

## **APPENDIX-5(R)**

### **UNIVERSITY OF MADRAS**

Certificate Courses under the faculty of Science as add on courses

(1) MONTESSORI TRAINING (2) ESSENTIALS OF SPORTS AND EXERCISE NUTRITION (3) PERFORMANCE NUTRITION (4) FOOD SAFETY AND QUALITY CONTROL (5) FOOD SAFETY AND ANALYSIS (6) DIABETES EDUCATION.

#### **SEMESTER SYSTEM WITH CREDITS**

#### **REGULATIONS**

**(w.e.f.2013-2014)**

#### **1. ELIGIBILITY FOR ADMISSION:**

Candidates who are studying any Under Graduate /Post graduate courses in the College offering the Certificate Course or a qualification accepted by the Syndicate of this University as equivalent thereto.

#### **2. DURATION:**

The duration of the Certificate Course is for two semesters of an academic year consisting of 300 Hours of instruction.

#### **3. ATTENDANCE:**

A candidate shall be permitted to appear for the Examinations only if he/she secures not less than 75% of attendance in each subject/project or as prescribed by the Syndicate from time to time.

#### **4. ELIGIBILITY FOR THE AWARD OF CERTIFICATE COURSE:**

A candidate shall be eligible for the award of the Certificate for the above courses only if, he/she has undergone the prescribed course of study for a period of one year in a College/institution approved by the University.

## 5. COURSE OF STUDY:

The course of study for the certificate course shall consist of 4 Theory papers to cover 180 hours of instruction. There shall be a minimum of 5 UNITS in each paper and 45 hours of instruction.

Two theory papers are to be offered in each semester.

120 hours of Practical /Field work/Project Work/Training will spread over the academic year

Each paper having 3 credits and the Practical /Project Work/Field Work/Training having 8 credits with a total 20 credits for 300 hours. Each credit is equivalent to 15 hours of instruction.

## 6. SCHEME OF EXAMINATIONS:

The main Subject of Study for certificate Courses shall consist of the following and shall be in accordance with **APPENDIX-B**

S. No	Paper	Subjects	No. of lecture	Duration of examination	Maximum marks	Credits
1	Paper I					
2	Paper II					
3	Paper III					
4	Paper IV					

## 7. CONDUCT OF EXAMINATION:

### FOR UG COURSES

The certificate course will be conducted during V - Semester the Paper I and II and VI- Semester - Paper III and IV.

### FOR PG COURSES

The certificate course will be conducted during III - Semester the Paper I and II and IV- Semester - Paper III and IV.

Examination will be conducted by the University as in the practice in other undergraduate Examinations.

## 8. MEDIUM OF INSTRUCTION AND EXAMINATIONS:

The medium of Instruction and Examination for all the papers shall be in English.

## 9. PASSING MINIMUM:

A candidate shall be declared to have passed in each Paper/Practical/Project/Field Work/Training if he/she secures NOT LESS THAN 40% of the marks-prescribed for the examination.

## 10. CLASSIFICATION OF SUCCESSFUL CANDIDATES:

Successful candidates passing the entire examinations and securing the marks (i) 60 percent and above (ii) 50 percent and above but below 60 percent in the aggregate of the marks prescribed for the course shall be declared to have passed the examination in the FIRST and SECOND class respectively. All other successful candidates shall be declared to have passed the examinations in the THIRD class.

A candidate who does not pass the examination in any Paper/s shall be permitted to appear in such failed paper/s in the subsequent examinations.

## 11. FACULTY MEMBERS:

The add-on Certificate courses will be handled by the Home Science faculty but outside faculty members could be called upon for certain units to be covered as per UGC norms.

## 12. QUESTION PAPER PATTERN :

The University Examinations shall be conducted for 100 marks. The pattern of question paper for all the subjects shall be as follows:

**Part A** – 10 Questions of 3 marks each                      10 x 3 = 30 marks  
50 Words (No Choice) (Two Questions from each Unit)

**Part B** – 5 Questions of 8 marks each                      5 x 8 = 40 marks  
300 words (Either or type) (One Question from each Unit)

**Part C** – 3 Questions of 10 marks each                      3 x 10 = 30 marks  
(Either or type) (One Question from each Unit)

Total                      = 100 marks

### (Converted into 75 marks)

Ø Continuous Internal Assessment (CIA)                      : 25 marks.

