MAHATMA GANDHI UNIVERSITY
KOTTAYAM

B.Voc. Degree PROGRAMME

in

SPORTS NUTRITION AND PHYSIOTHERAPY

REGULATION, SCHEME AND SYLLABUS

(2019 ADMISSION ONWARDS)

REGULATION AND SCHEME FOR B.VOC. PROGRAMME UNDER MAHATMA GANDHI UNIVERSITY

(2019 admissions onwards)

We are facing unprecedented challenges – Skill and knowledge, the driving forces of economic growth and social development for any country. Presently, the country faces a demand – supply mismatch, as the economy needs more 'skilled' workforce than that is available. In the higher education sphere, knowledge and skills are required for diverse forms of employment in the sector of education, health care manufacturing and other services. Potentially, the target group for skill development comprises all those in the labour force, including those entering the labour market for the first time, those employed in the organized sector and also those working in the unorganized sector. Government of India, taking note of the requirement for skill development among students launched National Vocational Education Qualification Framework (NVEQF) which was later on assimilated into National Skills Qualifications Framework (NSQF). Various Sector Skill Councils (SSCs) are developing Qualification Packs (QPs), National Occupational Standards (NOSs) and assessment mechanisms in their respective domains, in alignment with the needs of the industry.

The University Grants Commission (UGC) has launched a scheme on skills development based higher education as a part of college/university education, leading to Bachelor of Vocation (B.Voc.) Degree with multiple exits such as Diploma/Advanced Diploma under the NSQF (National skill Qualifications framework). The B.Voc. programme is focused on universities and colleges providing undergraduate studies which would also incorporate specific job roles along with broad based general education. This would enable the graduates completing B.Voc. to make a meaningful participation in accelerating India's economy by gaining appropriate employment, becoming entrepreneurs and creating appropriate knowledge. The proposed vocational programme will be a judicious mix of skills, professional education related to concerned vocation and also appropriate content of general education.

The **Mahatma Gandhi University** gave a strong momentum to the initiatives of UGC-NSQF in the very beginning itself. This University provides opportunities to its affiliating colleges since Academic Year 2014-15 to start skill based vocational Graduate programmes strictly under the guidelines of UGC and NSQF.

1. TITLE

These regulations shall be called "**MAHATMA GANDHI UNIVERSITY REGULATIONS FOR B.VOC PROGRAMME 2018".**

2. SCOPE

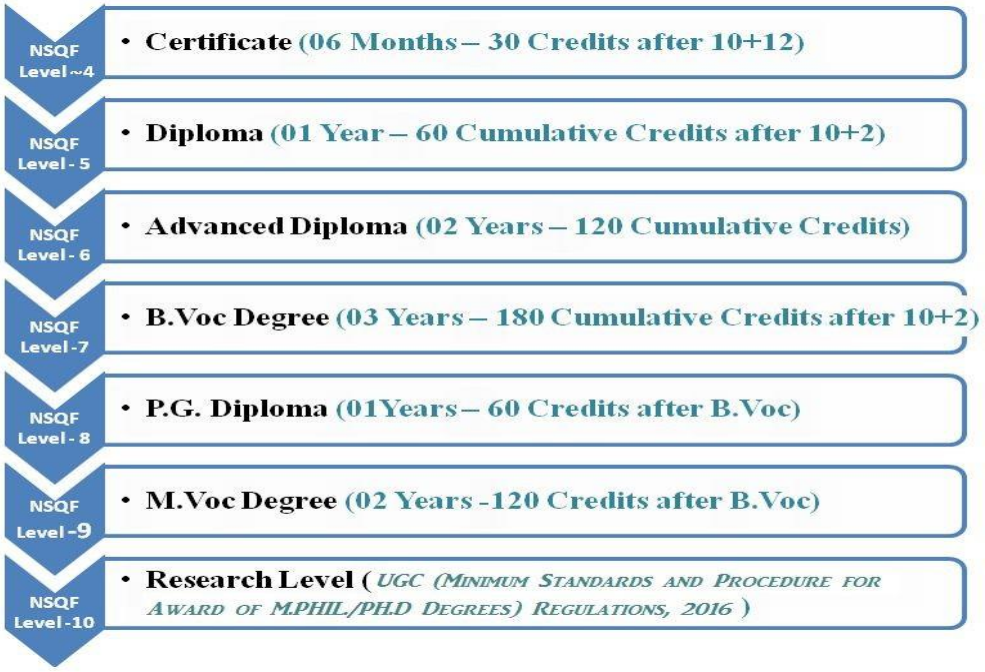
Applicable to all regular B.Voc Programme conducted by the University with effect from 2018 admissions onwards, except for B.Voc. Programmes, having scheme and syllabus already approved by MGU under 2014 regulation and scheme.

During the academic year 2019-20 admission onwards, all regular B.Voc Programme in affiliating colleges under MG University should strictly follow *Mahatma Gandhi University Regulations For B.Voc Programme 2018.*

3. ELIGIBILITY FOR ADMISSION AND RESERVATION OF SEATS

Eligibility for admissions and reservation of seats for various Undergraduate Programmes shall be according to the rules framed by the University and UGC in this regard, from time to time.

4. Type of Courses and Awards:



There will be full time credit-based modular programmes, wherein banking of credits for skill and general education components shall be permitted so as to enable multiple exit and entry.

The multiple entry and exit enables the learner to seek employment after any level of Award and join back as and when feasible to upgrade qualifications / skill competencies either to move higher in the job profile or in the higher educational system. This will also provide the learner an opportunity for vertical mobility to second year of B.Voc degree programme after one year diploma and to third year of B.Voc degree programme after a two year advanced diploma. The students may further move to Masters and Research degree programmes mapped at NSQF Level 8 – 10.

5. Curricula and Credit System for Skill Based Courses

In order to make education more relevant and to create ‘industry fit’ skilled workforce, the

institutions recognized under B.Voc Degree programme offering skill based courses will have to be in constant dialogue with the industry and respective Sector Skill Councils (SSC's) so that they remain updated on the requirements of the workforce for the local economy. These institutions should also preserve and promote the cultural heritage of the region, be it art, craft, handicraft, music, architecture or any such thing, through appropriately designed curriculum leading to gainful employment including self-employment and entrepreneurship development.

The curriculum in each of the semester/years of the programme(s) will be a suitable mix of general education and skill development components. The General Education Component shall have 40% of the total credits and balance 60% credits shall be of Skill Component.

The institution(s) shall prepare draft curriculum as per the UGC guidelines for Curricular Aspects Assessment Criteria and Credit System for Skill based Vocational Courses and place it for vetting by the UGC Advisory Committee constituted under these guidelines.

The Curriculum shall be finally approved by the Board of Studies (BoS) and Academic Council of the University / Autonomous College. The Universities where BoS for Vocational subjects has not yet been constituted, the curriculum may be considered by the BoS in allied subject area or an ad-hoc BoS may be constituted till the time regular BoS is notified in the university. The BoS should consider the programme wise curriculum based QP for skill component and relevant general education subjects *i.e.* the curricula for programmes in one broad subject area may vary from institution to institution in case the different progressive QPs are mapped with the programmes being offered. The choice of different progressive Job roles for a course may also be enabled under CBCS.

6. Structure of the Programme

Skill Development Components - 60% Weight age

General Education Component - 40% Weight age

The B.Voc Programme should comprise 60% Skill Development Components (60 % of total Credit) and 40% General Education Component (40% total Credit) as per guidelines of UGC and NSQL.

As an illustration, awards shall be given at each stage as per Table 1 below for cumulative credits awarded to the learners in skill based vocational courses.

Table 1

NSQF Level	Skill Component Credits	General Education Credits	Total Credits for Award	Normal Duration	Exit Points / Awards

7	108	72	180	Six Semesters	B.Voc Degree
6	72	48	120	Four semesters	Advanced Diploma
5	36	24	60	Two semesters	Diploma
4	18	12	30	One semester	Certificate

7. SCHEME AND SYLLABUS

B.Voc Programme should include (**a)** General Education Component, (**b**) Skill Education Component

The B.Voc Programme should followed Credit and Semester System of MGU.

A separate minimum of 30% marks each for internal and external (for both theory and AOC) and aggregate minimum of 40% are required for a pass for a course. For a pass in a programme, **Grade P** is required for all the individual courses. If a candidate secures **F Grade** for any one of the courses offered in a Semester/Programme, **only F grade** will be awarded for that Semester/Programme until he/she improves this to **P Grade** or above within the permitted period.

8. Assessment and Evaluation by MG University.

General Education Components and Skill Development Components shall be assessed and evaluated by MG University as per University Norms and UGC-NSQF guidelines.

9. Assessment and Certification by Sector Skill Council (SSC)

The affiliated colleges should make necessary arrangements for the simultaneous assessments and certification of Skill Development Component by aligned SSC having the approval of National Skill Development Corporation of India (NSDC).

10. EXAMINATIONS

The evaluation of each paper shall contain two parts:

(i) Internal or In-Semester Assessment (ISA)

(ii) External or End-Semester Assessment (ESA)

9.2. The internal to external assessment ratio shall be 1:4.

Both internal and external marks are to be rounded to the next integer.

All the courses (theory & AOC), grades are given **on a 7-point scale** based on the total percentage of marks, ***(ISA+ESA)*** as given below:-

Percentage of Marks	Grade	Grade Point
95 and above	O (Outstanding)	10
90 to below 95	A+ (Excellent)	9
80 to below 90	A (Very Good)	8
70 to below 80	B+ (Good)	7
60 to below 70	B (Above Average)	6
50 to below 60	C (Average)	5
40 to below 50	P (Pass)	4
Below 40	F(Fail)	0
	Ab (Absent)	0

10. CREDIT POINT AND CREDIT POINT AVERAGE Credit

Point (CP) of a paper is calculated using the formula:-

CP = C × GP, where C is the Credit and GP is the Grade point

Semester Grade Point Average (SGPA) of a Semester is calculated using the formula:-*SGPA = TCP/TC, where TCP is the Total Credit Point of that semester.*

Cumulative Grade Point Average (CGPA) is calculated using the formula:-*CGPA = TCP/TC, where TCP is the Total Credit Point of that programme.*

Grade Point Average (GPA) of different category of courses viz. Common Course I, Common Course II, Complementary Course I, Complementary Course II, Vocational course, Core Course is calculated using the formula:-

GPA = TCP/TC, where TCP is the Total Credit Point of a category of course.

TC is the total credit of that category of course

Grades for the different courses, semesters and overall programme are given based on the corresponding CPA as shown below:

GPA	Grade	
9.5 and above	**O**	**Outstanding**
9 to below 9.5	**A+**	**Excellent**
8 to below 9	**A**	**Very Good**
7 to below 8	**B+**	**Good**
6 to below 7	**B**	**Above Average**
5 to below 6	**C**	**Average**
4 to below 5	**P**	**Pass**
Below 4	**F**	**Failure**

11. MARKS DISTRIBUTION FOR EXTERNAL AND INTERNAL EVALUATIONS

The external theory examination of all semesters shall be conducted by the University at the end of each semester. Internal evaluation is to be done by continuous assessment. For all courses total marks of external examination is 80 and total marks of internal evaluation is 20. Marks distribution for external and internal assessments and the components for internal evaluation with their marks are shown below:

For all Theory Courses

a) Marks of external Examination : 80

b) Marks of internal evaluation : 20

Components of Internal Evaluation – Theory	Marks
Attendance	5
Assignment /Seminar/Viva	5
Test paper(s) (1 or 2) (1×10 =10; 2×5 =10)	10

Total	20

For all AOC Courses total marks for external evaluation is 80 and total marks for internal evaluation is 20.

For all AOC Courses

a) Marks of external Examination : 80

b) Marks of internal evaluation : 20

Components of Internal Evaluation – AOC	Marks
Attendance	5
Record	5
Skill Test	5
Lab Performance / Punctuality	5
Total	20

*Marks awarded for Record should be related to number of experiments recorded and duly signed by the teacher concerned in charge.

All three components of internal assessments are mandatory.

PROJECT EVALUATION

a) Marks of external Examination : 80

b) Marks of internal evaluation : 20

Components of Internal Evaluation	Marks
Punctuality	5

Experimentation/Data Collection	5
Skill Acquired	5
Report	5
Total	**20**

*****Marks for dissertation may include study tour report if proposed in the syllabus.

Components of External Evaluation	Marks
Dissertation (External)	50
Viva-Voce (External)	30
Total	**80**

(Decimals are to be rounded to the next higher whole number)

INTERNSHIP

After the completion of every even semester, the student will undergo a minimum of two weeks Internship Programme in an Industry, having a good exposure in the concerned skill (Established at least two years prior), capable of delivering the skill sets to the students.

At the end of the Internship, the students should prepare a comprehensive report.

Attendance Evaluation for all papers

Attendance Percentage	Marks
Less than 75 %	1 Mark
75 % & less than 80%	2 Marks
80% & less than 85%	3 Marks
85% & less than 90%	4 Marks
90% & above	5 Marks

(Decimals are to be rounded to the next higher whole number)

ASSIGNMENTS

Assignments are to be done from 1st to 4th Semesters. At least one assignment

per course per semester should be submitted for evaluation.

INTERNAL ASSESSMENT TEST PAPERS

Two test papers are to be conducted in each semester for each course. The evaluations of all components are to be published and are to be acknowledged by the candidates. All documents of internal assessments are to be kept in the college for one year and shall be made available for verification by the University. The responsibility of evaluating the internal assessment is vested on the teacher(s), who teach the course.

GRIEVANCE REDRESSAL MECHANISM

Internal assessment shall not be used as a tool for personal or other type of vengeance. A student has all rights to know, how the teacher arrived at the marks. In order to address the grievance of students, a three-level Grievance Redressal mechanism is envisaged. A student can approach the upper level only if grievance is not addressed at the lower level.

Level 1: Department Level:

The Department cell chaired by the HOD, Department Coordinator, Faculty Advisor and Teacher in-charge as members.

Level 2: College level

A committee with the Principal as Chairman, College Coordinator, HOD of concerned Department and Department Coordinator as members.

Level 3: University Level

A Committee constituted by the Vice-Chancellor as Chairman, Pro-Vice-Chancellor, Convener - Syndicate Standing Committee on Students Discipline and Welfare, Chairman-Board of Examinations as members and the Controller of Examination as member-secretary.

The College Council shall nominate a Senior Teacher as coordinator of internal evaluations. This coordinator shall make arrangements for giving awareness of the internal evaluation components to students immediately after commencement of first semester

The internal evaluation marks/grades in the prescribed format should reach the University before the 4th week of October and March in every academic year.

EXTERNAL EXAMINATION

The external examination of all semesters shall be conducted by the University at the end of each semester.

- Students having a minimum of 75% average attendance for all the courses only can register for the examination. Condonation of shortage of attendance to a maximum of 10 days in a semester subject to a maximum of 2 times during the whole period of the programme may be granted by the University on valid grounds. This condonation shall not be counted for internal assessment. Benefit of attendance may be granted to students attending University/College union/Co-curricular activities by treating them as present for the days of absence, on production of participation/attendance certificates, within one week, from competent authorities and endorsed by the Head of the institution. This is limited to a maximum of 10 days per semester and this benefit shall be considered for internal assessment also. Those students who are not eligible even with condonation of shortage of attendance shall repeat the **semester** along with the next batch after obtaining readmission.
- Benefit of attendance may be granted to students attending University/College union/Co-curricular activities by treating them as present for the days of absence, on production of participation/attendance certificates, within one week, from competent authorities and endorsed by the Head of the institution. This is limited to a maximum of 10 days per semester and this benefit shall be considered for internal assessment also.
- Those students who are not eligible even with condonation of shortage of attendance shall repeat the course along with the next batch.
- There will be no supplementary exams. For reappearance/ improvement, the students can appear along with the next batch.
- Student who registers his/her name for the external exam for a semester will be eligible for promotion to the next semester.
- A student who has completed the entire curriculum requirement, but could not register for the Semester examination can register notionally, for getting eligibility for promotion to the next semester.
- A candidate who has not secured minimum marks/credits in internal examinations can re-do the same registering along with the University examination for the same semester, subsequently.

12. PATTERN OF QUESTIONS

Questions shall be set to assess knowledge acquired, standard and application of knowledge, application of knowledge in new situations, critical evaluation of knowledge and the ability to synthesize knowledge. The question setter shall ensure that questions covering all skills are set. She/he shall also submit a detailed scheme of evaluation along with the question paper. A question paper shall be a judicious mix of short answer type,

short essay type /problem solving type and long essay type questions.

Pattern of questions for External examination – Theory paper

Question Type	Total no. of questions	Number of questions to be answered	Marks of each question	Total marks
Very short answer type	12	10	2	20
Short answer (Not to exceed 60 words)	9	6	5	30
Long essay	4	2	15	30
TOTAL	**25**	**18**		**80**

Pattern of questions for external examination – AOC

Question Type	Total no. of questions	Number of questions to be answered	Marks of each question	Total marks
Theory Assessment- Short Answer Type	8	5	4	20
Skill Assessment- Practical	1	1	60	60
TOTAL	**9**	**6**		**80**

Mark division for external AOC/ LAB examination

Record	Theory/ Procedure/ Design	Activity / Neatness	Result	Viva	Total
10	10	20	10	10	60

13. RANK CERTIFICATE

The University publishes rank list of top 10 candidates for each programme after the publication of 6th semester results. Rank certificate shall be issued to candidates who secure positions from 1st to 3rd in the rank list. Candidates who secure positions from fourth to tenth in the rank list shall be issued position certificate indicating their position in the rank list.

Candidates shall be ranked in the order of merit based on the CGPA scored by them. Grace marks awarded to the students should not be counted fixing the rank/position. Rank certificate and position certificate shall be signed by the Controller of Examinations.

14. Mark cum Grade Card

The University shall issue to the students grade/marks card (by online) on completion of each semester, which shall contain the following information:

- Name of University
- Name of the College
- Title & Model of the B. VOC Programme
- Semester concerned
- Name and Register Number of student
- Code, Title, Credits and Max. Marks (Int, Ext & Total)of each course opted in the semester
- Internal marks, External marks, total marks, Grade, Grade point (G) and Credit point in each course in the semester
- Institutional average of the Internal Exam and University Average of the External Exam in each course.
- The total credits, total marks (Max & Awarded) and total credit points in the semester (corrected to two decimal places)
- Semester Credit Point Average (SCPA) and corresponding Grade
- Cumulative Credit Point Average (CCPA)

The final Grade/mark Card issued at the end of the final semester shall contain the details of all courses taken during the entire programme and shall include the final grade/marks scored by the candidate from Ist to 5th semester, and overall grade/marks for the total programme.

