools, strategic position and action evaluation, aspects relating to conglomerate diversification, interface between strategic planning and capital budgeting, generation and screening of project ideas: generation of ideas, monitoring the environment, regulatory framework for projects, corporate appraisal, preliminary screening, project rating index, sources of positive NPV, qualities of a successful entrepreneur, Porter model for estimation of profit potential of industries.

### **UNIT II**

Market and demand analysis: situational analysis and specification of objectives, collection of secondary information, conduct of market survey, characterization of the market, demand forecasting, market planning, technical analysis: study of material inputs and utilities, manufacturing process and technology, product mixes, plant capacity, location and site, machinery and equipment, structures and civil works, project charts and layouts, work schedule.

Financial analysis: estimation of cost of project and means of financing, estimates of sales and production, cost of production, working capital requirement and its financing, estimates of working results, projected cash flow statement, projected balance sheet. Project cash flows, basic principles of measurement of cash flows, components of the cash flow streams, viewing a project from different points of view, definition of cash flows by financial institutions and planning commission, biases in cash flow estimation, appraisal criteria (net present value,

benefit cost ratio, internal rate of returns urgency, payback period, and accounting rate of returns), investment appraisal in practice.

### UNIT III

Types and measure of risk: simple estimation of risk, sensitivity analysis, scenario analysis, Monte Carlo simulation, decision tree analysis, selection of project, risk analysis in practice, special decision situations: choice between mutually exclusive projects of unequal life, optimal timing decision, determination of economic life, inter-relationships between investment and financing aspects, inflation and capital budgeting, analysis of firm and market risk: portfolio theory and capital budgeting, capital asset pricing model, estimation of key factors, CAPM and capital budgeting, social cost benefit analysis (SCBA): rationale for SCBA, UNIDO approach to SCBA, little and mirrlees approach to SCB, multiple projects and constraints: constraints, methods of ranking, mathematical programming approach, linear programming model.

### UNIT IV

Project financing in India: Means of finance, norms and policies of financial institutions, SEBI guidelines, sample financing plans, structure of financial institutions in India, schemes of assistance, term loans procedures, project appraisal by financial institutions, project management: forms of project organization, project planning, project control, human aspects of project management, prerequisites for successful project implementation, network techniques for project management, development of project network, time estimation, determination of critical path, scheduling when resources are limit, PERT and CPM models, network cost system, project review and administrative aspects: initial review, performance evaluation, abandonment analysis, administrative aspects of capital budgeting, evaluating the capital budgeting system of an organization.

#### References:

1. Benjamin, E. C., *Modern Project Finance: A Case Book*, John Wiley and Sons, Inc.
2. Chandra, P., *Project Planning: Analysis, Selection, Implementation and Review*, Tata McGraw Hill.
3. Gatti, S., *Project Finance in Theory and Practice: Designing, Structuring, and Financing Private and Public Projects*, Academic Press.

4. Little, I.M.D. and Mirrlees, J.A., *Project Appraisal and Planning for Developing Countries*, Oxford and IBH Publishing Co.
5. Nevitt, P.K. and Fabozzi, F.J., *Project Financing*, Euromoney Books.

## **MBABT7103: BUSINESS PROCESS RE-ENGINEERING**

**Objective:** The objective of this course is to develop the abilities of the students to design and to evaluate management and its existing structure and select the right frame for Reengineering.

### **UNIT I**

Definition of reengineering, time for reengineering, why business process start to fail, explanation of change theory, reengineering mission and scope, reengineering cost, survival and growth strategies, rethinking business processes.

### **UNIT II**

The new world of work, the enabling role of information technology, perspectives on the customer, understanding markets, customer research within markets, service and specifications from the customer, insights from customer analysis.

### **UNIT III**

Understanding the influences in the background, perspectives on the background, dynamic nature of the industry, competitive intelligence: Bringing the background into focus, mapping the way work gets done, identifying areas for improvement.

### **UNIT IV**

Planning for change, refined mission and scope, design options and alternatives, filling in the line details, mapping the new process, developing business policies, information channels and communications, feedback for continuous improvement, implementing system and structural changes, selecting the right frame, the horns of the downsizing dilemma, maximizing the chances for reengineering success, resistance to change, the transition process, revitalizing the organization for long term durable change, reengineering experience.

## References

1. Dey, B.R., *Business Process Reengineering & Change Management*, Dreamtech Press Edition.
2. Hammer, M. and Champy, J., *Reengineering the Corporation - A manifesto for business resolution*, Nicholas Brealey Publishing Limited, London.
3. Jawadekar, W.S., *Redesigning the business organization*, Tata McGraw Hill Publishing Company Limited.
4. Kerin, F.C., Father, J.J. and Lynch, R.L., *Corporate Renaissance*.
5. Lowenthal, J.N., *Reengineering the organization* McGraw-Hill Higher Education.