Ø Ratio of Internal and external marks :

o 25 : 75 for Theory Papers

o 40 : 60 for Practical

## APPENDIX-B

### 1) CERTIFICATE COURSE IN MONTESSORI TRAINING

#### 6. Scheme of Examinations:

S. No	Paper	Subjects	No. of lecture	Duration of examination	Maximum marks	Credits
1	Paper I	Development through 0-6yrs	45	3	100	3
2	Paper II	Nutrition health and hygiene	45	3	100	3
3	Paper III	Method of teaching and administration in pre-school education	45	3	100	3
4	Paper IV	Holistic development of pre school children	45	3	100	3

#### PRACTICAL

Students will have to undergo field work/project/ in Montessori Training for 120 hrs. having 8 credits. Project report/album/scrap book will have to be submitted for evaluation

Marks for field work/project/scrap book/album - 230

Viva-voce: 40

270

- Field trip
- Case study
- Nutrition record with pictures
- Albums: Art and Craft: Origami

Flash cards – numbers, rhymes, story

Alphabet album

## (2) CERTIFICATE COURSE IN ESSENTIALS OF SPORTS AND EXERCISE NUTRITION

### 6. Scheme of Examinations:

S. No	Paper	Subjects	No. of lecture	Duration of examination	Maximum marks	Credits
1	Paper I	Measuring Nutritional Status Of Athletes: Clinical And Research Perspective	45	3	100	3
2	Paper II	Macro And Micro Nutrients in Sports Nutrition	45	3	100	3
3	Paper III	Nutrition For Special Population	45	3	100	3
4	Paper IV	Sport Specific Nutrition	45	3	100	3

### PRACTICALS

Students will have undergo field work/project/training in fitness centre / sports university/ YMCA / sports clubs or associations for 120 hrs having 8 credits. Project report/album/scrap book will have to be submitted for evaluation

Marks for field work/project/scrap book/album - 230

Viva-voce: 40

270

- Body fat analysis – learn to use skin fold calipers, bio electrical impedance analysis technique, and Observe DEXA analysis.
- Measurement of Blood pressure, heart rate, calculate METs, VO2 max
- Learn to take whole body measurements from a certified fitness trainer using a measuring tape
- Observe fitness testing methods by a sports physiotherapist or certified fitness trainer – to measure cardio vascular fitness, core strength, muscular endurance, explosive power, flexibility, agility, stability, strength, speed.
- Planning diets for strength sports, endurance sports, racquet sports, team games.

- Planning diets for competition, recovery (case study)
- Assignment on sports foods and supplements available in the market.
- Guest lecture by a sports nutritionist, fitness trainer, sports physician or physiotherapist on career opportunities.
- Attend a sports tournament – swimming or tennis or hockey or cricket or track and field sport etc.

### (3) CERTIFICATE COURSE IN PERFORMANCE NUTRITION

#### 6. Scheme of Examinations:

S. No	Paper	Subjects	No. of lecture	Duration of examination	Maximum marks	Credits
1	Paper I	Introduction to Sports Nutrition	45	3	100	3
2	Paper II	Body Composition and Fitness Components	45	3	100	3
3	Paper III	Competition Nutrition	45	3	100	3
4	Paper IV	Assignments Introduction to Sports Nutrition, Body Composition and Fitness Components and Competition Nutrition	45	3	100	3

### PRACTICALS

Students will have to undergo field work/project/training in Fitness Centre / Sports University / YMCA / Sports Clubs for 120 hrs. having 8 credits. Project report/album/scrap book will have to be submitted for evaluation

Marks for field work/project project/scrap book/album - 230

Viva-voce: 40

270

- Muscular-skeletal assessment by a spots physiotherapist
- Fitness testing outdoors and indoors by a certified fitness trainer/sports physiotherapist

- Visit to a fitness centre, understand the flow of work in every department.
- Attend a sports event – such as cricket match / tennis tournament / hockey / swimming etc.
- Meal planning, energy requirement calculations for different sports.