15. READMISSION

Readmission will be allowed as per the prevailing rules and regulations of the university.

There shall **be 3 level monitoring** committees for the successful conduct of the scheme. They are:

1. Department Level Monitoring Committee (DLMC),comprising HOD and two senior-most teachers as members.
2. College Level Monitoring Committee (CLMC),comprising Principal, Dept. –Co- Ordinator and A.O/Superintendent as members.
3. University Level Monitoring Committee (ULMC),headed by the Vice – Chancellor and Pro–Vice – Chancellor ,Convenors of Syndicate subcommittees on Examination, Academic Affairs and Staff and Registrar as members and the Controller of Examinations as member-secretary.

16. TRANSITORY PROVISION

Notwithstanding anything contained in these regulations, the Vice Chancellor shall, for a period of one year from the date of coming into force of these regulations shall be applied to any programme with such modifications as may be necessary.

SCHEME AND SYLLABUS FOR B.VOC.SPORTS NUTRITION AND PHYSIOTHERAPY (2019 admission onwards)

INTRODUCTION

The Bachelor of Vocation (**B.Voc.)**Degree programme in **Sports Nutrition and Physiotherapy** is introduced under the University Grants Commission (UGC)'s new scheme of skills development based higher education. The aim of B. Voc. programme is to integrate Government of India's National Skills Qualifications Framework (NSQF) within the undergraduate level of higher education, in order to enhance employability of the graduates and meet industry requirements.The curriculum of B. Voc. programme in Sports Nutrition and Physiotherapyincorporates the requirements of various health sectors, in an innovative and flexible mannerwhile developing a holistic and well-groomed graduate. This programme equips students topursue a wide range of career prospects as Dietician Assistant, Assistant Physiotherapist andJunior Physiotherapist. The syllabus of the course is designed in such a way that it providesthe skill development required to be a professional therapist.

OBJECTIVES

- To train and develop professionals with expertise in fitness and nutrition management for services in Hospitals, Wellness Centres and Sports Academics.
- To develop capabilities to provide preventive, promote and therapeutic care in health and diseases.
- Familiarize with basic concepts nutrient requirements and meal planning throughout the life cycle.
- Understand the integrated functions of all systems and the grounding of nutritional Science in Physiology.
- Understand the scientific background of exercise and sporting activities.
- To enable the students understand the role of exercise in fitness.
- Utilize knowledge of biomechanics.
- Enable sportsmen/athletes and individuals who exercise to use optimum energy to Maximize performance under normal and stressed conditions while minimizing injury.
- Develop professional expertise in weight management, rehabilitation and fitness.
- Understand the psychological problems during extreme physical and mental stress.
- To enable the students understand the therapeutic benefits of exercise.
- To gain the knowledge and understanding of nutrition required for exercise and sport in order to enhance performance.
- To impart knowledge on the physiological effects of exercise on human body composition.
- To acquire adequate knowledge of the basic medical subjects in the practice of Physiotherapy.
- To develop skills and competence in evaluation of patients, planning of management and carry out the various modalities and techniques in the physiotherapeutic management of the various medical and surgical conditions.

- To develop proper attitudes of compassion and concern for the welfare of the individual patient as well as for the welfare of the physically handicapped in the community.
- To maintain proper moral and ethical standards towards patients and other professional colleagues in the practise of physiotherapy.

ELIGIBILITY

A pass in plus two or equivalent examinations recognized by the University.

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COURSE STRUCTURE

The curriculum in each of the years of the programme is a suitable mix of **General Education**and**Skill Development** components. The General Education components emphasize andoffer courses which provide holistic development. The focus of Skill Developmentcomponents is to equip students with appropriate knowledge, practice and attitude, so as tobecome work ready. While designing the curriculum of Skill Development components,adequateattention has been given to practical work, hospital visit, internship, clinical postingand project work.

Project

The students are required to do an actual study about thelifestyle, fitness level, physical activity and physiological profile, understanding theirproblems and giving innovative solutions. They have to submit this Project work at end of thefourth semester. A viva based on their presentation will be conducted at the end of the IVsemester by an external examiner.

Clinical Posting

Students will be posted in rotation in the areas/wards of General Medicine,Orthopaedics ,Neurology and Dietitics. The students will be clinically trained to provide physiotherapy care and nutritional advice for the patients under supervision. They will be trained on bed side approach, patient assessment,diet planning for specific conditions, performing special tests, identifying indications or

treatment, ruling out contraindications, decision on treatment parameters, dosage and use relevant outcome measures under supervision. Evidence based practice will be part of training.

Case study & Project

Project will be a clinical assignment on given topic or condition (eg. General Medicine, Orthopaedics, Neurology or Nutrition). This may be done in the form of a literature review along with case study. This will give the student a background on research methods and recent advances.

First Semester						
SL No	Type of Course	Course Code	Title of Course	Exam Duration	Credit Score	Contact Hours Per Week
1	General Component	BOCG101	Listening and Speaking Skills in English	3	4	4
2	General Component	BOCG102	IT for Business(AOC)	4	4	3
3	General Component	SPT1G1	Basic Nutrition	3	4	4
4	Skill Component	SPT1S1	Human Physiology-I	3	7	6
5	Skill Component	SPT1S2	Human Anatomy-I	3	7	5
6	Skill Component–Practical	SPT1S3	Human Anatomy-I AOC	3	4	3
TOTAL					30	25

Second Semester						
SL No	Type of Course	Course Code	Title of Course	Exam Duration	Credit Score	Contact Hours Per Week
1	General Component	BOCG201	Writing and Presentation Skills in English	3	4	4
2	General Component	SPT2G1	Biomechanics	3	5	4
3	General Component	SPT2G2	Family Meal Management	3	3	2
4	Skill Component	SPT2S1	Human Anatomy –II	3	4	3
5	Skill Component	SPT2S2	Human Physiology- II	3	5	3
6	Skill Component -Practical	SPT2S3	Human Physiology-II AOC	3	2	2
7	Skill Component	SPT2S4	Exercise Therapy	3	5	5
8	Skill Component–Practical	SPT2S5	Exercise Therapy-AOC	3	2	2
TOTAL					30	25

Third Semester						
SL No	Type of Course	Course Code	Title of Course	Exam Duration	Credit Score	Contact Hours Per Week
1	General Component	SPT3G1	Therapeutic Nutrition	3	6	5
2	General Component	SPT3G2	General Psychology and Sports Psychology	3	6	5
3	Skill Component	SPT3S1	Exercise Physiology and Fitness	3	5	3
4	Skill Component–	SPT3S2	Exercise Physiology and Fitness-AOC	3	3	2

	Practical					
5	Skill Component	SPT3S3	Clinical Orthopaedics and Sports Medicine-1	3	5	5
6	Skill Component	SPT3S4	Electrotherapy-1	3	5	5
TOTAL					30	25

Fourth Semester						
SL No	Type of Course	Course Code	Title of Course	Exam Duration	Credit Score	Contact Hours Per Week
1	General Component	BOCG401	Soft Skills and Personality Development	3	4	4
2	General Component	SPT4G1	Food Science	3	4	3
3	General Component	SPT4G2	First Aid(AOC)	3	4	2
4	Skill Component	SPT4S1	Advanced Sports Physiotherapy	3	4	4
5	Skill Component	SPT4S2	Clinical Orthopaedics and Sports Medicine-2	3	5	4
6	Skill Component	SPT4S3	Electrotherapy-2	3	4	4
7	Skill Component -Practical	SPT4S4	Electrotherapy-2-AOC	3	2	2
8	Skill Component	SPT4S5	Project-1		3	2
TOTAL					30	25

Fifth Semester						
SL No	Type of Course	Course Code	Title of Course	Exam Duration	Credit Score	Contact Hours Per Week
1	General Component	BOCG501	Environmental Studies	3	4	4
2	General Component	SPT5G1	Community Nutrition	3	5	3
3	General Component	SPT5G2	Basic Nursing and Health Promotion	3	3	2
4	Skill Component	SPT5S1	Physiotherapy in Orthopaedics	3	6	5
5	Skill Component -Practical	SPT5S2	Physiotherapy in Orthopaedics-AOC	3	2	2
6	Skill Component	SPT5S3	Physiotherapy in Neurology and Neurosurgery	3	5	5
7	Skill Component	SPT5S4	Physiotherapy in General Medicine and Cardiothoracic conditions-1	3	5	4
TOTAL					30	25

Sixth Semester						
SL No	Type of Course	Course Code	Title of Course	Exam Duration	Credit Score	Contact Hours Per Week
1	General Component	SPT6G1	Sociology	3	6	6
2	General Component	SPT6G2	Weight Management and Rehabilitation(AOC)	3	6	5
3	Skill Component	SPT6S1	Physiotherapy in General Medicine and Cardiothoracic conditions-2	3	4	4
4	Skill Component	SPT6S2	Sports Nutrition	3	4	4
5	Skill Component -Practical	SPT6S3	Sports Nutrition-AOC	3	2	2
6	Skill Component	SPT6S4	Project-2	3	4	4
7	Skill Component	SPT6S5	Clinical Posting		4	
TOTAL					30	25

Total Credit Distribution	
Semester	Total Credits
1	30
2	30
3	30
4	30
5	30
6	30
TOTAL	**180**

SEMESTER I

Course code - BOCG101

LISTENING AND SPEAKING SKILLS IN ENGLISH

Credits: 4 Contact hours: 4 Total Hours: 70

Module I

Speech Sounds: Phonemic symbols – Vowels – Consonants – Syllables – Word stress – Stress in polysyllabic words – Stress in words used as different parts of speech – Sentence stress –Weak forms and strong forms – Intonation

Sample activities:

- Practice reading aloud. Use a variety of texts including short stories, advertisement matter, brochures, etc.
- Read out a passage and ask the students to identify the stressed and unstressed syllables.

ModuleII

Basic Grammar: Articles - Nouns and prepositions - Subject-verb agreement - Phrasal verbs - Modals - Tenses - Conditionals – Prefixes and suffixes – Prepositions -Adverbs – Relative pronouns - Passives - Conjunctions - Embedded questions - Punctuation –Abbreviations- concord- collocations-phrasal verbs- idiomatic phrases

Sample activities:

- Ask students to write a story/report/brochure, paying attention to the grammar.

Module III

Listening: Active listening – Barriers to listening – Listening and note taking – Listening to Announcements – Listening to news on the radio and television.

Sample activities:

- Information gap activities (e.g. listen to a song and fill in the blanks in the lyrics given on a sheet)
- Listen to BBC news/ a play (without visuals) and ask the students to report what they heard.

Module IV

Speaking- Fluency and pace of delivery – Art of small talk – Participating in conversations – Making a short formal speech – Describing people, place, events and things – Group discussion skills, interview skills and telephone skills.

Sample activities:

1. Conduct group discussion on issues on contemporary relevance.
2. Ask students to go around the campus and talk to people in the canteen, labs, other departments etc. and make new acquaintances.
3. Conduct mock interviews in class.
4. Record real telephone conversations between students and ask them to listen to the recordings and make the corrections, if any are required.

Module V

Reading: Theory and Practice – Scanning – Surveying a textbook using an index – reading with a purpose – Making predictions – Understanding text structure – Locating main points – Making inferences – Reading graphics – Reading critically – Reading for research.

Books for Reference

1- V.Sasikumar, P KiranmaiDutt and GeethaRajeevan, .Communication Skills in English.Cambridge University Press and Mahatma Gandhi University.
2- Marilyn Anderson, Pramod K Nayar and Madhucchandra Sen. Critical Thinking,Academic Writing and Presentation Skills. Pearson Education and Mahatma Gandhi University.

For Further Activities

1. A Course in Listening and Speaking I & II, Sasikumar, V.KiranmaiDutt and Geetha Rajeevan, New Delhi: CUP, 2007
2. Study Listening: A Course in Listening to Lectures and Note-taking Tony Lynch New Delhi: CUP, 2007.
3. Study Speaking: A Course in Spoken English for Academic Purposes.Anderson, Kenneth, Joan New Delhi: OUP, 2008

Course code - BOCG102
IT FOR BUSINESS(AOC)

Credits: 4 Contact hours: 3 Total Hours: 70

Module I

Introduction to Information Technology: Information and Communication Technology(ICT), Information systems E-World - Computer Architecture: Input Hardware - Processing & Memory Hardware, Storage Hardware, Output Hardware, Communication Hardware - Concept of operating system - Understanding your computer customization configuring screen, mouse, printer.

Module II

Word Processing Package: Introduction - Features - Word User Interface Elements; Creating new Documents; Basic Editing, Saving a Document; Printing a Document; Print Preview, Page Orientation - Viewing Documents; Setting tabs - Page Margins; Indents; Ruler, Formatting Techniques; Font Formatting, Paragraph Formatting; Page Setup; Headers & Footers; Bullets and Numbered List; Borders and Shading; Find and Replace; Page Break & Page Numbers; Mail Merging-Spelling and Grammar Checking; Tables; Formatting Tables;

Module III

Spread sheet Package: Introduction, Excel User Interface, Working with cell and cell addresses, Selecting a Range, Moving, Cutting, Copying with Paste, Inserting and Deleting cells, Freezing cells, Adding, Deleting and Copying Worksheet within a workbook, Renaming a Worksheet. Cell Formatting Options, Formatting fonts, Aligning, Wrapping and Rotating text, Using Borders, Boxes and Colors, Centering a heading, Changing row/column height/width, Formatting a Worksheet Automatically, Insert Comments, Clear contents in a cell. Using print Preview, Margin and Orientation, Centering a Worksheet, Using header and footer.

ModuleIV

Advanced Features of Spread sheet Package: All Functions in Excel, Using LogicalFunctions, Statistical functions, Mathematical etc. Elements of Excel Charts, Categories, Create a Chart, Choosing chart type, Edit chart axis - Titles, Labels, Data series and legend, Adding a text box, Rotate text in a chart, Saving a chart.

Module V

Presentation Package: Ms-PowerPoint: Advantages of Presentation Screen layout creatingpresentation inserting slides adding sounds & videos-formatting slides -slide layout views in presentation -slide transition Custom animation Managing slide shows - using pen Setting slide intervals

Reference:

Antony Thomas.Information Technology for Office.Pratibha Publications

1. Gini Courter & Annette Marquis. Ms-Office 2007: BPB Publication

Course code - SPT1G1
BASIC NUTRITION

Credits: 4 Contact hours: 4 Total Hours: 60

Module I

Introduction to Nutrition, Definitions: Food, nutrition, Health, Nutrients, optimum nutrition, nutritional status, good nutritional status, poor nutritional status, malnutrition, under nutrition, signs of good nutritional status, signs of poor nutritional status, definition and functions of nutrients. Functions of food as a source of nutrients

Module II

Food and Our Body: Food and its functions, digestion, absorption and metabolism of food Buccal digestion, gastric digestion and intestinal digestion, factors that affect digestion, absorption and metabolism, Five food groups, dietary guidelines and food pyramid

Module III

Energy Metabolism: Introduction, unit of measurement, energy value of food- calorimetry or bi proximate composition; energy needs of the body- reference man and reference woman; basal metabolic rate, factors affecting the BMR

Module IV

Carbohydrates: Introduction, classification of carbohydrates, digestion, absorption and metabolism, functions, deficiency, recommended dietary intake and sources. Role of dietary fibre in prevention and treatment of diseases

Module V

Lipids: Introduction , classification of lipids, functions of fat, digestion, absorption and metabolism of fat, deficiency, food sources and RDA

Module VI

Proteins: Introduction, classifications of proteins, nutritional classification of amino acids protein quality - biological value, net protein utilization, protein efficiency ratio. Function, deficiency, sources and requirements.

Module VII

Vitamins: Classification- fat soluble and water soluble vitamins;
Fat soluble vitamins, A, D, E and K - introduction, function, deficiency, sources, RDA
Water soluble vitamins- B complex and C-introduction, functions, deficiency, sources, RDA

Module VIII

Minerals: General functions of minerals, deficiency, sources and RDA. Deficiency of following minerals: calcium, sodium, potassium, iron and iodine

Module IX

Water: Introduction, functions, water, daily intake of water, daily loss of water, body water, water balance, deficiency of water, retention of water, daily requirements.

References

1. Groff, James L & Gropper, Sareen S: Advanced nutrition and human metabolism.3rd ed. Stamford : Wadsworth Publ, 1999.
2. Barasi, Mary E : Human nutrition : a health perspective. London : Arnold, 1997.
3. Present Knowledge in Nutrition. International Life Sciences Institute.
4. Eastwood, Martin & Edwards, Christine & Parry, Doreen : Human nutrition : a continuing debate. London : Chapman & Hall, 1992.
5. The Role of Fats in Human Nutrition/edited by F B Padley and Podmore. Chichester: Ellis Horwood, c1985.(Ellis Horwood Series in Food Science and Techology, edited by I D Morton)

6. Guthrie Helen (1986) Introductory Nutrition. Times Mirror/ Mosby College Publishing.
7. Mudambi, S.R., Rajgopal, M.V.(1990) Fundamentals of Foods and Nutrition, New Age International Pvt. Ltd.
8. Nutrient Requirements and Recommended Dietary Allowances for Indians-I.C.M.R. Publication 1999.
9. Robinsson, and Lawler.(1986) Normal and Therapeutic Nutrition. Mac Millan Pub.Co.
10. Elenaor N., Whitney S., Rady R. (1993): Understanding Nutrition, West Publishing Company, Minneapolis.
11. Wardlaw (1993): Perspectives in Nutrition, Paul Insel Mosby.
12. Bhatia Arti: Nutrition & Dietetics- Anmol Publication Pvt. Ltd.- New Delhi.
13. C. Gopalan, B.V. Ramasastri and S.C. Balasubramanian (1989)- Nutritive Value of Indian Foods. NIN ICMR Hyderabad 500 007

Course code - SPT1S1
HUMAN PHYSIOLOGY-1 (Theory)

Credits: 7 Contact hours: 5 Total Hours: 105

Module I

General Physiology

- Cell Morphology. Organelles: their structure and functions
- Transport Mechanisms across the cell membrane

Module II

Blood

- Introduction: Composition and functions of blood
- Plasma: composition,, functions, Plasma proteins
- RBC: count; Erythropoiesis-stages, , Reticuloendothelial

system (in brief) Haemoglobin– Anaemia (in detail), types of Jaundice, ESR.
WBC: Classification, Morphology, functions, count, immunity.

