YMCA COLLEGE OF PHYSICAL EDUCATION

(An Autonomous College Affiliated to the Tamil Nadu Physical Education & Sports University)

NANDANAM, CHENNAI - 600 035.

Accredited by NAAC with "A" Grade

SYLLABUS

M.Sc.,

Fitness, Exercise Rehabilitation and Nutritional Care

YMCA COLLEGE OF PHYSICAL EDUCATION

(An Autonomous College Affilliated to Tamil Nadu Physical Education and Sports University)

NANDANAM, CHENNAI - 600 035.

M.Sc.

(Fitness, Exercise Rehabilitation and Nutritional Care)
Choice Based Credit System (CBCS)

REGULATIONS

The CBCS for the two years **M.Sc,** Degree Programme will be implemented from the academic year 2009–2010.

1. ELIGIBILITY FOR ADMISSION:

A candidate shall be admitted to the degree of Master of Science (Fitness, Exercise Rehabilitation and Nutritional Care) only if he/she produces satisfactory evidence to the effect that he/she has successfully completed any graduate degree or degree recognized as equivalent there by the Syndicate of the Tamil Nadu Physical Education and Sports University.

2. COURSE OF STUDY :

The normal duration of the M.Sc., programme shall be 4 semesters (2 years). A student should complete the M.Sc. programme within 8 semesters after registration.

3. SEMESTERS:

An academic year is apportioned into two semesters. The normal semester sessions are as follows:-

Odd Semester	–	July to November .
Even Semester	–	December to April

In each semester, the courses are taught for 18 weeeks with each week having 5 working days with a minimum of 4 contact hours per day.

4. CHOICE BASED CREDIT SYSTEM (CBCS):

The CBCS in M.Sc. Programme will have the following three components and the minimum credit requirements for each component to be completed in two years are :-

1.	Core Courses	–	48 Credits
2.	Elective Courses	–	06 Credits (3 x 2 Credits)
3.	Practical Courses	–	18 Credits
	Total	–	**72 credits**

5. CREDIT :

The term credit refers to the quantum of syllabus for various programmes in terms of hours of study. It refers differential weightage given according to the contents and duration of the courses in the curriculum design. Depending upon the content, duration and specialisation, a course may have I to 6 credits.

6. COURSE WEIGHT:

The core and elective courses may carry different weights. The weights of credits or a course is calculated based on the number of contact hours of instruction period per week during the semester. Thus,

6.1 One credit for each lecture period per week

6.2 One credit for each tutorial period per week

6.3 One credit for two field practical periods per week and

6.4 Five credits for dissertation for one or two semester length of guided research work.

CHOICE BASED CREDIT SYSTEM (CBCS)
M.Sc. (Two Years)

I SEMESTER

COURSE CODE	CORE SUBJECTS	L	T	P	C
	THEORY				
05101	Anatomy and Physiology	4	0	0	4
05102	Tai Chi, Yoga and Aquatic Rehabilitation	4	0	0	4
05103	Exercise Testing and Prescription	4	0	0	4
	ELECTIVES				
05104 E	Health and Safety Education	2	0	0	2
05105 E	Science of Yoga	2	0	0	2
	PRACTICALS				
05106 P	Tai Chi and Yoga	0	1	2	2
05107 P	Exercise Testing and Prescriptions	0	1	2	2
	TOTAL CREDITS				**20**

II SEMESTER

COURSE CODE	CORE SUBJECTS	L	T	P	C
	THEORY				
05201	Occupational Fitness Health Promotion	4	0	0	4
05202	Nutritional Promotion for Health	4	0	0	4
05203	Exercise Physiology	4	0	0	4
	ELECTIVES				
05204 E	Personality Development and Communication Skills	2	0	0	2
05205 E	Computer Application in Sport	2	0	0	2
	PRACTICALS				
05206 P	Nutritional Promotion for Health	0	1	2	2
05207 P	Exercise Physiology	0	1	2	2
	TOTAL CREDITS				**20**

Note : **L** - Lecture **P** - Practical
T - Tutorial **C** - Credits
Code denotes : **E** - Elective **P** - Practical

III SEMESTER

COURSE CODE	CORE SUBJECTS	L	T	P	C
	THEORY				
05301	Performance, Nutrition and Weight Management	4	0	0	4
05302	Research Methods and Statistics in Physical Education	4	0	0	4
05303	Exercise Rehabilitation of the Differentially abled	4	0	0	4
	ELECTIVES				
05304 E	Sports Management	2	0	0	2
05305 E	Sports Journalism	2	0	0	2
	PRACTICALS				
05306 P	Nutrition and Weight Management	0	1	2	2
05307 P	Exercise Rehabilitation of the Differentially abled	0	1	2	2
	TOTAL CREDITS				**20**

IV SEMESTER

COURSE CODE	CORE SUBJECTS	L	T	P	C
	THEORY				
05401	Human Development and Health Psychology	4	0	0	4
05402	Management of Sports Injuries	4	0	0	4
05403	Applied Kinesiology and Biomechanics of Muscular Injury	4	0	0	4
	PRACTICALS				
05404 P	Sports Injury Management	0	1	2	2
05405 P	Project and Viva	0	1	2	2
	TOTAL CREDITS				**16**

CREDIT REQUIREMENT FOR THE TWO YEAR M.Sc. PROGRAMME

1. **CORE COURSES** – **(a) Theory – Minimum 48 Credits**
   (b) Practical – Minimum 18 Credits
2. **ELECTIVE COURSES** – **Minimum 06 credits (3x2 Credits)**

TOTAL – 72 Credits

7. COURSE CODE:

The course code explains the following in a serial order - Core / Elective / Practical core Course, the year, the semester and course number. For example

a. **05201 – OCCUPATIONAL FITNESS AND HEALTH PROMOTION – 4**

05201 - denotes

–	05	Course code for M.Sc.
–	2	for Second Semester
–	01	for Course Paper

b. **05401 - HUMAN DEVELOPMENT AND HEALTH PSYCHOLOGY – 4**

05401 denotes

–	05	Course code for M.Sc.
–	4	for Fourth Semester
–	01	for Course Paper

8. REGISTRATION:

8.1 Every student must register for the courses he/she intends to undergo in a semester. A registration form in triplicate can be obtained from the CBS office. A student should submit the duly filled in and signed registration form **in triplicate** with the Class Registrar's and Principal's signature in the CBS Office at the time of registration.

8.2 After admission to the programme, a code number will be assigned for each student, giving the year of admission and the student registration number.

8.3 The class registrar shall advise the student about the academic programme and counsel him / her on the choice of courses (Elective only) to be registered.

8.4 The college shall prescribe the maximum number of students in each course taking into account the physical facilities available. A course shall not be offered unless a minimum of 10 students register in either Core or Elective courses.

8.5 A course shall normally be taught by one staff.

9. ATTENDANCE:

9.1 A student must have 75 percent of attendance in theory and practical classes to write the semester examinations. A student with less than 75 percent of attendance will be given "RA" (Reappear due to lack of Attendance).

