BACHELOR OF PHYSIOTHERAPY

(w.e.f. 2022-23 admitted batch)

Course Structure and Syllabi

THE APOLLO UNIVERSITY

MURUKAMBATTU - CHITTOOR (Dt) 517127

ANDHRA PRADESH

PROGRAM OUTCOMES (PO)

PO 1: Enable student to gain adequate knowledge, skills andclinical hands-on experience leading to an ability to establish independent professionalpracticeinthespecializedareasofinterest.

PO 2: Gatherandinterpretinformationwithinaholisticframeworkpertainingtohealth.

PO 3: The overallcontentofthecurriculumfocusesonlearningexperiencesandclinicaleducationexperiencesforeachstudent

PO 4: Ethical, evidence-based, efficient Physiotherapy treatment of adult as well as pediatricpatients/clientswithanarrayofcondition(e.g. Musculoskeletal, neuromuscular, cardiovascular/pulmonary, integumentary etc)acrossthelifespanandthecontinuumofcare,toallpeopleirrespectiveofgender,caste,nation,statesandterritories,region,minoritygroupsorothergroups.

PO 5: Ability to operate as independent practitioners, as well as members of health serviceprovider teams, act as first contact practitioners, from whom patients/clients may seekdirectserviceswithoutreferralfromanotherhealthcareprofessional**.**

PROGRAM EDUCATIONAL OBJECTIVES (PEO):

PEO1: Ability to prevent movementdisordersormaintain/restoreoptimalfunctionandqualityoflifeinindividualswithmovement disorders**.**

PEO2: Ability topromotethehealthandwellbeingofindividualsandthegeneralpublic/society,emphasizingtheimportanceofphysicalactivityandexercise

PEO3: Impartskillinteaching,management,research,guidanceand counselling.

PEO4: Inculcatemoralandethicalvalues

PEO5: Abilitytocarryout research Projects

PEO6: PromotePhysiotherapyeducation**.**

PEO7: Applyscientificprinciplestotheconceptsofhealth,illnessanddisability

PROGRAM SPECIFIC OUTCOMES (PSO):

PSO1: Conduct independent,interdisciplinary,multiandtrans-disciplinarynovelresearch in physiotherapy.

PSO2: Communicateeffectivelywithuseofdifferentmeanstotheprofessionalcolleagues,counterparts,patientsand theircaregivers.

PSO3: Apply evidence-based specialityphysiotherapypracticewithappropriatecriticalandclinicalreasoning skills.

PSO4: Reviewtheclinicaloutcomeswithnewapproachesinadvancedphysiotherapypracticebased oncurrenttrendsanddocumentinappropriatearea.

THE APOLLO UNIVERSITY

ACADEMIC REGULATIONS

SCOPE:

This Academic regulation provide a framework for the regulatory guidelines of all programs offered by The Apollo University. It includes procedures and practices that are to be followed to ensure academic standards in the University. The regulations are approved by the Academic Council. These regulations may be amended from time to time with the approval of the Academic council for the benefit of students or some times to reflect the changes suggested by the statutory bodies.

Information regarding amendments (if any) to the regulations will be communicated to the students by publishing in the University website. Students must follow the amended regulations as they might impact the process for the award of degree. The decision of the Vice Chancellor shall be the final in case of any discrepancy. These regulations apply to all students, despite the program of study.

1. ADMISSION INTO THE PROGRAM

The University admits the students in two modes. One through the convenor quota as per the Andhra Pradesh Private Universities Act, for which the admissions will be carried out through the convener quota by the Govt of Andhra Pradesh. The other is through University quota for which the following procedure will be followed:

A. The applicant shall satisfy the entrance requirements specified by The Apollo University and in accordance with guidelines of statutory councils for Under-graduation.
B. The Applicant shall be qualified in the qualifying examination for a particular program.
C. The Applicant secures a rank in national level entrance exam or suitable such test conducted by The Apollo University / professional body.
D. The Applicant qualifies in the specified state or national level examinations prescribed by The Apollo University.

The Apollo University will widely notify the counselling schedule for admissions into the academic programs in the media. The provisional admission will be given to the eligible students during the counselling scheduled by The Apollo University. The selected candidates will be provisionally admitted into the program of his/her choice if the candidate meets the program specific requirements in addition to academic performance qualifying exam. Admission is purely based on merit and so merely meeting the requirements will not ensure admission. The University does not discriminate based on gender, race, region, religion, disability or nationality. The University reserves the right to make admissions based on various criteria which is specified in the admission brochure.

2. ELIGIBILITY CRITERIA

Undergraduate programs

The qualifying exam eligibility for each program is given Annexure 1.The student should have passed the qualifying exam either in the year the student is seeking admission or the previous year.

Convener Quota: The student seeking admission to any program under convener quota shall qualify in the relevant entrance exam conducted by the Government of Andhra Pradesh.

University Quota: For getting admission under University quota, percentage of marks obtained in the qualifying exam, the rank obtained in TAU entrance exam or any recognized national level examination in the year of admission will be considered.

Counselling

All the eligible students need to apply for admission and have to attend counselling conducted by TAU as per the schedule for the university quo

3. PROGRAMS

The Apollo University offers variety of programs which includes certificate, undergraduate, postgraduate, and Research. The list of programs on offer for the academic year 2022-23 are annexed in Annexure 2 and those of 2023-24 are annexed in Annexure 3.

Minimum duration of the program

The minimum duration of each program depends on the type of program, viz., undergraduate, postgraduate, integrated programs, etc., and the faculty which offers the program. The maximum duration of the program is N+2 years, where N stands for the minimum duration of

the program as mentioned in Annexure 2 and 3. If the student has not obtained the minimum number of credits within the stipulated time, the Vice-Chancellor may extend the maximum duration in extenuating circumstances upon receiving a request along with reasons from the student for not completing the program on time.

4. CHOICE BASED CREDIT SYSTEM

The choice-based credit system (CBCS) facilitates the education student-centric. It provides the opportunity for the learner to choose the courses from a basket of core, elective, and skill enhanced courses. All programs of study are designed to meet the specified number of credit requirements. The courses taken by the student in each semester as part of program are allotted some credit points based on the number of hours assigned. Upon successful completion of the course, the student secures the number of credits allotted for that course. Once the minimum number of credits of the program is achieved, the degree can be awarded, subject to fulfilment of all other relevant conditions.

5. STRUCTURE OF THE PROGRAM

The Program structure Consists of

i) University Courses
   A. University Core
   B. University Electives
ii) Faculty Courses
   A. Faculty Core
   B. Faculty Electives
iii) Program Courses
   A. Program Core
   B. Program electives

Each course* is assigned a certain number of credits depending upon the number of contact hours (lectures/tutorials/practical) per week. (*one course means one subject)

Core Courses = 3 Credits /4 Credits Elective =3 Credits

In general, credits are assigned to the courses as detailed below:

- A classroom lecture/ tutorial of 60 min (1 hr) duration per week, spread over the entire semester, shall be considered as one credit.
- A laboratory session of minimum of 120 min (2 hr) per week shall be considered as

one credit.

- A project work/ Internship session of 60 minutes (1 hr) carried out per week shall be considered as one credit.

6. MEDIUM OF INSTRUCTION

The medium of instruction (including examinations and project reports) shall be English.

7. REGISTRATION

Any of the following student must register for the courses opted in a particular semester during the scheduled registration period.

i. a new student who enrolls into any program
ii. an existing student who is continuing on rolls from the preceding regular semester
iii. a former student, i.e., who has not enrolled in the preceding regular semester or who has availed academic break or detained and got readmission

Each newly admitted student shall attend an induction/ orientation program prior to commencement of the first semester. During this program academic advisors assist the students in choosing the courses. Existing student may register online by using their registration number and mail ID through the Apollo ERP portal. Class schedules are available approximately two weeks before the beginning of every semester for each program. The concerned head of the department must approve class schedule.

8. ATTENDANCE REQUIREMENTS

- Students should earn a minimum of 80% attendance in the current semester to become eligible to write the Semester End Examinations.
- The monthly statement of attendance will be displayed on the Department Notice Board/ Apollo ERP by the respective departments within the first five working days of the following month.
- Candidates who are falling short of 80% attendance will be detained on the recommendation of the HoD and are not eligible to appear for the current semester examinations. The students who are detained in the current semester will not be allowed to register for the next semester and they have to repeat the same semester by paying the tuition fee prescribed. However, they can write arrear subjects, if any.

9. EVALUATION

The assessment of the student's performance in a Theory course shall be based on two components: Continuous Evaluation (40 marks) and Semester-end examination (60 marks). A student has to secure an aggregate of 40% in the course in the two components put together to be declared to have passed the course, subject to the condition that the candidate must have secured a minimum of 24 marks (i.e. 40%) in the theory component at the semester-end examination. Practical/ Project Work/ Industrial Training/ Viva voce/ Seminar etc. are completely assessed under Continuous Evaluation for a maximum of 100 marks, and a student has to obtain a minimum of 50% to secure Pass Grade. For courses having both theory and practical components, 60% of the weightage will be given for theory component and 40% weightage for practical component. The student must secure 40% (Theory + Practical) with 24 marks minimum in theory to attain pass grade.

Details of Assessment Procedure are furnished below in Table 1.

Table 1: Assessment Procedure

S. No.	Component of Assessment	Marks Allotted	Type of Assessment	Scheme of Evaluation
1	Theory	40	Continuous Evaluation	i) Twenty (20) marks for mid examinations. Three mid examinations shall be conducted for 20 marks each; average of the best two performances shall be taken into consideration. ii) Ten (10) marks for Quizzes, Assignments and Presentations. iii) Ten (10) marks for periodic evaluation, case studies and projects iv) Sixty (60) marks for Semester-end examinations

		60	Semester-end Examination	
	Total	**100**		
2	Laboratory	100	Continuous Evaluation	1)80 marks with equal weightage to all experiments subject to conduct of minimum of 10 experiments 2)20marks for the end exam (with one of our university teachers as external other than course teacher)
3	Clinical training	100	Continuous Evaluation	i) (80) marks for periodic evaluation of Internship report by the Project Supervisor. ii) Twenty (20) marks for final Report presentation and Viva-voce, by a panel of internal examiners. iii) Students shall undergo TWO internships during the course of time and the evaluation shall be done during final semester.
4	Project work	100	Continuous Evaluation	iv) (80) marks for periodic evaluation and technical report writing by the Project Supervisor. ii) Twenty (20) marks for final Report presentation and Viva-voce, by a panel of internal examiners
5	Students Seminars	100	Continuous Evaluation	Each student has to give a seminar on any topic in consultation with the faculty member in charge A detailed report shall

				be submitted to the in charge. 60 marks for periodic evaluation including report preparation and 40 marks for viva voce by a panel of examiners.

GRADING SYSTEM

Based on the student performance during a given semester, a final letter grade will be awarded at the end of the semester in each course. The letter grades and the corresponding grade points are as given inTable2.

Table 2: Grades & Grade Points

Sl. No.	**Grade**	**Grade Points**	**Absolute Marks**
1	O(Outstanding)	10	90 and above
2	A+(Excellent)	9	80 to 89
3	A (Very Good)	8	70 to 79
4	B+(Good)	7	60 to 69
5	B (Above Average)	6	50 to 59
6	C(Average)	5	45 to 49
7	P(Pass)	4	40 to 44
8	F(Fail)	0	Less than 40
9	Ab. (Absent)	0	-

SEMESTER GRADEPOINTAVERAGE (SGPA)

A Semester Grade Point Average (SGPA) for the semester will be calculated according to the formula:

$$SGPA \frac{\sum [C X G]}{\sum C}$$

Where

C=number of credits for the course,

G=grade points obtained by the student in the course.

A student who earns a minimum of 4 grade points (P grade) in a course is declared to have successfully completed the course, and is deemed to have earned the credits assigned to that course.

CUMULATIVE GRADE POINT AVEARGE (CGPA)

A similar formula is used to arrive at Cumulative Grade Point Average (CGPA), considering the student's performance in all the courses taken in all the semesters up to the particular point of time.

Table 3 shows the CGPA required for the award of class after the successful completion of the program.

Table3: CGPA required for award of Class

Class	**CGPA Required**
First Class with Distinction	≥8.0*
First Class	≥6.5
Second Class	≥5.5
Pass Class	≥5.0

*In addition to the required CGPA of 8.0 or more, the student must have necessarily passed all the courses of every semester in first attempt.

11. REAPPEARANCE

a. A student who has secured 'F' grade in a Theory course shall have to reappear at the subsequent Semester end examination held for that course.

b. A student who has secured 'F' grade in a Practical course shall have to attend Special Instruction Classes scheduled by the Department for securing pass.
c. A student who has secured 'F' Grade in Internship /Project work / Industrial Training etc shall have to reappear for Viva – voce scheduled by the department.
d. A student who is declared fail (F) in a course/s can apply for revaluation within one week from the date of publication of results with a fee prescribed by the university. The marks /grade awarded in the revaluation is final.

11.1 Procedure for revaluation

- The students who have not satisfied with the marks awarded by the examiner can apply for revaluation of his/her answer script/s
- The students have to apply through proper channel for revaluation and to pay the revaluation fee per paper to the university towards revaluation fee.
- Students have to apply for revaluation within 7 days from the date publication of result.
- The scripts will get valued by second examiner and if the difference is more than 15 marks, they will get valued by the third examiner. The average of the nearest two marks will be declared as the final marks.

11.2 ASSESSMENT MECHANISM

The Apollo University offers a student the benefits of Choice Based Credit System. Every paper is allotted a certain number of credits as per the UGC norms. A student is awarded the specified credits on obtaining a pass in the respective paper.

The Choice Based Credit System (CBCS) has been adopted for UG Course from the year 2021-22 onwards as per the recommendations of the A.P. State Council for Higher Education (APSCHE). The structure of undergraduate programmes provides a wide range of choice for students to opt for courses based on their eligibility, aptitude and career goals.

11.3 Semester End Examination

The End semester examination will be a comprehensive examination of 3 hours duration. Two End Semester examinations are conducted in a year-

Odd semester examinations in November/ December and

Even semester examination in May/June

Practical examination / Project viva will be held 2 weeks prior to the theory semester end examinations.

Under-Graduation Programs

Course	Continuous Assessment	End semester	Aggregate in End semester Examinations
All UG Courses	No passing minimum	40%	40%

11.4 Post Evaluation Programme:

Under the Post Evaluation Programme there are three menus:

- Provision for improvement
- Re-totalling and Revaluation of answer scripts
- Restrictions to appear for the examinations

11.5 Provision for improvement

A student who passes a paper in the first attempt can reappear for the same paper in the succeeding End-of-Semester examination only, for improving his/her marks. Re-appearance for improvement is allowed for theory and practical subjects of all semesters, except for the final semester subjects. Revised mark statement will be issued after withdrawing the previous one, if the marks obtained in improvement are higher than the marks awarded earlier. When there is no improvement, there shall not be any change in the original marks already awarded. The improved marks shall be considered for classification but not for ranking.

Provision for Re-totalling and Revaluation of valued answer scripts

- UG candidates may apply for re-totalling / revaluation of valued answer scripts, to the Controller of Examinations through the Heads of Departments and Principal / Dean, in the prescribed forms, remitting the prescribed fee within 7 days from the date of publication of results. Revaluation of answer scripts is permissible only for the current semester papers and not for any arrear paper.