- Platelets; functions, count.
- Haemostatic mechanisms: Blood coagulation factors, mechanisms, their disorders, Anticoagulants.
- Blood Groups: Landsteiner's law. Types, significance, determination, Erythroblastosis Foetalis
- Blood Transfusion: Cross matching, Indications and complications.
- Lymph: Composition and functions.

Module III

Digestive System

- Introduction: Physiological anatomy
- Salivary Secretion: Saliva: Composition, Functions, Mastication (in brief)
- Swallowing: Definition, Different stages, Functions.
- Stomach: Functions, Gastric juice: Gland, composition, function, Gastrin:

Production, function.Peptic ulcer. Gastric motility, Gastric emptying,
Vomiting.

- Pancreatic Secretion: Composition, production, function.
- Liver: Functions of liver. Bile secretion: Composition, functions. Gall bladder: Functions.
- Intestine: Succusentericus: Composition, function.
- Intestinal motility and its function

- Mechanism ofDefaecation.

Module IV

Renal System

- Introduction: Physiological anatomy: Nephrons – cortical and juxtamedullary. Juxtaglomerullar apparatus, Renal blood flow and its regulation,Functions of kidneys.
- Mechanism of Urine Fotmation: Glomerular Filtration: Mechanism of glomerularfiltration. GFR- normal value and factors affecting, Renal clearance .
- Tubular Reabsorption: Renal tubular transport maximum. Glucose clearance:TmG. Renal threshold forglucose
- Tubular Secretion.
- Mechanism of concentrating and diluting the Urine.Regulation of water excretion. Diuresis. Diuretics.
- Micturition: Mechanism of Micturition. Atonic bladder, automatic bladder.
- Artificial Kidney
- Skin:Layers and functions.

Module V

Endocrine System

- Introduction: Major endocrine glands. Hormone: classification.Functions of hormones.
- Pituirary Gland: Anterior Pituitary and Posterior Pituitary hormones: Secretory cells, action on target cells. Disorders: Gigantism,Acromegaly, Dwarfism, Diabetes insipidus.
- Thyroid Gland: Thyroid hormone and calcitonin: Secretory cells, synthesis, storageaction, Disorders: Myxoedema, Cretinism, Grave's disease.
- Parathyroid hormones: secretory cell, action. Disorders:Hypoparathyroidism, Hyperthyroidism, Calcium metabolism.
- Adrenal Gland: Adrenal cortex: Secretory cells, action.secretion of Aldosterone, Cortisol, Androgens, Disorders: Addison's disease, Cushing's syndrome, Conn's syndrome, Adrenogenital syndrome. Adrenal Medulla: Secretorycells, action of adrenaline and noradrenaline.
- Disorders: Phoechromocytoma.
- Endocrine Pancreas: Secretory cells, action regulation of secretion of insulin andglucagon. Glucose metabolism. Disorder: Diabetes mellitus.
- Calcitrol, Thymus and Pineal gland (very brief)

Module VI

Reproductive System

- Introduction: Physiological anatomy, reproductive organs, sex determination, Sexdifferentiation, Disorder.
- Male Reproductive System: Functions of testes. Pubertal changes in males.spermatogenesis. Testosterone: action.. Semen
- Female Reproductive system: Functions of ovaries and uterus. Pubertal changes in females. hormones: Oestrogen, progesterone-action.Menstrual Cycle: Phases.;Ovarian cycle, Uterine cycle.Menarche. Menopause. Pregnancy; Pregnancy tests. Physiological changes duringpregnancy. Functions of placenta. Lactation. Contraception methods.

Module VII

Special Senses

- Vision: Introduction: Functional anatomy of eye ball. Functions of cornea, iris, pupil,aqueous humor- glaucoma, lens-cataract, vitreous humor, rods and cones.Photopicvision. Scotopicvision.
- Visual Pathway and the effects of lesions. Refractive Errors: myopia, hypermetropia,presbyopia and astigmatism.

- Visual Reflexes: Accomodation, Pupillary and Light. Visual acuity and Visual field.Light adaptation. Dark adaptation. Color vision - color blindness- Nyctalopia.
- Audition: Physiological anatomy of the ear. Functions of external ear, middle ear andinner ear. Structure of cochlea and organ of Corti. Tests for hearing.
- Taste: Taste buds. Primary tastes.
- Smell: Olfactory membrane. Olfactory pathway.
- Vestibular Apparatus: Crista ampullaris and macula. Functions. Disorders.

Course code - SPT1S2
HUMAN ANATOMY-I (Theory)

Credits: 7 Contact hours: 5 Total Hours: 105

Module 1

General Anatomy: Introduction to Anatomy, terms and terminology, Cell, Epithelium, Connective Tissue, Cartilage, Bone, Muscular tissue, Nerve tissue, Skin and its appendages

Module II

Thorax:

a) Cardio-Vascular System - Mediastinum: Divisions and contents; Pericardium: Thoracic wall- position, shape and parts of the heart; conducting System; blood Supply and nerve supply of the heart, names of the blood vessels and their distribution in the body-region wise
(b) Respiratory system: Outline of respiratory Passages, Pleura and lungs – position, parts, relations, blood supply and nerve supply; Lungs-emphasize on broncho-pulmonary segments; Diaphragm: Origin, insertion, nerve supply and action Inter costal muscles and Accessory muscles of respiration: Origin, insertion, nerve supply and action

Abdomen:

c) Location, size, shape, features, blood supply, nerve supply and functions of the following: stomach, liver, spleen, pancreas, intestines, gall bladder.

Module III

Musculo Skeletal Anatomy

a) Anatomical positions of body, axes, planes, common anatomical terminologies (Groove, tuberosity, trochanters etc.)
b) Connective tissue classification.
c) Bones- Composition & functions, classification and types according to morphology and development
d) Joints-definition-classification, structure of fibrous, cartilaginous joints, blood supply and nerve supply of joints.
e) Muscles - origin, insertion, nerve supply and actions
f) Upper Extremity:

- Osteology: Clavicles, Scapula, Humerus, Radius, Ulna, Carpals, Metacarpals,Phalanges.
- Soft parts: Breast, pectoral region, axilla, front of arm, back of arm, cubital fossa, front of fore arm, back of fore arm, palm, dorsum of hand, muscles, nerves, blood vessels of upper extremity.
- Joints: Shoulder girdle, shoulder joint, elbow joints, radio ulnar joint, wrist joint andjoints of the hand.

g) Lower Extremity

- Osteology: Hip bone, femur, tibia, fibula, patella, tarsals, metatarsals and phalanges.
- Soft parts: Gluteal region, front and back of the thigh (Femoral triangle, femoral canaland inguinal canal), medial side of the thigh (Adductor canal), lateral side of the thigh,popliteal fossa, anterior and posterior compartment of leg, arterial supply of the lower limb, arches of foot.

- Joints: Hip Joint, Knee joint, Ankle joint - joints of the foot.

References

1. SNELL [Richard S], Clinical Anatomy for Medical students, Ed.5. Little Brown and Company Boston, 1995
2. B.D. CHAURASIA'S HUMAN ANATOMY-REGIONAI, AND APPLIED: VOLUME I, VOLUME II AND VOLUME III.
3. MOORIE [Kieth L]. Clinically Oriented Anatomy.Ed. 3.Williams and Wilkins. Baltimore, 1992
4. DATTA A. K. Essentials of human Anatomy: Thorax and Abdomen, Ed. 2.Vol. I. Current Book International, Calcutta, 1994
5. DATTA A K. Essentials of human Anatomy: Head and Neck & Ed. 2. Vol. II. Current Book International, Calcutta, 1994
6. SINGH [Inderbir]. Text book of anatomy with colour atlas: Introduction, Osteology, Upper extremity, Vol.I, JP Brothers, New Delhi 1996.
7. SINGH [Inderbir]. Text book of anatomy with colour atlas: Thorax and abdomen. Vol. II, J. P. Brothers, New Delhi 1996.
8. SINGH [Inderbir]. Text book of anatomy with colour atlas: Head and Neck, Central Nervous System. Vol. III JP Brothers, New Delhi 1996.
9. SINGH [Inderbir]. Human Osteology, JP Brothers, New Delhi 1990.

Course code - SPT1S3
HUMAN ANATOMY (AOC)

Credits: 4 Contact hours: 3 Total Hours: 60

Practical

- Identification and explanation of upperlimb and lower limb bones.
- Demonstration of the muscles of the whole body and organs in thorax and abdomen .
- Demonstration of movements in important joints.
- Identification and explanation of organs in model.
- Points of palpation of nerves and arteries.
- Identification of body prominences on inspection and by palpation especially ofextremities.

SEMESTER II

Course code – BOCG201
WRITING AND PRESENTATION SKILLS IN ENGLISH

Credits: 4 Contact hours: 4 Total Hours: 60

Module I

Letter Writing: Letters - letters to the editor - resume and covering letters - parts and layout of Business letters - business enquiry letters offers, quotation - orders and execution - grievances and redressal - sales letters - follow-up letters - status enquiry - collection letters – preparation of power of Attorney for partnership - job application letters – resume - CV- reference and recommendation Letters - employment letters.

Module II

Other types of Academic and business Communication (written): Seminar papers- project Reports - notices - filling application forms - minutes, agenda-reports-essays.

Module III

Presentation Skills: Soft skills for academic presentations - effective communication skills – structuring the presentation - choosing appropriate medium – flip charts – OHP – Power Point

presentation – clarity and brevity - interaction and persuasion.
*Compulsory activity: PowerPoint presentations to be conducted by each student in class

Module IV
Non-verbal communication-Body language-Kinesics, Proxemics, Para language
Channels-Barriers-Principles of effective communication
Module V
Online writing and Netiquette- Writing e-mails- use of language – writing for blogs – social media etiquette- professional networking online (LinkedIn, E-factor etc.)
Compulsory activity: Each student should create a blog and/or profile in LinkedIn.
Books for Reference

1. Marilyn Anderson, Pramod K Nayar and Madhucchandra Sen. Critical Thinking, Academic Writing and Presentation Skills. Pearson Education and Mahatma Gandhi University.
2. Antony Thomas, Business Communication and MIS, Pratibha Publications. Bhatia R.C.Business Communication
3. SaliniAgarwal Essential communication skill. Reddy P.N, and Apopannia, Essentials of Business communication.
4. Sharma R.C, Krishna Mohan, Business Communication and Report writing Leod, M.C, Management Information system.

Course code – SPT2GI
BIOMECHANICS

Credits: 5 Contact hours: 4 Total Hours: 90

Module I
Basic Concepts in Biomechanics: Kinematics and Kinetics
Types of Motion, Location of Motion, Direction of Motion, Magnitude of Motion. Definition of Forces, Force of Gravity, Reaction forces, Equilibrium, Objects in Motion, Force of friction, Concurrent force systems, Parallel force systems, Work, Moment arm of force, Force components, Equilibrium of levers.
Module II
Joint structure and Function
Joint design, Materials used in human joints, General properties of connective tissues, Human joint design, Joint function, Joint motion, General effects of disease, injury and immobilization.
Module III
Muscle structure and function
Mobility and stability functions of muscles, Elements of muscle structure, Muscle function, Effects of immobilization, injury and aging
Module IV
Biomechanics of the Thorax and Chest wall
General structure and function, Rib cage and the muscles associated with the rib cage, Ventilatory motions: its coordination and integration, Developmental aspects of structure and function, Changes in normal structure and function in relation to pregnancy, scoliosis and COPD
Module V
The Temperomandibular Joint
General features, structure, function and dysfunction
Module VI
Biomechanics of the vertebral column, General structure and function, Regional structure and function- Cervical region, thoracic region, lumbar region, sacral region, Muscles of the vertebral column, General effects of injury and aging.

Module VII

Biomechanics of the peripheral joints

The shoulder complex: Structure and components of the shoulder, complex and their integrated function. The elbow complex: Structure and function of the elbow joint - humeroulnar and humeroradial articulations, superior and inferior radioulnar joints: mobility and stability of the elbow complex, the effects of immobilization and injury.The wrist and hand complex: Structural components and functions of the wrist complex; structure of the hand complex; prehension; functional position of the wrist and hand.

The hip complex:

structure and function of the hip joint: hip joint pathology - arthrosis, fracture, bony abnormalities of the femur. The knee complex: structure and function of the knee joint - tibiofemoral joint and patellofemoral joint; effects of injury and disease.The ankle and foot complex: structure and function of the ankle joint, subtalar joint, talocalcaneonavicular joint, transverse tarsal joint, tarsometatarsal joints, metatarsophalangeal joints, interphalangeal joints, structure and function of the plantar arches, muscles of the ankle and foot, deviations from normal structure and function - PesPlanus and PesCavus.

Module VIII

Analysis of Posture and Gait

Static and dynamic posture, postural control, kinetics and kinematics of posture, ideal posture,analysis of posture, effects of posture on age, pregnancy, occupation and recreation; general features of gait, gait initiation, kinematics and kinetics of gait, energy requirements, kinematics and kinetics of the trunk and upper extremities in relation to gait, stair case climbing and running, effects of age, gender assistive devices, disease, muscle weakness, paralysis, asymmetries of the lower extremities. injuries and malalignments in gait; Movement Analysis: ADL activities like sitting to standing, lifting, various grips, pinches.

References

1. Joint Structure and Function: A comprehensive Analysis. JP Bros Medical publishers, New Delhi

2. Brunnstrom, Clinical Kinesiology, .JP Bros Medical publishers, Bangalore. 5th Ed 1996, 1st Indian Ed 1997.

3. Clinical Kinesiology for Physical Therapist Assistants,. JP Bros Medical publishers, Bangalore. 1st Indian Ed 1996.

Course code – SPT2G2
FAMILY MEAL MANAGEMENT

Credits: 3 Contact hours: 2 Total Hours: 30

Module I

Introduction of meal management – Balanced diet basic principles of meal planning, objectives and steps in meal planning.

Nutrition during infancy – Nutritional requirements, advantages of breast feeding Introduction of supplementary food.

Nutrition during early childhood (Toddler / Pre School) growth and nutrient needs, nutrition related problems.

Nutrition of school children – Nutritional requirements, school lunch programmes

Module II

Nutrition during adolescence – Nutritional requirements, food choices and eating habits.

Nutrition during adulthood-Reference man and woman -Nutritional requirements

Nutrition in pregnancy – Nutritional requirements complications of pregnancy.

Nutrition during lactation – Physiology of lactation, nutritional requirements.
Geriatric nutrition – Nutritional requirements, nutrition related problems.

References

- Essential of Medical Pharmacology 5th Edition 2003 By Dr.K.D.Tripathi
- McLaren, D.S.,Meguid, M.M.(1988): Nutrition and its Disorders, Churchill Livingstone.
- Waterlow, J.C.(1992): Protein Energy Malnutrition and its Disorders, Churchil Livingstone.
- Gopalan, C(Ed.), (1993): Recent Trends in Nutrition,Oxford, University Press.
- Sachdeva ,H.P.S.,Chaudhary,P.(1994):Nutrition in Children . Developing Country Cocerns, Dept. of Pediatrics,MaulanaAzadMedical College , New Delhi.
- Worthington Roberts , B.S.& William, S. (1989): Nutrition in Pregnancy and Lactation, 5th Ed. MosbyEbrahim, G.J.(1983). Nutrition in Mother and Child Health, ELBS.
- Mahan, L.K. and Escott-Stump, S. (2000): Krause's Food Nutrition and Diet Therapy, 10th Edition, W.B. Saunders Ltd.
- Shils, M.E., Olson, J.A., Shike, M. and Ross, A.C. (1999): Modern Nutrition in Health and Disease, 9th Edition, WilliamsandWilkins.
- Garrow, J.S., James, W.P.T. and Ralph, A. (2000): Human Nutrition and Dietetics, 10th Edition, Churchill Livingstone.
- Williams, S.R. (1993): Nutrition and Diet Therapy, 7th Edition, Times Mirror/Mosby College Publishing.
- Davis, J. and Sherer, K. (1994): Applied Nutrition and Diet Therapy for Nurses, 2ndEdition, W.B. Saunders Co. Walker, W.A. and Watkins, J.B. (Ed) (1985): Nutrition in Pediatrics, Boston, Little,Brown& Co.

Course code – SPT2S1
HUMAN ANATOMY-II (Theory)

Credits: 4 Contact hours: 3 Total Hours: 30

Module 1

Neuro Anatomy

a) Organization of Central Nervous system, Spinal nerves and autonomic nervous system mainly pertaining to cardiovascular, respiratory and urogenital system

b) Cranial nerves

c) Peripheral nervous system

Peripheral nerve, neuromuscular junction, Sensory end organs

d) Central Nervous System

Spinal cord, Spinal segments and areas, Brain Stem, Cerebellum, Inferior colliculi, Superior Colliculi, Thalamus, Hypothalamus, Corpus striatum, Cerebral hemisphere, Lateral ventricles, Blood supply to brain, Basal Ganglia, The Pyramidal system, Pons, medulla, extra pyramidal systems

Module II

Head and Neck:

- Osteology: Mandible and bones of the skull.
- Soft parts: Muscles of the face and neck and their nerve and blood supply-extra ocularmuscles, triangles of the neck.
- Gross anatomy of eyeball, nose, ears and tongue

Module III

Trunk & Pelvis:

- Osteology: Cervical, thoracic, lumbar, sacral and coccygeal vertebrae and ribs.

- Soft tissue: Pre and Para vertebral muscles, intercostals muscles, anterior abdominalwall muscles, Inter-vertebral disc.
- Pelvic girdle and muscles of the pelvic floor.

Module IV

Pelvis:Position, shape, size, features, blood supply and nerve supply of the male and female reproductivesystem,kidney and urinary bladder.

Enclocrine glands:

Position. Shape, size, function, blood supply and nerve supply the following glands: Hypothalamus and pituitary gland, thyroid glands.parathyroid glands, Adrenal glands, pancreatic islets, ovaries and testes, pineal glands, thymus.

