STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086
B.B.A DEGREE: BUSINESS ADMINISTRATION
SYLLABUS
(Effective from the academic year 2016 – 2017)

ACCOUNTING FOR MANAGEMENT I

CODE: 16CM/MC/AM15 **CREDITS: 5**
L T P: 5 0 0
TOTAL TEACHING HOURS: 65

OBJECTIVES OF THE COURSE

- To expose students to the frame work and tools in the preparation, presentation and analysis of Company's financial statements
- To enable students to acquire conceptual knowledge about Accounting Standards

Unit 1

Conceptual Frame Work for Preparation of Financial Statements (15 hrs.)

1.1 Introduction to Accounting Policies, Procedures and Concepts
1.2 Accounting Standards
1.2.1 Object of Accounting Standards - Accounting Standard Board of India - Functions –
1.2.2 Overview of Indian Accounting Standards (Ind AS)–1,2,7,8,10 ,16 and 18
1.3 Convergence with International Financial Reporting Standards (IFRS)

Unit 2

Final Accounts of a Company (15 hrs.)

2.1 Preparation and Presentation of Final Accounts – Forms and Contents as Per Provisions of Companies Act 2013 as Per Schedule – III
2.2 Bonus Issue, Transfer to Reserves and Dividend Declaration
2.3 Managerial Remuneration

Unit 3

Analysis and Interpretation of Financial Statements (15 hrs.)

3.1 Concept of Analysis and Interpretation
3.2 Methods of Financial Analysis and Interpretation
3.2.1 Comparative Statements
3.2.2 Common-Size Statements
3.2.3 Trend Analysis
3.3 Ratio Analysis
3.3.1 Significance and Limitations of Ratio Analysis
3.3.2. Computation and Interpretation of Ratios - Turn Over, Liquidity, Profitability, Solvency and Leverage Ratios

Unit 4

Cash Flow and Fund Flow Analysis (15 hrs.)

4.1 Cash Flow Analysis

4.1.1 Concept of Cash Flow

4.1.2 Significance and Limitation of Cash Flow Statement

4.1.3 Preparation of Cash Flow Statement as per IndAS 7(ICAI)

4.2 Fund Flow Analysis

4.2.1 Meaning and Significance of Fund Flow Statement,Difference between Cash and Fund

4.2.2 Preparation of Fund Flow Statement

Unit 5

Trends in Financial Reporting (5 hrs.)

5.1 Environmental Reporting

5.2 Human Resource Accounting - Approaches

5.3 CSR – Computation and Applicability (Companies Act -Sec.135)

BOOKS FOR STUDY

Gupta, R.L and M. Radhaswamy.*Advanced Accountancy(Vol.1I).*Sultan Chand & Sons, 2011.

Reddy, T.S and A. Murthy.*Corporate Accounting,* Margham, 2012.

Maheshwari, S.N. *Principles of Management Accounting*. New Delhi: Sultan Chand, 2007.

Reddy, T. S. and A .Murthy.*Management Accounting*.Chennai: Margham, 2007.

BOOKS FOR REFERENCE

Jain S.P and K.L Narang.*Advanced Accountancy (Part II).*Kalyani, 2007.

Maheshwari S.N, *Advanced Accountancy (Part1I)*. Vikas, 2007.

Man Mohan and S.N. Goyal. *Principles of Management Accounting.* Agra: SahityaShawan, 2005.

JOURNALS

The Chartered Accountant: Journal of the Institute of Chartered Accountants of India.

Indian Journal of Finance

Journal of Accounting & Finance: Research Development Association, Jaipur.

WEB RESOURCES

www. icai.org

www.journals.elsevier.com

www. emeraldgrouppublshing.com

PATTERN OF EVALUATION

Continuous Assessment

Total Marks: 50 **Duration: 90 mins.**

Section A - 3 x 2 = 6 (no choice)

Section B - 3 x 8 = 24 (from a choice of four questions)

Section C - 1 x20= 20 (from a choice of two questions)

Third Component

List of Evaluation modes:

Assignments – Problem solving

Objective Test

Case study

End Semester Examination

Total Marks: 100 **Duration: 3 hours**

Section A – 10 x 2 = 20 Marks (no choice) 5 Questions theory and 5 Problems

Section B – 5 x 8 = 40 Marks (From a choice of seven questions - Problems)

Section C – 2 x 20 = 40 Marks (From a choice of four questions - Problems)

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SYLLABUS
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PRINCIPLES OF MANAGEMENT

CODE: 16CM/MC/PM14 **CREDITS: 4**
L T P: 4 0 0
TOTAL TEACHING HOURS:52

OBJECTIVES OF THE COURSE

- To provide a comprehensive understanding of the principles of management
- To familiarize students with the current management practices

Unit 1 **(10 hrs.)**

Introduction

1.1 Nature and Scope of Business system
1.2 Objectives of Business and Social Responsibilities of Business
1.3 Forms of Business Organizations – Sole Proprietorship, HUF, Self-Help Group, Family Business, Partnership Firms, Limited Partnership, Small Venture Enterprise, One Person Company and Joint Stock Companies
1.4 Business Combinations,Mergers and Acquisitions, Networking,Franchising, BPOs and KPOs

Unit 2 **(9 hrs.)**

2.1 Management Thought
2.1.1 Classical and Neo classical systems-Contingency and Contemporary Approach to Management – Fayol, Taylor, Elton Mayo,Drucker, Porter, Senge, Prahalad, Hammer, and Tom Peters.

2.2. Functions of Management
2.2.1 Planning – Meaning, Importance, Process and Types of Plan

2.3 Organizing –
2.3.1 Nature, Importance and types
2.3.2 Departmentation, Delegation and De-centralization

Unit 3 **(12 hrs.)**

3.1 Staffing and Communication
3.1.1 Recruitment and Selection
3.1.2 Training – Need, Types of Employee Training
3.1.3 Motivation – Meaning and Maslow's Theory of Motivation
3.1.4 Leadership – Qualities, Types of leaders, Span of Control

3.2 Communication
3.2.1 Types and Process
3.2.2 Barriers to Communication

Unit 4 **(11 hrs.)**

4.1 Directing

4.1.1 Communication – Meaning, process and importance of communication

4.1.2 Leadership – Importance and Styles

4.2 Controlling

4.2.1 Meaning, Importance and Process

4.3 Coordinating

4.3.1 Meaning,Need and Importance

Unit 5

Trends in Management: **(10 hrs.)**

5.1 Social Responsibility of Management – Environment Friendly Management

5.2 Management of Challenges and meeting Challenges

5.3 Management of Change- Concept, nature and process of change

BOOK FOR STUDY

Gupta, C. B.,*Business Management***,** New Delhi, Sultan Chand and Sons, 2007**.**

BOOKS FOR REFERENCE

DinakarPagare, Business Management**,** 5th edition, New Delhi, Sultan Chand, 2008

Gupta, N.S. and Alka Gupta, Essentials of Management**,** New Delhi, Anmol, 2010

Harold Koontz, Hein Weihrich, Essentials of Management, 6th edition, New Delhi, Tata McGraw Hill, 2006

Manmohan Prasad, Management Concepts and Practices**,** Mumbai, Himalaya, 2006

Prasad L.M., Principles and Practice of Management**,** New Delhi, Sultan Chand, 2008

Sivarethinamohan R.&Aranganathan.P, Principles of Management , Chennai,CBA, 2008

JOURNALS

European Journal of Business Management
International Journal of Management Reviews

WEB RESOURCES

www.exed.hbs.edu
www.hbr.org

PATTERN OF EVALUATION

Continuous Assessment:

Total Marks: 50 Duration: 90Mins

Section A 3 x 2 = 6 (no choice)

Section B 3 x 8 = 24 (from a choice of four)

Section C 1 x20= 20 (from choice of two)

Third Component Tests

Case study

Written quiz

Assignment

End Semester Examination:

Total Marks: 100 Duration: 3 hours.

Section A –10 x 2 = 20 Marks (no choice - Max 30 words)

Section B – 5 x 8 = 40 Marks (from a choice of seven - Max 500 words)

Section C –2 x 20 = 40 Marks (from a choice of four -Max 1200 words)

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SYLLABUS
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MANAGERIAL ECONOMICS

CODE: 16CM/AC/ME15 **CREDITS : 5**
L T P : 5 0 0
TOTAL TEACHING HOURS: 65

OBJECTIVES OF THE COURSE

- To provide a theoretical base of Micro Economic Principles and concepts applied in the field of Management
- To provide an understanding of the challenges of modern managers in the decision making process with the market and its working as the backdrop
- To enable the students to relate to real life situations and the theory they are taught

Unit 1 (8 hrs.)

Basic Concepts

1.1 Definition of Economics – Basic problems in Economics – What to produce: Problem of allocation of resources - How to produce: Problem of choice of techniques - For whom to produce: The problem of distribution of the National Product. Role of the Price Mechanism

1.2 Nature meaning and Scope of Managerial Economics

1.3 Decision making and Role of Managerial economists.

Unit 2 (17 hrs.)

Demand and Supply

2.1 Cardinal Utility Analysis – Law of Diminishing Marginal utility

2.2 Law of Demand – Reasons behind the downward sloping demand curve, Exceptions of the law, Changes in Demand

2.3 Ordinal utility Analysis – Indifference curves – Properties, Budget Line - Consumers equilibrium. Price Effect, Substitution Effect and Income Effect

2.4 Elasticity of Demand – Degrees, Factors affecting. Price, Cross, and Income elasticities. Methods in measuring elasticity of Demand

2.5 Basics of Demand Forecasting

2.6 Laws of Supply and Factors affecting Supply. Changes in supply. Elasticity of supply - Consumers and Producer's Surplus

Unit 3 **(13 hrs.)**

Production Cost and Revenue Decisions

3.1 Production Functions – Law of Variable Proportion, Laws of Returns, Economies of Scale.

3.2 Producer's Equilibrium – Iso cost Lines and Isoquants.

3.3 Cost Concepts – Short run and Long run costs. Cost output relationship – Cost control and cost reduction.

3.4 Revenue concepts – TR, AR, MR

3.5 Profit Management –Accounting and Economic profits, Break Even Point.

Unit 4 **(15 hrs.)**

Pricing- I

4.1 Market Structures – Perfect Competition – Price and output determination – Role of time element in price determination

4.2 Monopoly Price and output determination – Price discrimination

4.3 Monopolistic Competition – price and output determination. Product differentiation

4.4 Oligopolistic Markets – equilibrium – Price Rigidities – Kinked Demand curve. Competition versus Collusion – Prisoner's Dilemma (basic concept),Cartels

4.5 Monopsony – Sources of Monopsony Power – Social cost of Monopsony Power – Dead weight loss. Bilateral Monopoly.

Unit 5 **(12 hrs.)**

Pricing- II

5.1 General Pricing Approaches: Cost Based Pricing, Value Based Pricing, Competition Based Pricing .Product Mix Pricing Strategies – Types. Pricing Adjustment Strategies. Price changes. Public Policy and Pricing.

5.2 Introduction to Market Failure – Externalities – Public Goods and Bads

BOOKS FOR STUDY

Joel Dean ,*Managerial Economics*, Prentice Hall Of India, New Delhi, 2002
Markar&Pillai – *Business & Managerial Economics*, Himalaya Publishing Co – 2000
Varshney&Maheshwari – *Managerial Economics,* Sultan Chand & Sons, New Delhi, 2002

BOOKS FOR REFERENCE

Nellis& Parker – '*The Essence Of Business Economics'*, Prentice Hall Of India.
Adhikary, M., *'Business Economics'*. Excel Books,New Delhi, 2000.
Baumol, W.J. Economic Theory and Operations Analysis, 3rdEd., Prentice Hall Inc., New Delhi, 2000
Chopra, O.P *'Managerial Economics'*, Prentice Hall Inc., New Delhi, 2001
Julien, Simon L. *,Applied Managerial Economics*, Prentice Hall Inc., New Jersey, U.S.A.

PATTERN OF EVALUATION
Continuous Assessment

Total Marks: 50 **Duration: 90 mins.**

Section A - 3 x 2 = 6 (no choice)
Section B - 3 x 8 = 24 (from a choice of four questions)
Section C - 1 x20= 20 (from choice of two questions)

Third Component

List of Evaluation modes:
Assignments
Objective Test

End Semester Examination

Total Marks: 100 **Duration: 3 hours**

Total Marks: 100 Duration: 3 hours.
Section A –10 x 2 = 20 Marks (no choice - Max 30 words)
Section B – 5 x 8 = 40 Marks (from a choice of seven - Max 500 words)
Section C –2 x 20 = 40 Marks (from a choice of four -Max 1200 words)

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SYLLABUS
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ACCOUNTING FOR MANAGEMENT - II

CODE: 16CM/MC/AM25 **CREDITS: 5**
L T P :5 0 0
TOTAL TEACHING HOURS: 65

OBJECTIVES OF THE COURSE

- To provide an understanding of the basic concepts of cost and management accounting
- Enable students to understand the methods of ascertaining the product cost
- To focus on the applications of cost control concepts and techniques for effective planning and forecasting

Unit 1

The Nature of Cost and Management Accounting (10 hrs.)

1.1 Meaning, Objectives, Scope And Limitations,
1.2 Difference between Financial, Cost and Management Accounting,
1.3 Basic Concepts and Elements of Cost– Cost, Cost Center and Cost Unit
1.4 Preparation of Cost Sheet, Quotations or Tenders
1.5 Reconciling Cost and Financial Profits

Unit 2

Components of Cost

2.1 Material and Inventory Management (15 hrs.)

2.1.1 Computation of Material Cost and Accounting Treatment for Loss and Scrap
2.1.2 Essentials of Material Control, Purchase Control – Purchase Procedure
2.1.3 Inventory Management –Economic Order Quantity, Level Setting, Perpetual Inventory System, JIT, ABC Analysis
Issue Control- Bin Card and Store Ledger and Methods of Material Issue – First In First Out, Last In First Out, Average Cost -Simple and Weighted Average

2.2 Labour Cost, Remuneration and Incentives

2.2.1 Computation of Labour Cost with Overtime and Idle Time
2.2.2 Labor Turnover – Methods of Computation, Causes and Effects of Labour Turnover
2.2.3 Methods of Remuneration- Time Rate System, Piece Rate System, Taylor's Differential Piece Rate System
2.2.4 Incentive Plans -Halsay Premium Plan, Rowan Premium Plan

Unit 3

Overheads **(15 hrs.)**

3.1 Importance and Classification of Overhead Cost

3.2 Apportionment and Allocation of Overhead
Primary and Secondary Distribution of Overheads - Direct Distribution, Reciprocal and Non Reciprocal Methods.

3.3 Absorption of Overheads – Labour and Machine Hour Rate , Activity Based Costing

Unit 4

Marginal Costing and its Applications **(15 hrs.)**

4.1 Definition, Meaning and Features of Marginal Costing

4.2 Marginal Cost sheet

4.3 Cost Volume Profit Analysis – Break-Even Point

4.4 Make or Buy, Product Mix and Key Factors

Unit 5

Budgets and Variance analysis **(15 hrs.)**

5.1 Concepts of Budgets and Budgetary Control

5.2 Objectives and Advantages of Budgetary Control

5.3 Classification of Budgets and its Preparation – Sales Budget, Purchases Budget, Cost of Production Budget, Cash Budget and Flexible Budget

5.4 Overview of Standard Costing and Variance Analysis (Theoretical Aspects Only)

BOOKS FOR STUDY

Jain, S.P. and Narang K.L. *Cost Accounting*.NewDelhi: Kalyan, 2006.
Reddy, T.S and A. Murthy**.***Cost Accounting.*Margham, 2007.
Maheshwari, S.N. *Principles of Management Accounting*. New Delhi: Sultan Chand, 2007.

BOOKS FOR REFERENCE

Khanna, B.S, I.M Pandey, G.K Ahuja, and M.N Arora.*Practical Costing.* New Delhi: Sultan Chand, 2006.

Maheswari, S.N. *Problems and solutions in Cost Accounting.*12th edition, Sultan Chand, 2010.

Ravi M. Kishore.*Cost Accounting*, 4th edition, Taxmann'sAllied Services, 2010.

Reddy, T. S. and A .Murthy.*Management Accounting*.Chennai: Margham, 2007.

JOURNALS

Cost Accounting Standards - The ICWA of India
Management Accountant - The ICWA of India
Indian Journal of Finance

WEB RESOURCES

icwaijournal@hotmail.com
www.accaglobal.com

PATTERN OF EVALUATION

Continuous Assessment

Total Marks : 50 **Duration : 90 mins.**

Section A - 3 x 2 = 6 (no choice)
Section B - 3 x 8 = 24 (from a choice of four questions)
Section C - 1 x20= 20 (from choice of two questions)

Third Component

List of Evaluation modes:
Assignments
Problem solving
Quiz

End Semester Examination

Total Marks : 100 **Duration : 3 hours**
Section A – 10 x 2 = 20 Marks (no choice) 5 Theory questions and 5 Problems
Section B – 5 x 8 = 40 Marks (from a choice of seven questions – 2 Theory questions and 5 Problems)
Section C – 2 x 20 = 40 Marks (from a choice of four questions -Problems)

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SYLLABUS
(Effective from the academic year 2016 – 2017)

MARKETING MANAGEMENT

CODE: 16CM/MC/MM24 **CREDITS : 4**
L T P : 4 0 0
TOTAL TEACHING HOURS: 52

OBJECTIVES OF THE COURSE

- To enable students to understand the concepts of Marketing, focussing on its macro role in society and micro role in business
- To expose students to various principles and tools of marketing

Unit 1 **(10 hrs.)**

Introduction to Marketing Management

1.1 Marketing and Marketing Management- Definitions and Concepts
1.2 Marketing Mix
1.3 Market Analysis- Market Scanning, Buyer Behavior, Consumer vs. Organizational Buyers, Consumer Decision Making Process, Competition Analysis

Unit 2

Market Selection and Product Strategies **(11 hrs.)**

2.1 Identifying Marketing Segments and Targets
2.2 Demand Forecasting
2.3 Product Strategy-
  2.3.1 New Product Development
  2.3.2 Product Life Cycle
  2.3.3 Product Mix, Packaging and Labeling

Unit 3

Pricing and Distribution Strategies **(11 hrs.)**

3.1 Factors affecting Price Determination
3.2 Pricing Policies and Strategies
3.3 Marketing Channels
3.4 Managing Integrated Marketing

Unit 4

Branding, Positioning and Promotion **(12hrs.)**

4.1 Branding Concepts
4.2 Brand Equity, Brand Positioning
4.3 Promotion Mix
4.4 Integrated Marketing Communication: Features; Differences between Traditional and IMC led promotion

Unit 5

Managing Total Marketing Effort (8 hrs.)

5.1 Tapping into global markets

5.2 Managing a holistic Marketing Organization

BOOK FOR STUDY

Kotler Philip. *Marketing Management.* New Delhi : Prentice Hall of India, 2011.

BOOKS FOR REFERENCE

John, Wilmshurst. *Fundamentals and Practice of Marketing.* New Delhi: Viva Books, 2011.

Johansson J.K. *Global Marketing.*4th edition. New Delhi: Tata, McGraw Hill, 2010.

Keegan W. J. *Global Marketing Management*. New Delhi: Prentice Hall of India, 2013.

Raju M.S. *Fundamentals of Marketing*. New Delhi: Excel Books, 2008.

SaxenaRajan. *Marketing Management*. New Delhi: Tata McGraw Hill, 2005.

Staton, William J. Etzel, Michael J. and Walker Bruce J. *Fundamentals of Marketing.*McGraw Hill (International edition) Inc, 2004.

JOURNALS

International Journal of Research in Marketing
Indian Journal of Marketing
Journal of Marketing Education

WEB RESOURCES

http://smallbusiness.chron.com
http://productlifecyclestages.com
http://www.innovationcoach.com
http://www.marketing-schools.org
http://www.businessdictionary.com

PATTERN OF EVALUATION

Continuous Assessment:
Total Marks: 50 **Duration: 90 mins.**
Section A –7 x 2 = 14 Marks (no choice)
Section B – 2 x 8 =16 Marks (from a choice of three)
Section C –1 x 20 = 20 Marks (from a choice of two)

Third Component
List of Evaluation modes:
Seminars
Quiz,
Group discussion
Assignments
Class Presentation

End Semester Examination:

Total Marks: 100 **Duration: 3 hours.**
Section A –10 x 2 = 20 Marks (no choice - Max 30 words)
Section B – 5 x 8 = 40 Marks (from a choice of seven - Max 500 words)
Section C –2 x 20 = 40 Marks (from a choice of four -Max 1200 words)

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B.B.A DEGREE: BUSINESS ADMINISTRATION

SYLLABUS
(Effective from the academic year 2016 – 2017)

BUSINESS APPLICATIONS IN COMPUTERS

CODE: 16CM/AC/CB25

CREDITS : 5
L T P : 2 0 3
TOTAL TEACHING HOURS.: 65

OBJECTIVES OF THE COURSE

- To give an exposure on E-Commerce environment
- To familiarise students with the E-Commerce strategies and operations

Unit 1

Accounting and Information Systems (10 hrs.)

1.1 Introduction - Methods of Data Collection
1.2 Types Of Information Systems
1.3 Internal Controls for Information Systems

Unit 2 (10 hrs.)

Management Reporting Using Spread sheets

2.1 Business Forecasting – Time Series Analysis – Charts – Ratio Analysis – Regression Analysis
2.2 Financial Statement Analysis – Comparative Statements – Common Size Statements – Cash Flow and Fund Flow Analysis
2.3 Budgeting – Preparation of Master Budget

Unit 3

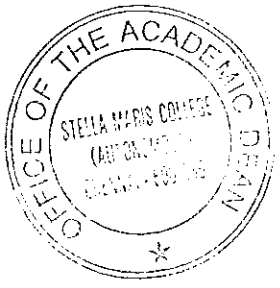
Accounting Package - TALLY (15 hrs.)

3.1 Tally – Creation of a Company, Alteration and Deletion of a Company
3.2 Creation of Account Groups – Liabilities and Assets
3.3 Creation of Ledgers – Alteration and Deletion of Account Master Records
3.4 Accounts Voucher – Voucher Types and Modifications
3.5 Preparation of Final Accounts – Profit and Loss Statement and Balance Sheet
3.6 Inventory – Stock Categories, Group and Items – Usage of Stocks in Voucher Entry

Unit 4

Advertising and Marketing on the Internet (15 hrs.)

4.1 Meaning, Concept, Advantages and Limitations of E-Commerce
4.3 Information Based Marketing
4.3 Advertising on the Internet



4.4 Online Marketing Process
4.5 E-Commerce Strategies
4.5.1 Customer Relationship Management – Strategies and Tools
4.5.2 Supply Chain Management – E-Supply Chain – Components and Architecture – Trends in SCM

Unit 5

Electronic Payment Systems **(15 hrs.)**

5.1 Classification of Electronic Payment System – E- Cash and Currency Servers, E- Cheques, Credit Cards, Smart Cards; Electronic Purses and Debit Cards;
5.2 Risk Involved in Electronic Payment System – Managing Credit Risk and Information Privacy
5.3 Security of E-Payments – Cryptography and Digital Signature

BOOK FOR STUDY

Deepak Jain.*Computer Applications in Business*.Kolkatta:Law point,2008.

BOOKS FOR REFERENCE

Joseph, P.T. *E-Commerce*. New Delhi : PHI,2012.
Kamlesh, K.Bajaj, Devjani Nag.*E-Commerce*.New Delhi: Tata McGraw Hill, 1999.
Ravi Kalakota, Andrew B.Whinston, *Frontiers of Electronic Commerce*. Pearson Education,2008.
David Whiteley. *E-Commerce – Strategy, Technologies and Applications*.New Delhi: Tata McGraw Hill,2006.
Jefrey, F. Rayport, &BernaudJ.Jaworski.*Introduction to E-Commerce*.New Delhi : Tata Mcgraw Hill,2003.
Bodhanwala, J. Ruzbeh. *Understanding and Analysing Balance Sheets using Excel Worksheet*. Prentice Hall,2004.
John, E. Hanker, Dean W. Wichern, Arthur G. Reitsch.*Business Forecasting*. Prentice Hall,2012.
Nadhani, A.K. and Nadhani K.K, *Implementing Tally 9*, BPB Publications, 2009.

JOURNALS

International Journal of E-Commerce

Journal of Theoretical and Applied E-Commerce

Journal of Electronic Commerce in Organizations

Journal of Management Information Systems and E-Commerce

WEB RESOURCES

http://www.ecommerce-digest.com/online-academic-journals.html
http://www.htmlgoodies.com/beyond/webmaster/projects/electronic-commerce-tutorial.htmlhttp://www.openlearningworld.com/books/

PATTERN OF EVALUATION

Continuous Assessment:
Total Marks: 50 **Duration: 90 mins.**
Theory 20 Marks – 30 mins.(5 X 4 =20 from a choice of 6)
Practical 30 Marks - 60 mins.

Third Component:
List of Evaluation modes:
Assignments
Practical test
Group projects

End Semester Examination

Total Marks: 100 Duration: 3 hours.

Theory - 60 mins. 40 marks
Section A (20 x1 =20) Objective questions
Section B (4 x 5 = 20) Answer any four (from a choice of six questions)

Practical – 120 mins. 60 Marks
Section A (3 x10 =30)
Section B (2 x 15 =30)

Vidya Sivadas

20/2/18

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086
B.B.A DEGREE: BUSINESS ADMINISTRATION

SYLLABUS
(Effective from the academic year 2016 – 2017)

BUSINESS AND SOCIETY

CODE: 16CM/MC/BS34 **CREDITS : 4**
L T P : 4 0 0
TOTAL TEACHING HOURS: 52

OBJECTIVES OF THE COURSE

- To expose students to the environment in which modern business operates
- To familiarize the students to the dynamics of changes in business environment

Unit 1 **(8 hrs.)**

Introduction

1.1 Meaning, Definition, Classification into External and Internal Environment – Economic, Political, Legal, Technological, Socio-Cultural factors

1.2 Business EthicsMeaning, Scope and Objectives of Business Ethics - Ethical Dilemma in Business.

1.3 Business and Culture, with Special Reference to Adaptation, Transmission and Conformity

Unit 2

Economic Environment of Business **(10 hrs.)**

2.1 Nature of Economic System – Capitalistic, Socialistic and Mixed Economy - Structure of the Economy – Economic Policies

2.2 Ethical Issues in Finance - Issues Related to Financial Services, Insider Trading and Takeovers

2.3 Ethical Issues in Marketing and Advertising

2.4 Governmental Role in Business – Regulatory, Promotional, Entrepreneurial and Planning

2.5 Whistle Blowing and Whistle Blower's Protection

Unit 3 **(10 hrs.)**

Social Responsibilities of Business

3.1 Towards Shareholders

3.1.1 Corporate Governance - Meaning and Concepts of Corporate Governance

3.1.2 Management Structure of Corporate Governance

3.1.3 Board Committees and Their Functions

3.2 Towards Employees - with Special Reference to

3.2.1 Compensation and Fringe Benefits

3.2.2 ESI, Provident Fund,

3.2.3 Compensation Pertaining to Layoff, Retrenchment

3.3 Worker's Participation in Management

3.4 Quality Circle

Unit 4

Responsibilities of Business towards Community/Society (12 hrs.)

4.1 Consumer exploitation

4.2 Need and Utility for Consumerism4.4

4.3 Consumer Protection in India And Consumer Movements across the globe

4.4 Corporate Social Responsibility

4.4.1 Meaning and Need for Corporate Social Responsibility

4.4.2 Corporate Sustainability and Corporate Social Responsibility

4.5 Managing Environmental Issues

4.6 Case Studies on Society

Unit 5

Important legislative measures for Consumer Protection in India (12 hrs.)

5.1 COPRA 86 –

5.1.1 Important Provisions of Consumer Protection Act 1996

5.1.2 Objects of the Act, Rights of Consumers

5.1.3 Consumer dispute Redressal Agencies – District Forum, State Commission, National Commission – Remedial Action

5.2 Salient Features of other Important Legislations

5.2.1 MRTP Act 1984 Amendment and Competition Act 2002 – Unfair Trade Practices:

5.2.2 The Essential Commodities Act 1955, FPA 2002

5.2.3 Black Marketing& Maintenance of Supply of Essentials Commodities Act 1980,

5.2.4 Trade Marks & Merchandise Marks Act 1958,

5.2.5 FPA 2002

5.2.6 Agricultural Products Grading and Marketing Act 1937,

5.2.7 BIS

BOOKS FOR STUDY

Agarwal, Raj. Business Environment. Excel, 2002.

Cherunilam, Francis. Business Environment. Mumbai: Himalaya 2000.

BOOKS FOR REFERENCE

Aswathappa, K. Essentials of Business Environment.Himalaya, 2003.

Cherunilam, Francis. Global Business Environment. Mumbai: Himalaya, 2000.

Ghosh, P.K. and G.K. Kapoor.Business Policy and Environment. New Delhi: Sultan Chand, 1999.

Mamoria and Mamoria.Business Planning and Policy. Mumbai: Himalaya, 1999.

Sankaran, S. Business Environment. Chennai: Margham, 2000.

JOURNALS
International Journal of Business Environment

The Global Environment of Business

Environmental Business Journal

WEB RESOURCES
www.inderscience.com
www.wto.org
www.it.iitb.ac.in

PATTERN OF EVALUATION
Continuous Assessment:
Total Marks: 50 Duration: 90 mins.
Section A –7 x 2 = 14 Marks (no choice)
Section B – 2 x 8 =16 Marks (from a choice of three)
Section C –1 x 20 =20 Marks (from a choice of two)

Third Component:
List of Evaluation modes:
Seminar
Assignments
Class Presentations

End Semester Examination:

Total Marks: 100 Duration: 3 hours.
Section A –10 x 2 = 20 Marks (no choice - Max 30 words)
Section B – 5 x 8 = 40 Marks (from a choice of seven - Max 500 words)
Section C –2 x 20 = 40 Marks (from a choice of four -Max 1200 words)

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086
B.B.A DEGREE: BUSINESS ADMINISTRATION

SYLLABUS
(Effective from the academic year 2016 – 2017)

LEGAL FRAMEWORK OF BUSINESS –I

CODE: 16CM/MC/LB34 **CREDITS : 4**
L T P : 4 0 0
TOTAL TEACHING HOURS: 52

OBJECTIVES OF THE COURSE

- To familiarize the students with the principles of law that is essential to manage complex business transactions
- To sensitize on the legal rights, duties and obligations arising out of business transactions

Unit 1

1.1 Contract Act (15 hrs.)

1.1.1 Meaning and Types of Contract, Essentials of a Valid Contract, Offer and Acceptance, Consideration, Capacity of Parties, Legality of Object
1.1.2 Performance of Contract
1.1.3 Discharge of Contract, Remedies for Breach of Contract

1.2 Contract of Indemnity and Guarantee

1.2.1 Meaning , Difference between Indemnity and Guarantee
2.1.2 Rights, Liabilities and Discharge of Surety

1.3 Bailment and Pledge

1.3.1 Rights and Duties of Bailor and Bailee, Pledger and Pledge
1.3.2 Termination of Bailment

Unit 2 **(11 hrs.)**

Sale of Goods Act

2.1 Essentials of a Contract of Sale, Sale Vs Agreement for Sale and Rule of Caveat Emptor
2.2 Conditions and Warranties
2.3 Transfer of property
2.4 Performance of Contract
2.5 Rights of an Unpaid Seller

Unit 3

Negotiable Instruments Act (10 hrs.)

3.1 Meaning and Characteristics of Promissory note, Bill of Exchange and Cheque
3.2 Crossing and Endorsement of Cheques
3.3 Payment and Collection of Cheques

Unit 4

Limited Liability Partnership Act, 2008 (LLP) (8 hrs.)

4.1 Salient Features of LLP
4.2 Difference Between LLP, Partnership and a Company
4.3 Incorporation - Incorporation by Registration, Registered Office of LLP and Change of Name, Partners and their Relations
4.4 Extent and Limitation of Liability of LLP and Partners
4.5 Conversion to LLP, Winding Up and Dissolution

.

Unit 5

Law Relating to Intellectual Property (8 hrs.)

5.1 Provisions Relating to Patents, Trademarks and Copyrights
5.2 Overview of Laws Relating to other Intellectual Property Rights
5.3 Enforcement of Intellectual Property Rights

BOOKS FOR STUDY

Kapoor N.D. *Elements of Mercantile Law*. New DeIhi: Sultan Chand, 2010.

Pillai N.P.N., Bhagavathy , Legal Aspects of Business, New Delhi, S. Chand, 2013

BOOKS FOR REFERENCE

Balachandran, V and Thothadri.*Business Law.*Tata McGraw Hill, 2007.

Chadha P.R. *Business Law.* 7th Edition, New Delhi: Galgotia, 2005.

Gogna P.P.S. *Mercantile Law.* 3rd Edition, New Delhi: Sultan Chand, 2005.

Pandit M.S. and ShobaPandit.*Business Law.* Mumbai: Himalaya, 2010.

JOURNALS

Indian Business Law Journal
A.P.L.J. Andhra Pradesh Law Journal

WEB RESOURCES

www.indilaw.com
www.amritt.com

PATTERN OF EVALUATION

Continuous Assessment:

Total Marks: 50 **Duration: 90 mins.**

Section A –7 x 2 = 14 Marks (no choice)
Section B – 2 x 8 =16 Marks (from a choice of three)
Section C –1 x 20 = 20 Marks (from a choice of two)

Third Component

List of Evaluation modes:
Seminars
Quiz,
Group discussion
Assignments
Class Presentation

End Semester Examination:

Total Marks:100 **Duration: 3 Hours**

Section A – short answers (max. 50 words) - 10 x 2 = 20 Marks
Section B – Problems 5 x 8 = 40 Marks (From a choice of 7 – Max 500 words)
Section C – Problems 2 x 20 =40 Marks (From a choice of 4 – Max 1200 words)

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086
B.B.A DEGREE: BUSINESS ADMINISTRATION

SYLLABUS
(Effective from the academic year 2016 – 2017)

HUMAN RESOURCE MANAGEMENT

CODE: 16CM/MC/HM34

CREDITS: 4
L T P: 4 0 0
TOTAL TEACHING HOURS: 52

OBJECTIVES OF THE COURSE

- To provide an understanding of the relevance of HRM in the changing global economy.
- To provide an overview of the HR functions in an organization, covering the entire gamut of operations related to the employee life cycle management.
- To educate the students on the managerial, operative and maintenance aspects of the human resources in an organization

Unit 1

Introduction **(10 hrs.)**

1.1 Significance ,Objectives, Role and Status of Human Resource Management
1.2 Functions and Scope of Human Resource Management
1.3 Personnel Management and Human Resource Management, Organisation and Functions of Personnel Management

Unit 2

Procuring Human Resource **(10 hrs.)**

2.1 Manpower Planning – Objectives, Process, Techniques Short-Term and Long-Term Planning
2.2 Job Analysis – Concept and Importance, Job Description, Job Specification
2.3 Recruitment – Sources
2.4 Selection – Procedure

Unit 3

Developing Human Resource **(12 hrs.)**

3.1 Induction- Meaning, Importance and Methods
3.2 Training – Importance, Assessment of Training Needs, Methods, Design and Evaluation of Training and Development Programmes
3.3 Performance Appraisal – Purpose, Factors affecting Performance Appraisal, Methods and Systems of Performance Appraisal.

Unit 4

Motivating and Compensating Human Resource (10 hrs.)

4.1 Motivation – Meaning and Importance, Theories of Maslow Herzberg, Vroom's Porter and Lawler Theory

4.2 Compensation – Factors, Types – Monetary and Non-Monetary

4.3 Employees Welfare Programme – Health, Safety and Fringe Benefits

Unit 5

Career Planning and Grievance handling (10 hrs.)

5.1 Career Counselling- Promotions and Transfers- Retirement and other Separating Process

5.2 Grievance handling and Discipline - Developing Grievance handling Systems- Collective Bargaining- Managing Conflicts

BOOK FOR STUDY

Aswathappa K, *Human Resource Management: Text and Cases*, Tata McGraw Hill, 6th edition, 2011.

BOOKS FOR REFERENCE

David A Decenzo and Stephen P. Robbins, *Fundamentals of Human Resource Management*, Wiley, 10th edition, 2010.

Flippo V. Edwin. *Personnel Management*. New Delhi: McGraw Hill, 2004.

Gupta, C.B. *Human Resource management*.New Delhi: Sultan Chand, 2007.

Khanka, S.S. *Human Resource management*.New Delhi: Sultan Chand, 2007.

Mamoria, C.B. *Personnel Management*.Mumbai**:** Himalaya, 2004.

Michael Armstrong, Armstrong ,*Handbook of HRM practice*, Kogan page, 11th edition 2010.

Prasad, L.M. *Human Resource management*.New Delhi: Sultan Chand, 2007.

SubbaRao, *Essentials of Human resource management and Industrial Relations: Text, Cases and Games*, Himalaya Publishing house, 4th edition, 2010

JOURNALS

International Journal of Human Resource Management
The Human Resource Management Review
Human Resource Management International Digest
Human Resource Management Journal.

WEB RESOURCES

/hrcouncil.ca/hr-toolkit/planning-strategic.cfm
www.hrwale.com/recruitment/88-2/
www.educationobserver.com/forum/showthread.php?tid=12165
managementhelp.org/training/

PATTERN OF EVALUATION

Continuous Assessment:

Total Marks: 50 **Duration: 90 mins**
Section A –7 x 2 = 14 Marks (no choice)
Section B – 2 x 8 =16 Marks (from a choice of three)
Section C –1 x 20 =20 Marks (from a choice of two)

Third Component:

List of Evaluation modes:
Seminar
Group Discussion
Assignments
Class Presentations

End Semester Examination:

Total Marks: 100 **Duration: 3 hours**
Section A –10 x 2 = 20 Marks (no choice - Max 30 words)
Section B – 5 x 8 = 40 Marks (from a choice of seven - Max 500 words)
Section C –2 x 20 = 40 Marks (from a choice of four -Max 1200 words)

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086
B.B.A DEGREE: BUSINESS ADMINISTRATION

SYLLABUS
(Effective from the academic year 2016 – 2017)

INDIAN FINANCIAL SYSTEM

CODE: 16CM/MC/IF35 **CREDITS : 5**
L T P: 5 0 0
TOTAL TEACHING HOURS: 65

OBJECTIVES OF THE COURSE

- To educate students about the practical relevance and importance of banking
- To update students with the changing trends in banking industry
- To understand the basics of financial services and its various dimensions, evaluation and benefits to the economy
- To identify the importance of diverse facets of the services in the development of Indian financial System

Unit 1

Introduction **(12 hrs.)**

1.1 Indian Financial System – Significance and Features of Indian Financial System
1.2 Components of Indian Financial System – Financial Institutions, Financial Market, Financial Instruments and Financial Services
1.3 Functions of Indian Financial System

Unit 2

Financial Institutions **(13 hrs.)**

2.1 Functions and types of Financial Institutions
- 2.1.1 Banking and Non-Banking Financial Institutions
- 2.1.2 Banking Institutions – Central Bank Commercial Bank, Cooperative banks and Payment Banks – Functions
- 2.1.3 Developments in Banking – Net Banking, Mobile Banking, Tele Banking Electronic Clearing Service and Electronic Fund Transfer

2.2 Non-Banking Financial Institutions - Types and Functions
- 2.2.1 Development Financial Institutions
- 2.2.2 Mutual Fund
- 2.2.3 Insurance
- 2.2.4 Non Banking Financial Companies

Unit 3

Financial Markets **(10 hrs.)**

3.1 Characteristics and Functions of Financial Market
3.2 Types of Market – Money Market, Capital Market, Depository Market Derivative Market and Commodities Market
3.3 Functions and Constituents of Money Market and Capital Market

Unit 4 **(15 hrs.)**

4.1 Financial Instruments

4.1.1 Significance And Role Of Financial Instruments

4.1.2 Types Of Financial Instruments - Money Market , Capital Market and Hybrid Instruments

Unit 5

Financial Services - Types **(15 hrs.)**

5.1 Meaning, Features, and Importance of Financial Services in India

5.2 Types – Fund based and Fee based Services

5.3 Merchant Banking, Leasing, Factoring and Venture capital – Functions and Types

BOOKS FOR STUDY

Gurusamy, S.*Financial Services.*Tata McGraw Hill, 2011.