9.2 A student having below 75% and above 50% attendance will be disallowed to write the exam in the semester. A student having below 50% attendance should repeat the course.

9.3. **The student's Attendance Progress Report would be displayed on the notice board every month.**

10. EXAMINATIONS:

The performance of a student in each course would be evaluated by :

10.1 *Written Examination (25 MARKS)*

Each student will be graded by the subject teacher(s). Two sessional tests and One performance assessment will be conducted for each paper. Each test carries a maximum of 20 marks and the average of best two tests will be considered. However, in the case of students who miss the tests for any valid reason **with prior** permission from the subject teacher(s) and the Principal, they may be granted special permission to write the sessional test **before the commencement of semester examinations.**

10.2 ***Assignment (5 Marks)***

The students will be given 5 marks for assignments. This may be in the form of Seminars, Projects, Written Materials, Records, etc., A student should submit a minimum of two assignments for each course.

10.3 ***Pre-Semester (75 Marks)***

The Pre Semester examinations will be held at the end of each semester before the final semester examinations, covering all portions and 75 marks are awarded for this examination. Each paper will be evaluated for 75 marks and this will be converted into 25 marks.

All the examination will be conducted by the Controller of Examination. The dates and test portions will be intimated to the students in advance by staff concerned.

Weightage for Sessional Tests

First sessional Test	–	20 Marks
Second sessional Test	–	20 Marks
Third sessional Test / Performance assessment	–	20 Marks
I. Average of the above best two tests	–	20 Marks
II. Assignment	–	5 Marks
III. Pre- Semester 75/3	–	25 Marks
Total		50/2 = 25 Marks

10.4 ***Pre-Semester Examination is Compulsory***

10.5 The minimum for passing in each paper is 50% in internal.

The minimum for passing in each paper is 50 percent after combining internal and external marks.

10.6 A student who fails in any one or more papers in the semester examination, will be permitted to rewrite the paper or papers in the subsequent semester examinations.

11. EVALUATION:

THEORY

Evaluation shall be based on 25 % sessional assessment and 75 % in the semester assessment. The semester examinations shall be of 3 hours duration.

The procedure for evaluation is as follows:

11.1 The answer scripts are evaluated by both internal and external examiners (Double Valuation)

11.2 If there is 10% difference between two examiners, a third revaluation is conducted, which will be final.

11.3 Question Papers for each examination will follow the regulation and syllabus in force at that time.

11.4 The question paper pattern under CBS will include both 5 marks and 10 marks questions where 5 questions out of 7 questions should be answered in each section.

Section A: 5 Questions x 5 Marks	=	25 Marks
Section B : 5 Questions x 10 Marks	=	50 Marks
Total	=	**75 Marks**

11.5 A student getting "RA" Reappear in elective must repeat the examination to obtain the degree. Such students are exempted from attendance.

11.6 A student shall not be permitted to repeat any course only for the purpose of improving the grade.

12. ARREAR EXAMINATION

Examination fees will be levied and collected normally according to the rules and regulations of the college. A special levy will be collected for supplementary paper.

13. PASSING OF RESULTS

Result will be approved by the Board of Examiners and will be submitted to the Academic Council of the college to recommend the eligible students for the award of the degree by the Tamil Nadu Physical Education and Sports University.

14. GRADING SYSTEM

The weighted average shall be calculated for each semester as follows :-

The Product of the marks assigned to each course by number of credits shall be added up. The sum of the products (weighted score) will be divided by the total number of credits. For example:-

Table I – Weighted Average Score

S.No.	Course	Subject	Max. Marks	Marks Obtained	Credit	Weighted Score
1.	**05101**	Occupational Fitness and Health Promotion	100	65	4	65 x 4
2.	**05102**	Nutritional Promotion for Health	100	70	4	70 x 4
3.	**05103**	Exercise Testing and Prescription	100	60	4	60 x 4
4	**05105 E**	Science of Yoga	100	70	2	70 x 2

The weighted average score obtained for the above four courses shall be summed up and divided by the number of credits. Thus,

$$= \frac{(65\times4)+(70\times4)+(60\times4)+(70\times2)}{4+4+4+2}$$

$$= \frac{260+280+240+140}{14} = \frac{920}{14} = 65.7$$

Therefore, weighted average mark is 65.7 which is within the range of 65 – 74 i.e., A+ letter grade and graded as First Class.

15. COURSE - WISE LETTER GRADES

15.1 The percentage of marks obtained by a candidate in a course will be indicated in a letter grade.

15.2 A student is considered to have completed a course successfully and earned the credits if he/ she secures on overall letter grade other than F. A letter grade F in any course implies a failure in that course. A course successfully completed cannot be repeated for the purpose of improving the Grade Point.

The F grade once awarded stays in the grade card of the student and is not deleted even when he/she completes the course successfully later. The grade acquired later by the student will be indicated in the grade sheet of the subsequent semester in which the candidate has appeared for clearance of the arrears.

15.3 A student who secures F grade in any course (Core or Elective) has to pass it compulsorily. If the student wants to change the subject (core or elective), he/she has to register and attend the classes of that course to earn the credit when it is offered next. Whenever a new course is chosen in the place of one in which he/she failed that course will be indicated as dropped in the subsequent grade card.

15.4 If a student secures F grade in the Project Work / Field Work/ Practical work/ Dissertation, either he/she shall improve it and resubmit it, if it involves only rewriting/ incorporating the clarifications of the evaluators or he/she can re-register and carry out the same in the subsequent semesters for evaluation.

16. GRADING OF THE COURSES

16.1 A Seven (7) point scale is used or the evaluation of the performance of the student to provide letter grade for each course and overall grade for the Master's Programme.

16.2 The total performance within a semester and the continuous performance from the second semester onwards will be indicated by a Grade Point Average (GPA). Weighed Average Marks(WAM) Cummulative Grade Point Average (CGPA) and Overall Weighted Percentage Marks (OWPM), respectively. Hence CGPA and OWPM are real indicators of one's performance more than the class. They are calculated by the formulations, as given

$$GPA = \sum_i C_1 G_1 / \sum_i C_2 \qquad WAM = \sum_i C_1 M_1 / \sum_i C_1$$

&

$$CGPA = \sum_i \sum_i C_{n1} G_1 / \sum_n \sum_i nl \qquad OWPM = \sum_i \sum_i C_1 M_{n1} / \sum_n \sum_i nl$$

Where C_1 is the credit carried for the course i in any semester, M_1 is the mark obtained for the course in any semester, and G_1 is the grade point obtained by the student for the course which refers to the number of semesters in which such courses were credited.