References

1. SNELL [Richard S], Clinical Anatomy for Medical students, Ed.5. Little Brown and Company Boston, 1995
2. B.D. CHAURASIA'S HUMAN ANATOMY-REGIONAI, AND APPLIED: VOLUME I, VOLUME II AND VOLUME III.
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3. MOORIE [Kieth L]. Clinically Oriented Anatomy.Ed. 3.Williams and Wilkins. Baltimore, 1992
4. DATTA A. K. Essentials of human Anatomy: Thorax and Abdomen, Ed. 2.Vol. I. Current Book International, Calcutta, 1994
5. DATTA A K. Essentials of human Anatomy: Head and Neck & Ed. 2. Vol. II. Current Book International, Calcutta, 1994
6. SINGH [Inderbir]. Text book of anatomy with colour atlas: Introduction, Osteology, Upper extremity, Vol.I, JP Brothers, New Delhi 1996.
7. SINGH [Inderbir]. Text book of anatomy with colour atlas: Thorax and abdomen. Vol. II, J. P. Brothers, New Delhi 1996.
8. SINGH [Inderbir]. Text book of anatomy with colour atlas: Head and Neck, Central Nervous System. Vol. III JP Brothers, New Delhi 1996.
9. SINGH [Inderbir]. Human Osteology, JP Brothers, New Delhi 1990.

Course code – SPT2S2

HUMAN PHYSIOLOGY-II (Theory)

Credits: 5 Contact hours: 3 Total Hours: 70

Module I

Nerve Muscle Physiology

- Introduction: Resting membrane potential. Action potential-ionic basis and properties
- Nerve: Structure and functions of neurons. Classification, Properties and impulsetransmission of nerve fibres. Nerve injury-degeneration and regeneration.
- Neuroglia: Types and functions.
- Muscle: Classification. Skeletal Muscle: Structure. Neuromuscular junction: Structure, Neuromuscular transmission, Myasthenia gravis. Excitation- Contraction coupling.Rigor mortis, Motor unit, Properties of skeletal muscles, Strength- Duration curve,Length- tension relationship, fatigue, load.
- Smooth muscle: Structure, types, mechanism of contraction, Plasticity.

Module II

Cardiovascular System

- Introduction: Physiological anatomy and Organisation of CVS. cardiac muscles: Structure.Properties of cardiac muscles.

- Conducting system: Components. Impulse conduction .Cardiac Cycle: Definition,Phases of cardiac cycle, Heart sounds-causes, character.ECG: Definition, Different types of leads. Heart block.
- Cardiac output: Definition, Normal value. Stroke volume and itsregulation. Heart rate and its regulation.
- Arterial Blood Pressure: Definition, Normal values and its variations. Regulation of BP.
- Arterial pulse.
- Regional Circulation : Coronary and Cerebral.
- Cardiovascular changes during exercise

Module III

Respiratory System

- Introduction: Physiological anatomy - Pleura, trachea – bronchial tree, alveolus,respiratory membrane and their nerve supply, Functions of respiratory system,Respiratory muscles.
- Mechanics of breathing: Intrapleural and lntrapulmonary pressure changes duringrespiration. Chest expansion, Lung compliance: Normal value, pressure-volumeCurve, factors affecting compliance and its variations, Surfactant - Composition,production, functions, RDS.
- Spirometry: Lung volumes and capacities. Timed vital capacity and its clinicalsignificance. Maximum ventilation volume, Respiratory minute volume.
- Dead Space: - Types and their definition.
- Pulmonary Circulation, ventilation-perfusion ratio and its importance.
- Transport of respiratory gases: Diffusion across the respiratory membrane. Oxygentransport- Different forms, oxygen-hamoglobin dissociation curve. Factors affecting it. Carbon dioxide transport: Different forms, ChlorideShift.
- Regulation of Respiration: Neural Regulation. Hering-breuer's reflex. Voluntarycontrol, Chemical Regulaton.
- Hypoxia: Effects of hypoxia, Types of hypoxia, Hyperbaric oxygen therapy,AcclimatizationHypercapnoea, Asphyxia, Cyanosis-types and features. Dysbarism.
- Disorders of Respiration: Dyspnoea, Orthopnoea, hyperpnoea,hyperventilation,apnoea, tachypnoea, periodic breathing – types
- Artificial respiration
- Respiratory changes during exercise

Module IV

Nervous System

- lntroduction: Organisation of CNS- central and peripheral nervous system. Functions of nervous system. Synapse: Functional anatomy, classification, Synaptictransmission. Properties.
- Sensory Mechanism: Sensory receptors: Function, classification and properties.Sensory pathway: The ascending tracts- Posterior column tracts, Lateral spinothalamic tract and the anterior Spinothalamic tract- Their origin, course, termination and functions. The trigeminal pathway. Sensory cortex. Somatic Sensations: crude touch, fine touch tactile localization, tactile discrimination, stereognosis, vibration sense,kinesthetic sensations. Pain sensation: mechanism of pain. Cutaneous pain - slow and fast pain, hyperalgesia. Deep pain. Visceral pain- referred pain. Gate control theory of pain. Tabesdorsalis, sensory ataxia.
- Motor Mechanism: Motor cortex. Motor pathway: The descending tracts- pyramidaltracts, extra pyramidal tracts- origin, course, termination and functions. Upper motor neuron and lower motor neuron. Paralysis, monoplegia, paraplegia, hemiplegia andquadriplegia.
- Reflex Action: components, Bell-Magendie law, classification and Properties.Monosynaptic and polysynaptic reflexes, superficial reflexes, deep reflexes. Stretch reflex-structure of

muscle spindle, pathway, higher control and functions. Inverse stretch reflex. Muscle tone - definition and properties hypotonia, atonia and hypertonia. UMNL and LMNL.

- Spinal cord Lesions: Complete transection and Hemisection of the spinal cord.
- Cerebellum: Functions. Cerebellar ataxia.
- Posture and Equilibrium: Postural reflexes - spinal, medullary, midbrain and cerebralreflexes.
- Thalamus and Hypothalamus: Nuclei Functions. Thalamic syndrome.
- Reticular Formation and Limbic System: Components and Functions.
- Basal Ganglia: structures included and functions. Parkinson's disease.
- Cerebral Cortex: Lobes. Brodmann's areas and their functions. Higher functions ofcerebral cortex-learning, memory and speech.
- EEG: Waves and features. Sleep: REM and NREM sleep.
- CSF: Formation, composition, circulation and functions. Lumbar puncture and itssignificance. Blood brain barrier. Hydrocephalus.
- ANS: Features and actions of parasympathetic and sympathetic nervous system.

Course code – SPT2S3
Human Physiology (AOC)

Credits: 2 Contact hours: 2 Total Hours: 30

I. Clinical Examination

l. Examination of Radial Pulse
2. Recording of blood Pressure
3. Examination of CVS
4. Examination of Respiratory system
5. Examination of sensory system
6. Examination of Motor System
7. Examination of reflexes
8. Examination of cranial nerves

Course code – SPT2S4
EXERCISE THERAPY (THEORY)

Credits: 5 Contact hours: 5 Total Hours: 90

Module I

Introduction to Exercise Therapy

The aims of Exercise Therapy, The techniques of Exercise Therapy, Approach to patient's problems, Assessment of patient's condition, Starting Positions - Fundamental positions & derived Positions.

Module II

Methods of Testing

- Measurement of Joint range: ROM-Definition, Normal ROM for all peripheral joints . Goniometer-parts, types, principles, uses; Limitations of goniometry. Techniques for measurement of ROM for all peripheral joints
- Manual Muscle Testing: Introduction to MMT, Principles, Indications & Limitations, Techniques of MMT for group & individual muscles: Techniques of
- MMT for upper limb and lower limb/Techniques of MMT forspine.
- Anthropometric Measurements: Muscle girth-biceps, triceps, forearm, quadriceps, calf
- Tests for Co-ordination

- Measurement of Limb Length: true limb length, apparent limb length

Module III

Relaxation

Definitions: Muscle Tone. Postural tone, ,
Indications of relaxation Methods & techniques of relaxation-Principles & uses: General, Local, Jacobson's, Mitchel's additional methods.

Module IV

Passive Movements

Classification of Passive movements, Specific definitions related to passive movements, Principles of giving passive movements, Indications, contraindications, effects of uses, Techniques of giving passive movements.

Module V

Active Movements

- Types of active movements.
- Free exercise: Classification, characteristics,principles, effects and uses.Assisted Exercise: principles, types and uses.
- Resisted Exercise: Definition, principles, precautions &techniques, effects and uses
- Types of resisted exercises: Manual and Mechanical resistance exercise. Isometricexercise.
- Dynamic exercise/Isotonic :Concentric and Eccentric, constant versus variable resistance, Isokinetic exercise, Open-Chain and Closed - Chain exercise.
- Specific exercise regiments: de LormesMacQueen.Circuit weight training.
- Isometric: BRIME (Brief Resisted Isometric Exercise), Multiple Angle Isometrics, Isokinetic regiments.

Module VI

Proprioceptive Neuromuscular Facilitation

- Definitions & Goals, Basic neurophysiologic principles of PNF: Muscular activity
- Diagonals patterns of movement: upper limb, lower limb
- Procedure: components of PNF.
- Techniques of facilitation.
- Mobility: Contract relax, Hold relax, Rhythmic initiation.
- Strengthening: Slow reversals, repeated contractions, timing for emphasis, rhythmicstabilization.
- Stability: Alternating isometric, rhythmic stabilization.
- Skill: timing for emphasis, resisted progression.
- Endurance: Slow reversals, agonist reversal

Module VII

Suspension Therapy

Definition, principles,advantages, equipments& accessories. Types of suspension therapy: axial, vertical, pendular and uses

Module VIII

Functional Re-education

Lying –side lying-prone lying-quadruped - sitting : Activities on the Mat/Bed,; Sitting activities; Lower limb and Upper limb activities.

Module IX

Stretching

Definition ,types, Effects of stretching, stress-strain curve, Precautions ,indications and contraindications of stretching, Techniques of stretching.

Module X

Manual Therapy & Peripheral Joint Mobilization

Principles, Grades, Indications and Contraindications. Effects

and Uses; Biomechanical basis for mobilization. Effects of joint mobilization, Grades of mobilization, Techniques of mobilization for upper limb, lower limb, Precautions.

Module XI

Balance

Definition, Physiology of balance: contributions of sensory systems, processing sensory information, generating motor output. Components of balance (sensory, musculoskeletal, biomechanical). Causes of impaired balance, Examination & evaluation of impaired balance, Activities for treating impaired balance: mode, posture, movement, Precautions & Contraindications.

Module XII

Co-ordination Exercise

Definitions: Co-ordination, Incoordination.

Causes for Inco-ordination, Test for co-ordination .Principles of co-ordination exercise.Frenkel's Exercise: technique of Frenkel's exercise, Progression, home exercise.

Module XIII

Posture

Definition, Active and Inactive Postures, Postural Mechanism, Patterns of Posture :good and poor.Principles of re-education: corrective methods and techniques, Patient education.

Module XIV

Walking Aids

Types: Crutches, Canes, Frames; Principles and training with walking aids.

Module XV

Individual and Group Exercises

Advantages and Disadvantages, Organisation of Group exercises.

Course code – SPT2S4
Exercise Therapy(AOC)

Credits: 2 Contact hours: 2 Total Hours: 30

The students of exercise therapy are to be trained in practical Laboratory work for all the topics discussed in theory. The student must be able to evaluate and apply judiciously the different methods of exercise therapy techniques on the patients. They must be able to

l. Demonstrate the technique of measuring using goniometry
2. Demonstrate muscle strength using the principles and technique of MMT
3. Demonstrate the techniques for muscle strengthening based of MMT grading
4 Demonstrate exercise for training co-ordination – Frenkel’s exercise
5. Demonstrate techniques for functional re-education
6. Assess and train for using walking aids
7. Demonstrate mobilization of individual joint regions
8 .Demonstrate the techniques for muscle stretching
9. Demonstrate to apply the technique of passive movements
10. Demonstrate techniques of strengthening muscles using resisted exercises
11. Demonstrate techniques for measuring limb length and body circumference.

References

1. Therapeutic exercise by Barbara Bandy
2. Therapeutic exercise by Carolyn Kisner
3. Principles of exercise therapy by M. Dena Gardiner
4. Practical Exercise therapy by Hollis Margaret

5. Therapeutic exercise by Sydney Litch
6. Therapeutic exercise by Hall & Brody
7. Therapeutic exercise by Basmajjian
8. Physical Rehabilitation by o'Sullivan
9. Therapeutic massage by Sinha
10. Principles of muscle testing by Hislop

SEMESTER III

Course code – SPT3G1
THERAPEUTIC NUTRITION

Credits: 6 Contact hours: 5 Total Hours: 75

Module I

Introduction to Diet Therapy: Routinehospital diets- Regular normal diet, soft diet, liquid diet**;** Psychology of feeding patients;Role of dietician.

Diet in fever

Modification of diet in fever, Typhoid,Malaria and Tuberculosis. Metabolism in fever, General dietary consideration.

Module II

Diet in gastrointestinal diseases- Aetiology, symptoms and dietary management of constipation, diarrhoea and peptic ulcer.

Module III

Diet in cardiovascular diseases- Aetiology, symptoms and dietary management of Atherosclerosis, Hypertension

Module IV

Diet in Diabetes mellitus- Aetiology, symptoms, types and dietary modifications.

Module V

Diet in obesity and Leanness- Types, causes, dietary modifications and complications.

Module VI

Diet in renal diseases- Nephritis, Nephrosis, acute and chronic renal failure and renal calculi - Causes, symptoms and dietary management .Dialysis-Types and dietary management.

Module VII

Diet in diseases of liver and gall bladder-Aetiology, symptoms and dietary management of hepatitis, cirrhosis ,hepatic coma, cholecystitis, cholelithiasis, ,

References

1. Robinson C H, Lawler M R, Cheweth W L and Gaswick A E (1986), Normal and Therapeutic Nutrition, 17th Edition, Mac Milan Publishers
2. Mohan K L, Krause M V, (2002), 2nd Edition. Food, Nutrition and Diet Therapy, WS Suder's Co., Philadelphia
3. Antia P, Clinical Dietetics and Nutrition, 2nd Edition, Oxford University Press.
4. Guthrie H A, Picciano M F, (1995), Human Nutrition, Mosby, St. Louis Missionary.
5. Michael Sharon (1994), Complete Nutrition, Avery publishing Group, New York
6. Garrow J S, James W P T, Ralph A, (2000), Human Nutrition and Dietetics, 10th Edition, Churchill, Livingstone, London.

Course code – SPT3G2
GENERAL PSYCHOLOGY AND SPORTS PSYCHOLOGY

Credits: 6 Contact hours:5 Total Hours: 75

Module I

Introduction to Psychology: Schools: Structuralism, Functionalism, behaviourism, psychoanalysis. Methods: Introspection, observation, inventory and experimental method. Branches: pure psychology and applied psychology. Psychology and physiotherapy

Module II

Growth and Development: Life span: different stage of development (Infancy, childhood, adolescence. adulthood, middle age, old age), Heredity and environment: role of heredity and environment in physical and psychological development, "Nature v/s Nature controversy"

Module III

Sensation, attention and perception. Sensation: Vision, Hearing, Olfactory, Gustatory and Cutaneous sensation, movement, equilibrium and visceral sense. Attention: Types of attention,Determinants of attention (Subjective determinants and objective determinants). Perception:Gestalt principles of organization of perception (principle of figure ground and principles ofgrouping), factors influencing perception (past experience and context). Illusion and hallucination: different types

Module IV

Motivation: Motivation cycle (need, drive, incentive, reward), Classification of motives, Abraham Maslow's theory of need hierarchy. Emotions: Three levels of analysis of emotion (physiological level, subjective state, and overt behaviour). Theories of emotion. Stress and management of stress

Module V

Intelligence: Theories of intelligence, Distribution of intelligence, Assessment intelligence.
Thinking: Reasoning: deductive and inductive reasoning. Problem solving: rules in problem solving . Creative thinking: steps in creative thinking, traits of creative people.

Module VI

Learning: Factors affecting learning. Theories of learning: trial and error learning, classical conditioning, Operant conditioning, insight learning, social learning theory.

Module VII

Personality: Approaches to personality: type & trait, behaviouristic, psychoanalytic and humanistic approach. Personality assessment: observation, situational test, questionnaire, rating scale, interview and projective techniques. Defense Mechanisms: denial of reality, rationalization, projection, reaction formation, identification, repression, regression, intellectualization, undoing, introjections, acting out.

Module VIII

Social psychology: Leadership: Different types of leaders. Different theoretical approaches toleadership. Attitude: development of attitude. change of attitude

Module IX

Sports Psychology: Importance and need of Psychological Training in Sports

Module X

The Emotional Contents of Sports : Intrinsic Pressures, Social Pressures & Personal Pressure. Mind- The mechanics of Flight or Fight Response,

Module XI

The Sports Emotional – Reaction profile: Factors affecting performance like Desire, Assertiveness, Sensitivity, Tension Control, Personal Accountability, Self discipline, Confidence, Concentration, Consistency, Commitment and Trait Interaction.

Module XII

Mental Preparation for the Game and Mental Practice for the play. Rational Emotive BehaviouralTherapy for sportsman.

Module XIII

Techniques to Improve Performance: creative Visualisation, Desensitization, Auto-suggestion Therapy, Rational Thinking for specific purpose and Progressive Relaxation procedure

Module XIV

Counselling in sports: Importance & Need of Psychological Counselling, Types of Counselling like Individual, Group, Team etc. Effective Counselling Methods & Techniques, Case studies and Role Plays.

References

1. Feldman.RH (1996). Understanding Psychology, New Delhi. Tata McGraw hill
2. Morgan et al (2003), Introduction to Psychology, Tata McGraw hill
3. Lefton, Psychology: Boston: Alwin&Bacot Company
4. Mangal, S.K. (2002). Advanced Educational Psychology, New Delhi: prentice hall.
5. Atkinson (1996). Dictionary of Psychology
6. Sports Psychology by Yadvinder Singh, Sports Publications
7. Sports Psychology Basics by Andrew Caruso, Reedswain Publications
8. Key Concepts in Sports Psychology by Ellis Cashmore, Routledge foundation
9. A Comparative Study of Sports Psychology by Dharmendra P Bhatt, Sports Publications
10. Basic Aspect of Sport Psychology by D C Lal, Sports Publications
11. Essential Sport Psychology by Murphy Shane, Human Kine Publications
12. Doing Sport Psychology by Andersen Mark, Human Kine Publications

Course code – SPT3S1

EXERCISE PHYSIOLOGY AND FITNESS

Credits: 5 Contact hours: 3 Total Hours:75

Module I

Health & wellness: Concepts of health, wellness, illness, disease. Lifestyle and health.Patho Physiology of cardiovascular diseases, obesity, Type 2 diabetes, cancer, osteoporosis.Role of physical activity in reducing the risk of these conditions. Effect of physical activity on mental health

Module II

Components of Fitness: Health related and skill/performance related components of fitness, Principles of overload, progression, specificity, reversibility, placement, adaptation.Principles of warm-up and cool-down.