## **MBABT7104: GLOBAL SUPPLY CHAIN MANAGEMENT**

**Objective:** The Course explores the main Issues in global supply chain management (SCM) to underline their strategic importance to firms. The course helps students develop understanding about the significance of SCM in international business; understand the key operational issues involved in global supply chain management; have the knowledge of managing SCM in international trade operations; and examine the levels of risk, efficiency, and sustainability of a supply chain.

### **UNIT I**

Introduction to global supply chain management: Concept and role of SCM services; international purchasing & distribution; SCM networks; inventory management and its components as SCM system; logistics providers (3PL's, 4PL's); reverse logistics; international logistics centres.

### **UNIT II**

Transportation and its services in SCM; transportation services in international market and different transport modes; optimization of transportation process; role of multimodal transport in global SCM.

### **UNIT III**

Warehousing and inventory management: role of warehousing in global SCM, functions of warehousing, types of warehouses; lean management (manufacturing), it systems (MPS,

MRP, MRPII, ERP, DRP), material handling; Packaging; inventory management under conditions of certainty and uncertainty.

#### UNIT IV

International forwarding; material requirements planning; economic order quantity (EOQ), Wilson's formula, silver – meal method, Wagner – Whitin method, determination of safety inventory; SCM networks its features & networks owned by international corporations, leadership network, partnership network, configuration and management of SCM networks; green SCM, recent trends in global SCM.

#### References

1. Coyle, J. J., *A logistic Approach to Supply Chain Management*, Cengage Learning.
2. Coyle, J. J., Bardi, Edward J. and Langley, C. John., *The Management of Business Logistics*, Thomson South-Western.
3. Lambert, D.M., Stock, A.R., and Ellram, L.M., *Fundamental of Logistics Management*, McGraw-Hill.
4. Mangan, J., Lalwani, C., and Butcher, T., *Global Logistics and Supply Chain Management*, John Wiley & Sons, Ltd.
5. Mohanty, R. P. and Deshmukh, S.G., *Supply Chain Management: Theory and Practice*, Britzania.
6. Pierre David, *International Logistics*, Bizantra.
7. Wisner, J. D., Leong, G. K. and Tan, K. C., *Principles of Supply Chain Management*, South- Western, Cengage Learning.
8. Wood, D. F., Baron, A, Murphy, P., & Wardlow, D., *International Logistics*, Amcon, N.Y.

#### **MBABT7105: SEMINAR ON PRINCIPLES OF BIOTECHNOLOGY**

**Objective:** the object is to introduce to the students principles of biotechnology, genetic engineering, cell culture technologies, nucleic acid based technologies and protein based technologies.

#### UNIT I

History- from biology to biotechnology; concept of genetic engineering; principles of genetic transformation

#### UNIT II

Specialized tools in Biotechnology: cell culture technologies- types of growth media



factors influencing growth, use of animal and plant cell culture structure and organization of animal cell, primary and established cell line cultures, basic techniques of mammalian cell culture in vitro; desegregation scaling-up of stem-cell cultures, embryonic stem cells and their applications.

### UNIT III

Specialized tools in biotechnology: nucleic acid based technologies- recombinant DNA technology RNA interference, gene cloning, bioinformatics, methods of genetic transformation, gene therapy DNA amplification techniques, forensic DNA

### UNIT IV

Specialised techniques in biotechnology- protein based technologies- protein structure: primary structure determination, modifications; three dimensional structure of proteins: secondary structure; the peptide group, helical structure, bet structure, non-repetitive structure; fibrous and globular proteins, protein stability, quarternary structure and protein folding; different forms of DNA, super coiling of I5NA, DNA melting, repetitive sequences, cot and rot curves, C value paradox, DNA protein interaction, modulation, structural organization of chromatin, non-coding sequences and gene expression; signal transduction, role of camp and second messenger; apoptosis: pathways and genes involved; two hybrid system for protein-protein interaction and its variations ( one hybrid, three hybrid and reverse two hybrid)

### References

1. Borem, A., Santos, F.R. and Brown, David E., *Understanding Biotechnology*, Pearson Education, Singapore
2. Ratledge, C and Kristiansen, B., *Basic Biotechnology*, Cambridge University Press, U.K.
3. Sobti, R.C., *Basics of Biotechnology*, Vishal Publishing

## **MBABT7106: WORKSHOP ON BIOTECHNOLOGICAL OPERATIONS**

**Objective:** The objective of this course is to introduce the students to the biotechnological operations.

### UNIT I

Introduction: fundamental principles/laws, simple cases of material and energy balances applied on single units, unit conversions; fluid flow: manometers (u-tube, differential and inclined tubes), concept of boundary layer, basic equations of fluid flow, valves, pumps-gear,

reciprocating and centrifugal, flow meters; mixing: theories of mixing, mixing devices (propellers, turbines and paddles), power estimations, selection of a mixing device, mixing of solids; centrifugation: principles of centrifugation, industrial centrifuges.

