



**MAHARASHTRA STATE
BOARD OF TECHNICAL EDUCATION**

(Autonomous)

(ISO:9001:2000)

Govt. Poly. Bldg., 4th floor 49, Kherwadi, Bandra (East) Mumbai – 400 051.

Tel : (022) 26471255 (O) / 32508706 (P)

Fax : (022) 26473980

Email : director@msbte.com

Web : www.msbte.com

No.MSBTE/D-50/CDC/Curr. Revi./2010/699

Date : 06/02/2010

To,

The Principal

Institute running Advance Diploma in Dietetics Courses

Sub:- Corrected Curriculum Copy on website

The copy of corrected Curriculum of advance Diploma in Dietetics is attached herewith for information & necessary action.

All Institutes are advised to note the change and act accordingly.

(G. B. Dhanokar)

Director

M. S. Board of Technical Education
Mumbai - 400 051.

| MAHARASHTRA STATE BOARD OF TECHNICAL EDUCATION, MUMBAI | | | | | | | | | | |
|---|--|--------------|-----------------|-----------|-----------|------------------------------------|--------------|------------|------------|------------|
| TEACHING AND EXAMINATION SCHEME FOR ADVANCE DIPLOMA COURSES | | | | | | | | | | |
| COURSE NAME : ADVANCE DIPLOMA IN DIETETICS | | | | | | | | | | |
| COURSE CODE : DI | | | | | | | | | | |
| DURATION OF COURSE : ONE YEAR | | | | | | | | | | |
| YEAR / SEMESTER : FIRST (A) FROM 2001-2002 | | | | | | | | | | |
| FULL TIME / PART TIME : FULL TIME | | | | | | | | | | |
| SR. NO. | SUBJECT TITLE | SUBJECT CODE | TEACHING SCHEME | | | EXAMINATION SCHEME & MAXIMUM MARKS | | | | |
| | | | TH | PR | PAPER HRS | TH | PR | OR | TW | SW |
| 1.1 | HUMAN PHYSIOLOGY | 643 | 1 | - | 2 | 50 | -- | -- | -- | 50 |
| 1.2 | NUTRITION AND CLINICAL BIOCHEMISTRY | 644 | 5 | 3 | 3 | 100 | 50 # (4 Hrs) | -- | -- | 50 |
| 1.3 | COMMUNITY NUTRITION, HYGIENE AND PUBLIC HEALTH | 645 | 2 | 1 | 3 | 100 | -- | -- | 50@ | 50 |
| 1.4 | CLINICAL NUTRITION AND THERAPEUTIC DIETETICS | 646 | 4 | 4 | 3 | 100 | 100# (5 Hrs) | -- | -- | 50 |
| 1.5 | ORGANIZATION AND MANAGEMENT OF DIETETICS IN HOSPITAL | 647 | 2 | 1 | 2 | 50 | -- | -- | 50# | 50 |
| 1.6 | FOOD PRODUCTION AND FOOD COSTING | 648 | 3 | 3 | 3 | 100 | 50# | -- | -- | 50 |
| 1.7 | DIET COUNSELING | -- | 1 | 2 | -- | -- | -- | 50@ | -- | -- |
| 1.8 | RESEARCH METHODOLOGY | 649 | 1 | 3 | 2 | 50 | -- | 50# | -- | 50 |
| TOTAL | | | 19 | 17 | - | 550 | 200 | 100 | 100 | 100 |
| INSTITUTIONS HOURS PER WEEK : 40 HRS STUDENT CONTACT HOURS PER WEEK (FORMAL TEACHING) : 36 HRS @ INTERNAL ASSESSMENT # EXTERNAL ASSESSMENT. STUDENT CENTRED ACTIVITIES(LIBRARY STUDIES,GUIDANCE AND COUNSELLING,SEMINAR,SELF LEARNING ETC) HOURS PER WEEK : HRS TOTAL MARKS: 1050 ABBREVIATIONS: TH-THEORY,PR-PRACTICAL, ,OR-ORAL,TW-TERMWORK, SW-SESSIONAL WORK | | | | | | | | | | |