17. GRADE CARD

The Grade Card issued at the end of the semester to each student will contain the following:

a. The marks obtained for each course registered in the semester.

b. The credits earned for each course registered for that semester.

c. The performance in each course. by the Letter Grade point obtained.

d. The Grade Point Average (GPA) and Weighted Average Marks (WAM) of all the courses registered for that semester and

e. The Cumulative Grade Point Average(CGPA) Overall Weighted Percentage of Marks (OWPM) the class and grade of all the Courses, after completing the programme.

M.Sc.
(Fitness, Exercise Rehabilitation & Nutritional Care)
CUMULATIVE GRADE STATEMENT

I SEMESTER

Course Code	COURSE TITLE	Credits Earned	Marks secured (Max.100)	Grade Point	Letter Grade	Result
05101	Anatomy and Physiology	4	70	5.05	A+	PASS
05102	Ta, Chi, Yoga and Aquatic Rehabilitation	4	60	4.00	A	PASS
05103	Exercise Testing and Prescription	4	80	5.60	O	PASS
05106 P	Tai Chi and Yoga	2	75	5.50	O	PASS
05107 P	Exercise Testing and Prescription	2	75	5.50	O	PASS
	Elective Courses					
05104 E	Health and Safety Education	2	60	4.00	A	PASS
05105 E	Science of Yoga	2	62	4.12	A	PASS
Grade Point Average		18		4.94		
Weighted Average Marks		70.22				

II SEMESTER

Course Code	COURSE TITLE	Credits Earned	Marks secured (Max.100)	Grade Point	Letter Grade	Result
05201	Occupational Fitness Health Promotion	4	60	4.00	A	PASS
05202	Nutritional Promotion for Health	4	60	4.00	A	PASS
05203	Exercise Physiology	4	55	3.50	B	PASS
05206 P	Nutritional Promotion for Health	2	75	5.50	O	PASS
05207 P	Exercise Physiology	2	70	5.05	A+	PASS
	Elective Courses					
05204 E	Personality Development and Communication Skills	2	65	4.50	A+	PASS
05105 E	Computer Application in Sport	2	65	4.50	A+	PASS
Grade Point Average		18		4.94		
Weighted Average Marks		62.22				

CUMULATIVE GRADE STATEMENT

III SEMESTER

Course Code	COURSE TITLE	Credits Earned	Marks secured (Max.100)	Grade Point	Letter Grade	Result
05301	Performance, Nutrition and Weight Management	4	70	5.05	A+	PASS
05302	Research Methods and Statistics in Physical Education	4	65	4.50	A+	PASS
05303	Exercise Rehabilitation of the Differentially Abled	4	65	4.50	A+	PASS
05306 P	Nutrition and Weight Management	2	60	4.00	A	PASS
05307 P	Exercise Rehabilitation of the Differentially Abled	2	60	4.00	A	PASS
	Elective Courses					
05304 E	Sports Management (or)	2	55	3.50	B	PASS
05305 E	Sports Journalism	2	55	3.50	B	PASS
Grade Point Average		18		4.40		
Weighted Average Marks			63.89			

IV SEMESTER

Course Code	COURSE TITLE	Credits Earned	Marks secured (Max.100)	Grade Point	Letter Grade	Result
05401	Human Development and Health Psychology	4	60	4.00	A	PASS
05402	Management of Sports Injuries	4	70	5.05	A+	PASS
05403	Applied Kinesiology and Biomechanics of Musculoskeletal Injury	4	80	5.60	O	PASS
05404 P	Sports Injury Management	2	85	5.70	O	PASS
05405 P	Project and Viva	4	94	5.88	O	PASS
Grade Point Average		18		5.20		
Weighted Average Marks			77.00			
Total Credits		72				
Cumulative Grade Point Average (CGPA)				4.69		FIRST CLASS
Overall Weighted Percentage of Marks (OWPM)			68.33			

I SEMESTER

05101 - HUMAN ANATOMY, PHYSIOLOGY AND HEALTH EDUCATION

UNIT I - Cytology

Cell structure and different organelles - Cell division - Mitosis in detail - Meiosis in brief (haploid and diploid cells) tissues - Classification (Epithelial, Connective, Muscular and Nervous), Special reference to microscopic structure of bone. Structure of the skin and function.

UNIT II - Musculoskeletal System

Classification of bones, muscles and joints, factors maintaining integrity of the joint - Effects of immobilization on tissues (bone, muscle, ligament and-tendon)

UNIT III - Cardiorespiratory System

Blood, plasma and cellular elements - RBC Structure and Function - WBC types and function platelets - Heart position and structure - Systole and diastole - Cardiac cycle. Circulation (Systemic, Pulmonary and Coronary) -Blood pressure arteries, veins and capillaries - Respiratory passage, mechanism of respiration, external and inter-nal respiration, nervous control of respiration, lung volumes.

UNIT IV - Digestive System

Structure of the digestive system - Secretion arid function of salivary glands, liver, gall-bladder and pancreas.

Secretion and functions of stomach, small intestine.

UNIT V - Excretory System

Pm:ts of the system, Urine- .Normal contents, normal urine formation with basic structure of nephron.

UNIT VI - Nervous System

Basic Structure & function - Central Nervous System - (Brain) Cerebrum, Cerebellum, Medulla Oblongata -Spinal Cord- Reflex action - Autonomic Nervous System - (Sympathetic and Parasympathetic)

REFERENCES

Evans, L. Principles of Human Physiology.

Johnson, Health in Action, Holt Phonehat Winston 1977

Johnson, Healthful living, Mc Graw Hill.

Meachec, A Joint Course in Human Physiology

Murugesh, L. Anatomy Physiology and Health Education. 1990.

Park, J. E, and Park, K. Preventive and Social Medicine 1977.

Roper, N. Man's Anatomy, Physiology and Health

Williams. T.R Text Book of Anatomy and Physiology

05102 - TAI CHI YOGA AND AQUATIC REHABILITATION

UNIT I

Tai chi Chuan & Qiong in Chinese tradition. History of Tai chi Chuan & Qiong. Historical development of various styles. Tai chi chuan in health and character development' and philosophy, philosophy of in and Yang. Influence of tai chi chuan in traditional Chinese medicine.

UNIT II

Tai chi chuan and qiong to stress.

a. Stress and time, slowing down V s rushing tai chin chuan as slowing down exercises tai chi chuan qiong in rehabilitation and word about breathing, mental aspect of practising tai chi chuan.

b. Specific application Head and neck. Head and spine, circulation.: muscle tone correct joint use, digestion, balance other benefits.

UNIT III

Tai chi chuan and principles of athletic movement. Basic elements of atheltic movements. Phases of movements within tai chi chuan. Tai chi chuan and qiong in developments of sports in china.

UNIT IV

Yoga, definition of Yoga, Stages of Yoga, India and Yoga, Vinyasas, Preparatory postures, and vinyasas, Use of breath in asanas, Ashtanga Yoga, Yama, Niyama, Asana, Pranayama, Pratyahara, Dharana, Dhyana, Samadhi, Concept of rest, Types of Asanas, Adaptations, Method of building asanas, Sequences for the normal and differentially abled.