## UNIT II

Filtration: theory of filtration, filter aids, filtering media and various filters, plate and frame filter press, rotary drum filters, metafilters, filter candles, ultrafiltration, nanofiltration; comminution: laws governing energy and power requirements, types of mills, factors governing the selection of a mill type; phase equilibria for gas liquid systems experimental measurement, estimation using simple laws like Raoult's law, Henry's law, representation of this data graphically in various forms; theory of distillation of mixtures, plate, continuous contact system, differential distillation, vacuum distillation, flash distillation, fractional distillation, azeotropic and extraction distillation, molecular distillation, basic concepts; basic laws of heat transfer: conduction, convection and radiation, concept of fluid film resistances, simple problems based on these laws, double pipe heat exchanger, shell tube heat exchanger, finned tube heat exchanger.

## UNIT III

Evaporation: principles, elevation in boiling points, single and multiple effect evaporation principle, steam economy and evaporator capacity, evaporation still, forced circulation, climbing and falling film agitated film evaporators; drying : concept of moisture content, bound and unbound moisture, critical and equilibrium moisture content, drying a batch of solid under constant drying conditions and simple problems based on this, spray dryer, drum dryer, rotating drum dryer, fluidized bed dryer and tray dryer, sublimation and freeze drying; psychrometry: definition of humidification and de humidification, operations, use of psychrometric or humidity charts spray chambers for conditioning air for the storage of pharmaceutical materials.

## UNIT IV

Extraction: extractors, flow sheet of an extraction plant, liquid-extraction, extraction towers: solid extractors, counter current multistage extractors; refrigeration principle of refrigeration and air conditioning equipment and applications in pharmacy; materials for biotechnological plant constructions.

### References

1. Badger, L. W., *Introduction to Chemical Engineering*, McGraw Hill, New York.
2. McCabe, Warren and Smith, J.M., *Unit Operations for Chemical Engineering*, McGraw Hill, New York.

## FOURTH SEMESTER

### MBABT7201: STRATEGIC MANAGEMENT

**Objective:** The objective of this course on corporate strategy is to develop in the students an ability to analyse the strategic situation facing the organization, to access the strategic options available to the organization and to implement the strategic choices made by it. Extensive use of a variety of case studies will help in meeting the objectives of this course.

*End semester paper:* The paper will be of **four** hours and will carry 50 marks. **Section A** will be of 20 marks consisting of five questions. 2 questions will be set from each unit. The students are required to answer two questions selecting one from each unit. **Section B** will be of 30 marks consisting of a compulsory case.

#### UNIT I

Introduction to corporate strategy, an overview of formulation and implementation of strategy (including various models of strategy formation and implementation), mission including various approaches to business model, environmental analysis (including various tools of analysis), corporate resources and core competencies, personal goals and aspirations of top management, social responsibility and corporate governance, corporate strategy (including diversification and vertical integration), execution of corporate strategy (Including strategic alliance and acquisitions).

#### UNIT II

Business level strategies (including various typologies for BLS), functional level strategies, strategic alternatives (including models for development of strategic alternative), strategic and technology, strategy and industry lifecycle, evaluation of strategy, implementation of strategy, organisation structure and strategy.

#### References

1. Ghosh, P.K., *Strategic Planning and Management*, Sultan Chand and Sons, New Delhi.
2. Gupta, V., Gollakota, K. and Srinivasan, R., *Business Policy and Strategic Management – Concepts and Application*, Prentice Hall of India.
3. Hill, Charles W.L. and Jones, Gareth R., *Strategic Management*, Dreamtech Press India, Indian Adaptation.

4. Hitt, Michael and Hoskisson, Robert E., *Strategic Management: Competitiveness and Globalization*, South Western Thomson.
5. Hunger J. David, Wheelen, Thomas L and Wheelen Tom, *Essentials of Strategic Management*, Prentice Hall of India.
6. Pitts, Robert A., *Strategic Management: Building and Sustaining Competitive Advantage*, South Western Thomson.
7. Porter, M. E., *Competitive Advantage*, The Free Press, New York.
8. Thompson, Arther A., Strickland, A. J. and Gamble, John E., *Strategic Management, Concepts and Cases*, Tata McGraw Hill.