#### (4) CERTIFICATE COURSE IN FOOD SAFETY AND QUALITY CONTROL

### 6. Scheme of Examination

S. No	Paper	Subjects	No. of lecture	Duration of examination	Maximum marks	Credits
1	Paper I	Introduction to Food Safety	45	3	100	3
2	Paper II	Food Safety and Quality Control	45	3	100	3
3	Paper III	Food Safety and Quality Management System – HACCP	45	3	100	3
4	Paper IV	Tools And Techniques on Food Safety Equipment	45	3	100	3

### PRACTICALS

Students will have undergo field work/project/training in food safety for 120 hrs. have 8 credits. Project report/album/scrap book will have to be submitted for evaluation

Marks for field work/project/scrap book/album - 230

Viva-voce - 40

270

- Demonstration study on the Health safety environment in the manufacturing and food service establishments
- Media preparation
- Sampling and Analysis of Swabs
- Basic microbiological testing for food and water

- Gram staining techniques & enumeration of total microbial count
- Detection of Moulds and Fungus

## (5) CERTIFICATE COURSE IN FOOD SAFETY AND ANALYSIS

### 6. Scheme of Examination

S. No	Paper	Subjects	No. of lecture	Duration of examination	Maximum marks	Credits
1	Paper I	Introduction to Food Safety	45	3	100	3
2	Paper II	Food Safety and Quality Control	45	3	100	3
3	Paper III	Chemical Analysis of Food	45	3	100	3
4	Paper IV	Instrumental Methods of Food Analysis	45	3	100	3

### PRACTICALS

Students will have to undergo field work/project/training in food safety and analysis for 120 hrs. having 8 credits. Project report/album/scrap book will have to be submitted for evaluation

Marks for field work/project project/scrap book/album - 230

Viva-voce - 40

270

- Use of equipments and tools in food microbiology, sterilization methods
- Enumeration of Total Plate Count and Coliform count
- Gram Staining Techniques
- Media preparation and sterilization, TPC and mould count
- Demonstration of sanitation and hygiene status in food service establishments
- Demonstration of swab studies and Air sampling studies



**6. CERTIFICATE COURSE IN DIABETES EDUCATION  
[THIS CERTIFICATE COURSE TO BE OFFERED ONLY  
PG STUDENTS/COURSES].**

**6. Scheme of Examinations:**

<b>S. No</b>	<b>Paper</b>	<b>Subjects</b>	<b>No. of lecture</b>	<b>Duration of examination</b>	<b>Maximum marks</b>	<b>Credits</b>
1	Paper I	Basic Sciences & Diabetes Mellitus	45	3	100	3
2	Paper II	PRACTICAL	30 Examination will be conducted at the end of the year			2
3	Paper III	Diabetes Treatment & Management	45	3	100	3
4	Paper IV	PRACTICAL	30 Examination will be conducted at the end of the year			2
5	Paper V	Complications Of Dm & their Management	45	3	100	3
6	Paper VI	PRACTICAL	30 Examination will be conducted at the end of the year			2
7	Paper VII	Health Education & Monitoring In DM	45	3	100	3
8	Paper VIII	PRACTICAL	30 Examination will be conducted at the end of the year			2
<b>TOTAL = 300 hours (Theory - 180 hours Practical – 120 hours)</b>						

**PRACTICALS**

Students will have to undergo short term training and observation in Diabetes education at Diabetes clinics/ hospitals/ Diabetology & Dietary departments for 120 hrs having 8 credits. Candidates will do Case studies (minimum of 2 in different types of diabetes and complications) and prepare pamphlets/handouts on Diabetes education on paper II, III and IV , which will be submitted for evaluation. During Viva voce exam the candidate has to demonstrate the diabetes education to a subject.

Marks for field work/project/scrap book/album - 230

Viva-voce: 40

270

Practical include

- ❖ Pre test and Post test
- ❖ Case study
- ❖ Clinical presentation
- ❖ OBESERVATION VISITS -Other Institutes 1 govt and 1 private 1day visit each
- ❖ Community visits for screening the high risk people
- ❖ Assignments – care plan / notes ,Role play, Health education in hospital and community

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**AC.S'13**

**APPENDIX-5(S)**  
**UNIVERSITY OF MADRAS**  
**SYLLABUS**  
**(w.e.f.2013-14)**

Syllabus for add on Certificate courses in (1) Montessori Training (2) Essentials of Sports and Exercise Nutrition (3) Performance Nutrition (4) Food safety and Quality Control (5) Food Safety Analysis and (6) Diabetes Education.

**1. CERTIFICATE COURSE IN MONTESSORI TRAINING**

**PAPER I – DEVELOPMENT THROUGH 0-6 YRS**

**OBJECTIVES:** To enable the students to

1. Develop an insight about the various development of pre-school children
2. Gain knowledge on special children

**UNIT I – METHODS OF CHILD STUDY** – longitudinal and cross sectional – observation, interview, case study, anthropometry, questionnaire, psychology assessment and aptitude tests.