- Those wish to apply for revaluation of final semester papers can do so within five days from the date of publication of results. In re-valuation, the answer papers will be valued by an external examiner and if there is a difference of 15 marks between the two evaluations then the script will be sent for third valuation which is final and the mark awarded by the third examiner will be taken into the account.
- Revised mark statement will be issued after withdrawing the previous one, if the marks obtained in revaluation / retotalling are higher than the marks obtained earlier. In other cases, the original marks obtained earlier will be retained and the matter will be intimated to the student concerned as 'No change'.
- A candidate who applies for revaluation should not apply for retotalling.

Restrictions to appear for the examinations

Candidates who fail in any of the papers in the UG End semester examinations shall complete the paper concerned within N+2 years from the date of admission to the particular course. If they fail to do so, they shall re-register their names and take the examination in the texts/revised regulations/syllabus of the paper prescribed for the subsequent batch of candidates, in force at the time of their reappearance. In the event of removal of that paper consequent to change of regulation and/or curriculum after N+2 years period, the candidate shall have to take up an equivalent paper in the revised syllabus as suggested by the Chairman, Board of Studies concerned.

12. BETTERMENTOFGRADES

A student who has secured only a Pass or Second class and desiresto improve his/her Class can appear for Betterment ExaminationsonlyinTheorycoursesofanySemesterofhis/herchoice,conductedinSummerVacational ongwiththeSpecialExaminations.Betterment of Grades is permitted 'only once' immediately aftercompletionoftheprogramofstudy.

13. DETENTION AND RE-ADMISSION

If a student fails to meet the minimum attendance requirement or minimum standards for academic progression, the concerned academic head will recommend for detention and it will be notified by the concerned Dean of the School. The students who are detained in the current semester will not be allowed to register for the next semester and they have to repeat the same semester.

The candidates who are detained or availed academic break or suspended in the previous semester/academic year and want to continue their study shall apply for re-admission to the university. The candidates shall request for re-admission to the respective Head of the Department, with details viz., Full Name, Registration Number, Department, School, Fee payment particulars with proofs and reasons for discontinuations.The concerned academic head will forward it to the Registrar with specific comments. The Registrar will notify the decision of re-admission which shall include the prescribed fee particulars, semester/ year into which readmission is granted and additional courses to be completed by the student (if any). The candidates should apply for re-admission in advance, that is before the commencement of the semester.

14. GROOMING AND ATTIRE FOR STUDENTS

Grooming and Etiquette is of great significance in the dynamic of shaping one's Personality. The Apollo University stands by a *Code of Grooming, Attire and Etiquette* that promotes a professional standard: Academic Day; Campus Placements and Non-Academic Hours on Campus.

The Dress Code to be in compliance on academic premises while attending: Formal Functions of the Institution / Lectures / Practicals / Dining Area / Library / Labs / Office Areas.
Students shall follow appropriate attire during Academic and Non-Academic hours on the campus. Students shall wear clean, neat, pressed and presentable clothing, and command respect by dressing in accordance with responsible personal norms. Students shall always wear The Apollo University ID Card with the Lanyard.

Grooming and Formal Wear - Boys:

Formal Shirts / T-Shirts with a Collar should preferably be tucked in with a Formal pair of Pants Shoes and Socks to complete the Formal Attire. Personal Hygiene should be followed and Hair should be well groomed.

Smart Casuals for Boys:

Long Kurtas / Formals / Semi-Formal Shirts with Jeans.

Grooming and Formal Wear - Girls: Sarees / Salwar Suits / Leggings or Jeggings with Long Kurtis / Long Frocks / Long Skirts / Palazzos. Complement the outfit with proper footwear. Personal Hygiene should be followed and Hair should be well groomed.

Smart Casuals for Girls:

Jeans with long Kurtis / Long Skirts / Long Frocks.

Attire for Non-Academic Hours On Campus:

The students should be neatly attired during Non-Academic Hours on Campus.

Dress Code for Boys:

Jeans / Track Suits / T-Shirts / Trousers / Shirts.

Dress Code for Girls:

Jeans / T-Shirts or Blouses / Salwar Suits / Palazzos / Leggings or Jeggings with Long Tops / Sarees / Long Skirts / Track Suits.

DO'S AND DO'NTS FOR BOYS AND GIRL STUDENTS OF THE UNIVERSITY:

- To wear modest clothing that reflects the essence of good personal grooming standards.
- To refrain from wearing Sleeveless Clothing; Shorts; Short Tops, etc.,

PLEASE NOTE:The decision as to what constitutes Appropriate Attire vests with the Authorities of The Apollo University.

15. ELIGIBILITY FOR AWARD OF THE DEGREE

The undergraduate degree will be of 4-years of duration. A student shall be declared as eligible for the award of the degree if the candidate has successfully secured the minimum number of required credits asspecified in the curriculum corresponding to the branchofhis/herstudywithinthestipulatedtime.

After successful completion of the program, a provisional certificate cum memorandum of grades (PCMG) will be issued to the students. The PCMG includes the secured grades and class achieved in chosen program and specialization if any, along with grades and CGPA secured by the student. The original degree will be presented in the subsequent convocation.

16. DISCRETION POWER

Not with-standing anything contained in the above sections, theVice Chancellor may review all exceptional cases, and give hisdecision,whichwillbefinalandbinding.

ANNEXURE 1

ELIGIBILTY FOR QUALIFYING EXAM FOR UNDER GRADUATE PROGRAMS

Program Type	Program Name	Eligibility
Bachelor's	**Physiotherapy**	Candidates must secure 50% in Physics, Chemistry Botany and Zoology of Intermediate or in the vocational physiotherapy or must have appeared for Class 12 or equivalent examination with Physics, Chemistry, and Botany and Zoology as major subjects from any recognized board. Candidates should attain 17 Years as on 31st December of the preceding calendar year.

ANNEXURE 2

PROGRAMS OFFERED BY SCHOOL OF TECHNOLOGY

FROM ACADEMIC YEAR 2023-24

Sl. No.	**Program**	**Expanded**	**Level**	**Minimum Duration in Years (N)**
1	BPT	Bachelor of Physiotherapy	Bachelor's	41/2

I - Semester

3 Week Induction Programme						
Course Code	**Course Name**	**Periods per week**			**Credits**	**Hours per week**
		L	**T**	**P**		
-	UC-1CommunicativeEnglish (UniversityCore)	3	-	-	3	3
-	UniversityElective- I	3	-	-	3	3
BPTT1501	Psychology&Sociology	6	-	-	6	6
BPTT1502	Anatomy-I	4	-	-	4	4
BPTT1503	Physiology-I	3	-	-	3	3
BPTL1502	Anatomy-I	-	-	6	2	6
BPTL1503	Physiology-I	-	-	3	1	3
BPT Ment-01	Physio Mentoring	-	-	-	-	1
BPT Seminar-01	Physio -Seminars/CBS	-	-	-	-	1
BPT -Lib-01	Physio-Library	-	-	-	-	2
--	PhysicalActivity	-	-	-	-	2
--	Extra-curricularactivities	-	-	-	-	2
--	Co-curricularactivity	-	-	-	-	1
BPT-Self-01	Physio Self-Learning		-	-	-	1
TOTAL		17	-	9	20	36

II– Semester

3 Week Induction Programme						
Course Code	**Course Name**	**Periods per week**			**Credits**	**Hours per week**
		L	**T**	**P**		
-	UC-II	3	-	-	3	3
-	UE- II	3	-	-	3	3
BPTT1504	Anatomy-II	4	-	-	4	4
BPTT1505	Physiology-II	3	-	-	3	3
BPTT1506	Biochemistry	3	-	-	3	3
BPTL1504	Anatomy-II	-	-	6	2	6
BPTTL505	Physiology-II	-	-	3	1	3
--	Mentoring	-	-	-	-	1
--	Seminars/CBS	-	-	-	-	2
--	Library	-	-	-	-	1
--	PhysicalActivity	-	-	-	-	2
--	Extra-curricularactivities	-	-	-	-	2
--	Co-curricularactivity	-	-	-	-	1
--	Self-Learning	-	-	-	-	2
TOTAL		16	0	9	19	36

III - Semester

3 Week Induction Programme						
Course Code	**Course Name**	**Periods per week**			**Credits**	**Hours per week**
		L	**T**	**P**		
-	UC-3	3	-	-	3	3
-	University Elective -III	3	-	-	3	3
BPTT2501	Exercise therapy-I	3	-	-	3	3
BPTT2502	Biomechanics	4	-	-	4	4
BPTT2503	Low and Medium frequency	3	-	-	3	3
BPTL2501	Exercise therapy-I	-	-	4	2	4
BPTL2502	Biomechanics	-	-	4	2	4
BPTL2503	Low and Medium frequency	-	-	4	2	4
--	Mentoring	-	-	-	-	1
--	Seminars/CBS	-	-	-	-	1
--	Library	-	-	-	-	1
--	Physical Activity	-	-	-	-	2
--	Extra-curricular activities	-	-	-	-	1
--	Co-curricular activity	-	-	-	-	1
--	Self-Learning		-	-	-	1
TOTAL		**16**	**-**	**12**	**22**	**36**

IV - Semester

3 Week Induction Programme						
Course Code	**Course Name**	**Periods per week**			**Credits**	**Hours per week**
		L	**T**	**P**		
BPTT2504	Pathology	2	-	-	2	2
BPTT2505	Microbiology	2	-	-	2	2
BPTT2506	Exercise therapy-II	3	-	-	3	3
BPTT2507	High frequency	3	-	-	3	3
BPTL2506	Exercise therapy-II	-	-	4	2	4
BPTL2507	High frequency	-	-	4	2	4
BPTC2501	CLINICALTRAINING	-	-	12	6	12
--	Mentoring	-	-	-	-	1
--	Seminars/ CBS	-	-	-	-	1
--	Library	-	-	-	-	1
--	Physical Activity	-	-	-	-	2
--	Extra-curricular activities	-	-	-	-	1
TOTAL		10	-	20	20	36

V - Semester

3 Week Induction Programme						
Course Code	**Course Name**	**Periods per week**			**Credits**	**Hours per week**
		L	**T**	**P**		
BPTT3501	Pediatrics & General Medicine &Pharmacology	4	-	-	4	4
BPTT3502	General surgery/OBG	2	-	-	2	2
BPTT3503	Clinical Orthopaedic conditions for Physiotherapists	3	-	-	3	3
BPTT3504	Physiotherapy forOrthopaedic conditions	4	-	-	4	4
BPTT3505	Physical function and diagnosis	3	-	-	3	3
BPTL3504	Physiotherapy for Orthopaedic conditions	-	-	9	4.5	9
BPTC3501	Clinical training	-	-	6	3	6
--	Seminars/ CBS	-	-	-	-	1
--	Physical Activity	-	-	-	-	2
--	Extra-curricular activities	-	-	-	-	1
--	Co-curricular activity	-	-	-	-	1
TOTAL		**16**	**-**	**15**	23.5	**36**

VI - Semester

3 Week Induction Programme						
Course Code	**Course Name**	**Periods per week**			**Credits**	**Hours per week**
		L	**T**	**P**		
BPTT3506	Clinical Neurology for physiotherapists	3	-	-	3	3
BPTT3507	Physiotherapy in Neurological conditions	4	-	-	4	4
BPTT3508	Women's Health	3	-	-	3	3
BPTT3509	Community medicine	3	-	-	3	3
BPTL3509	Physiotherapy in Neurological conditions	-	-	9	4.5	9
BPTC3502	Clinical training	-	-	9	4.5	9
--	Seminars/ CBS	-	-	-	-	1
--	Physical Activity	-	-	-	-	2
--	Extra-curricular activities	-	-	-	-	1
--	Co-curricular activity	-	-	-	-	1
TOTAL		**13**	**-**	**18**	**22**	**36**

VII - Semester

3 Week Induction Programme						
Course Code	**Course Name**	**Periods per week**			**Credits**	**Hours per week**
		L	**T**	**P**		
BPTT4501	Biostatistics & Research methodology	3	-	-	3	3
BPTT4502	Clinical Cardio Respiratory conditions for physiotherapists	3	-	-	3	3
BPTT4503	Physiotherapy for Cardio Respiratory conditions	4	-	-	4	4
BPTT4601	PE-I	3	-	-	3	3
BPTL4503	Physiotherapy for Cardio Respiratory conditions	-	-	6	3	6
BPTC4501	Clinical training	-	-	12	6	12
--	Seminars/ CBS	-	-	-	-	2
--	Physical Activity	-	-	-	-	2
--	Extra-curricular activities	-	-	-	-	1
TOTAL		**13**	**-**	**18**	**22**	**36**

VIII - Semester

3 Week Induction Programme						
Course Code	**Course Name**	**Periods per week**			**Credits**	**Hours per week**
		L	**T**	**P**		
BPTT4504	Rehabilitation Medicine	4	-	-	4	4
BPTT4602	PE-II	3	-	-	3	3
BPTL4504	Rehabilitation Medicine	-	-	9	4.5	9
BPTL4501	Project study	-	-	6	3	6
BPTC4502	Clinical training	-	-	9	4.5	9
--	Seminars/ CBS	-	-	-	-	1
--	Physical Activity	-	-	-	-	2
--	Extra-curricular activities	-	-	-	-	1
--	Co-curricular activity	-	-	-	-	1
TOTAL		**07**	**-**	**24**	**19**	**36**

IX SEMESTER

INTERNSHIP					
S.NO	**Department**	**PERIODOF POSTINGS**	**No.Of working hours/day**	**No.Of working hours/day**	**Credits**
1	Physiotherapy	25 Days/Month	8 **hours/day**	200	6
2	Orthopedics	25 Days/Month	8 **hours/day**	200	6
3	GeneralMedicine	25 Days/Month	8 **hours/day**	200	6
4	Community Based Rehabilitation	25 Days/Month	8 **hours/day**	200	6
5	OBG	10Days/ Month	8 **hours/day**	80	3
6	Pediatrics	15Days/ Month	8 **hours/day**	120	4
7	GS	10Days/ Month	8 **hours/day**	80	3
8	ICU	15Days /Month	8 **hours/day**	120	4
Total No. Of hours				1200	40

PE–I	**PE-II**
1. Hand rehabilitation 2. Emergency care and BLS	1. Strength and conditioning 2. Spinal manipulations

I SEMESTER

TAUT1101 COMMUNICATIVE ENGLISH L T P C
3 0 0 3

Course Description:
The creation of the Course is to facilitate Stakeholders in productively using the Language to functional advantage to form meaningful engagements in a social context and influence their professional dynamic.

Course Objectives:
The objective of this course is to make students to:

1. To expand and enhance vocabulary systematically for clear communication, richer expression, and deeper comprehension across various contexts."
2. To provide the grammatical knowledge and skills necessary to communicate effectively in English, both orally and in writing.
3. To strengthen their ability to write academic papers, essays and summaries using the "Mind Mapping,' dynamic.
4. To enhance communication skills by analyse, evaluate, and express their opinions on various topics, fostering the development of critical thinking abilities
5. To develop proficiency in listening, speaking, reading and writing, enabling individuals to communicate effectively in various real-life situations.

UNIT-I 9 Hrs
Vocabulary and Reading: Special Features of English Vocabulary, Reading With Purpose; Understanding What is Read; Drawing a Conclusion Based on Inferences, Deduction, Reading Between the Lines, Context, Connotation, Higher Order Thinking; How to Explain Specific Information with Clarity; Defining and Giving Reasons; Giving Directions; Professional Vocabulary.