Module III

Definition of strength, power & work, endurance, muscle actions. Physiology of muscle performance: structure of skeletal muscle, chemical & mechanical events during contraction & relaxation, motor unit, force gradation..Resistance Training: Local muscular endurance training. Strength training, Safe lifting technique, Safety in the weights room, Phases of a resistance training session, Terminology of resistance training, Spotting.

Module IV

Body composition: An overview of human body composition, Factors influencing body Composition.

Moduel V

The acute and chronic effects and adaptations of exercise on the respiratory, muscular, cardiovascular,neurological and endocrine systems. Physiology of ageing.

Module VI

Aerobic Exercise: Definition, principles, stages, types. Training the aerobic and anaerobic energy systems: Definition of aerobic and anaerobic training systems. Application of energy systems to training principles .Maintenance of aerobic and anaerobic fitness.

Module VII

Training the muscular system for strength and endurance: Measurement of muscular strength

and endurance. Gender differences in strength.Principles of strength training.

Course code – SPT3S2
Exercise Physiology & Fitness (AOC)

Credits: 3 Contact hours: 2 Total Hours:30

1. Theoretical explanation and demonstration and assessment of cardio respiratory fitness
2. Theoretical explanation and demonstration of Cardio respiratory exercises (VO2 Max)
3. Assessment of muscular fitness: Muscle strength, endurance and flexibility exercises (Bench press, Jumps, Push ups, Sit and Reach Test)

References

1. Basic Anatomy of Physiology of exercise by Piyush Jain
2. Introduction to anatomy & Physiology of Exercise by SandhyaTiwari
3. Essential of Physical Education & Sports by Dr. Ajmer Singh & others
4. Essential of Exercise Physiology – Lessy G. Shower
5. Devries, H.A.Physiology of Exercise for Physical Education and Athletics. London: Staoles.
6.David, “Wellness Concepts and Applications” (2nd Edition), Mosby.

Course code – SPT3S3
CLINICAL ORTHOPAEDICS & SPORTS MEDICINE -I

Credits: 5 Contact hours: 5 Total Hours:75

Module I

Introduction

Introduction to orthopaedics.Clinical examination in an Orthopaedic patient. Common investigative procedures. Radiological and Imaging techniques in Orthopeadics, Inflammation and repair, Soft tissue healing.

Module II

Traumatology

Fracture-Definition, Types, Signs and symptoms. Fracture healing, complications of fractures.Conservative and surgical approaches. Principles of management- reduction (open/closed,immobilization etc.), subluxation/dislocations- definition, signs and symptoms, management(conservative and operative)

Module III

Fractures and dislocations of upper Limb:

Fractures of upper Limb- causes, clinical features, mechanism of injury complications, conservative and surgical management of the following fractures. Fractures of clavicle and scapula. Fractures of greater tuberosity and neck of humerus. Fracture shaft of humerus. Supracondylar fracture of humerus.Fracturcs of Capitulum, radial head, olecranol, coronoid, and epicondyles. Side swipe injury of elbow. Both bone fractures of ulna and radius. Fracture of forearm- monteggia, galaezzi fracture-dislocation. Chauffer’s fracture.Colle’s fracture. smith's fracture, scaphoid fracture. Fracture of the metacarpals. Bennett's fracture. Fracture of

phalanges (proximal and middle)
Dislocations of Upper Limb - Anterior dislocation of shoulder - mechanism of injury, clinical feature, complications, conservative management (Kocher's and Hippocrates maneuver) surgical management (putti plat, bankart's) etc. Recurrent disiocation of shoulder, Posterior dislocation of shoulder-mechanism of injury, clinical features and management. Posterior dislocation of elbow-mechanism of injury, clinical feature, complications & management. - crush injuries.Flexor and extensor injuries

Module IV

Fracture of Spine

Fracture of Cervical Spine- Mechanism of injury, clinical feature, complications Management-immobilization (collar, cast, brace, traction); Clay shoveller's fracture. Hangman's fracture, Fracture odontoid, Fracture of atlas, Fracture of Thoracic and Lumbar Regions- Mechanism of injury, clinical features, management - conservative and surgical of common fractures around thoracic and lumbar regions, Fracture of coccyx. Fracture of Rib Cage- Mechanism of injury, clinical features, management for fracture Ribs, Fracture of sternum.

Module V

Fractures and Dislocations of Lower Limb

Fracture of Pelvis and Lower Limb- causes, clinical features, mechanism of injury, complications conservative and surgical management of the following fractures: Fracture of pelvis. Fracture neck of femur-classification, clinical features, complications, management - conservative and surgical. Fractures of trochanters, Fracture shaft of femur-clinical features, mechanism of injury. Complications, management-conservative and surgical. Supracondylar fracture of femur, Fractures of the condyles of femur. Fracture patella, Fractures of tibial condyles, Both bonfracture of tibia and fibula, Dupuytren's fracture, Maisonneuve's fracture. Pott's fracture-mechanism of injury, management Bimalleolar fracture, Trimalleolar fracture, Fracture calcaneum mechanism of injury, complications and management, Fracture of talus. Fracture of metatarsals-stress fractures jone's fracture, Fracture of Phalanges. Dislocations of Lower limb- mechanism of injury, clinical features, complications, management of the following dislocations of lower limb. Anterior dislocations of hip.Posterior dislocation of hip.Central dislocation of hip, dislocation of patella, recurrent dislocation of patella.

Module VI

Soft Tissue Injuries

Define terms such as sprains, strains, contusion, tendinitis, rupture, tenosynovitis, tendinosis, bursitis. Mechanism of injury of each, clinical features, managements- conservative and surgical of the following soft tissue injuries: Meniscal injuries of knee, Cruciate injuries of knee, Medical and lateral, collateral injuries of knee, Lateral ligament of ankle, Wrist sprains. Strains-quadriceps, hamstrings, calf, biceps, triceps etc. Contusions- quadriceps, gluteal, calf, deltoid etc. Tendon ruptures- Achilles, rotator cuff muscles, biceps, pectorals etc..

Module VIII

Amputations

Definition, levels of amputation of both lower and upper limbs, indications, complications.

References:

1. Outline of Fractures - John Crawford Adams.
2. Outline of Orthopedics - John Crawford Adams.
3. Text book of Orthopedics - Maheswari
4. Apley's Orthopedics
5. Textbook of Orthopedics and Traumatology- M.N.Natarajan.

Course code – SPT3S4
ELECTROTHERAPY-I

Credits: 5 Contact hours: 5 Total Hours: 90

Module I

Introductory Physics (Familiarisation only)

Electricity definition, types, Static electricity, Current Electricity. Magnetism: Definition, properties, electro-magnetic induction, electro-magnetic spectrum.Valves, transformers, types,principles, construction and working. Ionization: Principles, effects of various technique of medical ionization.

Module II

Therapeutic Electricity: *Low frequency Currents*

Basic types of current-DirectCurrent: types, physiological & therapeutic effects. Alternating Current. Types of Current used in Therapeutics, Modified DC, Faradic Current, Galvanic Current. Modified AC, Sinusoidal Current, Diadynamic Current. Faradic Current: Definition, Modifications, Techniques of Application of Individual, Muscle and Group Muscle Stimulation, Physiological & Therapeutic effects of Faradic Current, Precautions, Indications & Contra-Indications, Dangers. Galvanic Current: Definition, Modifications, Physiological & Therapeutic effects of Galvanic Current, Indications & Contra-Indications, Dangers, Effect of interrupted galvanic current on normally innervated and denervated muscles and partially denervated muscles. Sinusoidal Current &Diadynamic Current in Brief. HVPGS- Parameters & its uses. Ionization / Iontophoresis: Techniques of Application of Iontophoresis, Indications,Selection of Current, Commonly used Ions (Drugs) for pain, hyperhydrosis, wound healing. Cathodal /Anodal galvanism.Micro Current & Macro Current.

Module III

Principles of Application

Electrode tissue interface, Tissue Impedance, Types of Electrode, Size & Placement of Electrode- Waterbath, Unipolar Bi-polar, Electrode coupling, Current flow in tissues, Lowering of Skin Resistance.

Module IV

Nerve Muscle Physiology

Stimulation of Healthy Muscle, Stimulation of Denervated Muscle, Stimulation for Tissue repair.

Module V

TENS

Define TENS. Types of TENS, conventional TENS, Acupuncture TENS, Burst TENS, Brief & Intense TENS, Modulated TENS, Types of Electrodes & Placement of electrodes, Dosage parameters, Physiological & Therapeutic effects, Indications & Contraindications.

Module VI

Electro-diagnosis

FG Test. SD Curve: Methods of Plotting SD Curve, Apparatus selection, Characters of Normally innervated Muscle, Characters of Partially Denervated Muscle, Characters of Completely denervatedMuscle.,Chronaxie&Rheobase. Nerve conduction velocity studies. EMG. Bio-feed back

Module VII

Medium Frequency

lnterferentialTherapy: Define IFT, Principle of Production of IFT, Static Interference System, Dynamic Interference system, Dosage Parameters for IFT, Electrode placement in IFT, Physiological & Therapeutic effects, Indications & Contraindications. Russian Current.Rebox type Current.

References

1. Claytons Electrotherapy by Forster &Plastanges
2. Electrotherapy Explained by Low & Reed
3. Clinical Electrotherapy by Nelson
4. Electrotherapy Evidene based practice by Sheila Kitchen
5. Physical agents by Michile Cameroon

6. Principles of Electrotherapy by Michile Cameroon
7. Thermal agents by Susan Michlovitz

SEMESTER IV

Course code – BOCG401

SOFT SKILLS AND PERSONALITY DEVELOPMENT

Credits: 4 Contact hours: 4 Total Hours: 40

Module I

Personal Skills**:** Knowing oneself- confidence building- defining strengths- thinking creatively- personal values-time and stress management.

Module II

Social Skills**:** Appropriate and contextual use of language- non-verbal communication-interpersonal skills- problem solving.

Module III

Personality Development**:** Personal grooming and business etiquettes, corporate etiquette,social etiquette and telephone etiquette, role play and body language.

Module IV

Presentation skills:Group discussion- mock Group Discussion using video recording - publicspeaking.

Module V

Professional skills**:** Organisational skills- team work- business and technical correspondence-job oriented skills-professional etiquettes.

Books for reference:

1. MatilaTreece, Successful communication, Allyun and Bacon Pubharkat.
2. Jon Lisa Interatid skills in Tourist Travel Industry Longman Group Ltd.
3. Robert T. Reilly, Effective communication in tourist travel Industry, Dilnas Publication
4. Boves, Thill Business Communication Today McGraw Hills Publication
5. Dark Studying International Communication Sage Publication
6. Murphy Hildebrandt Thomas Effective Business Communication McGraw Hill

Course code - SPT4G1

FOOD SCIENCE

Credits: 4 Contact hours: 2 Total Hours: 60

Module I

Cereals and Millets - Composition ,nutritive value of rice, wheat processing. Breakfast cereals.

Module II

Pulses and Legumes - Nutritive value of pulses and legumes.Processing and storage of pulses.Toxic constituents.

Module III

Milk & Milk Products – Composition and Nutritive value, types of milk products Processing.Milkcookery .

Module IV

Vegetables and Fruits – Classification, Composition & Nutritive value, storage and selection.

Module V

EGGS –Sructure, Composition ,Nutritive value and quality of egg .

Module VI

Flesh Food – Meat:Composition& nutritive value of meat.meat cookery.

Poultry-: Composition ,Classification and Nutritive value .

Fish :Classification,selection, Composition & nutritive value

Module VII
Sugar & Sugar Products – Nutritive value of sugar and sugar related products .Sugar cookery.
Module VIII
Fats & Oils – Nutritional importance ,composition, specific fats & oil, processing, Rancidity.
Suggested Readings:

- Food Science-Potter
- Food Science –B.Srilakshmi.

Boella, M.J.(1983):Personnel Management in the Hotel and Catering Industry,3rd Ed., Hutchinson, London.
•Drucker, P.F. (1975): Management Allied Publishers, New Delhi.
•Feam, D.(1969):Management Systems for the Hotel Catering and Allied Industries.
• Hitchcock, M.J.(1980):Food Service Systems Administration, Mac million, New york.
• Koontz, H.,ODonnel, C., Wehrich, H.(1983):Essentials of Management, Indian Ed.
•Moore,c.L.andJaedicke, R.K.: Managerial Accounting, South Western Publishing Co.
•Kotas, R. (1972): Accounting in the Hotel and Catering Industry.

Course code – SPT4G2
FIRST AID (AOC)

Credits: 4 Contact hours: 4 Total Hours: 60

Module I
First Aid
1. Assessment , indication and technique of CPR
2. Artificial ventilation
3. First Aid in cardiac arrest
4. First Aid in Respiratory failure/conditions
5. First Aid in Burns
6. First Aid in Electric shock
7. First Aid in Drowning
8. First Aid in Spinal cord injuries
9 .First Aid in Poisoning
10. Instrumentation used in First Aid (First Aid kit)
11. First Aid in RTA
: **Module II**
Bandaging: Basic turns; Bandaging extremities; Triangular Bandages and their application.
Bed making. Nursing positions- prone, lateral, dorsal, dorsal recumbent,
Fowler's positions.
Lifting and Transporting Patients:
References
1. First aid in Emergency, St. John ambulance Association
2. Physiotherapy in Burns & Reconstruction by Glassey
3. Surgical & Medical Procedures for Nurses & Paramedical staff by Nathan
4. First aid & Management of general injuries & common ailments by Gupta &Gupt

Course Code:SPT4S1

ADVANCED SPORTS PHYSIOTHERAPY

Credits: 4 Contact hours: 4 Total Hours: 60

Module I

Introduction to physiotherapy: meaning, scope, history,ethics in physiotherapy, role of physiotherapy in meeting health care needs.

Module II

Classification of sports injuries: According to cause- direct, indirect, overuse. According to tissue type- soft tissueinjuries(sprains, strains, contusions, muscle cramps, muscle soreness), hard tissue injuries (fractures, dislocations).Complications of sports injuries. Management of sports injuries.

Module III

Prevention of sports injuries: physical fitness, warm-up, fatigue, overuse syndrome, equipment, environmental factors, clothing, footwear. Protective equipments- helmets, kneepads, gloves...etc

Module IV

Physiotherapy management for specific sports injuries: Achilles tendon rupture, Ankle sprain, collateral and cruciate injuries of knee, meniscal injuries of knee, pre- patellar bursitis, subacromial bursitis, supraspinatus and bicipital tendinitis, hamstring strains, quadriceps contusion, tennis elbow, golfer's elbow, dequervain's tenosynovitis, trigger and mallet finger, plantar fasciitis, wrist sprains.

Module V

Sports massage and Hydrotherapy: Sports massage: classification of massage techniques, principles of sports massage, indications and contraindications. Hydrotherapy: definition, goals, indications and contraindications.

Module VI

Advanced techniques in sports physiotherapy: manual therapy- maitland, mulligan, kaltenborn. taping- definition, types. Pilates- technique, uses.Constraint induced movement therapy (CIMT)- Definition, technique, uses.

Module VII

Yogaasanas and pranayama- Aims,Types of asanas and pranayamas , physiological values,effects and uses in sports, importance of yoga in cardio-vascular and neurological conditions.

Module VIII

Evidence based practice: Definition, Evidence based physiotherapy, Principles, Concepts, E-Models, outcome measures, Electronic bibliographic data bases, Biostatistics, Meta-analysis, Critically Appraised Topics(CAT's), Clinical practice guidelines(CPG's), Evidence based policy.

References

1. Tidy's Physiotherapy
2. Textbook of orthopedics by Cash
3. Clinical Orthopedic rehabilitation by Brotzman
4. Orthopedic Physiotherapy by Jayant Joshi
5. Physical Rehabilitation Assessment and Treatment by O' Sullivan Schmitz
6. Sports Physiotherapy by Maria Zuluaga
7. Sports Physiotherapy-K. C. Shekhar
8. Preventive & Corrective Physical Education by George Thomas
9. Evidence based rehabilitation : A guide to practice by Mary C Law and Joy MacDermid. 2008

Course code – SPT4S2

CLINICAL ORTHOPAEDICS & SPORTS MEDICINE-II

Credits: 5 Contact hours: 4 Total Hours: 75

Module I

Deformities:

Clinical features, complications, medical and surgical management of the following Congenital and Acquired deformities. Congenital Deformities - CTEV.CDH, Torticollis Scoliosis.Flat foot.Vertical talus, Hand anomalies- syndactyly, polydactyly and ectrodactly. Arthrogryposis multiplex congenita (amyoplasiacongenita). Limb deficiencies- Amelia and Phocomelia.Klippelfeil syndrome.Osteogenesisimperfecta (fragile ossium).Cervical rib. Acquired deformities- Acquired Torticollis.Scoliosis.Kyphosis.Lordosis. Genu varum.Genu valgum.Genu recurvatumCoxavara.Pescavus.Hallux rigidus.Hallux valgus. Hammer toe. Metatarsalgia.

Module II

Disease of Bones and joints: Causes, Clinical features, Complications, Management- medical and surgical of the following conditions:

- Infective conditions: Osteomyelitis (Acute/chronic). Brodie's abscess. TB spine andmajor joints like shoulder, hip, knee, ankle, elbow etc.
- Arthritic conditions: Pyogenic arthritis. Septic arthritis.Syphilytic infection of joints.
- Bone Tumors: classification clinical features, management-medical and surgical of thefollowing tumors: Osteoma. Osteosarcoma, Osteochondroma. Enchondroma. Ewing'ssarcoma. Gaint cell tumor. Multiple myeloma. Metastatic tumors.
- Perthes disease, Slipped Capital Femoral Epiphysis and Avascular Necrosis.
- Metabolic Bone Diseases: Rickets. Osteomalacia, Osteopenia ,Osteoporosis.