**UNIT II – HEREDITY** – Interaction of heredity in the development of an individual, effect on health of pre – school children.

**UNIT III- ENVIRONMENT** – Interaction of environment in the development of an individual, effect of enriched environment on pre – school children.

**UNIT IV – DEVELOPMENT FROM 0-6 yrs** – Development task – physical, social, language, emotional- (anger, fear, joy, jealousy, affection, curiosity). Intellectual – (attention, memory, perception, will). Moral; play – socialization, story – imagination, creativity.

**UNIT V – SPECIAL CHILDREN** – Types, causes, education, rehabilitation. Stream lining the special children in regular schools.

## **REFERENCES**

1. Rajammal.P.Devades & N. Jaya, Introduction to Child Development, Delhi, Macmillan Indian Limited, 1984.
2. Elizebeth.B.Herlock, Development Psychology, Bombay Tata McGraw Hill Publishing Company Ltd, 1986.

## **PAPER II - NUTRITION, HEALTH AND HYGIENE**

**OBJECTIVES:** To enable the students to

1. Understand the importance of diet during pregnancy and lactation
2. Develop an insight to the significance of first aid

**UNIT I – PRE-NATAL CARE** – Preparation for Parenthood, Nutrition in pregnancy common concerns, drugs & medication.

**UNIT II – POST-NATAL CARE** - Preparation for Parenthood, Nutrition in pregnancy common concerns, drugs & medication.

**UNIT III - IMPORTANCE OF CHILD HEALTH AND IMMUNIZATION** – Nutrition during lactation, importance of breast feeding, bottle feeding, weaning, supplementary food.

**UNIT IV - FOOD AND ITS NUTRITIVE VALUE** - Balance diet, effect of nutritional deficiency, safe food preparation, defects in cooking.

**UNIT V – FIRST AID** – Common childhood ailments, safety at home and outside. Electrical burns, cuts and gashes. Tumbles and falls, life saving techniques, travel with first aid kit, drowning.

## **REFERENCES**

1. Spock, Benjamin, Baby and Child Care, Mumbai: Pocket Books Distributing Company, 1970.
2. Srilakshmi, Nutrition and Dietetics.

## **PAPER III - METHOD OF TEACHING AND ADMINISTRATION IN PRE-SCHOOL EDUCATION**

**OBJECTIVES:** To enable the students to

1. Understand the concept of ECE by various philosophers

2. Develop an idea of designing a pre-school

### **UNIT I – CONTRIBUTION OF VARIOUS PHILOSOPHERS**

– Review of the contribution of Montessori Pestalozzi, Rousseau, Gandhiji, Tagore, Frobel

### **UNIT II – DEVELOPMENT OF PRE – SCHOOL EDUCATION**

– National policy on education, problems and establishments.

**UNIT III – COMPARITIVE STUDY OF MONTESSORI, KINDERGARTEN AND NURSERY** – Principles of three Pedagogies

**UNIT I IV – AIMS AND OBJECTIVES OF ECE: DESIGNING A PRE SCHOOL** – Site, location – Space allotment for indoor and outdoor play equipments and materials.

**UNIT V – HOME SCHOOL RELATIONSHIP (PTA)** – Home visits by Teachers, school visits by parents, Parents meeting, Parental involvement in school activity.

### **REFERENCES**

1. Suriakanthi.A, Child Development An Introduction, Kavitha Publications, Gandhigram, Tamil Nadu
2. Read, Katherlne. H, The Nursery School A Human Relationship, Laboratory, Kolkata, 1989.

### **PAPER IV HOLISTIC DEVELOPMENT OF PRE SCHOOL CHILDREN**

**UNIT I - OBSERVATION CHART** – Physical, Height and Weight, compare with the standards.

**UNIT II - EATING IN A PREPARED ENVIRONMENT**

**UNIT III – INFANT ROOM/TODDLER ROOM**

**UNIT – IV – MARIA MONTESSORI** – Details, History and Origin

**UNIT – V – FRIEDRICH FROEBEL** - Details, History and Origin

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## **2.CERTIFICATE COURSE IN THE ESSENTIALS OF SPORTS AND EXERCISE NUTRITION**

### **PAPER -I MEASURING NUTRITIONAL STATUS OF ATHLETES :CLINICAL AND RESEARCH PERSPECTIVE**

**UNIT I** – Dietary assessment, source of error in dietary measurement

**UNIT II** – Criteria for interpreting dietary intakes : nutrient targets or goals, dietary guidelines specific to the country, food guides, food composition software