UNIT-II 9 Hrs
Basic Grammar: Subject-Verb Agreement; Verb Tenses; Active-Passive Voice; Direct and Indirect Speech; Question Tags; Degrees of Comparison; Articles; Avoiding Jargon.

UNIT-III 9 Hrs
Writing: Letter Writing; Report Writing; E-Communication, Drafting and Collating Key Information, Taking Notes from Lectures, Reading Materials, Reporting on Minutes of the Meeting, Precis Writing

UNIT-IV 9 Hrs
Basics of Communication: Role of Communication; Purpose of Communication; Barriers to Communication; Verbal and Non-Verbal Communication, Communication at the Workplace; Human Needs and Communication; "Mind Mapping" Communication; E-Communication.

UNIT-V 9 Hrs
Presentations: Self-Introduction; Individual Presentation; Group Discussions; Debates.

Course Outcomes:

At the end of the course, student will be able to:

1. To review grammatical structures of English and the use of these forms in specific communicative contexts, which include: class activities, homework assignments, reading of texts and writing and functional real-world facets.
2. To improve their accuracy and fluency in producing and understanding spoken and written English and endorse this proficiency in both personal and professional realms.
3. To attain and enhance competence in the four modes of literacy: Writing, Speaking, Reading and Listening.
4. To develop their ability as critical thinkers.
5. To empower the individuals to connect, engage, and thrive in diverse personal and professional environments.

Text Books:

1. Meenakshi Raman and Sangeeta Sharma, "Technical Communication: Principles and Practice", 3rd Edition, Oxford University Press, 2015.
2. M. Ashraf Rizvi, "Effective Technical Communication", Second Edition, McGraw. Hill Education, 2017.
3. Wilfred Funk and Norman Lewis, "30 Days to a More Powerful Vocabulary", Latest Edition, Pocket Books, 2021.

Reference Books:

1. Grant Taylor, "English Conversation Practice", Tata McGraw-Hill Education India, 2016.
2. Gary Blake and Robert W. Bly, "The Elements of Technical Writing", 2nd Edition, 2000, Longman.
3. Raymond Murphy, "English Grammar in Use", Fourth Edition, Cambridge University Press, 2019.

TAUT1201A **BASICS OF PHYSIOTHERAPY** **L T P C**
3 0 0 3

Course Description:
The course is designed to aim at imparting a basic level health program. This program is formulated to enable student to gain adequate knowledge, skills and leading to an ability to identify the basics of early features of the health issues

Course Objectives:

The objective of this course is to make students to:

1. Gather and interpret information within a holistic framework pertaining to health.
2. The overall content of the curriculum focuses on health care and clinical education experiences for each student
3. Understand the basic fundamentals of physiotherapy
4. Familiarizes participants with different procedures and techniques used in physiotherapy and their practical application across various conditions
5. Provide participants with a substantial understanding of physiotherapy and promote safe practices and ethical behaviour in physiotherapy practice.

UNIT-I Basics of Physiotherapy5 Hrs

i. What is Physiotherapy?
ii. Types of Physiotherapy
iii. Benefits of Physiotherapy
iv. Why is Physiotherapy done?

UNIT-II Women's Health **5 Hrs**

i. Pre natal exercises & Care
ii. Post Natal exercises

UNIT-III Acute injuries & managementand the uses of Orthotics & Prosthetics10 Hrs

i .Mechanism of injury
ii. Acute muscle injuries
-Muscle strain
-Risks of muscle strain
-Muscle imbalance:
-Muscle inflexibility:
iii. Ligament sprain and difference between sprain and strain
iv. Orthotics & Prosthetics

UNIT-IV Ergonomics & Health and Aerobics **13 Hrs**

i. work-related musculoskeletal disorders (MSDs).
ii. Risk factors associated with work-related MSDs & Possible Causes
iii. Common ergonomic symptoms
iv. Different types of Ergonomics & principles of ergonomicsand v. Ergonomic Control Methods
v. Awkward body postures – hazards
vi. Physical Activity and exercise
vii. Physical Fitness and Maximum Oxygen Consumption

viii. Aerobic Exercise Training and Physiological Response to Aerobic Exercise
ix. Cardiovascular Response to Exercise and Respiratory Response to Exercise
x. Responses Providing Additional Oxygen to Muscle and Exercise Program
xi. Warm-Up Period,Aerobic Exercise Period and Cool-Down Period Application

UNIT-V Education & Awareness about common diseases and BLS12 Hrs

i. Bell's palsy
ii. Diabetes
iii. Coronary artery heart disease
iv. OA Knee
v. Stroke
vi. LBA
vii. Early identification of congenital anomalies
viii. BLS Theory
ix. BLS Practical's

Course Outcomes:

1. Gain the basic knowledge of Physiotherapy
2. Familiarize the procedures and techniques used in physiotherapy
3. Protect and manage from the sport injuries
4. Gain Knowledgeabout Ergonomics
5. To maintain physical fitness

Text Books:

1. Physiotherapy In Obstetrics And Gynecology-Polden And Mantle,Jaypee Brothers
2. Women's Health- Ruth Sapsford,Lippincott,1998
3. Textbook of orthopedics medicine Vol I & II by James Cyriax – Bailliere
4. Susan B O'Sullivan, Physical Rehabilitation 6th Edition, 6 edition F A Davis; 2013. ISBN-13: 978-0803625792
5. Arias" Practical Guide To High Risk Pregnancy And Delivery By Amarnath Bhide,SabaratnamArulkumaran

Reference Books:

1. John Ebenezer- Essentials of Orthopedics for Physiotherapists- 3rd edition 2016
2. Davidson's principles and practice of medicine
3. Fundamentals of Ergonomics in Theory and Practice- Alan Hedge- 2019
4. Introduction to Ergonomics, Third Edition" -Robert Bridger- 2018
5. Human Factors and Ergonomics in Practice: Improving System Performance and Human Well-Being"- Steven Shorrock, Claire Williams- 2020
6. Acute Care Handbook for Physical Therapists- Jaime C. Paz, Michele P. West- 2019
7. Sports Injury Prevention and Rehabilitation: Integrating Medicine and Science for Performance Solutions" David Joyce, Daniel Lewindon- 2015
8. Orthotic Intervention for the Hand and Upper Extremity: Splinting Principles and Process"- Marylyn A. Jacobs, Noelle M. Austin- 2013
9. Prosthetics and Orthotics: Lower Limb and Spine"- Joan E. Edelstein, Alex Moroz- 2017
10. "Essentials of Physiotherapy"- Prakash Narain Tandon- 2016
11. Pathology for the Physical Therapist Assistant - Catherine C. Goodman, Kenda S. Fuller- 2020 (3rd Edition)

TAUT1201B **BIOSTATICS** **L T P C**
3 0 0 3

Course Description:

Biostatistics is the application of statistical methods to biological and health-related fields. This course provides a comprehensive introduction to the principles and techniques of biostatistics essential for conducting research in medicine, public health, and biology. Students will learn how to effectively collect, analyze, and interpret data from biological and health sciences, with a focus on understanding and addressing key issues such as experimental design, sampling methods, data visualization, hypothesis testing, and regression analysis.

CourseObjectives:

1. Gain a solid understanding of biostatistical principles including descriptive statistics, probability, hypothesis testing, and regression analysis.
2. Apply these principles to analyze data from biological and health sciences, focusing on experimental and observational studies.
3. Critically interpret statistical results and effectively communicate findings to different audiences.
4. Develop proficiency in using statistical software for data manipulation, analysis, and visualization.
5. Design studies, evaluate literature, and collaborate in interdisciplinary teams, preparing for advanced study and research in biostatistics and related fields.

UNIT-I Descriptivemethods **9Hrs**

FrequencyDistribution,CharacteristicsofaFrequencyDistribution,TabularandGraphical PresentationofData: LineGraphs, BarCharts,Histograms,Ogives.

UNIT-II Measuresofcentral tendency **9Hrs**

ArithmeticMean,Median,Mode,PositionofAverages,SelectionoftheAppropriateMeasureof CentralTendency,GeometricMean, HarmonicMean.

UNIT-III Measuresofdispersion **9Hrs**

Range,InterquartileRange,MeanDeviation,VarianceandStandardDeviation

UNIT-IV SamplingDesigns **9Hrs**

Samplingand SampleDesigns, SignificanceofProbabilityand Non-probabilitysampling methods,CrossoverDesign,CaseControlDesign,CohortStudyDesign,Designingclinicaltrials-Si ngle-and Double-BlindExperiments.

UNIT-V Dataanalysisand interpretation **9Hrs**

Tests of hypothesis, Tests of significance, chi-squaretest,Goodnessoffit,Analysisofvariance.

CourseOutcomes:

1. Abilitytodesignexperiments,samplingvariables,analyzethebiologicaldata,interpretandp resenttheresults in meaningful way.
2. Createtablesandgraphsfordatapresentation
3. Describemeasuresofcentraltendencyanddispersionalongwithcalculatingprobabilityfeat uresof experiments.
4. Discussthecorrelationbetweenvarioustypesof dataalongwithassociatedvariables.
5. Testhypothesisand carryoutrelatedstatisticaltests

TextBooks:

1. DanielWW,CrossCL(2013)Biostatistics: AFoundationSciences
2. Biostatistics: A Foundation for Analysis in the Health Sciences, 11th EditionChad L. Cross, Wayne W. Daniel , ISBN: 978-1-119-49657-1, December 2018

ReferenceBooks

1. ForthoferRN, LeeES,Hernandez M(2006)ToDesign,Analysis,andDiscovery.Elsevier Ltd.,Amsterdam.
2. Principles of Biostatistics, 3rd Edition, By Marcello Pagano, Kimberlee Gauvreau, Heather Mattie (2022).

TAUT1201C **CONSTITUTION OF INDIA** **L T P C**
3 0 0 3

Course Description:
The Constitution of India course provides a comprehensive understanding of the fundamental principles, structure, and functioning of the Indian Constitution. This course examines the historical evolution, key features, and various interpretations of the Constitution, highlighting its significance in shaping India's legal and political landscape. Through this course, students will gain insights into the roles and responsibilities of different branches of government, fundamental rights and duties of citizens, and the constitutional mechanisms that ensure the democratic functioning of the nation.

CourseObjectives:
1 TorealizethesignificanceofconstitutionofIndiatostudentsfromallwalksoflifeandhelpthemtounderstandthebasicconceptsofIndianconstitution.
2 Toidentifytheimportance offundamental rightsaswellasfundamental duties.
3 TounderstandthefunctioningofUnion,StateandLocalGovernmentsinIndianfederalsystem.
4 TolearnprocedureandeffectsofemergencY,compositionandactivitiesofelectioncommissionandamendmentprocedure.
5 To acquire knowledge to appear for competitive examinations.

UNIT-I **9 Hrs**
Historical Background – Constituent Assembly of India – Philosophical Foundations of The Indian Constitution – Preamble – Constitutional amendments

UNIT-II **9 Hrs**
Fundamental Rights – Directive Principles of State Policy – Fundamental Duties – Citizenship – Constitutional Remedies for Citizens;

UNIT-III **9 Hrs**
Union Government – Structures of the Union Government and Functions – President – Vice President – Prime Minister – Cabinet – Parliament – Supreme Court of India – Judicial Review.

UNIT-IV **9 Hrs**
State Government – Structure and Functions – Governor – Chief Minister – Cabinet – State Legislature – Judicial System in States – High Courts and other Subordinate Courts.

UNIT-V **9 Hrs**
Statutory Institutions -Elections-Election Commission of India, National Human Rights Commission, National Commission for Women; Local Self Government; Lok pal.

Course Outcomes:
At the end of the course the student should be able to:
1. Understand and explain the significance of Indian Constitution as the fundamental law of the land.
2. Exercise his fundamental rights in proper sense at the sametime identifies his responsibilities in national building.

3. Analyze the Indian political system, the powers and functions of the Union,State and Local Governments in detail
4. Understand Electoral Process, Emergency provisions and Amendment procedure.
5. Take part in competitive examinations with confidence.

Text Books:

1. Durga Das Basu, “Introduction to the Constitution of India “, Prentice Hall of India, New Delhi.
2. R.C.Agarwal, (1997) “Indian Political System”, S.Chand and Company, New Delhi.

Reference Books:

1. Sharma, Brij Kishore, “Introduction to the Constitution of India”, Prentice Hall of India, New Delhi.
2. The Constitution of India (2022) :https://cdnbbsr.s3waas.gov.in/s380537a945c7aaa788ccfcdf1b99b5d8f/uploads/2023/05/2023050195.pdf
3. Refer the website through the link given for Constitution of India in various Indian Languageshttps://legislative.gov.in/constitution-of-india/
4. Indian Constitution at Work by National Council of Educational Research and Training, Sri Aurobindo Marg, New Delhi

TAUT1201D **ETHICAL HACKING** **L T P C**
3 0 0 3

Course Description:
This course is about to learn ethical hacking and security challenges in computer networking. Which addresses the data security issues and types of attacks includes malwares, viruses, sniffer and denial of service. It teaches ethical responsibilities, professional integrity and making appropriate use of the tools and techniques.

Course Objectives:
The objective of this course is to make students to:

1. Know the concepts of hacking, ports and penetration testing
2. Understand the footprinting types and techniques of scanning
3. Understand the process of system hacking, trojans and backdoors
4. Apply the concepts of sniffing, packet analysis & session Hijacking
5. Learn the ethical issues and responsibilities associated with ethical hacking

UNIT-I **9 Hrs**
Introduction to Hacking: Hacking, Types and phases of hacking. Introduction to Ports & Protocols: Ports, Protocols, Primary Network Types. Introduction to Penetration Testing: Penetration test, Categories and Types of Penetration tests, Structure of Penetration Test Report.

UNIT-II **9 Hrs**
Footprinting: Footprinting, Types, Using ping and ns Lookup commands in Windows command line. Scanning: Scanning, Basics of Scanning, Basic Techniques of Scanning, Enumerating DNS using dnsenum, Performing flag scan using hping3.

UNIT-III **10 Hrs**
Issues Hacking into System: System Hacking, Password Cracking, Default password databases, Manual and Automated Password Cracking, Process of System Hacking, Using Keyloggers. Trojans & Backdoors: Trojans, Working of Trojan, Infection Techniques, Attack, Lifecycle and Classification of Virus, Worms, Virus Construction Kit.

UNIT-IV **9 Hrs**
Types, Sniffing, Packet Analysis & Session Hijacking: Sniffing, Packet Analysis, Types of Sniffing, Active and Passive Sniffing Techniques, Session Hijacking. Cryptography: Cryptography, Digital Signature, Hash Functions.

UNIT-V **8 Hrs**
An introduction to the particular legal, professional and ethical issues likely to face the domain of ethical hacking. Ethical responsibilities, professional integrity and making appropriate use of the tools and techniques associated with ethical hacking.

Course Outcomes:

At the end of the course, student will be able to

1. Explain the concepts related to hacking, ports and protocols, penetration testing
2. Determine the applicable footprinting techniques and scanning methods
3. Explain the process of system hacking and explain the concepts Trojans, backdoors, worms and virus and it's countermeasures
4. Demonstrate systematic understanding of the concepts of sniffing and cryptography
5. Understand the legal and professional responsibilities of ethical hacking

Text Books:

1. Jiawei Hacking: Be a Hacker with Ethics, Harsh Bothra, Khanna Publications, 2019.
2. Ethical Hacking and Penetration Testing Guide, Rafay Baloch, 2014.