Sundaram, K.P.M. and P. N.Varshney.*Banking Theory Law and Practice*, New Delhi: Sultan Chand , 2005.

BOOKS FOR REFERENCE

Bhalla, V.K. *Management of Financial Services.* New Delhi: Anmol, 2002.

Gordon, E. and Natarajan K. *Banking Theory Law and Practice*. Mumbai: Himalaya, 2005.

Gupta Shashi K and NishaAgarwal.*FinancialServices.*New Delhi: Kalyani, 2006.

Gurusamy S, *Banking Theory Law and Practice.* Chennai: Vijay Nicole Imprints, 2006.

Machiraju H.R.*Indian financial system*.New Delhi: Vikas, 2013.

Mishkin, Fredrick S. and Stanley G. Eakins.*Financial Markets and Institutions*. Pearson Education India.

Murthy, D.K. Venugopal. *Indian Financial System.,*2006.

Ramesh Babu, G. *Indian financial system.*Concept, 2012.

Varshney P.N. *Banking Law and Practice*, New Delhi; Sultan Chand, 2006.

JOURNALS

Asian Journal of Research in Banking and Finance
Indian Journal of Finance
Journal of Banking, Information Technology and Management
Journal of Bank Management
Journal of Internet Banking and Commerce
International Journal of Banking and Finance

WEB RESOURCES

www.preservearticles.com
www.india-financing.com
www.languages.ind.in
www.rbi.org.in
www.allbankingsolutions.com
www.preservearticles.com

PATTERN OF EVALUATION

Continuous Assessment:

Total Marks: 50 **Duration: 90 mins**

Section A –7 x 2 = 14 Marks (no choice)
Section B – 2 x 8 =16 Marks (from a choice of three)
Section C –1 x 20 =20 Marks (from a choice of two)

Third Component:

List of Evaluation modes:
Seminar
Group Discussion
Assignments
Class Presentations

End Semester Examination:

Total Marks: 100 **Duration: 3 hours**

Section A –10 x 2 = 20 Marks (no choice - Max 30 words)
Section B – 5 x 8 = 40 Marks (from a choice of seven - Max 500 words)
Section C –2 x 20 = 40 Marks (from a choice of four -Max 1200 words)

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086
B.B.A DEGREE: BUSINESS ADMINISTRATION

SYLLABUS
(Effective from the academic year 2016 – 2017)

QUANTITATIVE TECHNIQUES FOR MANAGEMENT

CODE: 16CM/AC/QT35 **CREDITS: 5**
L T P: 5 0 0
TOTAL TEACHING HOURS: 65

OBJECTIVES

- To familiarize students with the basic statistical concepts used in business applications.
- To enable students to understand the various statistical tools essential for analysis and interpretation of data

Unit 1 **(10 hrs)**

1.1 Introduction

1.1.1 Classification and Tabulation of data
1.1.2 Diagrammatic and Graphic representation
1.1.3 Computation of Mean, Standard Deviation and Co-efficient of Variation

Unit 2 **(10 hrs)**

2.1 Correlation Analysis

2.1.1 Significance of the study of correlation.
2.1.2 Methods of correlation
2.1.2.1 Karl Pearson's correlation – Simple problems
2.1.2.2 Rank correlation – Simple problems

Unit 3

3.1 Regression Analysis **(15 hrs)**

3.1.1 Differences between correlation and regression
3.1.2 Regression lines and equations
3.1.3 Limitations of regression analysis

Unit 4

4.1 Permutation, Combination and Progression **(15 hrs)**

4.1.1 Permutation
4.1.2 Combination
4.1.3 Types of Progression – Arithmetic and Geometric, Logarithmic series, Exponential series, Binomial series

Unit 5

5.1 Computation Practice **(15 hrs)**

5.1.1 Ratios and Proportions
5.1.2 Simple Interest and Compound Interest
5.1.3 Linear and Simultaneous Equations
5.1.4 Mensuration

BOOKS FOR STUDY

Gupta, S.P., **Statistical Methods,** 12th editionNew Delhi, Sultan Chand & Sons,2006.
Vittal, P.R, **Business Mathematics,** 6th edition, Chennai, Margham Publications, 2006.

BOOKS FOR REFERENCE

Aggarwal, D.R. **Quantitative Methods (Mathematics and Statistics),** 1st edition, New Delhi, Sultan Chand & Sons, 2003.
Pillai, R.S.N and Bagavathi, V, **Statistics,** 12th edition, New Delhi, Sultan Chand & Sons, 2006.
Sanchetti, V.C &Kapoor, **Business Statistics,** 6th edition, New Delhi, Sultan Chand and Sons, 2006.
Wilson, M, **Business Statistics,** 3rd edition,Mumbai**,** Himalaya Publishing House, 2006

PATTERN OF EVALUATION

Continuous Assessment

Total Marks: 50 **Duration: 90 mins.**

Section A - 3 x 2 = 6 (no choice)
Section B - 3 x 8 = 24 (from a choice of four questions)
Section C - 1 x20= 20 (from choice of two questions)

Third Component

List of Evaluation modes:
Assignments
Test

End Semester Examination

Total Marks: 100 **Duration: 3 hours**

Section A – 10 x 2 = 20 Marks (no choice) 5 Questions theory and 5 Problems
Section B – 5 x 8 = 40 Marks (From a choice of seven questions - Problems)
Section C – 2 x 20 = 40 Marks (From a choice of four questions - Problems)

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086
B.B.A DEGREE: BUSINESS ADMINISTRATION
SYLLABUS
(Effective from the academic year 2016 – 2017)

LEGAL FRAMEWORK OF BUSINESS –II

CODE: 16CM/MC/LF45

CREDITS : 5
L T P : 5 0 0
TOTAL TEACHING HOURS: 65

OBJECTIVES OF THE COURSE

- To familiarize the students with the principles of law that is essential to manage complex business transactions
- To sensitize on the legal rights, duties and obligations arising out of business transactions

Unit 1

Introduction to Company **(15 hrs.)**

1.1 Definition, Characteristics and types of Company
1.2 Incorporation of a Company – procedure for registration of company Lifting of the Corporate Veil
1.3 Memorandum of Association and Articles of Association - Meaning, Contents
1.4 Alterations, Doctrine of Ultra Vires

Unit 2

Raising of Capital **(15 hrs.)**

2.1 Prospectus – Definition, Contents, Mis-statements in Prospectus and its Consequences
2.2 Share Capital - Meaning, Kinds, Alteration and reduction of Share Capital
2.3 Shares - Nature and Types of shares, Application and Allotment, Transfer and Transmission of Shares
2.4 Debentures - Nature and Classes of Debentures ,Inter Company Investments And loans and Public deposits

Unit 3

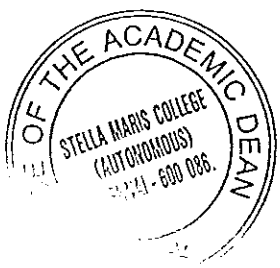
Management and Administration **(10 hrs.)**

3.1 Annual General Meeting &Extraordinary General Meeting – Frequency ,Quorum, Agenda and Voting
3.2 Board Meetings – Quorum, Agenda and Voting - Video Conferencing and Other Audio Visual Aids
3.3 Annual Return, Resolutions - Types of Resolutions
3.4 Board of Directors – Appointment, Removal, Powers, Duties and Liabilities
3.5 DIN, Number of Directorship, Women Directors and Independent Directors .

Unit 4 **(12 hrs.)**

Securities Contract Regulation Act 1956 and SEBI 1992

4.1 Overview of SCRA and SEBI
4.2 Recognition and De-recognition of Stock exchange
4.3 Listing Agreement & Delisting of shares



4.4 Corporatisation and Demutualisation
4.5 Insider Trading
4.6 Penalty And provisions

Unit 5

5.1 Foreign Exchange Management Act 1999 (FEMA) (13 hrs.)

5.1.1 Objectives ,and Importance of FEMA
5.1.2 Authorised Dealer
5.1.3 Types of Transactions (Capital Account and Current Account)
5.1.4 List of prohibited transactions &Liberalised Remittance scheme
5.1.5 Foreign Direct Investment in India and Abroad
5.1.6 Acquisition and Transfer of Immovable Property in India
5.1.7 Realisation and Repatriation of Foreign Exchange

5.2 Competition Act 2002

5.2.1 Objective of Competition Act
5.2.2 Overview – Predatory Pricing, Anti-competitive Agreements , Abuse of dominant position and Competition Commission of India

BOOK FOR STUDY

Kapoor, N.D. *Company Law*. New Delhi: Sultan Chand, 2013

Pillai, R.S.N Bagavathi. *Legal aspects of Business*.S.Chand . New Delhi:

BOOKS FOR REFERENCE

Bhandari, MunishProfessional. *Approach to Corporate Laws and Practice*. New Delhi: Bharat Law House.

Sharma, J. P. and SunainaKanojia.*Business Laws.* New Delhi:Ane Books.

Singh, Avtar. *The Principles of Mercantile Law*.Lucknow:Eastern Book , 2011.

Pandab, S.K.Company Law & Practice. New Delhi: Bharat Law House, 2002.

Shah, S.M. *Lectures on Company Law*.Mumbai: Tripathi M.N, 2006.

Note : Latest edition of the readings may be used

JOURNALS

Journal of Intellectual Property Rights 2007 and 2009
Indian journal of law and technology
Symbiosis contemporary law journal

WEB RESOURCES

www.u nesco.org/new/en/unesco/
www.lawctopus.com/
www.indialawworld.Co

PATTERN OF EVALUATION

Continuous Assessment:

Total Marks: 50 **Duration: 90 mins**

Section A –7 x 2 = 14 Marks (no choice)
Section B – 2 x 8 =16 Marks (from a choice of three)
Section C –1 x 20 =20 Marks (from a choice of two)

Third Component:

List of Evaluation modes:
Seminar
Group Discussion
Assignments
Class Presentations

End Semester Examination:

Total Marks: 100 **Duration: 3 hours**

Section A –10 x 2 = 20 Marks (no choice - Max 30 words)
Section B – 5 x 8 = 40 Marks (from a choice of seven - Max 500 words)
Section C –2 x 20 = 40 Marks (from a choice of four -Max 1200 words)

Vidya Sriram

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086
B.B.A DEGREE: BUSINESS ADMINISTRATION

SYLLABUS
(Effective from the academic year 2016 – 2017)

INTRODUCTION TO FINANCIAL MANAGEMENT

CODE: 16CM/MC/MF44

CREDITS : 4
L T P : 4 0 0
TOTAL TEACHING HOURS: 52

OBJECTIVES OF THE COURSE

- To acquaint the students with the basic tools and principles of financial management
- To provide a sound conceptual frame work for financial decision-making

Unit 1

Nature of Financial Management **(8 hrs.)**

1.1 Modern Approach to Financial Management
- 1.1.1 Investment Decisions
- 1.1.2 Finance Decisions
- 1.1.3 Dividend Decisions

1.2 Objectives of the Firm
- 1.2.1 Profit Maximisation
- 1.2.2 Wealth Maximisation

1.3 Risk Return Trade off

1.4 Significance of Financial Management

Unit 2

Time Value of Money **(10 hrs.)**

2.1 Meaning and Significance of Time value of Money in Financial Decisions

2.2 Computation of Time value of Money
- 2.2.1 Compounding Techniques
- 2.2.2 Present Value Techniques

Unit 3

Measurement of Cost of Capital **(12hrs.)**

3.1 Meaning and Significance

3.2 Cost of Equity and Retained Earnings

3.3 Cost of Debt and Preference - Redeemable and Irredeemable

3.4 Computation of Overall Cost of Capital - Book Value and Market Value

3.5 Overview of Capital Structure theories

Unit 4

Capital Budgeting **(12 hrs.)**

4.1 Nature of Capital Budgeting

4.2 Evaluating Techniques - Pay Back Period, Average Rate of Return, Net Present Value, Internal Rate of Return and Profitability Index

Unit 5

Working Capital Management and Sources of Finances **(10 hrs.)**

5.1 Need for Working Capital Management
5.2 Determinants of Working Capital Management
5.3 Computation of Working Capital
5.4 Sources of finances – Domestic & Globally

BOOK FOR STUDY

Khan, M.Y. and P.K. Jain.*Basic Financial Management.* New Delhi: Tata McGrawHil, 1999.

BOOKS FOR REFERENCE

Chandra, Prasanna. *Fundamentals of Financial Management.* New Delhi: Tata McGraw Hill, 1999.

Van Horne, James C. *Financial Management and Policy.* New Delhi: Prentice Hall of India, 1991.

Kalra, Ashish.*Financial Management.* New Delhi: IGP, 2011.

Khan, M.Y. and Jain P.K. *Basic Financial Management.*New Delhi: Tata McGraw Hill, 1999.

Maheshwari, S. N. *Financial Management.* New Delhi: Vikas, 1999.

Pandey, I. M. *Financial Management.* New Delhi: Vikas, 2000.

Ravi M. Kishore.*Taxmann's Financial Management.* New Delhi: K. L. Taxmann, 2006.

JOURNALS

Journal on Risk and Financial Management
Indian Journal of Finance
Finance India

WEB RESOURCES

www.mdpi.com/
www.indianjournaloffinance.co.in/
www.financeindia.

PATTERN OF EVALUATION

Continuous Assessment Tests
Total Marks: 50 **Duration: 90 mins.**
Section A - 3 x 2 = 6 (no choice)
Section B - 3 x 8 = 24 (from a choice of four questions)
Section C - 1 x20= 20 (from choice of two questions)

Third Component
List of Evaluation modes:
Assignments
Test

End Semester Examination
Total Marks: 100 **Duration: 3 hours**
Section A – 10 x 2 = 20 Marks (no choice 5 Questions theory and 5 Problems)
Section B – 5 x 8 = 40 Marks (from a choice of seven questions – 2 theory and 5 problems)
Section C – 2 x 20 = 40 Marks (from a choice of four questions- Problems)

Vidya Sivaraman

20/2/18.

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086
B.B.A DEGREE: BUSINESS ADMINISTRATION

SYLLABUS
(Effective from the academic year 2016 – 2017)

OPERATIONS RESEARCH

CODE: 16CM/AC/OR45

CREDITS: 5
L T P: 5 0 0
TOTAL TEACHING HOURS: 65

OBJECTIVES OF THE COURSE

- To enable students to understand the concepts and methods of Operations Research
- To expose students to a wide range of problem solving techniques and methods applied in decision making.

Unit 1

Introduction to Operations Research (10 hrs.)

1.1 Meaning, Scope, Techniques, Relevance and Limitations

1.2 Meaning of Model, Steps in building a Model.

1.3 Linear Programming - Introduction, terminology and applications, Mathematical formulation of a linear programming problem, Graphical solution, Algebraic method (Simplex method) - Maximization and minimization cases (single and mixed constraints), Duality : Concept and Interpretation

Unit 2

Transportation (15 hrs.)

2.1 Introduction, Matrix Formulation and Balance check of a Transportation Problem.

2.2 Initial Basic Feasible Solutions – Northwest corner rule, least cost method and Vogel's approximation method.

2.3 Test of Optimality and Optimal Solution - the Stepping Stone Method and MODI Method

Unit 3

Assignment (14 hrs.)

3.1 Introduction , Balanced and Unbalanced Assignment Problem

3.2 Formulation,Hungarian method for optimal solution.

3.3 Traveling salesman problem

Unit 4

Games Theory. (11 hrs.)

4.1 Introduction and Basic Terminology, Competitive Games and rectangular game

4. 2 Saddle Point – minimax (maximin) method of optimal strategies - Value of the game – Mixed Strategies – Rules of Dominance

4.3 Rectangular games without saddle point – mixed strategy for 2 X 2 games.

Unit 5

Network Analysis **(15 hrs.)**

5.1 Meaning , Objectives and Applications
5.2 Techniques of Network Analysis – PERT and CPM
5.3 Calculation of Floats
5.4 Calculation of Expected Duration and Variance
5.5 Calculation of Probability

BOOKS FOR STUDY

P. SankaraIyer, "Operations Research", Tata McGraw-Hill, 2008.
A.M. Natarajan, P. Balasubramani, A. Tamilarasi, "Operations Research", Pearson Education, 2005.

BOOKS FOR REFERENCE :

J K Sharma., Operations Research Theory & Applications , 3e, Macmillan India Ltd, 2007.
P. K. Gupta and D. S. Hira, Operations Research, S. Chand & co., 2007.
J K Sharma., Operations Research, Problems and Solutions, 3e, Macmillan India Ltd.
N.V.S. Raju, Operations Research, HI-TECH, 2002.

JOURNALS

International Journal of Operational Research
Journal of Operation Research Society
Asia-Pacific Journal of Operations Research

WEBSITES

www.inderscience.com/ijor
www.**journals**.elsevier.com/european-**journal**-of-**operational**-**research**
www.scirp.org/**journal**/ajor/

PATTERN OF EVALUATION

Continuous Assessment
Total Marks : 50 Duration : 90 mins.
Section A - 3 x 2 = 6 (no choice)
Section B - 3 x 8 = 24 (from a choice of four questions)
Section C - 1 x20= 20 (from choice of two questions)

Third Component

List of Evaluation modes:

Assignments

Objective Test

End Semester Examination

Total Marks: 100 Duration: 3 hours

Section A – 10 x 2 = 20 Marks (no choice - 5 Theory Questions and 5 Problems)

Section B – 5 x 8 = 40 Marks (from a choice of seven questions - Problems)

Section C – 2 x 20 = 40 Marks (from a choice of four questions- Problems)

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086
B.B.A DEGREE: BUSINESS ADMINISTRATION

SYLLABUS
(Effective from the academic year 2016 – 2017)

ENVIRONMENTAL STUDIES

CODE: 16CM/GC/ES42 **CREDITS : 2**
L T P : 2 0 0
TOTAL TEACHING HOURS: 26

OBJECTIVES OF THE COURSE

- To provide a fundamental knowledge of the environment
- To create an awareness about environmental issues

Unit 1

Introduction (4 hrs.)

1.1 Components of the Environment – Technological,Social, Natural. Classification and Characteristics of Resources – K_N,K_M,K_H, Renewable and Non-Renewable
1.2 Material Balance Approach
1.3 Energy Flow under Ecosystems

Unit 2

Pollution and Socio Economic Aspects of the Environment (11 hrs.)

2.1 Types of Pollution –Air, Water, Solid Waste, Noise
2.2 Sources, Effects and Consequences of Pollution
2.3 Policy Measures with respect to India
2.4 Human Behaviour- Population- Urbanization- Poverty (as Cause and Result of Pollution and Degradation
2.5 Technology- Agriculture and industry – Deforestation. Use, Misuse and Abuse of the Resources
2.6 Religion, Tradition and Culture

Unit 3

Sustainable Development, Remedies and Policy Implications (11 hrs.)

3.1 Problems – Greenhouse Effect – Depletion of the Ozone Layer – Climate Change
3.2 Loss of Biodiversity – Impact on Women –Ecofeminism
3.3 Impact on Livelihood and Health – Environmental Disasters – Natural and Manmade - Bhopal Gas Tragedy – Chernobyl Accident - Gulf War - Love Canal Episode –Tsunami
3.4 Methods Evolved to Measure and Check Environmental Degradation and Pollution – Carbon Footprint, Carbon Credit, Ecological Footprint, and Ecological Shadow
3.5 Environmental movements in India –Chipko movement, Narmada BachaoAndolan, SethuSamudram Project

3.6 International Environmental agreement – Stockholm Conference –Montreal Protocol –RIO Meet –Kyoto Conference

BOOKS FOR REFERENCE

Igancimuthu, S. *Environmental Awareness and Protection*. New Delhi: Phoenic, 1997.

Jadhav, H. and V.M. Bhosale.*Environmental Protection and Laws*. New Delhi: Himalaya, 1995.

Odum, E.P. *Fundaments of Ecology*, USA: W.B Sauders,1971.

Mies,M. and V. Shiva. *Ecofeminism*,London: Zed Books, 1989.

JOURNALS

The National Geographic
International Journal of Environmental Studies

WEB RESOURCES

http://collegesat.du.ac.in/UG/Envinromental%20Studies_ebook.pdf
http://www.slideshare.net/ruchispandey/introduction-to-environmental-studies

PATTERN OF EVALUATION

Third Component:
List of Evaluation modes:
Seminars
Quiz
Group discussion
Assignments
Case studies

No End Semester Examination

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086
B.B.A DEGREE: BUSINESS ADMINISTRATION

SYLLABUS
(Effective from the academic year 2016 – 2017)

ESSENTIALS OF WORKFORCE BEHAVIOUR

CODE: 16CM/MC/WB55 **CREDITS: 5**
L T P : 5 0 0
TOTAL TEACHING HOURS : 65

OBJECTIVES OF THE COURSE

- To provide an overview of the major challenges and paradigm shift facing management.
- To create an understanding of individual and group behavior on the effective functioning of an organization
- To create an awareness on the importance of team building skills.

Unit 1
Introduction **(10 hrs.)**
1.1 Nature, Importance and Scope of Behaviour of Work Force in an Organisation
1.2 Basic Concepts and New Challenges in Managing Work Force

Unit 2
Foundation of Individual Behaviour **(16 hrs.)**
2.1 Individual Behaviour – Environmental Factors Affecting Individual Behaviour
2.2 Personality – Definition, Personality Traits
2.3 Attitudes –Nature of Attitudes, Formation of Attitudes, Key Work Related Attitudes
2.4 Perception – Meaning and Definition, Factors Influencing Perception

Unit 3
Stress and Conflict Management **(13 hrs.)**
3.1 Stress- Nature of Stress, Causes and Consequences of Stress, Managing Stress in Workplace
3.2 Conflict in Organizations – Nature of Conflict, Functional and Dysfunctional Conflict and Strategies for Resolving Conflict

Unit 4
The Organization System **(13 hrs.)**
4.1 Organization Structure-Meaning and Importance, Influence of Organizational Structure of Individual Behavior
4.2 Organisational Culture- Meaning and Definition, Changing the Organizational Culture

Unit 5 **(13 hrs.)**

Group Behaviour

5.1 Group Dynamics – Meaning and Types

5.2 Team building – Ingredients of Effective Team, the Process and Skills in Team Building

BOOKS FOR STUDY

Aswathappa, K. *Organizational Behaviour*. New Delhi: Himalaya, 2007.

Robbins P. Stephen. *OrganisationalBehaviour* – Concepts, Controversies and Applications, New Delhi: Prentice Hall, 2005.

BOOKS FOR REFERENCE

Davis, Keith and Weratom, JohnW.*Human behaviour at Work, OrganisationalBehavior*. Madras: McGraw Hill.

Luthans, Fred. *Organizational Behaviour*. Singapore: McGraw Hill, 2010.

Mishra M. N. *Organizational Behaviour*. New Delhi: Vikas, 2010.

Prasad L.M. *OrganisationalBehaviour*. New Delhi: Sultan Chand, 2007.

Sekaran Uma. *Organizational Behaviour – Text and Cases*. New Delhi: Tata McGraw Hill, 2006.

JOURNALS

International Journal of Management Reviews

Journal of Leadership and Organisational Studies

Journal of Organisational Culture, Communication and Conflict

SSRN – E Journal

WEB RESOURCES

www.exed.hbs.edu

www.hbr.org

www.onlinelibrary.wiley.com

PATTERN OF EVALUATION

Continuous Assessment:

Total Marks: 50 **Duration: 90 mins**

Section A –7 x 2 = 14 Marks (no choice)

Section B – 2 x 8 =16 Marks (from a choice of three)

Section C –1 x 20 =20 Marks (from a choice of two)

Third Component:

List of Evaluation modes:
Seminar
Group Discussion
Assignments

End Semester Examination:

Total Marks: 100 **Duration: 3 hours**

Section A –10 x 2 = 20 Marks (no choice - Max 30 words)
Section B – 5 x 8 = 40 Marks (from a choice of seven - Max 500 words)
Section C –2 x 20 = 40 Marks (from a choice of four -Max 1200 words)

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086
B.B.A DEGREE: BUSINESS ADMINISTRATION

SYLLABUS
(Effective from the academic year 2016 – 2017)

ENTREPRENEURIAL MANAGEMENT

CODE: 16CM/MC/EM55 **CREDITS : 5**
L T P : 5 0 0
TOTAL TEACHING HOURS : 65

OBJECTIVES OF THE COURSE

- To provide a comprehensive knowledge on the various aspects related to entrepreneurial development
- To familiarize students with the practical knowledge of establishing a business

Unit 1

Introduction (15 hrs.)

1.1 Concept of Entrepreneurship - Meaning, Definition, Characteristics and Need for Entrepreneurship

1.2 Entrepreneur - Meaning, Definition, Scope, Need, Function and Types of Entrepreneur

1.3 Role of Entrepreneurship in Economic Development

1.4 Factors Influencing Entrepreneurship Development

1.4.1 Internal and External Environment – Economic and Non -Economic, Psychological, Social, Cultural, Political, Legal and Economic Factors.

1.5 Barriers to Entrepreneurship

1.6 Entrepreneur Vs. Entrepreneurship, Entrepreneur Vs. Manager, Entrepreneur vs. Intrapreneur

Unit 2

Enterprise Launching (15 hrs.)

2.1 Opportunity Identification and Selection-

2.2 Idea Generation and Screening of Business Idea, Sources of Business Idea, Evaluation of Business Idea. Selection of Business Idea

2.3 Business Plan – Meaning, Contents and Significance of Business Plan

2.4 Business Plan Process, Advantages of Business Planning

2.5 Environmental Analysis - Scanning, SWOT Analysis.

Unit 3

Project Identification (15 hrs.)

3.1 Project Identification and Classification

3.1.1 Meaning and Types of Project

3.1.2 Internal and External Constraint in Project Identification

3.1.3 Project Life Cycle

3.2 Assessment of Project Feasibility. Dealing with Basic and Initial Problems of Setting up of Enterprises

3.3 Preparing Model Project Report for Starting a New Venture

Unit 4 **(10 hrs.)**

Project Formulation

4.1 Meaning of Project Formulation - Meaning, Concept, and Stages in Project Formulation

4.2 Need and Significance of Project Formulation, Feasibility Analysis

4.3 Elements of Project Formulation

4.4 Feasibility Report

Unit 5 **(10 hrs.)**

Selection of Form of Business Ownership

5.1 Choice of Organization - Meaning, Importance of Choosing the Form of Organization and Functions

5.2 Factors Determining the Choice of Ownership

5.3 E-Commerce and Small Enterprises

5.4 Selection of an Appropriate Form of Organization Structure.

BOOK FOR STUDY

Course Texts S.S.Khanka.*Entrepreneurial Development*. New Delhi: S. Chand, 1997.

BOOK FOR REFERENCE

Balu, V. *Entrepreneurial Development*. Sri Venkateswara, 1998.

Charantimath.*Entrepreneurship development& Small business enterprise*. New Delhi: Pearson.

Gupta C.B. &Srinivasan N. P. *Entrepreneurial Development.* New Delhi: Sultan Chand,1998.

Jayashree Suresh. *Entrepreneurial Development*. New Delhi: Margham, 1999.

JOURNALS

Journal of Business venturing
Journal of development entrepreneurship
Journal of entrepreneurship education

WEB RESOURCES

www.entrepreneur.com
www.businessesforsale.com
www.sba.gov

PATTERN OF EVALUATION

Continuous Assessment:

Total Marks: 50 **Duration: 90 mins**

Section A –7 x 2 = 14 Marks (no choice)
Section B – 2 x 8 =16 Marks (from a choice of three)
Section C –1 x 20 =20 Marks (from a choice of two)

Third Component:

List of Evaluation modes:
Seminar
Group Discussion
Assignments
Class Presentations

End Semester Examination:

Total Marks: 100 **Duration: 3 hours**

Section A –10 x 2 = 20 Marks (no choice - Max 30 words)
Section B – 5 x 8 = 40 Marks (from a choice of seven - Max 500 words)
Section C –2 x 20 = 40 Marks (from a choice of four -Max 1200 words)

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086
B.B.A DEGREE: BUSINESS ADMINISTRATION

SYLLABUS
(Effective from the academic year 2016 – 2017)

TAXATION LAW

CODE: 16CM/MC/TL55 **CREDITS : 5**
L T P : 5 0 0
TOTAL TEACHING HOURS: 65

OBJECTIVES OF THE COURSE

- To give an overview into the complexity of the taxation system and to enable students to compute the taxable income and tax liability of an individual assesse.
- To acquire the ability to apply the knowledge of the basic provisions of Income Tax Laws to various situations in actual practice.

Unit 1
Introduction **(10 hrs.)**
1.1 Taxation – Meaning, Importance, Features and Types of Tax
1.2 Basic Concepts in Income Tax, E-filing, PAN
1.3 Residential Status and Incidence of Tax

Unit 2
Computation of Taxable Income under the Head Salaries **(15 hrs.)**
2.1 Salary – Meaning, Basis of Charge
2.2 Allowances, Perquisites, Other Receipts
2.3 Treatment of Provident Fund
2.4 Computation of Taxable Income

Unit 3
Computation of Taxable Income under the Head House Property and Profits and Gains from Business and Profession **(15 hrs.)**
3.1 House Property – Basis of Charge and Computation of Self-Occupied and Let out house property income
3.2 Computation of Profits and Gains of Business and Professional Income

Unit 4
Computation of Taxable Income and Tax Liability **(15 hrs.)**
4.1 Capital Gains – Computation of Short Term and Long Term Capital Gain
4.2 Income from Other Sources – Casual and General Incomes
4.3 Set-off and Carry forward of Losses
4.4 Deductions
4.5 Computation of Tax Liability

Unit 5

Introduction to Indirect Taxation **(10 hrs.)**

5.1 Customs Duty – Basic concepts, Levy and Collection
5.2 Excise Duty – Basic concepts, Levy and Collection
5.3 Goods and Services Tax (GST)-Basic concepts, Levy and liability under GST

BOOKS FOR STUDY

Balachandran, V. *Indirect Taxes*. New Delhi: Sultan Chand, 2015

Gaur, V.P. and D.B Naran. *Income Tax Law and Practice*. Kalyani, 2015.

BOOKS FOR REFERENCE

Ahuja, Girish and Gupta Ravi.*Practical Approach to Income Tax.*

Mehrothra, H.C. *Income Tax Law and Practice*. SahithyaBhavan.

Singhania, Vinod K. *Student's Guide To Income Tax*. Taxmann.

JOURNALS

Excise Law Times (Fortnightly Reporting Journal)
Excise and Customs Cases (Fortnightly Reporting Journal)
Excise and Customs Reporters (Fortnightly Reporting Journal)
Direct Taxes Report Journal

PATTERN OF EVALUATION

Continuous Assessment:

Total Marks: 50 **Duration: 90 mins**

Section A –7 x 2 = 14 Marks (no choice)
Section B – 2 x 8 =16 Marks (from a choice of three)
Section C –1 x 20 =20 Marks (from a choice of two)

Third Component:
List of Evaluation modes:

Objective test
Assignments
Class Presentations

End Semester Examination:

Total Marks: 100 **Duration: 3 hours**

Section A –10 x 2 = 20 Marks (no choice - Max 30 words)
Section B – 5 x 8 = 40 Marks (from a choice of seven - Max 500 words)
Section C –2 x 20 = 40 Marks (from a choice of four -Max 1200 words)

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086
B.B.A DEGREE: BUSINESS ADMINISTRATION

SYLLABUS
(Effective from the academic year 2016 – 2017)

PRODUCTION AND OPERATIONS MANAGEMENT

CODE: 16CM/MC/PO65 **CREDITS : 5**
L T P : 5 0 0
TOTAL TEACHING HOURS: 65

OBJECTIVES OF THE COURSE

- To provide a comprehensive knowledge to students about production and operations management
- To enable students to understand the concept relating to quality management

Unit 1

Introduction to Production and Operations Management (10 hrs.)

1.1 Overview of Process and Operations Management
1.2 Role of Operations Management in Manufacturing and Services Sector
1.3 Relationship of Operations with other functional areas of a business organization
1.4 Differences among products, goods and services

Unit 2

Types of Production Processes and Layout Planning (15 hrs.)

2.1 Process types in manufacturing: project, jobbing, batch, line, mass, continuous;
2.2 Process types in services: professional services, services shops, mass services;
2.3 Plant location; Layout planning.

Unit 3

Production Design (15 hrs.)

3.1 Definition, Importance, Factors affecting product Design- Product Policy Standardization, Simplification.
3.2 Production Development-Meaning, Importance, Factors Responsible for Development,
3.3 Techniques of Product Development

Unit 4

Production Planning and Control (15 hrs.)

4.1 Meaning, Objectives, Scope, Importance & Procedure of Production Planning,
4.2 Routing scheduling Master Production Schedule,
4.3 Production Schedule, Dispatch, Follow up,
4.4 Production Control-Meaning, objectives, Factors affecting Production Control

Unit 5

Quality Management (10 hrs.)

5.1 Introduction; Quality characteristics of goods and services;

5.2 Tools and techniques for quality improvement: check sheet, histogram, scatter diagram, cause and effect diagram, process diagram, Quality assurance;

5.3 Total quality management (TQM) model; Service quality, concept of Six Sigma

BOOKS FOR REFERENCE

Aswathappa.K&Sridhara Bhatt, '**Production & Operations Management'**, Himalaya Publishing House, Mumbai, 2008.

Chunawalla, S.A. and Patel, D.R., '**Production and Operations Management'**, Himalaya Publishing House, Mumbai, 2008.

Khanna.K.K – '**Physical Distribution Management: Logistical Approach'**, Himalaya Publishing House, Mumbai 2002.

Martinich , '**Production and Operations Management – An Applied Modern Approach'**, Wiley India (P) Ltd., New Delhi, 2008.

PaneerSelvam R. - '**Production and operations Management'**, Prentice Hall of India, New Delhi, 2005.

Dan R.Reid; Sanders R. Nada, '**Operations Management – An Integrated Approach**', 3rdEdison, Wiley India (P) Ltd., New Delhi, 2008.

PATTERN OF EVALUATION

Continuous Assessment:

Total Marks: 50 **Duration: 90 mins**

Section A –7 x 2 = 14 Marks (no choice)
Section B – 2 x 8 =16 Marks (from a choice of three)
Section C –1 x 20 =20 Marks (from a choice of two)

Third Component:

List of Evaluation modes:

Seminar
Group Discussion
Assignments
Class Presentations

End Semester Examination:

Total Marks: 100 **Duration: 3 hours**

Section A –10 x 2 = 20 Marks (no choice - Max 30 words)
Section B – 5 x 8 = 40 Marks (from a choice of seven - Max 500 words)
Section C –2 x 20 = 40 Marks (from a choice of four -Max 1200 words)

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B.B.A DEGREE: BUSINESS ADMINISTRATION

SYLLABUS
(Effective from the academic year 2016 – 2017)

STRATEGIC MANAGEMENT

CODE: 16CM/MC/ST64 **CREDITS: 4**
L T P: 4 0 0
TOTAL TEACHING HOURS: 52

OBJECTIVES

- To enable students to understand the concept of strategic management
- To develop a framework of analysis for better understanding of the present and emerging environment

Unit 1 **(10 Hrs)**

1.1 Concepts of Strategic Management

1.1.1 Basic model of Strategic Management
1.1.2 Types of strategies – Corporate, Business, Functional strategy
1.1.3 Benefits of Strategic Management

Unit 2 **(10 Hrs)**

2.1 Corporate Strategies

2.1.1 Corporate Objectives, Policies and Mission
2.1.2 Role of Corporate Governance

Unit 3

3.1 External and Internal Environment **(12 Hrs)**

3.1.1 Identifying external environment variables
3.1.2 Task environment – industry analysis (Porter's approach)
3.1.3 Structure – Chain of Command, Value chain Analysis

Unit 4

4.1 Strategy Formulation **(10 Hrs)**

4.1.1 Situation Analysis - SWOT
4.1.2 Marketing, Financial and Operations Strategy

Unit 5

5.1 Strategy Implementation, Evaluation and Control **(10 Hrs)**

5.1.1 Developing implementation programmes
5.1.2 Primary measures of corporate performance
5.1.3 Using bench marking to evaluate performance

BOOKS FOR REFERENCE

AzharKazmi, **Business Policy**, New Delhi, Tata McGraw Hill Publications Co. Ltd., 1999.
Archarya, B K, Govekar P. B. **Business Policy andStrategic Management,** 2nd edition**,** Mumbai, Himalaya Publishing House, 1999.

Bhattacharya, S.C., **Strategic Management, Concepts and Cases,** 1st edition, New Delhi, A.H. Wheeler Publish and Co. Ltd., 1999.

David Hinger J., Thomas L. Wheelen, **Strategic Management,** USA, AWL International Student Edition, Inc. (Addsion Wesley Longman) printed and bound in India by Replika Press Pvt. Ltd. 1999.

Michael A Hitt, R Duanc Ireland, Robert E. Hoskisson, **Strategic Management – Competitiveness and Globalisation,** OHIO – USA, ITP (International Thomson Publishing), 1999.

Thomson Strickland, **Strategic Management,** 13th edition, New Delhi, Tata McGraw Hill Publishing Co. Ltd., 2003.

PATTERN OF EVALUATION

Continuous Assessment:

Total Marks: 50 Duration: 90Mins
Section A 3 x 2 = 6 (no choice)
Section B 3 x 8 = 24 (from a choice of four)
Section C 1 x20= 20 (from choice of two)

Third Component Tests

Open book test
Problem solving
Assignment

End Semester Examination:

Total Marks:100 Duration: 3 Hours

Section A – short answers (max. 50 words) - 10 x 2 = 20 Marks
Section B – Problems 5 x 8 = 40 Marks (From a choice of 7 – Max 500 words)
Section C – Problems 2 x 20 =40 Marks (From a choice of 4 – Max 1200 words)

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086
B.B.A DEGREE: BUSINESS ADMINISTRATION

SYLLABUS
(Effective from the academic year 2016 – 2017)

FUNDAMENTALS OF PUBLIC RELATIONS

CODE: 16CM/MC/FP64

CREDITS: 4
L T P: 4 0 0
TOTAL TEACHING HOURS: 52

OBJECTIVES OF THE COURSE

- To understand the basic premises and fundamental concepts of Public Relations
- To comprehend the distinction of Public Relations from advertising, marketing, event management etc.