**UNIT III** – Clinical examination, medical history, questionnaire for athletes

**UNIT IV** – Biochemical analysis

**UNIT V** – Anthropometric assessment : physique assessment in athletes, methodologies for assessing body composition

### **PAPER II – MACRO AND MICRO NUTRIENTS IN SPORTS NUTRITION**

**UNIT I** – Protein and amino acid needs for training and bulking up : effect of exercise on protein metabolism, determining adequacy of protein intake during exercise, dietary protein requirements for athletes, potential side effects of excessive intake

**UNIT II** – Fluid and CHO intake during exercise : fatigue during exercise, CHO supplementation during exercise, effects of hyperthermia and dehydration, guidelines for replacing fluid and CHO , monitoring individual fluid needs

**UNIT III** – Bone health and exercise : fundamentals of bone physiology, effect of exercise on bones in athletes and healthy people , calcium intake and bone mineral changes at various stages of life, effect of amenorrhea on bone mass

**UNIT IV** – Stages of Iron depletion, why is iron important to athletes, prevalence of iron deficiency, factors influencing dietary iron absorption, assessment of iron status of an athlete

**UNIT V** – Measuring vitamin and mineral status in athletes, effect of exercise on their status, biochemical indicators of vitamin –

mineral status, effects on physical performance, potential risks of supplementation, RDA for Indian population ( ICMR guidelines)

### **PAPER III NUTRITION FOR SPECIAL POPULATION**

**UNIT I** – Children and young athletes : skeletal growth and maturation , nutrition needs for young elite athletes, hydration and thermoregulation , food habits, perception of body image, sources for Weight management- ideal body weight and composition

**UNIT II** – Ageing athlete : physiological changes, energy requirements, macro and micro nutrient needs, water, health and chronic disease in aging population , drug nutrient interactions, supplementation

**UNIT III** – Athlete with diabetes : physiological effect of exercise, nutritional management for type 1 and 2 diabetes, monitoring blood glucose levels, special problems for athlete with type 1, insulin abuse in sport.

**UNIT IV** – Vegetarian athlete : Types of vegetarian diets, effects on health outcomes and exercise performance, probable deficiencies, creatine use in vegetarians, vegetarian eating and menstrual dysfunction

**UNIT V** – Athletes with GI dysfunction : Upper and lower GI tract physiology, effect of exercise on gastro intestinal system, nutritional implications and corrective strategies.

### **PAPER IV SPORT SPECIFIC NUTRITION**

**UNIT I** – Nutrition requirements at high altitude, exercise in a hot environment, special strategies for exercise in the heat ( glycerol hyperhydration)

**UNIT II** – Pre game meal : nutritional factors causing fatigue during performance, pre event fuelling, characteristics of pre event meal, hydration guidelines

**UNIT III** - Nutrition for recovery : issues in post exercise refueling, CHO intake guidelines for training and recovery, issues in post exercise rehydration, alcohol and its impact on recovery

**UNIT IV** – Power sports: baseball, body building, football ,

gymnastics, hockey, track and field swimming, wrestling.

**UNIT V** – Endurance sports: Distance running, triathlon, long distance swimming, cycling, combined power, endurance sports: baseball, figure skating, soccer, tennis

## **REFERENCE**

1. Deakin, Burke (2006), 3<sup>rd</sup> ed, Clinical Sports Nutrition, McGraw Hill Australia.
2. Bean, Anita (2006), 5<sup>th</sup> ed, Sports Nutrition.
3. Bourns, Fred (Ed), Essentials of Sports Nutrition, 2<sup>nd</sup> Ed (2002), John and Wiley.
4. Suzanne Girard Eberle (2000), Endurance Sports Nutrition, Human Kinetics.
5. Benardot, Dan (2000), Advanced Sports Nutrition, Human Kinetics.
6. Burke, Louise (2007), Practical Sports Nutrition, Human Kinetics.
7. Gleeson, Jeukendrup (2004), Sports Nutrition: An Introduction to Energy Production and Performance, Human Kinetics.
8. <http://www.ausport.gov.au/ais/nutrition>
9. <http://www.scandpg.org/sports-nutrition/sports-nutrition-fact-sheets/>
10. <http://www.acsm.org/access-public-information/roundtables>