Reference Books:

1. Alex BersonKali Linux Wireless Penetration Testing Beginner's Guide, Vivek Ramachandran, Cameron Buchanan, Packt Publishing, 2015.
2. SQL Injection Attacks and Defense, 1st Edition, Justin Clarke-Salt, Syngress Publication.
3. Mastering Modern Web Penetration Testing, Prakhar Prasad, Packt Publishing, October 2016.

TAUT1201E FUNDAMENTALS OF COMPUTERS L T P C
3 0 0 3

Course Description:
The course is designed to aim at imparting a basic level appreciation program. The incumbent can use the computer for basic purposes of preparing his personnel/business letters, viewing information on the Internet (the web), sending mail, using internet bankingservices, etc.and allows to become digitally literate.

Course Objectives:
The objective of this course is to make students to:

1. To introduce the fundamental concepts of computers, including their characteristics, types, and applications.
2. To explain the functional components of a computer and various input/output devices.
3. To understand different types of computer memory and storage devices.
4. To introduce computer languages and software, including algorithms and programming languages and provide an overview of operating systems and basic networking concepts.
5. To introduce the components and practical applications of MS Office.

UNIT-I **9 Hrs**

Introduction to Computer: Computer Characteristics, Concept of Hardware, Software,Evolution of computer and Generations, Types of Computers–Analog and Digital computers, Hybrid Computers, General Purpose and Special Purpose Computers, Limitations of Applications of Computer in Various Fields.

UNIT-II **9 Hrs**

Structure and Working of Computer: Functional Block Diagram of Computer. CPU, ALU, Memory UNIT-, Bus Structure of Digital Computer–Address, Data and Control Bus.

Input/Output Devices: Input Device– Keyboard, Mouse, Scanner, MICR,OMR. Output Devices–VDU, Printers– Dot Matrix, Daisy-wheel, Inkjet, Laser, Line Printers and Plotters.

UNIT-III **9 Hrs**

Computer Memory: Memory Concept, Memory Cell, Memory Organization, Semiconductor Memory – RAM, ROM, PROM, EPROM, Secondary Storage Devices – Magnetic Tape, Magnetic Disk (Floppy Disk and Hard Disk.), Compact Disk.

Computer Language and Software: Algorithm, Flowcharts, Machine Language, Assembly Language, High Level Language, Assembler, Compiler, Interpreter. Characteristics of Good Language. Software – System and Application Software.

UNIT-IV **9 Hrs**

Operating System: Operating System, Evolution of Operating System. Functions of Operating System. Types of Operating Systems. Detailed Study of Windows Operating System. Introduction and Features of LINUXOS.

Networking: Concept, Basic Elements of a Communication System, Data Transmission Media,Topologies, LAN, MAN, WAN, Internet

UNIT-V **9 Hrs**

MSOffice: Introduction to MS Office, Components and Features. **MSWord:** Creating Letter, Table, Fonts, Page Layout Document**,** Formatting, Spell Check, Print Preview, Template, Color, Mail Merge, AutoText, Inserting Picture, WordArt.

MS Excel: Introduction to Excel, Sorting, Queries, Graphs, Scientific Functions.

PowerPoint: Introduction to PowerPoint, Creation of Slides, Inserting Pictures, Preparing Slide Show with Animation. **MS Access:** Creation and Manipulation of Files.

Course Outcomes:

Upon completion of the course, student will be able to:

1. Understand the basic characteristics, types, and applications of computers.
2. Comprehend the functional components and input/output devices of a computer.
3. Describe various memory types and secondary storage devices.
4. Differentiate between machine, assembly, and high-level languages and their associated tools. Understand the role and types of operating systems, with knowledge of Windows and Linux, and basic networking concepts.
5. Utilize MS Word, Excel, PowerPoint, and Access for practical applications.

Text Books:

1. Peter Norton: Computing Fundamentals.6th Edition, Mc Graw Hill-Osborne, 2007.
2. Sarita Dhawale, Thakur Akash Ashok: Fundamentals of Computer, Thakur Publication Pvt. Ltd.

Reference Books:

1. Deborah Morley and Charles S.Parker; Fundamentals of Computers; Cengage Learning, India edition; 2009.
2. Alex is Leon and Mathews Leon; Fundamentals of Information Technology; Vikas Publication, Chennai.
3. Francis Scheid; Theory and Problems of Introduction to Computer Science Schaum's Outline Series; Tata Mc Graw Hill publication.

TAUT1201F **GENDER AND DEVELOPMENT** **L T P C**
3 0 0 3

Course Description:

The course is important for professionals from the point of creating engendered perspectives and sensitivity toward issues concerning women, men, and sexual minorities. It further reaffirms the belief in the importance of grassroots experiences and narratives while dealing with gender issues.

Course Objectives:

1. Understand key concepts, and issues in gender and development
2. Understand the social construction of gender and develop gender perspectives inanalyzing social realities
3. Understand how the gender dynamics of power and inequality play out in the social institutions of households, markets, and states and within the arena of civil society.
4. Create awareness about the magnitude of gender disparities in the present context
5. Examine through the gender lens, the interlinkage between cultural practices social processes, and development approaches

UNIT-I Basic Concepts and Theories of Feminism **10 Hrs**

Concepts- gender, gender studies, gender identity, gender role stereotyping, gender division of labor, gender discrimination, gender equality, and equity. Overview of feminist theories – Liberal feminism, Radical Feminism, Black feminism, postmodern feminism, Eco- feminism; The international background to the Women's Movement, The genesis of the Women's Movement in India. Contemporary Contestations – Intersex and Transgender Movements. • Feminist thinkers in the 18th, 19th, 20th, and 21st Centuries.

UNIT-II Gender Issues **10 Hrs**

Major gender issues – national and global - causes and consequences., LGBTQIA+ issues (Gender violence in private and public spaces: Domestic violence, Dowry, trafficking in women and children, rape, sex-selective abortion, female infanticide, female foeticide, child marriage, prostitution • Gender, leadership, and workplace; Sexual Harassment at Workplace). Gender-based violence, patriarchy, sexism, racism, casteism, economic inequality, and misogyny. Gender and health (Physical and mental), reproductive health, and sexuality. Feminization of poverty. Issues of the rights of sexual minorities and transgender - Article 377 and beyond.

UNIT-III Gender Perspectives in Development **10Hrs**

Gender Analysis Tools: Gender budgeting, Gender mainstreaming, SIG, Gender Parity Index, Gender Inequality Index, Human Development Index, Gender Development Index, Gender Empowerment Measure, Approaches to development-- Women in Development (WID), Women and Development (WAD), Gender and Development(GAD), Millennium Development Goals, and Sustainable Development Gender Analysis Frameworks; Gender blind; neutral and redistributive policies; Welfare, Efficiency and Empowerment approaches to Gender; Strategic and practical gender needs/interests; Case Studies to understand the engagement with gender, (Poverty alleviation Forestry; Drinking Water and Sanitation; Health programmes, Urban renewal and slum rehabilitation Programmes, and micro-credit programmes like SHGs.

UNIT-IV Mechanisms Addressing Issues and Best Practices **10 Hrs**

Constitutional and legislative safeguards, policies, and programmes • Institutional mechanisms: National Commission for Women, Rashtriya MahilaKosh, Crime Against Women Cell, Family Court, Family Counselling Centres and Crisis intervention centers• Best practices to address disparity, violence, and safety issues

International initiatives world conferences, women's decade, CEDAW. Indian initiatives – Towards Equality Report, National Perspective Plan for women, National Policy for the Empowerment of Women-2001, National and State women's Commissions, Nirbhaya, Women Development Corporation; Legal remedies and Social Welfare Services available to Women Facing Violence.

UNIT-V Gender and Media **5 Hrs**

Discourse on Women and Media Studies- Mainstream Media, Feminist Media. • Coverage of Women's issues, sexual minorities, and issues of women in Mass Media and Media Organizations (Audio-Visual and Print media). • Digital Media and legal protection (cybercrimes and laws). • Alternative Media – Folk Art, Street Play and Theatre. • Indecent Representation of Women (Prohibition) Act, 1986, Pornography, Impact of media on Gender. Construction of masculinity and feminity in media.

Course Outcomes:

By the end of the course, students should be able to:

1. Understand the concept of gender and the social construction of feminity and masculinity
2. Develop sensitivity towards the existing practices leading to gender discrimination and marginalization in society.
3. Develop the ability to identify social, economic and political systems that adversely affect the well-being and functioning of women.
4. Suggest affirmative action in planning to promote gender equity, equality, and safety for women and sexual minorities
5. Understand the major theoretical and empirical issues that emerge in the gender field.

Text Books:

1. Nalini Visvanathan (Ed.), (2006) The Women, Gender and Development Reader, Zubaan, New Delhi
2. Kannabiran, Kalpana&Ritu Menon. 2007. From Mathura to Manorma: Resisting Violence Against Women, New Delhi: Women Unlimited

Reference Books:

1. Seth, M. 2001. Women and Development: The Indian Experience. New Delhi: Sage Publications.
2. Banerjee, N; S. Sen &N. Dhawan. 2011. Mapping the Field: Gender Relations in Contemporary India, Volume 1, Kolkata: Stree
3. Bose, C.E. &Minjeong Kim. 2009. Global Gender Research: Transnational Perspectives, New York: Routledge

Notes

1. **https://www.studocu.com/row/document/kohat-university-of-science-and-technology/gender-studies/gender-studies-new-lecture-notes-1-7/5176872**
2. **https://teentalk.ca/learn-about/gender-identity/#:~:text=There%20are%20many%20different%20gender,or%20a%20combination%20of%20these.**
3. **https://genderspectrum.org/articles/understanding-gender**

TAUT1201G **LEADERSHIP DEVELOPMENT** **L T P C**
3 0 0 3

Course Description:

This course provides a comprehensive introduction to the fundamental concepts of leadership. Students will gain knowledge of different leadership levels and styles, and understand the significance of vision and strategy formulation.

Course Objectives:

1. Understand the basic concepts of leadership
2. Knowledge of leadership development strategy
3. Knowledge of leadership development approaches
4. Knowledge of leadership traits
5. Awareness on self-awareness exercises.

UNIT-I **9 Hrs**

Understanding Leadership-Defining Leadership; Leadership styles, Entrepreneurial leaders, Different levels of leaders

UNIT-II **9 Hrs**

Strategy formulation- formulation of vision, Strategy formulation and communication, role of the leader in managing change, foundation for effective team development

UNIT-III **9 Hrs**

Leadership development approaches- Significance of leadership development strategy, leadership development approaches- One-to-one coaching, Mentor schemes, Role of HR and development, Buddy pairs, Action learning sets, Work-based projects

UNIT-IV **9 Hrs**

Recognizing Leadership Traits-Historical Leaders; Traits Leaders Display, Leadership Studies: What Traits Do Effective Leaders Exhibit.

UNIT-V **9 Hrs**

Recognising self - Exercises of Self-awareness using Johari Window, Development diaries, Feedback exercises, Personal vision setting

Course Outcomes:

1. Understand the basic concepts of leadership
2. Understand the significance of vision and strategy formulation
3. Knowledge of leadership development approaches.
4. Knowledge of leadership traits.
5. Knowledge of self awareness techniques

Text Books:

1. Rosemary Ryan, Leadership Development - A guide for HR and Training professionals, ELSEVIER, UK
2. Kim S. Cameron, Positive Leadership: Strategies for Extraordinary Performance,

Reference Books:

1. Manuel London,Leadership Development: Paths To Self-insight and Professional Growth, Psychology Press, New York.
2. Susan E. Murphy, Ronald E. Riggio, The Future of Leadership Development, Routledge is an imprint of Taylor &Franci

TAUT1201H **MATHEMATICAL THINKING** **L T P C**
3 0 0 3

Course Description:

Mathematical Thinking is a university elective course that teaches fundamental concepts of basic algebraic and mathematical operations. After learning this course, students will easily be able to learn more problems solving skills and use this course for practicing. The course emphasizes problem-solving skills and analytical thinking, and equips students with the skills necessary to tackle real-world problems using basic mathematical and arithmetical concepts.

Course Outcomes:

At the end of this course, the students will be able:

1. To familiarize the students with the fundamental concepts of basic numbers, mathematical operations, and divisibility rules
2. Summarize the basic concepts mathematical operations on numbers and calculate LCM, GCD to solve simple problems.
3. Compute To probability concepts and statistical methods in various applications engineering.
4. Understand the formula for evaluate thesquare root and cube root of different types numbers
5. Impart the arrangements and selections of things and counting numbers and check for independence of events.

UNIT-I

9 Hrs

Number system and Tests of Divisibility: Digits, numbers,Indian-Hindu-Arabic system, Roman Numbers,Face Value and Place values,Various Types of Numbers or Standard Numbers, Prime number, composite numbers,Perfect Numbers,Co-primes (or) Relative Primes, Twin primes, perfect numbers, Testing of prime numbers,Mathematical operations on even and odd numbers.

UNIT-II **9 Hrs**

LCM and GCD or HCF: Factors and Multiplers,Highest Common Factor (H.C.F.) or Greatest Common Measure (G.C.M.) or Greatest Common Divisor (G.C.D.) factorization method, division method, finding the H.C.F. of more than two numbers, factorization method of finding L.C.M, H.C.F. and L.C.M. of fractions.

UNIT-III **9 Hrs**

System Simplifications: BODMAS' Rule, Modulus of a Real Number, Virnaculum (or Bar), Algebraic identities, set theory operations (union, intersection, complements).

UNIT-IV **9 Hrs**

Square Roots, Cube Roots,averages and percentages: Square Root, cube root, Problems on numbers, concept of averages, problems on averages, concept of percentage and problems on percentages.

UNIT-V **9 Hrs**

Permutations, combinations and Probability: Fundamental principle with respect of addition and multiplication, permutations, combination, relation between permutation and combination, Random experiment, sample space and basic problems of events of a probability.

Course Outcomes:

At the end of the course, student will be able to:

1. To explain fundamental concepts of basic number system, including standard numbers, mathematical operations, and divisibility rules.
2. To apply mathematical operations on numbers and calculate lcm, gcd to solve simple problems.
3. To evaluate the arrangements and selections of things and counting numbers.
4. To understand the simplications by using identities and apply the different kinds of operations on the numbers.
5. To evaluate square root and cube root of different types numbers and calculate appropriate solutions for different problems.

Text Books:

1. Quantitative Aptitude Text Book, Dr.RS.Agrrwal.
2. Quantitative Aptitude, Text Book,S.Chandu.
3. Andhra Pradesh Academy of IPE text books.

Reference Books:

1. Quantitative Aptitude, Text Book, Quicker Mathematics ,second edition
2. Quantitative Aptitude, Text Book,Abjuirhguwaha,Fourth edition
3. www.online quantitative aptitude testseries.com
4. Quantitative Aptitude, GSR Publications,Gunturu,third edition
5. Quantitative Aptitude, verbal reasoning ,Guptha publication,3rd edition
6. www.enaduprathibaonline.com and www.sakshionlineseries.com

TAUT1201I **NURSING** **L T P C**
3 0 0 3

Course Description:
This module is designed to help the students to acquire comprehensive knowledge in basic concepts of Health, Nursing, Vital signs, Basic Life support, home care management of Diabetes & Hypertension and Adolescent health.