1. THEORY AND PRACTICAL PERIODS OF 60 MINUTES EACH.
2. ONE CLASS TEST TO BE CONDUCTED FOR SESSIONAL AND TOTAL OF SESSIONAL MARKS IS TO BE CONVERTED TO THE BASE OF 100
3. @ INDICATES – PROGRESSIVE EVALUATION IS TO BE DONE BY SUBJECT TEACHER AS PER CURRICULUM IMPLEMENTATION AND ASSESSMENT NORMS 2001.
4. ALL OTHER PRACTICAL, ORAL AND TERM WORK ASSESSEMENT IS TO BE DONE BY EXTERNAL EXAMINER AND INTERNAL EXAMINER AS PER THE CURRICULUM IMPLEMENTATION AND ASSESSMENT NORMS 2001

1.2 Subject Title - Nutrition and Clinical Bio-Chemistry

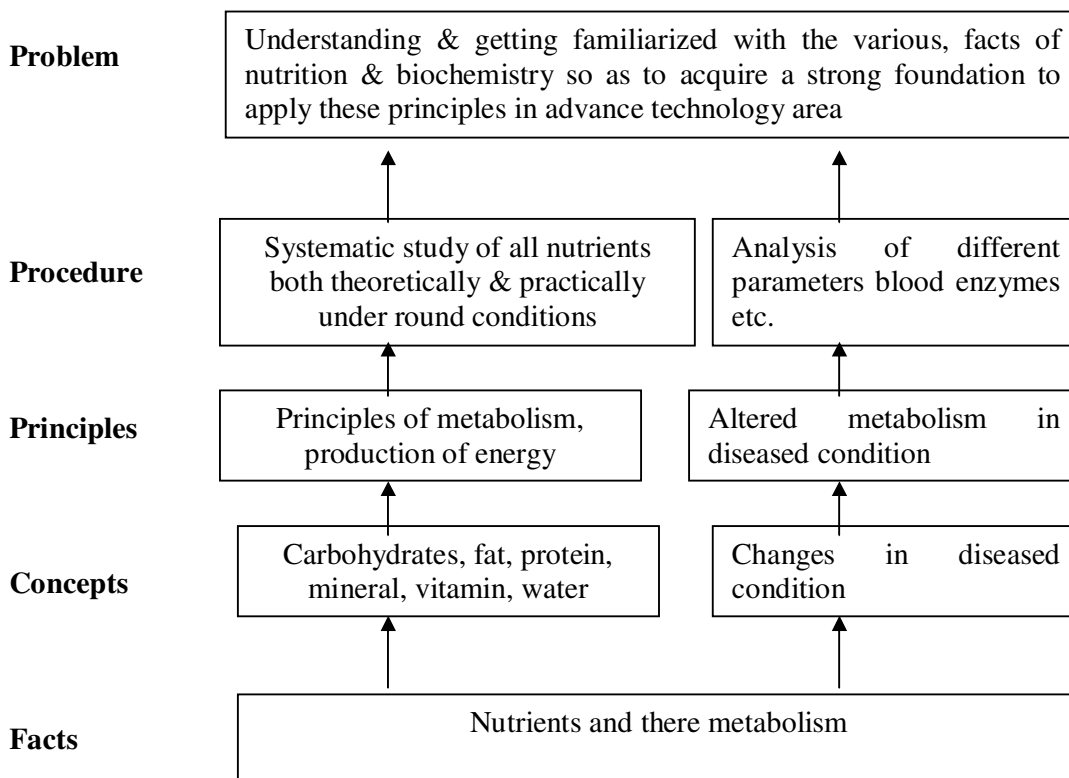
- Year - First
- Teaching And Examination Scheme

| TEACHING SCHEME | | EXAM SCHEME & MAXIMUM MARKS | | | | | |
|-----------------|--------------------|-----------------------------|-----|------------|----|----|----|
| THEORY HRS/WEEK | PRACTICAL HRS/WEEK | PAPER HRS. 111 | TH | PR | OR | TW | SW |
| 5 | 3 | 3 | 100 | 50 (4Hrs.) | -- | -- | 50 |