## **3. CERTIFICATE COURSE IN PERFORMANCE NUTRITION**

### **PAPER I - INTRODUCTION TO SPORTS NUTRITION**

**UNIT I** – Principles of sports nutrition – role of a sport nutritionist – skills required by sport nutritionist, Introduction to energy pathway

**UNIT II** – Role of carbohydrates, protein, fats, micronutrients.



**UNIT III** – Nutrition for female athletes; special requirements, female athlete triad, nutritional anemia, eating disorders

**UNIT IV** – Nutrition for child athletes, ageing athletes

**UNIT V** – Nutrition guidelines by NIN.

## **PAPER II - BODY COMPOSITION AND FITNESS COMPONENTS**

**UNIT I** – Various techniques for body composition analysis

**UNIT II** – Hydrostatic weighing, Dual Energy X-ray

**UNIT III** – Dual energy X-ray absorptiometry, skin folds, infra red, Bio-impedance Analysis, Computed Tomography, MRI, Air displacement plethysmography, Multi component methods.

**UNIT IV** – Fitness components – fitness testing procedures – heart rate, blood pressure, Vo<sub>2</sub>max, MET's

**UNIT V** – strength – muscular endurance – core strength – cardiovascular fitness

## **PAPER III - COMPETITION NUTRITION**

**UNIT I** – Characteristics of pre game meal – food and fluid pre event, during post event (recovery)

**UNIT II** – Hydration guidelines by ACSM, impact of dehydration on sports performance.

**UNIT III** – Nutritional plans for power sports, endurance sports, and combined power and endurance sports.

**UNIT IV** – Power sports: baseball, body building, football , gymnastics, hockey, track and field swimming, wrestling.

**UNIT V** – Endurance sports: Distance running, triathlon, long distance swimming, cycling, combined power, endurance sports: baseball, figure skating, soccer, tennis

**PAPER IV - ASSIGNMENTS - INTRODUCTION TO  
SPORTS NUTRITION, BODY COMPOSITION AND  
FITNESS COMPONENTS AND COMPETITION  
NUTRITION**

**UNIT I** - Market survey of sports food and supplements.

**UNIT II** - Guest lecture by a sports nutritionist

**UNIT III** - Guest lecture by a fitness trainer

**UNIT IV** - Guest lecture by a sports physician on

**UNIT V** - Guest lecture by physiotherapist on career opportunities.

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**4.CERTIFICATE COURSE IN FOOD SAFETY AND  
QUALITY CONTROL**

**PAPER I INTRODUCTION TO FOOD SAFETY**

**UNIT I** – Understanding food safety & quality

**UNIT II** – Food spoilage & prevention

**UNIT III** – Microbiological hazards, Food poisoning

**UNIT IV** – Food contaminants

**UNIT V** – Adulteration & Additives

**PAPER II FOOD SAFETY AND QUALITY CONTROL**

**UNIT I** – Food laws and regulations

**UNIT II** – Food standard certification and labeling

**UNIT III** – Food safety

**UNIT IV** – Quality control in food establishments and manufacturing units

**UNIT V** – Sanitation & hygiene practices

**PAPER III FOOD SAFETY AND QUALITY  
MANAGEMENT SYSTEM – HACCP**

**UNIT I** Principles of HACCP

**UNIT II** Food safety

**UNIT III** quality management system

**UNIT IV** Introduction to ISO 22000

**UNIT V** Occupational health safety

**PAPER IV TOOLS AND TECHNIQUES ON FOOD SAFETY AND EQUIPMENT**

**UNIT I** – Use of Equipments & tools in food microbiology

**UNIT II** - Sterilization methods

**UNIT II** - Enumeration of common Food borne pathogens

**UNIT IV** - Decontamination Techniques

**REFERENCES**

- 1) [www.codexalimentarius.org](http://www.codexalimentarius.org)
- 2) [www.fssai.gov.in](http://www.fssai.gov.in)