Course Objectives:
Students undergoing this course are expected to:

1. Understand the concept of health, illness, and Nursing
2. Learn the technique of assessing and monitoring vital signs
3. Perform BLS using evidence based national or international guidelines in the management of adult victims with the cardiac arrest.
4. Understand the concept of home care management of Diabetes and Hypertensive persons
5. Develop understanding about the normal growth and development, needs and health issues of adolescents

UNIT-I **03 Hrs**
Concepts of Health and Nursing: Definition of Health and ill ness,Health-illness continuum, Factors influencing Health, Nursing as a profession and Career ladder.

UNIT-II **12 Hrs**
Vital signs: Temperature: Physiology, regulation, factors affecting body temperature, Assessment of body temperature: sites, technique and special considerations.
Pulse: Physiology & regulation, characteristics of the pulse, factors affecting pulse, Assessment of the pulse: sites, location, technique and special considerations.
Respiration: Physiology and regulation, mechanics of breathing, characteristics of the respiration, factors affecting respiration, Assessment of respiration: technique and special considerations.
Blood pressure: Physiology and regulation, characteristics of the blood pressure, factors affecting blood pressure.Assessment of blood pressure: sites, equipment and technique and special considerations. Recordingof vital signs.
Pain: Definition, types physiology of pain and factors influencing the pain

UNIT-III **8 Hrs**
Basic life support / basic cardiopulmonary life support(BLS/BCLS)
Introduction, definition, purposes, indications, contraindications and steps in procedure.

UNIT-IV **12 Hrs**
Home care management of Diabetes and Hypertension

Diabetes-Introduction to Diabetes Mellitus – A National and Global burden: Classification, risk factors, pathophysiology, manifestations, screening, diagnostic criteria and complications, The treatmentModalities of Diabetes Mellitus: (Life style modifications Diet therapy, Exercise, Medical Management, Self-Management, Practical Aspects: Blood

Glucose monitoring, Diabetic foot care, Exercises, Diabetic Diet Planning, Self-Insulin administration)

Hypertension-Introduction to Hypertension, Types,risk factors ,pathophysiology ,manifestations, diagnostic criteria and complications, treatment modalities : life style modifications,Diet therapy ,Exercise ,Medical management.

UNIT-V **10 Hrs**

Adolescent Health: Growth and Development of adolescent, Nutritional and developmental needs of adolescent, Common health problemsincluding mental healthproblems, Reproductive and sexual health issues

Course Outcomes:

At the end of this course, students should be able to:

1. Acquire a thorough knowledge on concept of health and illness.
2. Demonstrate skills in monitoring the vital signs
3. Develop skills in performing BLS/BCLS
4. Able to attain knowledge and skills on treatment modalities of DM
5. Aware of normal Growth and development and common health problems in adolescent

Text Books:

1. Potter and perrys, Fundamentals of Nursing,4th edition,Mosby,Elsevier publication
2. Lewis, textbook of Medical Surgical Nursing 4thsouth Asian edition, Elsevier publication
3. Dorothy R. Marlow, Text book of paediatric nursing, sixth edition, Elsevier publications,

Reference Books:

1. Joyce M black textbook of medical surgical nursing ,8th edition, Elsevier publications,
2. Kozier and Erbs, textbook of fundamentals of Nursing,Elsevier publications.

TAUT1201J **ONE HEALTH** **L T P C**
3 0 0 3

Course Description:

This course introduces students to the One Health approach, an interdisciplinary approach that recognizes the interconnectedness of human, animal and environmental health. Students will learn about the history of One Health, its relevance to global health and its role in addressing a range of health challenges, including zoonotic diseases, environmental health hazards and antimicrobial resistance. The course will also explore current and emerging One Health challenges and innovations and the ethical considerations of One Health research and practice.

Course Objectives:

1. To explain the relevance of One Health to global health.
2. To understand the interdisciplinary nature of One Health research and practice.
3. To analyze the impact of environmental health hazards on human and animal health.
4. To identify emerging One Health challenges and innovations.
5. To evaluate ethical considerations in One Health research and practice.

UNIT-I **9 Hrs**

Overview of One Health and its relevance to global health, Definition of One Health and its history, Examples of One Health challenges, such as zoonotic diseases and antimicrobial resistance, The role of inter-disciplinarity in One Health research and practice, Global One Health initiatives and their impact

UNIT-II **9 Hrs**

Environmental health and its relationship to One Health, Overview of environmental health and its impact on human and animal health, Environmental risks to health, such as pollution and climate change, Case studies highlighting the impact of environmental hazards on human and animal health, The role of One Health in addressing environmental health challenges

UNIT-III **9 Hrs**

Zoonotic diseases and One Health, Overview of zoonotic diseases and their impact on human and animal health, The ecology of zoonotic diseases and how they emerge and spread, Case studies of major zoonotic disease outbreaks, such as Ebola and COVID-19, The One Health approach to preventing and controlling zoonotic diseases.

UNIT-IV **9 Hrs**

Antimicrobial resistance and One Health, Overview of antimicrobial resistance and its impact on human and animal health, the relationship between antimicrobial use in animal agriculture and human health, the role of One Health in addressing the global challenge of antimicrobial resistance, Case studies of One Health approaches to controlling antimicrobial resistance, such as the WHO Global Action Plan

UNIT-V **9 Hrs**

Future directions in One Health research and practice, Emerging One Health challenges-food security and emerging infectious diseases, Innovations in One Health research and practice, such as digital technologies and genomics, Opportunities for One Health collaboration across sectors and disciplines, Ethical considerations in One Health research and practice.

Course Outcomes:

By the end of the course, students will be able to:

1. Describe the One Health approach and its relevance to global health
2. Analyze the impact of environmental health hazards on human and animal health
3. Evaluate the role of One Health in addressing zoonotic diseases and controlling antimicrobial resistance
4. Identify emerging One Health challenges and innovations
5. Discuss ethical considerations in One Health research and practice

Text Books:

1. One Health: People, Animals and the Environment by Ronald M. Atlas and Stanley Maloy
2. One Health: The Human-Animal-Environment Interfaces in Emerging Infectious Diseases by John S. Mackenzie and Martyn Jeggo

Reference Books:

1. One Health: The Theory and Practice of Integrated Health Approaches edited by Jakob Zinsstag, Esther Schelling, David Waltner-Toews and Maxine Whittaker
2. One Health and the Politics of Antimicrobial Resistance edited by Laura H. Kahn, Bruce Kaplan and Thomas P. Monath
3. The One Health Initiative: A Global Movement to Achieve Sustainable Health and Well-being edited by Bruce Kaplan and Thomas P. Monath.

TAUT1201K BASIC EMERGENCY CAREAND LIFE SUPPORT SKILLS L T P C
3 0 0 3

Course Description:
This course introduces students to the fundamental skills required for providing basic emergency care and life support. It covers essential techniques in CPR, AED use, and basic first aid to prepare students for real-life emergency situations.

Course Objectives:
Students undergoing this course are expected to:

1. To understand the principles and techniques of basic life support.
2. To acquire essential first aid skills.
3. To know the use of AED
4. To get trained in the practical aspects of CPR.
5. To know the various assessment aspects of a patient in an emergency

UNIT-IBasic Life Support (BLS) and CPR 9 Hrs
Introduction to BLS and CPR, Steps of Adult, Child, and Infant CPR, Airway Management, Rescue Breathing and Chest Compressions

UNIT-IIAutomated External Defibrillator (AED) 9 Hrs
What is an AED?When and How to Use an AED, Safety Precautions, Different types of Defibrillators

UNIT-IIIBasic First Aid Techniques 9 Hrs
Principles of First Aid, Managing Bleeding and Wounds, Fractures and Sprains, Burns and Scalds.

UNIT-IVRecognizing Medical Emergencies 9 Hrs
Identifying Common Medical Emergencies, Initial Assessment and Response, Managing Breathing and Cardiac Emergencies.

UNIT-VPractical Skills Practice 9 Hrs
Hands-on CPR Practice, AED Operation Drills, First Aid Skills Practice, Scenario-Based Training

Course Outcomes:
At the end of this course, students should be able to:

1. Acquire a thorough knowledge of the principles and techniques of basic life support.
2. Apply essential first aid skills.
3. Demonstrate the use of AED in Emergencies.
4. Demonstrate the practical aspects of CPR
5. Evaluate various assessment plans by the specific emergency.

Text Books:

1. "Basic Life Support Provider Manual" by American Heart Association Pang, Ning Tan, Michael Steinbach and Vipin Kumar “Introduction to Data Mining”, Pearson Education, 2007.
2. "First Aid Manual" by St. John Ambulance

TAUT1201L BASICS OF HEALTH MANAGEMENT L T P C
3 0 0 3

Course Description:

This course provides an essential foundation in health management, focusing on key areas such as basic life support, first aid, stroke management, and the prevention and management of both communicable and non-communicable diseases. Students will develop practical skills and knowledge to effectively manage health-related situations in various settings.

Course Objectives:

Students undergoing this course are expected to:

1. To understand the principles and techniques of basic life support.
2. To acquire essential first aid skills.
3. To comprehend the causes, symptoms, and management of stroke.
4. To learn about non-communicable diseases, their risk factors, and management strategies.
5. To understand communicable diseases, their transmission, prevention, and control.

UNIT-I Basic Life Support 9 Hrs

Overview of Basic Life Support (BLS), Cardiopulmonary Resuscitation (CPR) Techniques, Use of Automated External Defibrillators (AEDs), Airway Management and Breathing Support, BLS Protocols and Procedures

UNIT-II First Aid 9 Hrs

Introduction to First Aid Principles, Managing Wounds and Bleeding, Fractures and Musculoskeletal Injuries, Burns and Scalds Treatment, Handling Medical Emergencies (e.g., heart attack, choking, seizures)

UNIT-III Stroke 9 Hrs

Understanding Stroke: Types and Causes,Symptoms and Warning Signs of Stroke, Immediate Response and Management, Stroke Rehabilitation and Recovery, Prevention and Risk Reduction Strategies

UNIT-IV Non-Communicable Diseases 9 Hrs

Definition and Classification of Non-Communicable Diseases (NCDs), Common NCDs: Cardiovascular Diseases, Diabetes, Cancer, Chronic Respiratory Diseases, Risk Factors and Prevention Strategies, Management and Treatment Approaches, Public Health Implications and Policy Responses

UNIT-VCommunicable Diseases 9 Hrs

Introduction to Communicable Diseases, Modes of Transmission and Epidemiology, Prevention and Control Measures (e.g., vaccination, hygiene, quarantine), Management of Common Communicable Diseases (e.g., TB, HIV/AIDS, Influenza), Emerging Infectious Diseases and Global Health Security

Course Outcomes:

At the end of this course, students should be able to:

1. Perform basic life support techniques.
2. Administer essential first aid.
3. Recognize and manage stroke symptoms and treatments.
4. Understand and address non-communicable diseases.
5. Implement communicable disease control measures.

Text Books:

1. "Basic Life Support Provider Manual" by American Heart Association
2. "First Aid Manual" by St. John Ambulance, St. Andrew's First Aid, and the British Red Cross

Reference Books:

1. "Stroke: Practical Guide to Management" by Charles P. Warlow
2. "Non-Communicable Diseases in the Developing World" by Rachel Nugent
3. "Communicable Disease Control and Health Protection Handbook" by Jeremy Hawker et al.

TAUT1201N **ENTREPRENEURSHIP** **L T P C**
3 0 0 3

Course Description:

This course provides an in-depth understanding of entrepreneurship, its applications, and its scope. Students will learn to generate broad ideas for starting an enterprise or startup and convert them into viable opportunities. The course covers the essentials of managing startups, understanding small and medium enterprises, and gaining knowledge of various financial institutions.

Course Objectives:

1. Understand the concept of Entrepreneurship, its applications and scope.
2. Application of knowledge for generating a broad idea for a starting an enterprise/start up and converting to opportunity.
3. Knowledge of managing the start-up's
4. Understand the small and medium enterprises
5. Knowledge of different financial institutions

UNIT-I **9 Hrs**

Entrepreneurship: Definition and Concept of entrepreneurship - Entrepreneur Characteristics – Classification of Entrepreneurs –Role of Entrepreneurship in Economic Development

UNIT-II **9 Hrs**

Idea to Opportunity- Introduction, Sources of New Ideas, Techniques for Generating Ideas, Assessing Business Potential of an Idea, Opportunity Recognition, Sources and process, Indian Economy—Opportunities, Steps Involved in Tapping Opportunity

UNIT-III **9 Hrs**

Entrepreneurship Development - Intrapreneurship, Entrepreneurship as a Career Option, Female Entrepreneurship and problems,Types of Start-ups, Start-ups and mistakes, Managing Start-ups During Downturn

UNIT-IV **9 Hrs**

Entrepreneurship Trends- Small and Medium Business Enterprises, International Entrepreneurship, Entrepreneurship—Emerging Trends in the Global Knowledge Economy

UNIT-V **9 Hrs**

Institutions Supporting and Taxation Benefits: Central level Institutions: NABARD; SIDBI,– State Level Institutions –DICs – SFC - Government Policy for MSMEs - Tax Incentives and Concessions.

Course Outcomes:

1. Basic understanding of entrepreneurship
2. Knowledge of idea generation and opportunities identification of entrepreneurship
3. Understand different forms of enterprises
4. Understand different emerging trends of entrepreneurship
5. Knowledge of different financial institutions

Text Books:

1. Arya Kumar, Entrepreneurship, Pearson, Delhi
2. Poornima MCH, Entrepreneurship Development –Small Business Enterprises, Pearson, Delhi

Reference Books:

1. Anil Kumar, S., ET.al., Entrepreneurship Development, New Age International Publishers, New Delhi
2. Khanka, SS, Entrepreneurship Development, S. Chand, New Delhi
3. Peter F. Drucker,Innovation and Entrepreneurship
4. A.Sahay, M. S. Chhikara, New Vistas of Entrepreneurship: Challenges &Opportunities

TAUT1201O **MANAGERIAL ECONOMICS** **L T P C**

3 0 0 3

Course Description:

This course provides a solid foundation in the fundamentals of economics and managerial economics. Students will learn to apply concepts of production cost and revenues for effective business decisions. The course also covers analyzing capital investments to maximize returns, understanding different forms of business organizations, and evaluating business organizations and marketing strategies.

Course Objectives:

1. Understandthe fundamentalsofEconomics and Managerial economics
2. ApplytheConceptofProduction costandrevenuesforeffectiveBusinessdecision
3. Analyzehowtoinvest theircapitalandmaximizereturns.
4. Understand different forms of business organizations
5. EvaluateBusiness organizations and marketing strategies

UNIT-I **9 Hrs**

Introduction: Meaning, Nature, Significance, Functions, and Advantages, ME and its role in other fields. Demand - Concept, Function,LawofDemand-DemandElasticity-Types–Measurement.DemandForecasting-Factorsgoverning forecasting and methods.

UNIT-II **9 Hrs**

Production: Introduction – Nature, meaning, significance, functions and advantages. Production Function– Least-cost combination– Short run and Long run Production Function-Isoquants and Isocosts, MRTS -Cobb-DouglasProductionFunction-LawsofReturns

UNIT-III **9 Hrs**

Cost&Break-EvenAnalysis-CostconceptsandCostbehavior-Break-EvenAnalysis(BEA)-Determination of Break-Even Point (Simple Problems)-Managerial significance and limitations ofBreak-EvenAnalysis.