UNIT V

Pranayama and prana, Pranayama and respiratory system, Effects of pranayama, Mudras and Bandhas, Concept of Puraka, Raachaka and Kumbakha,the element of space between them and its importance, Ujjayi, Vinuloma, Anuloma, Surya bedana, Chandra bedana, Nodhi sodhana.

UNIT VI

Yoga and Pregnancy, Post delivery reduction of weight.

UNIT VII

Aqua Aerobics and instruction-its importance.

REFERENCE

Tai Chi Chuan and Qiong, Wolfgang Metzger & Peifang Zhou with Mangred Grosser Ph.D.,

The Complete book ofTai Chi Chuan, Wong Kiew Kit

Tai Chi, Peter Albright M.D.,

Tai Chi Chuan & meditation, Da Liu

Competition Routines for Four StylesTai Chi Chuan Translated by Xie shde. For Peoples sports publishing House of Chine.

A guide to chinese martial arts, Li tianji & du xilian

Columnist doc foi wong, For inside kung fu & tai chi & quong monthly magazines US.

05103 - EXERCISE TESTING AND PRESCRIPTION

UNIT I

Definition of exercise testing, The need for exercise testing, Clinical assessment of exercise tolerance, Factors affect-ing exercise tolerance, Diagnostic use exercise testing, Indications of exercise testing, Conditions that can be excluded, Clinician values of exercise testing.

UNIT II

Borg scale for measurement of exercise related symptoms intensities, Objective assessment of Exercise-related symp-toms. Muscle fatigue and weakness, Dyspnoea, Exertional chest pain, Applications in cardiac disorders, coronary artery disease, Congenital heart disease, vascular disease, pulmonary vascular disease, Peripheral vascular disease.

UNIT III

The exercise electrocardiogram. The normal ECG Normal response disease, Changes associated with coronary dis-ease, Changes in the ST segment and T waves, Effects of drugs, Cardiac arrhythmias in exercise, Abnormalities of conduction, The ECG in athletes.

UNIT IV

Approaches to clinical exercise testing, Master Step test, The Balke Protocol. The Bruce Protocol, Scandinavian Pro-tocol, Triangular Protocol. Walking Protocol, Wingate test, Maximal Oxygen Uptake, The Stage I test, Stage 2, 3 and 4 tests, Indications and contraindications to exercise testing.

UNIT V

Coronary heart disease, Causes, prevention and therapy, arteriosclerosis, ischaemia Responses to static exercise, Ben-efits of exercise training, Special consideration for prescribing exercise, Exercise selection and intensity, Exercise during and after convalescence, Exercise after CABG, Exercise after Cardiac transplant.

UNIT VI

Diabetes, benefits of regular exercise, Exercise dangers and preventive measures, Dislipoproteinemias and factors associated with it, Ability to exercise, Effects of hypolipidemic treatment of ability to exercise, Effects of exercise on LDL, VLDL and HDL, Obesity and exercise, possible effects of regular exercise in obese.

UNIT VII

Introduction to exercise prescription, The individual approach, The aerobic session, Frequency, time mode of exercise, rate of progression, Musculoskeletal conditioning, Static stretching, systems of muscular strength and endurance training.

REFERENCES

JONES, N.L. (1988), Clinical Exercise testing W.B. Saunders Company, Philadelphia.

SKINNER, J.S. (1988), Exercise Testing and Exercise Prescription for Special Cases.

05104 E - HEALTH AND SAFETY EDUCATION

UNIT I - Introduction

Health - Definition - Meaning and concepts - Factors influencing health - Health determinants, heredity and environment.

Health problems of India - Population and health - Environmental pollution.

Personal hygiene: growth, stress of school, planning.

UNIT II - School Health

Problems - Growth, stress of school planning

Health instruction health appraisal follow up, health service and supervision.

UNIT III - Infections

Causes of diseases - Mode of infection, spread of infection - Public health measures to combat infection -Public health administration - Sanitation - Water supply.

Immunity Prophylactic immunization - Programmes -AIDS

Communicable diseases, malaria, typhoid, cholera, dysentery, leprosy, tuberculosis, STD, polio, tetanus Drug abuse - alcohol, smoking.

Family welfare - sex education

UNIT IV - Safety at home

Environment and structure, electrical connections, bathrooms and lavatory, storing articles, kitchen and fire place, storing medicines, principles of movements in daily living.

UNIT V - Safety at School

Safety at school structure and environment, furniture and fixtures School procedures and policies precautionary and emergency equipment, collection of information (address of parents, hospitals and doctors, police, fire station, ambulance service).

UNIT VI - Safety and Physical Education

Safety and Physical education and sports - Principles of safety with respect to buildings and play fields, Principles of safety with respect of equipment, dress, etc., Principles of safety with respect to organization of classes, demonstration and matches.

REFERENCE

Foundation of Hea1th, Harper & Bros.

Mangal, S.K.. and Chandra, P.C. Health and Physical Education, RD. Tandon Brothers, Ludhiaana,1979.

Moss, R and et. al., Health Education, National Educational Annual U.S.A.

Neiniah, School Health Education, Harper & Bros

Park, J. E. Text Book of Preventive and Social Medicine

05105 E - SCIENCE OF YOGA

UNIT I - Introduction to Yoga

Meaning - Definition - Aim, concept and scope of yoga - Schools of yoga

UNIT II - Hastanga Yoga

Yama, nyama, asana, pranayama, prathyahara, dharana dhyana and Samadhi.

UNIT III - Yoga and Physical Education

Yoga and physical education

Aim; meaning - Definition and concept of asanas

UNIT IV - Benefits of Asanas

Types of yoga - physiological, psychological and therapeutical values

UNIT V - Pranayama

Pranayama meaning, aim, definition and concept pranayama.

Types of pranayama, - Physiological, psychological and therapeutical

UNIT VI - Bandhas, Shatkriyas and Meditation

Bandhas and Mudras - Meaning, definition and values

Shat kriya - Nose cleaning, stomach cleaning and bowel cleaning process Meditation - Meaning aim, definition and concept of meditation

REFERENCE

Gharote M.L. Guidelines for Yogic practice, Lonawala Medha Publications, 1982.

Iyengar B.K.S. The Art of Yoga Indus and imprint of Harpic Collins India Pvt. Ltd., 1985

PRACTICALS

05106 P - TAI CHI AND YOGA

TAI CHI

1) Precondition for learning and training theoretical and practical preparations (fundamentals of hands and movements and foot works) warm up and preparation with qiqong. Practicing basic tai chi chuan movements.

YOGA

1) Preparatory Postures. Cultural Asanas, Relaxative Asanas. Nedutative Asanas and Balancing Asanas.

2) Techniques and Concepts of Puraka, Raahcaka and Kumbakha of Pranayama and its Variations.

05107P - EXERCISE TESTING AND EXERCISE PRESCRIPTION

1) Measurement of Work, Power, and Energy with cycle ergometer and treadmill.