• RATIONALE

This subject is included to gain knowledge of normal nutrition and the foods that supply it and to select foods for optimum nutrition throughout life cycle. To formulate diets to meet the recommended dietary allowances with due consideration to the physiological and psychological needs of an individual and is conform to his or her socioeconomic background. To prevent under nutrition of nutrients. To understand the principles of biochemistry in health and disease.

• GRAPHICAL STRUCTURE OF THE SUBJECT – 1.2



DETAILED CONTENTS – 1.2 : Nutrition & Clinical Bio-Chemistry Section - I

| Chapter | Details | Hours | Marks |
|--------------------|---|-------|-------|
| CHAPTER - 1 | Historical Development of the knowledge of Nutrition and the discovery of the accessory food factors. | 02 | 03 |
| CHAPTER - 2 | <p>ENERGY</p> <p>As physiological fuel value, Basal Metabolic Rate, Total energy requirements, Specific Dynamic Action, Factors effecting BMR –Body composition relative body weight and body weight standard, Weight to height ratio in relation to BMR, Changes in body weight and body composition with the changing energy balance, Associated Nutritional Problems i.e. Mal Nutrition (PEM, Marasmus, Kwashiorkor and Obesity)</p> | 08 | 05 |
| CHAPTER - 3 | <p>CARBOHYDRATES</p> <p>Functions and sources – Dietary requirements and recommended allowances with respect to various stages of life and for different activity, Fibre (Dietary and Crude) and its role in health and disease, Alcohol</p> <p>Practice</p> <p>A) Lab. Experiment</p> <p>i) Qualitative tests for carbohydrates</p> <p>ii) Quantitative estimation of SUGARS IN SOLUTIONS by Benedict's methods.</p> | 10 | 08 |
| CHAPTER - 4 | <p>PROTEINS</p> <p>Dietary requirements and recommended allowances with respect to various stages of life and for different activities, Evaluation of protein quality i.e. Biological value, protein efficiency ratio, Nitrogen retention.....</p> | 08 | 05 |
| CHAPTER - 5 | <p>LIPIDS</p> <p>Functions, Types and sources – Dietary requirements and the recommended allowances with respect to various stages of life, Saturated fats monounsaturated fats and polyunsaturated fats content in different foods, Essential fatty acids and its deficiency, Cholesterol sources requirements and functions.</p> <p>Practice</p> <p>A) Lab. Experiment</p> <p>Determination of fat content of foods by Soxhlet method.</p> | 15 | 08 |
| CHAPTER- 6 | <p>VITAMINS (Fat soluble and water soluble)</p> <p>Sources, functions, deficiency, toxicity. Dietary requirements and the recommended allowances with respect to various stages of life and for different activity.</p> | 10 | 07 |

| Chapter | Details | Hours | Marks |
|-------------------|---|-----------|-----------|
| CHAPTER– 7 | MINERALS (Major like Ca, P, Mg, Na, K and Minor like Fe, I, F, Zn, Co, Mn, Sc, S, Cr) Sources, functions, deficiency, Toxicity, Dietary requirement and the recommended allowances with respect to various stages of life and for different activity. | 15 | 07 |
| CHAPTER– 8 | Meal Planning and factors affecting the acceptability of food, changes in nutrient loss of cooked and processed foods and methods of preservation of these nutrients. | 10 | 07 |
| Total | | 78 | 50 |