UNIT-IV **9 Hrs**

BusinessOrganizations Introduction–Nature,meaning,significance,functionsandadvantages.FormsofBusinessOrganizations- Sole Proprietary - Partnership - Joint Stock Companies - Public Sector Enterprises.

UNIT-V **9 Hrs**

Markets Types of Markets - Perfect and Imperfect Competition - Features of Perfect Competition Monopoly-MonopolisticCompetition–Oligopoly-Price-OutputDetermination-PricingMethodsandStrategies.

Course Outcomes:

1. Basic understanding of managerial economics
2. Develop an understanding of the applications of production
3. Interpret cost analysis
4. Understand different forms of business organizations.
5. Analyse the causes and consequences of different market conditions.

Text Books:

1. Varshney&Maheswari:ManagerialEconomics,SultanChand,2013.
2. Aryasri:BusinessEconomicsandFinancialAnalysis,4/e,MGH,2019.

Reference Books:

1. AhujaHlManagerial economicsSchand,3/e,2013
2. S.A.SiddiquiandA.S.Siddiqui:ManagerialEconomicsandFinancialAnalysis,NewAgeInternational,2013.
3. JosephG.NellisandDavidParker:PrinciplesofBusinessEconomics,Pearson,2/e,NewDelhi.

TAUT1201P **ORGANIC FARMING** **L T P C**

3 0 0 3

Course Description:

By the end of the course, students will be equipped with the knowledge and skills to plan, establish, and manage organic farms effectively. This course serves as a foundation for aspiring organic farmers, agricultural professionals, and individuals interested in sustainable food production and environmental conservation.

Course Objectives:

1. To Understand the principles and practices of organic farming.
2. To Analyze the environmental, economic, and social implications of conventional versus organic agricultural systems.
3. To Apply organic farming techniques to enhance soil health and fertility.
4. To Examine the certification processes and regulations governing organic farming.
5. To explore ways to engage with local communities and promote organic practices.

UNIT-I **9 Hrs**

Introduction to Organic Farming, Overview of organic farming principles and practices, Historical development and evolution of organic agriculture, Importance of organic farming in sustainable agriculture, Comparison between conventional and organic farming systems, Certification and regulatory requirements for organic farming.

UNIT-II **9 Hrs**

Soil Health and Management, Importance of soil health in organic farming, Soil composition and structure, Soil fertility management without synthetic inputs, Soil conservation techniques: cover cropping, crop rotation, mulching, Composting and vermicomposting for organic matter enrichment.

UNIT-III **9 Hrs**

Crop Management in Organic Systems, Selection of suitable crops for organic farming, Organic seed selection, saving, and sourcing, Crop planning and rotation strategies, Weed management without herbicides: mechanical, cultural, and biological control methods, Pest and disease management in organic systems: integrated pest management (IPM), biological control, and natural remedies.

UNIT-IV **9 Hrs**

Organic Livestock Management, Principles of organic livestock production, Organic feed sourcing and formulation, Housing and space requirements for organic livestock, Health care and disease management without antibiotics and synthetic chemicals, Organic certification requirements for livestock operations.

UNIT-V **9 Hrs**

Marketing and Economics of Organic Farming, Market trends and consumer demand for organic products, Certification and labeling requirements for organic products, Marketing

strategies for organic farmers: direct sales, farmers markets, CSA (Community Supported Agriculture), Economic viability and profitability of organic farming, Government support programs and incentives for organic farmers.

Course Outcomes:

Upon completion of the course the student shall be able to,

1. Demonstrate a comprehensive understanding of the principles of organic farming and their application in agricultural systems.
2. Critically evaluate the sustainability of different agricultural practices, considering environmental impact, economic viability, and social equity.
3. Design and implement an organic farming plan for a specific crop or agricultural enterprise.
4. Analyze case studies and research articles to assess the effectiveness of organic farming practices in various contexts.
5. Communicate effectively about organic farming principles and practices, both orally and in writing.

Text Books:

1. "Teaming with Microbes: The Organic Gardener's Guide to the Soil Food Web" by Jeff Lowenfels and Wayne Lewis
2. "The Organic Farmer's Business Handbook: A Complete Guide to Managing Finances, Crops, and Staff - and Making a Profit" by Richard Wiswall

Reference Books:

1. "Introduction to Permaculture" by Bill Mollison
2. "Crop Rotation on Organic Farms: A Planning Manual" by Charles L. Mohler and Sue Ellen Johnson
3. "The Organic Farming Manual: A Comprehensive Guide to Starting and Running a Certified Organic Farm" by Anne Larkin Hansen

TAUT1201Q PERSONALITY DEVELOPMENT L T P C
3 0 0 3

Course Description:

Personality Development is a comprehensive course designed to equip undergraduates with the essential skills and knowledge required for personal growth and professional success. The course focuses on enhancing self-awareness, emotional intelligence, communication, and interpersonal skills. Students will learn how to build confidence, manage stress, and develop effective time management strategies. Additionally, the course covers critical aspects of professional development, including resume writing, interview techniques, and personal branding.

Course Objectives:

1. To develop self-awareness and emotional intelligence.
2. To enhance communication and interpersonal skills.
3. To build confidence and self-esteem.
4. To foster professional and personal growth.
5. To prepare students for successful careers and meaningful personal lives.

UNIT-I Introduction to Personality Development 9 Hrs

Definition and importance of personality development; Initial self-assessment and goal setting; Short-term and long-term goal setting; Understanding oneself: strengths, weaknesses, opportunities, threats (SWOT analysis); Values, beliefs, and attitudes; Personal vision and mission statements; Components of emotional intelligence (EQ); Self-regulation and self-motivation; Empathy and social skills.

UNIT-II Communication Skills and Interpersonal Skills 9 Hrs

Communication Skills; Verbal and non-verbal communication; Active listening and feedback; Public speaking and presentation skills; Building and maintaining relationships; Conflict resolution and negotiation; Teamwork and collaboration; Importance of cultural sensitivity in a globalized world; Developing intercultural communication skills

UNIT-IIICritical Thinking, Problem Solving and Self-Esteem 9 Hrs

Enhancing analytical and critical thinking skills; Creative problem-solving techniquesDecision-making process; Confidence and Self-Esteem; Building self-confidence; Overcoming self-doubt and negative thinking; Techniques for boosting self-esteem.

UNIT-IV Time Management and Stress Management 7 Hrs

Prioritization and productivity techniques; Overcoming procrastination; Identifying sources of stress; Techniques for managing and reducing stress; Work-life balance.

UNIT-V Professional Development and Leadership Skills 11 Hrs

Resume writing and job interview skills; Professional etiquette and workplace behaviorNetworking skills; Traits of effective leaders; Leadership styles and theories;

Developing leadership qualities; Personal Branding, Building a personal brand; Online presence and social media etiquette; Personal branding strategies; Final self-assessment and reflection on personal growth

Course Outcomes:

By the end of this course, students will be able to:

1. Develop a personal vision and mission statement to guide future actions and decisions.
2. Exhibit improved verbal and non-verbal communication skills.
3. Apply strategies to boost self-confidence and maintain high self-esteem.
4. Implement effective time management techniques to enhance productivity.
5. Develop and demonstrate leadership qualities in various scenarios.

Text Books:

1. Student's Hand Book- Skill Genie-Higher Education Department, Govt. Of Andhra Pradesh - https://svimstpt.ap.nic.in/edu/skill_genie.pdf.
2. The only skill that matters- Jonathan.Levi (2019)- Super Human Enterprises, LLC. All rights reserved. ISBN:978-1-5445-0435-3

Reference Books:

1. Online courses and TED Talks on personality development and self-improvement.
2. "How to Win Friends and Influence People" by Dale Carnegie (1936) Revised- 2022.

TAUT1201R **SOCIAL ENTREPRENEURSHIP** **L T P C**

3 0 0 3

Course Description:

This course explores the role of social entrepreneurship in societies, economies, and politics. Students will learn about the three pillars of social entrepreneurship and the different types of partners and their advantages. The course also covers the typical process steps of creating a marketing concept and describes the characteristics of the financing structure of social enterprises.

Course Objectives:

1. Understand the role of social entrepreneurship in societies, economies and politics
2. Explain the three pillars of social entrepreneurship.
3. Describe different types of partners for social entrepreneurs and their particular advantages.
4. Understand the typical process steps of a marketing conception.
5. Describe the characteristics of the financing structure of social enterprises.

UNIT-I **9 Hrs**

Introduction- Meaning of social entrepreneurship- concepts and typologies, its disparity with social business and CSR, social entrepreneur & personality, social enterprise.

UNIT-II **9 Hrs**

Drivers and scope: Role of Social Entrepreneurship in -Societies, Economies and Politics, The Drivers of Social Entrepreneurship, Size and Scope of Social Entrepreneurship, Opportunities for Social Entrepreneurs.

UNIT-III **9 Hrs**

Collaboration and Partnerships-Reasons for Crafting Collaborations, Specific Types of Collaborations, Different Collaboration Partners, Potential Risks and Challenges, Guidelines to Establish a Collaboration.

UNIT-IV **9 Hrs**

Elements of a Marketing Conception- Market analysis, Marketing Goals, Competitive Strategy, Measures, Controlling; Peculiarities Concerning Marketing for Social Enterprises, Marketing Importance for Social Enterprises.

UNIT-V **9 Hrs**

Finance- Types of Financing Instruments- Donations, Equity capital, Debt capital, Hybrid capital; Financing institutions-value banks, social investment advisors, social stock exchange, Venture Philanthropy Funds, Social Investment Funds, Funding Consultancies

Course Outcomes:

1. Knowledge of social entrepreneurship differentiation from other related concepts
2. Understand the role of social entrepreneurship in societies, economies and politics
3. Analysis of different types of partners for social entrepreneurs.
4. Understand the typical process steps of a marketing conception.
5. Awareness of the peculiarities of financial elements in social enterprises

Text Books:

1. Christine K. Volkmann & Kim Oliver Tokarski. 2012.Social Entrepreneurship and Social Business. Springer Gabler
2. Madhukar Shukla:Social Entrepreneurship in India. Sage publications

Reference Books:

1. Archana Singh (auth.) The Process of Social Value Creation: A Multiple-Case Study on Social Entrepreneurship in India. Springer India.2016.
2. RyszardPraszkier; Andrzej Nowak. Social entrepreneurship : theory and practice [1 ed.]. Cambridge University Press
3. Alex Nicholls. Social Entrepreneurship: New Models of Sustainable Social Change. Oxford University Press, USA

BPTT1501 PSYCHOLOGY & SOCIOLOGY L T P C

3 0 0 3

COURSE DESCRIPTION:

This course provides a detailed discussion on various behavioral patterns of individuals, theories of development, normal and abnormal aspects of motor, social, emotional and language development, communication and interaction skills appropriate to various age groups.

Sociologywillintroducestudenttothebasicsociologyconcepts, principles and social process, social institutions in relation to the individual, family and community and the various social factors affecting the family in ruralandurbancommunitiesinIndiawillbe studied

COURSE OBJECTIVES:

1. Understand the fundamental concepts of psychology and its branches.

2. Acquire knowledge on basic concepts of growth and development of personality.

3**.** Acquire knowledge on basic theories of learning and types of personality

4. Understand the role of family and community in the development of

Human behavior.

5**. Learn** to assess the social problems and participate in social planning.

UNIT-I **7 hours**

INTRODUCTIONTOPSYCHOLOGY:

Definition of Psychology, nature of psychology basic information in relation to the methods and branches.

Methods of Psychology:Introspection,observation, interview, case study and experimental method.

Branches of Psychology: General, socialabnormal, chil**d**, applied psychologyeducational, industrial, counselling, and clinical,parapsychologyandgerontology.

HEREDITYANDENVIRONMENT:

Twins, relative importance of heredity and environment,their role in relation to physical characteristics, intelligence and personality, nature-nurture controversy.

GROWTHANDDEVELOPMENTBEHAVIOUR:

Infancy, childhood, adolescence, adulthood, middle age&oldage.

UNIT-II **10 hours**

MOTIVATION, EMOTION, **INTELLIGENCE,PERSONALITY**:

MOTIVATION:

Definition, drive,incentive,reinforcement,typesofmotivation,basic information

aboutphysiologicalandpsychologicalneeds,Theories of motivation (Need theory,MaslowshierarchicalTheory)

EMOTION:

Definition, differentiate from feelings, physiological changes ofemotions,roleof RAS, hypothalamus, cerebralcortex,sympatheticnervous system,adrenal glands.Theories of emotion (James Lange and Cannon Burdtheories).

INTELLIGENCE:

Definition, Nature of Intelligence ,Mental Age concept(MA),Intelligence Quotient(IQ),assessment of intelligence (or)Intelligence tests. Weschler scales, WISC & WAIS, Bhatia performance test, Ravens Progressive Matrices (RPM).

PERSONALITY:

1) Definition, list of components, physical characteristics,character,abilities, temperament,interest,attitudes.

2) Role of heredity, nervous system, physicalcharacteristics,abilities,familyandcultureonpersonalitydevelopment.

3) Approaches:Typeapproach—Sheldon,Traitapproach–Cat tell and All port Psychoanalyticalapproach— Freud,psycho social approach—Eric Erikson and Neo Freudianapproach—Adler and Jung

4)Personality Assessment-interview, rating scales, questionnaires and inventorieslikeMMPI,CPI,andBAIand16PF.

5) Projective tests: Rorschach ink blot test, ThematicApperceptiontest (TAT),Children'sApperception, Test(CAT)RotterincompleteSentenceBlank(RISB)..

UNIT-III **13 hours**

LEARNING:

1) Definition,Natureoflearning.

2) Types of learning: classical conditioning, operantconditioning, trial and error, Insightful and observationlearning.

3) List the effective ways to learn: Massed vs spaced,wholevspart,readingvs recitation, rote vsmeaningful, Incidental vs intentional, knowledge of results andSQ3Rmethod.

4) Reinforcement—meaningandtypes of schedules.

5) Memory—shortermand long-term memoryandforgetting.

THINKING:

Definition,typesofthinking,processofthinkingandcreativethinking.

FRUSTRATION:

Definition, sources and measurement of frustrationConflicts—types, method store solve conflicts—adaptiveand defensive..

ATTITUDES;

Definition-factors involved in attitude change and attitudemeasurement.

SENSATION,ATTENTIONANDPERCEPTION:

1) List the senses: Vision, hearing, olfactory, gustatory,and cutaneous, sensations, movement, equilibrium andvisceralsense.

2) Define attention and list factors that determineattention: Nature of stimulus, intensity, color, changeextensity, repetition, movement, size, curiosity, primarymotives.

3) Define perception and test the principle of perception,Figure and Ground,constancy, similarity, proximity,closure continuity, values and interests, past experience,context, needs, moods, religion, sex, age and socioeconomicstatus.Defineillusionandhallucination,typeofillusionandhallucinations.Visual,auditory and cutaneous.

DEFENCEMECHANISMS: Regression, compensation, projection, identification, repression, rationalization sublimation, daydreams ,with drawl anddenial

UNIT-IV **14 hours**

INTRODUCTION: Definitions of Sociology, Sociology as a science ofsociety, uses of study of Sociology, application ofknowledgeofSociologyinPhysiotherapy.