2) Recording and interpreting ECG in normal and in patients with arrhythmia,

3) Exercise prescription for patients with Cardiac disease, Diabetes and Obesity.

4) Interpreting ECG

II SEMESTER

05201 - OCCUPATIONAL FITNESS AND HEALTH PROMOTION

UNIT I

Health objectives for the Nation, Physical fitness and exercise objectives for the millennium, Brief historical review of exercise and fitness, Future challenges, Strategies for increasing physical activity in India. The wellness revolution all over the world.

UNIT II

Definition of Physical Activity, exercise, and physical fitness. Elements of health related physical fitness and skill related physical fitness (Cardio respiratory endurance, Body composition, Musculoskeletal fitness).

UNIT III

The acute and chronic effects of physical activity, Effect of exercise on heart rate stroke volume, cardiac output, A- VO_2 difference and other physiological responses to acute exercise, Chronic adaptations to regu-lar exercise, Changes induced by resistance training, Major Cardio respiratory changes from exercise train-ing when at rest, Cardio respiratory changes during sub maximal and maximal exercise, Effects, of gender, age and heredity, Effects of inactivity.

UNIT IV

Worksite health promotion and fitness activities, benefits of work site exercise programmes, impact of exer-cise on absenteeism, impact of medical and health care costs, cost-benefit of worksite exercise programmes, future growth predicted for worksite health programs.

UNIT V

Assessment of musculoskeletal fitness, health related benefits of musculoskeletal fitness. Strategies for increasing physical activity in India, Population based strategies, personal factors, Environment, Hopeful facts about wellness revolution.

UNIT VI

Physical Activity and Psychological Health, Meaning of stress, the incidence of mental illness, Stress response affecting the neuro immuno endocrinal system, The ill effects of high stress, Stress management principles, Physical Activity and stress, Exercise addiction, Mood disturbance and Sleep disruption, Effect of exercise on Sleep, Controlled studies on exercise and stress, Self esteem cognition and exercise.

UNIT VII

Physical Activity and Ageing, Statistics and trends, Ageing process, Health habits and ageing, Exercise and ageing, V02max and ageing, Physical training by the elderly, Cardiorespiratory, muscular strength and resistance training, Body composition changes, Physical activity and life expectancy, Osteoporoses and risk factors, Role of Physical activity in peak bone mass.

REFERENCE

Allen G Stull (1980) Encyclopedia of Physical Education and Fitness and Sports. Brighton Pubilishing Co. New York, USA.

05202 - NUTRITIONAL PROMOTION FOR HEALTH

UNIT I

Overview of Nutrition and Nutritional status in India, RDA by ICMR, Basic five food groups, Principles of Menu planning, Malnutrition, Nutritional deficiencies-protein calorie malnutrition, Effects of nutrition on teeth -role of fluoride.

UNIT II

Carbohydrates - Monosaccharide, Disaccharide, Polysaccharide, RDA, Glycemic index, Fiber, Functions, sources of Fats- EFA, omega 3,6, saturated, unsaturated fats, recommended intake, sources, importance of fat in diets, fats in health and disease.

UNIT III

Proteins- types, EAA, functions, assessing quality of proteins, selecting incomplete proteins, RDA, sources.

Vitamins and Minerals-types, functions, sources, Minerals - calcium, phosphorus, iron, magnesium, sodium, potassium and chloride.

Trace elements - Sources and functions

UNIT IV

Nutrient Inhibitors - Oxalates, Phytates, Trypsinhibitors, Goitrogens, Tanins, Niacytin, Avidin, Thiaminase.

UNIT V

Food toxines -lathyrism, favism, solanine, aflatoxin

Food contamination - pesticides. food-borne illness, safe food handling, parasitic infestation.

UNIT VI

Vegetarian diets - principles of planning- types - vegan food behavior, advantages of vegetarian diet.

Non nutritive foods - Choline, inositol, caffeine.

Food processing - Methods of food preparation.

UNIT VII

Digestion, regulation, absorption, transport, excretion, metabolism - carbohydrate, fat, protein, Permanent land at a -blood glucose, blood glucose, lipid profile, electrolytes, hemoglobin.

05203 - EXERCISE PHYSIOLOGY

UNIT I - Skeltal Muscle

Structure of the skeletal muscle - Muscle fibre - The contractile agent of a muscle fibre - Red and white muscle - Muscle spindles- Blood supply to the muscles - The chemical composition of the muscles.

UNIT II - Muscular Contraction

Muscular contraction - effect of temperature and warming up- Staircase phenomenon - The chemistry of muscular contraction.

UNIT III - Nerve Control of Muscular Activity

Basic structure of the nerve - Reflex are - Synapse - Motor unit - Neuro- muscular junction - Transmission of the nerve impulses.

UNIT IV - Energy Sources

Metabolism - Sources of ATP - Anaerobic metabolism - Aerobic metabolism of carbohydrates, proteins and fats Intensity of Exercise and Energy Delivery.

UNIT V - Respiration

Internal and external respiration - Pulmonary ventilation - Minute ventilation - Minute ventilation during exercise - Tidal and other lung volumes.

UNIT VI - Blood Circulation and Heart – The Blood Pressure

Measurement of the volume of the cardiac output - Cardia output during exercise.

Diastolic and systolic blood pressure - Blood pressure changes during exercise.

UNIT VII - Fatigue, Physiological Effects of Training

Types of fatigue - Symptoms of fatigue - Causes of fatigue - Sites of fatigue.

Effect of training on various system of the body, viz., : Muscular, Circulatory, Respiratory and Nervous systems.

REFERENCE

Fox, E.L. and Mathews, D.K. Physiological Basis of Physical Education and Athletics Saunders College Publishing Co., Philadelphia, 1992.

Karpovich, P.V Physiology of Muscular Activity - W.B. Saunders College Publishing Co., Philadelphia, 1972.

Lamb, D. Physiology of Exercise -Response and Adaptations - Macmillan Publishing Co., 1988.

Mc Ardle, W.D., V and Katch, L. Exercise Physiology Lea and Febiger, Philadelphia, 1984.

ELECTIVES

05204 E - PERSONALITY DEVELOPMENT AND COMMUNICATION SKILLS

UNIT I - Personality Development

1. The concept of Personality
2. Self esteem.
3. Guidelines on Personality
4. Developing Good Personality

UNIT II - Fundamentals of Careers Rules

1. Psychological position
2. Better human relations
3. Time management
4. Qualities of leaders

UNIT III - Concept and Scope of Communication Skills

1. What is communication?
2. Basics of communication

3. Theories of motivation
4. Communication goals

UNIT IV - Principles of Communication and Barriers

1. Principles of Communication
2. Barriers of Communication
3. Real communication
4. Listening

UNIT V - Preparation

1. Outline of tone, modulation speech
2. Pleasant voice
3. Analysing the Occasion
4. The Audience and their Psychology. .