• **DETAILED CONTENTS – 1.2 : Nutrition & Clinical Bio-Chemistry Section - II**

| Chapter | Details | Hours | Marks |
|--------------------|--|-------|-------|
| CHAPTER - 1 | Cellular Biology – Cell structure, Cellular organelles & their functions | 02 | 02 |
| CHAPTER - 2 | CARBOHYDRATE METABOLISM Classification, Glycolysis, TCA cycle, Oxidative phosphorylation, HMP shunt, Energetic of aerobic and anaerobic breakdown, Glycogeneoisis, Glycogenolysis, Glucongeogenesis, Regulation of blood glucose. | 09 | 08 |
| CHAPTER - 3 | PROTEIN AND NUCLEIC ACID METABOLISM Classification of proteins, Aminoacids & its classification with respect to branched chain amino acids, aliphatic amino acids into TCA cycle., Transamination, Deamination (Oxidative & Non Oxidative pathways), decarboxylation of amino acids, Detoxification and breakdown of N ₂ containing Amino acids i.e. urea cycle Practice A) Lab. Experiment i) Qualitative test for protein ii) Quantitative estimate of protein in food and services | 08 | 06 |
| CHAPTR-4 | Lipids Metabolism <ul style="list-style-type: none"> • Classification of Lipids • Plasma concentration of lipids (Lipid Profile) • Oxidation of fatty acid-Beta oxidation • Role of carnitine • Ketogenesis, Ketosis and Diabetic Ketoacidosis | 10 | 08 |

| | | | |
|-----------------|--|-----------|-----------|
| | <ul style="list-style-type: none"> Biological functions of prostaglandin | | |
| CHAPTR-5 | Enzymes <ul style="list-style-type: none"> Classification Factors affecting enzyme activity Enzymes in clinical diagnosis (SGPT, SGOT, alkaline Phosphatase etc.) | 02 | 04 |
| CHAPTR-6 | Hormones <ul style="list-style-type: none"> Classification and types Plasma concentration of lipids (Lipid Profile) Hormones control on carbohydrate, protein and fat Metabolism. a) Pancreas-insulin and Glucagon b) Thyroid – T3 & T4 c) Parathyroid-Parathyroid hormones, Calcitonin d) Adrenal Glands Medulla-Epinephrine and Norepinephrine. Cortex-Glucocorticoids and Mineralocorticoids. | 04 | 04 |
| CHAPTR-7 | Vitamins <ul style="list-style-type: none"> Biochemical role of B. Complex Vitamins (Its Coenzyme activity) Vitamins, Antioxidants (In brief) Interrelationship of vitamins with minerals e.g. Ca & vit. D, Fe & Vit. C Functions, deficiency, RDA, Sources of Vitamins | 07 | 06 |
| CHAPTR-8 | Minerals review the role of Ca, P, Fe and I and Other trace elements; its interrelationship with various enzymes and glands. Functions, deficiency, RDA, Sources of Minerals | 07 | 06 |
| CHAPTR-9 | Inborn Errors of Metabolism Only enzyme defect, organs affected and symptoms (In brief) e.g. Alcaptonuria; Phenylketonuria, Albinism; Homocystinuria, Cystinuria, Maple Syrup urine Disease; Gout, Galactosemia; Glycogen storage disease, fructosuria, pentosuria, Wilson's Disease. | 03 | 04 |
| Total | | 52 | 50 |

• Implementation Strategies :