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**(5) CERTIFICATE COURSE IN FOOD SAFETY AND ANALYSIS**

**PAPER I INTRODUCTION TO FOOD SAFETY**

**UNIT I** – Understanding food safety and quality

**UNIT II** – Food spoilage & prevention

**UNIT III** – Microbiological hazards

**UNIT IV** – Food poisoning

**UNIT V** – Food contaminants – Adulteration & Additives

**PAPER II FOOD SAFETY AND QUALITY CONTROL**

**UNIT I** – Food laws and regulations

**UNIT II** – Food safety

**UNIT III** – Quality control in food establishments & manufacturing units.

**UNIT IV – Food safety and quality management**

**UNIT V – Principles & application of HACCP**

**PAPER III CHEMICAL ANALYSIS OF FOOD**

**UNIT I – Introduction to food analysis**

**UNIT II – Food regulation & standards**

**UNIT II – Proximate analysis of food**

**UNIT IV – Testing of food for standards**

**UNIT V – Detection of adulterants in food**

**PAPER IV INSTRUMENTAL METHODS OF FOOD ANALYSIS**

**UNIT I – Microscopic examination for food**

**UNIT II – Spectroscopic methods of food analysis**

**UNIT III - Chromatography methods in food analysis**

**UNIT IV – Significance of Microbiological testing for food safety and quality**

**UNIT V – Use of equipments and tools in food microbiology**

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**6. CERTIFICATE COURSE IN DIABETES EDUCATION**

**(ONLY PG STUDENTS/COURSES)**

**PAPER – I BASIC SCIENCES AND DIABETES MELLITUS**

- a) Physiology of pancreas, Secretion, Functions & Utilization of insulin, glucagon & somatostatin, Pathophysiology of diabetes. Normal metabolism of carbohydrates, fats, proteins,
- b) Types & classification of DM, Clinical manifestations -Diabetes mellitus, Insipitus
- c) Diagnosis and routine investigations
- d). 1)Guidelines for Diabetes Management-objectives, goals & targets

- 2) Diabetes in Children & Adolescents, Gestational Diabetes
- 3) Pathological changes in other system Foot, Kidney, Heart, Nerves & Eye.

## **PAPER –II DIABETES TREATMENT AND MANAGEMENT**

Treatment of Diabetes Mellitus-Management of Type 1 & Type 2 DM

a. Nutrition Therapy-Aims Objectives, Principles, Macro and Micronutrients, Nutrition recommendations, Nutrition assessment ,Dietary education, Nutritional needs in Type1, Type2 and special conditions Gdm, Exchange list, Glycemic index and load, Cho counting, Diet -prescription.

### **Introduction**

- Definition and terminology
- Relation of nutrition in DM
- Constituents of food
- Food requirements
- Modification of diet in relation to caloric values
- Importance of fiber in diet
- Planning a meal plan to various group of people with DM
- Uses of various types of cereals

b. Exercise -Types, needs and functions, benefits, recommendations, advise, precaution and contraindications. Pre exercise evaluation, Exercise in special situations, Selection of exercises, Intensity of exercises, Selection of special precautions, in exercise Caloric equivalent of common activities

c. OHA - Types, actions, storage techniques

d. Insulin Therapy- types, source, purity, physiologic, effects of insulin concentration indications for its uses administration storage techniques, Insulin regimens - prescribing of insulin

## **PAPER – III COMPLICATIONS OF DM & THEIR MANAGEMENT**

- a) Short term Complication
- b) Long term Complication
- c) Diabetic Retinopathy
- d) Diabetic Nephropathy
- e) Diabetic Neuropathy
- f) Cardio Vascular Disease
- g) Complementary Therapies

- Hypoglycemia
  - a. Definition and clinical manifestation
  - b. Treatment and prevention
  - c. Home remedies
- Ketoacidosis
  - a. Definition, causes
  - b. Clinical manifestations & clinical levels of Hyperglycemia
  - c. Investigations, prevention, hyperglycemia
- Neuropathy
  - a. Definition, clinical manifestation investigations
  - b. Prevention
  - c. Treatment
- Foot problems
  - a. Definition and Types of problem
  - b. Investigation
  - c. Prevention
  - d. Treatment
- Diabetic kidney Diseases
  - a. Definition
  - b. Aetiology
  - c. Pathology
  - d. Clinical investigations
  - e. Investigations
  - f. Treatment
  - g. Prevention

- Eye care
  - a. Problem of eye & vision
  - b. Types
  - c. Clinical manifestations
  - d. Investigation – Routine
  - e. Treatment
  - f. Prevention
  
- [ Non ketotic hyperosmolar hyperglycemic coma ]
  - a. Definition
  - b. Clinical manifestation
  - c. Investigation
  - d. Treatment
  - e. Prevention

### ASSOCIATED DISORDERS

- Cardiac Problems - Routine investigations, Prevention
- Cerebral disorders - Prevention
- Lipid disorders - Definition, Prevention
- Hypertension - Definition, Prevention