UNIT VI - Presentation

1. Speech plan 1 – performance
2. Speech plan 2 - content
3. Art of Speaking
4. Presentation Techniques

REFERENCE

Abraham, R Personality Development, Communication Skills and Public Speaking, Saint Chatherine Press, Chennai, 1995.

Dale Carnegie, Public Speaking, (New york: Pocket Books Publication, 1956)

Anthony D' Sonza, Being & Leader, (Singapore: Haggai Institute Publication 1985)

Eric Watson, Teach Yourself The Art of Conversation (3rd 00) (Delhi : Hindi Pocket Books, 1980)

Guilford J.P. Personality, (New York: MC. Grow Hill. 1959)

05205 E - COMPUTER APPLICATION IN SPORTS SCIENCE

UNIT I - Introduction of Computers

Definition of Computers, types of computers, microcomputer, mini computer, mainframe computer and super computers.

UNIT II - Physical Components of Computers

Hardware – Input / Output - The arithmetic/logic unit - Control unit - Computer memory - Auxiliary Storage UNIT m Technical Aspects of Computer Memory

Binary number system - Octal number system - Hexadecimal number system - Bits, Bytes and words

UNIT IV - Multimedia

Microsoft Word - Microsoft: Excel - creating documents, formatting, editing, deleting, blocking and copying, spelling check and thesaurus.

UNIT V - Power Point Presentation

Preparing a slide, animation, clipart, pictures from file, background online designing.

UNIT VI - Internet explorer

Email id. text chatting, voice chatting, camera phone interaction.

REFERENCE

Mannddell L.S. Computer and Data Processing Today, West Publishing Co. St. Paul 1986.

Slontnick, D.L. and et, al. Computers and Application - An Introduction to Data processing D.C Health and Co. 1989.

Thompson, A.L. Fujumoto K. The Art of using Computers, Boyd & Fraser Publishing Co., Boston, 1986 Wilson, P. T. Computers Application Software - An Introduction Holtm Rinehard and Winston, New York 1985.

PRACTICALS

05207 P - EXERCISE PHYSIOLOGY

1) Measurement of work and energy.

2) Measurement of Body composition

3) Blood pressure, heart rate, ECG measurements

4) Field and lab test to determine anaetobic power and aerobic capacity

5) Anthropometric measurement

6) Theoretical concepts of Biochemical measurements (Glucose, Lactic acid and profiles)

III SEMESTER

05301- PERFORMANCE NUTRITION AND WEIGHT MANAGEMENT

UNIT I

Energy systems - Phospho Creatine System, Lactic acid system, Effect of exercise on energy systems, factors affecting type fuel used - intensity, duration.

Fatigue - role of diet to delay fatigue

Carbohydrate - importance in performance, quantity to be consumed before during, after exercise, recovery, Carbo - loading, Pre event, port event meal.

UNIT II

Protein - role in performance, role of BCAA, protein requirement in strength, endurance, athletes on weight loss, bulking up, and effect of exercise on protein requirement, fate of excess protein, supplements.

UNIT III

Fat - methods to assess fat - Bio - impedance analysis, skin fold measurements, DEXA, under water weighing Desirable fat percentage, Dangers of low fat.

Anthropometries measurements.

UNIT IV

Performance enhancing substances - effects, risks, - Anabolic steroids, other hormones, Creatine, glutamine, araginine, Dietary, supplements - vitamins, growth hormone releasers, L - carnitine, Chromium Vanadium, bicarbonate, caffeine, other stimulants, Doping - drugs banned by IOC

UNIT V

Fluids - Osmolality - hypo tonic, hyper tonic, isotonic fluids, dehydration, dangers of dehydration, Sports drinks-composition (glucose, glucose polyment), intake before, during and after exercise, importance of fluids, Alcohol

UNIT VI

Weight management - Guidelines to lose weight, calculating energy requirement, Energy expenditure, Lifestyle changes, Gaining weight Female athlete triad. Disordered eating - anorexia nervosa, bulimia nervosa.

UNIT VII

Diets in Diabetes, Hypertension, Hyperlipidemia, Peptic ulcer, Inflammatory bowel disease, constipation, Anemia, underweight, Overweight Fevers

05302 -RESEARCH METHODS AND STATISTICS IN HUMAN PERFORMANCE

RESEARCH METHODS

UNIT I - Introduction

Definition of Research - Meaning. Need - Nature and Scope of research in Physical Education- Classification of Research - Basic Research - Applied Research - Action Research.

UNIT II - Formation and Development of Research Problem.

Location of Research problem - Criteria for selection of a problem-Hypothesis and formulation of Hypothesis -Research Proposal- Qualities of good researcher.

UNIT III -Methods of Research.

a. Historical Research.

Delimitation of Historical Research - Steps in Historical Research - Sources of Historical

Research- Primary Data - Secondary Data - Historical Criticism - Internal Criticism – External Criticism.

b. Descriptive Research

Survey Study

Case Study

Normative Study ordinary letters

c. Experimental Research

Meaning of variables -Types of variables - Nature and meaning of experimental Research - Planning for Experimental Research - Field experimentation - Laboratory etc., - Experimental Designs - Single Group Design - Reverse Group Design - Repeated Measure Design - Static Group Comparison Design - Equated Group Design - Factorial Design.

UNIT IV - Methods of Writing Research Report

Style of writing Research Report - Mechanics of writing Research Report - Footnote and Bibliography writing.

STATISTICS

UNIT V - Introduction and Measures of Variability.

Definition of statistics - Importance of statistics in Research -Definition of measures of Central tendency vari-ability and then- uses - Range- Quartile deviation - Mean Deviation - Standard Deviation - Calculation of and Range M.D. S.D. from ungrouped data and grouped data.

UNIT VI - Normal Curve

Meaning of Probability - Principles of normal curve- Properties of normal curve - Devergence from normality - Skewness and Kurtosis - Standard Scores - Scoring scales - Sigma Scale, Z Scale. T Scale, Hull Scale.

UNIT VII - Test of Mean Difference and correlation.

Factors affecting reliability - Random size and variability Mean difference - Standard error - Null Hypothesis -Test of significance- T test, F test, Chi square test - Levels of confidence and interpretation of data- Meaning of Correlation - Co-efficient of correlation - Calculation of Co-efficient of Correlation by the product moment method and Spearman Rank method.

REFERENCE

Best, J. W. Research in Education, Englewood Cliffs. Prentice Hall, New Jersey, 1971.

Cambell, B.C. Form and Style in thesis Writing

Clark, D. H. and H. H Research Problem in Physical Education, 2nd Edn Englewood Cliffs, Prentice Hall, Inc., New Jersey, 1984.

Kamlesh, M.L. Research Methodology in Physical Education and Sport, New Delhi.