Unit 1 (10 hrs)

Definitions

1.1 Public Relations

1.2 Publics

- 1.2.1 Internal publics and External publics
- 1.2.2 Two-way communications

1.3 Organization of a PR Department

- 1.3.1. Qualities of a PR person
- 1.3.2. Ethics in PR
- 1.3.3 Outsourcing of PR- use of PR agencies
- 1.3.4 Need for Public Relations

1.4 Corporate image and identity management

Unit 2

Public Relations – Highlights and Differences (10hrs)

2.1 Advertising and Public Relations

2.2 Publicity, Propaganda and Public Relations

2.3 Marketing and Public Relations

- 2.3.1 Public Relations' support to Marketing
- 2.3.2 Integrated Marketing Communication

2.4 Lobbying and Public Relations

Unit 3 **(12 hrs)**

Employee, Customer and Community Relations

3.1 Need for effective employee relations

3.1.1 Expectations of employers and employees; employee involvement and participation

3.1.2 Employee communication

3.2 Customer Relations

3.2.1 Concept of consumer's market – needs, requirements and expectations of consumers

3.2.2 loyalty building and effective communication

3.3 Concept of Corporate Social Responsibility

3.3.1 Environmental and social governance

3.3.2 Industry as an important stakeholder in the community

3.3.3 Objectives and benefits of community relations programme

Unit 4 **(10 hrs)**

Event Management

4.1 Event Management Industry – A Historical Perspective

4.2 Events – Classification and Types

4.3 Special Events

4.4 Organizing an Event

Unit 5

Communication Tools **(10 hrs)**

5.1 Public Speaking and presentational skills

5.2 Press and media relations: Writing skills

5.3 Use of photography, films, internet, exhibitions, trade fairs

5.4 Effective communication for crisis management

BOOKS FOR STUDY

Black, Sam. Practical Public Relations**.** New Delhi: Universal Book Stall, 2002.

Cutlip, S.M., A.H Center and G.M Broom. Effective Public Relations**.** 1st Ed. New Jersey: Pearson Education, 2000.

Darrow, R.W., D.J Forrestal, and A.D. Cookman. The Dartnell Public Relations –Handbook**.** Chicago and London: The Dartnell Corporation, 1967.

Heath, Robert L., Elizabeth Toth and D. Waymer (Eds). Rhetorical and Critical Approaches to Public Relations II. New York and London: Routledge, 2009

Kotler, Philip, Keller, Kevin Lane Et al., Marketing Management – A South Asian Perspective. New Delhi, Pearson Publication, 2009

Lesly, P. Handbook of Public Relations& Communications.2nd Ed. Mumbai: Jaico Publishing Company, 2002.

Sachdeva, I.S. Public Relations: Principles and Practices. New Delhi: Oxford University Press. 2009.

Chapter 4: Ethics and the Public Interest, pp. 40-76

BOOKS FOR REFERENCE

Dunn, J. Successful Public Relations: The Insider's Way to get Successful Media Coverage. New Delhi: Viva Books Pvt. Ltd., 2005.

Datta. K.B. Fundamentals of Public Relations.New Delhi: Akansha Publishing House, 2005.

Harrison, Shirley. Public Relations: An Introduction.2nd Ed. U.K.: Thomson Learning, 2000.

Jefkins, F. Public Relations for your Business.Mumbai: Jaico Publishing House, 2004.

Kasor, Shrutika. Public Relations**.** New Delhi: Mohit Publications, 2003.

Kaul, J.M. Public Relations in India.Calcutta: NayaProkash, 1976.

Mehta, D.S. Handbook of Public Relations in India.4th Ed. New Delhi: Allied Publishers, 1980.

Marconi, J. Public Relations: The Complete Guide.U.K.: Thomson and Racom Communications, 2004.

Moss, D and Santo De Barbara (Eds). Public Relations Cases: International Perspectives**.** London and New York: Routledge Taylor and Francis Group, 2002.

Wilcox, D.L, P.H. Ault, and W.K.Agree. Public Relations.New York: Longman, 1997.

Singh, Pushpendra and Singh, Sameer Kumar: Public Relations Management. New Delhi: Jnananda Prakashan Publication, 2009

PATTERN OF EVALUATION

Continuous Assessment:

Total Marks: 50 **Duration: 90 mins**

Section A –7 x 2 = 14 Marks (no choice)
Section B – 2 x 8 =16 Marks (from a choice of three)
Section C –1 x 20 =20 Marks (from a choice of two)

Third Component:

List of Evaluation modes:
Seminar
Group Discussion
Assignments
Class Presentations

End Semester Examination:

Total Marks: 100 **Duration: 3 hours**

Section A –10 x 2 = 20 Marks (no choice - Max 30 words)
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Section C –2 x 20 = 40 Marks (from a choice of four -Max 1200 words)

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086
B.B.A DEGREE: BUSINESS ADMINISTRATION

SYLLABUS
(Effective from the academic year 2016 – 2017)

RECENT TRENDS IN MARKETING

CODE: 16CM/AE/RT45 **CREDITS : 5**
L T P : 5 0 0
TOTAL TEACHING HOURS : 65

OBJECTIVES OF THE COURSE

- To acquaint the students about the recent trends in marketing
- To provide an understanding of the application of marketing trends to discover and meet consumer needs

Unit 1 **(5 hrs.)**

Emerging Trends in Marketing – An Overview

1.1 Emerging Trends – An Indian Perspective
1.2Challenges for Marketers in the New Economy

Unit 2

Technology Driven Marketing **(12 hrs)**

2.1 Cloud/Online Marketing

2.1.1 Meaning, Reasons for growth of online marketing,
2.1.2 An introduction of two largest online marketing companies

2.2 Mobile Marketing

3.1.1 Meaning, Reasons for growth of mobile marketing,
3.1.2 An introduction of two largest mobile marketing companies

Unit 3

Socially Responsible Marketing **(15Hrs)**

3.1 Green Marketing

3.1.1 Meaning & Characteristics
3.1.2 Reasons for growth of Green Marketing
3.1.3 An introduction two largest green marketing companies in India

3.2 Social Marketing

3.2.1 Meaning & Characteristics
3.2.2 Reasons for growth of Social Marketing
3.2.3 An introduction two largest social marketing companies in India

Unit 4

Miscellaneous Marketing (15 hrs)

4.1 **Rural Marketing**

4.1.1 Meaning, Characteristics of Rural Market,

4.1.2 Reasons for growth of Rural Market,

4.1.3 An introduction to two largest green marketing companies in India

4.2 Viral Marketing

4.2.1 Meaning & Characteristics

4.2.2 Reasons for growth of Viral Marketing

4.2.3 An introduction to some of the largest viral marketing campaigns in India in recent past

Unit 5 (18 hrs)

Recognising Emerging Trends: Management & Technological Tools

5.1 MIS: Meaning and Components of MIS, Benefits of MIS

5.2 IMC: Meaning and Components of IMC, Factors determining communication

5.3 Customer Relationship Management: Meaning of Customer Relationship, Customer Dissatisfaction and Delight, e-CRM, Strategies for building customer relations

BOOK FOR STUDY

Kotler, Philip, Marketing Management, Prentice Hall, New Delhi.

BOOKS FOR REFERENCE

Damian Ryan, Understanding Digital Marketing: Marketing Strategies for Engaging the Digital Generation, Kogan Page, 2014

Jacquelyn A. Ottman, The New Rules of Green Marketing: Strategies, Tools, and Inspiration for Sustainable Branding Paperback, Berrett-Koehler, 2011

Jaiswal, M.P., Anjali Kaushik, e-CRM: Business and System Frontiers, 1st edition New Delhi, Asian Books, 2002

PradeepKashap, Rural Marketing, Prentice Hall, Delhi

JOURNALS

Indian Journal Of Marketing

International Journal of Research in Marketing

Journal of Marketing Theory and Practice

WEB RESOURCES

www.forbes.com

www.nielsen.com

www.marketing-trends-congress.com

PATTERN OF EVALUATION

Continuous Assessment:

Total Marks: 50 **Duration: 90Mins**

Section A 3 x 2 = 6 (no choice)
Section B 3 x 8 = 24 (from a choice of four)
Section C 1 x20= 20 (from choice of two)

Third Component Tests

Open book test
Problem solving
Assignment

End Semester Examination:

Total Marks:100 **Duration: 3 Hours**

Section A – short answers (max. 50 words) - 10 x 2 = 20 Marks
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Section C – Problems 2 x 20 =40 Marks (From a choice of 4 – Max 1200 words)

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086
B.B.A DEGREE: BUSINESS ADMINISTRATION

SYLLABUS
(Effective from the academic year 2016 – 2017)

RETAIL MANAGEMENT

CODE: 16CM/ME/RG55

CREDITS: 5
L T P : 5 0 0
TOTAL TEACHING HOURS : 65

OBJECTIVES OF THE COURSE

- To expose students to the intricacies of retail management
- To familiarize the students with the concept of retail management and its practical aspects

Unit 1

1.1 Introduction to Retail Management **(11 Hrs)**

1.1.1 Growing importance of Retailing and retail concepts
1.1.2 Dynamic nature of retailing – Theories

Unit 2

2.1 The Retail Marketing Mix **(12 Hrs)**

2.1.1 Retailing as a product – store layout
2.1.2 Retail pricing and relationship to value
2.1.3 Retail promotion – Promotion tools

Unit 3

3.1 Merchandise Management **(15 Hrs)**

3.1.1 Merchandiser – skills and profile
3.1.2 Spatial distribution of retail activities

Unit 4

4.1 Retail Logistics and Quality In Retailing **(12 Hrs)**

4.1.1 Retail Logistics – elements and functions
4.1.2 Key terms and characteristics of quality

Unit 5

5.1 Retail Branding **(15 Hrs)**

5.1.1 Corporate Branding – Loyalty and positioning
5.1.2 Corporate social responsibility

BOOK FOR STUDY

David Gilbert, **Retail Marketing Management**, 2nd edition, New Delhi, Prentice Hall of India Pvt. Ltd.. 2000.

BOOKS FOR REFRENCE

Look D & Walters D., **Retail Marketing – Theory and Practice**, 2nd edition, New Delhi, Prentice Hall of India Pvt. Ltd.2004.

Ron Hasty & James Reardon, **Retail Management**, New Delhi, Tata McGraw Hill, 2003. McGodrick, P.J., **Retail Marketing**, New Delhi, Tata McGraw Hill, 2003.

SenthilGanesan, **Retailing Sectors**, Chennai, The Institute of Chartered Financial Analysts of India, 2002.

PATTERN OF EVALUATION

Continuous Assessment:

Total Marks: 50 **Duration: 90 mins**

Section A –7 x 2 = 14 Marks (no choice)
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Section C –1 x 20 =20 Marks (from a choice of two)

Third Component:

List of Evaluation modes:
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Group Discussion
Assignments
Class Presentations

End Semester Examination:

Total Marks: 100 **Duration: 3 hours**

Section A –10 x 2 = 20 Marks (no choice - Max 30 words)
Section B – 5 x 8 = 40 Marks (from a choice of seven - Max 500 words)
Section C –2 x 20 = 40 Marks (from a choice of four -Max 1200 words)

Vidya Srinivasan
Leena Trani
20/2/18

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086
B.B.A DEGREE: BUSINESS ADMINISTRATION

SYLLABUS
(Effective from the academic year 2016 – 2017)

INDUSTRIAL RELATIONS MANAGEMENT

CREDITS : 5
L T P : 5 0 0

CODE: 16CM/ME/IL55 TOTAL TEACHING HOURS : 65

OBJECTIVES OF THE COURSE

- To sensitise students to the employee relations scenario in India
- To provide an understanding of the various issues in management of IR in the modern business environment

Unit 1

Introduction **(8 hrs.)**

1.1 Industrial Relations – Meaning, Origin, Scope, Growth and Importance of Industrial Relations

1.2 Socio- Economic-Political Factors affecting Indusial Relations in the Changing Environment

Unit 2

Industrial Discipline and Grievance Handling **(10 hrs.)**

2.1 Discipline –Meaning and Causes of Indiscipline

2.2 Maintenance of Discipline, - Concept and Practice Principles of Natural Justice Causes ,

2.3 Types and Trends in Industrial Conflict, Principle of Hot Stove Rule

2.4 Nature, Causes and Types of Industrial Disputes - Measures for Prevention and Settlement for Industrial Disputes,

2.5 Grievance Handling - Meaning of Grievance, Constitution of Grievance Committee - Benefits of Grievance System.

2.6 Grievance Redressal Machinery in India

Unit 3

Collective Bargaining **(14 hrs.)**

3.1 Meaning, Nature, Types, Process and Importance of Collective Bargaining

3.2 Factors Influencing Bargaining - Suggestions to Improve Collective Bargaining

3.3 Negotiations-Types of Negotiations-Problem Solving Attitude

Unit 4

Labour Participation in Management **(12 hrs.)**

4.1 Objective and Importance of Worker's Participation in Management
4.2 Forms and Levels of Participation, Issues in Participation
4.3 Scheme of Employee's Participation in Public and Private Sector
4.4 Benefits of Worker's Participation in Management

Unit 5

Labour Legislation **(8 hrs.)**

5.1 Objectives and Principles
5.2 Forces Influencing Modern Labour Legislation
5.3 Indian Constitution and Labour Legislation

BOOK FOR STUDY

Sinha, P.R.N. InduBalaSinha&SeemaPriyadarshiniShekhar. *Industrial relations, Trade Unions and Labour Legislation*, Pearson Education.

BOOKS FOR REFERENCE

Bray M, Waring P, Cooper R, Macneil JL. *Employment Relations: Theory and Practice,* Sydney: McGraw Hill, 2014

Bray, M. Deery.S, Walsh.J, and Waring P. *Industrial Relations: A Contemporary Approach.* Tata McGraw Hill, 2005

Dwivedi, R.S.*Managing Human Resources: Industrial Relations in Indian Enterprises*. New Delhi: Galgotia.

Mamoria, C.B. & S. Mamoria.*Dynamics of Industrial Relations in India,*Mumbai: Himalaya,2011.

Singh, P. & Kumar, N.*Employee Relations Management,* New Delhi: Pearson Education India,2012.

Tripathi, P.C.*Personnel Management & Industrial Relationship.* New Delhi: Sultan Chand ,2011

JOURNALS

Indian Journal of Industrial relations

Journal of Advances in Management

WEB RESOURCES

www.workersparticipation.eu

www.ilo.org

www.blackwellpublishing.com

PATTERN OF EVALUATION

Continuous Assessment:

Total Marks: 50 **Duration: 90 mins.**
Section A –7 x 2 = 14 Marks (no choice)
Section B – 2 x 8 =16 Marks (from a choice of three)
Section C –1 x 20 =20 Marks (from a choice of two)

Third Component:
List of Evaluation modes:
Seminar
Group Discussion
Assignments
Class Presentations

End Semester Examination:

Total Marks: 100 **Duration: 3 hours**
Section A –10 x 2 = 20 Marks (no choice - Max 30 words)
Section B – 5 x 8 = 40 Marks (from a choice of seven - Max 500 words)
Section C –2 x 20 = 40 Marks (from a choice of four -Max 1200 words)

20/2/2018

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086
B.B.A DEGREE: BUSINESS ADMINISTRATION

SYLLABUS
(Effective from the academic year 2016 – 2017)

SUPPLY CHAIN AND LOGISTICS MANAGEMENT

CODE: 16CM/ME/SL55 **CREDITS: 5**
L T P: 5 0 0
TOTAL TEACHING HOURS: 65

OBJECTIVES OF THE COURSE

- To introduce the students to the fundamental concepts in Materials and Logistics Management,
- To familiarize the students with the language and terminologies in supply chain and logistics,
- To enable the students to gain an understanding of the core functions and issues in supply chain and logistics

Unit 1

Introduction to Supply Chain Management **(10 hrs.)**

1.1 Meaning, Concept of Supply Chain
1.2 Definition of Supply Chain Management (SCM), Scope and Functions of SCM
1.3 Supply Chain Management as a Management Philosophy, Need for Supply Chain Management, Value chain for Supply Chain Management.

Unit 2

Supply Chain Operations and Strategies **(15 hrs.)**

2.1 Drivers/components of supply chain – Facilities, Inventory, Transportation, Information, Material Handling
2.2 Cycle View (ii) Push & Pull View
2.1 Achievement of strategic fit through different steps, Obstacles to achieving Strategic Fit.

Unit 3

Introduction to Logistics **(15 hrs.)**

3.1 Physical Distribution and Logistics, Logistic system Analysis and Design
3.2 Warehousing and Distributing Centers, Location
3.3 Transportation System and Services, Dispatch & Routing Decisions and models, Documentation
3.4 Logistics Interface with Production and Marketing, Logistics, Measures of logistics

Unit 4

Integrated Supply Chain and Logistics **(15 hrs.)**

4.1 Procurement and Delivery management
4.2 Suppliers perspective, Stages of Development in Supplier Relations, Materials Handling and Packaging

4.3 Customer focus in Supply Chain Management, Delivery and Buyers Perspective
4.4 Role of IT in monitoring and coordinating supply chain nodes : Supplier monitoring, Warehouse management, Customer Servicing

Unit 5

Current Trends in Supply Chain and Logistics Management (10 hrs.)

5.1 E-commerce as an enabler
5.2 Sustainable Supply Chain, Green Supply Chain,
5.3 International Logistics, Evolution of global supply chains

BOOKS FOR STUDY

Supply Chain Logistics Management - Bowersox, Closs& Cooper –, McGraw-Hill, 2nd Indian ed. Logistics & Supply Chain Management – Martin Christopher, Pearson.

BOOKS FOR REFERENCE

World Class Supply Management - Burt, Dobbler, Starling, TMGH, 7th ed.

Global operations & Logistics- Philippe - Pierre Dornier, John Wiley & sons Inc,

Logistics & Supply Chain Management – Cases &Concepts , G. Raghuram& N. Rangaraj, MACMILLAN.

JOURNALS

International Journal of Logistics Systems and Management, ISSN online: 1742-7975
ISSN print: 1742-7967
Supply Chain Forum: An International Journal , ISSN Print: 1625-8312
ISSN Online: 1624-6039
European Journal of Purchasing & Supply Management
Elsevier Journal of Purchasing & Supply Management
Science Direct Journal of Purchasing and Supply Management
International Journal of Logistics and Transport
Journal of Supply Chain Management
International Journal of Logistics and Supply Chain Management , ISSN : 0974-7206

WEB RESOURCES

https://en.wikipedia.org/wiki/Supply_chain_management
http://www.supplychainopz.com/2012/04/what-is-logistics-and-supply-chain-management.html
https://www1.ethz.ch/entrepreneurship/education/lectures
http://wwwmayr.informatik.tu-muenchen.de/konferenzen/Jass08/courses/2/berseneva/paper_berseneva.pdf
http://www.adi.pt/docs/innoregio_supp_management.pdf
http://www.scmr.com/images/01.SevenPrinciples_.pdf

PATTERN OF EVALUATION

Continuous Assessment:

Total Marks: 50 **Duration: 90 mins**.
Section A –7 x 2 = 14 Marks (no choice)
Section B – 2 x 8 =16 Marks (from a choice of three)
Section C –1 x 20 =20 Marks (from a choice of two)

Third Component:

List of Evaluation modes:
Seminar
Group Discussion
Assignments
Class Presentations

End Semester Examination:

Total Marks: 100 **Duration: 3 hours**
Section A –10 x 2 = 20 Marks (no choice - Max 30 words)
Section B – 5 x 8 = 40 Marks (from a choice of seven - Max 500 words)
Section C –2 x 20 = 40 Marks (from a choice of four -Max 1200 words)

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086
B.B.A DEGREE: BUSINESS ADMINISTRATION

SYLLABUS
(Effective from the academic year 2016 – 2017)

PROJECT

CODE: 16CM/ME/PR55 **CREDITS: 5**

GUIDELINES FOR PROJECT

Project should be the independent work of the student. Each student will choose a topic of her interest and the student will be assigned to a supervisor.
The student can use Quantitative or Qualitative/Descriptive or both methods.

- **Page Limit :**
  The project report should be submitted in the prescribed format having a maximum of 100 pages, typed in font Times New Roman -size 12, with 1 ½ line spacing on A4 Size paper.
- **Contents of the Project:**
  - Contents Page
  - The Project Copy will include Certificate of the Supervisor, Declaration, and Acknowledgement
  - Four or five chapters
  - Presentation of the Project Report – format

    Chapter 1 Introduction - to include background of the study, objectives , Methodology, limitation of the study and chapter scheme
    Chapter 2 – Review of literature
    Chapter 3 – Theoretical aspects of the study
    Chapter 4 – Data analysis
    Chapter 5 – Suggestion and conclusion
    At the end of the project 'Bibliography' must be given in Alphabetical/chronological order and necessary appendix may be added.
- **Submission:**
  Each student may prepare two soft bound copies of the project, one for her and one copy to be submitted to the Head of the Department duly signed by the supervisor, on the scheduled date.

- **Guidelines for Evaluation:**
  There will be double valuation for the project by the supervisor and an external examiner. The student will appear for viva -voce before a panel comprising External Examiner, Supervisor and Head of the Department.

The maximum marks for the project is 100 – 75 marks for the project report and 25 marks for the viva- voce.

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI - 600 086
General Elective Course Offered by Department of Commerce to students for B.A / B.Sc. / B.Com. / B.C.A. / B.V.A Degree Programmes

SYLLABUS
(Effective from the academic year 2016 -2017)

BUSINESS TAX PROCEDURE AND MANAGEMENT

CODE: 16CM/GE/TP22 **CREDITS : 2**
L T P : 2 0 0
TOTAL TEACHING HOURS: 26

OBJECTIVES OF THE COURSE

- To provide a simple conceptual framework for determining the tax liability for a business concern
- To expose students to the significance and constitutional provisions relevant to income tax

Unit 1 **(6 hrs)**

Advance Payment of Tax

1.1 Tax deduction/Collection at source
1.2 Documentation - Returns - Certificates
1.3 Interest Payable
1.4 Collection and Recovery of tax

Unit 2 **(10 hrs)**

Assessment and Re-Assessment

2.1 Rectification of Mistakes
2.2 Appeal and Revision
2.3 Preparation and Filing of Appeals
2.4 Penalties and Prosecution

Unit 3 **(10 hrs)**

Information Technology and Tax Administration

3.1 Temporary Assessment Number – Temporary Identification Number
3.2 E-Tax Deduction at Source or E-Tax Collection at Source
3.3 E-Filing of Income Tax Return Submission

BOOKS FOR STUDY

Singhania, Vinod K. *Student's Guide To Income Tax*. Taxmann.

BOOKS FOR REFERENCE

Corporate Tax Planning & Business Tax Procedures with Case Studies (English) 16th Edition, Monica Singhania , Vinod K Singhania, Taxmann Publications Pvt. Ltd.

Ahuja, Girish and Gupta Ravi. *Practical Approach to Income Tax.*

JOURNALS

Excise Law Times (Fortnightly Reporting Journal) -
Excise and Customs Cases (Fortnightly Reporting Journal)
Excise and Customs Reporters (Fortnightly Reporting Journal) –
Direct Taxes Report Journal

WEB RESOURCES

http://incometaxmanagement.com/Pages/Tax-Management-Procedure/Tax-Management-Procedures-Contents.html

https://www.pwc.com/gx/en/tax-management-strategy/pdf/pwc_tax_management_in_companies.pdf

http://www.slideshare.net/rakya01/corporate-tax-planning-14276711

PATTERN OF EVALUATION

List of Evaluation modes:
Assignments
Objective Test
Quiz
presentation

No End Semester Examination

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI - 600 086
General Elective Course Offered by Department of Commerce to students for B.A / B.Sc. / B.Com. / B.C.A. / B.V.A Degree Programmes

SYLLABUS
(Effective from the academic year 2016 -2017)

RURAL MARKETING

CODE: 16CM/GE/RG22 **CREDITS : 2**
L T P : 2 0 0
TOTAL TEACHING HOURS: 26

Unit 1
Introduction (6 hrs)

1.1 Nature and Scope: Rural Vs. Urban
1.2 Rural rights in Indian Context
1.3 Understanding rural marketing environment and its impact on marketing operation.

Unit 2
Rural Environment/Customers (10 hrs)

2.1 Rural Consumer and Environmental Characteristics Attitude, Behaviour Buying Pattern
2.2 Rural Marketing Strategies – Segmentation, Product Planning, Packaging, Branding, Pricing and Promotion and logistics in Rural Marketing

Unit 3
Case Study in Rural Agricultural Marketing (10 hrs)

3.1 Marketing of Agricultural Products
3.2 Case Studies of Industries and SHG

BOOKS FOR STUDY

Rural Marketing , Dr. C.Rajendra Kumar , Jain Book Agency

The Rural Marketing Book (Book + CD) , Pradeep Kashyap & Siddharth Raut , Jain Book Agency 2010

BOOKS FOR REFERENCE

Rural Marketing: Targeting the Non-urban Consumer Second Edition, Sanal Kumar Velayudhan , Ebook 9788178299754

Rural Marketing - Text and Cases , C.S.G.Krishnamacharyulu & Lalitha Ramakrishnan , Jain Book Agency, 2006

JOURNALS

Rural Marketing Association of India – eJournal
The International Journal of Rural Management (IJRM)

WEB RESOURCES

http://rural.nic.in/netrural/rural/sites/online_eBook/MORD.html

http://prj.co.in/setup/business/paper55.pdf
http://www.ajms.co.in/sites/ajms2015/index.php/ajms/article/view/1561
http://shodhganga.inflibnet.ac.in/bitstream/10603/25033/17/8.1.%20introduction%20of%20rural%20marketing.pdf
http://www.slideshare.net/sumankalyan14/rural-marketing-2859640

PATTERN OF EVALUATION

List of Evaluation modes:

Assignments
Objective Test
Quiz
presentation

No End Semester Examination

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI - 600 086
General Elective Course Offered by Department of Commerce to students for B.A / B.Sc. / B.Com. / B.C.A. / B.V.A Degree Programmes

SYLLABUS
(Effective from the academic year 2016 -2017)

INTELLECTUAL PROPERTY RIGHTS

CODE: 16CM/GE/IP22 **CREDITS : 2**
L T P : 2 0 0
TOTAL TEACHING HOURS: 26

OBJECTIVE OF THE COURSE

- To give an understanding about the various aspects of intellectual property

Unit 1

Introduction to Intellectual Property Rights (6 hrs)

1.1 Concepts of IPR
1.2 International protection of IPR
1.3 Trademark - Trademark Law and Geographical Indication - Concept of trademarks - Importance of brands and the generation of "goodwill" - Trademark: A marketing tool - Trademark registration procedure - Infringement of trademarks and Remedies available - Assignment and Licensing of Trademarks - Trademarks and domain names - Concept of Geographical Indication

Unit 2

Patent Law (10 hrs)

2.1 Introduction to Patents
2.2 Procedure for obtaining a Patent Licensing and Assignment of Patents
2.3 Infringement of Patents

Unit 3

Copyright and Industrial Design (10 hrs)

3.1 Copyrights: Concept of Copyright Right - Assignment of Copyrights - Registration procedure of Copyrights Infringement
3.2 Designs: Concept of Industrial Designs Registration of Designs Piracy of registered designs and remedies

Note :Students will be exposed to Relevant Case Studies.

BOOK FOR STUDY

Text Book on Intellectual Property Rights, N K Acharya, ISBN 9384310127, 2014, Jain Book Depot

BOOK FOR REFERENCE
Intellectual Property (Eighth Edition), David I. Bainbridge,

JOURNALS
Journal of Intellectual Property Rights (JIPR) ISSN: 0975-1076 (Online) CODEN: JIPRFG ISSN: 0971-7544 (Print)

WIPO Journal

WEB RESOURCES
https://archive.org/details/IntellectualPropertyeighthEdition

http://www.wipo.int/edocs/pubdocs/en/intproperty/791/wipo_pub_791.pdf

http://www.metastudio.org/Science%20and%20Ethics/file/readDoc/535a76367d9d331598f49e2d/34_Hb_on_IPR.pdf

http://www.icsi.in/Study%20Material%20Professional/NewSyllabus/ElectiveSubjects/IPRL&P.pdf

http://www.bits-pilani.ac.in/uploads/Patent_ManualOct_25th_07.pdf

http://www.nishithdesai.com/fileadmin/user_upload/pdfs/Research%20Papers/Intellectual_Property_Law_in_India.pdf

PATTERN OF EVALUATION

List of Evaluation modes:
Assignments
Objective Test
Quiz
presentation

No End Semester Examination

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI - 600 086
General Elective Course Offered by Department of Commerce to students for B.A / B.Sc. / B.Com. / B.C.A. / B.S.W/ B.V.A Degree Programmes

SYLLABUS
(Effective from the academic year 2016 -2017)
FINANCIAL ANALYSIS AND REPORTING

CODE: 16CM/GE/FR22 **CREDITS : 2**
L T P : 2 0 0
TOTAL TEACHING HOURS: 26

OBJECTIVES OF THE COURSE

- To enable the students to gain working knowledge of the financial statements
- To analyse and interpret the financial statements for managerial decision making

Unit 1 **(6 hrs)**

Basis of Financial Reporting

1.1 Objectives
1.2 Uses of Financial Reports
1.3 Financial Statements

Unit 2 **(10 hrs)**

2.1 Structure of Financial Statements

2.1.1 Balance Sheet
2.1.2 Income Statement
2.1.3 Cash Flow Statement

2.2 Additional Disclosure Statements

2.2.1 Need for Additional Statements
2.2.2 Auditor's Report
2.2.3 Director's Report
2.2.4 Fund Flow Statement
2.2.5 Electronic Dissertation

Unit 3 **(10 hrs)**

Analysis and Interpretation of Financial Statements

3.1 Ratio Analysis of different types of Industry
3.2 Management use of Analysis
3.3 Graphical presentation of Financial Information

BOOKS FOR STUDY

Maheshwari, S.N. *Principles of Management Accounting*. New Delhi: Sultan Chand, 2007.

BOOKS FOR REFERENCE

Reddy, T. S. and A .Murthy. *Management Accounting*. Chennai: Margham, 2007.
Gupta, R.L and M. Radhaswamy. *Advanced Accountancy (Vol.1I)*. Sultan Chand & Sons, 2011.

Maheshwari S.N, *Advanced Accountancy (Part 1I)*. Vikas, 2007.

JOURNALS

The Chartered Accountant: Journal of the Institute of Chartered Accountants of India. Indian Journal of Finance
Journal of Accounting & Finance: Research Development Association, Jaipur.

WEB RESOURCES

www. icai.org
www.journals.elsevier.com
www. emeraldgrouppublshing.com

PATTERN OF EVALUATION

List of Evaluation modes:

Assignments – Problem solving
Objective Test
Quiz
presentation

No End Semester Examination

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI - 600 086
General Elective Course Offered by Department of Commerce to students for B.A / B.Sc. / B.Com. / B.C.A. / B.V.A Degree Programmes

SYLLABUS
(Effective from the academic year 2016 -2017)

STOCK AND COMMODITIES MARKET

CODE: 16CM/GE/CS22 **CREDITS : 2**
L T P : 2 0 0
TOTAL TEACHING HOURS: 26

OBJECTIVE OF THE COURSE

- To provide an overview about Stock and Commodity Markets

Unit 1

Introduction **(6 hrs)**

1.1 History of Stock Market
1.2 Membership, Organization , Governing body, Functions of stock Exchange
1.3 Online trading, Role of SEBI , Recognized Stock Exchanges in India (brief discussion of NSE an d BSE)
1.4 Derivatives on stocks: Meaning, types (in brief)

Unit 2

Trading in Stock Market **(10 hrs)**

2.1 Patterns of Trading and Settlement
2.2 Speculations – Types of Speculations
2.3 Activities of Brokers – Broker Charges
2.4 Settlement Procedure

Unit 3

Regulatory Authorities **(10 hrs)**

3.1 National Securities Depository Ltd.(NSDL)
3.2 Central Securities Depository Ltd.(CSDL) (in brief)

BOOKS FOR STUDY

Guide to Indian Commodity Market, by Ankit Gala & Jitendra Gala 2007

A Trader's First Book on Commodities: An Introduction to the World's Fastest Growing Market Hardcover – Import, 19 Dec 2012

by Carley Garner

BOOKS FOR REFERENCE

Mishkin, Fredrick S. and Stanley G. Eakins. *Financial Markets and Institutions*. Pearson Education India.
Murthy, D.K. Venugopal. *Indian Financial System.*,2006.

A Beginner’s Guide to Indian Commodity Futures Markets

JOURNALS

THE TRADER'S JOURNAL http://www.tradersjournal.com/

Dalal-street-investment-journal http://www.dsij.in/products/dalal-street-investment-journal.aspx

Technical Analysis of STOCKS & COMMODITIES, http://traders.com/

WEB RESOURCES

http://www.madhyam.org.in/wp-content/uploads/2015/04/Commodity-Guide.pdf

http://sharegenius.maheshkaushik.com/2010/12/download-free-e-book-on-commodity.html

PATTERN OF EVALUATION

List of Evaluation modes:

Assignments
Objective Test
Quiz
presentation

No End Semester Examination

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI - 600 086
General Elective Course Offered by Department of Commerce to students for B.A / B.Sc. / B.Com. / B.C.A. / B.V.A Degree Programmes

SYLLABUS
(Effective from the academic year 2016 -2017)

CORPORATE COMMUNICATION

CODE: 16CM/GE/CC22 **CREDITS : 2**
L T P : 2 0 0
TOTAL TEACHING HOURS: 26

OBJECTIVES OF THE COURSE

- To create awareness among the students on the soft skills required to plan and pursue a career and empower them with employability skills

Unit 1 **(6 hrs)**

Attitude and Emotional Intelligence

1.1 Importance of Attitude - Meaning of Positive Thinking and Positive Attitude - Ways to build Positive Attitude
1.2 Effects of Negative Attitude and Measures to overcome them
1.3 Significance of interpersonal relationships in personal and professional life - Tips to enhance interpersonal relationships

Unit 2 **(10 hrs)**

Vision, Goal Setting and Time Management

2.1 Meaning of Vision - Doing things for the right purpose
2.2 Setting and achieving goals – Importance of Goal Setting
2.3 Periodicity of Goal Setting - short, medium and long term
2.4 Methods to achieve set goals
2.5 General principles of Stress Management and Time Management

Unit 3 **(10 hrs)**

3.1 Creativity

3.1.1 The Creative Mind – Importance of Creativity, Influence and Flexibility
3.1.2 Factors Influencing Creativity
3.1.3 Methods of enhancing Creativity
3.1.4 Techniques of Creativity – Brainstorming, Attributes Listing

3.2 Communication Skills

3.2.1 Significance – Process of Communication – Forms of Communication
3.2.2 Communication Gap
3.2.3 Listening Skills
3.2.4 Basics of Managerial Speaking Skills – Body Language - How to develop matter for a speech
3.2.5 Presentation Aids and Effective use of Presentation Aids
3.2.6 Preparation of Resume and Preparation for Group Discussion and Interview

BOOKS FOR STUDY

Parvati Mahalanobis **Textbook of Public Relations and Corporate Communications** Hardcover – 2005

BOOKS FOR REFERENCE

Joep Cornelissen: **Corporate Communication: A Guide to Theory and Practice** Kindle Edition

Paul A Argenti **Corporate Communication**,2013 Edition: 6

JOURNALS

Corporate Communications: An International Journal, ISSN: 1356-3289, Emerald

WEB RESOURCES

http://ecidlac1983.pixnet.net/blog/post/199249421-download-corporate-communication%3A-a-guide-to-theory-and-prac **ISBN:** 9781446241899

Klement Podnar, **Corporate Communication: A Marketing Viewpoint**

http://www.routledgetextbooks.com/textbooks/9781138804722/default.php

PATTERN OF EVALUATION

List of Evaluation modes:

Assignments
Objective Test
Quiz
presentation

No End Semester Examination

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI - 600 086
General Elective Course Offered by Department of Commerce to students for B.A / B.Sc. / B.Com. / B.C.A. / B.V.A Degree Programmes

SYLLABUS
(Effective from the academic year 2016 -2017)

CONTEMPORARY ADVERTISING

CODE: 16CM/GE/CA23 **CREDITS : 3**
L T P : 3 0 0
TOTAL TEACHING HOURS: 39

OBJECTIVES OF THE COURSE

- To introduce the concept and types of Contemporary advertising
- To enable students to meet the growing demands and challenges of the promotional aspects of advertising

Unit 1
Scope of Advertising **(7 hrs.)**
1.1 Introduction - Definition and Meaning
1.2 Role of Advertising

Unit 2
Advertising Copy **(8 hrs.)**
2.1 Elements of an Ad. Copy
2. 2 Ad. Layout - Principles of Ad. Layout

Unit 3
Modern Advertising **(9 hrs.)**
3.1 Types of Modern Advertising
3.2 Comparison - Indoor & Outdoor Advertising

Unit 4
Online Advertising **(7 hrs.)**
4.1 Introduction - the Internet as an Advertising Medium
4.2 Types of Online Advertising - Alternative Offline Advertising Media and Mass Online Advertising Web Resources, Banner Ads, Pop Ups, Interstitials, Superstitials and Sponsorships

Unit 5
Challenges and trends of Online Media **(8 hrs.)**
5.1 Reasons for Failure of Online Advertising
5.2 Changing Trends in Online Advertising.

BOOK FOR STUDY
Jefkins, Frank. *Advertising.* New Delhi: Pearson Education 2007.

BOOKS FOR REFERENCE

David W.Schumann and Esther Thorson. *Internet Advertising Theory and research*. Psychology Press, 2007.

Joseph, Plummer., Steve Rappaport, Teddy Hall and Robert Borocci. *The online Advertising play Book. Proven Strategies and tested tactics from the advertising research foundation*. John Wiley, 2006.

Terence A. Shimp. *Advertising, Promotion and supplemental Aspects of Intergrated Marketing Communications*. USA: Thomson Learning, 2003

Wilmshurs, John and Adrian Mackay. *The fundamentals of Advertising*. Reed Educational and Professional, 1999.

JOURNALS

Journal of Advertising Research
International Journal of Advertising
International Journal of Internet Marketing and Research
Journal of Advertising
Journal of Advertising Education

WEB RESOURCES

www.mu.ac.in/myweb_test/sybcom-avtg-eng.pdf
advertising.knoji.com/what-are-the-different-roles-of-advertising/
techcrunch.com/2009/03/22/why-advertising-is-failing-on-the-internet/
www.networkadvertising.org/understanding-online-advertising/

PATTERN OF EVALUATION

Continuous Assessment:

Total Marks: 50 **Duration: 90 mins**

Section A –7 x 2 = 14 Marks (no choice)
Section B – 2 x 8 =16 Marks (from a choice of three)
Section C –1 x 20 =20 Marks (from a choice of two)

Third Component:

List of evaluation modes:
Seminars
Assignments
Submission of AD Copy

No End Semester Examination

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI - 600 086
General Elective Course Offered by Department of Commerce to students for B.A / B.Sc. / B.Com. / B.C.A. / B.V.A Degree Programmes

SYLLABUS
(Effective from the academic year 2016 -2017)

COMPUTERIZED ACCOUNTING SYSTEM

CODE: 16CM/GE/CA22 **CREDITS : 2**
L T P : 2 0 0
TOTAL TEACHING HOURS: 26

OBJECTIVE OF THE COURSE

- To give an exposure on the Use and Applications of Tally

Unit 1 **(6 hrs)**

Getting started with Tally

1.1 Introduction to Tally – Features – Advantages
1.2 Required Hardware, Preparation for installation of tally software
1.3 Items on Tally screen: Menu options, creating a New Company, Basic Currency information, Other information
1.4 Company Features and Inventory Features
1.5 General Configuration, Numerical symbols, accts/inv info master configuration - voucher entry configuration

Unit 2 **(10 hrs)**

Working in Tally

2.1 Creating, Editing and Deleting Groups and Ledgers
2.2 Creation, Alteration and Deleting vouchers, different types of voucher, Voucher entry - Problems on Voucher entry
2.3 Display of Trial Balance, Accounts books, Cash Book, Bank Books, Ledger Accounts, Group Summary, Sales Register and Purchase Register, Journal Register, Statement of Accounts, & Balance Sheet

Unit 3 **(10 hrs)**

Reports in Tally

3.1 Generating Basic Reports in Tally – Financial Statements – Accounting Books and Registers – Inventory Books and Registers
3.2 Special reports – Payroll and Inventory reports
3.3 Printing reports – Types of Printing - Configuration of options – Printing options

BOOKS FOR STUDY

Deepak Jain. *Computer Applications in Business*. Kolkatta : Law point,2008.