## **MBABT7202: CUSTOMER RELATIONSHIP MANAGEMENT AND SALES MANAGEMENT**

**Objective:** The course aims to develop in the students an understanding of the concepts, importance, benefits and principles of customer relationship management within the context of marketing strategy. It also aims to familiarize the students with the fundamentals of sales management so as to enable the students to effectively manage a sales force.

### **UNIT I**

Introduction to CRM: definition, components, scope, evolution, importance and transformation of customers, touch point analysis, customer value, customer relationship styles, types of customers and customer value , customer lifetime value, customer value and customer satisfaction as precursors to CRM, value co-creation, customer value management, analysing profitability of customers: value chain analysis, customer defection, closed loop marketing, customer retention: importance, stages, measurement of customer expectations: managing and delivering, consumer research, CRM measurement, e-CRM: Basic concepts, importance, benefits, steps and success factors in e-CRM, merging CRM and the internet, and barriers to internet adoption.

### **UNIT II**

Developing and deploying CRM strategy: CRM program life-cycle, building blocks of CRM, components of CRM infrastructure: information, process, technology and people and their integration, technology for customer relationship, delivering the customer offer, issues

in customer privacy, CRM measurement, Analysis of CRM strategies and approaches practised by successful business houses in India and abroad, emerging trends in CRM.

### UNIT III

Introduction to sales management: nature, scope & its evolution, relationship between selling & marketing, selling strategies, selling & buying styles, selling skills, sales in the era of CRM, sales related marketing policies: product, distribution, pricing & personal selling policies, negotiation strategies.

### UNIT IV

Sales organization: types of sales structure, management of sales territory, sales quotas, sales budget, sales control & cost analysis, organizing & staffing sales force: selection & recruitment of sales force, sales training, motivation & compensation, strategic role of information in sales management, ethical & legal issues in sales, evaluating of sales force performance.

### References

1. Baran, R.J., Galka, R.J., & Strunk, D.P., *Customer Relationship Management* Cengage Learning, New Delhi.
2. Churchill, Ford, Walker, *Sales Force Management*, McGraw Hill.
3. Johnson & Marshall, *Sales Force Management*, McGraw Hill.
4. Lancaster & Jobber, *Selling & Sales Management*, Pearson Education.
5. Maning & Recce, *Selling Today: Building Quality Partnerships*, Pearson Education.
6. Mukerjee, K., *Customer Relationship Management- A Strategic Approach To Marketing*, Prentice Hall of India, New Delhi.
7. Shainesh, G. & Sheth, J.N., *Customer Relationship Management*, Macmillan Publications.
8. Still, Cundiff & Govani, *Sales Management*, Pearson edition.

### MBABT7203: TOTAL QUALITY MANAGEMENT

**Objective:** The course is designed to develop a sound understanding of how the application of TQM assists the pursuit of business excellence and provide skills and strategies in human dimensions of quality and in the tools and techniques applicable to TQM and business excellence.

## **UNIT I**

Introduction to TQM: History, aims, objectives, benefits, gurus and their principles, TQM. reasons for use of TQM, proven examples and benefits, methods to assist the progress of TQM, introduction to tools and techniques: brainstorming, affinity diagram, benchmarking, fishbone diagram, check sheet, flow chart, line graph, run chart, histogram, Pareto diagram, FMEA, scatter diagram, control chart, QFD, tree diagram, force field analysis, seven w. and is/is-not questions, why-why diagrams, total quality control, quality assurance: practices and techniques, TQM and management : new management challenges, trends and contribution of TQM.

## **UNIT II**

Customer focus: Defining external and internal customers, steps in customer analysis, methods of getting customer inputs, methods of measuring customer satisfaction, continuous improvement process: what is continuous improvement, the importance of continuous improvement, and principles of continuous improvement, processes, how to manage processes, role of TQM's control and improvement process, designing for quality: opportunities for improvement in product design, early warning, concept and design assurance, designing for basic functional requirements, reliability, availability, safety, manufacturability, cost and product performance, workforce teams: team work for quality, types of teams and tasks involved, characteristics of successful and unsuccessful teams, barriers to team work, benchmarking: defining, importance and benefits, types, basic steps, pitfalls, JIT: definitions, benefits, JIT cause and effects, JIT implementation in manufacturing.