Module III

Inflammatory and Degenerative Conditions: Causes. Clinical feature, complications, deformities, radiological features, management- conservative and surgical for the following conditions: Osteoarthritis. Rheumatoid arthritis.Ankylosing spondylitis Gouty arthritis. Psoriatic arthritis.Hemophilic arthritis.Still's disease (juvenile rheumatoid arthritis).Charcot'sjoints.Connective Tissue Disorders- Systemic Lupus Erythematosis Scleroderma, Dermatomyositis,Poliomyelitis, Mixed connective tissue Disease (MCTD)

Module IV

Syndromes: Causes, clinical feature, complications, management-conservative and surgical of thefollowing: Cervico brachial syndrome. Thoracic outlet syndrome.Vertebrobasilar syndrome.Scalenus syndrome.Costoclavicular syndrome. Levator scapulae syndrome.Piriformissyndrome.

Module V

Cervical and Lumbar pathology:

Causes, clinical features, patho-physiology, investigations, Management-Medical and surgical for the following: Prolapsed interverbral disc (PID), Spinal canal Stenosis.
Spondylosis (cervical and lumbar) Spondylolysis.Spondylolisthesis. Lumbago/Lumbosacral strain. Sacralisation.Lumbarisation.Coccydynia.Hemivertebra.

Module VI

Orthopedic Surgeries:

Indications, Classification, Types, Principles of management of the following Surgeries: Arthrodesis.Arthroplasty (partial and total replacement).Osteotomy, External fixators.Spinal stabilization surgeries (Harrington's, Luque's, Steffiplating) etc, Limb re-attachments.

Module VII

Regional conditions:

Definition, Clinical features and management of the following regional conditions

- Shoulder: Periarthritic shoulder (adhesive capsulitis). Rotator. Cuff tendinitis.Supraspinatus Tendinitis. Infraspinatus Tendinitis. Bicipital Tendinitis. Subacromial Bursitis.
- Elbow: Tennis Elbow. Golfer's Elbow. Olecranon Bursitis (student's elbow). Triceps Tendinitis.
- Wrist and Hand: De Quervain's Tenosynovitis. Ganglion, Trigger Finger/ Thumb.Mallet Finger, Carpal Tunnel Syndrome, Dupuytren's Contracture.

- Pelvis and Hip: IT Band Syndrome. Piriformis Syndrome. Trochanteric Bursitis.
- Knee: OsteochondritisDissecans. Prepatellar and Suprapatellar Bursitis. Popliteal Tendinitis. Patellar Tendinitis. Chondromalacia Patella. Plica Syndrome. Fat PadSyndrome (Hoffa's syndrome).
- Ankle and Foot: Ankle Sprains. Plantar Fasciitis/Calcaneal Spur. Tarsal TunnelSyndrome. Achilles Tendinitis. Metatarsalgia. Morton's Neuroma.

References:

1. Outline of Fractures - John Crawford Adams.
2. Outline of Orthopedics - John Crawford Adams.
3. Text book of Orthopedics - Maheswari
4. Apley's Orthopedics
5. Textbook of Orthopedics and Traumatology- M.N.Natarajan.

Course code – SPT4S2
ELECTROTHERAPY-II

Credits: 4 Contact hours: 4 Total Hours: 75

Module I

Thermo &Actinotherapy (High Frequency Currents)

Electromagnetic Spectrum. SWD: Define short wave, Frequency & Wavelength of SWD, Principles of Production of SWD, Types of SWD Electrode, Placement & Spacing of Electrodes,Tuning, Testing of SWD Apparatus; Physiological & Therapeutic effects, Indications &Contraindications, Dangers, Dosage parameters.

Module II

Pulsed Electro Magnetic Energy: Principles, Production & Parameters of PEME, Uses of PEME.

Module III

UltraSound: Define Ultrasound, Frequency, Piezo Electric effects: Direct, Reverse, Production of US,Treatment Dosage parameters: Continuous & Pulsed mode. Intensity, US Fields: Near field,Far field, Half value distance, Attenuation, Coupling Media, Thermal effects, Non-thermaleffects, Principles & Application of US: Direct contact, Water bag, Water bath. Uses of US, Indications & Contraindications, Dangers of Ultrasound.Phonophoresis: Define Phonophoresis, Methods of application, Commonly used drugs, Uses, Dosages of US.

Module IV

IRR: Define IRR, wavelength & Parameters, Types of lR generators, Production of IR, Physiological & Therapeutic effects, Duration & Frequency of treatment, Indication & Contraindication.

Module V

UVR: Define UVR, Types of UVR, UVR generators: High pressure mercury vapour lamp, Watercooled mercury vapour lamp, Kromayer lamp, Fluorescent tube, Theraktin tunnel, PUVAapparatus. Physiological & Therapeutic effects.Sensitizers & Filters. Test dosage calculation.Calculation of E1, E2, E3,E4 doses. Indications, contraindications, Dangers.Dosages fordifferent therapeutic effects.

Module VI

LASER: Define LASER, Types of LASER. Principles of Production, Production of LASER by variousmethods, Methods of application of LASER, Dosage of LASER, Physiological & Therapeutic effects of LASER, Safety precautions of LASER, Classification of LASER. Energy density & power density.

Module VII

Superficial heating Modalities

(1) **Wax Therapy**: Principle of Wax therapy, application, latent Heat, Composition of Wax Bath Therapy unit, Methods of application of Wax, Physiological & Therapeutic

effects, lndications& Contraindication, Dangers.
(2) **Contrast Bath**: Methods of application, Therapeutic uses, Indications & contraindications.
(3) **Moist Heat Therapy**: Hydro collator packs-in brief, Methods of applications, Therapeutic uses, Indications & Contraindications.
(4) **Cryotherapy**: Define-Cryotherapy, Principle Latent heat of fusion, Physiological & Therapeutics effects, Techniques of Applications, Indications & Contraindications, Dangers, Methods of application with dosages.

Course code – SPT4S2
Electrotherapy II (AOC)

Credits: 2 Contact hours: 2 Total Hours: 40

The students of Electrotherapy must be able to demonstrate the use of electrotherapy modalities applying the principles of electrotherapy with proper techniques, choice of dosage parameters and safety precautions.
1. Demonstrate the technique for patient evaluation, receiving the patient and positioning the patient for treatment using electrotherapy.
2. Collection of materials required for treatment using electrotherapy modalities and testing of the apparatus.
3. Demonstrate placement of electrodes for various electrotherapy modalities.
4. Electrical stimulation for the muscles supplied by the peripheral nerves
5. Faradism under pressure for UL and LL
6. Plotting of SD curve
7. Application of Ultrasound for different regions-various methods of application
8. Demonstrate treatment techniques using SWD and IRR
9. Demonstrate treatment method using IFT for various regions.
10. Calculation of dosage and technique of application of LASER
11. Technique of treatment and application of Hydrocollator packs, cryotherapy, contrast bath and wax therapy.
12. Winding up procedure after any electrotherapy treatment method.

References

1. Claytons Electrotherapy by Forster &Plastanges
2. Electrotherapy Explained by Low & Reed
3. Clinical Electrotherapy by Nelson
4. Electrotherapy Evidence based practice by Sheila Kitchen
5. Physical agents by Michile Cameroon
6. Principles of Electrotherapy by Michile Cameroon
7. Thermal agents by Susan Michlovi

Course code – SPT4S5

PROJECT

Credits: 3 Contact hours: 2 Total Hours: 30

SEMESTER V
Course code –BOCG501
ENVIRONMENTAL STUDIES

Credits: 4 Contact hours: 4 Total Hours: 60

AIM

- To bring in proper awareness among the students on Environmental Issues

OBJECTIVES

- To built a pro-environmental attitude and a behavioral pattern in society based on sustainable lifestyles
- To impart basic knowledge on pollution and environmental degradation.

Module I **(15 hrs)**

Introduction to Environment Science : Development and Environment
Human Population and the Environment **:** Population growth, variation among nations-Population explosion –Case Studies.
Sustainable Development – Concept, Policies, Initiatives and Sustainability strategies, Human Development Index, Gandhian Principles on sustainability.

Natural systems
Earth –structure, soil formation- factors affecting, soil types
Atmosphere – structure and composition
Hydrosphere – Oceans, rivers, estuaries, Lakes etc.
Physical environment of aquatic systems

Resource utilization and its impacts on environment
Renewable and non-renewable resources
Forest resources : Use and over-exploitation, Timber extraction, mining, dams and their effects on forest and associated biota.
Water resources : Use and over-utilization of surface and ground water, conflicts over water, River valley projects and their environmental significance- Case studies – Sardar Sarovar
Mineral resources : Use and exploitation, environmental impacts of extraction and use of mineral resources,
case studies – sand mining, metal mining, coal mining etc.
Food resources : World food issues, changes caused by - overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, and salinity. Case studies
Energy resources : Growing energy needs, renewable and non renewable energy sources, use of alternate energy sources. Case studies.
Land resources : Land as a resource, land degradation, soil erosion and desertification.

Module II **(15 hrs)**

Ecosystems
Concept of an ecosystem-Structure and function of an ecosystem-Producers, consumers and decomposers-Energy flow in the ecosystem-Ecological succession-Food chains, food webs and ecological pyramids.

Ecological interactions Types, characteristic features, structure and function of the following ecosystem : Forest, Grassland, Desert, Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries). Significance of wetland ecosystem – Classification, Ecology and Biogeochemistry. Threats and Management

Biodiversity and its conservation

Introduction – Definition : genetic, species and ecosystem diversity, Biogeographical classification of India, Value of biodiversity : consumptive use, productive use, social, ethical, aestheticand option values, Biodiversity at global, National and local levels, India as a mega-diversity nation Hot-spots of biodiversity, Threats to biodiversity : habitat loss, poaching of wildlife, man-wildlife conflicts., Endangered and endemic species of India, Conservation of biodiversity : In-situ and Ex-situ conservation of biodiversity.People's participation in biodiversity conservation- Biodiversity Register;Global Climate change and Biodiversity.

Module III (15 hrs)

Environmental Pollution

Air pollution: sources- mobile, stationary, fugitive; type of pollutants- primary and secondary air pollutants, Smog- classical smog and photochemical smog, Acid rain; Ozone depletion; impacts of air pollutants on environment; control measures.

Water pollution: Sources- Point and non-point sources; Types – chemical, biological and physical; impacts on the environment; water quality – water quality standards ; control measures.

Soil pollution: sources and impacts

Noise pollution: sources, impacts on health, management strategies

Thermal pollution andNuclear pollution - sources and impacts

Solid wastes – types, sources, impacts on Environment.

Municipal Solid waste Management: Essential steps- source segregation , collection ,Processing and Disposal of residues.

Environmental Pollution - case studies

Natural ad anthropogenic Disasters and their management : floods, earthquake, cyclone and landslides.

Module IV (15 hrs)

History of environment protection

Silent spring, Ramsar Convention, Stockholm conference, Montreal protocol, Kyoto protocol, earth summit, Rio+10, Rio+20

Brundtland commission Report, Sustainable development

Environmental movements in India

Global initiatives for Environmental protection

Environmental education –basics

Tblisi conference,

Environment Management Systems

Environment Information Systems

Environmental Impact assessment (EIA) – definition and significance, EIA notification; National and state level Authorities; role of public in EIA of a development project

Social Issues and the Environment

Environmental movements

From Unsustainable to Sustainable development-Urban problems related to energy-

Water conservation- Rain water harvesting; Watershed management

Environmental ethics : Issues and possible solutions.

Environmental Economics
Green house effect and Climate change
Natural and Anthropogenic disasters
Disaster Management
Wasteland reclamation-Consumerism and waste products-
Environmental Laws – General introduction; Major laws in India.Environment Protection Act-Air (Prevention and Control of Pollution) Act-Water (Prevention and control of Pollution) Act-Wildlife Protection Act-Forest Conservation Act-Issues involved in enforcement of environmental legislation-Public awareness.

TEXT BOOK

Textbook for Environmental Studies For Undergraduate Courses of all Branches of Higher Education - Erach Bharucha for University Grants Commission

Further activities

- Field work
- Visit to a local area to document environmental assets river/forest/grassland/hill/mountain
- Visit to a local polluted site-Urban/Rural/Industrial/Agricultural/ Solid waste dump yards
- Study of common plants, insects, birds.
- Study of simple ecosystems-pond, river, hill slopes, etc. (Field work Equal to 5 lecture hours)

Course code – SPT5G1
COMMUNITY NUTRITION

Credits: 5 Contact hours: 3 Total Hours: 75

Module I
Introduction of community nutrition,Concept of Community Nutrition, Nutritional problems confronting our country, - Causes of mal nutrition in India.
Module II : Methods of assessment of nutritional status, Malnutrition & Infection.
Module III: National and International agencies in community nutrition, Integrated Child Development Service(ICDS), School Nutrition Programme (SNP), World Health Organisation (WHO), United Nations Children Emergency Fund(UNICEF), National Institute of Nutrition (NIN), Central food Technological Research (CFTRI). Nutrition Education: - Importance of nutrition education, Nutrition education methods: - Posters, Charts, Audio visual aids, Lectures
Module IV: Strategies to combat Nutritional problems – Fortification, supplementation,Enrichment. Immunization Programme. Breast Feeding and its advantages- Weaning foods , Importance of correct and timely weaning

References:
Mahan, L.K. and Escott-Stump, S. (2000): Krause's Food Nutrition and Diet Therapy, 10th Edition, W.B. Saunders Ltd.

•Shils, M.E., Olson, J.A., Shike, M. and Ross, A.C. (1999): Modern Nutrition in Health and Disease, 9th Edition, Williams and Wilkins.

Escott-Stump, S. (1998): Nutrition and Diagnosis Related Care, 4th Edition, Williams and Wilkins.

•Garrow, J.S., James, W.P.T. and Ralph, A. (2000): Human Nutrition and Dietetics, 10th Edition, Churchill Livingstone

.• Williams, S.R. (1993): Nutrition and Diet Therapy, 7th Edition, Times Mirror/Mosby College Publishing

.• Davis, J. and Sherer, K. (1994): Applied Nutrition and Diet Therapy for Nurses, 2nd
• Edition, W.B. Saunders Co. Walker, W.A. and Watkins, J.B. (Ed) (1985): Nutrition in Pediatrics, Boston, Little
,• Brown & Co. Guyton, A.C. and Hall, J.E. (1999): Textbook of Medical Physiology, 9th Edition, W.B. Saunders Co.
• Ritchie, A.C. (1990): Boyd's Textbook of Pathology, 9th Edition, Lea and Febiger, Philadelphia
•Fauci, S.A. et al (1998): Harrison's Principles of Internal Medicine, 14th Edition, McGraw Hill.

Course code – SPT5G2
BASIC NURSING AND HEALTH PROMOTION

Credits: 3 Contact hours: 2 Total Hours: 45

Module I

Nursing

Nursing Principles. Inter- Personnel relationships Environment safety;comfort measures. Aids to rest and sleep.

Bed side Management: Giving and taking Bed pan, Urinal.Observation of stools, urine, Sputum.Use and care of catheters, enema giving.

Methods of Giving Nourishment: Feeding, Tube feeding, drips, transfusion.

Care of Rubber Goods:

Simple Aseptic Technique; Sterilization and Disinfection.

Surgical Dressing: Observation of dressing procedures

Module II

Health Promotion

Principles of Accident Prevention: Safety Education, Efficient Reporting System, Elimination of causative factors, Legalising safety measures, Law enforcement, Alcohol and Drugs

Module III

Health and Safety in Daily Life: Home Safety, Safety outside home. Air, Water, Noise. Crime Prevention

Module III

Health and Safety at work, Worker and physical, chemical and biological agents. Worker and machine. Worker and Worker

Module IV

Modern Life Style and Hypo-Kinetic diseases– Prevention and Management: Innovation, Purchasing power, Media, Pleasure seeking Nature, Hypo-kinetic Diseases- Coronary Heart Disease, Hypertension, Diabetes Mellitus, Obesity, Nutrition and Bone health (preventive aspects)

Course code – SPT5S1
PHYSIOTHERAPY IN ORTHOPAEDICS (THEORY)

Credits: 6 Contact hours: 5 Total Hours: 90

Module I

PT assessment for Orthopaedic conditions

SOAP format. Subjective - history taking, informed consent, personal, past, medical and socioeconomic history, chief complaints, history of present illness. Pain assessment-intensity,character, aggravating and relieving factors, site and location. Objective- on observation - body built swelling, muscle atrophy, deformities, posture and gait. On palpation-tenderness,grades,

muscle spasm, swelling-methods of swelling assessment, bony prominences, soft tissue texture and integrity, warmth and vasomotor disturbances. On examination – ROM active and passive, resisted isometric tests, limb length apparent, true and segmental, girth measurement, muscle length testing-tightness, contracture and flexibility, manual muscle testing, special tests and functional tests. Prescription of home program, Documentation of case records and follow-up.

Module II

Fractures

Physiotherapy assessment in fracture cases: Aims of PT management in fracture cases-short and long term goals.Principles of PT management in fractures - Guidelines for fracture treatment during period of immobilization and guidelines for treatment after immobilization period.

Module III

Specific fractures and dislocations

PT assessment and management of upper limb fractures and dislocations. PT assessment and management of lower limb fractures and dislocations including pelvis. PT assessment and management spinal fractures.

Module IV

Degenerative and Inflammatory conditions

Definition, signs and symptoms, clinical features, radiological features,deformities, medical, surgical management,PT assessment and management and home program for the following conditions - Osteoarthritis - emphasis mainly on knee, hipand hand, Rheumatoid Arthritis, Ankylosing spondylitis, Gout, Perthes disease. Periarthritic shoulder.

Module V

Infective conditions

Definition, signs and symptoms, clinical features, radiological features, medical, surgical management,PT assessment and management for following conditions- Osteomyelitis- acute and chronic, Septic arthritis, Pyogenic arthritis, TB spine **Module VI**

Deformities: Review in detail, the causes, signs and symptoms, radiological features, medical and surgicalManagement,PT assessment and management of the following conditions:
Congenital: CTEV, CDH, Torticollis; pesplanus, pescavus.
Acquired: scoliosis, kyphosis, coxavara; genu varum, valgum and recurvatum.

Module VII

Amputations

Definition, levels, indications, types, PT assessment, aims, management pre and postoperatively. PT management with emphasis on stump care and bandaging, Pre and post prosthetic training, checking out prosthesis, complications of amputations and its management.