BOOKS FOR REFERENCE

Nadhani, A.K. and Nadhani K.K, *Implementing Tally 9*, BPB Publications, 2009.

Bodhanwala, J. Ruzbeh. *Understanding and Analysing Balance Sheets using Excel Worksheet*. Prentice Hall,2004.

JOURNALS

Journal of Electronic Commerce in Organizations
Journal of Management Information Systems and E-Commerce

WEB RESOURCES

http://www.ecommerce-digest.com/online-academic-journals.html
http://www.htmlgoodies.com/beyond/webmaster/projects/electronic-commerce-tutorial.htmlhttp://www.openlearningworld.com/books/

PATTERN OF EVALUATION

List of Evaluation modes:

Assignments
Objective Test
Quiz
presentation

No End Semester Examination

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086
B.B.A DEGREE: BUSINESS ADMINISTRATION

SYLLABUS
(Effective from the academic year 2016 – 2017)

PRINCIPLES OF E-COMMERCE

CODE: 16CM/UI/EC23 **CREDITS: 3**

OBJECTIVES

- To provide an understanding of the relevance of E-Commerce
- To expose the students to the basic concepts

Unit 1

Introduction

1.1 Meaning and History of E-Commerce
1.2 Advantages and Limitations
1.3 E-transition challenges for Indian Corporates
1.4 Business models for E-Commerce

Unit 2

1.1 E-Marketing

1.1.1 Identifying web presence goals
1.1.2 Online Marketing

1.2 **E-Advertising**

1.2.1 Internet marketing trends
1.2.2 E-branding

Unit 3

E-Security

3.1 E-Commerce threats and E-security
3.2 E-governance

Unit 4

Electronic Payment System

4.1 Concept of E-money
4.2 Types of electronic payment system
4.3 Electronic fund transfer
4.4 Digital payment requirement
4.5 Cyber Crime - Technical, legal issues, offences and penalty
4.6 Protection of cyber consumers in India

-

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086
B.B.A DEGREE: BUSINESS ADMINISTRATION

SYLLABUS
(Effective from the academic year 2016 – 2017)

CONSUMER RIGHTS

CODE: 16CM/UI/CR23 **CREDITS: 3**

OBJECTIVES OF THE COURSE

- To provide knowledge about consumerism and related laws
- To enable an understanding of the importance of Consumer Rights
- To educate students on the rights and responsibilities of a consumer

Unit 1

Consumers

1.1 Meaning of Consumers-Customers

1.1.1 Consumer Movements – Historical Perspectives

1.1.2 Concept of Consumerism – Need and Importance

Unit 2

Consumer Exploitation

2.1 Meaning, Causes of Consumer Exploitation

2.2 Forms of Consumer Exploitation – Underweight Measures, High Prices, Substandard Quality, Poor or Inadequate After Sales Services

2.3 Challenges of Consumer Exploitation

Unit 3

Consumer Rights and Duties

3.1 Consumer Rights – John F Kennedy's Consumer Bill of Rights

3.2 Types of Consumer Rights – (Right to Safety, Right to Information (RTI), Right to Redressal, Right to Consumer Education)

3.3 Duties of Consumers

Unit 4

Copra Act 1986

4.1 Introduction to COPRA Act

4.2 Consumer Protection Council – Central, State, Districts Consumer Protection Councils

4.3 Consumer Dispute Redressal Procedure

Unit 5

Consumerism in India

5.1 Reasons for the Growth of Consumerism in India

5.2 Recent Trends in Consumerism

5.3 Problems Faced by Consumers in India – Case Studies

BOOKS FOR REFERENCE

Anirban Chakraborthy. *Law of Consumer Protection Advocacy and Practice.* India: Lexis Nexis, 2014.

Miller C.J., Brian W. Harvey, Deborah L Parry. *Consumer and Trading Law*. Oxford University, 1998.

Rajyalakshmi Rao. *Consumer is king!! Know your rights and remedies.* Universal, 2012.

Rao, Y.V. *Commentary on Consumer Protection Act.* Asia House, 2013

End Semester Examination:

Total Marks: 100 **Duration: 3 hours**

Section A –10 x 2 = 20 Marks (no choice - Max 30 words)

Section B – 5 x 8 = 40 Marks (from a choice of seven - Max 500 words)

Section C –2 x 20 = 40 Marks (from a choice of four -Max 1200 words)

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086

BACHELOR OF VOCATIONAL (B.Voc.) PROGRAMME
FOOD PROCESSING AND QUALITY CONTROL

SYLLABUS
(Effective from the academic year 2016 – 2017)

FOOD MICROBIOLOGY WITH LABORATORY WORK

CODE:16VF/VM/FM16

CREDITS: 6
L T P: 3 0 3
TOTAL TEACHING HOURS: 78

OBJECTIVES OF THE COURSE

- To become aware of the Microorganism in Food and Environment
- To acquire knowledge about the aspects of interaction between Microorganism, Food borne illnesses and Food Fermentation

Theory **(39hrs.)**

Unit 1 **(5hrs.)**

Introduction

1.1 Introduction to Microbiology
1.2 General Characters of Bacteria, Fungi, Virus, Protozoa and Algae

Unit 2 **(9hrs.)**

Microbial Growth

2.1 Growth curve of Bacteria
2.2 Effect of Environmental Factors on Growth of Microorganism : pH, Water activity, Oxygen availability and Temperature
2.3 Perishable, Semi-Perishable Food, Shelf life and Stable Food

Unit 3 **(9hrs.)**

Microbial Food Spoilage

3.1 Spoilage Microorganism in Cereals (Rice, Maize, Wheat, Millet), Pulses, Milk, Meat, Fish and Egg
3.2 Physical and Chemical Changes caused by Microorganism during Spoilage

Unit 4 **(9hrs.)**

Food Borne Diseases

4.1 Types : Food borne infections, Food borne Intoxication and Toxic Infections
4.2 Origin, Symptoms and Prevention of Food Borne Diseases
4.3 Site of Food Borne Illness – The Alimentary Tract its function and Microflora
4.4 Emerging Pathogens of concern and Risk factors associated with food borne illness (case study)

Unit 5 **(7hrs.)**

Fermented and Microbial Food

5.1 Principles of Fermentation

5.2 Lactic acid Bacteria (LAB) in Food

5.3 Health promoting microorganisms – Probiotics and Prebiotics

Laboratory Work **(39hrs.)**

1. Introduction to Basic Microbiological Equipments

Autoclave-Inoculation Chamber-Laminar Air Flow-Hot air Oven-Water Bath-Incubator and Colony Counter-Colorimeter

2. Culture Techniques

Preparation of Media-Serial dilution-Pour plate, Streak plate, Slant, Loop, Stab and Spread Plate

3. Staining Techniques

Gram Staining for bacteria-Lacto Phenol Staining Technique for Fungi-Staining Technique for Yeast

4. Identification of Micro Organism

Basic Steps in Detecting Food Pathogens-Identification of important Food Borne Fungi and Bacteria-Morphological Study of Bacteria and Fungi

5. Microbial Analysis of Water

Coliform Test-Presumptive Test-Confirmatory Test-Completed Test- Membrane Filter Technique

TEXT BOOK

Betty. C. Hobbs Arnold. *Food Microbiology.* New Delhi: Heinenann Publisher, 1982

BOOKS FOR REFERENCE

Adgms. M.R. and M.O. Moss. *Food Microbiology.* New Delhi: Panima Publishing Corporation, 2003

Banwart. G.J. *Basic Food Microbiology,* S.K. Jain for CBS Publishers and Distributors, 1974.

Frazier. C. and West Hoff. D.C. *Food Microbiology,* India: McGraw-Hill Pub. Co., Ltd., 1987

Jay. J.M. *Modern Food Microbiology,* S.K. Jain for CBS Publishers and Distributors, 1987

Parry. T.J. and Pawsey. R.K. *Principles of Microbiology,* Hutchinson and Co. 1984

Patel. A. H. *Industrial Microbiology,* New Delhi*:* Macmillan India Ltd. 1984

Sharad Srivastava and Vineeta singhal. *Food Microbiology*, New Delhi: Anmol Publishing Pvt., Ltd., 1997

Stains and Buffers. *Handbook of Laboratory, Culture, Media, reagents,* 2003

PATTERN OF EVALUATION

Continuous Assessment: 25 marks **End Semester: 75 marks**

The students will be taking one C.A. test and additional Skill sets training practical component which may include practical work, assignments, project work, any other.

I. C.A. Test for 3 hours **50 marks**, comprising of Theory (25marks) and Practical (25marks), both to be done in the laboratory. **The final marks to be converted to 25**
C.A. Test Pattern for theory: (25marks)
Section A – Objective/ definition/ fill in the blanks- 10 x 1 = 10 marks (to be collected after 10 minutes)
Section B – 3 out of 5 – 3 x 3 = 9 marks
Section C – 1 out of 2 – 1 x 6 = 6 marks
Practical: 25 marks
II. Continuous Assessment of Skill sets training - practical work: **25 marks** – Aggregate of all practical assessment

End Semester Examination (Total 100 marks to be converted to 75 marks)

Total Marks: 100 Duration: 5 hours

Theory: 50 Marks Practical: 50 Marks

(Both theory and practical to be done in the laboratory).

Pattern for Theory: 50 marks

Section A – Objective/ definition/ fill in the blanks- 20 x 1=20 marks (to be collected at the end of 20 minutes)
Section B – 6 out of 10 - 6 x 3 = 18 marks
Section C – 2 out of 4 - 2 x 6 = 12 marks
Practical: 50 marks

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086

BACHELOR OF VOCATIONAL (B.Voc.) PROGRAMME
FOOD PROCESSING AND QUALITY CONTROL

SYLLABUS
(Effective from the academic year 2016 – 2017)

TECHNOLOGY OF FRUITS AND VEGETABLES PROCESSING – HANDS ON TRAINING

CODE:16VF/VM/FV16

CREDITS: 6
L T P: 3 0 3
TOTAL TEACHING HOURS: 78

OBJECTIVE OF THE COURSE

- To acquaint students with principles and methods of preservation and processing of fruits and vegetables into various products
- To get hands on experience on processing of fruit and vegetables

Theory **(39hrs.)**

Unit 1 **(7hrs.)**

Introduction

1.1 Classification and composition of Fruits and Vegetables
1.2 Indian and global scenario on production and processing of fruits and vegetables
1.3 Quality requirements of raw materials for processing ; sourcing and receiving at processing plants; primary processing: grading, sorting, cleaning, washing, peeling, slicing and blanching; minimal processing

Unit 2 **(8hrs.)**

Fruit and Vegetable Processing - I

2.1 Processing for Pulp puree and concentrate, especially from Mango, Tomato, Guava, Papaya, Apple, Pineapple, Pomegranate, Grapes, using aseptic packaging
2.2 Frozen Fruits and Vegetables, Individual Quick Freezing (I.Q.F.)

Unit 3 **(8hrs.)**

Fruit and Vegetable Processing - II

3.1 Store management, inventory management, safety measures – fire extinguisher, first aid kit
3.2 Process management, Process flow design planning , execution and post production processes
3.3 Principle and process of Canning

Unit 4 **(8hrs.)**

Fruit and Vegetable Processing - III

4.1 Dehydration of Fruits and Vegetables using various drying technologies like sun drying, solar drying (natural and forced convection), osmotic, tunnel drying, fluidized fed drying, freeze drying, convectional and adiabatic drying

4.2 Applications to raisins, dried figs, vegetables, intermediate moisture Fruits and Vegetables

4.3 Drying of Fruits and Vegetables

Unit 5 **(8hrs.)**

Fermented Fruit Beverages

5.1 Principles of fermentation

5.2 Preparation of Grape wine and Vinegar

5.3 Principle, Chemistry and Preparation of Pectin

Laboratory Work **(39hrs.)**

1 Preparation of Jam, Jelly and Marmalade
Mixed Fruit Jam-Guava Jelly-Orange Marmalade

2 Preparation of Syrups, Crushes and Squashes
Lime Syrup-Grape Crush-Mango Squash (Optional)-Pineapple Syrup

3 Preparation of Preserves and Candies
Ginger Preserve-Tutti-frutti-Raisin

4 **Preparation of Ketchup and Pickle**
Tomato ketchup**,** Lime Pickle-Mixed Vegetable Pickle-Cider

5 Drying and Canning
Drying of Fruits and Vegetables-Banana-Peas-
Canning-Pineapple-Beans and Carrot

Visit to Food Processing Industries

TEXT BOOKS

Frazier, W.C. and West Hoff, D.C. *Food Microbiology (4th ed.),* New Delhi: Tata McGrawhill Publishing Co., Ltd., 1995

Lal, G., Siddappa, G.S. and Tandon, G.L, *Preservation of Fruits and Vegetables,* New Delhi: Indian Council of Agricultural Research, 1998

BOOKS FOR REFERENCE

Frazier. W.C. and West Hoff. D.C. *Food Microbiology (4th ed.),* New Delhi: Tata McGrawhill Publishing Co., Ltd., 1995

Kulshrestha. S.K. *Food Preservation,* New Delhi: Vikas Publishing House, 1994

Lal, G. Siddappa, G.S. and Tandon. G.L. *Preservation of Fruits and Vegetables,* New Delhi: Indian Council of Agricultural Research, 1998

Blank, F.C., *Handbook of Food and Nutrition,* India: Agrobios Publishers, 2000

Home Scale – *Processing and Preservation Fruits and Vegetables,* India: Central Food Technological Research Institute, 1996.

Patel, A. H., *Industrial Microbiology,* New Delhi: Macmillan India Ltd., 1984

Prescott and Dunn's, *Industrial Microbiology,* U.S.A.: The AVI Publishing Co. Inc., 1987

Swaminathan, M., *Handbook of Food Science and Experimental Foods,* Bangalore: The Bangalore Printing and Publishing Co., Ltd., 1992

PATTERN OF EVALUATION

Continuous Assessment: 25 marks **End Semester: 75 marks**

The students will be taking one C.A. test and additional Skill sets training practical component which may include practical work, assignments, project work, any other.

I. C.A. Test for 3 hours **50 marks**, comprising of Theory (25marks) and Practical (25marks), both to be done in the laboratory. **The final marks to be converted to 25**
C.A. Test Pattern for theory: (25marks)
Section A - Objective/ definition/ fill in the blanks - 10 x 1=10 marks (to be collected after 10 minutes)
Section B - 3 out of 5 - 3x3 = 9 marks
Section C - 1 out of 2 - 1x6=6 marks
Practical: 25 marks

II. Continuous Assessment of Skill sets training - practical work: **25 marks** – Aggregate of all practical assessment

End Semester Examination (Total 100 marks to be converted to 75 marks)

Total Marks: 100 Duration: 5 hours
Theory: 50 Marks Practical: 50 Marks
(Both theory and practical to be done in the laboratory).

Pattern for Theory: 50 marks

Section A – Objective/ definition/ fill in the blanks- 20 x 1=20 marks (to be collected at the end of 20 minutes)
Section B – 6 out of 10 – 6 x 3 = 18 marks
Section C – 2 out of 4 – 2 x 6 = 12 marks

Practical: 50 marks

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086

BACHELOR OF VOCATIONAL (B.Voc.) PROGRAMME
FOOD PROCESSING AND QUALITY CONTROL

SYLLABUS
(Effective from the academic year 2016 – 2017)

FOOD HYGIENE AND SANITATION

CODE:16VF/VA/HS 15

CREDITS: 5
L T P: 4 0 1
TOTAL TEACHING HOURS: 65

OBJECTIVES OF THE COURSE

- To highlight the importance of Hygiene and Sanitation in Food Industry
- To provide knowledge relating to the Significance of Pest Control

Unit 1 **(8hrs.)**

Cleaning Procedures

1.1 Introduction to food hygiene, Cleaning and Sanitizing
1.2 Cleaning of premises and surroundings
1.3 Guidelines and Types of Cleaning Equipment
1.4 Location, Layout and Construction of Premises

Unit 2 **(8hrs.)**

Personal Hygiene

2.1 Importance of Personal Hygiene of Food handler – habits – clothes, illness
2.2 Education for Food handler – practical approach

Unit 3 **(12hrs.)**

Pest Control and Disposal of Waste

3.1 Importance of Pest Control
3.2 Classification of Pests
3.3 Use of Pesticide
3.4 Waste Product handling (Solid and Liquid Waste)
3.5 Storage of grain and its importance
3.6 Storage structure, tradition modern and underground
3.7 Role of PDS, FCI, IGSI, SGC in Controlling Food Losses

Unit 4 **(12hrs.)**

Safety at the Work Place

4.1 Sanitation Training and Education
4.2 Steps in Planning and implementing a Training Programme

4.3 Types of Accidents and their Effect
4.4 Safety instruction in food industry
4.5 Process flow design

Unit 5 (12hrs.)

Food Service Hygiene

5.1 Rules of food service
5.2 Protective display of foods
5.3 Hygiene in Street foods, restaurants and Quick Serve Restaurants

Group projects (13hrs.)

TEXT BOOK

Sunetra Roday. II edition. *Food Hygiene and Sanitation with Case Studies.* New Delhi: Tata McGraw Hill Education Pvt., Ltd., 2012

BOOKS FOR REFERENCE

Hobbs. B.C. and Gilbert. R..J. *Food Poisoning and Food Hygiene.* New York: The English Language Book Society and Edward Arnold Publishers Limited, 1978

Jacob. M. *Safe Food Handling,* Geneva: A training guide for Manager, WHO, 1989

James M. Jay. *Modern Food Microbiology,* New Delhi: CBS Publishers, 1996

Norman G. Marriot. *Principles of Food Sanitation,* Connecticut: AVI Publishing Co., Inc., 1989

PATTERN OF EVALUATION

Continuous Assessment: 25 marks **End Semester: 75 marks**

The students will be taking one C.A. test and additional Skill sets training practical component which may include practical work, assignments, project work, any other.

I. C.A. Test for 2 hours **50 marks**, comprising of Theory (35 marks) and Practical (15 marks), both to be done in the laboratory

Theory: 35 marks

C.A. Test Pattern:

Section A – Objective/ definition/ fill in the blanks- 10x1=10 marks (to be collected after 10 minutes)

Section B – 2 out of 4 – 2 x 5 = 10 marks

Section C – 1 out of 2 – 1 x 15=15 marks

Practical: 15 marks

II. Continuous skill sets training practical work, Assignment, Quiz etc.: **25 marks**

End Semester Examination (Total 100 marks to be converted to 75 marks)

Total Marks: 100 Duration: 3 hours

Theory: 75Marks Practical: 25 Marks

(Both theory and practical to be done in the laboratory).

Pattern for Theory: 75 marks

Section A – Objective/ definition/ fill in the blanks - 20 x 1 = 20 marks (to be collected after 20 minutes)
Section B – 5 out of 7 – 5 x 5 = 25 marks
Section C – 2 out of 4 – 2 x15 =30 marks

Practical: 25 marks

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI - 600 086

General Elective Course Offered by the Department of Zoology for B.Voc. Degree Programme

SYLLABUS
(Effective from the academic year 2016 -2017)

DISEASES AND MANAGEMENT

CODE: 16ZL/UE/DM12 **CREDITS : 2**

L T P : 2 0 0

TOTAL TEACHING HOURS: 26

OBJECTIVES OF THE COURSE

- To study the causation, symptoms and diagnosis of important communicable and non-communicable diseases
- To learn the prevention and management of important communicable and lifestyle diseases

Unit 1

Diseases **(8 hrs.)**

1.1 Introduction - Classification
1.2 Principles of Epidemiology - Disease Cycle – Disease Progression
1.3 Normal Microbiota of The Human Body
1.4 Vaccines: Types – Immunization Schedule

Unit 2

Communicable Diseases and Management **(10 hrs.)**

2.1 Nosocomial and Fomite-Borne Infections
2.2 Air Borne Diseases: Tuberculosis, Swine Flu and Measles
2.3 Food and Water Borne Diseases: Hepatitis A, Typhoid and Cholera
2.4 Sexually Transmitted Diseases: Syphilis, Gonorrhoea and AIDS
2.5 Zoonotic: Leptospirosis, Dengue Fever and Chikangunya

Unit 3

Non-Communicable Diseases and Management **(8 hrs.)**

3.1 Breast Cancer – Cervical Cancer
3.2 Thyroid Disorders
3.3 Myocardial Infarction (MI) – Chronic Obstructive Pulmonary Disorder (COPD)
3.4 Diabetes - Gastrointestinal Ulcers (Peptic and Duodenal)
3.5 Parkinson’s Disease

BOOKS FOR REFERENCE

Goel, S.L. *Education of Communicable and Non-Communicable Diseases*. Mayur, 2009.

Merrill Ray. *Introduction to Epidemiology*. Jones and Bartlett, 2010.

Park, J.E. *Textbook of Preventive and Social Medicine*. Banarsidas Bhanot, 1991.

Shier David, Butler Jackie and Lewis, Ricki. Hole's *Essentials of Human Anatomy and Physiology.* McGraw Hill, 2011.

Tortora, G.J, Funke B.R. and Case, C.L. *Microbiology: An Introduction*. Pearson Education, 2014.

JOURNALS

The Journal of Infectious Diseases
The Journal of Communicable Diseases
Population Health Management

WEB RESOURCES

http://ismocd.org/
http://www.photius.com/countries/india/society/india_society_communicable_and_non~76.html
http://www.healthissuesindia.com/noncommunicable-diseases/

PATTERN OF EVALUATION

No End Semester Examination

CONTINUOUS ASSESSMENT

Continuous Assessment Test – 25 marks

Question Paper Pattern

Section A – 3 x 2 = 6 Marks (All questions to be answered)
Section B – 3 x 3 = 9 Marks (3 out of 5 to be answered)
Section C – 2 x 5 = 10 Marks (2 out of 3 to be answered)

Third Component- 25 marks
List of Evaluation Modes:
Scrap Book
Presentation
Assignment
Case study

.

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086
DEPARTMENT OF VALUE EDUCATION
Courses Offered to B.Voc. DEGREE PROGRAMME

SYLLABUS
(Effective from the academic year 2016 – 2017)

VALUES IN PERSONAL LIFE

CODE: 16UV/ET/VP12 **CREDITS: 2**
L T P: 2 0 0
TOTAL TEACHING HOURS: 26

OBJECTIVES OF THE COURSE

- To enable the students to develop a positive self-concept and to foster healthy inter-personal relationships.
- To help students in their transition from school to college and in balancing freedom and responsibility
- To enable the students to understand their social environment

EXPECTED OUTCOME

Students would develop an awareness of their Personal, Social and Spiritual Self

Unit 1

Self Discovery **(10 hrs.)**

1.1 **Self-awareness**

Identifying Strengths and Weaknesses-Acceptance and Appreciation of Self: Building Self-Esteem and Self-Confidence

1.2 **Beliefs and Values**

Reinforcing values: honesty, generosity, integrity, humility, empathy, respect for others, inclusiveness, compassion

1. 3 **Adapting to change**

Handling Responsibilities of College Life – Challenges and Issues. Personal Responsibilities - Handling New Found Freedom - College and Hostel. Handling Personal Finances and Saving. Peer Pressure. Vulnerability to Current Social Trends Building New Relationships : Interdependence. Relationships with Parents and Siblings, Peer Group. Assertive Behavior, Aggressive Behavior.

1.4 **Handling value conflicts**

Home, College, Social Media

Unit 2

Societal Awareness **(8 hrs.)**

2.1 **Changing trends**

Tradition vs. Modernity, Social and Economic disparities, Social Discrimination, Gender disparities

2.2 **Understanding the environment**

Appreciation of the environment - Canticle of the creatures, Prayer of St. Francis of Assisi

Civic responsibility – human beings, environment, animals, and our campus. Ethic of Enough

Unit 3 **(8 hrs.)**

Spiritual Awareness

3.1 The centrality of spirituality – integration of body, mind and spirit-Self Discipline.

3.2 Yoga and meditation

Teaching / Learning Methods

- Lectures
- Group Discussions
- Paper Presentations
- Power Point Presentations
- Seminars
- Role Plays
- Case Studies
- Debates
- Documentaries And Videoclippings

Workshop - Personality Development

BOOKS FOR REFERENCE

Davidar(Eds). *Human Values*. All India Association of Christian Higher Education. (AIACHE) New Delhi: 2013.

Ignacimuthu, S. *Values for life*. Better Yourself Books: Mumbai, 1994.

James, G.M. et.al. *In Harmony-Value Education at College Level*. Chennai: Prakash, 2011.

Koikara, Felix , Joe Mannath. *Youth Worker's Resource Book*. Chennai: Don Bosco, 1985.

Koikara, Felix. *Live your Values-Teacher"s Guide*. Mumbai: Better Yourself Books, 2005. .

Life Skills Foundation for Education. *Personal Effectiveness Programme*. Chennai: Laya 2000

Simon, Sidney et.al. *Values Clarification-A Practical Action-Directed Workbook*. NewYork: Warner Books, 1995.

PATTERN OF EVALUATION (Internal) - Marks: 50

Continuous Assessment

Quiz

Assignment

Presentation - Individual / Groups

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086

BACHELOR OF VOCATIONAL (B.Voc.) PROGRAMME
FOOD PROCESSING AND QUALITY CONTROL

SYLLABUS
(Effective from the academic year 2016 – 2017)

BAKERY AND DAIRY TECHNOLOGY

CODE:16VF/VM/BD26

CREDITS: 6
L T P: 3 0 3
TOTAL TEACHING HOURS: 78

OBJECTIVES OF THE COURSE

- To develop skills in various baking procedures
- To have working knowledge of equipment needed for baking
- To learn the physical, chemical and Constituents of Milk and their significance in quality control
- To understand the technology of dairy products and bakery products

Unit 1 **(6hrs.)**

Composition of Milk

1.1 Physical, Chemical and Microbial Properties of Milk
1.2 Test for Quality Control in Milk (Practicals)
1.3 Lactometer, Methylene blue reduction test, Resazurin test, Phosphatase test, Stormy clot test and Estimation of Specific Gravity and Acidity of Milk

Unit 2 **(10hrs.)**

Preservation Techniques in Milk

2.1 Chilling Methods
2.2 Pasteurization, Sterilization, Homogenization, Standardization and grading and Packaging of Milk
2.3 Cleaning and Sanitization Structure and layout of Dairy industry and Dairy effluent treatment
2.4 Manufacture and Probiotics of Dairy Products-Butter, Ghee, Cheese-Cheddar, Cottage Cheese, Yoghurt and Curd and their use in baking

Unit 3 **(12hrs.)**

Introduction to Baking

3.1 Principles of Baking, Baking Oven types
3.2 Bread Making: Procedures for Bread Making, Types of Bread
3.3 Common Defect in Bread Making and Bread Improvers
3.4 Maintenance of Sanitation and Hygiene in Bakery unit

Unit 4 **(12hrs.)**

Composition of Bread

4.1 Leavening Agents Definition, Role of Water in Baking
4.2 Physical, Chemical and Biological Leavening Agents
4.3 Wheat flour, Fats and Sugar:-Types and their in Baking

Unit 5 **(16hrs.)**

Confectionary (Theory and Practical)

5.1 Cakes , Biscuits and Cookies – Ingredients, Types and Preparation
5.2 Pastries:-Confectionery Fats, Icings and Glazings
5.3 Gums, Pectin and Gelatin in Confectionary
5.4 Chocolate Confectionary

Practicals **(22hrs.)**

5.5 Baking Different Types of Cakes, Biscuits, Pastries and Bread
5.6 Preparation of Sandwich and Fondant
5.7 Baking of Pizza Base
5.8 Preparation of Chocolates

TEXT BOOKS

Aantakrishnan. C.P. Khan. A.Q. and P.N. Padmnabhan. *The Technology of Milk Processing.* India*:* Shrilaksmi Publication, 1993

Catherine Atkinson. *Chocolate,* U. K.: Star Fire, 2003

BOOKS FOR REFERENCE

Catherine Atkinson. *Breads,* U.K.: Star Fire, 2003

Hatcher Jo. *Cooking on Bread Line,* New York: Thomson Publication, 1977

Hinde Cecilia H. *Your Book of Breadmaking,* London: Faber and Faber, 1983

PATTERN OF EVALUATION

Continuous Assessment : 25 Marks

End Semester Examination (Total 100 marks will be converted to 75 marks)

Theory :50 Marks Practical :50 Marks

Total Marks: 100 Duration: 5 hours

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086

BACHELOR OF VOCATIONAL (B.Voc.) PROGRAMME
FOOD PROCESSING AND QUALITY CONTROL

SYLLABUS
(Effective from the academic year 2016 – 2017)

BASIC PRINCIPLES OF FOOD PROCESSING AND PRESERVATION

CODE:16VF/VM/PP26

CREDITS: 6
L T P: 3 0 3
TOTAL TEACHING HOURS: 78

OBJECTIVES OF THE COURSE

- To provide an understanding of the Physical and Chemical Principles involved in Food Processing
- To gain knowledge in Preservation Technologies and Quality Control

Unit 1 **(10hrs.)**

Introduction

1.1 Food deterioration : Causes and Consequences,
1.2 Scope and Importance of Food Processing
1.3 Historical Development in Food Processing.

Unit 2 **(15hrs.)**

Principles of Food Preservation (Theory and Practical)

2.1 Preservation and Processing by heat. Effect of heat on Microorganisms, Thermal death time and Canning Procedure
2.2 Preservation and Processing by Cold and Chill Storage – Types of Cold Preservation, air circulation and humidity and Modified Atmosphere.
2.3 Preservation and Processing by drying – Methods and Advantages of drying.

Unit 3 **(15hrs.)**

Processing Techniques (Theory and Practical)

3.1 Cereal Millets – in baking industry: different methods of making dough on quality of Indian brads
3.2 Pulses and Wheat - Study of development of gluten in fermented doughs
3.3 Nuts – Effect of roasting of nuts and oil seeds
3.4 Eggs – Role of egg white and yolk for different bakery products

Unit 4 **(15hrs.)**

High Protein Technology (Theory and Practical)

4.1 Extruded food – Principle and Process

4.2 Texturized Vegetable Protein
4.3 Extracted Soya bean Protein
4.4 Fermented products of Soya bean – Soya sauce

Unit 5 **(10hrs.)**

Novel methods of Preservation using ionizing radiation

5.1 Kinds of radiation and their application in food processing
5.2 Cryogenic and instant freezing
5.3 Effects and Safety of Food Irradiation

Visit to Food Processing Units and Preparation of Food Products **(13hrs.)**

TEXT BOOKS

Sivasankar. B. *Food Processing and Preservation.* New Delhi: Prentice-Hall of India Pvt., Ltd., 2005

Subbulakshmi. G. and A. Shobha. *Food Processing and Preservation.* New Delhi: New Age International Pvt., Ltd., 2008

BOOKS FOR REFERENCE

Banwart. George. J. *Basic Food Microbiology,* New Delhi: CBS Publications, 1987

Jay. James. M. *Modern Food Microbiology, Edition 3,* New Delhi: CBS Publishers, 1987

Kulshrestha. S.K. *Food Preservation,* New Delhi: Vikas Publishing House, 1994

Muller. H.G. *Nutrition and Food Processing,* India: Avi. Publishers, 1998

Norman. N. Potter. *Food Science,* New Delhi: CBS Publishers and Distributors, 2004

Scemetra. R. *Food Science and Nutrition,* New Delhi: Oxford University Press, 2007

PATTERN OF EVALUATION

Continuous Assessment : 25 Marks

End Semester Examination (Total 100 marks will be converted to 75 marks)

Theory :50 Marks Practical :50 Marks

Total Marks: 100 Duration: 5 hours

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086

BACHELOR OF VOCATIONAL (B.Voc.) PROGRAMME
FOOD PROCESSING AND QUALITY CONTROL

SYLLABUS
(Effective from the academic year 2016 – 2017)

PRINCIPLES OF BASIC NUTRITION

CODE:16VF/VA/PN25

CREDITS: 5
L T P: 5 0 0
TOTAL TEACHING HOURS: 65

OBJECTIVES OF THE COURSE

- To equip students on the usage of food guide
- To give an introduction about the various nutrients, their nutritional value, functions and storage

Unit 1 **(12hrs.)**

Introduction to Basic Nutrition

1.1 Introduction to Nutrition – Definition of Nutrition and Nutrients, interrelationship between Nutrition and Health
1.2 Food Guide – Basic food groups, usage of the food guide
1.3 Role of Water in Nutrition

Unit 2 **(15hrs.)**

Classification and Nutritive Value of Foods

2.1 Classification of foods – Energy Yielding, Body building, Protection and Regulation, and Maintenance foods
2.2 Nutritive Value of Cereals, Pulses and Oil
2.3 Nutritive Value of Meats, Chicken, Seafood and Milk, (Probiotics)
2.4 Nutritive Value of Vegetables and Fruits
2.5 Traditional food additives (spices and condiments)

Unit 3 **(15hrs.)**

Macronutrients – Carbohydrates, Proteins and Fats

3.1 Carbohydrates – Source, functions Normal levels and digestion and Absorption, RDA
3.2 Proteins – Sources, Daily Requirement, Functions, Essential Amino Acids, Digestion and Absorption, RDA
3.3 Fats – Sources, Daily Requirement, Functions, Essential Fatty Acids, Digestion and Absorption, RDA
3.4 Balance Diet – Guidelines for Healthy Eating, Calculation of Energy and Percentage of Macronutrients in Foods

Unit 4 **(12hrs.)**

Micronutrients – Minerals

4.1 Sources, Functions, bio-availability of Calcium, Iron, Iodine, Fluorine, Sodium, Potassium (elementary treatment)

4.2 Effect of Deficiencies of the above minerals, their symptoms and remedial measures

Unit 5 **(11hrs.)**

Vitamins

5.1 Vitamins – Classification, Sources, Functions (elementary treatment) of the following vitamins:

Fat soluble vitamins - A, D, E & K

Water soluble vitamins - Ascorbic Acid, Thiamine, Riboflavin, Niacin

5.2 Effect of deficiencies of the above vitamins and their symptoms, vitaminosis

5.3 Effect of cooking on vitamins

Field Visit / Workshop

TEXT BOOK

Swaminathan. M. *Advanced Textbook on Food and Nutrition.* (Vol I and II), Bangalore: Printing and Publishing Co. Ltd. 2015

BOOKS FOR REFERENCE

Bamji MS. Rao NA. & Reddy V. *Textbook of Human Nutrition*, Oxford & IBH, 2003

Norman. N. Potter. *Food Science***,** New Delhi: CBS Publishers and Distributors, 2004

Seema Yadav. *Principles of Basic Nutrition.* India: Anmol Publishers, 1998

Swaminathan. M. *Handbook of Food and Nutrition.* Bangalore: Bangalore Printing and Publishing, 2012

PATTERN OF EVALUATION

Continuous Assessment : 25 Marks

End Semester Examination (Total 100 marks will be converted to 75 marks)

Total Marks: 100 Duration: 3 hours

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086

BACHELOR OF VOCATIONAL (B.Voc.) PROGRAMME
FOOD PROCESSING AND QUALITY CONTROL

SYLLABUS
(Effective from the academic year 2016 – 2017)

BANKING PRACTICES

CODE: 16CM/UE/BP22 **CREDITS: 2**
L T P: 2 0 0
TOTAL TEACHING HOURS: 26

OBJECTIVES OF THE COURSE

- To expose students to a variety of financial services available to meet the dynamic changes in the economy and the diverse requirements of the investors
- To provide an opportunity to understand the significance of banking and financial services

Unit 1 **(6hrs.)**

Customers' Accounts with the Bank

1.1 Opening of Bank Accounts
1.2 Different Types of Bank Accounts
1.3 Documents Relating to Transactions with Bank
1.4 losing of Bank Accounts

Unit 2 **(8hrs.)**

E- Banking

2.1 Meaning and Importance.
2.2 Credit Card, Debit Card, Smart Card
2.3 Internet Banking – Services and Major Issues
2.4 ATM – Concept, Features and Importance
2.5 Mobile Banking and Telebanking

Unit 3 **(12hrs.)**

Negotiable Instruments

3.1 Meaning, Characteristics
3.2 Types of Negotiable Instruments
- 3.2.1 Cheque – Requirement of a Cheque
- 3.2.2 Post-dated Cheque, Stale Cheque, Ante-dated Cheque
- 3.2.3 Crossing- Meaning, Types and Significance
- 3.2.4 Endorsement- Types and Significance

BOOKS FOR STUDY

Gurusamy S. *Banking Theory Law and Practice.* 2nd ed. Chennai: Vijay Nicole, 2012.

Sundharam K.P.M. and P.N Varshney. *Banking Theory Law and Practice.* 18th ed. New Delhi: Sultan Chand, 2012.

BOOKS FOR REFERENCE

Bihari, SC. *E-Banking*. 1st ed. SkyLark, 2007.

Gordon E. and K.Natarajan. *Banking Theory Law and Practice.* 19th ed. Mumbai: Himalaya, 2012.

Gordon E., Natarajan K. *Emerging Scenario in Financial Services.* Mumbai: Himalaya, 2006.

Rajesh R., T. Sivagnanasithi. *Banking Theory Law and Practice.* New Delhi: Mc Graw Hill, 2009.

Taxmann. *Guide To Negotiable Instruments Act*. Taxmann, 2003.