## **UNIT III**

TQM for Marketing Function: Quality in marketing and sales, factors for excellence, BPR and IT: business process management, quality control SQC/SPC: statistical process control, change management, technology and product quality, quality of after sales services: quality measurement in customer service, organization for quality: quality circles, self managing teams, quality director, reliability of quality characteristics, quality leadership: developing a quality culture, technology and culture, motivation quality linked productivity.

## UNIT IV

Total employee involvement: Awareness of quality, recognition and rewards, empowerment and self-development, education and training, cost of quality: cost of poor quality, categories of quality cost, analysis of quality costs, benefits of costs of quality control, supporting technologies: overview of supplier quality assurance system, TQM implementations & barriers to implementation, ISO 9000 series of standards: concept, relevance, benefits, elements of ISO 9001: 2000, six sigma: history, structure, application, keys to success and failure.

### References

1. Arora, K.C., *TQM and ISO 14000*, S.K. Kataria & Sons, New Delhi.
2. Hurbert K. Rampersad, *Managing Total Quality*, Tata McGraw Hill Publishing Company Ltd., New Delhi.
3. Juran, J.M. & Gryna, Frank M., *Quality Planning and Analysis*, Tata McGraw Hill, New Delhi.
4. Neil Huxtable, *Small Business Total Quality*, Chapman & Hall.

## MBABT7204: SEMINAR ON BIOTECHNOLOGICAL PROCESSES

**Objective:** The objective of the course is to introduce various biotechnological processes used in the discipline of biotechnology.

### UNIT I

Principles of immunology, inflammatory mediators, immune response to infectious diseases, hyper-sensitivity reactions, transplantation immunity, vaccines: designing vaccines for active immunization.

### UNIT II

Genomics in microbiology, microbial pathogenesis at molecular level, introduction to stem cell biology, transgenic animals and plants, FDA guidelines for genetically modified foods and ethical issues.

### UNIT III

New biofields / bioenergy: biodiesel, biohydrogen; application and biotechnological routes of production of bioflavours, vitamins, biosurfactants, biocides, probiotics

#### UNIT IV

Metabolic engineering and industrial products: plant secondary metabolites, control mechanisms and manipulation of phenyl propanoid pathway, shikimate pathway, alkaloids, terpenoids, industrial enzymes, antibodies, edible vaccines, purification strategies; introduction to the balanced salt solutions and simple growth medium; brief discussion on the chemical, physical and metabolic functions of different constituents of culture medium; microbial biotechnology.

#### References

1. Kuby, J., *Immunology*, W.H. Freeman & Co., New York.

### **MBABT7207: SEMINAR ON INTELLECTUAL PROPERTY RIGHTS AND BIOTECHNOLOGY**

**Objective:** The focus of this paper is to sensitise the participants on the intellectual properties its various kinds of infringements and the legal remedies available for its protection. Emphasis is on the case-laws for better understanding and assimilation of salient provisions concerning intellectual property protection.

#### UNIT I

Intellectual Property: definition and scope, nature and scope of intellectual property law, its role in Economic and Industrial Development, general features of Paris Convention, 1967; Trade and Merchandise Marks Act, 1958; Trade Marks Act, 1999; definition of trade mark, registration of trade mark, infringement of trade mark and suits for infringement.

#### UNIT II

Patents Act, 1970; Copy Rights Act, 1957; nature, rights conferred by copyrights; infringement and remedies for infringement, World Trade Organisation, consultative machinery at WTO, salient provisions regarding TRIPS and TRIMS, good manufacturing practices.

#### References:

1. Narayanan, P., *Laws of Trade Marks*, Eastern Law House, Calcutta.
2. Narayanan, P., *Copyrights and Industrial Designs*, Eastern Law How, Calcutta.
3. Paul, Meenu, *Intellectual Property Laws*, Allahabad Law Agency.



## **MBABT7208: WORKSHOP ON INSTRUMENTATION IN BIOTECHNOLOGY**

**Objective:** The objective of this course is to introduce the students to the theoretical foundations and practical exposure of biotechnology.

### **UNIT I**

Theoretical foundations and practical exposure to following experiments: SDS-PAGE-separation of proteins, (sodium dodecyl sulphate polyacrylamide gel electrophoresis), isolation of DNA and RNA, chemical analysis of RNA and DNA, agarose gel electrophoresis of RNA and DNA, restriction enzyme sites in DNA.

### **UNIT II**

Theoretical foundations and practical exposure to following experiments: polymerase chain reactions, nuclear magnetic resonance spectroscopy, spectroscopic analysis, TEM/SEM, absorption spectra for nucleic acids and proteins.

### **References**

1. Manuals of various equipments cited above.