Moses, A. K. Thesis Writing Format Poompugar Pathippagam. Chennai - 1995

Rothstain, A. Research Design and Statistics for Physical Education, Englewood Cliffs, Prentice Hall, Inc., New Jersey, 1985

Camphell, R. and Tucker N. M. An Introduction to Test and Measurement in Physical Education, London, G Bell and Sons Ltd.,

Clark, H.B. Application of Measurement to Health and Physical Education, Englewood Cliffs; J .J. Prentice Hall Inc.,

Clark, H.H. and Clarke, H.D. Research Process in Physical Education, Englewood Cliffs, New Jersey, Prentice Hall Inc., 1984

Hunsicker, P.A. and Monotoye, H.J. Applied Tests and Measurements in Physical Education, New York Prentice Hall 1953.

Mathews, K.K. Measurements in Physical education. Philadelphia,. W. B. Saunder Company.

05303 – EXERCISE REHABILITATION OF THE DIFFERENTIALLY ABLED

UNIT I

Classification and Definition of – Principles underlying - classification theory, medical versus functional classification, sports events for specific classification discriminating points between each classification and classes and assignment pattern.

UNIT II

Perceptual motor training - Kephant's theory contributions of Cratty, Ayres, and Williams, perceptual mo-tor screening checklist, assessments of perceptual motor function, Bruuinimks Oregon test of motor profi-ciency (BUTMP).

UNIT III

Levels of adaptive behavior used in classification of mental retardation, Motor ability and performance downs Basic Movements and assessment fitness, sport and games the Special Olympics.

UNIT IV

Seriously emotionally disturbed classification and terminology DSM Techniques to works with disturbed psychophonic, Depressed, Designing exercises.

UNIT V

Orthopedic impainnent congenital acquired, Analysis & Classifications goals for Quadriplegia and Paraplegia ADL, amputation and fitness, spinatifida, Polio. Deaf & hearing impaired, hyperactivity Balance motor speed, unit, and physical fitness. Diagnosis visually impaired peptic perception awareness sports classifica-tion and physical fitness.

UNIT VI

Loco motor disabilities, muscular dystrophies, and exercises, arthritis and exercise multiple sclerosis -arthrogryposis, monogenesis

UNIT VII

Cerebral palsy, classification, multiple handicapped coping with reflexes, spasticity, athetosis, rigidity tremors Aquat-ics Dance therapy, exercise therapy.

05304 E - SPORTS MANAGEMENT

UNIT I - An Introduction to Sports Management

Introduction to concept of management and meaning of organization and administration - Importance of organization and administration, Guiding Principles of organization

UNIT II - Organization Scheme of Physical Education

- Organization scheme and physical education in schools colleges, universities, districts, states, national and international.

UNIT III - Physical Education Facilities

Facilities and standards for outdoor and indoor activities in educational institutions.

a) Gymnasium - Construction, factors care and allied facilities.

b) Swimming pool- Construction, factors, care and allied facilities.

c) Staff and leadership - Need for trained leadership, qualification of physical education teacher, Teaching load and teacher pupil ratio.

UNIT IV – Programme Planning

Curriculum need and importance of syllabus preparation and development course of studies, types of programmes - Intramurals, preparation of time tables - Types of Physical education periods. Promotion

Public relation - Conferences - Clinics & Workshop - Physical Education association.

UNIT V - Office Management.

Maintaining various types of records, registers and reports

UNIT VI - Finance and Budget

Source of Income - Approved items of expenditure - Rules for the utilization of games fund or physical education fund, preparation and administration of budget and accounting.

REFERENCE

Hughes, L. W. and French, E, The Administration of Physical Education, Ronald ress Co.

Joseph, P.M. Organization of Physical Education, Old Students Assn. TIPE, Kandivilli, Bombay

Nash. J.B and et. at Organization and Administration of Physica1 Education, A.S. Barners & Co.

Thomas. J.P. Organization and Administration ofPhysica1 Education, Gnanodaya Press, Anderson Street, Chennai - 1.

Velter, B and Esslinger, A.A. Organization and Administration of Physical Education, Apple ton-Century Crafts Williams, C and Veler, B, Administration of Health, W.B, Saunders & Co.

05305 E - SPORTS JOURNALISM

UNIT I - Ethics of Journalism and Sports Bulletin

1. Ethics of Journalism
2. Canons of journalism
3. News, information and ideas
4. Journalism and sports education

UNIT II

1. Structure of sports bulletin
2. Compiling and bulleting
3. Types of bulleting
4. Hourly bulletins and special bulletin
5. External bulletin

UNIT III - Sports, Ethics and Reporting

1. Brief review of Olympic games, Asian Games,
   Common Wealth Games and Indian traditional games

UNIT IV

1. Sports ethics and sportsmanship
2. Sports as an integral part of physical education.

UNIT V

1. Sports Organisation and Sports Journalism
2. General news reporting and sports resorting

UNIT VI - Mass Medias in Journalism

1. Ratio and TV commentary
2. Running commentary on the radio Sports expects comments

REFERENCE

Ahiya, B.N. Theory and Practice of journalism. Set to Indian Context Ed.3, Delhi, Surjeet Publication 1998.

Ahiya, B.N. and Chobra. S.S.A Concise Course in Reporting etc., Delhi, Surjeet Publication 1990.

Baft, S.C. Broad cast journalism basic Principles, New Delhi, Har Anand Publications 1993.

Kamali. M.V. The Journalist handbook. New Delhi, Vikas Publishing House Pvt. Ltd. 1983.

Parthasarathy, R. Journalism in India from the Earliest Times to the President Day n Road, Sterling Publication Pvt. Ltd. 1991.

Varma A.K. Advanced Journalism, Har Anand Publication, New Delhi, 1993.

PRACTICALS

05306 P - NUTRITION AND WEIGHT MANAGEMENT

1. Blood biochemistry- knowledge of normal values
2. Knowledge to use food exchange list
3. Able to present guidelines for Diabetes mellitus, Hypertension, Hypercholesterolemia, Weight gain, Weight loss
4. Diet for athletes - Pre game, post game meal
5. Knowledge of Anthromertics measurements

05307 P - EXERCISE REHABILITATION OF DISABLED

1. Basic knowledge and assessment techniques in Loco motor disabilities
2. Cerebral palsy and its classification.
3. Orthopedic impairment
4. Seriously Emotionally disturbed and classification.

IV SEMESTER

05401 - HUMAN DEVELOPMENT AND HEALTH PSYCHOLOGY

UNIT I

Basic concepts- Aspects of development, Life span period - Methods - Non Experimental, Experimental, and Methods of data collection and Ethics in Research.

UNIT II

Stages of Development - Principles of development - Stage wise conception - Prenatal period - Birth - Neonatal stage - First year of Life - Early Childhood, middle Childhood - Adolescence, Adulthood and old age.

UNIT III

Physcial Development - Motor skills - Growth rate - Physical Health during adulthood Physical Fitness and Energy - Motor function in old age.

UNIT IV

Intellectual Development - Three approaches Psychometric, Piagetian approach and information processing approach - Cognitive development - Piaget's Model stages - Language acquisition and development of Language - Memory intelligence and Moral development.