JOURNALS

Journal of Banking and Finance
Banking and Financial Services – The Business Journals
International Journal on Electronic Banking

WEB RESOURCES

www.academia.edu
www.lawhandbook.sa.gov

PATTERN OF EVALUATION

Continuous Assessment: (Totally internal)

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086

BACHELOR OF VOCATIONAL (B.Voc.) PROGRAMME
SYLLABUS
(Effective from the academic year 2016 – 2017)
SOFT SKILLS

CODE: 16VF/US/SS22 **CREDITS: 2**
L T P: 2 0 0
TOTAL TEACHING HOURS: 26

OBJECTIVES OF THE COURSE

- To equip students with competencies to achieve personal and academic excellence
- To raise confidence levels

Unit 1
Self Awareness **(5hrs.)**
1.1. Knowing One's Strengths and Weaknesses
1.2. Self-esteem and Self-worth

Unit 2
Work place Behavioural Training **(6hrs.)**
2.1 Listening Skills
2.2 Interpersonal Skills
2.3 Team Work and Group dynamics
2.4 Personal Effectiveness
2.5 Creative Thinking

Unit 3
Planning Ahead **(5hrs.)**
3.1 Time Management
3.2 Goal Setting

Unit 4
Career Mapping **(5hrs.)**
4.1 Concept of Career
4.2 Career Options
4.3 Choice of Right Career

Unit 5
Adaptability Skills **(5hrs.)**
5.1 Working independently
5.2 Working as a team
5.3 Multi-tasking
5.4 Innovation
5.5.Adapting to Change and Criticism

PATTERN OF EVALUATION
Continuous Assessment: (Totally internal)

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086

BACHELOR OF VOCATIONAL (B.Voc.) PROGRAMME
FOOD PROCESSING AND QUALITY CONTROL

SYLLABUS
(Effective from the academic year 2016 – 2017)

DAIRY PROCESSING

CODE:16VF/VM/DP36

CREDITS: 6
L T P: 3 0 3
TOTAL TEACHING HOURS: 78

OBJECTIVES OF THE COURSE

- To acquire the skills for processing different dairy products in an industry
- To understand the technology of dairy products.
- To be able to handle dairy equipment and machineries during production
- To observe food safety , quality and hygiene standards as dairy product processor

Unit 1 (15hrs)

Milk

1.1 Composition: Milk constituents - Composition of milk from different species, colostrum, factors affecting physico chemical properties , composition and nutritive value

1.2 Milk fat , milk protein, whey protein, milk sugar, milk ash, cream, butter, cheese, ice cream, skim milk, condensed milk

1.3 Quality of milk: Grading, sensory evaluation, common milk-borne diseases, spoilage, causes and prevention, adulterants and their detection

Unit 2 (15hrs)

Production of direct Milk products (Theory and Practicals)

2.1 Chilling methods in the production of Milk and different types of milk: Condensed milk, standardized milk, Toned milk, homogenized milk and Evaporated milk, definition and properties

2.2 Cream separation: objective, principle, method, equipment and efficiency testing

2.3 Pasteurization and Sterilization: HTST pasteurization, objective, principle, method, equipment and efficiency testing. Homogenisation and Clarification

Unit 3 (25hrs)

Production of Dairy products (Theory and Practicals)

3.1 Traditional Dairy Products: Khoa, Kulfi, Paneer, Ghee and Butter

3.2 Fermented dairy products- probiotics: Yogurt, Cheese

3.3 Ice cream, Milk powder, Whey, Casein, chocolates and Frozen desserts

Unit 4 **(10hrs)**

Maintenance of Dairy Plants

4.1 Cleaning and Sanitization structure and layout of Dairy industry
4.2 Types of dairies: Single product dairy and Composite dairy plant
4.3 Design, layout and location of dairy plant. Case studies of model dairy plants

Unit 5 **(13hrs)**

Post production processes

5.1 Packaging of milk products, By-products of dairy industry
5.2 Effluent treatment and waste disposal in dairy industry
5.3 Documentation in a dairy plant

Visit to Dairy industries

TEXT BOOKS

Anantakrishnan. R.B. Singh and P.N. Padmanabhan. , *Dairy Microbiology* India: Shrikkshmi Publication, 2013.

Dutta Nivedita, Tomasula Peggy, Emerging Dairy Processing Technologies : opportunities for the dairy industry, John Wiley and Sons , 2015

Anantakrishnan. C.P. Khan. A.Q. and P.N. Padmnabhan. *The Technology of Milk Processing.*India: Shrilakshmi Publication, 2012

BOOKS FOR REFERENCE

Pradeep Parihar and Leena Parihar. *Dairy Microbiology*, India: Agrobios, 2008

Rabinson. R.K. *Modern Technology: Advances in Milk Products*, UK: Springer International Publishers, 2012

Walstra. P. *Dairy Technology: Principles of Milk Properties and Processes (Food Science and Technology),* UK: CRC Press, 2013

PATTERN OF EVALUATION

Continuous Assessment : 25 Marks

End Semester Examination (Total 100 marks will be converted to 75 marks)

Theory :50 Marks Practical :50 Marks

Total Marks: 100 Duration: 5 hours

Continuous Assessment: 25 marks **End Semester: 75 marks**

The students will be taking one C.A. test and additional Skill sets training practical component which may include practical work, assignments, project work, any other.

I. C.A. Test for 3 hours **50 marks**, comprising of Theory (25marks) and Practical (25marks), both to be done in the laboratory. **The final marks to be converted to 25**
C.A. Test Pattern for theory: (25marks)
Section A – Objective/ definition/ fill in the blanks- 10 x 1 = 10 marks (to be collected after 10 minutes)
Section B – 3 out of 5 – 3 x 3 = 9 marks
Section C – 1 out of 2 – 1 x 6 = 6 marks
Practical: 25 marks
II. Continuous Assessment of Skill sets training - practical work: **25 marks** – Aggregate of all practical assessment

End Semester Examination (Total 100 marks to be converted to 75 marks)

Total Marks: 100 Duration: 5 hours

Theory: 50 Marks Practical: 50 Marks

(Both theory and practical to be done in the laboratory).

Pattern for Theory: 50 marks

Section A – Objective/ definition/ fill in the blanks- 20 x 1=20 marks (to be collected at the end of 20 minutes)
Section B – 6 out of 10 - 6 x 3 = 18 marks
Section C – 2 out of 4 - 2 x 6 = 12 marks

Practical: 50 marks

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086

BACHELOR OF VOCATIONAL (B.Voc.) PROGRAMME
FOOD PROCESSING AND QUALITY CONTROL

SYLLABUS
(Effective from the academic year 2016 – 2017)

FOOD ANALYSIS

CODE:16VF/VM/FA36

CREDITS: 6
L T P: 3 0 3
TOTAL TEACHING HOURS: 78

OBJECTIVES OF THE COURSE

- To familiarize with the preparation and sampling of food products and conventional methods of food analysis
- To give an understanding on the laboratory chemical methods used in the analysis of food with a focus on dairy products

Unit 1 **(12 hrs.)**

pH and Buffers (Theory and practicals)

1.1 Water activity and its significance in food quality
1.2 Preparation of solutions, percentage by weight, volume, strength, normality, molarity, ppm, ppb, serial dilution and buffers
1.3 Estimation of pH of beverages

Unit 2 **(12 hrs.)**

General Methods of Analysis

2.1 Estimation of vitamin C in lime/gooseberry/sweetlime
2.2 Extraction and estimation of starch
2.3 Estimation of acetic acid in vinegar

Unit 3 **(20hrs.)**

Characterisation of oils/fats /milk products (Theory & Practicals)

3.1 Classification and characterization of lipids
3.2 Estimation of acid number in oils/ butter
3.3 Determination of saponification value in oils/cow's milk/ butter
3.4 Determination of iodine value in oils/cow's milk/butter

Unit 4 **(14hrs.)**

Determination of proteins (Theory and Practicals)

4.1 Classification of proteins
4.2 Qualitative analysis of proteins (casein and egg albumin)
4.3 Extraction and estimation of casein

Unit 5 **(20hrs)**

Analysis of milk and milk product (Theory and practicals)

5.1 Analysis of milk: specific gravity, fat content (Gerber's method) , lactose content (volumetric)

5.2 Analysis of condensed milk: Total solids, sucrose, lactose / sucralose / fructose / aspartame

5.3 Analysis of cheese: water content, fat content, ash content

5.4 Analysis of butter and curd

Visit to Food Industries / Laboratories

TEXT BOOKS

Nielsen S. (Eds.). *Introduction to Chemical Analysis of Foods*. Jones & Bartlett. Pomrenz Y & Meloan CE. 2014

Pearson's Chemical Analysis of Foods. 9th Ed. Longman Scientific & Technical. Leo ML. *Handbook of Food Analysis* . 2nd Ed. Vols. I-III. 2004

BOOKS FOR REFERENCE

AOAC International. Official methods of analysis of AOAC International. 17th Ed. 2013

Geetha Swaminathan. Mary George. *Laboratory Chemical Methods in Food Analysis. Chennai:* Margham Publication, 2014

Ranganna S. *Handbook of Analysis and Quality Control for Fruit and Vegetable Products*. 2nd Ed. Tata-McGraw-Hill, 2001

Fung, D.Y.C. and Mathews. R. *Instrumental Methods for Quality Assurance in Foods.* New York: Marcel Dekker, Inc.1991

Pomeranz. Y. and Meloan, C.E. *Food Analysis: Theory and Practice.* 3rd Edition, New York: CBS Publishers and Distributors, 1996

PATTERN OF EVALUATION

Continuous Assessment : 25 Marks

End Semester Examination (Total 100 marks will be converted to 75 marks)

Theory :50 Marks Practical :50 Marks

Total Marks: 100 Duration: 5 hours

Continuous Assessment: 25 marks **End Semester: 75 marks**

The students will be taking one C.A. test and additional Skill sets training practical component which may include practical work, assignments, project work, any other.

I. C.A. Test for 3 hours **50 marks**, comprising of Theory (25marks) and Practical (25marks), both to be done in the laboratory. **The final marks to be converted to 25**
C.A. Test Pattern for theory: (25marks)
Section A – Objective/ definition/ fill in the blanks- 10 x 1 = 10 marks (to be collected after 10 minutes)
Section B – 3 out of 5 – 3 x 3 = 9 marks
Section C – 1 out of 2 – 1 x 6 = 6 marks
Practical: 25 marks
II. Continuous Assessment of Skill sets training - practical work: **25 marks** – Aggregate of all practical assessment

End Semester Examination (Total 100 marks to be converted to 75 marks)

Total Marks: 100 Duration: 5 hours

Theory: 50 Marks Practical: 50 Marks

(Both theory and practical to be done in the laboratory).

Pattern for Theory: 50 marks

Section A – Objective/ definition/ fill in the blanks- 20 x 1=20 marks (to be collected at the end of 20 minutes)
Section B – 6 out of 10 - 6 x 3 = 18 marks
Section C – 2 out of 4 - 2 x 6 = 12 marks

Practical: 50 marks

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086

BACHELOR OF VOCATIONAL (B.Voc.) PROGRAMME
FOOD PROCESSING AND QUALITY CONTROL

SYLLABUS
(Effective from the academic year 2016 – 2017)

BASIC DIETETICS

CODE:16VF/VA/BA35

CREDITS: 5
L T P: 5 0 0
TOTAL TEACHING HOURS: 65

OBJECTIVES OF THE COURSE

- To provide an understanding of the basics of menu planning
- To equip the students to formulate diets based on dietary guidelines

Unit 1 **(10hrs.)**

Principles of Dietary guidelines

1.1 Introduction to normal dietary needs of the body, menu planning
1.2 Adaptation of normal diet for changing needs
1.3 Normal Diet – Diet for different age groups

Unit 2 **(15rs.)**

Nutritional requirement for pregnant and lactating women

2.1 Nutritional needs for pregnant women and RDA
2.2 Nutritional needs for lactating women and RDA
2.3 Planning of diets

Unit 3 **(15hrs.)**

Nutritional Requirements for infant, children and adolescents

3.1 Requirements and sources of food for infants
3.2 Changing needs for growing children and adolescents
3.3 Nutritional problems associated with adolescents –Anaemia, Bulimia and Obesity
3.4 Relevance of packed lunch for children

Unit 4 **(12hrs.)**

Nutritional Requirements for adults and old age

4.1 Basic requirements for adults
4.2 Problems associated with Geriatrics
4.3 Food for the special needs in old age

Unit 5 **(13hrs.)**

Nutritional Requirements for Therapeutic diet

5.1 Introduction

5.2 Food Acceptance in illness and nutritional assessment in clinical setting

5.3 Planning of diets for diabetes, weight management, gastritis and ulcers

Field visits

TEXT BOOKS

Srilakshmi B., *Dietetics, 6th edition,* New Age International Pvt.Ltd, 2011

Swaminathan. M. *Advanced Textbook on Food and Nutrition* (Vol I and II), Bangalore: Printing and Publishing Co., Ltd., 2015

BOOKS FOR REFERENCE

Bamji MS. Rao NA & Reddy V. *Textbook of Human Nutrition*. Oxford & IBH, 2003

Gibson GR & William.CM. *Functional Foods - Concept to Product*. 2003

Goldberg. I. *Functional Foods: Designer Foods, Pharma Foods*. 1994

Manson. P. *Dietary Supplements.* 2nd Ed. Pharmaceutical Press. 2001

Norman. N. Potter. *Food Science,* New Delhi: CBS Publishers and Distributors, 2004

Robert. EC. *Handbook of Nutraceuticals and Functional Foods*. 2nd Ed. Wildman. 2006

Seema Yadav. *Principles of Basic Nutrition.* India: Anmol Publishers, 1998

Shi. J. (Ed.). *Functional Food Ingredients and Nutraceuticals: Processing Technologies*. CRC Press, 2006

Swaminathan, M. *Handbook of Food and Nutrition.* Bangalore: Printing and Publishing, 2012

Webb. GP. *Dietary Supplements and Functional Foods*. Blackwell Publication, 2006

PATTERN OF EVALUATION

Continuous Assessment : 25 Marks

End Semester Examination (Total 100 marks will be converted to 75 marks)

Total Marks: 100 Duration: 3 hours

Continuous Assessment: 25 marks **End Semester: 75 marks**

The students will be taking one C.A. test and additional Skill sets training practical component which may include practical work, assignments, project work, any other.

I. C.A. Test for 90 Mins. **50 marks**,
C.A. Test Pattern:
Section A – Objective/ definition/ fill in the blanks- 10x1=10 marks (to be collected after 10 minutes)
Section B – 2 out of 4 – 2 x 10 = 20 marks
Section C – 1 out of 2 – 1 x 20=20 marks

End Semester Examination (Total 100 marks to be converted to 75 marks)

Pattern for Theory: 100 marks **Duration : 3 hours**

Section A – Objective/ definition/ fill in the blanks - 20 x 1 = 20 marks (to be collected after 20 minutes)
Section B – 4 out of 6 – 4 x 10 = 40 marks
Section C – 2 out of 4 – 2 x20 =40 marks

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BACHELOR OF VOCATIONAL (B.Voc.) PROGRAMME

SYLLABUS

(Effective from the academic year 2016 – 2017)

ENVIRONMENTAL STUDIES

CODE: 16VF/UC/ES32 **CREDITS : 2**

L T P : 2 0 0

TOTAL TEACHING HOURS : 26

OBJECTIVES OF THE COURSE

- To create an awareness about current environmental issues
- To educate students on conservation and management of natural resources
- To encourage students to be ecosensitive and ecofriendly

Unit 1

Introduction 6hrs.)

1.1 Components of the Environment – Classification and Characteristics of Resources – Renewable and Non – Renewable Resources

1.2 Need for Public Awareness in Conservation of Natural Resources

1.3 Energy Flow in Ecosystems – Aquatic and Terrestirial – Food Chain and Food Web

Unit 2

Pollution and Socio Economic Aspects of the Environment (10hrs.)

2.1 Types of Pollution – Air, Water, Solid Waste, Noise

2.2 Problems - Green House Effect – Depletion of the Ozone Layer – Climate Change

2.3 Bio Diversity - Definition - Loss of Bio Diversity – Threats to Biodiversity and Conservation of Biodiversity

2.4 Human Behaviour: - Population – Urbanization – Poverty (As Cause and Result of Pollution and Degradation)

2.5 Technology: Agriculture and Industry – Deforestation. Misuse and Abuse of the Resources

2.6 Effects and Consequences of Environmental Problems

Unit 3

Sustainable Development, Remedies and Policy Implications (10 hrs.)

3.1 Environmental Disasters Natural and Human Made – Bhopal Gas Tragedy – Chernobyl Accident – Fukushima Nuclear Crisis - Gulf War – Love Canal Episode – Tsunami – Volcanic Eruptions

3.2 Methods Evolved to Measure and Check Environmental Degradation and Pollution – Carbon Footprint, Carbon Credit, Ecological Footprint, and Ecological Shadow

3.3 Environmental Movements in India – Chipko Movement, Narmada Bachao Andolan, Sethu Samudram Project

3.4 Environmental Acts – Policy Measures with respect to India

3.5 International Environmental Agreement – Stockholm Conference – Montreal Protocol – Rio Meet – Kyoto Conference – UN Conference on Climate Change (Copenhagen)

Field visit

Eco initiatives at the campus: Garbage Segregation and Vermicomposting – Greywater Recycling – Rainwater Harvesting – Solar Powered Lights – Biodiversity

TEXT BOOK

Bharucha, E. *Textbook of Environmental Studies***.** Hyderabad: Universities Press, 2005.

REFERENCE BOOKS

Ignacimuthu, S. *Environmental Awareness and Protection***.** New Delhi: Phoenic House, 1997.

Jadhav, H and V. M. Bhosale. *Environmental Protection and Law.* New Delhi: Himalaya, 1995.

Odum, E.P. *Fundamentals of Ecology***.** U.S.A: W.B. Sauders, 1971.

Mies, M and V. Shiva. *Ecofeminism*, London: Zed Books, 1989.

Singh, H.R. *Environmental Biology***.** New Delhi: S.Chand, 2005.

PATTERN OF EVALUATION

Continuous Assessment: (Totally internal)

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086

BACHELOR OF VOCATIONAL (B.Voc.) PROGRAMME
FOOD PROCESSING AND QUALITY CONTROL

SYLLABUS
(Effective from the academic year 2016 – 2017)

ANALYTICAL TECHNIQUES IN FOOD QUALITY ASSURANCE

CODE: 16VF/VM /AT46

CREDITS: 6
L T P: 3 0 3
TOTAL TEACHING HOURS: 78

OBJECTIVES OF THE COURSE

- To familiarize with the conventional analysis of food products for quality control in food industry, their ole on nutritional labeling
- To give an understanding on the principles of analytical techniques.

Unit 1 **(20hrs)**

Spectroscopic Techniques (Theory and Practicals)

1.1 Principles of colorimetry and spectrophotometry. Instrumentation / working of UV/Vis Spectrophotometer (block diagram)
1.2 Estimation of iron, Estimation of Vitamin A
1.3 Estimation of Cholesterol

Unit 2 **(15hrs)**

Chromatography (Theory and Practicals)

2.1 Principle, theory and applications of Chromatographic techniques, application in food industry
2.2 Separation and identification of amino acids / sugars by paper chromatography Separation of carotenoids by Thin layer chromatography / column chromatography
2.3 Principle , instrumentation and applications of GC, HPLC

Unit 3 **(12hrs)**

Techniques for Estimation of minerals (Theory and Practicals)

3.1 Principle and instrumentation of Flame photometry
3.2 Estimation of calcium, sodium and phosphorus by Flame photometry
3.2 Refractometry and Viscometry –Determination of refractive index using Abbe's refractometer

Unit 4 **(13hrs)**

Miscellaneous Methods

4.1 Thermal methods in Food analysis (Differential scanning calorimetry)

4.2 Principle and instrumentation of Fluorimetry- Estimation of Thiamine / riboflavin

4.3 Determination of Moisture/ash/fibre content

Unit 5 (18hrs)

Water analysis (Theory and Practicals)

5.1 Importance of water in food processing

5.2 Water quality monitoring – impact on food safety

5.3 Estimation of pH, TDS, Turbidity, Dissolved Oxygen, BOD, COD, Hardness, Chloride content in water samples

Visit to Food Industries / Laboratories

TEXT BOOKS

Nielsen S. (Eds.). *Introduction to Chemical Analysis of Foods*. Jones & Bartlett. Pomrenz Y & Meloan CE. 2014

Pearson's Chemical Analysis of Foods. 9th Ed. Longman Scientific & Technical. Leo ML. *Handbook of Food Analysis* . 2nd Ed. Vols. I-III. 2004

Sharma. B.K. *Instrumental Methods of Chemical Analysis.* India: Krishna Prakashan Media, 2000

BOOKS FOR REFERENCE

AOAC International. Official methods of analysis of AOAC International. 17th Ed. 2013

Manual for Packaged Drinking Water Analysis by BIS, Govt. of India (2015)

Geetha Swaminathan. Mary George. *Laboratory Chemical Methods in Food Analysis. Chennai:* Margham Publication, 2010

Ranganna S. Handbook of Analysis and Quality Control for Fruit and Vegetable Products. 2nd Ed. Tata-McGraw-Hill, 2001

Pomeranz. Y. and Meloan, C.E. Food Analysis: Theory and Practice. 3rd Edition, New York: CBS Publishers and Distributors, 1996

PATTERN OF EVALUATION

Continuous Assessment : 25 Marks

The students will be taking one C.A. test and additional Skill sets training practical component which may include practical work, assignments, project work, any other.

I. C.A. Test for 3 hours **50 marks**, comprising of Theory (25marks) and Practical (25marks), both to be done in the laboratory. **The final marks to be converted to 25**

C.A. Test Pattern for theory: (25marks)

Section A – Objective/ definition/ fill in the blanks- 10 x 1 = 10 marks (to be collected after 10 minutes)

Section B – 3 out of 5 – 3 x 3 = 9 marks

Section C – 1 out of 2 – 1 x 6 = 6 marks

Practical: 25 marks

II. Continuous Assessment of Skill sets training - practical work: **25 marks** – Aggregate of all practical assessment

End Semester Examination (Total 100 marks to be converted to 75 marks)

Total Marks: 100 Duration: 5 hours

Theory: 50 Marks Practical: 50 Marks

(Both theory and practical to be done in the laboratory).

Pattern for Theory: 50 marks

Section A – Objective/ definition/ fill in the blanks- 20 x 1=20 marks (to be collected at the end of 20 minutes)

Section B – 6 out of 10 - 6 x 3 = 18 marks

Section C – 2 out of 4 - 2 x 6 = 12 marks

Practical: 50 marks

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086

BACHELOR OF VOCATIONAL (B.Voc.) PROGRAMME
FOOD PROCESSING AND QUALITY CONTROL

SYLLABUS
(Effective from the academic year 2016 – 2017)

FOOD LAWS AND FOOD SAFETY

CODE: 16VF/VM/FF46

CREDITS: 6

L T P: 3 0 3
TOTAL TEACHING HOURS: 78

Unit 1 **(14hrs.)**

Food Safety and Quality Control

1.1 Concept and meaning of Food Safety
1.2 Safety assessment of food contaminants and pesticide residues
1.3 Concept of quality: Quality attributes – physical, chemical, nutritional, microbial, and Sensory. Importance and functions of quality control; Principles of quality control

Unit 2 **(17hrs.)**

Food Laws

2.1 Prevention of Food Adulteration Act, BIS Act, FPO Act, Essential Commodities Act, Consumer Protection Act, Agricultural Produce Act (AGMARK)
2.2 Food Safety and Standards Act (FSSAI) 2006; Domestic regulations
2.3 Basic Prerequisites – GHPs, GMPs, SSOPs, HACCP – Concept and importance in food industry

Unit 3 **(18hrs.)**

Quality Assurance

3.1 Indian and International quality systems and standards like ISO, Food Codex
3.2 Tips to consumers for buying safe food
3.3 TQM – concept and need for quality, components of TQM, Accreditation and Auditing, Managerial skills and budget management

Unit 4 **(20hrs)**

Food Adulteration (Theory and Practicals)

4.1 Definition, causes and effects of adulteration
4.2 **Detection of Food Adulteration -** Chicory and Tamarind seed powder in Coffee Powder, Non permitted Colours in Tea and Dhalsm, Jams, Jellies, Juices, Metanil yellow in Turmeric powder and Kesari Powder, Argemone Oil, Mineral Oil, Castor Oil in Edible Oils, Papaya seeds and rotten pepper in Pepper, Brick

powder in Chilli Powder, Washing soda in Jaggery, Bura Sugar, Vanaspathi in Ghee, Chalk Powder in Salt and Saccharin in Supari

Unit 5 **(9hrs.)**

Food additives

5.1 Definitions of Food Additives, Classification and Functions

5.2 Legitimate uses of Additives in foods, Intentional and Non Intentional additives, Indirect food additives

5.3 Additives such as preservatives (Class I and Class II preservatives as per FSSAI, antioxidants, emulsifiers, sequesterants, humectants, stabilizers,

TEXT BOOKS

Food Safety and Standard Act,rules and Regulations (FSSAI), New Delhi: 2015
Prevention of Food Adulteration Act 1954 with Rules 1955

Yasmine Motarjemi Huub Lelieveld (Editors) ,*Food Safety Management A Practical Guide for the Food Industry,* Academic Press, 2013

BOOKS FOR REFERENCE

Lawley, R. Curtis L. and Davis. J. *The Food Safety Hazard Guidebook,* UK: RSC Publishing, 2004

AOAC International. Official methods of analysis of AOAC International. 17th Ed. 2013

Vasconcellos. J A. *Quality Assurance in Food Industry: a Practical Approach*, CRC Press, 2003

Geetha Swaminathan. Mary George. *Laboratory Chemical Methods in Food Analysis. Chennai:* Margham Publication, 2014

Ali. *Food Quality Assurance: Principles and Practices*, CRC Press, 2003

Ranganna S. Handbook of Analysis and Quality Control for Fruit and Vegetable Products. 2nd Ed. Tata-McGraw-Hill, 2001

Yasmine Motarjemi,, Huub Lelieveld Dr. (Ed), *Food Safety Management: A Practical Guide for the Food Industry* Academic Press 2014

PATTERN OF EVALUATION

Continuous Assessment: 25 marks **End Semester: 75 marks**

The students will be taking one C.A. test and additional Skill sets training practical component which may include practical work, assignments, project work, any other.

I. C.A. Test for 3 hours **50 marks**, comprising of Theory (25marks) and Practical (25marks), both to be done in the laboratory. **The final marks to be converted to 25**

C.A. Test Pattern for theory: (25marks)

Section A – Objective/ definition/ fill in the blanks- 10 x 1 = 10 marks (to be collected after 10 minutes)

Section B – 3 out of 5 – 3 x 3 = 9 marks

Section C – 1 out of 2 – 1 x 6 = 6 marks

Practical: 25 marks

II. Continuous Assessment of Skill sets training - practical work: **25 marks** – Aggregate of all practical assessment

End Semester Examination (Total 100 marks to be converted to 75 marks)

Total Marks: 100 Duration: 5 hours

Theory: 50 Marks Practical: 50 Marks

(Both theory and practical to be done in the laboratory).

Pattern for Theory: 50 marks

Section A – Objective/ definition/ fill in the blanks- 20 x 1=20 marks (to be collected at the end of 20 minutes)

Section B – 6 out of 10 - 6 x 3 = 18 marks

Section C – 2 out of 4 - 2 x 6 = 12 marks

Practical: 50 marks

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086

BACHELOR OF VOCATIONAL (B.Voc.) PROGRAMME
FOOD PROCESSING AND QUALITY CONTROL

SYLLABUS
(Effective from the academic year 2016 – 2017)

FLAVOUR CHEMISTRY AND TECHNOLOGY

CODE:16VF/VE/FL45

CREDITS: 5
L T P: 5 0 0
TOTAL TEACHING HOURS: 65

OBJECTIVES OF THE COURSE

- To understand the science behind the art of flavouring foods, their analysis and the problem of off-flavours
- To obtain knowledge of flavours for specific applications and legal aspects on use of flavours in food products

Unit 1

Introduction **(10hrs.)**

1.1 Sources of flavours (natural, processed and added)
1.2 Flavour composites (natural, semi-synthetic and synthetic)
1.3 Biogenesis of flavours in food – natural and processed foods (Maillard reaction and Lipid Oxidation)
1.4 Chemicals in flavours

Unit 2

Flavour Technology **(15Hrs)**

2.1 Types of flavours,
2.2 Flavours generated during processing – reaction flavours, flavour composites,
2.3 Stability of flavours during food processing
2.4 Spices and spice-based products as flavours

Unit 3

Formulations **(12hrs.)**

3.1 Formulations of flavours, adulteration, Flavour emulsions
3.2 Flavours production in fermented foods, Off-flavours in foods
3.3. Extraction techniques of flavours, flavour emulsions; essential oils and oleoresins

Unit 4

Analysis **(15hrs.)**

4.1 Analysis of flavours – subjective and objective
4.2 Analysis of different types of flavours such as whole and powdered spices and essentials oils
4.3 Plantation crops as flavours tea, coffee, cocoa and vanilla

Unit 5

Evaluation **(13hrs.)**

5.1 Sensory evaluation of flavours, flavours and legal issues
5.2 Monitoring flavours during food processing
5.3 Authentication of flavours

Industrial visit to flavour industry

TEXT BOOKS

Ashurst PR. *Food Flavorings*. 3rd Ed. Blackie., 2006

Burdock GA. *Fenaroli's Handbook of Flavor Ingredients*.5th Ed. CRC Press, 2004

BOOKS FOR REFERENCE

Deibler D & Delwiche J. *Handbook of Flavor, Characterization: Sensory Analysis, Chemistry and Physiology.* Marcel Dekker, 2004

Heath HB & Reineccius G. *Flavor Chemistry and Technology*. AVI Publication,1996

Taylor A. *Food Flavour Technology.* Sheffield Academic Press. 2002

Kurt Bauer, Dorothea Garbe, Horst Surburg *Common Fragrance and Flavor Materials,* Wiley-VCH , 2010

PATTERN OF EVALUATION

Continuous Assessment : 25 Marks

End Semester Examination (Total 100 marks will be converted to 75 marks)

Total Marks: 100 Duration: 3 hours

Continuous Assessment: 25 marks **End Semester: 75 marks**

The students will be taking one C.A. test and additional Skill sets training practical component which may include practical work, assignments, project work, any other.

I. C.A. Test for 90 Mins. **50 marks**,

C.A. Test Pattern:
Section A – Objective/ definition/ fill in the blanks- 10x1=10 marks (to be collected after 10 minutes)
Section B – 2 out of 4 – 2 x 10 = 20 marks

Section C – 1 out of 2 – 1 x 20=20 marks

End Semester Examination (Total 100 marks to be converted to 75 marks)

Pattern for Theory: 100 marks **Duration : 3 hours**

Section A – Objective/ definition/ fill in the blanks - 20 x 1 = 20 marks (to be collected after 20 minutes)

Section B – 4 out of 6 – 4 x 10 = 40 marks

Section C – 2 out of 4 – 2 x 20 = 40 marks

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086

BACHELOR OF VOCATIONAL (B.Voc.) PROGRAMME
FOOD PROCESSING AND QUALITY CONTROL

SYLLABUS
(Effective from the academic year 2016 – 2017)

FOOD PACKAGING

CODE:16VF/VE/FP45

CREDITS: 5
L T P: 5 0 0
TOTAL TEACHING HOURS: 65

OBJECTIVE OF THE COURSE

- To acquaint the students with packaging methods,
- To be aware of the types of packaging materials and packaging machineries and techniques

Unit 1 **(10hrs.)**

Introduction to Packaging

1.1 Definition, objectives and functions of packaging and packaging materials
1.2 Packaging requirements
1.3 Selection of packaging materials for different food types

Unit 2 **(14 hrs.)**

Packaging Materials

2.1 Paper: corrugated fiber board, flexible laminates; Glass containers, types of closures,Metals: Tin plate containers, Tin Free Steel (TFS), types of Cans, Aluminum Containers
2.2 Plastics: types of plastic films, laminated plastic materials, edible films, biodegradable plastics BPA in plastics

Unit 3 **(12hrs.)**

Properties of packaging materials

3.1 Tensile strength, bursting strength, tearing resistance, puncture resistance,
3.2 Impact strength, tear strength; migration test, Barrier properties – factors affecting permeability, permeability coefficient, gas transmission rate (GTR) and its measurement, water vapour transmission rate (WVTR) and its measurement;
3.3 Prediction of Shelf life of foods, selection and design of packaging material for different foods

Unit 4 **(17hrs.)**

Packaging of food products

4.1 Food packaging systems: Different forms of Packaging such as rigid, semi rigid, flexible forms
4.2 Packaging system for dehydrated foods, frozen foods, dairy products, fresh fruits and vegetables

4.3 Packaging of Meat, Poultry and Sea Foods, effective of phthalates

Unit 5 (12hrs.)

Packaging equipment and machinery

5.1 Packaging equipment and machinery- Vacuum, CA and MA packaging machine; gas packaging machine

5.2 Seal and shrink packaging machine; form and fill sealing machine; Aseptic packaging systems; bottling machines; carton making machines

5.3 Recent trends in Packaging-Packaging material from plant sources-Nano particles in food packaging

Visit to Packaging industries and Laboratories

TEXT BOOK

Robertson. Gordon L. *Food Packaging: Principle and Practice,* U.K.: CRS Press, 2012

Handbook of Food Packaging Technology, EIRI, 2014

BOOKS FOR REFERENCE

Walter Soroka and CPP. *Fundamentals of Packaging Technology,* U.S.A.: Institute of Packaging Professional, 2009

D'Mello, J P F. *Food Safety Contaminants and Toxins*, Oxford University Press, 2003

Early R. *Guide to Quality Management Systems for Food Industries*. Blackie Academic.1995 *Foods*, Kluwer Academics / Plenum Publishing, 2004

PATTERN OF EVALUATION

Continuous Assessment : 25 Marks

End Semester Examination (Total 100 marks will be converted to 75 marks)

Total Marks: 100 Duration: 3 hours

Continuous Assessment: 25 marks **End Semester: 75 marks**

The students will be taking one C.A. test and additional Skill sets training practical component which may include practical work, assignments, project work, any other.

I. C.A. Test for 90 Mins. **50 marks**

C.A. Test Pattern:
Section A – Objective/ definition/ fill in the blanks- 10x1=10 marks (to be collected after 10 minutes)
Section B – 2 out of 4 – 2 x 10 = 20 marks
Section C – 1 out of 2 – 1 x 20=20 marks

End Semester Examination (Total 100 marks to be converted to 75 marks)

Pattern for Theory: 100 marks **Duration : 3 hours**

Section A – Objective/ definition/ fill in the blanks - 20 x 1 = 20 marks (to be collected after 20 minutes)
Section B – 4 out of 6 – 4 x 10 = 40 marks
Section C – 2 out of 4 – 2 x 20 = 40 marks

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086

BACHELOR OF VOCATIONAL (B.Voc.) PROGRAMME
FOOD PROCESSING AND QUALITY CONTROL

SYLLABUS
(Effective from the academic year 2016 – 2017)

INTRODUCTION TO COMPUTER SKILLS

CODE: 16CS/US/IC44

CREDITS: 4
L T P: 2 0 2
TOTAL TEACHING HOURS: 52

OBJECTIVES

- To introduce word processing.
- To provide the students understanding of spreadsheets.
- To equip the students with skills and knowledge necessary to create a presentation.

Unit 1 **(10hrs.)**

Word Processing

Text Editing, Text tools, Character and paragraph formatting, Tabs and lists, Using Tables, Mail Merge, Working with objects – Word Art, Clip Art, Pictures, Built-in and custom styles, Table of contents, Templates, Securing documents. Tool: MS-Word

Unit 2 **(8hrs.)**

Spreadsheet

Data entry, Using formulae and functions, Formatting data, Creating charts, Lists, Sorting, filtering, Working with forms, Grouping, Linking and Protecting sheets, Data Validation, Printing spreadsheets. Tool: MS-Excel

Unit 3 **(8hrs.)**

Presentation

Creating slides, Using bullets, Formatting slides, Including word art, Slide templates, Drawing tools, Selecting and grouping objects, Viewing slides and handouts, Transitions, Spell check, Master Slide, Rehearse timings, Adding sound. Tool: MS-PowerPoint

Unit 4 **(16hrs.)**

Word Processing and Spreadsheet – Practicals

4.1 Create an Application with different formatting styles..
4.2 Create Tables, using different formatting styles.
4.3 Create word documents implementing Clip art, Word art and Auto shapes.
4.4 Create Spreadsheets with various formatting styles.
4.5 Create Spreadsheet to include formula and implement the same using different graphs and charts.
4.6 Create a spreadsheet that incorporates data validation.

Unit 5 **(10hrs.)**

Presentation

5.1 Create a presentation that displays a clear, logical sequence.

5.2 Create a presentation that incorporates animations.

5.3 Create bulleted slides and slides that incorporate word art.

5.4 Create a presentation that incorporates drawing tools

BOOKS FOR REFERENCE

Curtis Frye D. *Microsoft Excel 2010 Step by Step*. Microsoft Press, 2010.

Faithe Wempen. *Microsoft PowerPoint 2010 Bible*. John Wiley & Sons, 2010.

Herb Tyson. *Microsoft Word 2010 Bible*. John Wiley & Sons, 2010.

PATTERN OF EVALUATION

Continuous Assessment: (Totally internal)

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086

DEPARTMENT OF VALUE EDUCATION
Courses Offered to the Students of
Bachelor of Vocational Programme

SYLLABUS
(Effective from the academic year 2016 – 2017)

RESPONSIBLE CITIZENSHIP AND PEACE INITIATIVES

CODE: 16UV/ET/CP42 **CREDITS: 2**
L T P: 2 0 0
TOTAL TEACHING HOURS: 26

OBJECTIVES OF THE COURSE

- To give the students a deeper understanding of the reality and diversity of Indian Society
- To inculcate in them the values of Unity, Harmony and Peace in a multi - cultural and multi - religious society

EXPECTED OUTCOME

An appreciation of India in all its richness and to be agents of Unity and Peace

Unit 1

Responsible Citizenship **(8 hrs.)**

1.1 Significance of Being Humane, Compassionate and Just
1.2 Societal Analysis
1.3 Socio-Economic- Political Context of India - Multi-Party System
1.4 Basic Understanding of the Indian Constitution – Preamble- Fundamental Rights -Rights and Duties of an Indian Citizen

Unit 2

Religious and Cultural Diversity of India **(8 hrs.)**

2.1 Basic Tenets of Different Religions in India
2.2 Threats to Religious and Cultural Diversity –Religious Intolerance
2.3 State and Language Barriers
2.4 Realities of Casteism and Communalism

Unit 3

Peace Initiatives **(10 hrs.)**

3.1 UNO and World Peace Initiatives
3. 2 Factors Threatening Peace
3. 3 Religions and Peace
3. 4 Gandhi and Principles of Peace
3.5 Nobel Peace Laureates
3.6 Instruments of Peace - St. Francis of Assisi

Teaching / Learning Methods

- Lectures
- group discussions
- paper presentations
- power point presentations
- Seminars
- role plays
- case studies
- debates
- documentaries and video clippings

Workshop – Peace Maker – Mahatma Gandhi and St. Francis of Assisi and Interfaith Prayer

BOOKS FOR REFERENCE

Amaladoss, Michael. *Living in a Secular Democracy, Conflict and Community among Religions.* India: Vaigarai, 2010.

Davidar(Eds). *Human Values*. New Delhi: All India Association of Christian Higher Education (AIACHE), 2013.

James, G.M.et.al. *Life Issues and Coping Strategies*. Chennai: Loyola College, 2010.

James, G.M.et.al. *Social Awareness*. Chennai: Loyola College, 2009.

Koikara, Felix. *Heal The World*. Mumbai: Better Yourself Books, 2002.

Salesians of Don Bosco. *Beyond the Barriers*. Chennai: Deepagam, 2002.

Salesians of Don Bosco. *Born Free Live Free*. Bangalore: Kristu Jyothi,1985.

Suri, Sudesh ed. *Global Education Conference on Culture Of Peace and Non-Violence. Jalandhar,* 2002.

Spindler Louise. Culture Change and Modernization. New York: Winston Publication, 1983.

Kanitkar Sathis. Culture and Human Rights, New Delhi: Rajput, 2000.