SOCIOLOGYANDHEALTH:
Concepts of health and disease, social factors affectinghealth status, social consciousness and perception ofillness,decisionmakingintreatment

SOCIALIZATIONMeaning of Socialization, types of Socializationinfluence of social factors on personality, socialization inhospital,socializationIntherehabilitationofpatients.

SOCIALGROUPS:
Concepts of social groups, classification of social groups,influence of formal and informal groups on health andsickness. Therole of primary groups and secondarygroupsinthehospitalandrehabilitationsettings

FAMILY
Meaning and characteristics of family, distinctivefeatures of families, types, basic needs, functions,influence of family on human personality, discussion ofchanges in the functions of a family, the effects ofsickness on family, family and psychosomatic diseases.

COMMUNITY:
Definition and elements of community, concepts ofcommunity, role of rural and urban communities inpublichealth,roleofcommunityindeterminingbeliefs,practicesandhomeremediesin treatment.

CULTURE:
Meaning, definition and characteristics material culture and non-materialculture,culturaldiffusion, culturallag,componentsofculture,impactofcultureonhumanbehavior,cultureinducedsymptomsanddiseases,sub-cultureof medical workers.

RACE:
A biological human stratification, theories of races,classificationofraces,racism

UNIT-V **16 hours**

SOCIALCHANGE:
Meaning of social change, factors of social change,human adaptation and social change. Social change andstress,socialchangeandhealthprogrammes,theroleofsocial planning in the improvement of health and inrehabilitation.

SOCIALCONTROL:
Meaning of Social control, role of norms, folkways, customs, morals, religion, law and other means of socialcontrolintheregulationofhumanbehavior.

SOCIALPROBLEMSOFTHEDISABLED:

Consequences of the following social problems in relation to sickness and disability and remedies topreventtheseproblems.Population explosion Poverty, and unemployment,Beggary,Juveniledelinquency,Prostitution,Alcoholism,Problems of employed women

TYPESOFDISABILITIESVIDEPERSONSWITHDISABILITIESACT-1995,

withspecialreferenceto:-CerebralPalsy
Four levels of mental retardationMultipledisabilities
SOCIALWORKER:
Theroleofamedicalsocialworker

GERIATRIC CARE: ASOCIOLOGICALAPPROACH:
Post retirement difficulties faced by the geriatricgroup, problem mitigation, services by governmentalagencies,servicesbyNGOslike(a)AgecareIndia
(b) Help age India (c) Homes for senior citizensIndia
SOCIALSECURITY:
Retirement as social and economic event, Socialsecurity for civil servants, for general publicthrough insurance schemes, for industrial workers(ESI Act) including Workmen Compensation Actandsociallegislationinrelationtothedisabled.
SOCIAL ADJUSTMENT AND SOCIALGERONTOLOGY:
Social adjustment, Gerontology: ageing, socialaspects of ageing, sexual adjustment, economicaspects of ageing, the ageing process, health andmedical care.

Course Outcomes:

1.Apply the concepts of Attention, Perception and Sensation to assess the psychology of humans.

2.Understand the fundamental concepts of conflicts, frustration and its type.

3.Analyse the theoretical concepts of Intelligence and Emotions.

4.Understand the significance of social interaction in the process of rehabilitation.

5.Appreciate the role of therapist as a member of the societyand the interdependence of individuals and society.

Text books:

1. GeneralPsychology-S.K. Mangal.
2. Introduction to HealthPsychology-ShellyE.Taylor.
3.Sachdeva, D.R. and Bhushan, An introduction to Sociology-Allahabad;KitabMahalLimited,1974
4.TextBookofSociologyforPhysiotherapystudents-KPNeeraja

5. SociologyforPhysiotherapy-SubbaRao

Reference books:

1.InvitationtoPsychology-Beenaand Parameswaran
2.IntroductiontoPsychology-Atkinson and Hilgard.
3.IntroductiontoPsychology-Morganandking.
4.Psychologyappliedtomodernlife-WayneWeitenMargaretaL.Lord.
5.PsychologyandSociologyforGNMandBPTstudent-JacobAnthikad
6.MadanG.R.IndianSocialProblems,Vol.IMadras,Alliedpublications-1973.
7.Social&PreventiveMedicine-J.E.Park.
8.GeneralandMedicalSociology-Dr.P.Ramasamy.
9.Psychology and Sociology for GNM and BPTstudents-JacobAnthikad.
10.SociologyforNurses-CMAbraham.

BPTT1502 **ANATOMY-I** **L T P C**

4 0 0 4

Course Description:

Thiscourseprovidesadetaileddiscussiononthestructureofhumanbodywhichises sentialforclinicalstudies

Course Objectives

1. Understand the basics of anatomy.

2. Study and Apply the Clinical knowledge on the Upper Extremity.

3. Demonstrate the features of Head, Face & Neck:

4. Understand the basics of general histology

5. Demonstrate the concepts of anatomy in Brain, Endocrine glands

UNIT-I 6 hours

a. **Introduction to Anatomy**—Definition,anatomicalposition,anatomical planes, common anatomical terms, various methods of study ofanatomy-gross,systemic,radiologicaletc..Andsub divisions of anatomy-muscular, skeletal,cardio-vascularetc.

b. Introduction to Osteology—Definition ofbone,classificationofbones,partsofalongbone,blood supply of a long bone, laws of ossification,epiphysisandtypes.Clinical application.

c. Introduction to Myology — Definition, typesof muscles, classification of skeletal muscles—based on shape, location, function etc..Swing, shunt and spin muscles, and innervations of amuscle—motorunit, neuro-muscularjunction.

d. Introduction to Arthrology—Definition,classification of joints with examples, leversystems of body, description of a synovial joint,synovial fluid, bursa, menisci with clinicalapplication.

e. Introduction to Neuro anatomy —classificationofnervoussystem,partsofaneuronwith function, types of neurons, afferent andefferent nerves, components of a reflex arc, spinalsegments, formation of a plexus, peripheralnerve—motor, sensory, mixed and effects ofinjury.

f. IntroductiontoCardio-vascularsystem-
Arteriesandtheirclassification,endarteries,collateralcirculation, veins, sinusoids, arterio-venousanastomoses,componentsofalymphaticsystem—lymphcapillaries,lymphnode,circulationofLymph

UNIT-II 6 hours

HISTOLOGY:

GeneralHistology:

1.Microscope—partsanddifferenttypeswiththeir uses for understanding the various levels ofstructuraldetails

2. Cell-components, functions includingultrastructuraldetails.

3.Tissue—classificationofbasictissuesandtheirfunction—epithelial, connective, muscular,nervous

4.Epithelial tissue including glandularepithelia—definition,classificationwithexamplesandfunction

5. Connective tissue- components, classificationwith examples, deep fascia, tendons, ligaments,aponeuroses. Cartilage- types, structure, locationandfunctionsindetail.

Bone—primary/secondary,lamellar/compact,growth and development, factors influencinggrowth and development, types of ossificationwithclinicalimportance in detail.

6.Musculartissue—classification and structure ofcardiacandskeletalmusclesindetail -Sarcomere,intercalateddiscsetc...

7. Nervoustissue—typesofneurons—unipolar,bipolar, multi polar, peripheral nerve LS—axon,myelin sheath, nodes of Ranvier, - peripheralnerve TS with its coverings — epineurium,perineurium, endoneurium.

8. Circulatory system—TS of large sized artery, medium sizedarteryandlargesizedvein.

9. Lymphoidtissue—Lymphnode,Tonsil,Thymus,Spleen.

10. Skinanditsappendages.-flexioncreases,Langer'slines.

SystemicHistology:

1. Respiratorysystem—Trachea,lung.

2.Nervoussystem:

a.Spinalcord—cervical,thoracicandlumbarlevels,

b.cerebrum&cerebellum

UNIT-III 18 hours

Upper Limb

Osteology: Clavicle, Scapula, humerus, radius, ulna, articulated hand.

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 and lymphatic drainage of upper extremity.

Joints: Shoulder girdle, shoulder joint, elbow joints, radio ulnar joint, wrist joint and joints of the hand.

Applied Anatomy - Erbs and Klumpkes paralysis, wrist drop, carpal tunnel, claw hand, winging of scapula.

Surface anatomy and X-rays

UNIT-IV 13 hours

Head, Face & Neck:

Osteology: Articulated skull & mandible, cervical vertebrae, foetal skull, joints

Soft parts: Scalp, face, fascia of neck, triangles of neck, muscles of neck, cranial cavity, dural venous sinuses, meninges, cranial nerves, extra ocular muscles of eye ball, muscles of mastication.

Thyroid, parotid, submandibular gland

Oral cavity, tongue, teeth, tonsil

Nasal cavity, paranasal sinuses

Ear, larynx, pharynx, palate, trachea, oesophagus, surface anatomy and X-rays.

UNIT-V 17 hours

Brain, Endocrineglands:

Brain:

a. Meninges, surfaces and parts of cerebrum, cerebellum, brainstem

b. Medulla — gross and sectional anatomy with special attention to motor and sensory tracts , cardiac, respiratory centers

c. Pons — Gross and sectional anatomy

d. Midbrain — Gross and sectional anatomy

e. Cerebellum- lobes, fissures, cerebellar peduncles

F. Cerebrum — sulci, gyri and functional areas

g.Thalamus, hypothalamus, basal ganglia, limbic system, reticular formation

h.Tracts — Pyramidal, extra pyramidal,optic pathway, auditory path way, gustatory path way

i.Blood supply.Ventricular system of brain and CSF.

j.Cranial nerves — location of nuclei, course, termination and effects ofinjuries at various levels

k.Applied anatomy of — Hemiplegia, Internal capsule, medial and lateral medullary syndromes etc.

8.Endocrine glands:

Position, shape, size, function, blood supply and nerve supply of the hypothalamus and pituitary gland, thyroid glands, parathyroid glands, adrenal glands, pancreatic islets, ovaries and testes, pineal glands, thymus.

Course Outcomes:

1. Understand the basics of anatomy.

2. Study and Apply the Clinical knowledge on the Upper Extremity.

3. Demonstrate the features of Head,Face&Neck

4. Understand the basics of general histology

5. Demonstrate the concepts of anatomy in Brain, Endocrine glands

6. Work independently or in team to solve problems with effective communication

Textbooks:

GrossAnatomy(AnyOne):

1.Human anatomy by I.B. Singh-Volumes.
2.Human Anatomy B.D.ChaurasiaVolumes General Anatomy
3.HandbookofGeneralAnatomybyB.D.Chaurasia
4.PrinciplesofGeneralAnatomybyA.K.Datta

Microanatomy

5.TextbookofHumanHistologywithcolourAtlas.Inderbir Singh
6.AtlasofHistologybyDiFioreNeuro anatomy:
7.Textbook of Human Neuro anatomy by InderbirSingh.
8.Clinical Neuro anatomy for medical students byVishram Singh

Genetics (AnyOne):

1.EssentialsofHumanEmbryologybyBhatnagar,Kothari,Mehta.
2.Human Genetics by S.D.Gangane

Referencebooks:-

1.Principles of anatomy and physiology by Tortora
2.CunninghamsManualofPracticalAnatomy
3.ClinicalAnatomyforMedicalStudentsbyRichard Snell
4.MOORE [KiethL],Clinically Oriented Anatomy
5.Anatomy&PhysiologybyRoss&Wilsons,8thedition,ChurchillLivingston.
6.Grays Anatomy.

BPTT1503 **PHYSIOLOGY-I** **L T P C**

3 0 0 3

CourseDescription:

This course provides a detailed in-depth discussion on fundamental reactions of living organisms specific to human body. It emphasizes the concepts of cell, primary tissue, connective tissue, skin, muscle, nervous tissue, blood, lymphoid tissues, and gastrointestinal tract.

Course Objectives:

1. Understand the basic concepts of General physiology of cell and body fluids

2. Apply various techniques for estimation of blood cells.

3. Understand the classification and mechanism of nerve muscle physiology.

4. Work independently or in team to solve problems with effective communication.

5.Understand the concepts of basics of physiology of Nervous system

UNIT-I **2hours**

*CELL :*Outline of basic concepts of cell structure, functions of components transport across membranes.

SKIN
Structure;functions;bloodflow;temperatureregulation

UNIT-II

BLOOD **6hours**

i.Outline of components and their functions — RBC, WBC, Platelets

ii.Blood groups.

iii.Significance of RBC & WBC counts, ESR and other related tests.

iv.Clotting mechanisms

v.Blood volume and its regulation

UNIT-III

NerveMusclePhysiology **12hours**

I. Structure of muscle tissue: Gross structure and microscopic structure. Arrangement of myofibrils. Myoneural junction.

ii.Chemical processes involved in muscle contraction.

iii.Physiology of muscle contraction, simple muscle twitch, quantal summation, wave summation, treppe, tetany, effects of temperature changes. All or none law. Fatigue, isotonic, isometric and isokinetic contractions

UNIT-IV

DIGESTION **3hours**

I. Digestion in the mouth, stomach and intestine

ii.Gastric juice, bile, pancreatic juice, intestinal juice

iii.Mechanics of control of secretions and motility

iv.Diet, nutrition.

UNIT-V

NERVOUS SYSTEM **22hours**

I. Introduction to nervous system.

ii.Neural tissue —

a. Neuron

b. Neuroglia

iii.Classification of nerve fibers.

iv.Properties of nerve fibers

v.Degeneration and regeneration of nerve fibers.

vi. Receptors

vii.Synapse

viii.Neurotransmitters

ix.Reflex activity

x.Spinal cord

xi. Pathways in spinal cord — ascending and descending tracts

xii.Physiology of pain

xiii.Brain stem

xiv.Thalamus

xv.Internal capsule

xvi.Hypothalamus.

xvii.Basal ganglia

xviii.Cerebral cortex

xix.Limbic system

xx.Reticular formation

xxi.Proprioceptors

xxii.Muscle tone, posture and equilibrium

xxiii.Vestibular apparatus

xxiv.CSF

xxv.Autonomic nervous system

SPECIAL SENSES

Vision, audition, olfaction, gustation, vestibular apparatus

Practical/lab

HAEMATOLOGY: 16hours

1)Demonstration of packed cell volume

2)Estimation of Haemoglobin by Sahlis method

3)Determination of total RBC count

4)Determination of total WBC count

5)Determination of differential leucocyte count

6)Determination of Blood groups

7)Determination of Bleeding time and clotting time

8)Determination of E.S.R

HUMANEXPERIMENTS 14hours

1.Clinical examination of sensory nervous system

2.Clinical examination of motor nervous system and reflexes

3.Examination of light reflexes and hearing tests.

4.Clinical examination of cranial nerves.

5.Clinical examination of colour vision and acuity of vision.

Course outcomes:

1. Understand the basic concepts of General physiology of cell and body fluids

2. Apply various techniques for estimation of blood cells.

3. Understand the classification and mechanism of nerve muscle physiology.

4. Work independently or in team tosolve problems with effective communication.

5. Learn about the physiology of nervous system.

Text books:

1.Medical physiologyby ABS Mahapatra

2.Essentials of Medical physiologybysembulingam

Reference books: -

1Text Book of Human Physiology by Chatterji

2.Human Physiology by Chaudary.

3.Human Physiology by Guyton.

4.Concise Physiology for Under Graduates - Prof. A.K. JAIN.

5.R. Chandra Mouli - Text Book of Physiology.