Learning resources material for students will be prescribed such as –

1. Text books
2. Monographs
3. Periodicals, journals, handbooks & handouts

Updated on 05/02/2010

4. Data books manuals etc.
5. Charts, slides and other audio video materials.
6. Laboratory manuals and equipments

• **References :**

| Sr. No. | Title of the Book | Author | Year of Publication | Edition | Publisher |
|---------|---|------------------------------|---------------------|------------------|---|
| 1. | Essentials of food & Nutrition (Vol. I II) | Dr. M. Swaminathan | 1991 | 2 nd | The Bangalore Printing &Publishing Co. Ltd. Bangalore |
| 2. | Human Nutrition & Dietetics | Davidson &Passmore | 1975 | 6 th | Medical Division of Longman Group Ltd. |
| 3. | Food nutrition & diet therapy | Krause & Mahan | 2000 | 10 th | W.B. Saunders Co. A diversion of Harcourt Brace & Co. |
| 4. | Principles & Applications in health promotion | West Carol & Marrisly Fobes | -- | -- | IB Lippon Cott Co. Philadelphia |
| 5. | Nutrition in Health & disease | Anderson & Mitchell | -- | -- | -- |
| 6. | Review of Physiological chemistry | H.H. Harper | 1997 | 23 rd | Lange Medical publications Marizen Co. Ltd. |
| 7. | Biochemistry | Lehninger | 1984 | 2 nd | Kalyani Publications Ludhiana & New Delhi |
| 8. | Text book of Medical Biochemistry | S. Ram Krishnan, G. Prasanan | 1991 | 2 nd | Orient Longman Ltd. Madars |
| 9. | Practical clinical Biochemistry (Vol. I, II) | Varley Harold & Gowen Lock | 1984 | 5 th | Villiam Hainemaan Medical books Ltd. London |
| 10. | Hawk's physiological Chemistry | Oser Bernard L. | 1979 | 14 th | Tata Mc. Graw Hill publishing Co. Ltd., New Delhi |
| 11. | Textbook of Biochemistry & Human Biology | G.D. Talwar, L.M. Srivastava | -- | -- | Prentice Halls of India |
| 12. | Fundamentals of Biochemistry | A. C. Deb | 1994 | 5 th | New central agency P (Ltd.) 8/1 Chintamani Das Lane, Calcutta |

1.6 Subject Title - Food Production and Food Costing

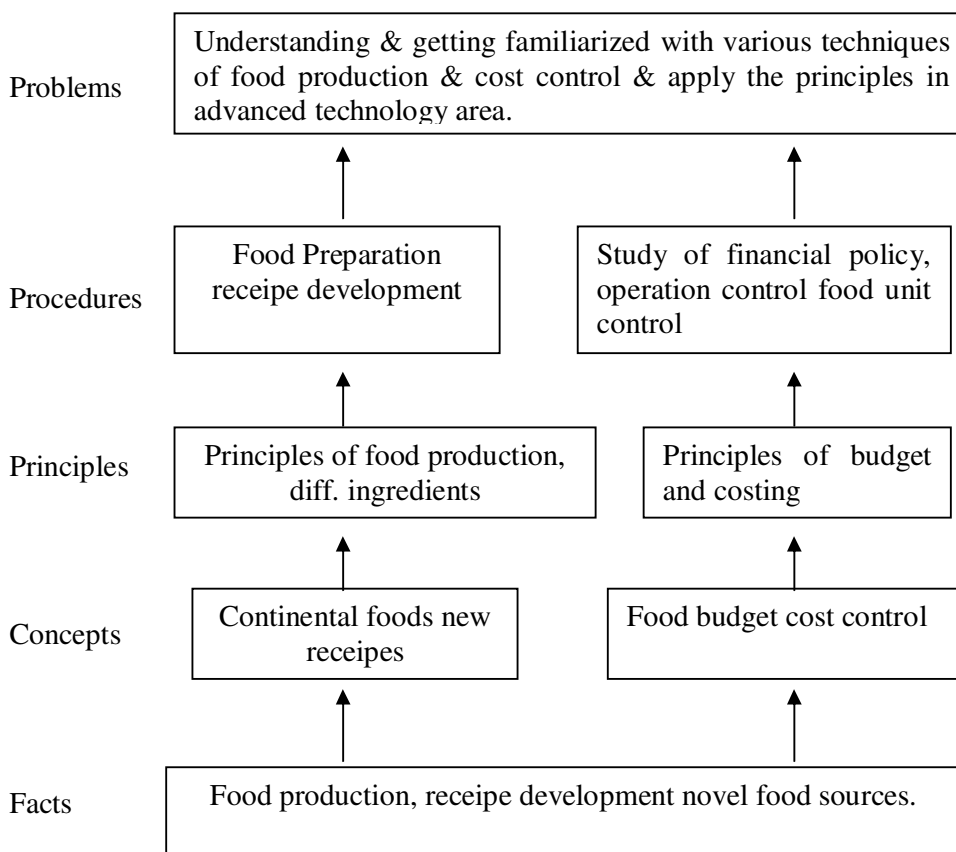
- **Year - First**
- **Teaching And Examination Scheme**