PATTERN OF EVALUATION

Continuous Assessment: (Totally internal)

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086

BACHELOR OF VOCATIONAL (B.Voc.) PROGRAMME
FOOD PROCESSING AND QUALITY CONTROL

SYLLABUS
(Effective from the academic year 2016 – 2017)

COMMUNITY NUTRITION AND FORTIFICATION OF FOODS

CODE: 16VF/VM/CN56

CREDITS: 6
L T P: 5 0 1
TOTAL TEACHING HOURS: 78

OBJECTIVES OF THE COURSE

- To enable students to understand community nutrition status in India
- Gain knowledge on fortification of foods and National effort in ensuring nutrition for all
- Understand the process of fortification
- To provide awareness on the National Nutritional programmes to combat nutritional disorders

Unit 1 **(15hrs.)**

Community Health

1.1 Definition and brief study of community, family, village and block Demography, Core functions and scope of community nutrition

1.2 Malnutrition – Causes, Ecological factors, Effects of malnutrition – Effects of under and over nutrition

1.3 Protein deficiency disorders – PEM, Kwashiorkor, Marasmus – incidence, prevalence and epidemiology

Unit 2 **(15hrs.)**

Assessment of Nutritional Status

2.1 Indirect methods – Indicators of Health and Nutrition (*Infant Mortality Rate* - IMR, *Total Mortality Rate* - TMR, *Maternal Mortality Rate* - MMR)

2.2 Direct methods – Anthropometry, Biochemical and Clinical

2.3 Direct methods – Dietary methods - nutrient intake analysis, dietary assessment in special populations and specific situations, dietary reference intakes, associations with nutrients deficiencies

Unit 3 **(17hrs.)**

Assessing Food and Nutrition Security

3.1 Definition and assessment schedules, National and Household Food Security

3.2 Factors affecting Food Security System

3.3 National and International systems to improve food security
FAO, CARE, NIPCCD, NIN, CFTRI, FCI, Their roles and functions

ICDS, NNACP, National IDD control Program, Mid Day meal schemes

Unit 4 **(18hrs.)**

Food Fortification

4.1 Food fortification – Needs, objective, characteristics of Fortificants and method of fortification, Calcium fortification

4.2 Fortification of bread, noodles, biscuits, breakfast cereals, snacks and beverages

4.3 Fortification with iron, Vitamin A, Vitamin D and Iodine

Unit 5 **(13hrs.)**

Formulation of Fortified Foods (practical)

5.1 Preparation of nutritious health mixes.

5.2 Preparation of Iron rich diet, high protein diet

5.3 Preparation of dehydrated processed foods using indigenous food.

5.4. Preparation of Low cost weaning foods

5.5 Identification of vulnerable women and children – Using direct nutritional status assessment methods.

TEXT BOOKS

Srilakshmi. B. *Nutrition Science,* New Delhi: New Age International Pvt., Ltd, 2014

Venkataiah. S.D. *Nutrition Education*. New Delhi. Anmol Publication Pvt, Ltd. 2014

BOOKS REFERENCE

Mahtab S.Bamji. Prasad Rao, N.Vinodini Reddy. *Textbook of Human Nutrition,* Second Edition, Oxford and IBH Publishing Co. Pvt. Ltd. 2003

Mishra. R.C. *Health and Nutrition Education,* New Delhi: A.P.H. Publishing Corporation, 2005

Park K. *Park's Textbook of Preventive and social medicine,* 18th edition, Jabalpur: M/S Banarasids Bhanot, Jabalpur 2005

Swaminathan. M. *Handbook of Food and Nutrition*, Fifth Edition, Bangalore: Bangalore Printing and Publishing Co.Ltd. 2012

Boyle, Community Nutrition in Action, An Entrepreneurial approach, 6th Edn, Thomson/Wadsworth, USA, 2013

PATTERN OF EVALUATION

Continuous Assessment: 25 Marks

End Semester Examination (Total 100 marks will be converted to 75 marks)

Total Marks: 100 Duration: 3 hours
Continuous Assessment: 25 marks **End Semester: 75 marks**

The students will be taking one C.A. test and additional Skill sets training practical component which may include practical work, assignments, project work, any other.

C.A. Test for 90 Mins. **50 marks**
C.A. Test Pattern:
Section A – Objective/definition/ fill in the blanks-10x1=10 marks
Section B – 2 out of 4 – 2 x 10 = 20 marks
Section C – 1 out of 2 – 1 x 20=20 marks

End Semester Examination (Total 100 marks to be converted to 75 marks)

Pattern for Theory: 100 marks **Duration : 3 hours**

Section A – Objective/ definition/ fill in the blanks-20 x 1 = 20 marks
Section B – 4 out of 6 – 4 x 10 = 40 marks
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STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086

BACHELOR OF VOCATIONAL (B.Voc.) PROGRAMME
FOOD PROCESSING AND QUALITY CONTROL

SYLLABUS
(Effective from the academic year 2016 – 2017)

SENSORY EVALUATION WITH LABORATORY WORK

CODE:16VF/VM/SE56

CREDITS: 6
L T P: 3 0 3
TOTAL TEACHING HOURS: 78

OBJECTIVES OF THE COURSE

- To develop skills and knowledge of sensory science and analysis
- To understand sensory perceptions
- To be able to use sensory evaluation as an analytical tool

Unit 1 **(7hrs.)**

Sensory Perceptions

1.1 Definition and importance of sensory evaluation
1.2 The perceptions of taste, smell, visual and oral texture of foods
1.3 Rheology, classification of textural properties and texture perception
1.4 Interactions between colour, flavour and texture, Classification of food flavours, Non-volatile and volatile flavour composition of foods

Unit 2 **(8hrs.)**

Sensory Analysis of Foods

2.1 Basic requisites for conducting sensory analysis – objectives, types of panels, recruitment and training of panel, testing environment, testing time and laboratory features
2.2 Sensory threshold value: detection, difference, recognition and terminal thresholds
2.3 Relation between instrumental methods and sensory methods

Unit 3 **(10hrs.)**

Subjective and Objective Methods of Evaluation

3.1 Consumer surveys and tests; acceptance and preference tests, hedonic scales, ranking and rating tests
3.2 Instrumental methods of measuring sensory characteristics of food – colour, flavor and texture
3.3 Measurement of off flavours and tastes; Sensory assessment of food quality
3.3.1 Taste sensation on the tongue, recognition test for the four basic tastes, Taste modifiers

3.3.2 Odour and smell, smelling techniques
3.3.3 Texture definition of texture, Classification of textural characteristics, glossary of textural terms. Texture measurement
3.3.4 Colour vision and appearance measurement, Visual perception and colour of foods.
3.3.5 Flavour and aroma, definition of flavour, Flavour profile methods, flavour compounds

Unit 4 **(7hrs.)**

Sensory testing of foods

4.1 Sensitivity – Threshold tests
4.2 Difference tests – Paired comparison, Duo-trio test, Triangle test
4.3 Ranking tests – Two sample difference test, Multiple sample difference test
4.4 Hedonic tests – Numerical and composite scoring
4.5 Acceptance and preference
4.6 Descriptive Tests – Flavour profile, Banana profile, Sauce profile

Unit 5 **(7hrs.)**

Application of Sensory Evaluation

5.1 Sensory evaluation of products – baked products, dairy products, spices, fruits and vegetables, beverages
5.2 Application of sensory analysis to food industries
5.3 Data analysis – importance of data analysis, tests of significance, null hypothesis, mean, median, variance, standard deviation, t-test, chi-square test

Laboratory Work **(39hrs.)**

1 Difference Tests

Paired comparison
Duo-trio test
Triangle test
Threshold test

2 Rating Tests

Ranking test
Two sample difference test
Multiple sample difference tests
Hedonic rating test
Scoring test – Numerical and composite scoring

3 Descriptive Tests

Flavour profile
Banana profile
Sauce profile

4 Objective Methods

Textural characteristics – Appearance, colour, moisture, tenderness and rheology of Foods
Colour comparison Tests

TEXT BOOKS

Carpenter Lyon & Hasdell. *Guidelines for Sensory Analysis in Food Product Development and Quality Control*, Springer, 2000

Geetha Swaminathan and Mary George. *Laboratory Chemical Methods in Food Analysis*. Chennai: Margham Publications, 2014

BOOKS FOR REFERNECE

Marshall, David W. Food Choice: And the Consumer, USA, Blackie Academic & Professional / Chapman & Hall, 2005

Otles, S. Methods of Analysis of Food Components and Additives, USA, CRC/ Taylor & Francis, 2005

Reineccius, G. Flavors Chemistry and Technology, 2nd Edition, USA, Taylor & Francis, 2006

PATTERN OF EVALUATION

Continuous Assessment: 25 Marks
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Total Marks: 100 Duration: 5 hours
Theory: 50 Marks Practical: 50 Marks
(Both theory and practical to be done in the laboratory).

Pattern for Theory: 50 marks

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STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086

BACHELOR OF VOCATIONAL (B.Voc.) PROGRAMME
FOOD PROCESSING AND QUALITY CONTROL

SYLLABUS
(Effective from the academic year 2016 – 2017)

ENTREPRENEURIAL INITIATIVES

CODE:16VF/VM/EI56

CREDITS: 6
L T P: 4 0 2
TOTAL TEACHING HOURS: 78

OBJECTIVES OF THE COURSE

- To instil the spirit of entrepreneurship among youth and develop entrepreneurial initiatives
- To enhance self-employment opportunities.
- To gain awareness on innovation and giving different dimensions to food products
- To train in the preparation of business project proposal

Unit 1 **(13hrs.)**

Introduction to Entrepreneurship

1.1 Need for Entrepreneurship Education- Entrepreneurship and Entrepreneur : Definition and Concept
1.2 Characteristics and importance of Entrepreneurship and Entrepreneur
1.3 Classification and Functions of Entrepreneurs
1.4 Studies on Indian Entrepreneurship Model.

Unit 2 **(13hrs.)**

Entrepreneurial Motivation

2.1 Innovation and Initiation of Entrepreneurial Venture – Desire, Decision and Formulation.
2.2 Study of Entry Barriers to Entrepreneurship – Steps to overcome the barriers
2.3 Case Studies

Unit 3 **(17hrs)**

Women Entrepreneurship

3.1 Empowerment of Women through enterprise
3.2 Factors governing Women Entrepreneurship
3.3 Schemes for Women Entrepreneurs and Biotech park for women

Unit 4 **(22 hrs)**

Selection of Products and Business Planning

4.1 Identification and evaluation of products based on idea, market demand, competition, availability of raw material and production feasibility

4.2 Financial and Business Collaboration – Business Project Proposal – Steps involved in Planning and Processing, structure of the Project report

4.3 Food Business Management: Business idea generation, Challenges, Sales promotion techniques, Scaling up from pilot plant/ incubator stage

4.4 Preparation of Business Project Proposal

Unit 5 **(13 hrs)**

Indusial Visit and Interaction

5.1 Case studies on Indian Entrepreneurs

5.2 Case studies of Women Entrepreneurs

5.3 Visit to food sector enterprises and interaction with entrepreneurs

TEXT BOOK

Sangram Keshari Mohanty. *Fundamentals of Entrepreneurship.* New Delhi: Prentice Hall of India Pvt., Ltd. 2013.

BOOKS FOR REFERENCE

Anand Saxena. *Entrepreneurship Motivation, Performance and Rewards***,** New Delhi: Deep and Deep Publications Pvt., Ltd. 2012.

David H. Holt. *Entrepreneurship – New Venture Creation***,** New Delhi, Prentice Hall of India Pvt., Ltd. 2012.

Madhurima Lall and Shikha Sahai. *Entrepreneurship***,** New Delhi: Excel Printers, 2008.

Robert D. Hisrich. Michael P. Peters and Dean A. Shepherd. *Entrepreneurship***,** 6th ed., New Delhi ,Tata McGraw Hill Publication Co. Ltd. 2007.

Saini. J.S. and B.R. Gurjar. *Entrepreneurship and Education - Challenges and Strategies***,** Jaipur: Rawat Publications, 2011.

PATTERN OF EVALUATION

Continuous Assessment: 25 Marks
End Semester Examination (Total 100 marks will be converted to 75 marks)

Total Marks: 100 Duration: 3 hours

Continuous Assessment: 25 marks **End Semester: 75 marks**

The students will be taking one C.A. test and additional Skill sets training practical component which may include practical work, assignments, project work, any other.

C.A. Test for 90 Mins. **50 marks**
C.A. Test Pattern:
Section A – Objective/ definition/ fill in the blanks- 10x1=10 marks
Section B – 2 out of 4 – 2 x 10 = 20 marks
Section C – 1 out of 2 – 1 x 20=20 marks

The Practicals will be assessed internally as the other component

End Semester Examination (Total 100 marks to be converted to 75 marks)

Pattern for Theory: 100 marks **Duration : 3 hours**

Section A – Objective/ definition/ fill in the blanks - 20 x 1 = 20 marks
Section B – 4 out of 6 – 4 x 10 = 40 marks
Section C – 2 out of 4 – 2 x 20 = 40 marks

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086

BACHELOR OF VOCATIONAL (B.Voc.) PROGRAMME
FOOD PROCESSING AND QUALITY CONTROL

SYLLABUS
(Effective from the academic year 2016 – 2017)

HUMAN BEHAVIOUR

CODE: 15PY/US/HB32 **CREDITS: 2**
L T P: 2 0 0
TOTAL TECHING HOURS: 26

OBJECTIVES OF THE COURSE:

- To help students understand basic Principles of Psychology
- To Create Self-Awareness and Understanding of various aspects of Human Behaviour

Unit 1

Introduction to Psychology **(10hrs.)**

1.1 Definition of Psychology and Basic concepts- Cognitive and Affective factors
1.2 Methods of studying Human Behaviour- Introspection, Observation, Interview, Case Study, Questionnaire, Experimental Method

Unit 2

Cognitive Processes **(8hrs.)**

2.1 Perception, Attention, Learning, Memory, Creativity
2.2 Intelligence and Concept Formation

Unit 3

Affective Factors and Personality **(8hrs.)**

3.1 Motivation (Primary and Secondary Motives)
3.2 Emotion (Negative and Positive Emotions), physiological Basis of Emotions
3.3 Definition, Assessment and Development of Personality

BOOKS FOR STUDY

Baron, A. Robert. *Psychology.* New Delhi: Prentice Hall, 2007.

Bowdon-Tom Butler. *50 Psychology Classics*. London: Nicholas Brealey, 2008.

WEB RESOURCES
http://tedtalkspsychology.com/10-myths-about-psychology-debunked-with ben- ambridge

PATTERN OF EVALUATION

Continuous Assessment: (Totally internal)

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086

DEPARTMENT OF VALUE EDUCATION
Courses Offered to the Students of
Bachelor of Vocational Programme

SYLLABUS
(Effective from the academic year 2016 – 2017)

VALUES IN SOCIAL AND FAMILY LIFE

CODE: 15UV/US/SF52 **CREDITS: 2**
L T P: 2 0 0
TOTAL TEACHING HOURS: 26

OBJECTIVES OF THE COURSE

- To enable the students to develop as mature persons and to foster healthy interpersonal relationships.
- To enable the students to comprehend the values of marriage and family and social life.

EXPECTED OUTCOME

Students are prepared to face the challenges of Marriage and Family Life and appreciate
Sanctity of Marriage

Unit 1

Integrated Personality (8 hrs.)

1.1 Maturity and understanding of self - physical, intellectual, moral, sexual, emotional and Spiritual, Influences of Society: Culture, Family, Education and Environment.
1.2 Personality Development
1.3 Family and Social Values: Understanding and Respect for Others, Positive Attitude and Conflict Resolution.

Unit 2

Contribution of Women in Family and Social Life (10 hrs.)

2.1 The Gift of Womanhood - Foundress - Mary of the Passion's Vision of Womanhood
2.2 Marriage and Family- Choice of Life Partner: Marital Relationships, Planning of family.
2.3 Handling Life's Challenges - Roles and Responsibilities of Women in Domestic and Public Life, Balancing Career and Family, Handling Finances in the Family
2.4 Types of Relationships - Family, Live-in Relationship, Single Women and L.G.B.T issues
2.5 Social Issues: Crimes against Women, Harassment, Gender Discrimination, Dowry, Legality of abortion, Separation and Divorce.
2.6 Legal Rights of Women: Property, Marital and Adoptive Rights

Unit 3

Marriage and Commitment **(8 hrs.)**

3.1 Fidelity in Marriage
3.2 Challenges in family life
3.3 Responsible Parenting
3.4 Challenges of Inter-caste and Inter-religious Marriages

Teaching / Learning Methods

- lectures
- group discussions
- paper presentations
- power point presentations
- seminar
- role plays
- case studies
- debates
- Documentaries and video clippings

Workshop - Changing patterns of Marriage and Family

BOOKS FOR REFERENCE

Davidar(Eds). *Human Values*. New Delhi: All India Association of Christian Higher Education. (AIACHE), 2013.

D'Souza, Philomena. *Women Icon of Liberation*. Mumbai: Better Yourself Books, 2005.

Ignacimuthu, S. *Values for life*. Mumbai: Better Yourself Books, 1994.

James, G.M. et.al., *In Harmony-Value Education at College Level*. Chennai: Prakash Printers, 2011.

Mascarenhas, Mignon Marie. *Family Life Education*. Bangalore: CREST,1999.

North,Colleen. *The Women In the Life and Work of Mary of the Passion*. Chennai: Vacha 2007.

Salesians of Don Bosco. *Beyond the Barriers*. Chennai: Deepagam, 2002.

PATTERN OF EVALUATION

Continuous Assessment: (Totally internal)

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086

BACHELOR OF VOCATIONAL (B.Voc.) PROGRAMME
FOOD PROCESSING AND QUALITY CONTROL

SYLLABUS
(Effective from the academic year 2016 – 2017)

WASTE MANAGEMENT IN FOOD INDUSTRY

CODE:16VF/VM /WM66

CREDITS: 6
L T P: 3 0 3
TOTAL TEACHING HOURS: 78

OBJECTIVES OF THE COURSE

- To enable students to understand the principles of waste treatment
- To gain knowledge on the environmental standards and the processes to maintain the environment
- To understand the methods to reduce and reuse wastes from various food industries

Unit 1 **(15hrs.)**

Impact of Waste Generation in Food Industry

1.1 Food Industry Wastes, Food Waste Treatment, necessity of food waste utilization
1.2 Types of Waste and magnitude of waste generation in different Food Processing industries
1.3 Concept, Scope and Importance of Waste Management and Effluent Treatment

Unit 2 **(15hrs.)**

Environmental Standards and Waste characterization

2.1 ISO 14001 standards, Environmental Legislation
2.2 Treatment according to established standards and directives, environmental best – practice technologies for Waste Minimization, Environmental Protection Act and specification for effluent of different Food Industries

Unit 3 **(18hrs.)**

Effluent Treatment and Testing (Theory and Practicals)

3.1 Treatment – Pre-treatment of waste: sedimentation, coagulation, flocculation and floatation
3.2 Secondary treatments: Biological oxidation –trickling filters, oxidation ditches, activated sludge process, rotating biological contractors, aerated lagoons
3.3 Tertiary treatments
3.4 Testing – pH, BOD, COD, fat, oil and grease content, Metal content, Phosphorus and Sulphur in waste waters, Microbiology of wastes, Insecticides, Pesticides and Fungicides residues

Unit 4 **(15hrs.)**

Waste Utilization of Agro Industries (Theory and Practicals)

4.1 Characterization and utilization of by-products from Cereals, Pulses and oilseeds

4.2 Fruits and Vegetables and Plantation Crops

4.3 Vermicomposting of Wastes from Food Industries

Unit 5 **(15rs.)**

Waste Utilization of Animal and Marine Product Industries (Theory and Practicals)

5.1 Characterization and utilization of by-products from dairy industries

5.2 Utilization of wastes from poultry, Meat, Fish and Marine Processing Industries

Visit to Food industries – Effluent and Waste Treatment

TEXT BOOKS

Mariett, N.G. *Principles of food sanitation*, New Delhi. CBS publication, 2005

Yapijakis, C. L.Wang, Yung Tse- Hung, H. LO, *Waste treatment in the food processing industry*. New Delhi. CRC,2005

BOOKS FOR REFERENCE

Ismail S.A., *The Earthworm Book,* Goa: India, 2005

Oreopoulou, V. Russ, W (ed) *"Utilisation of by-products and treatment of waste in the food industry"* Vol, 3., Springer, 2007.

Waldron, K *"Handbook of waste management and co-product recovery in food processing*". New Delhi. CRC, 2007.

Smith, R., J. Klemes, J-K Kim *"Handbook of water and energy management in food processing.",* New Delhi. CRC, 2008.

PATTERN OF EVALUATION

Continuous Assessment : 25 Marks

The students will be taking one C.A. test and additional Skill sets training practical component which may include practical work, assignments, project work, any other.

I. C.A. Test for 3 hours **50 marks**, comprising of Theory (25marks) and Practical (25marks), both to be done in the laboratory. **The final marks to be converted to 25**

C.A. Test Pattern for theory: (25marks)

Section A – Objective/ definition/ fill in the blanks- 10 x 1 = 10 marks

Section B – 3 out of 5 – 3 x 3 = 9 marks
Section C – 1 out of 2 – 1 x 6 = 6 marks
Practical: 25 marks
II. Continuous Assessment of Skill sets training - practical work: **25 marks** – Aggregate of all practical assessment

End Semester Examination (Total 100 marks to be converted to 75 marks)

Total Marks: 100 Duration: 5 hours

Theory: 50 Marks Practical: 50 Marks

(Both theory and practical to be done in the laboratory).

Pattern for Theory: 50 marks

Section A – Objective/ definition/ fill in the blanks- 20 x 1=20 marks
Section B – 6 out of 10 - 6 x 3 = 18 marks
Section C – 2 out of 4 - 2 x 6 = 12 marks

Practical: 50 marks

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086

BACHELOR OF VOCATIONAL (B.Voc.) PROGRAMME
FOOD PROCESSING AND QUALITY CONTROL

SYLLABUS
(Effective from the academic year 2016 – 2017)

EMERGING TRENDS IN FOOD PROCESSING AND TECHNOLOGY

CODE:16VF/VM /PT66

CREDITS: 6
L T P: 6 0 0
TOTAL TEACHING HOURS: 78

OBJECTIVES OF THE COURSE

- To enable students to understand the importance of food processing technologies
- To be exposed to the innovations in the various aspects of food production

Unit 1 **(16hrs.)**

Minimal Processing

1.1 Minimal Fresh Processing of Vegetables, Fruits and Juices
1.2 Minimal Processing of Ready Meals
1.3 Modified Atmosphere Packaging for Minimally Processed Foods

Unit 2 **(16hrs.)**

Pulsed Electric Fields Processing

2.1 Overview of Pulsed Electric Field Processing for Food
2.2 Pulsed Electric Field Processing of Liquid Foods and Beverages
2.3 Effect of High Intensity Electric Field Pulses on Solid Foods
2.4 Enzymatic Inactivation by Pulsed Electric Field
2.5 Food Safety Aspects of Pulsed Electric Fields

Unit 3 **(16hrs.)**

Food Irradiation and High Pressure Processing

3.1 Food irradiation – advantages and applications, microwave processing – interaction with food materials
3.2 High Pressure Processing of Foods: An Overview – Principles – equipment
3.3 Microbiological Aspects of High – Pressure Processing

Unit 4 **(15hrs.)**

Ohmic Heating

4.1 Application of heat and ultrasound – inactivation of microorganisms and enzymes
4.2 Electrical resistance heating of food – ohmic heating models – treatment of products – high voltage pulse techniques – Elsteril process, influence on microorganism, food ingredients

4.3 Decontamination of packaging – decontamination of microorganism by surface treatment

Unit 5 **(15hrs.)**

Innovations in Food Refrigeration

5.1 Vacuum Cooling of Foods
5.2 Ultrasonic Assistance of Food Freezing
5.3 High-Pressure Freezing
5.4 Controlling the Freezing Process with Antifreeze Proteins

TEXT BOOK

Da-Wen Sun**,** *Emerging Technologies for Food Processing*. USA: Elsevier, 2014

BOOK FOR REFERENCE

Biosensors for food analysis, A O Scott, The Tetley Group Limited, UK, Woodhead Publishing Limited, Abington Hall, Abington, Cambridge, CB21 6AH, England, 2008.

Nonthermal Preservation of Foods. Gustavo V. Barbosa-Canovas, Usha R. Pothakamury, Enrique Palou and Barry G. Swanson. Published by Marcel Dekker, Inc., 270, Madison Avenue, New York 10016, 1998.

Trends in Food Engineering, Jorge E. Lozano, Cristina Anon, Efren Parada-Arias, Gustavo V. Barbosa-Canovas, Contributor Jorge E. Lozano, New Delhi. CRC Press, 200l

PATTERN OF EVALUATION

Continuous Assessment : 25 Marks

End Semester Examination (Total 100 marks will be converted to 75 marks)

Total Marks: 100 Duration: 3 hours
Continuous Assessment: 25 marks **End Semester: 75 marks**

The students will be taking one C.A. test and additional Skill sets training practical component which may include practical work, assignments, project work, any other.

I. C.A. Test for 90 Mins. **50 marks**
C.A. Test Pattern:
Section A – Objective/ definition/ fill in the blanks- 10x1=10 marks
Section B – 2 out of 4 – 2 x 10 = 20 marks
Section C – 1 out of 2 – 1 x 20=20 marks

End Semester Examination (Total 100 marks to be converted to 75 marks)
Pattern for Theory: 100 marks **Duration : 3 hours**

Section A – Objective/ definition/ fill in the blanks - 20 x 1 = 20 marks
Section B – 4 out of 6 – 4 x 10 = 40 marks
Section C – 2 out of 4 – 2 x 20 = 40 marks

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086

BACHELOR OF VOCATIONAL (B.Voc.) PROGRAMME
FOOD PROCESSING AND QUALITY CONTROL

SYLLABUS
(Effective from the academic year 2016 – 2017)

PROJECT

CODE:16VF/VM/PR615

CREDITS: 15

OBJECTIVES OF THE COURSE

- To enable the student to work independently
- To apply the skill development training they have gained during the course of study to enhance employability
- To develop technical, interpersonal and communication skills and ability to generate new ideas in food product development

GUIDELINES FOR PROJECT

Project is done individually in an industry / lab

Project requires practical work with the submission of project report which will include the work executed.

The project report should be submitted in the prescribed format containing a minimum of 25 pages.

Guidelines for Evaluation:

The candidate will be evaluated by the Industrial partner/guide, based on attendance, maintenance of log book, experimental work and project report.

The maximum marks will be 100.

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086

BACHELOR OF VOCATIONAL (B.Voc.) PROGRAMME
SUSTAINABLE ENERGY MANAGEMENT

SYLLABUS
(Effective from the academic year 2016 – 2017)

FORMS OF ENERGY AND ENERGY CRISIS

CODE:16VS/VM/FC16

CREDITS: 6
L T P: 3 0 3
TOTAL TEACHING HOURS: 78

OBJECTIVES OF THE COURSE

- To understand the various forms of energy
- To get an insight of energy crisis and energy conservation practices

Unit 1 **(10hrs.)**

Forms of Energy

1.1 Introduction – various forms of energy – thermal, sound, light electrical, magnetic, chemical, nuclear, mechanical, Elastic, Gravitational energy

1.2 Types of energy sources – Renewable – Non – Renewable sources

Unit 2 **(10hrs.)**

Energy Consumption and Demand

2.1 Energy consumption – energy consumption(per capita) and economic growth

2.2 Global energy consumption – Energy demand – primary energy demand and cumulative energy demand

Unit 3 **(10hrs.)**

Energy Resources

3.1 Energy routes for non-renewable energy resources – age of renewables and alternatives

3.2 Energy developments – energy requirements and future prospects

Unit 4 **(9hrs.)**

Energy Crisis its Causes and Solutions

4.1 Introduction: Causes of energy crisis: Over consumption, over population, infrastructure Unexplored Renewable Energy Options – Commissioning of Power Plants

4.2 Moving toward renewable energy sources – energy conservation practices Technology up gradation and strategies to meet energy requirements

Unit 5 **(39hrs.)**

Site Analysis: Fundamental Energy Calculations and work place safety

5.1 Energy calculations: units and conversion dimensional equations – Joules, kWh/units

5.2 Energy crisis: Global scenario – Energy crisis of developing countries – Report

5.3 Energy storage – Various energy storage systems and Energy savings – Comparative study of power consumption in electrical appliances

5.4 Basic First aid & Safety at work place

BOOK FOR STUDY AND REFERENCE

Rao. S and Parulakar . B.B, Energy Technology, New Delhi: Khanna Publishers, 1997

Sastri . M.M., *Energy Sources, resources and options***,** Mumbai: Himalaya Publishing House, 1994

Thipse. S.S. *Non- Conventional and Renewable energy sources*, New Delhi: Narosa Publishing House, 2014

PATTERN OF EVALUATION

Continuous Assessment: 25 marks **End Semester: 75 marks**

The students will be taking one C.A. test and additional Skill sets training practical component which may include practical work, assignments, project work, any other.

I. C.A. Test for 3 hours **50 marks**, comprising of Theory (25marks) and Practical (25marks), both to be done in the laboratory. **The final marks to be converted to 25**

C.A. Test Pattern for theory: (25marks)

Section A – Objective/ definition/ fill in the blanks- 10 x 1 = 10 marks (to be collected after 10 minutes)

Section B – 3 out of 5 - 3 x 3 = 9 marks

Section C – 1 out of 2 - 1 x 6 = 6 marks

Practical: 25 marks

II. Continuous Assessment of Skill sets training - practical work: **25 marks** – Aggregate of all practical assessment

End Semester Examination (Total 100 marks to be converted to 75 marks)

Total Marks: 100 Duration: 6 hours

Theory: 50 Marks Practical: 50 Marks

(Both theory and practical to be done in the laboratory).

Pattern for Theory: 50 marks

Section A – Objective/ definition/ fill in the blanks- 20 x 1 = 20 marks (to be collected at the end of 20 minutes)
Section B – 6 out of 10 - 6 x 3 = 18 marks
Section C – 2 out of 4 - 2 x 6 = 12 marks
Practical: 50 marks

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086

BACHELOR OF VOCATIONAL (B.Voc.) PROGRAMME
SUSTAINABLE ENERGY MANAGEMENT

SYLLABUS
(Effective from the academic year 2016 – 2017)

SOLAR ENERGY

CODE:16VS/VM/SE16 **CREDITS: 6**
L T P: 3 0 3
TOTAL TEACHING HOURS: 78

OBJECTIVES OF THE COURSE

- To understand various concepts in utilization of Solar energy
- To learn the merits of solar energy for variety of applications

Unit 1 **(10hrs.)**

Introduction to Solar Energy

1.1 Fundamentals of Solar Radiation – The Nature of Solar Radiation – Radiation on Earth's Surface – Sun path Chart

1.2 Historical Perspective - Solar Energy; Obstacles and Outlook - Global and Indian solar energy scenario - Potential and power generation

Unit 2 **(10hrs.)**

Solar energy conversion

2.1 Photovoltaics - Principles - Physics and operation of solar cells

2.2 Solar panels - Solar power plants

2.3 Various parameters and work safety for solar PV installation

Unit 3 **(10hrs.)**

Solar collectors

3.1 Fundamentals of solar collectors as devices to convert solar energy to heat. Design and structure of collectors for heating liquids and air.

3.2 Solar concentrating collectors - Sun tracking mechanisms – Solar mapping

Unit 4 **(9hrs.)**

Applications

4.1 Solar thermo-mechanical refrigeration system-Solar systems for process heat production – Solar cooking – Performance and testing of solar cookers – Power generation - drying

4.2 Solar pond – Solar greenhouse – Solar Pumping – Solar Distillation

Unit 5 **(39hrs.)**

Case Study

5.1 Solar panel experiment and study of Solar photovoltaic cells-IV characteristics.
5.2 Solar energy spectrum calculation of Rydberg's constant.
5.3 Solar cell fabrication.

BOOKS FOR STUDY AND REFRENCE

Agarwal. *Solar Energy*., New Delhi: S.Chand & Company Ltd., 1983

Thipse S.S. *Non-Conventional Energy and Renewable Energy Sources*, Narosa Publishing House, 2014

Garg H.P. Prakash J. *"Solar Energy Fundamentals and Applications"*, Tata McGraw-Hill, 2005.

B. H. Khan. *Non-Conventional Energy Resources*, Second Edition. Tata McGraw Hill Education Private Limited, 2012.

G.D. Rai, *Solar Energy Utilization*, 5th edition. Khanna Publishers, 2010.

Sukatme. *Solar Energy*, Tata McGraw Hill Publishing company Ltd., 1996.

PATTERN OF EVALUATION

Continuous Assessment: 25 marks **End Semester: 75 marks**

The students will be taking one C.A. test and additional Skill sets training practical component which may include practical work, assignments, project work, any other.

I. C.A. Test for 3 hours **50 marks**, comprising of Theory (25marks) and Practical (25marks), both to be done in the laboratory. **The final marks to be converted to 25**

C.A. Test Pattern for theory: (25marks)

Section A – Objective/ definition/ fill in the blanks- 10x1=10 marks (to be collected after 10 minutes)

Section B – 3 out of 5 - 3 x 3 = 9 marks

Section C – 1 out of 2 - 1 x 6 = 6 marks

Practical: 25 marks

II. Continuous Assessment of Skill sets training - practical work: **25 marks** – Aggregate of all practical assessment

End Semester Examination (Total 100 marks to be converted to 75 marks)

Total Marks: 100 Duration: 6 hours

Theory: 50 Marks Practical: 50 Marks

(Both theory and practical to be done in the laboratory).

Pattern for Theory: 50 marks

Section A – Objective/ definition/ fill in the blanks- 20 x 1=20 marks (to be collected at the end of 20 minutes)
Section B – 6 out of 10 - 6 x 3 = 18 marks
Section C – 2 out of 4 - 2 x 6 = 12 marks
Practical: 50 marks

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086

BACHELOR OF VOCATIONAL (B.Voc.) PROGRAMME
SUSTAINABLE ENERGY MANAGEMENT

SYLLABUS
(Effective from the academic year 2016 – 2017)

ENERGY ECONOMICS

CODE:16VS/VA/EE15

CREDITS: 5
L T P: 5 0 0
TOTAL TEACHING HOURS: 65

OBJECTIVES OF THE COURSE

- To develop in the students an awareness of the basic issues and problems relating to the Energy Economics
- To help in critically analysing the energy market in the Indian context

Unit 1

Introduction to Micro Economics Concepts (13hrs.)

1.1 Supply and Demand – Applying supply and demand - elasticity
1.2 Consumer theory – Preference and utility- Budget Constraints- Deriving Demand Curve
1.3 Producer Theory – Productivity and costs - competition
1.4 Monopoly and Oligopoly
1.5 Equity and Efficiency

Unit 2

Introduction to Sustainable Energy (13hrs.)

2.1 Historical Context – post industrialization- growth of the developed countries and growing energy needs of less developed countries
2.2 Overview of energy use and related issues
2.3 Global climate change issues and responses – Greenhouse gas emissions and potential effects – effect on ecology and biodiversity- Responses to CO_2 build up – Mitigation – Policy – Carbon tax- Command and Control
2.4 Sustainability, energy and clean technologies – Sustainability attributes- population and consumption growth – Tradeoffs and choices- Uncertainty

Unit 3

Energy Decision, Markets (13 hrs.)

3.1 Natural Gas – Introduction to Natural gas markets- Future
3.2 Electricity, Coal, Renewable Energy, Nuclear power – Prospects and Future

Unit 4

Energy Policies (13 hrs.)

4.1 Future of global energy, Climate Change - Understanding public complacency

4.2 Energy supply and economics of depletable resources, Energy Security – Clean Energy – Energy paradox

4.3 Pollution Control

4.4 Public Policies- Indian Environmental Policies – Social Movements – energy efficiency policies – renewable energy policies – Regulations- Emission trading

Unit 5 Energy Management & Case Study (13 hrs.)

5.1 Energy use by individuals and households – energy calculator – energy consumption

5.2 Industry Power management

BOOKS FOR REFERENCE

Banks F.E. *Energy Economics: A Modern introduction*, Kluwer Academic Publishers Dordrecht 2000.

Griffin J.M. and H.B. Steele. *Energy Economics and Policy*, Academic, Orlando, 1986

Hussen. Ahmed.M. *Principles of Environmental Economics: Economics, Ecology and Public Sector*. London: Routledge.1999.

Kolestad. Charles D. *Environmental Economics,* New York: Oxford University Press. 2000.

Singh, Katar. And Shishodia. Anil. *Environmental Economics: An Indian Perspectives*. New Delhi: Oxford University Press. 2007.

PATTERN OF EVALUATION

Continuous Assessment: 25 marks End Semester: 75 marks

The students will be taking one C.A. test and additional Skill sets training component which may include activities, case studies, assignments, project work, any other.

I. C.A. Test for 1 ½ hours **50 marks**, comprising of only Theory. To be converted to 25

C.A. Test Pattern:

Section A – Objective/ definition/ fill in the blanks- 15x1=15 marks (to be collected after 15minutes)

Section B – 3 out of 5 - 3 x 5 = 15 marks

Section C – 1 out of 2 - 1 x 20= 20 marks

II.Continuous assessment of skill sets activities, Assignment, Quiz etc.: **25 marks**

End Semester Examination (Total 100 marks will be converted to 75 marks)

Total Marks: 100 Duration: 3 hours

Section A – Objective/ definition/ fill in the blanks- 30 x 1=30 marks (to be collected after 30 minutes)

Section B –6 out of 8 - 6 x 5 = 30 marks

Section C –2 out of 4 - 2 x20 = 40 marks

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086
DEPARTMENT OF VALUE EDUCATION
Courses Offered to B.Voc. DEGREE PROGRAMME

SYLLABUS
(Effective from the academic year 2016 – 2017)

VALUES IN PERSONAL LIFE

CODE: 16UV/ET/VP12 **CREDITS: 2**
L T P: 2 0 0
TOTAL TEACHING HOURS: 26

OBJECTIVES OF THE COURSE

- To enable the students to develop a positive self-concept and to foster healthy inter-personal relationships.
- To help students in their transition from school to college and in balancing freedom and responsibility
- To enable the students to understand their social environment

EXPECTED OUTCOME

Students would develop an awareness of their Personal, Social and Spiritual Self

Unit 1

Self Discovery **(10 hrs.)**

1.1 **Self-awareness**

Identifying Strengths and Weaknesses-Acceptance and Appreciation of Self: Building Self-Esteem and Self-Confidence

1.2 **Beliefs and Values**

Reinforcing values: honesty, generosity, integrity, humility, empathy, respect for others, inclusiveness, compassion

1. 3 **Adapting to change**

Handling Responsibilities of College Life – Challenges and Issues. Personal Responsibilities - Handling New Found Freedom - College and Hostel. Handling Personal Finances and Saving. Peer Pressure. Vulnerability to Current Social Trends Building New Relationships : Interdependence. Relationships with Parents and Siblings, Peer Group. Assertive Behavior, Aggressive Behavior.

1.4 **Handling value conflicts**

Home, College, Social Media

Unit 2

Societal Awareness **(8 hrs.)**

2.1 **Changing trends**

Tradition vs. Modernity, Social and Economic disparities, Social Discrimination, Gender disparities

2.2 **Understanding the environment**

Appreciation of the environment - Canticle of the creatures, Prayer of St. Francis of Assisi

Civic responsibility – human beings, environment, animals, and our campus. Ethic of Enough

Unit 3 **(8 hrs.)**

Spiritual Awareness

3.1 The centrality of spirituality – integration of body, mind and spirit-Self Discipline.

3.2 Yoga and meditation

Teaching / Learning Methods

- Lectures
- Group Discussions
- Paper Presentations
- Power Point Presentations
- Seminars
- Role Plays
- Case Studies
- Debates
- Documentaries And Videoclippings

Workshop - Personality Development

BOOKS FOR REFERENCE

Davidar(Eds). *Human Values*. All India Association of Christian Higher Education. (AIACHE) New Delhi: 2013.

Ignacimuthu, S. *Values for life*. Better Yourself Books: Mumbai, 1994.

James, G.M. et.al. *In Harmony-Value Education at College Level*. Chennai: Prakash, 2011.

Koikara, Felix , Joe Mannath. *Youth Worker's Resource Book*. Chennai: Don Bosco, 1985.

Koikara, Felix. *Live your Values-Teacher"s Guide*. Mumbai: Better Yourself Books, 2005. .

Life Skills Foundation for Education. *Personal Effectiveness Programme*. Chennai: Laya 2000

Simon, Sidney et.al. *Values Clarification-A Practical Action-Directed Workbook*. NewYork: Warner Books, 1995.