Module VIII

Spinal conditions

Review the causes, signs and symptoms, investigations; radiological features, neurological signs. PT assessment, aims and management and home program of the following conditions: Cervical spondylosis, Lumbar spondylosis, Spondylolisthesis, Spinal canal stenosis, Spondylolysis, Sacro-iliac joint dysfunction, Sacralisation, Lumbarisation, Intervertebral disc prolapse, Coccydynia.

Module IX

Effects of spinal traction

Types of traction, modes of application, indications for spinal traction, contraindications, precautions, Limitations of traction.

Module X

Osteoporosis:causes, predisposing factors, investigations and treatment.

Module XI

Orthopaedic surgeries

Pre and post operative PT assessment, goals, precautions and PT management of following

surgeries such as: Arthrodesis, Osteotomy, Arthroplasty-partial and total - Excision arthroplasty, , inter-positional arthroplasty and total replacement: Tendon transplant, Arthroscopy, Spinal stabilization, Re-attachment of limbs, , Synovectomy.

Module XII

Shoulder joint: Shoulder instabilities, TOS, RSD, Impingement syndrome-conservative and Post operative PT managementmanagement. AC joint injuries - rehabilitation. Rotator cuff tears - conservative and surgical repair.

Module XIII

Elbow and forearm

.Total elbow arthroplasty-Post operative PT management.

Module XIV

Wrist and Hand

Total wrist arthroplasty. Repair of ruptured extensor tendons. Carpal tunnel syndrome.

Module XV

Hip: Joint surgeries- hemi and total hip replacement-post operative PT management

Module XVI

Knee:chondroplasty-post operative management.ACL and PCL reconstruction surgeries - Post operative rehabilitation.Meniscectomy and meniscal repair - Post operative management. Plica syndrome and Hoffa's syndrome – conservative management.TKR-rehabilitation protocol.Patellectomy-rehabilitation.

Course code – SPT5S2
Physiotherapy in Orthopaedics (AOC)

Credits: 2 Contact hours: 2 Total Hours: 30

Practical shall be conducted for all the relevant topics discussed in theory in the following forms:

1. Bedside case presentations and case discussions
2. Lab sessions consisting of evaluation and assessment methods on student models, treatment techniques and practice sessions.

References

1. Tidy’s Physiotherapy
2. Textbook of orthopedics by Cash
3. Clinical Orthopedic rehabilitation by Brotzman
4. Essentials of orthopaedics and applied physiotherapy-Jayant Joshi
5. Physical Rehabilitation Assessment and Treatment by O’ Sullivan Schmitz
6. Sports Physiotherapy by Maria Zuluaga

Course code – SPT5S3
PHYSIOTHERAPY IN NEUROLOGY & NEUROSURGERY

Credits: 5 Contact hours: 5 Total Hours: 90

Module I

Neurological Assessment

Required materials for examination, Chief complaints. History taking - Present, Past, medical,familial, personal histories. Observation, Palpation, Higher mental function - Consciousness,Orientation, Wakefulness, memory, Speech, Reading, Language, Writing, Calculations,Perception, Left right confusion, Reasoning and judgement, Motor Examination – Muscle power, Muscle tone, Spasticity, Flaccidity.Reflexes– Developmental reflexes, deep tendon reflexes, Superficial reflexes. sensory examination, Superficial, Deep and Cortical sensations,Special tests - Romberg's Kernig's sign, Brudenzki sign, Tinels's sign, Slum test,

Lehdrmitte'ssign. Bells Phenomenon. Gower's sign, Sun set sign, Battle's sign, Glabellar tap sign etc,Balance examination, coordination examination, Gait analysis , Functional Analysis. Assessment tools & Scales-Modified Ashworth scale, Berg balance scale, Glasgow coma scale, Rancho Los Amigos Scale for Head injury, APGAR score,
Reflex Grading, Differential diagnosis.

Module II

Paediatric Neurology: Developmental milestones, developmental reflexes,Milestone Examination, developmental reflex Examination.Neurological Assessment ,medical,surgical and PT Management of minimum brain damage, Developmental disorders, Cerebral palsy,Autism, Down's Syndrome, Hydrocephalus, Spina bifida and Syringomyelia.

Module III

Evaluation and Management of Brain and Spinal Cord Disorders

History, observation, Palpation, Higher mental function, Cranial nerve examination, Motor & Sensory examination, Reflex testing differential Diagnosis, Balance & Coordination examination, Gait analysis, Functional analysis, List of Problems & Complications, short & Long Term goals and medical,surgical and PT Management of Cerebrovascular Accident, Meningitis, Encephalitis, Head Injury, Brain Tumors and Multiple sclerosis.

Module IV

Evaluation and Management of Cerebellar Spinal Cord and Muscle Disorders

History, Observation, Palpation, Motor & Sensory examination, Reflex testing, differential Diagnosis, Balance & Coordination examination, Gait analysis, Functional analysis, List of Problems & Complications, Short & Long Term goals, Management of Ataxia, , Parkinson's disease, Muscular dystrophy(DMD), Myasthenia Gravis, Eaton-Lambert Syndrome, spinal tumors, Spinal cord injury,Transvers myelitis, Bladder & Bowel Dysfunction, Spinal muscular atrophies.

Module V

Evaluation and Management of Peripheral Nerve Injuries and Disorders

History, Observation, Palpation, Motor & Sensory examination, Reflex testing, differential Diagnosis, Balance & Coordination examination, Gait analysis, Functional analysis, List of Problems & Complications, short & Long Term goals, Management of Guillain-Barre syndrome,Brachial plexus palsy, Thoracic outlet syndrome. Lumbosacral plexus lesions, Phrenic &intercostals nerve lesions, Median nerve palsy, Ulnar nerve palsy, Radial nerve palsy,Musculocutaneous nerve palsy, Anterior & Posterior interosseous nerve palsy, Axillary nerve palsy, Long thoracic nerve palsy, Suprascapular nerve palsy, sciatic nerve palsy, Tibial nerve palsy, Common peroneal nerve palsy, Femoral nerve palsy, Obturator nerve palsy, and Pudental nerve palsy.

Module VI

Assessment and Management of Neurological gaits-

Hemiplegic gait, Parkinson’s gait, High step gait, , Waddling gait, Scissoring gait, Spasticgait, , Diplegic Gait and Myopathic Gait.

Module VII

Pre and Post surgical assessment and treatment of following conditions - Spinal disc herniation,, Spinal cord trauma, Cerebral aneurysms, Subarachnoid haemorrhages, Parkinson's disease. Chorea, Carotid artery stenosis, Arteriovenous malformations and Spina bifida.

Module VIII

Cerebral palsy: Definition, etiology, classification, clinical features, complications, deformities, medical andsurgical management and home program with special emphasis on carrying techniques. PTmanagement after surgical corrections.

Module IX

Poliomyelitis: Definition, etiology, types, pathophysiology clinical features, deformities, medical andsurgical management. PT assessment and management after Surgical corrections andreconstructive surgeries- emphasis on tendon transfer and home program.

References

1. Tidy's Physiotherapy.
2. Cash's Textbook of Neurology for Physiotherapists
3. Neurological Rehabilitation by D Umphred
4. Physical Rehabilitation Assessment and Treatment – O'sullivan Schmitz
5. Elements of paediatricPhysiotherapy:Eckersley

Course code – SPT5S4
PHYSIOTHERAPY IN GENERAL MEDICINE AND CARDIOTHORACIC CONDITIONS - I

Credits: 5 Contact hours: 4 Total Hours: 90

Module I

Anatomy and Physiology of lungs.Bedside assessment of the patient-Adult & Pediatric

Module II

Investigations and tests - Exercise tolerance Testing - Cardiac & Pulmonary, Radiographs, PFT, ABG ECG, Haematological and BiochemicalTests

Module III

Physiotherapy techniques to increase lung volume, controlled mobilization, positioning, breathing exercises, Neurophysiological Facilitation of Respiration, Mechanical aids - incentiveSpirometry, CPAP, IPPB

Module IV

Physiotherapy techniques to decrease the work of breathing, Measures to optimize the balance between energy supply and demand positioning, Breathing re-education, Breathing control techniques, mechanical aids -IPPB, CPAP, BiPAP

Module V

Physiotherapy techniques to clear secretions-Hydration, Humidification &Nebulisation Mobilisation and Breathing exercises, Postural Drainage, Manual techniques - Percussion, Vibration and Shaking, Rib Springing, ACBT Autogenic Drainage, Mechanical Aid - PEP, Flutter, IPPB, Facilitation of Cough and Huff Nasopharyngeal Suctioning.

Module VI

Drug therapy - Drugs to prevent and treat inflammation, Drugs to treat Bronchospasm, Drugs to treat Breathlessness, Drugs to help sputum clearance, Drugs to inhibit coughing, Drugs to improve ventilation, Drugs to reduce pulmonary hypertension, Drug delivery doses, inhalers andNebulisers.

Module VII

Management of wound ulcers - Care of ulcers and wounds – Care of surgical scars -U.V.R and other electro therapeutics for healing of wounds, prevention of Hyper granulated Scars, Keoloids

Module VIII

Neonatal and Pediatric Physiotherapy - Chest physiotherapy for children, The neonatal unit, Modifications of chest physiotherapy for specific neonatal disorders

Module IX

Physiotherapy in Obstructive lung conditions, Physiotherapy in Restrictive lung conditions, Management of breathlessness, Pulmonary Rehabilitation, Physiotherapy following Lung Surgeries.

References

1. Tidy's physiotherapy
2. Cash's Text Book of Chest, Heart, Vascular Disorders for Physiotherapists
3. The Brompton Guide to chest physiotherapy DU Gasket (Completed)
4. Physical Rehabilitation Assessment and Treatment - O'Sullivan Schmitz
5. Elements in Pediatric Physiotherapy - Pamela M Eckersley
6. Essentials of Cardio Pulmonary physical therapy by Hillegass and Sadowsky

7. Cardio pulmonary Symptoms in physical Therapy practice by Cohen and Michel
8. Chest Physiotherapy in Intensive Care Unit by Mackenzi
9. Cash's Text book of General Medicine and Surgical conditions for Physiotherapists
10. Physiotherapy in Psychiatry
11. Physical Therapy for the Cancer patient by M.C Garvey
12.Physiotherapy in Obstetrics and Gynecology by Polden

SEMESTER VI
Course code – SPT6G1
SOCIOLOGY

Credits: 6 Contact hours: 6 Total Hours: 90

Module I

lntroduction: Meaning - Definition and scope of sociology, Its relation to Anthropology, Psychology, Social Psychology. Methods of Sociological investigations, Case study, social survey, questionnaire, Interview and opinion poll methods. Importance of its study with special reference to Health Care Professionals.

Module II

Social Factors in Health and disease situations: Meaning of social factors, Role of social factors in health and illness. Socialization: Meaning and nature of socialization, Primary, Secondary and Anticipatory socialization, Agencies of socialization. Sports and Socialisation, Sports and character building, Sports – emotional adjustment

Module III

Social Groups: Concepts of social groups, influence of formal and informal groups on health and sickness, The role of primary groups and secondary groups in the hospital and rehabilitation setup.

Module IV

Family: Meaning and definitions, Functions of types of family, Changing family Patterns, Influence of family on the individuals health, family and nutrition, the effects of sickness in the family and psychosomatic disease and their importance to physiotherapy

Module V

Community: Rural community: Meaning and features- Health hazards of ruralities, health hazards to tribal community. Urban community: Meaning and features- Health hazards of urbanities.

Module VI

Culture and Health: Concept of Health, Concept of Culture, Culture and Health, Culture and Health Disorders

Module VII

Social change: Meaning of social changes. Factors of social changes, Human adaptation and social change, Social change and stress, Social change and health programme .The role of social planning in the improvement of health and rehabilitation.

Module VIII

Social Problems of disabled: consequences of the following social problems in relation to sickness and disability, remedies to prevent these problems. Population explosion, Poverty and unemployment Beggary, Juvenile delinquency, Prostitution, Alcoholism, Problems of women in employment, Geriatric problems, Problems of under Privileged. Social Security: Social security and social legislation in relation to the disabled.

Module IX

Social Worker: Meaning of Social Work. The role of a Medical Social Worker

References

1. Sachdeva and vidyabushan, Introduction to the study of sociology
2. INDRANI T.K. Text Books of sociology for Graduates Nurses and Physiotherapy Students, JP Brothers, New Delhi.

Course code – SPT6G2
WEIGHT MANAGEMENT AND REHABILITATION (AOC)

Credits: 6 Contact hours: 5 Total Hours: 80

Module I

Adult and Childhood obesity, Prevalence, Types, etiology, Theories of obesity, Factors affecting, Comorbidity. Management through- Long term and short term measures, Nutrition, Exercise, pharmaceutical, Surgical, Stress Management & Lifestyle modification.

Module II

Critical evaluation of standard weight loss diet commonly followed by weight watchers.

Module III

Care and cure in rehabilitation, precaution.Necessity of continuous monitoring and necessary emergency procedures.

Module IV

Components of fitness- Total Fitness (health related fitness) and Athletic fitness.Body Composition and types, Cardiorespiratory Fitness, Muscular endurance and power, Flexibility.Athletic Fitness- Balance, Coordination, Agility, reaction Time etc.

Weight Management, Rehabilitation and Fitness (Practical)

1. Types of Exercise including Aerobics, spinning, Tai Chi, Yoga, Power Yoga, Pillati, weight training, strength training, Circuit training, etc
2. Equipments commonly used in Fitness Industry, their advantages and limitation.
3. Exercise for weight gain / muscle development and improving muscle tone
4. Exercise for weight loss
5. Exercise for Cardio-respiratory fitness
6. Strengthening the joints and bones and increasing flexibility
7. Therapeutic exercise and program designing for specific demands including specific joint problems, osteoporosis, arthritis, blood pressure, PCO, Diabetis and CVD. Precaution and indicators for stopping exercise and necessary emergency procedures.

References

1. Edward L. fox and Donald K Mathews (1985). CBS College Publishing. Japan
2. Present Knowledge in Nutrition; Ed, Myrtle L. Brown, ILSI Press.
3. David C. Nieman , Fitness and Sports Medicine, A Health related Approach, 3rd edition, 1995
4. Bases of fitness- Edward L. fox , Timothy E. Kirby and Ann Roberts Fox (1987)
5. Measurement and evaluation for Physical Educators - Don Kirkendall, Joseph J Gruber and Robert E. Johnson. 1987. Human kinatics Publishers Inc.
6. The Physiological Basis of Physical Education and Athletics, by E.L.Fox

Course code – SPT6S1
PHYSIOTHERAPY IN GENERAL MEDICINE AND CARDIOTHORACIC CONDITIONS- II

Credits: 4 Contact hours: 4 Total Hours: 90

Module I

Introduction to ICU : ICU monitoring – Apparatus and Tubes used in the ICU. Role of Physiotherapist in ICU .PT.Management of Common conditions in the ICU

Module II

Burns management - Role of physiotherapy in the management of burns, post grafted cases Mobilization and Musculo-skeletal restorative exercises following burns.

Module III

Physiotherapy management following cardiac surgeries.Cardiac Rehabilitation. Physiotherapy management following PVD

Module IV

Abdominal Surgeries - Management of Pulmonary Restorative Dysfunction following surgical procedures on Abdomen and Thorax

Module V

Management of Amputations following Diabetes, PVD. Prosthesis in amputations of lower limbs following ulcers and gangrenes.

ModuleVI

Physiotherapy intervention in the management of Medical, Surgical and Radiation Oncology Cases. Home program and education of family members in patient care

Module VII

Physiotherapy in Obstetrics - Antenatal Care, Antenatal Education, Postnatal Care. Electrotherapy and Exercise Therapy measures for the re-education of Ano-Urethral sphincters

Module VIII

Physiotherapy in Geriatrics - Approach to the treatment - Interview, examination, aims of intervention, Role of physiotherapist

Module IX

Treatment, Response to exercise and Implications of Physiotherapy in the following disease conditions : Hypertension, Diabetes, Renal Failure and Obesity

Module X

Health Fitness and Promotion : Fitness Evaluation, Analysis of Body composition, Evaluation and prescription of Exercise, Factors affecting exercise Performance, Exercise Prescription for Specific groups : Elderly, Women and children

References

1. Tidy's physiotherapy
2. Cash's Text Book of Chest, Heart, Vascular Disorders for Physiotherapists
3. The Brompton Guide to chest physiotherapy DU Gasket (Completed)
4. Physical Rehabilitation Assessment and Treatment - O'Sullivan Schmitz
5. Elements in Pediatric Physiotherapy - Pamela M Eckersley
6. Essentials of Cardio Pulmonary physical therapy by Hillegass and Sadowsky
7. Cardio pulmonary Symptoms in physical Therapy practice by Cohen and Michel
8. Chest Physiotherapy in Intensive Care Unit by Mackenzi
9. Cash's Text book of General Medicine and Surgical conditions for Physiotherapists
10. Physiotherapy in Psychiatry
11. Physical Therapy for the Cancer patient by M.C Garvey
12. Physiotherapy in Obstetrics and Gynecology by Polden

Course code – SPT6S2
SPORTS NUTRITION

Credits: 4 Contact hours: 4 Total Hours: 72

Module I

Introduction to sports nutrition: Historical approaches to exercise and nutrition, Role of

macronutrients, Reference sports person - dietary recommendations.