### SPECIAL SITUATIONS (Sick day Routine) REGARDING

- Diet
- Exercises
- Drugs – OHAs
- Insulin
- Travels
- Routine works
- Investigations
- Attending functions
- Pre and post operative care of diabetic patients
- Care of pre and post natal mothers
- Care of diabetic people in the community
- Screening, treatment and referrals
- Protocols for visits
  - first visit
  - Follow up visits

## MANAGEMENT AND PREVENTION OF DIABETIC EMERGENCIES

- Hypoglycemia
- Ketoacidosis
- Non – ketotic hypo osmolar, hyperglycemic coma

### **PAPER – IV HEALTH EDUCATION & MONITORING IN DM**

- a) Self Management & Monitoring.- Importance of monitoring, Self care techniques,Barriers,
- b) Monitoring-Urine & blood glucose& ketone testing, HbA1c, fructosamine, CGMS

BEHAVIOURAL SCIENCE - Psychology (Coping Strategies), Guidance and Counseling, Relaxation techniques, Behaviour modification -Modification of life styles,How to adhere with DM treatment regimen

Counseling and guidance for Type 1 & Type 2 Diabetes patients and family members,

Methods of health educations,Teaching and learning methods,Problem solving model

- c) Role of a Diabetes Educator

#### PRACTICALS:

- a) Case study
- b) Interaction work shop and discussion
- c) Observing various diagnostic and therapeutic procedure such as urine test for glucose,Ketone bodies, Serum glucose test, HbA1c and other
- d) Counseling to patients and family members.
- e) To improve the client (the person with diabetic) quality of life.
- f) Provide holistic, comprehensive health care to individual, family and community.



g) Know how

- Urine Analysis in Deabetics
- Insulin devices- Types of syringes, needles & insulin pens, Site for injections
- ,Injection techniques ,Teaching the self injection methods
- Identification of complications
- Preparation of various types of foods
- Preparation of ID Cards
- How, where and when to refer
- Eye care
- Meal planning
- Demonstration of exercise
- FOOT CARE Screening tests for diabetic foot problems, Some Do's & Don'ts, Selection of foot wear, Care of foot

#### PREPARATION OF AV-AIDS (flash cards )

- General facts of diabetes
- Role of family members in helping the diabetes
- Target –treatments-specific for the individuals
- Individuals dietary requirements & meal planning
- Role of exercises
- Effects of medications
- Relationship between nutrition exercise and medication
- SMBG
- Ability to recognize hypoglycemia & its managements
- Sick day routine
- Hygiene & foot care
- Benefits of optimal control

- Harmful effects of smoking
- Importance of regular check up

#### DEMONSTRATION

- Preparation of varieties of food
- Exercises
- Techniques of injections
- Urine Analysis
- SMBG
- Demonstration of exercises

#### RECOMMENDED BOOKS:

1. Joslin Diabetes Mellitus, 14th Edition
2. Text book of Diabetes, 1993 by John (Pickup) Gareth Williams  
Blackwell Scientific Publications
3. JOURNAL-ADA –DIABETES CARE LATEST EDITIONS

#### USEFUL WEBSITES

##### Canada

<http://www.diabetes.ca/files/cpg2008/cpg-2008.pdf>

##### UK

<http://www.nice.org.uk/nicemedia/live/11983/40803/40803.pdf>

<http://www.nice.org.uk/nicemedia/live/10944/29393/29393.pdf>

<http://www.nice.org.uk/nicemedia/live/10944/29396/29396.pdf>

##### USA

[http://care.diabetesjournals.org/content/35/Supplement\\_1/S11.full](http://care.diabetesjournals.org/content/35/Supplement_1/S11.full)

## Australia

<http://www.racgp.org.au/Content/NavigationMenu/ClinicalResources/RACGPGuidelines/Diabetesmanagement/201107diabetesmanagementingeneralpractice.pdf>

## India

[http://icmr.nic.in/guidelines\\_diabetes/guide\\_diabetes.htm](http://icmr.nic.in/guidelines_diabetes/guide_diabetes.htm)

[http://www.abcofbg.com/GDM\\_New/Gestational%20Diabetes%20Mellitus%20-%20Indian%20Guidelines.pdf](http://www.abcofbg.com/GDM_New/Gestational%20Diabetes%20Mellitus%20-%20Indian%20Guidelines.pdf)

[http://www.japi.org/february\\_2009/7.pdf](http://www.japi.org/february_2009/7.pdf)

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