UNIT V

Personality and Social development - Emotions - Emergence of Self - Difference in emotion and Temperament -Role of Parents and Siblings - Peer group influence - Psychoanalytic, Social learning and Cognitive Perspectives in the Personality development - Self Concept, Emotional Problems of Childhood - Models of Stress- Stress reach and stress related disorders- Coping and Stress Management techniques Pain and its Management.

UNIT VI

Personality and Social issue in young adulthood and adulthood - Career planning -Intimate relationship and Personal life styles- work life- personal relationship in family and work life - Management of Chronic and terminally ill- Quality of Life social support and rehabilitation.

UNIT VII

Old age- Physical Changes Psychomotor functioning - Health and fitness - Health problems - Memory changes -Work and Retirement - Adjustment to old age - Personal relation in late life - Death Bereavement - Purpose and meaning of Life.

REFERENCE

Elizabeth B. Hurllock, Development Psychology - a life- Span approach, Fifth edition, Tata McGraw Hill Publishing Co. Limited, New Delhi.

Zubek J.P. and Solberg, P.A., human Development, Newyork, McGraw Hill Publishing Co. Limited, NewDelhi 1954.

Shelley E. Taylor Health Psychology III edition McGraw Hill International editions 1995.

Latha Yoga and Cardic Health Promotion, Madras Psychology Society Publication. 1997.

05402 - MANAGEMENTOF SPORTS INJURIES

UNIT I

Sports Injuries - Definition acute injuries -bones - joints, Liagments, Muscle, Nerve, Over-Use Injuries - Articular cartilage, Bursa, Ligament, Tendon.

UNIT II

Pain - Pain producing Structures of Joint, Muscle etc., Referred pain, Psychological Responses to Injury -Tendon, Ligament, Bone Muscle, Gate control theory of pain, Endorphins and enkephalin.

UNIT III

Principles of Injury - Prevention - Warm up and Warm down - Stretching - Static, Ballistic, Dynamic, PNF - Protective equipment and shoes.

UNIT IV

Normal and Abnormal Biomechanics - Mechanics of Upper limb and Lower limb in throwing, swimming, running and racquet sports - Assessment and correction of abnormal biomechanics.

UNIT V

History, symptoms and signs, obtaining accurate description of symptoms, Training History, Nutritional factors - Over training - Psychological factors.

UNIT VI

Principles of Rehabilitation - Muscle conditioning flexibility - Proprioceptive, sports skills – Cardiovascular fitness- Progression and stages of rehabilitation - Return to sports.

UNIT VII

Injuries to the Head and Neck, Face, Teeth, Eye- Shoulders, Elbow, Fore arm, Wrist and Hand - Thoracic and abdominal injuries in sports. Injuries Thoracic back, Hip and Groin, Gluteal, Thigh, Anterior and Posterior Knee and Ankle foot.

REFERENCES

Johnson, W.R Science and Medicine of Exercise and Sports, 2nd Ed, New York.

Reily, T. Sports Fitness and Sports injuries, Faber and Faber, London. 1981

Scott. N. Nisonson, B, and Nicholos, J. Principles of sports medicine, Williams & Walking Baltimore.

Stull A. and Cureton, T.K. Encyclopedia of Physical education Fitness and Sports - Training Environment, Nutrition and Fitness, Brighton Publishing Co. Salt lake City. 1980.

05403 - APPLIED KINESIOLOGY AND BIOMECHANICS OF MUSCULOSKELETAL INJURY

UNIT I

Definition of the term Kinesiology and Biomechanics, Kinetics and Kinematics, Framework of joints, Type of bones, Structure and function of long bones, Bone Marrow, Structure of striated muscle. Types of Muscular contraction, Isometric, Isotonic, Isokinetic, Concentric and Eccentric, Kniesthetic senses and the intrafusal and golgi - tendon apparatus, Prime mover and assistant mover, Agonist and Antagonist, Role fixator and stabilizer, Role of Synergist and Neutralizer.

UNIT II

Criteria for good Posture, Evaluation of Posture, Maintenance posture, Causes of poor Posture, Removing causes, Specific defects, and their implication to sports performance, Defects - the axial spine and appendicular skeleton.

UNIT III

Kinematics, Time, Position. Displacement, Velocity Acceleration, Relationship of the above criteria to injury, Kinetics, Mass and Inertia, Force, Center of Mass and Center of Gravity, Pressure, Movement of Force (Torque), Newton's Law of Motion Equilibrium, Work and Power, Movement, Energy, Collisions, Friction.

UNIT IV

Fluid Mechanics, Fluid flow, Fluid resistance joint mechanics, Joint Mobility and Stability, Lever systems, Movement of Force (Torque) and Joint Motion. Joint reaction forces versus Bone on Bone Forces, Joint Lubrication, Material Mechanics, Rigid - body Mechanics and deformable solids, Material properties, Stress and Strain.

UNIT V

Biomechanical modeling and simulation, Theological Models, Tissue Biomechanics and adaptation, Compact Bone and the need for the Morrow, Bone adaptation, Development, maturity and Ageing, Nutrition, Exercise and Peak Bone mass, Exercise thresholds and Safety of Exercise.

UNIT VI

Articular Cartilage Biomechanics, Lubrication Mechanism, Articular Cartilage Adaptation, Adaptation Development, Use and Disuse, Tendon and Ligament Biomechanics. Tendon and Ligament adaptation Development, and Maturation, Skeletal Muscle Adaptation, Gender related effects. Use and disuse.

UNIT VII

Mechanisms of Injury, Mechanical loading, A level of Dysfunction, Progress in of Injury Micro trauma Vs Macro trauma, Contribution factors, Ergonomics and injury.

REFERENCES

Hay J.G & Reid, The Anatomical and Mechanical Bases of Human Motion, Prentice Hall, Inc, USA, 1982.

Uppal A.K. Greykumar, L.V. U. Panda, M.M. Bio-Mechanism Physical Education and Exercise Science, Friends Publication; India 2004.

Lutlgenste Hamiltion N. Scientific Basis of Human Motion, MCB/CeGraw - Hill, Boston; USA, 1997.

PRACTICAL

05404 P - SPORTS INJURIES MANAGEMENT

1. Principles of Rehabilitation, Muscle conditioning, flexibility, Proprioceptive Sports skills.
2. Injuries to Head and Neck, Face, Teeth, Eye, Shoulders, Elbow, Fore arm, Wrist and Hand
3. Injuries Thoracic Back, Hip and Groin, Gluteal, Thigh, Anterior and , Posterior Knee and Ankle foot.

05405 P - PROJECT AND VIVA

The M.Sc. students should select a project topic and complete the project under the guidance of an approved supervisor from the college. The students will be required to present the project proposal finally to his/her supervisor for approval and submit the completed project before the stipulated date to the college. The student should submit fine bound copies of the project by the end of the semester.