Module II

Carbohydrates intake and exercise: Pre exercise diet, Carbohydrate supplementation during exercise, Post exercise diet, Carbohydrate utilization during exercise, Type of exercise: light, moderate static and heavy, Gluconeogenesis as an energy source, Lactate metabolism - fuel for muscular work, Carbohydrate metabolism and fatigue

Module III

Lipids: Fat metabolism and utilization during exercise, Contribution to energy production during exercise, Training adaptations and fat utilization

Module IV

Proteins: Amino acid metabolism associated with exercise, Protein turnover associated with exercise, Physical activity and protein requirement, Use of specialized protein supplements - whey protein; BCAA

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Module V

Water: Significance of hydration and consequences of dehydration, Practical indexes of hydration status, Replacement strategies for sports person- types of fluids, fluid volume, composition, Sports drinks

Module VI

Vitamins and minerals and exercise performance: Fat and water-soluble vitamins, Minerals with special reference to iron-requirements and deficiency in athletes, negative iron balance, iron supplementation and toxicity, zinc-intake, depletion and supplementation, copper, chromium status and exercise, phosphorus (phosphate loading), fat loading. Antioxidant and exercise performance

Module VII

Training diet, pre exercise meals - intake during exercise, Feeding after exercise - liquid v/s solid meals

Module VIII

Ergogenic aids and sports supplements - classification, types - drugs, nutritional ergogenic aids - effects and safety concerns

Module IX

Nutritional, health and psychological concerns of sports women, Nutritional needs and bone health of athletes and female athlete triad

Module X

Sports injury and effects of over training - nutritional significance

Course code – SPT6S3
Sports Nutrition (AOC)

Credits: 2 Contact hours: 2 Total Hours: 30

1. Principles of diet planning for sports persons with special reference to nutrients and water needs
2. Concept of energy expenditure and calculation of EE
3. Planning a day's diet for the following sports activities for different age groups and sexes: Gymnastics, Athletics, Swimming, Cricket, Football, Diet considerations for female sports persons
4. Fitness assessment - height, weight and body composition. Body fat determinations by different methods
5. Determination of aerobic capacity - pulse rate, blood pressure, THR zone for exercise and VO2max (demonstration)

6. Determination of muscle strength and endurance (demonstration)
7. Exercise Management: Importance of warming up / cool down / stretching, Work out - aerobic and strength training /cross training, Sports injury

References

1. Bernadotdan (1999) *Nutrition for Serious Athletes*, Human Kinetics USA.
2. Brouns Fred and Caustan– Cargill (2002) *Essentials of Sports Nutrition* – 2nd edition John Wiley and Sons, England.
3. Burke Louse and Deakin Vicky (2006) *Clinical Sports Nutrition*, McGraw – Hill Pvt. Ltd. Australia.
4. Summerfield Lianne M (2001), *Nutrition Exercise and Behavior An integrated approach to weight management*, Belmount (USA). Wadsworth/Thompson Learning
5. Wolinksy Ira (1998) *Nutrition in Exercise and Sports* CRC press Boca Raton
6. Wolinksy Ira, Drishill Judy (1997) *Sports and Nutrition Vitamins and Trace elements*, CRC Press BY.
7. Wolinskoy Ira, Driskell J. (2004) *Nutritional Ergogenic Aids*, CRC Press NY.

Course code – SPT6S4
PROJECT-II

Credits: 4 Contact hours: 4 Total Hours: 40

Course code – SPT6S4
CLINICAL POSTING

Credits: 4

B.VOC SPORTS NUTRITION AND PHYSIOTHERAPY

MODEL QUESTION PAPER

MG UNIVERSITY

B.VOC(SPORTS NUTRITION AND PHYSIOTHERAPY)

MODEL QUESTION PAPER-FIRST SEMESTER

LISTENING AND SPEAKING SKILLS IN ENGLISH

Course code - BOCG101

Marks :80 Time :3hrs

PART A

Answer any 10 questions. Each question carries 2 marks.

1. Describe an auto rickshaw
2. What is intensive reading?
3. What is the difference between a definite article and an indefinite article?
4. What is rising tone?
5. What is an index?
6. What is a phrasal verb?
7. Who is a good reader?
8. What is an embedded question?
9. Write a few phrases which can be used to express mild disagreement.
10. What are the three functions of conjunctions?
11. What are grammatical words?
12. What are people skills?

PART B

Answer any 6 questions. Each question carries 5 marks.

13. What is telephone etiquette?
14. Who is an active listener?
15. Prepare a vote of thanks to be presented for the residents' association meeting.
16. Write short note on conjunctions.
17. What are the features of fluent speech?
18. You are a project leader. Introduce the members of your team to a visiting dignitary.
19. Write a short note on reading for a purpose.
20. What are the steps in cancelling and rescheduling appointments?
21. Describe the qualities of your college to your friends.
22. Discuss ' the importance of social media' with two other participants in a group discussion.

PART C

Answer any 2 questions. Each question carries 15 marks.

23. a) Write a conversation with your panchayath member, complaining about the lack of streetlights.
    b) Write a model interview you make with an actor.
24. Write a note on subject-verb agreement.
25. What are the roles and functions in a group discussion?

MG UNIVERSITY
B.VOC(SPORTS NUTRITION AND PHYSIOTHERAPY)
MODEL QUESTION PAPER-FIRST SEMESTER
BASIC NUTRITION
COURSE CODE-SPT1G1

Marks :80 Time :3hrs

PART A

(answer any 10 question each question carry 2 marks)

1. Define health.
2. Write the significance of omega 3 fatty acid.
3. Define BMI.
4. Name the fat soluble vitamins.
5. What is scurvy?
6. Write short note on dehydration.
7. Define nutrition.
8. What is nutritional status?
9. What are macro minerals?
10. What is malnutrition.
11. What is glycemic index?
12. Define osteoporosis. (10×2=20)

PART B

(Answer any 6 question each question carry 5 marks)

13. Describe food groups and food pyramids.
14. Briefly explain the nutritional classification of proteins.
15. Comment on the functions of food.
16. Describe the functions of lipids.
17. Write short note on vitamin B1.
18. Explain factors affecting RDA.
19. Describe the role of water as a nutrient in our body.
20. Explain the factors affecting digestion.
21. Describe Vitamin A its functions, sources and deficiency. (6×5=30)

PART C

(Answer any 2 question each question carry 15 marks)

22. Briefly explain role of protein in our body and its metabolism.
23. Define BMR.Describe the factors affecting BMR in detail.
24. Explain carbohydrates under the following headings
    a) Function b)sources c) digestion
25. Explain dietary fiber. Briefly describe the role of dietary fiber in preventing disease.

(2×15=30)

MG UNIVERSITY
B.VOC(SPORTS NUTRITION AND PHYSIOTHERAPY)
MODEL EXAMINATION -FIRST SEMESTER
HUMAN PHYSIOLOGY -1(Theory)
COURSE CODE-SPT1S1

Marks :80 Time :3hr

Draw diagrams wherever necessary.

PART A (Short Notes)

(Answer any 10 question each question carry 2 marks)

1. Define erythropoiesis and mention its stages.
2. Define spermatogenesis.
3. Write a note on peptic ulcer.
4. What are the features of gigantism?
5. What is meant by gastric emptying?
6. What are the functions of rods and cons?
7. What are the types of visual reflexes?
8. List the classifications of lymphocytes.
9. Define goitre and mention its causes.
10. What are the functions of saliva?
11. Write a note on pernicious anaemia.
12. What is meant by dialysis and its principles? (10×2=20)

PART B(Short Essay)

(Answer any 6 question each question carry 5 marks)

13. Write functions of blood.
14. Discuss the functions of gastric juice and stomach.
15. Explain transport mechanism across the cell membrane.
16. Describe atonic and automatic bladder.
17. Describe the functions of pituitary gland.
18. Explain physiological changes during pregnancy.
19. Write the functions of vestibular apparatus.
20. 'Pancreas has both exocrine and endocrine function.' Explain.
21. Describe the functions of skin. (6×5=30)

PART C (Long Essay)

(Answer any 2 questions. Each questionS carry 15 marks)

22. Explain menstrual cycle.
23. Explain the mechanism of urine formation and describe micturation reflex.
24. Describe visual pathway and common refractive errors.
25. Explain gastric and intestinal motility and mechanism of defecation. (2×15=30)

MG UNIVERSITY
B.VOC(SPORTS NUTRITION AND PHYSIOTHERAPY)
MODEL EXAMINATION -FIRST SEMESTER
HUMAN ANATOMY -1(Theory)
COURSE CODE-SPT1S2

Marks :80 Time :3hrs

Draw diagrams wherever necessary.

PART A

(answer any 10 questions. each question carries 2 marks)

1. Name the papillae present in tongue.
2. Write the hormones secreted by islets of langerhans.
3. What are the compartments of leg?
4. Name the thenar muscle.
5. Write any two functions of gall bladder?
6. Name the layers of pleura.
7. Write the parts of stomach.
8. Which is the only bone which lies horizontally? Write any 2 peculiarities.
9. List down the classifications of epithelial tissue.
10. Write any two differences between jejunum and ileum.
11. What is meant by pacemaker of heart?
12. Which are the rotator cuff muscles? (10×2=20)

PART B

(Answer any 6 questions. Each question carries 5 marks)

13. Explain brachial plexus.
14. Discuss the structure and function of liver.
15. Explain shoulder joint.
16. Draw the structure of stomach and describe its functions.
17. Explain in detail about pancreas.
18. Explain the valves present in the heart.
19. Describe the difference between right and left lung.
20. Describe the bone clavicle.
21. Describe left ventricle. (6×5=30)

PART C

(Answer any 2 question. Each question carries 15 marks)

22. Explain the features of lungs, bronchopulmonary segments and bronchial tree.
23. Explain the structure, valves and arteries of heart.
24. Describe different types of joints in human body with example.
25. Describe briefly the gastro intestinal tract. (2×15=30)

MG UNIVERSITY
B.VOC(SPORTS NUTRITION AND PHYSIOTHERAPY)
MODEL EXAMINATION -FIRST SEMESTER
WRITING AND PRESENTATION SKILLS IN ENGLISH
Course code – BOCG201

Marks :80 Time :3hrs

PART A

Answer any 10 questions. Each question carries 2 marks.

1. What is a resume?
2. What is a group discussion?
3. What is a project report
4. What is proxemics?
5. What is a letter of enquiry?
6. What is a flip chart?
7. What is a seminar?
8. What is a power of attorney?
9. What is netiquette?
10. What are narrative essays?
11. What are the components of a typical seminar paper?
12. What is paralanguage? (10x2 = 20)

PART B

Answer any 6 questions. Each question carries 5 marks.

13. What are the important points to be considered while sending collection letters?
14. What is a channel of communication? What are the different types of channel of communication?
15. Write a letter to the editor about the street dog menace in your city.
16. You want to sell your book collection. Prepare a notice to be put up in the college notice board.
17. Write a short note on Kinesics.
18. Prepare an agenda for the monthly board meeting of your firm.
19. What are the points to be remembered while filling an application form?
20. You are the owner of a supermarket. Write a letter inviting quotations from a wholesale dealer.
21. Write a short note on visual aids that are often used in presentations. (6x5 = 30)

PART C

Answer any 2 questions. Each question carries 15 marks.

22. You are Ravi/Jaya. Prepare an application letter and a resume for the post of an assistant engineer.
23. Write an essay arguing for or against single sex educational institutions.
24. What are the barriers to effective communication? How can we overcome them?
25. Write a descriptive essay about your favourite place. (2×15=30)

MG UNIVERSITY

B.VOC(SPORTS NUTRITION AND PHYSIOTHERAPY)

MODEL EXAMINATION –SECOND SEMESTER

BIOMECHANICS

COURSE CODE-SPT2G1

Marks :80 Time :3hrs

PART A

(Answer any 10 question .Each question carries 2 marks)

1. What is forward head posture?
2. State mechanical advantage of lever.
3. What is contractile unit of muscle?
4. What is intrinsic minus hand?
5. What is force and momentum?
6. What is pes planus?
7. List down the measurement methods of crutches and canes.
8. What is inertia?
9. What is osteo-kinetics?
10. What is centre of gravity?
11. Define concave- convex rule with an example.
12. State laws of motion. (10×2=20)

PART B

(Answer any 6 questions. Each question carries 5 marks)

13. Describe isotonic contraction with suitable examples.
14. Explain the extensor mechanism of the hand with diagrams.
15. Mention the different lever systems and describe them with examples.
16. Define posture and add a note on sitting posture.
17. Explain the structure of plantar arches and mention three functions.
18. Describe dynamic stabilizers of shoulder joint.
19. Analyze the muscle forces at the hip during unilateral stance.
20. What is stress and strain? Explain the load deformation curve with an example.
21. Explain ligaments of the wrist complex. (6×5=30)

PART C

(Answer any 2 question. Each question carries 15 marks)

22. Define gait and the phases of gait cycle. Describe the kinetic analysis of gait.
23. Discuss the structure and functions of the arches of foot.
24. Describe in detail on kinetics and kinematics of the tibiofemoral joint. Add a note on locking mechanism of the knee.
25. Describe in detail on kinetics and kinematics of shoulder complex. (2×15=30)

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B.VOC(SPORTS NUTRITION AND PHYSIOTHERAPY)

MODEL EXAMINATION –SECOND SEMESTER

FAMILY MEAL MANAGEMENT

COURSE CODE-SPT2G2

Marks :80 Time :3hrs

PART A

(answer any 10 question each question carry 2 marks)

1. Define balanced diet.
2. What is meant by Anorexia nervosa?
3. Define reference man and woman.
4. What is meant by pregnancy induced hypertension?
5. What is spina bifida?
6. What are the objectives of feeding programmes for school children?
7. Write about osteoporosis.
8. What is meant by lactigo ?
9. Write about the energy and protein requirements of adolescents.
10. What is the role of hormones in milk production?
11. What is meant by weaning?
12. What is the importance of calcium during old age? (10×2=20)

PART B

(Answer any 6 questions. Each question carries 5 marks)

13. Explain the principles of meal planning.
14. Write a note on colostrums. Bring out the difference between foremilk and hind milk.
15. What are the points to be considered in planning a packed lunch for school-going children?
16. Write about the nutritional requirements of adults.
17. Explain the physiological changes during pregnancy.
18. Write about the nutritional requirements of lactating women.
19. Explain the nutrition related problems of old age.
20. Briefly explain the different types of supplementary foods giving to infants.
21. Write a note on protein energy malnutrition in pre- school children. (6×5=30)

PART C

(answer any 2 question each question carry 15 marks)

22. Explain the advantages breast feeding.
23. Explain the nutritional requirements during pregnancy.
24. Explain the nutritional problems of adolescents.
25. Explain the following: (a) Nutritional requirements during old age (b) Nutritional requirements of pre-school children. (2×15=30)

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B.VOC(SPORTS NUTRITION AND PHYSIOTHERAPY)

MODEL EXAMINATION –SECOND SEMESTER

HUMAN ANATOMY-2

COURSE CODE-SPT2S1

Marks :80 Time :3hrs

Draw diagrams wherever necessary.

PART A

(answer any 10 question each question carry 2 marks)

1. What is corpus callosum?
2. Explain the structures involved in brainstem?
3. Muscles of facial expression?
4. Write short note on Thalamus
5. Explain Ventricles of the brain.
6. Write short note on Internal Capsule.
7. Explain Spinal cord.
8. Explain the structure of urinary bladder.
9. Explain the structure of uterus.
10. Describe the muscles of mastication.
11. Describe intervertebral disc.
12. Explain the typical and atypical ribs. (10×2=20)

PART B

(answer any 6 question each question carry 5 marks)

13. Describe the blood supply of brain.
14. Write the types and functions of Para nasal air sinuses
15. Describe Uterus and support of uterus.
16. Write the circulation of CSF with neat diagram.
17. What are the extraoccular muscles and its functions?
18. Explain Structure of cerebrum.
19. Explain cranial nerves.
20. Explain pons.
21. Explain intercostals muscles. (6×5=30)

PART C

(answer any 2 question each question carry 15 marks)

22. Name the different types of Tracts.Explain in detail about the descending tract with neat sketch.
23. Describe the vertebral column and structure of typical vertebra.
24. Describe the temperomandibular joint and movements.
25. Explain the structure of kidney. (2×15=30)

MG UNIVERSITY

B.VOC(SPORTS NUTRITION AND PHYSIOTHERAPY)

MODEL EXAMINATION -SECOND SEMESTER

HUMAN PHYSIOLOGY -2(Theory)

COURSE CODE-SPT2S2

Marks :80 Time :3 hrs

Draw diagrams wherever necessary.

PART A

(Answer any 10 question each question carry 2 marks)

1. What is a motor unit?
2. What is neuroglia?
3. Define BP and its normal value.
4. Define shock.
5. Define dead space.
6. What is hypoxia?
7. What is paralysis?
8. What is muscle tone?
9. Define reflex action.
10. What is tabes dorsalis?
11. What is dysbarism?
12. What is cyanosis? (10×2=20)

PART B (Short Essays)

(Answer any 6 questions. Each question carries 5 marks)

13. Describe neuromuscular junction.
14. What are the determinants of cardiac output?
15. Explain the causes and features of shock.
16. Briefly explain artificial respiration.
17. Explain acclimatization.
18. Write a note on periodic breathing.
19. Explain the features of UMNL and LMNL.
20. What are the components and properties of reflex action?
21. Explain the functions of cerebellum. (6×5=30)

PART C (Long Essays)

(Answer any 2 questions. Each question carries 15 marks)

22. Explain in detail on regulation of respiration? Briefly explain hering-breuer's reflex.
23. Explain in detail on cardiovascular changes during exercise.
24. Describe in detail on lobes of cerebral cortex? Briefly explain the higher functions of cerebral cortex.
25. Explain structure and functions of neurons? Explain in detail on nerve injuries.

(2×15=30)

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B.Voc. SPORTS NUTRITION AND PHYSIOTHERAPY

MODEL EXAMINATION -SECOND SEMESTER

EXERCISE THERAPY

COURSE CODE-SPT2S3

Marks :80 Time :3hrs

Draw diagrams wherever necessary.

PART A (Short Notes)

(Answer any 10 questions. Each question carries 2 marks)

1. Definition of goniometer and mention the parts.
2. Which are the various methods of measuring limb length?
3. Write jacobson's relaxation technique.
4. Write the effects and uses of free exercise.
5. What is circuit weight training?
6. What is hold relax technique?
7. Define rhythmic stabilization.
8. Write a note on open and closed chain exercise with example?
9. Write a short note on bridging technique and its uses.
10. What are the causes of incoordination?
11. Mention the methods of measurement of axillary crutches.
12. Definition of active and inactive postures.

(10×2=20)

PART B (Short Essays)

(Answer any 6 questions. Each question carries 5 marks)

13. Briefly explain definition, principles and equipments used in suspension therapy.
14. Explain methods to improve impaired balance.
15. Describe principles and technique of frenkel's exercise.
16. Write the definition, goals and basic neurophysiologic principles of PNF.
17. Explain concave-convex rule in peripheral joint mobilization with example.
18. Describe causes of faulty posture.
19. Explain indication and contra indications of peripheral joint mobilization technique.
20. Describe precautions and contra indications of stretching.
21. What are the various methods of balance retraining ? (6×5=30)

PART C

(Answer any 2 questions. Each question carries 15 marks)

22.Describe advantages, disadvantages and organization of group exercise.

23.Explain types, principles and training with walking aids.

24.Explain definition, indication and various techniques of relaxation.

25.Explain the effects, grades and principles of peripheral joint mobilization technique.

(2×15=30)