PATTERN OF EVALUATION (Internal) - Marks: 50

Continuous Assessment

Quiz

Assignment

Presentation - Individual / Groups

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086

BACHELOR OF VOCATIONAL (B.Voc.) PROGRAMME
SUSTAINABLE ENERGY MANAGEMENT

SYLLABUS
(Effective from the academic year 2016 – 2017)

FUNDAMENTALS OF PHOTOVOLTAICS

CODE:16VS/VM/PV26

CREDITS: 6
L T P: 3 0 3
TOTAL TEACHING HOURS: 78

OBJECTIVES OF THE COURSE

- To learn about Photovoltaic technology principles
- To get an insight about techniques and applications of solar cells.

Unit 1 **(12hrs.)**

Photovoltaic Basics and Photovoltaic Cells

1.1 Semiconductor basics– properties-Theory of Photovoltaic systems - energy levels – Photo Conductivity

1.2 PN junction: homo and hetro junctions – metal semiconductor interface- Dark and illumination characteristics - figure of merit– efficiency of solar cells

Unit 2 **(9hrs.)**

Classification of Photovoltaic Systems

2.1 Stand-alone Systems - Systems with Battery Storage -System with Back-up - Generator Power - System Connected to the Utility Grid - Hybrid Systems

2.2 System components - PV arrays – inverters –batteries - charge controls - net power meters.

Unit 3 **(9hrs.)**

Photovoltaic System Design

3.1 Solar cell array: System analysis and performance prediction- Shadow analysis - reliability - design concepts of solar array

3.2 Design of solar PV systems and cost estimation - Home lighting and other appliances

Unit 4 **(9hrs.)**

Photovoltaic System Applications

4.1 Building-integrated photovoltaic units

4.2 Solar cars – aircraft - space solar power satellites.

Unit 5 **(39hrs.)**

Case Study

5.1 Solar energy to electric energy conversion – Experiment using Solar panel.

5.2 Efficiency of Solar panel calculation over the day with the use of meters.
5.3 Measurement of Sun's Radiation on Earth's Surface
5.4 Computer simulated experiment on Energy Consumption in a building

BOOKS FOR STUDY AND REFRENCE

Alan L Fahrenbruch and Richard H Bube. *Fundamentals of Solar Cells: PV Solar Energy Conversion,* Academic Press, 1983.

Garg H P. Prakash J. *Solar Energy: Fundamentals & Applications*, Tata McGraw Hill, 2000.

Larry D Partain, *Solar Cells and their Applications,* John Wiley and Sons, Inc, 1995.

Raj. G.D. *Non-Conventional Sources of Energy,* Khanna Publishers, 2009

PATTERN OF EVALUATION

Continuous Assessment : 25 Marks

End Semester Examination (Total 100 marks will be converted to 75 marks)

Theory :50 Marks Practical :50 Marks

Total Marks: 100 Duration: 6 hours

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086

BACHELOR OF VOCATIONAL (B.Voc.) PROGRAMME
SUSTAINABLE ENERGY MANAGEMENT

SYLLABUS
(Effective from the academic year 2016 – 2017)

ENERGY CONVERSION TECHNIQUES

CODE:16VS/VM/ET26

CREDITS: 6
L T P: 3 0 3
TOTAL TEACHING HOURS: 78

OBJECTIVES OF THE COURSE

- To analyze the conventional energy conversion techniques
- To develop understanding on direct energy conversion systems
- To appreciate the need and necessity of energy storage systems and their desirable characteristics

Unit 1 **(8hrs.)**

Introduction

1.1 Introduction – energy conversion – conventional techniques.

1.2 Reversible and irreversible cycles.

Unit 2 **(10hrs.)**

Direct Conversion of Thermal to Electrical Energy

2.1 Thermoelectric Converters – thermoelectric refrigerator – thermoelectric generator

2.2 Thermionic converters – Ferro electric converter – Nernst effect generator – thermomagnetic converter.

Unit 3 **(11hrs.)**

Chemical, Electrochemical Energy and Hydrogen Energy Generation

3.1 Batteries – types – working – performance governing parameter

3.2 Dye sensitized solar cells - Quantum dots sensitized solar cells

3.3 Photo catalysis – Photo electro catalysis-Photo bio synthesis-Bio reactors- Water splitting-Hydrogen generation

Unit 4 **(10hrs.)**

Energy Storage Systems

4.1 Introduction – storage of mechanical energy, electrical energy, chemical energy thermal energy.

4.2 Electrochemical energy storage – super capacitor- pseudo capacitor- ultra capacitor.

Unit 5 **(39hrs.)**

Case Study

5.1 Types of batteries-Chemical Energy to Electrical Energy

5.2 Conversion of Solar Energy to Heat Energy- Solar Water heater

5.3 Conversion of Solar Energy to Electrical Energy-Solar Water pump

BOOKS FOR STUDY AND REFRENCE

Archie.W.Culp. *Principles of Energy Conversion*, Singapore: McGraw-Hill Inc., 1991,

Kordesch. K. and Simader.G. *Fuel Cell and Their Applications*, Germany: Wiley-Vch, 1996

Kettari, M.A. *Direct Energy Conversion*, Addison-Wesley Pub. Co. 1997

Hart A.B and Womack. G.J. *Fuel Cells: Theory and Application*, London: Prentice Hall, Newyork Ltd., 1989

PATTERN OF EVALUATION

Continuous Assessment : 25 Marks

End Semester Examination (Total 100 marks will be converted to 75 marks)

Theory :50 Marks Practical :50 Marks

Total Marks: 100 Duration: 6 hours

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086

BACHELOR OF VOCATIONAL (B.Voc.) PROGRAMME
SUSTAINABLE ENERGY MANAGEMENT

SYLLABUS
(Effective from the academic year 2016 – 2017)

ENERGY MANAGEMENT AND ENERGY AUDIT

CODE:16VS/VE/EM25

CREDITS: 5
L T P: 5 0 0
TOTAL TEACHING HOURS: 65

OBJECTIVES OF THE COURSE

- To understand energy management.
- To get an insight of energy audit and energy conservation practices.

Unit 1 **(13hrs.)**

Introduction

1.1 Basic needs of energy management and ethics - Ecological issues - sustainable energy for future.

1.2 Energy scenario – Principles of energy conservation - Commercial and noncommercial energy - primary energy resources - commercial energy production - final energy consumption.

Unit 2 **(13hrs.)**

Energy Management

2.1 Industrial energy management systems: Energy monitoring and targeting – Elements – data - information analysis and techniques

2.2 Energy consumption – production - Energy Management Information Systems (EMIS) - Economics of energy conservation schemes

Unit 3 **(13hrs.)**

Energy Policy and Security

3.1 Global Energy issues - National and state level energy issues - National and State energy policy - Industrial energy policy - Energy security - Energy vision

3.2 Energy policy and energy labeling - Energy pricing and impact of Global variations - Energy policy issues - Energy security - Role of energy managers in industries

. **Unit 4** **(13hrs.)**

Economic Analysis

4.1 Introduction: Economic concepts - Measures of economic performance – Procedure for economic analysis.

4.2 Investment cost – Procedure for optimized system selection and design – Load curves - Sensitivity analysis.

Unit 5 **(13hrs.)**

Energy Conservation Principles

5.1 Indian energy scenario - Sector-wise energy consumption. Energy needs of growing economy - Long term energy scenario.

5.2 Energy audit questionnaire – Regulatory measures - Energy conservation Acts.

BOOKS FOR STUDY AND REFRENCE

Jacob. *"Energy Policy*", Nova publisher, 2009.

Smith. C.B. *Energy "Management Principles",* Pergamon Press, 2006.

Subhes C. Bhattacharyya. *"Energy Economics*", Springer 2011.

Trivedi, P.R. and Jolka K.R. *"Energy Management*", Common Wealth Publication, 2002.

White, L. C. *"Industrial Energy Management and Utilization*", Hemisphere Publishers, 2002.

PATTERN OF EVALUATION

Continuous Assessment : 25 Marks

End Semester Examination (Total 100 marks will be converted to 75 marks)

Total Marks: 100 Duration: 3 hours

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086

BACHELOR OF VOCATIONAL (B.Voc.) PROGRAMME

SYLLABUS

(Effective from the academic year 2016 – 2017)

ENVIRONMENTAL STUDIES

CODE: 16VS/UC/ES22 **CREDITS : 2**

L T P : 2 0 0

TOTAL TEACHING HOURS : 26

OBJECTIVES OF THE COURSE

- To create an awareness about current environmental issues
- To educate students on conservation and management of natural resources
- To encourage students to be ecosensitive and ecofriendly

Unit 1

Introduction 6hrs.)

1.1 Components of the Environment – Classification and Characteristics of Resources – Renewable and Non – Renewable Resources

1.2 Need for Public Awareness in Conservation of Natural Resources

1.3 Energy Flow in Ecosystems – Aquatic and Terrestirial – Food Chain and Food Web

Unit 2

Pollution and Socio Economic Aspects of the Environment (10hrs.)

2.1 Types of Pollution – Air, Water, Solid Waste, Noise

2.2 Problems - Green House Effect – Depletion of the Ozone Layer – Climate Change

2.3 Bio Diversity - Definition - Loss of Bio Diversity – Threats to Biodiversity and Conservation of Biodiversity

2.4 Human Behaviour: - Population – Urbanization – Poverty (As Cause and Result of Pollution and Degradation)

2.5 Technology: Agriculture and Industry – Deforestation. Misuse and Abuse of the Resources

2.6 Effects and Consequences of Environmental Problems

Unit 3

Sustainable Development, Remedies and Policy Implications (10 hrs.)

3.1 Environmental Disasters Natural and Human Made – Bhopal Gas Tragedy – Chernobyl Accident – Fukushima Nuclear Crisis - Gulf War – Love Canal Episode – Tsunami – Volcanic Eruptions

3.2 Methods Evolved to Measure and Check Environmental Degradation and Pollution – Carbon Footprint, Carbon Credit, Ecological Footprint, and Ecological Shadow

3.3 Environmental Movements in India – Chipko Movement, Narmada Bachao Andolan, Sethu Samudram Project

3.4 Environmental Acts – Policy Measures with respect to India

3.5 International Environmental Agreement – Stockholm Conference – Montreal Protocol – Rio Meet – Kyoto Conference – UN Conference on Climate Change (Copenhagen)

Field visit

Eco initiatives at the campus: Garbage Segregation and Vermicomposting – Greywater Recycling – Rainwater Harvesting – Solar Powered Lights – Biodiversity

TEXT BOOK

Bharucha, E. *Textbook of Environmental Studies***.** Hyderabad: Universities Press, 2005.

REFERENCE BOOKS

Ignacimuthu, S. *Environmental Awareness and Protection***.** New Delhi: Phoenic House, 1997.

Jadhav, H and V. M. Bhosale. *Environmental Protection and Law.* New Delhi: Himalaya, 1995.

Odum, E.P. *Fundamentals of Ecology***.** U.S.A: W.B. Sauders, 1971.

Mies, M and V. Shiva. *Ecofeminism*, London: Zed Books, 1989.

Singh, H.R. *Environmental Biology***.** New Delhi: S.Chand, 2005.

PATTERN OF EVALUATION

Continuous Assessment: (Totally internal)

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086

BACHELOR OF VOCATIONAL (B.Voc.) PROGRAMME
SYLLABUS
(Effective from the academic year 2016 – 2017)
SOFT SKILLS

CODE: 16VS/US/SS22 **CREDITS: 2**
L T P: 2 0 0
TOTAL TEACHING HOURS: 26

OBJECTIVES OF THE COURSE

- To equip students with competencies to achieve personal and academic excellence
- To raise confidence levels

Unit 1
Self Awareness **(5hrs.)**
1.1. Knowing One's Strengths and Weaknesses
1.2. Self-esteem and Self-worth

Unit 2
Work place Behavioural Training **(6hrs.)**
2.1 Listening Skills
2.2 Interpersonal Skills
2.3 Team Work and Group dynamics
2.4 Personal Effectiveness
2.5 Creative Thinking

Unit 3
Planning Ahead **(5hrs.)**
3.1 Time Management
3.2 Goal Setting

Unit 4
Career Mapping **(5hrs.)**
4.1 Concept of Career
4.2 Career Options
4.3 Choice of Right Career

Unit 5
Adaptability Skills **(5hrs.)**
5.1 Working independently
5.2 Working as a team
5.3 Multi-tasking
5.4 Innovation
5.5.Adapting to Change and Criticism

PATTERN OF EVALUATION
Continuous Assessment: (Totally internal)

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086

BACHELOR OF VOCATIONAL (B.Voc.) PROGRAMME
SUSTAINABLE ENERGY MANAGEMENT

SYLLABUS
(Effective from the academic year 2016 – 2017)

BIO ENERGY

CODE:16VS/VM/BE36 **CREDITS: 6**
L T P: 3 0 3
TOTAL TEACHING HOURS: 78

OBJECTIVES OF THE COURSE

- To know the significance of Biomass energy
- To gain a fundamental knowledge of principles for the conversion of biomass to renewable energy
- To learn about bio gas plants and the future prospects of Biomass energy

Unit 1 **(16hrs.)**

Biomass energy resources and conversion processes

1.1 Definition of Biomass, significance of biomass energy. Biomass – Origin of Biomass – Biomass energy resources , identification of biomass in the environment

1.2 Characteristics-methods of determination - proximate analysis and ultimate analysis, Determination of total solids and volatile solids

1.3 Classification of the Biomass resources – agricultural residues, herbaceous biomass, woody biomass, vegetable wastes, Assessment of biomass

Unit 2 **(16hrs.)**

Biomass Energy from wood

2.1. Urban waste – to – energy by incineration process – Schematic process of a waste incineration energy plant – Merits and Demerits, Factors affecting biogas production

2.2 Processing of wood and wood waste for incineration plant

2.3 Raw biomass materials for conversion to biogas – Agricultural waste and agricultural energy crops

Unit 3 **(16hrs.)**

Landfill and other sources of biofuel

3.1 Landfill gas- Applications of Landfill gas, Composition of landfill gas- Collection system for landfill Gas (Field visit and training)

3.2 Different feed stocks for biogas production
Biofuel from Vegetable sources, animal wastes and hybrid systems – process and assessment of energy output

3.3 Aquatic biomass – Resources of aquatic biomass – algae – water hyacinth –

ocean kelp

Unit 4 **(10hrs.)**

Biogas Plants

4.1 Biogas plant – types of biogas plants – Floating Dome type biogas plants – KVIC model, PRAGATI model , Ferro cement model, Fibre glass reinforced model - Advantages and limitations

4.2 Fixed dome type- Janata model, Deenabandhu model – Advantages and limitations

4.3 Comparative study of various models of Biogas plants (including hands on training)

Unit 5 **(20hrs.)**

Biomass conversion techniques

5.1 Biomass conversion processes – Direct combustion – Thermochemical conversion, Bio Chemical Conversion, pyrolysis of wood, Biochar

5.2 Anerobic fermentation process used in biogas plants

5.3 Advantages and disadvantages of Biogas – emissions of Biogas engine Biogas scenario in India – future prospects.

Practical Components

1. Identification of biomass sources
2. Proximate Analysis
    a. Ultimate Analysis
    b. Volatile & Total solid Analysis
3. Assessment of biomass – Finding calorific value of different biomass
4. Analysis of types of Wood
5. Processing of Wood
6. Analysis of Agriculture Waste
7. Segregation of vegetable waste
8. Assessment of energy output of various biomass
9. Comparative study of various biogas models.
10. Biomass conversion process
11. Anaerobic fermentation

Field visits to Biogas plants

TEXT BOOK

Cheng,J,J, *Biomass to Renewable Energy Processes,* CRC Press, USA , 2009

BOOKS FOR REFERENCE

Rao.S and Parulekar. *Energy technology.* New Delhi: Khanna publishers, 1997

Thipse S.S. *Non- conventional and renewable energy sources* New Delhi: Narosa Publications, 2014

Gupta K.C, *Energy and Environment in India* Gyan Publishing house, 2002

PATTERN OF EVALUATION

Continuous Assessment: 25 Marks

The students will be taking one C.A. test and additional Skill sets training practical component which may include practical work, assignments, project work, any other.

I. C.A. Test for 3 hours **50 marks**, comprising of Theory (25marks)

C.A. Test Pattern for theory: (25marks)
Section A – Objective/ definition/ fill in the blanks - 10x1=10 marks (to be collected after 10 minutes)
Section B – 3 out of 5 - 3 x 3 = 9 marks
Section C – 1 out of 2 - 1 x 6 = 6 marks

Practical: 25 marks

II. Continuous Assessment of Skill sets training – Aggregate of all practical assessment (25marks)

Internship Viva	– 5 marks
Practicals	– 10 marks
Model Exam	– 10 marks

Theory 25 marks and Practical 25 marks is finally converted to internal 25 marks.

End Semester Examination (Total 100 marks to be converted to 75 marks)

Total Marks: 100 Duration: 6 hours

Theory: 50 Marks Practical: 50 Marks

(Both theory and practical to be done in the laboratory).

Pattern for Theory: 50 marks

Section A – Objective/ definition/ fill in the blanks- 20 x 1=20 marks (to be collected at the end of 20 minutes)
Section B – 6 out of 10 - 6 x 3 = 18 marks
Section C – 2 out of 4 - 2 x 6 = 12 marks

Practical: 50 marks

Practical Exam comprises testing skillset in experimental abilities and vivavoce on the training offered in Internships and workshops.

Practicals	– 40 marks
Viva	– 10 marks

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086

BACHELOR OF VOCATIONAL (B.Voc.) PROGRAMME
SUSTAINABLE ENERGY MANAGEMENT

SYLLABUS

(Effective from the academic year 2016 – 2017)

WASTE SEGREGATION AND MANAGEMENT

CODE:16VS/VM/WM36 **CREDITS: 6**

L T P: 3 0 3

TOTAL TEACHING HOURS: 78

OBJECTIVES OF THE COURSE

- To identify different types of waste, collect and segregate as per standard operating procedures
- To identify the different processes of waste management
- To understand the need for maintaining health and safety at work place

Unit 1 **(16hrs.)**

Solid Waste

1.1 Definitions; Sources, types, composition, Signs, symbols and colour codes for different types of solid wastes

1.2 Types and properties of Solid Waste; Municipal Solid Waste. Domestic wastes, industrial wastes and hazardous wastes

1.3 Collection, transfer stations; Segregation at the collection centers, Waste minimization and recycling of municipal waste

Unit 2

Waste Treatment **(20hrs)**

2.1 Waste Treatment – Physical, chemical and biological treatment

2.2 Disposal of solid wastes : Size Reduction, Aerobic composting, incineration and sanitary landfills

2.3. Incineration: types of incinerators – batch type, continuous type, measures to mitigate environmental effects

2.4 Sanitary landfills – classification, Types, methods & siting consideration, waste land development, leachate and its handling (including training)

Unit 3

Food processing Wastes **(16hrs)**

3.1 Significance of processing Food processing waste

3.2 Categories : fruits and vegetable processing, sugar, starch and confectionary, grains, legumes and oil seeds

3.3 Energy generation from different types of food processing wastes- mango peel, citrus, tomatoes, pine apple, banana, reduction of BOD and COD

Unit 4

Safe management of wastes (16hrs)

4. 1. Overview of hazards; Types of hazards, Health Safety policies

4. 2. Health and safety of personnel – personal protective equipment, personal hygiene, safety operating procedures for collection, segregation and transportation

4. 3. Hazards from: infectious waste and sharps, chemical and pharmaceutical waste, genotoxic waste, Hazards from radioactive waste

Unit 5

Waste minimization (10hrs)

5.1 Waste minimization techniques: Resource Reduction , Reuse and recycling of wastes, concept of cogeneration in waste reduction

5.2 Waste minimization audit- information based audit, in depth audit and R&D audit

5.3 Usage of slurry from waste treatment, vermicomposting

Practical Components

1. Colour code of different wastes
2. Segregation of waste
3. Determination of the properties of Waste
4. Waste treatment
5. Energy Generation – choosing any 3 types of food processing waste
6. Waste audit (Minimization and recycling)
7. Field trips and Training

Field trips and Training

TEXT BOOK

Sunil Khanna, Krishnamohan, *Wealth from waste,* Tata Energy Research Institute, 2006

Gupta, P.K. *Vermicomposting for Sustainable Agriculture***.** India: Agrobios. 2004.

Ismail,S.A.*The Earthworm*. Goa: Other India, 2005.

BOOKS FOR REFERENCE

Gupta K.C, *Energy and Environment in India* Gyan Publishing house, 2002

PATTERN OF EVALUATION

Continuous Assessment: 25 Marks

The students will be taking one C.A. test and additional Skill sets training practical component which may include practical work, assignments, project work, any other.

I. C.A. Test for 3 hours **50 marks**, comprising of Theory (25marks)

C.A. Test Pattern for theory: (25marks)
Section A – Objective/ definition/ fill in the blanks - 10x1=10 marks (to be collected after 10 minutes)
Section B – 3 out of 5 - 3 x 3 = 9 marks
Section C – 1 out of 2 - 1 x 6 = 6 marks
Practical: 25 marks
II. Continuous Assessment of Skill sets training – Aggregate of all practical assessment (25marks)

Internship Viva	– 5 marks
Practicals	– 10 marks
Model Exam	– 10 marks

Theory 25 marks and Practical 25 marks is finally converted to internal 25 marks.

End Semester Examination (Total 100 marks to be converted to 75 marks)
Total Marks: 100 Duration: 6 hours

Theory: 50 Marks Practical: 50 Marks

(Both theory and practical to be done in the laboratory).

Pattern for Theory: 50 marks
Section A – Objective/ definition/ fill in the blanks- 20 x 1=20 marks (to be collected at the end of 20 minutes)
Section B – 6 out of 10 - 6 x 3 = 18 marks
Section C – 2 out of 4 - 2 x 6 = 12 marks
Practical: 50 marks

Practical Exam comprises testing skillset in experimental abilities and vivavoce on the training offered in Internships and workshops.

Practicals	– 40 marks
Viva	– 10 marks

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086

BACHELOR OF VOCATIONAL (B.Voc.) PROGRAMME
SUSTAINABLE ENERGY MANAGEMENT

SYLLABUS

(Effective from the academic year 2016 – 2017)

ENVIRONMENT AND ECOLOGY

CODE: 16VS/VA/EN35 **CREDITS: 5**

L T P: 4 0 1

TOTAL TEACHING HOURS: 65

OBJECTIVES OF THE COURSE

- To understand the Global climatic change and the sustainable initiatives
- To know about the policies and Acts to control and prevent pollution
- To understand the role of environment in ecological context

Unit 1

Global climate change **(14hrs)**

1.1 Introduction- climate change- global warming- Climate modeling

1.2 Pollution- Types, causes, consequences and control measures

1.3 Sustainable development in the context of environmental upkeep

Unit 2

Elements of Ecology and Biomass **(14hrs)**

2.1 Basics of ecology, Inter dependence of different species
Basic elements of biomass accumulation, Microorganism types, growth and nutrition

2.2 Ecological aspects of microbial degradation, degradation of Cellulose, net energy production by plants, wood structure and wood chemistry (including practicals components)

2.3 Fermentation- Aerobic /Anaerobic microorganism involved mechanism (including practicals components)

Unit 3

Environmental & Economic Impacts of Bioenergy **(14hrs)**

3.1 Principles, Production and assessment of impacts due to air and water pollution on the environment. (including hands on training)

3.2 Food security and environmental impacts of biomass conversion to energy- energy from waste.

3.3 Economic policies and environmental laws in the Indian context

Unit 4 **(13hrs.)**

Human population and the environment

4.1 Global population growth- population explosion- Urbanisation.

4.2 Environment and human health- climate and health- infectious diseases- water related diseases- risk due to chemical in food- cancer and environment

Unit 5 **(10hrs.)**

Human rights

5.1 Nutrition health and human rights- intellectual property rights- community biodiversity registers

5.2 Ethics- environmental values – valuing nature – valuing culture- social justice – equitable use of resources.

TEXT BOOK

Erach Bharucha. *Textbook of Environmental Studies.* Hyderabad: University Press (India) Private Limited, 2005

BOOK FOR STUDY AND REFERENCE

Handbook of Climate Change and India: Development, Politics and Governance
Edited by Navroz K Dubash Routledge

PATTERN OF EVALUATION

Continuous Assessment: 25 marks **End Semester: 75 marks**

The students will be taking one C.A. test and additional Skill sets training component which may include activities, case studies, assignments, project work, any other.

I. C.A. Test for 90 Mins. **50 marks**, comprising of only Theory. To be converted to 25

C.A. Test Pattern:

Section A – Objective/ definition/ fill in the blanks- 15x1=15 marks (to be collected after 15minutes)

Section B – 3 out of 5 - 3 x 5 = 15 marks

Section C – 1 out of 2 - 1 x 20= 20 marks

II. Continuous assessment of skill sets activities, Assignment, Quiz etc.: **25 marks**

End Semester Examination (Total 100 marks will be converted to 75 marks)

Total Marks: 100 Duration: 3 hours

Section A – Objective/ definition/ fill in the blanks- 30 x 1=30 marks (to be collected after 30 minutes)

Section B –6 out of 8 - 6 x 5 = 30 marks

Section C –2 out of 4 - 2 x20 = 40 marks

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BACHELOR OF VOCATIONAL (B.Voc.) PROGRAMME
SUSTAINABLE ENERGY MANAGEMENT

SYLLABUS
(Effective from the academic year 2016 – 2017)

ELECTRONIC DOCUMENTATION AND PRESENTATION

CODE: 16CS/UE/DP32 **CREDITS: 2**
L T P: 1 0 1
TOTAL TEACHING HOURS: 26

OBJECTIVES OF THE COURSE

- To introduce students to the basics of documentation and presentation
- To initiate the implementation of user defined styles
- To highlight the importance of making an effective document and presentation

Unit 1 **(10 hrs.)**

1.1 Creating a Document
User Interface - Ribbons and things - Creating Documents – Typing text – Word Wrap - Default tabs – Paragraph – File template – Saving Formats

1.2 Formatting
Font/Character Formatting - Paragraph Formatting – Styles – Structured Formatting Paragraph Decoration – Numbering/Bullets – Shading – Borders and Boxes

1.3 Styles and Page Set up
Styles – Style Group – Creating and Modifying styles – Quick style sets - Page setup and Sections – Page Set up basics – Page Borders – Header and footer – Page Numbers – Themes – Using Built-in themes

Unit 2 **(8 hrs.)**

2.1 Tables and Graphics
Tables and Graphics – Table basics – Layout and design – Pictures - Inserting, Manipulating, Wrapping, Dragging, Resizing, Cropping, Clip art - Charts – Formatting a chart

2.2 Mail Merge
Mail Merge –Attaching data sources – Assembling a data document – Sending Business Mails

2.3 Security
Password to open / modify

2.4 Table of Contents
Creation – Styles – Updating automatically

2.5 Introduction to Presentation
Introduction – Changing View – Creating a presentation

Unit 3 **(8 hrs.)**

3.1 Advanced features of Presentation

Layouts, Themes and Masters – Theme Vs Templates – Slide Master View – Changing slide layout – Applying a Theme – Colors, Fonts and Effects – Background– Managing Slide masters, Themes - Inserting tables and charts - Clip art and graphics- Animation Effects, Transitions.

TEXT BOOKS

Matthews ,Carole B and Marty Matthews. *Microsoft Office 2013 Quicksteps*. 3rd ed. McGraw Hill, 2013.

Walkenbach ,John ,Herb Tyson, Michael R. Groh , Faithe Wempen and Lisa A. Bucki. *Microsoft Office 2013 Bible*. 4th ed. Wiley, 2013.

BOOKS FOR REFERENCE

Cox ,Joyce and Joan Lambert. *Microsoft PowerPoint 2013 Step by Step*. Microsoft Press, 2013.

Napier ,Albert and Ollie Rivers. *Microsoft Word 2013 Getting Started with Word*. Napier-Rivers.

WEB RESOURCES

https://www.microsoft.com/learning/en-us/book.aspx?ID=9600&locale=en-us

http://www.onlineprogrammingbooks.com/free-ebook-microsoft-office-powerpoint/

http://bookboon.com/en/microsoft-office-powerpoint-ebook#download

PATTERN OF EVALUATION

Continuous Assessment: (Totally internal)

Total Marks: 50 Duration: 90 mins.

Section A – 5 x 3 = 15 Marks (All questions to be answered)

Section B – 4 x 5 = 20 Marks (4 out of 5 to be answered

Section C – 1 x 15 = 15 Marks (1 out of 2 to be answered)

Third Component:

List of Evaluation modes:

Assignments

Seminars

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086

BACHELOR OF VOCATIONAL (B.Voc.) PROGRAMME
FOOD PROCESSING AND QUALITY CONTROL

SYLLABUS
(Effective from the academic year 2016 – 2017)

HUMAN BEHAVIOUR

CODE: 15PY/US/HB32 **CREDITS: 2**
L T P: 2 0 0
TOTAL TECHING HOURS: 26

OBJECTIVES OF THE COURSE:

- To help students understand basic Principles of Psychology
- To Create Self-Awareness and Understanding of various aspects of Human Behaviour

Unit 1

Introduction to Psychology **(10hrs.)**

1.1 Definition of Psychology and Basic concepts- Cognitive and Affective factors
1.2 Methods of studying Human Behaviour- Introspection, Observation, Interview, Case Study, Questionnaire, Experimental Method

Unit 2

Cognitive Processes **(8hrs.)**

2.1 Perception, Attention, Learning, Memory, Creativity
2.2 Intelligence and Concept Formation

Unit 3

Affective Factors and Personality **(8hrs.)**

3.1 Motivation (Primary and Secondary Motives)
3.2 Emotion (Negative and Positive Emotions), physiological Basis of Emotions
3.3 Definition, Assessment and Development of Personality

BOOKS FOR STUDY

Baron, A. Robert. *Psychology.* New Delhi: Prentice Hall, 2007.

Bowdon-Tom Butler. *50 Psychology Classics*. London: Nicholas Brealey, 2008.

WEB RESOURCES
http://tedtalkspsychology.com/10-myths-about-psychology-debunked-with ben- ambridge

PATTERN OF EVALUATION

Continuous Assessment: (Totally internal)

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086

BACHELOR OF VOCATIONAL (B.Voc.) PROGRAMME
SUSTAINABLE ENERGY MANAGEMENT

SYLLABUS

(Effective from the academic year 2016 – 2017)

ADVANCED BIO ENERGY

CODE: 16VS/VM/AB46 **CREDITS: 6**

L T P: 3 0 3

TOTAL TEACHING HOURS: 78

OBJECTIVES OF THE COURSE

- To gain knowledge on the different types of raw material that can be used for bioenergy generation
- To be able to plan, and install a biogas plant
- To be able to trouble shoot and maintain a biogas plant

Unit 1 **(10 hrs)**

Bioenergy Concepts

1.1. Introduction - Biopower, Bioheat, Biofuels, liquid fuels, drop-in fuels

1.2. Bioconversion-aerobic and anaerobic -conversions-microbial activities

1.3. Biobased products

Unit 2

Biomass Production **(20 hrs)**

2.1. Biogas production process-phases

2.2. Factors affecting biogas production

2.3. Different feed stocks for biogas production- first second and third generation, Residue Feedstocks - Agricultural waste - Forestry waste, Organic components of residential, commercial, institutional and industrial waste

Unit 3

Biogas Plant Installation **(20 hrs)**

3.1 Biogas Plant- Estimation of plant capacity and construction guidelines and gas conveyance system

3.2 Operation, maintenance and safety measures

3.3 Slurry handling, utilisation and enrichment, Slurry analysis, Biogas purification and utilization, composting methods.

Unit 4

Health & Environmental Issues of Bio energy **(12 hrs)**

4.1. Understanding sustainability & Effect of Environment on sustainability

4.2. Public sensitivity, Public health impact

4.3. Impacts of: infectious waste and sharps, Chemical and pharmaceutical waste, genotoxic waste, Radioactive waste

Unit 5 **(16 hrs)**

Biogas stove

5.1. Study and use of biogas stove and dual fuel engines
5.2. Study of different types of stoves and gas cleaning systems
5.3. Construction of biomass gas stove and study

Field visits to Biogas plants

TEXT BOOK

Thipse S.S. *Non- conventional and renewable energy sources* New Delhi: Narosa Publications, 2014

Gupta K.C, *Energy and Environment in India* Gyan Publishing house, 2002

BOOKS FOR REFERENCE

Rao.S and Parulekar. *Energy technology.* New Delhi: Khanna publishers, 1997

Cheng,J,J, *Biomass to Renewable Energy Processes,* CRC Press, USA , 2009

Practical Components

1. Estimation of plant capacity
2. Aerobic conversion
3. Anaerobic conversion
4. Factors affecting Biogas production
5. Biogas from different sources
6. Slurry analysis
7. Estimation of plant capacity
8. Model construction of biogas plant
9. Assessment of safety measures
10. Construction of biogas stove
11. Study of different types of stove

PATTERN OF EVALUATION

Continuous Assessment: 25 Marks

The students will be taking one C.A. test and additional Skill sets training practical component which may include practical work, assignments, project work, any other.

I. C.A. Test for 3 hours **50 marks**, comprising of Theory (25marks)

C.A. Test Pattern for theory: (25marks)

Section A – Objective/ definition/ fill in the blanks - 10x1=10 marks (to be collected after 10 minutes)
Section B – 3 out of 5 - 3 x 3 = 9 marks
Section C – 1 out of 2 - 1 x 6 = 6 marks

Practical: 25 marks

II. Continuous Assessment of Skill sets training – Aggregate of all practical assessment (25marks)

Internship Viva	– 5 marks
Practicals	– 10 marks
Model Exam	– 10 marks

Theory 25 marks and Practical 25 marks is finally converted to internal 25 marks.

End Semester Examination (Total 100 marks to be converted to 75 marks)

Total Marks: 100 Duration: 6 hours

Theory: 50 Marks Practical: 50 Marks

(Both theory and practical to be done in the laboratory).

Pattern for Theory: 50 marks

Section A – Objective/ definition/ fill in the blanks- 20 x 1=20 marks (to be collected at the end of 20 minutes)
Section B – 6 out of 10 - 6 x 3 = 18 marks
Section C – 2 out of 4 - 2 x 6 = 12 marks

Practical: 50 marks

Practical Exam comprises testing skillset in experimental abilities and vivavoce on the training offered in Internships and workshops.

Practicals	– 40 marks
Viva	– 10 marks

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086

BACHELOR OF VOCATIONAL (B.Voc.) PROGRAMME

SUSTAINABLE ENERGY MANAGEMENT

SYLLABUS

(Effective from the academic year 2017 – 2018)

BIOFUEL CROPS AND BIOFUELS

CODE: 16VS/MC/BB46 **CREDITS: 6**

L T P: 3 0 3

TOTAL TEACHING HOURS: 78

OBJECTIVES OF THE COURSE

Unit 1 **(10 hrs)**

Biofuel Crops

1.1. Different types of biofuel crops
1.2. Cultivation practices of biofuel crops, Energy plantation and power programme
1.3. Energy scenario, policy issues and importance of vegetable oil based biodiesel

Unit 2 **(18 hrs)**

Principles of Thermochemical Biomass Conversion Processes

2.1. Thermochemical conversion - principles and types, combustion and types
2.2. Gasification-types -principles-operation, gasification of dry and wet biomass, Fabrication of mini Gasifier, Testing of different types Gasifiers
2.3. Scrubbers-types, methods and selection, Biomass densification and utilisation

Unit 3 **(18 hrs)**

Biofuels

3.1 Processing of oil seeds, Chemistry of biodiesel, properties and testing
3.2 Characteristics of vegetable oil, biodiesel, Standards and emission norms
3.3 Production technology of biodiesel, Oil extraction process study
3.4 Post production Process, Storage of biodiesel

Unit 4

Biodiesel plant **(18hrs)**

4.1 Fabrication of mini plant for biodiesel production, different types of biodiesel production processes
4.2 Production of biodiesel from different oil
4.3 By product of biodiesel production process and utilisation
4.4 Testing of biodiesel, Engine test with biodiesel and combinations

Unit 5

Other Biofuels **(14 hrs)**

5.1. First, second and third generation biofuels
5.2 Bioethanol production process, Bio hydrogen production
5.3 Biodiesel from algae and other oceanic species, its merits and demerits
5.4 Biorefinery concepts and advantages

Practical Components

1. Determination of viscosity of oils
2. Techniques of Oil Extraction
3. Determination of Calorific Value of Fuels
4. Production of Bio Ethanol
5. Principle of thermochemical conversion
6. Principle of gasification i. dry bio mass ii. Wet bio mass
7. Testing of Gasifiers
8. Characterization of vegetable oil
9. Model building of biodiesel production
10. Comparitive study of different oils
11. Testing of Biodiesel engine
12. Engine test with Biodiesel

Field visits to Bioenergy production plants

TEXT BOOK

Cheng,J,J, *Biomass to Renewable Energy Processes,* CRC Press, USA , 2009

BOOKS FOR REFERENCE

Rao.S and Parulekar. *Energy technology.* New Delhi: Khanna publishers, 1997

Thipse S.S. *Non- conventional and renewable energy sources* New Delhi: Narosa Publications, 2014

Gupta K.C, *Energy and Environment in India* Gyan Publishing house, 2002

PATTERN OF EVALUATION

Continuous Assessment: 25 Marks

The students will be taking one C.A. test and additional Skill sets training practical component which may include practical work, assignments, project work, any other.

I. C.A. Test for 3 hours **50 marks**, comprising of Theory (25marks)

C.A. Test Pattern for theory: (25marks)
Section A – Objective/ definition/ fill in the blanks - 10x1=10 marks (to be collected after 10 minutes)
Section B – 3 out of 5 - 3 x 3 = 9 marks
Section C – 1 out of 2 - 1 x 6 = 6 marks
Practical: 25 marks
II. Continuous Assessment of Skill sets training – Aggregate of all practical assessment (25marks)

Internship Viva	– 5 marks
Practicals	– 10 marks
Model Exam	– 10 marks

Theory 25 marks and Practical 25 marks is finally converted to internal 25 marks.

End Semester Examination (Total 100 marks to be converted to 75 marks)
Total Marks: 100 Duration: 6 hours

Theory: 50 Marks Practical: 50 Marks

(Both theory and practical to be done in the laboratory).

Pattern for Theory: 50 marks
Section A – Objective/ definition/ fill in the blanks- 20 x 1=20 marks (to be collected at the end of 20 minutes)
Section B – 6 out of 10 - 6 x 3 = 18 marks
Section C – 2 out of 4 - 2 x 6 = 12 marks
Practical: 50 marks

Practical Exam comprises testing skillset in experimental abilities and vivavoce on the training offered in Internships and workshops.