| TEACHING SCHEME | | EXAM SCHEME & MAXIMUM MARKS | | | | | |
|-----------------|--------------------|-----------------------------|-----|----|----|----|----|
| THEORY HRS/WEEK | PRACTICAL HRS/WEEK | PAPER HRS. 111 | TH | PR | OR | TW | SW |
| 3 | 3 | 3 | 100 | 50 | -- | -- | 50 |

• **Rationale :**

This subject is included to understand planning, preparation and service of food in large quantities. Introduce variety and make food attractive in appearance and stimulate appetite. Develop new recipes. Modify the recipes for therapeutic situations. Know the financial operation in food services. Know cost control by planning a suitable budget. To supervise the financial transaction.

• **GRAPHICAL STRUCTURE OF THE SUBJECT – 1.6**



• **DETAILED CONTENTS – 1.6 : Food Production and Food Costing**

Section -I

| Chapter | Details | Hours | Marks |
|--------------------|--|--------------|--------------|
| CHAPTER - 1 | Foundation Ingredients Carbohydrates, Fats, Proteins, Minerals, Vitamins, seasonings, flavouring, liquids thickening agent. Fats and oils, sweetening and raising agents. Practice A) Lab.. Experiment i. Boiled ii. Fried iii. Scrambled iv. Scroach v. Omlate | 03 | 04 |
| CHAPTER - 2 | Brief description of various cooking methods a) Use of moist heat as a medium b) Use of dry host as a medium c) Using fat as a medium d) Cullimery terms (Western & Indian) | 02 | 00 |
| CHAPTER - 3 | Principles of cooking food with special application to soups, fish, egg, meat, vegetables, (with special reference to pigments) Cheese, pulses Practice A) Lab.. Experiment i. Mutton-do-piazza ii. Mutton biryani iii. Fish curry/grilled fish iv. Fried chicken/chicken curry v. Veg. Soup vi. Pumpkin soup vii. Chinese – Hot and sour soup viii. Sweet corn soup ix. Chicken soup x. Ministrone soup xi. Scotch Borth soup | 08 | 12 |
| CHAPTER-4 | Salads – important, types, common salad dressing Practice A) Lab.. Experiment i. Salad dressing ii. Russian salad | 02 | 04 |
| CHAPER – 5 | Seasoning and Flovourings | -- | 02 |
| CHAPTER-6 | Menu and meal planning rules for compilation of Menu | 02 | 04 |

| Chapter | Details | Hours | Marks |
|-------------------|---|-----------|-----------|
| CHAPTER-7 | Standardisation of recipes and portion control | 02 | 04 |
| CHAPTER-8 | a) Food production management. Establishing purchase specification, volume forecasting, dealing with supplier, receiving methods, stores organisation, Inventory control of stock, imienting portion control, yield testing standard recipes. | 02 | 04 |
| | b) Quantity food production – Objectives of food preparation, working methods, cooking methods, food preservation, food spoilage | 03 | 04 |
| CHAPTER-9 | Service Management i. Table service, dining room management ii. Delivery and service of food in different systems. | 02 | 02 |
| CHAPTER-10 | Development of New Recipes and modified recipe | 04 | 02 |
| Total | | 26 | 50 |

- **Implementation Strategies**

Learning resources material for students will be prescribed such as –

1. Text books
2. Monograms
3. Periodicals, journals, handbooks & handouts
4. Data books manuals etc.
5. Charts, slides and other audio video materials.
6. Laboratory manuals and equipments