Practicals	– 40 marks
Viva	– 10 marks

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086

BACHELOR OF VOCATIONAL (B.Voc.) PROGRAMME

SUSTAINABLE ENERGY MANAGEMENT

SYLLABUS
(Effective from the academic year 2016 – 2017)

MICROBIAL FUEL CELLS

CODE:16VS/VA/MF45

CREDITS: 5
L T P: 4 0 1
TOTAL TEACHING HOURS: 65

OBJECTIVES OF THE COURSE

- To gain fundamental knowledge in the development of microbial fuel cells.
- To understand hydrogen energy perspectives and hydrogen generation from renewable sources, storage and safety issues.
- To understand the applications of microbial fuel cells

Unit 1 **(13hrs.)**

Overview of fuel cells

1.1 Need of fuel cell. History of Fuel Cells
1.2 Types of fuel cells - low and high temperature fuel cells
1.3 Microbial fuel cells – Introduction

Unit 2 **(13hrs.)**

Fuel cell reaction kinetics

2.1 Electro catalysis – activation kinetics – hydrogen source.
2.2 Fuel cell charge and mass transport – flow field, transport in electrode and electrolyte **(including practicals)**
2.3 Safety issues -cost expectation - life cycle analysis of fuel cells **(including practicals)**

Unit 3 **(13hrs.)**

Fuel cell characterization

3.1 Need for characterization of fuel cell
3.2 In-situ and ex-situ characterization techniques, I-V curve, frequency response analysis. **(including practicals)**
3.3 Fuel cell modelling and system integration:-I1D model – analytical solution and CFD models **(including practicals)**

Unit 4 **(13hrs.)**

Microbial fuel cells

4.1 Principle and components of microbial fuel cells

4.2 Construction and working of microbial fuel cells

4.3 Microbial fuel cells vs Traditional fuel cells- comparative study

Unit 5

Applications of Microbial Fuel Cells **(13hrs.)**

5.1 Generation of bioelectricity

5.2 Commercial waste management, Biohydrogen production

5.3 Wastewater treatment

5.4 Application of MFCs in biosensor

BOOKS FOR STUDY AND REFERENCE

Srinivasan, S. *Fuel Cells: From Fundamentals to Applications*, Springer, 2006

Xianguo Li. *Principles of Fuel Cells*, Taylor and Francis, 2005

Larminie, J and A. Dicks. *Fuel Cell Systems Explained*, 2nd Edition, Wiley, 2003

O'Hayre, S. W. Cha. W. Colella and F. B. Prinz. *Fuel Cell Fundamentals*, Wiley, 2005

Bard, A.J and L. R. Faulkner. *Electrochemical Methods: Fundamentals and Applications*. 2ndEdition, Wiley 2000

PATTERN OF EVALUATION

Continuous Assessment: 25 Marks

End Semester Examination (Total 100 marks will be converted to 75 marks)

Total Marks: 100 Duration: 3 hours

The students will be taking one C.A. test and additional Skill sets training component which may include activities, case studies, assignments, project work, any other.

I. C.A. Test for 90 Mins. **50 marks**, comprising of only Theory. To be converted to 25

C.A. Test Pattern:

Section A – Objective/ definition/ fill in the blanks- 15x1=15 marks (to be collected after 15minutes)

Section B – 3 out of 5 - 3 x 5 = 15 marks

Section C – 1 out of 2 - 1 x 20= 20 marks

II. Continuous assessment of skill sets activities, Assignment, Quiz etc.: **25 marks**

End Semester Examination (Total 100 marks will be converted to 75 marks)

Total Marks: 100 Duration: 3 hours

Section A – Objective/ definition/ fill in the blanks- 30 x 1=30 marks (to be collected after 30 minutes)
Section B –6 out of 8 - 6 x 5 = 30 marks
Section C –2 out of 4 - 2 x20 = 40 marks

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086

BACHELOR OF VOCATIONAL (B.Voc.) PROGRAMME
FOOD PROCESSING AND QUALITY CONTROL

SYLLABUS
(Effective from the academic year 2016 – 2017)

BANKING PRACTICES

CODE: 16CM/UE/BP22 **CREDITS: 2**
L T P: 2 0 0
TOTAL TEACHING HOURS: 26

OBJECTIVES OF THE COURSE

- To expose students to a variety of financial services available to meet the dynamic changes in the economy and the diverse requirements of the investors
- To provide an opportunity to understand the significance of banking and financial services

Unit 1 **(6hrs.)**

Customers' Accounts with the Bank

1.1 Opening of Bank Accounts
1.2 Different Types of Bank Accounts
1.3 Documents Relating to Transactions with Bank
1.4 losing of Bank Accounts

Unit 2 **(8hrs.)**

E- Banking

2.1 Meaning and Importance.
2.2 Credit Card, Debit Card, Smart Card
2.3 Internet Banking – Services and Major Issues
2.4 ATM – Concept, Features and Importance
2.5 Mobile Banking and Telebanking

Unit 3 **(12hrs.)**

Negotiable Instruments

3.1 Meaning, Characteristics
3.2 Types of Negotiable Instruments
- 3.2.1 Cheque – Requirement of a Cheque
- 3.2.2 Post-dated Cheque, Stale Cheque, Ante-dated Cheque
- 3.2.3 Crossing- Meaning, Types and Significance
- 3.2.4 Endorsement- Types and Significance

BOOKS FOR STUDY

Gurusamy S. *Banking Theory Law and Practice.* 2nd ed. Chennai: Vijay Nicole, 2012.

Sundharam K.P.M. and P.N Varshney. *Banking Theory Law and Practice.* 18th ed. New Delhi: Sultan Chand, 2012.

BOOKS FOR REFERENCE

Bihari, SC. *E-Banking*. 1st ed. SkyLark, 2007.

Gordon E. and K.Natarajan. *Banking Theory Law and Practice.* 19th ed. Mumbai: Himalaya, 2012.

Gordon E., Natarajan K. *Emerging Scenario in Financial Services.* Mumbai: Himalaya, 2006.

Rajesh R., T. Sivagnanasithi. *Banking Theory Law and Practice.* New Delhi: Mc Graw Hill, 2009.

Taxmann. *Guide To Negotiable Instruments Act*. Taxmann, 2003.

JOURNALS

Journal of Banking and Finance
Banking and Financial Services – The Business Journals
International Journal on Electronic Banking

WEB RESOURCES

www.academia.edu
www.lawhandbook.sa.gov

PATTERN OF EVALUATION

Continuous Assessment: (Totally internal)

Total Marks: 50 Duration: 90 mins.

Section A – 5 x 3 = 15 Marks (All questions to be answered)

Section B – 4 x 5 = 20 Marks (4 out of 5 to be answered

Section C – 1 x 15 = 15 Marks (1 out of 2 to be answered)

Third Component:

List of Evaluation modes:

Assignments

Seminars

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086

DEPARTMENT OF VALUE EDUCATION
Courses Offered to the Students of
Bachelor of Vocational Programme

SYLLABUS
(Effective from the academic year 2016 – 2017)

RESPONSIBLE CITIZENSHIP AND PEACE INITIATIVES

CODE: 16UV/ET/CP42 **CREDITS: 2**
L T P: 2 0 0
TOTAL TEACHING HOURS: 26

OBJECTIVES OF THE COURSE

- To give the students a deeper understanding of the reality and diversity of Indian Society
- To inculcate in them the values of Unity, Harmony and Peace in a multi - cultural and multi - religious society

EXPECTED OUTCOME

An appreciation of India in all its richness and to be agents of Unity and Peace

Unit 1

Responsible Citizenship **(8 hrs.)**

1.1 Significance of Being Humane, Compassionate and Just
1.2 Societal Analysis
1.3 Socio-Economic- Political Context of India - Multi-Party System
1.4 Basic Understanding of the Indian Constitution – Preamble- Fundamental Rights -Rights and Duties of an Indian Citizen

Unit 2

Religious and Cultural Diversity of India **(8 hrs.)**

2.1 Basic Tenets of Different Religions in India
2.2 Threats to Religious and Cultural Diversity –Religious Intolerance
2.3 State and Language Barriers
2.4 Realities of Casteism and Communalism

Unit 3

Peace Initiatives **(10 hrs.)**

3.1 UNO and World Peace Initiatives
3. 2 Factors Threatening Peace
3. 3 Religions and Peace
3. 4 Gandhi and Principles of Peace
3.5 Nobel Peace Laureates
3.6 Instruments of Peace - St. Francis of Assisi

Teaching / Learning Methods

- Lectures
- group discussions
- paper presentations
- power point presentations
- Seminars
- role plays
- case studies
- debates
- documentaries and video clippings

Workshop – Peace Maker – Mahatma Gandhi and St. Francis of Assisi and Interfaith Prayer

BOOKS FOR REFERENCE

Amaladoss, Michael. *Living in a Secular Democracy, Conflict and Community among Religions.* India: Vaigarai, 2010.

Davidar(Eds). *Human Values*. New Delhi: All India Association of Christian Higher Education (AIACHE), 2013.

James, G.M.et.al. *Life Issues and Coping Strategies*. Chennai: Loyola College, 2010.

James, G.M.et.al. *Social Awareness*. Chennai: Loyola College, 2009.

Koikara, Felix. *Heal The World*. Mumbai: Better Yourself Books, 2002.

Salesians of Don Bosco. *Beyond the Barriers*. Chennai: Deepagam, 2002.

Salesians of Don Bosco. *Born Free Live Free*. Bangalore: Kristu Jyothi,1985.

Suri, Sudesh ed. *Global Education Conference on Culture Of Peace and Non-Violence. Jalandhar,* 2002.

Spindler Louise. Culture Change and Modernization. New York: Winston Publication, 1983.

Kanitkar Sathis. Culture and Human Rights, New Delhi: Rajput, 2000.

PATTERN OF EVALUATION

Continuous Assessment: (Totally internal)

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086

BACHELOR OF VOCATION (B.Voc.) PROGRAMME
SUSTAINABLE ENERGY MANAGEMENT

SYLLABUS
(Effective from the academic year 2016 – 2017)

GREEN BUILDING AND PASSIVE ARCHITECTURE

CODE:16VS/VM/PA56

CREDITS: 6
L T P: 5 0 1
TOTAL TEACHING HOURS: 78

OBJECTIVES OF THE COURSE

- To increase the use of solar energy in buildings.
- To reduce the non-renewable energy demand and greenhouse gas emissions.

Unit 1 **(16hrs.)**

Energy Transfer in Buildings

1.1 Concepts of energy efficient buildings. Calculation of heating and cooling loads of the building. Building's energy balance accounting for solar energy gain – Heat losses

1.2 Internal heat sources. Study of climate and its influence in building design for energy requirement. Low energy and zero energy buildings.

Unit 2 **(14hrs.)**

Passive Solar Heating Systems

2.1 Thermal comfort - Heat transmission in buildings - Bioclimatic classification.

2.2 Passive heating concepts - Direct heat gain - Solar Windows - indirect heat gain- Masonry and Water Thermal Storage Wall

Unit 3 **(16hrs.)**

Active Solar Heating Systems

3.1 Space Heating - Liquid and Air Systems - System Design Principles - Sizing of Collectors and Thermal Storage

3.2 Domestic Hot Water Heating - Domestic Hot Water Heating Loads - Sizing of System Components - System Installation Principles

Unit 4 **(16hrs.)**

Solar Cooling of Buildings

4.1 Cooling Requirements - Cooling Load Calculations

4.2 Absorption Refrigeration - Heat Pumps

Unit 5 **(16hrs.)**

Green Buildings

5.1 Green building features - Green materials – Window coating – Roof top coating – Protective coatings - - integrated ecological design - indoor environment quality.
5.2 The National green building rating system GRIHA - IGBC rating systems

BOOKS FOR STUDY AND REFRENCE

Attmann O. *"Green Architecture", USA*, McGraw-Hill, 2010.

Boecker J. *"Integrative Design Guide to Green Building"*, UK, Wiley, 2009.

Garg H P. Prakash J., *Solar Energy: Fundamentals & Applications*, New Delhi, Tata McGraw Hill, 2000.

Gevorkian P. "*Alternative Energy Systems in Building Design", USA*, McGraw-Hill, 2010.

Krieder. J and Rabi, A. *Heating and Cooling of Buildings: Design for Efficiency*, USA, McGraw-Hill, 1994.

PATTERN OF EVALUATION

Continuous Assessment : 25 Marks

End Semester Examination (Total 100 marks will be converted to 75 marks)

Total Marks: 100 Duration: 3 hours
Continuous Assessment: 25 marks **End Semester: 75 marks**

The students will be taking one C.A. test and additional Skill sets training practical component which may include practical work, assignments, project work, any other.
I. C.A. Test for 90 Mins. **50 marks**
C.A. Test Pattern:
Section A – Objective/ definition/ fill in the blanks- 10x1=10 marks (to be collected after 10 minutes)
Section B – 2 out of 4 – 2 x 10 = 20 marks
Section C – 1 out of 2 – 1 x 20=20 marks

End Semester Examination (Total 100 marks to be converted to 75 marks)

Pattern for Theory: 100 marks **Duration : 3 hours**
Section A – Objective/ definition/ fill in the blanks - 20 x 1 = 20 marks (to be collected after 20 minutes)
Section B – 4 out of 6 – 4 x 10 = 40 marks
Section C – 2 out of 4 – 2 x 20 = 40 marks

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086

BACHELOR OF VOCATION (B.Voc.) PROGRAMME
SUSTAINABLE ENERGY MANAGEMENT

SYLLABUS
(Effective from the academic year 2016 – 2017)

SOLAR POWER PLANT DESIGNING

CODE: 16VS/VM/PD56

CREDITS: 6
L T P: 3 0 3
TOTAL TEACHING HOURS: 78

OBJECTIVES OF THE COURSE

- To be able to assess the solar power plant needs
- To gain knowledge on safety measures for working in a Solar power plant
- To gain Hands on Experience on designing of solar power plants

Unit 1 **(7hrs.)**

Structural design of solar PV power plant

1.1. Basics of electricity and the structure of the electricity supply system Alternating currents - AC Generator - AC Power - Three phase Ac generation and distribution
1.2. Electrical power system components: Substations and transformers –Overhead lines and underground cables – Faults, circuit breakers, fuses and electrical protection
1.3. Study of site survey and soil test reports
1.4. Design and documentation: Plant Infrastructure - overall plant layout - solar module mounting and other components - switchyard and power transmission system

Unit 2 **(7hrs.)**

Electrical design of solar PV power plant and the energy simulation

2.1. Design the capacity of solar power plant.
2.2. Design and selection of solar modules
2.3. Selection of other components: Inverters, Strings, Combiner boxes, switchgear, batteries and Inverters

Unit 3 **(8hrs.)**

Energy simulation of Rooftop off grid solar PV power plant

3.1. Design of combiner boxes, switchgear, batteries and Inverters
3.2. Energy simulation report for the design of combiner boxes, switchgear.
3.3. Energy simulation report for the design of batteries and Inverters

Unit 4 **(12hrs.)**

Personal health & safety at solar PV project site (Theory & Practical)

4.1. Establish and Follow safe work procedure - Use and maintain personal protective equipment

4.2. Identify and mitigate safety hazards - Demonstrate safe and proper use of required tools and equipment
4.3. Identify work safety procedures and instructions for working at height

Unit 5 **(18hrs.)**

Design of foundation for other components (Theory & Practical)

5.1. Design plan for Earthing pits, lightning arrestor foundation,
5.2. Design of Street light foundation and switchyard
5.3. Design of power transmission system and structure of the transmission tower
5.4. Design of mounting structures for Rooftop

Practicals

(26hrs.)

1. Designing a three phase circuit
2. Characterizing fuses and circuit breakers
3. Calculating Power of different lamps for energy efficiency
4. Designing various transformers
5. Designing circuits for solar home lighting and other applications
6. Efficiency Analysis of existing Solar panels at SMC
7. Fabrication of thermal and other solar systems
8. Efficiency Analysis of thermal and other solar systems

BOOKS FOR STUDY AND REFERENCE

Solanki C.S, *Solar Photovoltaic Technology and Systems: A Manual for Technicians, Trainers and Engineers,* Delhi, PHI Learning Private Limited, 2013

Michael Boxwell, *The Solar Electricity Handbook: A Simple, Practical Guide to Solar Energy: How to Design and Install Photovoltaic Solar Electric Systems,* UK, Green Stream Publishing Limited, *2016*

Solanki C.S, *Solar Photovoltaics - Fundamentals, Technologies and Applications,* Delhi, PHI Learning Private Limited, 2015

Kapur A S., *Practical Guide for Total Engineering of MW capacity Solar PV Power Project,* Chandigarh, White Falcon Publishing, 2016

PATTERN OF EVALUATION

Continuous Assessment: 25 Marks

The students will be taking one C.A. test and additional Skill sets training practical component which may include practical work, assignments, project work, any other.

I. C.A. Test for 3 hours **50 marks**, comprising of Theory (25marks)

C.A. Test Pattern for theory: (25marks)

Section A – Objective/ definition/ fill in the blanks - 10x1=10 marks (to be collected after 10 minutes)
Section B – 3 out of 5 - 3 x 3 = 9 marks
Section C – 1 out of 2 - 1 x 6 = 6 marks

Practical: 25 marks

II. Continuous Assessment of Skill sets training – Aggregate of all practical assessment (25marks)

Internship Viva	– 5 marks
Practicals	– 5 marks
Model Exam	– 5 marks

Theory 25 marks and Practical 25 marks is finally converted to internal 25 marks.

End Semester Examination (Total 100 marks to be converted to 75 marks)

Total Marks: 100 Duration: 6 hours

Theory: 50 Marks Practical: 50 Marks
(Both theory and practical to be done in the laboratory).

Pattern for Theory: 50 marks

Section A – Objective/ definition/ fill in the blanks- 20 x 1=20 marks (to be collected at the end of 20 minutes)
Section B – 6 out of 10 - 6 x 3 = 18 marks
Section C – 2 out of 4 - 2 x 6 = 12 marks

Practical: 50 marks

Practical Exam comprises testing skillset in experimental abilities and vivavoce

Practicals	– 40 marks
Viva	– 10 marks

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086

BACHELOR OF VOCATIONAL (B.Voc.) PROGRAMME
SUSTAINABLE ENERGY MANAGEMENT

SYLLABUS
(Effective from the academic year 2016 – 2017)

SOFTWARE TOOLS FOR ENERGY ANALYSIS

CODE:16VS/VM /ST56

CREDITS: 6
L T P: 3 0 3
TOTAL TEACHING HOURS: 78

OBJECTIVES OF THE COURSE

- To learn assessing the performance of energy systems through software.
- To get familiarity to software tools available through demo sessions.

Unit 1 **(8hrs.)**

Overview

Overview of effective tools for energy systems
Analysis Of Software Parameters - PVSYST, RETScreen, eQUEST

Unit 2 **(20hrs.)**

PVSYST

Demonstration of the software to study the sizing, simulation and data anlaysis of the PV systems.
Preliminary design, Project Design and economic evaluation of the PV systems.
Analysis of Stand alone system.

Unit 3 **(10hrs.)**

RETScreen

Identification assessment and optimisation of the technical viability of potential clean energy projects.
Measurement and verification of actual energy performance
Evaluation of additional energy savings/production opportunities.

Unit 4 **(36 hrs.)**

eQUEST - Quick Energy Simulation Tool

Evaluation of Building Technologies
Analysis of Building design
Study of Energy Efficiency measures

Unit 5 **(8 hrs.)**

Applications:

Analysis of solar array electrical behavior using software
Simulation of panel installation in building using software
Real time analysis of power generation using software
Economic evaluation – 'Return on investment study'

STUDY AND REFRENCE

http://www.trnsys.com/
http://www.retscreen.net/ang/home.php
http://www.pvsyst.com/en/software

PATTERN OF EVALUATION

Continuous Assessment: 25 Marks

The students will be taking one C.A. test and additional Skill sets training practical component which may include practical work, assignments, project work, any other.

I. C.A. Test for 3 hours **50 marks**, comprising of Theory (25marks)

C.A. Test Pattern for theory: (25marks)
Section A – Objective/ definition/ fill in the blanks - 10x1=10 marks (to be collected after 10 minutes)
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Practical: 25 marks

II. Continuous Assessment of Skill sets training – Aggregate of all practical assessment (25marks)

Internship Viva – 5 marks
Practicals – 5 marks
Model Exam – 5 marks

Theory 25 marks and Practical 25 marks is finally converted to internal 25 marks.

End Semester Examination (Total 100 marks to be converted to 75 marks)

Total Marks: 100 Duration: 6 hours

Theory: 50 Marks Practical: 50 Marks
(Both theory and practical to be done in the laboratory).

Pattern for Theory: 50 marks

Section A – Objective/ definition/ fill in the blanks- 20 x 1=20 marks (to be collected at the end of 20 minutes)
Section B – 6 out of 10 - 6 x 3 = 18 marks
Section C – 2 out of 4 - 2 x 6 = 12 marks

Practical: 50 marks

Practical Exam comprises testing skillset in experimental abilities.

Practicals –50marks

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086

BACHELOR OF VOCATION (B.Voc.) PROGRAMME
SUSTAINABLE ENERGY MANAGEMENT

SYLLABUS
(Effective from the academic year 2016 – 2017)

NOVEL MATERIALS FOR SUSTAINABILITY

CODE:16VS/VM/NM56 **CREDITS: 6**
L T P: 3 0 3
TOTAL TEACHING HOURS: 78

OBJECTIVES OF THE COURSE

- To understand the concept of sustainability
- To be able to apply different technologies for sustainability
- To gain knowledge on the role and impact of novel materials on technology for the sustainable development

Unit 1 (7hrs.)

Energy Sustainability and Management

1.1. Introduction-Definition-Basic components of sustainable habitat- Sustainability of Fuel, electricity and water

1.2. **Root causes of Non-sustainability**
Existing Strategies-Resource utilization and impacts of a sustainable design on environment

1.3. Need for novel materials-Definition Evolutionary materials such as metals and metal oxides - Revolutionary materials such as Carbon Nanotubes, Dendrimers, Fullerenes and Combination materials such as composites - Materials with potential biological impact- Applications of novel materials

Unit 2 (8hrs.)

Basics and principle of Functional Materials for Sustainable Energy Applications:

2.1. **Materials for sustainable fuel production:**
Materials for water splitting-catalysis and photocatalysis - Use of Titanium dioxide as catalyst

2.2. **Newer Energy Materials for renewable energy storage and conversion:**
Polymers and composites for dye- sensitized solar cells and polymer solar cells-plastic solar cells- Perovskites -current status- Novel electrode and electrolyte materials for batteries, Supercapacitors, Fuel cells and photovoltaics - Metal oxides framework

2.3. **Energy storage materials:**
Importance of hydrogen as fuel-Hydrogen storage-Zeolites

Unit 3 **(8hrs.)**

Thermoelectric materials

3.1. Basic principle of thermoelectrics - Seebeck and Peltier effects

3.2. Properties of thermoelectric materials- Thermoelectric materials for heating and cooling applications -Waste heat recovery

3.3. Recent advances in the field of thermoelectricals

Unit 4 **(8hrs.)**

Smart Materials for Sustainability:

4.1. Smart materials – Definition of Characteristics of smart materials

4.2 Energy saving materials - Energy efficient materials for lightings and screens Energy efficient material for LEDs- Organic LEDs and Polymer LEDs

4.3 Waste water treatment:
Agricultural byproducts as sorbants for ammonia and organic substances-Zeolites-tuff and other natural materials

Unit 5 **(8hrs.)**

Materials for Energy Efficient Buildings:

5.1. Energy Saving Foundations: Structural Insulated Panels - Insulated Concrete Forms- Use of expanded polystyrene (EPS) and extruded polystyrene (XPS)-Plastic composite lumbar

5.2. Insulation materials
Importance of insulation-R-Value of insulation materials-Functional uses of polyurethane- polyurethane health and safety-Plant based polyurethane foams from bamboo, hemp, kelp and straw bales- Foam Plastic Insulation Sheathing- Thermal Doors-Cool roofings –Vacuum insulation panels

5.3. Energy Efficiency and Conservation
Roofings and membranes-Energy conserving windows-Low e-windows- Earth walls-Energy efficient landscaping of gardens-Xeriscaping

Practicals: **(39hrs.)**

1. Designing a simple electronic circuit to convert waste heat into electricity
2. Determination of thermal conductivity of the given material
3. Construction and measurement of IV characteristics of a prototype Dye-Sensitized Solar Cells
4. Calculating energy efficiency of different lighting systems
5. Construction of models of energy efficient landscapes and buildings using energy efficient materials
6. Assessment of the usage of various agricultural by-products for waste water treatment

BOOKS FOR STUDY AND REFERENCE

Purohit, S.S., *Green technology – An approach for Sustainable environment*, Jodhpur, Agrobios Publications, 2016

Ni Bin Chang, *Systems Analysis for sustainable Engineering: Theory and Applications*, USA, McGraw-Hill Professional, 2011

Twidell, J.W. and Weir, A.D., *Renewable Energy Resources*, UK, Wiley, 2015

Allen D.T. and Shonnard, D.R. *Sustainability Engineering: Concepts, Design and case Studies*, USA, Prentice Hall, 2012

Bradley, A.S. , Adebayo, A. O. Maria, P., E*ngineering applications in sustainable design and development*, Canada, Cengage Learning, 2014

PATTERN OF EVALUATION

Continuous Assessment: 25 Marks

The students will be taking one C.A. test and additional Skill sets training practical component which may include practical work, assignments, project work, any other.

I. C.A. Test for 3 hours **50 marks**, comprising of Theory (25marks)

C.A. Test Pattern for theory: (25marks)
Section A – Objective/ definition/ fill in the blanks - 10x1=10 marks (to be collected after 10 minutes)
Section B – 3 out of 5 - 3 x 3 = 9 marks
Section C – 1 out of 2 - 1 x 6 = 6 marks
Practical: 25 marks

II. Continuous Assessment of Skill sets training – Aggregate of all practical assessment (25marks)

Internship Viva	– 5 marks
Practicals	– 5 marks
Model Exam	– 5 marks

Theory 25 marks and Practical 25 marks is finally converted to internal 25 marks.

End Semester Examination (Total 100 marks to be converted to 75 marks)
Total Marks: 100 Duration: 6 hours

Theory: 50 Marks Practical: 50 Marks
(Both theory and practical to be done in the laboratory).

Pattern for Theory: 50 marks
Section A – Objective/ definition/ fill in the blanks- 20 x 1=20 marks (to be collected at the end of 20 minutes)
Section B – 6 out of 10 - 6 x 3 = 18 marks
Section C – 2 out of 4 - 2 x 6 = 12 marks

Practical: 50 marks

Practical Exam comprises testing skillset in experimental abilities and vivavoce .

Practicals – 40 marks

Viva – 10 marks

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086

DEPARTMENT OF VALUE EDUCATION
Courses Offered to the Students of
Bachelor of Vocational Programme

SYLLABUS
(Effective from the academic year 2016 – 2017)

VALUES IN SOCIAL AND FAMILY LIFE

CODE: 15UV/US/SF52 **CREDITS: 2**
L T P: 2 0 0
TOTAL TEACHING HOURS: 26

OBJECTIVES OF THE COURSE

- To enable the students to develop as mature persons and to foster healthy interpersonal relationships.
- To enable the students to comprehend the values of marriage and family and social life.

EXPECTED OUTCOME

Students are prepared to face the challenges of Marriage and Family Life and appreciate
Sanctity of Marriage

Unit 1

Integrated Personality (8 hrs.)

1.1 Maturity and understanding of self - physical, intellectual, moral, sexual, emotional and Spiritual, Influences of Society: Culture, Family, Education and Environment.
1.2 Personality Development
1.3 Family and Social Values: Understanding and Respect for Others, Positive Attitude and Conflict Resolution.

Unit 2

Contribution of Women in Family and Social Life (10 hrs.)

2.1 The Gift of Womanhood - Foundress - Mary of the Passion's Vision of Womanhood
2.2 Marriage and Family- Choice of Life Partner: Marital Relationships, Planning of family.
2.3 Handling Life's Challenges - Roles and Responsibilities of Women in Domestic and Public Life, Balancing Career and Family, Handling Finances in the Family
2.4 Types of Relationships - Family, Live-in Relationship, Single Women and L.G.B.T issues
2.5 Social Issues: Crimes against Women, Harassment, Gender Discrimination, Dowry, Legality of abortion, Separation and Divorce.
2.6 Legal Rights of Women: Property, Marital and Adoptive Rights

Unit 3

Marriage and Commitment **(8 hrs.)**

3.1 Fidelity in Marriage
3.2 Challenges in family life
3.3 Responsible Parenting
3.4 Challenges of Inter-caste and Inter-religious Marriages

Teaching / Learning Methods

- lectures
- group discussions
- paper presentations
- power point presentations
- seminar
- role plays
- case studies
- debates
- Documentaries and video clippings

Workshop - Changing patterns of Marriage and Family

BOOKS FOR REFERENCE

Davidar(Eds). *Human Values*. New Delhi: All India Association of Christian Higher Education. (AIACHE), 2013.

D'Souza, Philomena. *Women Icon of Liberation*. Mumbai: Better Yourself Books, 2005.

Ignacimuthu, S. *Values for life*. Mumbai: Better Yourself Books, 1994.

James, G.M. et.al., *In Harmony-Value Education at College Level*. Chennai: Prakash Printers, 2011.

Mascarenhas, Mignon Marie. *Family Life Education*. Bangalore: CREST,1999.

North,Colleen. *The Women In the Life and Work of Mary of the Passion*. Chennai: Vacha 2007.

Salesians of Don Bosco. *Beyond the Barriers*. Chennai: Deepagam, 2002.

PATTERN OF EVALUATION

Continuous Assessment: (Totally internal)

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086

BACHELOR OF VOCATIONAL (B.Voc.) PROGRAMME
FOOD PROCESSING AND QUALITY CONTROL

SYLLABUS
(Effective from the academic year 2016 – 2017)

INTRODUCTION TO COMPUTER SKILLS

CODE: 16CS/US/IC44

CREDITS: 4
L T P: 2 0 2
TOTAL TEACHING HOURS: 52

OBJECTIVES

- To introduce word processing.
- To provide the students understanding of spreadsheets.
- To equip the students with skills and knowledge necessary to create a presentation.

Unit 1 **(10hrs.)**

Word Processing

Text Editing, Text tools, Character and paragraph formatting, Tabs and lists, Using Tables, Mail Merge, Working with objects – Word Art, Clip Art, Pictures, Built-in and custom styles, Table of contents, Templates, Securing documents. Tool: MS-Word

Unit 2 **(8hrs.)**

Spreadsheet

Data entry, Using formulae and functions, Formatting data, Creating charts, Lists, Sorting, filtering, Working with forms, Grouping, Linking and Protecting sheets, Data Validation, Printing spreadsheets. Tool: MS-Excel

Unit 3 **(8hrs.)**

Presentation

Creating slides, Using bullets, Formatting slides, Including word art, Slide templates, Drawing tools, Selecting and grouping objects, Viewing slides and handouts, Transitions, Spell check, Master Slide, Rehearse timings, Adding sound. Tool: MS-PowerPoint

Unit 4 **(16hrs.)**

Word Processing and Spreadsheet – Practicals

4.1 Create an Application with different formatting styles..
4.2 Create Tables, using different formatting styles.
4.3 Create word documents implementing Clip art, Word art and Auto shapes.
4.4 Create Spreadsheets with various formatting styles.
4.5 Create Spreadsheet to include formula and implement the same using different graphs and charts.
4.6 Create a spreadsheet that incorporates data validation.

Unit 5 **(10hrs.)**

Presentation

5.1 Create a presentation that displays a clear, logical sequence.

5.2 Create a presentation that incorporates animations.

5.3 Create bulleted slides and slides that incorporate word art.

5.4 Create a presentation that incorporates drawing tools

BOOKS FOR REFERENCE

Curtis Frye D. *Microsoft Excel 2010 Step by Step*. Microsoft Press, 2010.

Faithe Wempen. *Microsoft PowerPoint 2010 Bible*. John Wiley & Sons, 2010.

Herb Tyson. *Microsoft Word 2010 Bible*. John Wiley & Sons, 2010.

PATTERN OF EVALUATION

Continuous Assessment: (Totally internal)

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086

BACHELOR OF VOCATION (B.Voc.) PROGRAMME
SUSTAINABLE ENERGY MANAGEMENT

SYLLABUS
(Effective from the academic year 2016 – 2017)
ENERGY FOR SMART CITIES

CODE: 16VS/VM/SC66 **CREDITS: 6**
L T P: 5 0 1
TOTAL TEACHING HOURS: 78

OBJECTIVES OF THE COURSE

- To understand the need for a smart city
- Purpose and design of the Smart Cities
- To apply the green energy technologies for the design of a smart city.

Unit 1

Introduction to Energy demands, Challenges and Options (15hrs.)

1.1. Energy demand, Energy scenarios of conventional cities- Consequences
1.2. Alternative resources, Green approach to meet Energy demand
1.3. Energy Strategy 2020

Unit 2

Introduction to City Planning and Energy Components (15hrs.)

2.1. City Planning-Concepts-Smart approaches to city planning and design, Patrick Geddes planning concept-Forecasting Urban Futures and Future Proofing intelligent system
2.2. Solar options, Meeting energy demand through direct and indirect solar resources, PV and thermal; Singular or hybrid.

Unit 3

Understanding Smart Cities (15hrs.)

3.1 Definition of Smart City- Essential Elements of Smart city- Matching demand and supply of energy in typical Smart city- Dimensions of Smart Cities, Global Experience of Smart Cities
3.2 Conventional vs. Smart City
3.3 Introduction to Technologies for a Smart city: Smart energy, Smart transportation, Smart data, Smart community infrastructure, Smart mobility, Smart IoT devices

Unit 4

Smart Cities Planning and Development (18hrs.)

4.1 Smart Cities – Global standards and performance Benchmarks-Adoption of Standards in Smart Cities- India "100 Smart Cities" Policy and Mission
4.2 Financing Smart Cities Development, Governance of Smart Cities
4.3 Structural concept, Specific applications, Perspective in Smart Cities, Conceptual Application in process control and stabilization

Unit 5

The Downside of Intelligent Cities present and in Future (15hrs.)

5.1. Flaws in smart city infrastructure —centralized vs. distributed/mesh digital infrastructure—"normal accidents" in complex technical systems—vulnerability of cellular networks during urban crises

5.2. Drive green in Smart city, FEV, HEV.

5.3. Application of Solar in mobility

Industrial visit and site visits

Books for Reference and Study

Woodrow Clark II and Grant Cooke, *Smart Green Cities: Toward a Carbon Neutral World*, New York, Routledge, 2016

Rocco Papa and Romano Fistola, *Smart Energy in the Smart City: Urban Planning for a Sustainable Future*, Italy, Springer 2016

Ercoskun and Ozge Yalciner, *Green and Ecological Technologies for Urban Planning: Creating Smart Cities: Creating Smart Cities*, USA, IGI Global, 2011

PATTERN OF EVALUATION

Continuous Assessment: 25 Marks

End Semester Examination (Total 100 marks will be converted to 75 marks)

Total Marks: 100 Duration: 3 hours

Continuous Assessment: 25 marks **End Semester: 75 marks**

The students will be taking one C.A. test and additional Skill sets training practical component which may include practical work, assignments, project work, any other.

I. C.A. Test for 90 Mins. **50 marks**

C.A. Test Pattern:

Section A – Objective/ definition/ fill in the blanks- 10x1=10 marks (to be collected after 10 minutes)

Section B – 2 out of 4 – 2 x 10 = 20 marks

Section C – 1 out of 2 – 1 x 20=20 marks

End Semester Examination (Total 100 marks to be converted to 75 marks)

Pattern for Theory: 100 marks **Duration : 3 hours**

Section A – Objective/ definition/ fill in the blanks - 20 x 1 = 20 marks (to be collected after 20 minutes)

Section B – 4 out of 6 – 4 x 10 = 40 marks

Section C – 2 out of 4 – 2 x 20 = 40 marks

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086

BACHELOR OF VOCATIONAL (B.Voc.) PROGRAMME
SUSTAINABLE ENERGY MANAGEMENT

SYLLABUS
(Effective from the academic year 2017 – 2018)

GREEN MANAGEMENT-URBAN AND RURAL SCENARIO

CODE: 16VS/VM/GM66

CREDITS: 6
L T P: 5 0 1
TOTAL TEACHING HOURS: 78

OBJECTIVES OF THE COURSE

- To appreciate the concept of Green infrastructure
- To understand the needs of the urban and rural scenario for sustainable development
- To gain knowledge on the Eco designing and role of green marketing

Unit 1

Green infrastructure for Sustainable Development: (15hrs.)

1.1 Introduction-Background-The problem- Solution- Social benefits-

1.2 Types of green infrastructure-Infiltration system-Green roofs-rainwater harvesting-downspout disconnection-Tree plantation

1.3 Microeconomic aspects of green infrastructure

Unit 2

Microclimate Regulation: (15 hrs.)

2.1 Microclimate- Introduction-Heat Island- Heat Island effect- Definition- Impacts

2.2 Cooling strategies-The role of communities and public – Effects of trees on local outdoor microclimate

2.3 The properties and potential of different tree species on microclimate regulation

Unit 3

Green Marketing: (15hrs.)

3.1 Emergence of new Environmental market, Green marketing,

3.2 Environmental strategy and Competitive advantage, Green supply Chain Management

3.3 Eco Designing, Eco - labeling.

Unit 4

Urban Scenario: (18hrs.)

4.1 Urban planning for sustainable development

4.2 Importance of green space in cities for promoting healthy living and wellbeing

4.3 Types of urban open spaces-Urban forest-Drawbacks of Urban green spaces

Unit 5

Rural scenario: (15hrs.)

5.1 Managing rural area-arable land-Forests-Inland waters
5.2 Participatory watershed development in India-Adapting to climate change
5.3 Climate resilient buildings.

Industrial visit and site visits

BOOKS FOR STUDY AND REFERENCE

Lisa Gartland, *Heat Islands: Understanding and Mitigating Heat in Urban Areas*, UK, Earth Scan, 2010

Ed McMahon and Mark A. Benedict,*Green Infrastructure: Linking Landscapes and Communities*, USA, The Island Press, 2006

Jacquelyn A. Ottman , *The new rules of green marketing: Strategies, Tools and Inspiration for sustainable branding, USA, Berrett-Koehler Publishers,* 2011

D. Salvador Rueda Palenzuela, *The Green Book on Urban and Local Sustainability in the Information Age, UK,* 2012 (Online Source)

PATTERN OF EVALUATION

Continuous Assessment: 25 marks **End Semester: 75 marks**

The students will be taking one C.A. test and additional Skill sets training component which may include activities, case studies, assignments, project work, any other.

I. C.A. Test for 90 Mins. **50 marks**, comprising of only Theory. To be converted to 25

C.A. Test Pattern:
Section A – Objective/ definition/ fill in the blanks- 15x1=15 marks (to be collected after 15minutes)
Section B – 3 out of 5 - 3 x 5 = 15 marks
Section C – 1 out of 2 - 1 x 20= 20 marks

II. Continuous assessment of skill sets activities, Assignment, Quiz etc.: **25 marks**

End Semester Examination (Total 100 marks will be converted to 75 marks)

Total Marks: 100 Duration: 3 hours
Section A – Objective/ definition/ fill in the blanks- 30 x 1=30 marks (to be collected after 30 minutes)
Section B –6 out of 8 - 6 x 5 = 30 marks
Section C –2 out of 4 - 2 x20 = 40 marks

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086

BACHELOR OF VOCATIONAL (B.Voc.) PROGRAMME
SUSTAINABLE ENERGY MANAGEMENT

SYLLABUS
(Effective from the academic year 2016 – 2017)

PROJECT

CODE:16VS/MC/PR615

CREDITS: 15

OBJECTIVES OF THE COURSE

- To enable the student to work independently
- To apply the skill development training they have gained during the course of study to enhance employability
- To develop technical, interpersonal and communication skills and ability to generate new ideas in food product development

GUIDELINES FOR PROJECT

Project is done individually in an industry / lab

Project requires practical work with the submission of project report which will include the work executed.

The project report should be submitted in the prescribed format containing a minimum of 25 pages.

Guidelines for Evaluation:

The candidate will be evaluated by the Industrial partner/guide, based on attendance, maintenance of log book, experimental work and project report.

The maximum marks will be 100.