- **DETAILED CONTENTS – 1.6 : Food Production and Food Costing**

Section -II

| Chapter | Details | Hours | Marks |
|----------------------|---|-------|-------|
| BOOK- KEEPING | | | |
| CHAPTER - 1 | Definition of Important Terms. Assets, Liabilities, Debtor, Creditor, Capital Drawing, cash Discount, Trade Discount. | 02 | 01 |
| CHAPTER - 2 | Double Entry Book- Keeping :- Definition, Classification of Account- Rules for Debit & Credit | 06 | 04 |

| Chapter | Details | Hours | Marks |
|--------------------|--|-----------|-----------|
| CHAPTER - 3 | Subsidiary Book:- Purchase Book, Sales Book, Sales Book, Purchase return Book- Sales return book, Cash book, bill-receivable book – Bills payable book and journal. | 06 | 05 |
| CHAPTER-4 | Cash Book:- Simple column cash book – Two column book with banking transactions – Three column cash, petty cash book – Analytical petty cash Book under imprest system | 06 | 05 |
| COSTING | | | |
| CHAPTER-1 | Definition of cost, costing Elements of Cost-Material Cost- (Food Cost) Labour Cost overhead and calculation of percentages. | 03 | 04 |
| CHAPTER-2 | Concepts of Profit: Gross Profit, After wage profit net profit and Calculation of percentages. | 03 | 04 |
| CHAPTER-3 | I- Basic Policy Decisions: of food cost control financial policy – catering policy and marketing policy. | 04 | 03 |
| | II- II Operational control a) Buying – Product testing Vs. Yield testing purchases specification, inviting quotations by issuing tenders- selecting of supplier – Purchase order. b) Receiving : Quantity inspection- Quality Inspection goods received book-keeping of Invoices /Cash memos c) Storing: Bin card-stores Ledger. Reconciliation of Bin Card and Stores ledger. d) Preparing: Standarised recipe volume forecasting cost sheet portion control. e) Selling : Fixation of selling price by different methods III) Post Operational Control: Reporting – Daily reports and monthly reptrs. | 07 | 08 |
| CHAPTER-4 | Break – Even Analysis: Fixed cost-variable cost contribution –P/V ratio – B. E. P. in units – Desired level of sales to attain desired profit – Margin of safety. | 06 | 08 |
| CHAPTER-5 | Method of Costing: Process Costing – Job Costing Unit or output Costing –Contract Costing Operation. | 02 | 03 |
| CHAPTER-6 | Budgets and Budgetary Control: Steps in the preparation of Budget | 02 | 03 |
| Total | | 52 | 50 |

• **References :**

| Sr. No. | Title of the Book | Author | Year of Publication | Edition | Publisher |
|----------------|---|----------------------------|----------------------------|-----------------------------|---|
| 1. | Modern Cookery for teaching & trade (Vol. I, II) | Thangam Philhps | 1994 | 4 th | Orient Langman's Bombay |
| 2. | Food Facts & Principles | Shakuntala Manay | 1987 | - | Willey Eastern Ltd. Bombay |
| 3. | Good House Keeping cooking encyclopedia | Complied by good HK instt. | 1983 | 1 st (reprint) | Treasure Prace London |
| 4. | Shinning cook book | Angela Kay | 1978 | 1 st | Octopus Books ltd. London |
| 5. | Quantity food management principles & Application | V.C. Crusias | -- | -- | Surjeet publication Kamala Nagar, Delhi |
| 6. | Vegetarian Cooking | Tarla Dalal | 1985 | 14 th (Printing) | Vakils Feffer and Simon Ltd. Haque Building, Bombay |
| 7. | Hotel and catering costing and budget | R.D. Boardman | 1969 | 1 st | Hainemann London |
| 8. | Quantity food purchasing | Kostachevar L.H. | -- | -- | John Willey & sons Inc. New York |
| 9. | Marketing Management, Analysing, planning, implementation and control | Phillip kotter | -- | -- | -- |
| 10. | Modern Marketing management | Ruston Davor | 1977 | 4 th | Progressive corporation pvt. Ltd. Bombay |