SEMESTER-II

TAUT1102 ENVIRONMENTAL STUDIES L T P C
3 0 0 3

Course Description:

This course provides degree-seeking students with an array of opportunities to learn, practice and motivate communities on environmental importance. It further helps to understand the resources, optimize the recourses in future days, and address the gaps in the eco system.

Course Objectives:

Students undergoing this course are expected to:

1. Understand eco system and scope of multidisciplinary
2. Creating the awareness about environmental problems among people.
3. Imparting basic knowledge about the environment and its allied problems.
4. Developing an attitude of concern for the environment.
5. Understand the developments in global goals

Unit-I **8 Hrs**

Multidisciplinary nature of environmental studies; Definition, scope and importance; Need for public awareness; **Natural Resources:** Renewable and non-renewable resources; Forest resources: Water resources: Mineral resources; Food resources: Energy resources: Land resources; Equitable use of resources for sustainable lifestyles; Natural resources and associated problems.

Unit-II **8 Hrs**

Ecosystems: Concept of anecosystem.; Introduction, types, characteristic features, structure and function of the following ecosystem: - Forest ecosystem; Grassland ecosystem; Desert ecosystem; Aquatic ecosystems (ponds, streams, lakes, rivers, oceans,estuaries); Environment ProtectionAct,1986; Public awareness.; Environment and humanhealth.

Unit-III **8 Hrs**

Biodiversity and its conservation: Introduction – Definition- genetic, species and ecosystemdiversity.; Biogeographical classification of India; India as a mega-diversitynation; Hot-sports of biodiversity.; Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlifeconflicts.; Endangered and endemic species ofIndia; Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity.

Unit- IV **8 Hrs**

Environmental Pollution Definition; Cause, effects and control measures ofAir pollution; Waterpollution; Soil pollution; Marine pollution; Noise pollution; Thermalpollution and nuclear hazards - Solid waste Management: Causes, effects and control measures of urban and industrial wastes. - Role of an individual in prevention of pollution - Disaster management: floods, earthquake, cyclone andlandslides.

Unit-V **8 Hrs**

Social Issues and the Environment: From Unsustainable to Sustainabledevelopment; Water conservation- rain water harvesting- watershedmanagement; Resettlement and rehabilitation of people; its problems and concerns.; Environmental ethics: Issues and possiblesolutions.; Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust - Wastelandreclamation.; Consumerism and wasteproducts.; Population and environment.

Field work **5 Hrs**

Field visits to nearby; awareness campaign; special lectures by experts; quiz, debate competitions, short film Contest, rally etc

Course Outcomes:

At the end of this course, students should be able to:

1. Understand key concepts from economic, political, and social analysis as they pertain to the design and evaluation of environmental policies and institutions.
2. Appreciate concepts and methods from ecological and physical sciences and their application in environmental problem solving.
3. Appreciate the ethical, cross-cultural, and historical context of environmental issues and the links between human and natural systems.
4. Reflect critically about their roles and identities as citizens, consumers and environmental activists
5. Be part in Development goals and educating the communities.

Text Books:

1. Textbook of Environmental Studies (English, Paperback, Asthana D. K.) S.Chand & co , New Delhi
2. Textbook of Environmental Studies for Undergraduate Courses, Erach BHaruchu, UGC, KINDLE Edition, Amazon.

Reference Book:

1. Encyclopedia of Environment and Society- set of 5 volumes, Sage Publications

TAUT1202C **HINDI** **LT PC**
3 0 0 3

Course Description:

□□□□□□□□□□□□□□□□□□□□,
□□□
□□□□□□□□□□□□□□□□□□□□□□□□□□□

CourseObjectives:

1. □□□□□□, □□□□□□□□□□□□□□,□□□□□□□, □□□□□□□□□□□□□□□,
□□□□□□, □□□□□□□□□□□□□□, □□□□□□□□□, □□□□□□□□□□□
□□□□□□
2. □□□□, □□□, □□□, □□□□□, □□□□, □□□□□□□□□,
□□□□□□□□□□□□□□□□□□□□□□
3. □□□,
□□□,
□□
4. □□□ - □□□□□□□□, □□□□□ - □□□□□□□□□□□□□□□□□□ – □□□□
5. □□□□□□□□□□□□□□□□□□□□□ - □□□□□□□□□,□□□□□□□□□□□□ -
□□□□□□□□□□□□□□□□□□,
□□□□□□□□□□□□□□□ - □□□□□□□□

UNIT-I **9 Hrs**

1. □□□□□□, □□□□□□□□□□□□□□
2. □□□□□□□, □□□□□□□□□□□□□□□
3. □□□□□□, □□□□□□□□□□□□□□
4. □□□□□□, □□□□□□□□□□□□□□

UNIT-II **9Hrs**

1. □□□□,□□□, □□□,□□□□
2. □□□□, □□□□□□□□□
3. □□□□□□□□□□□□□□□□□□□□□□

UNIT-III (□□□□□□□□) **9Hrs**

1. □□
2. □□□
3. □□

UNIT-IV (कहानी और कहानीकार) **9 Hrs**

1. □□□ -□□□□□□□□
2. □□□□□ - □□□□□□□□□□□□□
3. □□□□□ – □□□□

UNIT-V(कवि और कविता **9 Hrs**

1. □□□□□□□□□□□□□□□□□□□□□□□ - □□□□□□□□□□
2. □□□□□□□□□□□□ - □□□□□□□□□□□□□□□□□□
3. □□□□□□□□□□□□□□□ - □□□□□□□□

Course Outcomes:

1. □□□□□□□□□□□□□□□□□□□□□□□□□□
2. □□□□□□□□□□□□□□□□□□

3. [illegible]
4. [illegible]
5. [illegible]

TextBooks:

1. हिन्दीव्याकरण
2. विश्वनाथतिवारीकीहिंदीकविता
3. प्रेमचं[illegible]

ReferenceBooks:

[illegible]

1. [illegible] -[illegible],[illegible]
2. [illegible] [illegible] - [illegible]
3. [illegible] [illegible]- [illegible]
4. [illegible] [illegible] - [illegible]

TAUT1202D PROFESSIONAL ENGLISH L T P C
3 0 0 3

Course Description:

This course aims to enhance the English language proficiency of engineering students in professional contexts. Through a combination of theoretical knowledge and practical exercises, students will develop their skills in technical writing, oral communication, presentation, and critical thinking. The course will focus on various aspects of professional communication, including report writing, academic writing, technical presentations, and effective communication in interdisciplinary teams. Additionally, students will engage with real-world engineering scenarios to apply language skills in practical contexts.

Course Objectives:

Students undergoing this course are expected to:

1. Develop proficiency in technical writing for engineering reports, research proposals, and documentation.
2. Enhance oral communication skills for effective presentations, meetings, and discussions and thereby improve their employability skills.
3. Improve critical thinking and analytical skills through the evaluation of technical information and arguments.
4. Foster teamwork, collaboration skills in interdisciplinary engineering projects.
5. Develop awareness of cultural and linguistic diversity in professional settings.

UNIT-I 9 Hrs

Pronunciation: Course techniques include recordings, partner work, group activities and one-on-one instructor feedback. Your speech will become clearer, more fluent and easier to understand. You'll improve your enunciation of individual sounds, intonation, stress patterns, pace and pausing.

UNIT-II 9 Hrs

Speaking Professionally: You'll build greater confidence through individual work, group interaction and feedback from your peers and instructor. To express yourself more clearly and concisely, whether you are speaking in impromptu situations or making well-planned Presentations. Focus on language that familiarizes you with the use of English in everyday situations and contexts.

UNIT-III 9 Hrs

Refine Your Grammar: Express yourself more accurately and eloquently by improving your English Grammar. You'll get the strong foundation you need to write and speak more clearly, precisely and persuasively. You'll explore the relationship between words in sentences, and analyse structure and meaning, clarify common problem points and improve punctuation. You'll have the opportunity to practice with your peers and get helpful feedback. You'll also learn what resources are best for ongoing grammar help. You'll apply them to produce effective, concise written work with newfound confidence. You'll express

yourself more clearly and persuasively by using varied, well-structured sentences and placing content more strategically. You'll also develop editing skills to rid your work of errors.

UNIT-IV **9 Hrs**

Writing Essentials – Professional Writing

Improve your written English for personal, professional and academic purposes. You'll refine your sentence structure, punctuation and verb tenses, and eliminate the most common errors that confuse readers. You'll enhance your writing style. Develop editing skills that help you revise your work. Lectures, discussions, e-learning tools and assignments will help you develop the communication skills you'll need in today's business environment.

UNIT-V **9 Hrs**

You'll be equipped to create power packed Power Point Presentations. Be in better stead to introducing yourself. To know the nuances that goes into the presenting of information, and articulating information. Know how to make an impressive introduction. To imbibe Life Skills that is necessary to lead a fruitful and a fulfilling life.

Course Outcomes:

At the end of the course the student will be able:

1. To understand the importance of Professional English in work place and learn the correct pronunciation and delivery of speech.
2. To read technical proposals properly and make them to write good technical reports.
3. To achieve better comprehending skills,vocabulary and professional speaking skills.
4. To learn and identify the Common Errors in Writing and Speaking.
5. Acquire digital competence, employment and workplace communication skills.

Text Books:

1. Technical Communication: Process and Product by Sharon J. Gerson and Steven M. Gerson
2. Engineering Communication: From Principles to Practice by David Ingre, C. O'Brien
3. Technical Writing Basics: A Guide to Style and Form by Brian R. Holloway

Reference Books:

1. The Encyclopaedia Britannica" - A comprehensive general encyclopaedia covering a wide range of topics.
2. The Oxford English Dictionary (OED)" - A comprehensive dictionary of the English language.

TAUT1202A **FRENCH** **L T P C**
3 0 0 3

Course Description:
This course introduces students to French by intensively studying important aspects of pronunciation, vocabulary, grammar and sentence formation through practice sets and audio visual lessons. It introduces the workings and sounds of the language and provides the necessary tools to enable students to make sentences from scratch.

Course Objectives:
1. To train the students to know about France, French culture and basics
2. To teach them to learn basic grammar and vocabulary.
3. To train them to learn tenses in French
4. To train them to talk about their daily routine
5. To train them to converse in French in day-to-day scenarios

UNIT-I9 Hrs
Introduction to France and its regions - French alphabets and numbers, countries and nationality
Grammaire – Verbs – s'appeler, être, avoir, definite and indefinite articles
Communication – Greetings, Self Introduction

UNIT-II9 Hrs
Basic vocabulary, colours, months and days
Grammaire - Verbes - Conjugation : Present tense (ER, IR, RE ending verbs) – Adjective possesive Communication – Talk about family and friends, date, time etc.

UNIT-III9 Hrs
Hobbies, interests and daily routine
Grammaire – Irregular verbs – Releflexive verbs - Future proche
Communication – Talking about hobbies and interests

UNIT-IV9 Hrs
Vocabulary of places and transport
Grammaire – Pertinent verbs, adjective demonstrative, past tense, propositions
Communication – Narrating an incident or story

UNIT-V9 Hrs
Vocabulary of food, services, money
Grammaire – Negation, Verbs – acheter, manger, payer, articles partitifs. Communication – Accept and refuse an invitation, situation in a restaurant

Course Outcomes:
After the course, the students will be able to:
1. Acquire familiarity in the French alphabet & basic vocabulary
2. Listen and identify individual sounds of French
3. Use basic sounds and words while speaking
4. Read and understand simple advertisements, brochures and invitations

5. Understand and use basic grammar and appropriate vocabulary in completing languagetasks

Text Books:

1. Grammaire Progressive du Français, CLÉ International, 2010.
2. Saison 1, Marie-Noëlle Cocton et al, Didier, 2014.
3. Cosmopolite A1 - Nathalie Hirschsprung, Tony Tricot

Reference Books:

1. Préparation à l'examen du DELF A1 – Hachette
2. Réussir le DELF A1 – Bruno Girardeau

TAUT1202B **GERMAN** **L T P C**
3 0 0 3

Course Description: German Language Training

Course Objectives:

1. Importance of German Language in Global prospective
2. To develop Reading skills for Basic Level
3. German writing skills, particularly emails & short messages
4. To develop basic German Speaking skills in order to meet the General activities
5. Listening practise to understand German Accent of the Native German Speakers

UNIT-I **9 Hrs**

GUTEN TAG!: Saying hello and goodbye, introducing oneself and others, talking about oneself and others, numbers 1-20, spelling words and names, talking about countries and languages, the alphabet, first verbs in present tense, how to ask questions, useful terms and expressions

UNIT-II **9 Hrs**

FRUENDE, KOLLEGEN UND ICH: Talking about hobbies, days of the week, numbers from 20 on up, months and seasons in the year, talking about work and job, definite article, personal pronouns, the verbs to have (haben) and to be (sein), plurals of nouns.

UNIT-III **9 Hrs**

IN DER STADT: Getting around a town and asking for the way, giving directions, indefinite articles, negation with kein, imperative forms.

UNIT-IV **9 Hrs**

GUTEN APPETIT!: Talking about food, planning a trip to the grocery store, food and meals and talking about it, verbs that require the accusative

UNIT-V **9 Hrs**

TAG FÜR TAG: Telling and understanding time, talking about one's family, possessive articles (mein, dein) and modal auxiliaries (müssen, können, wollen).

Course Outcomes:

1. Basic Reading skills
2. Basic Writing skills with basic Grammar
3. Speaking skills and to do advance German Course
4. Understanding basic German for Daily Communication
5. Awareness of European Union and opportunities in Europe

Text Books:

1. A1-German Level- Netzwerk A1 Book- Prescribed by International Institute- Goethe Institute Delhi.

BPTT1504 **ANATOMY-II** **L T P C**

4 0 0 4

Course Description:

This course provides a detailed discussion on the Macroscopic &MicroscopicstructureandfunctionsofthehumanbodyanditsDevelopmentwhich isessentialforclinicalstudies.

CourseObjectives:

1. Study and Apply the Clinical knowledge on the Lower Extremity.

2. Apply anatomical knowledge in clinical practice.

3. Demonstrate the features of theThorax&Vertebral column

4. Demonstrate anatomicalknowledgeof theabdomen&pelvisinclinical practice

5. Demonstrate theconceptsofanatomyinembryology.

UNIT-I:

GENETICS **4hours**

I. Introduction to human genetics — mitosis, meiosis, Mendels laws,

II.Cytogenetics - karyotype, karyotyping, Barr-body.

III.Modes of Inheritance — Autosomal dominant and recessive, Y- linked inheritance, X linked dominant and recessive, pedigree charting

IV.Medical Genetics: Chromosomal aberrations, - Structural: deletion, duplication, translocation etc., numerical: Down, Turner, Klinefelter syndromes

V.Clinical Genetics: Prenatal diagnosis, Genetic counselling.

VI.Recent advances — Gene-therapy, stem cell therapy

UNIT-II

EMBRYOLOGY **8hours**

a)Ovum, Spermatozoa, fertilization and formation of the Germ layers and their derivations.

b)Development of skin, fascia, blood vessels, lymphatics.

c)Development of pharyngeal arches and their derivatives.

d)Development of heart and major vessels — aorta, superior vena cava,inferior vena cava, axillary, femoral, carotid etc..

e)Development of respiratory system.

f)Development of bones, axial and appendicular skeleton and muscles.

g)Development of nervous system - neural tube, brain vesicles and spinal cord, formation of grey matter, white matter, tracts, myelination and neural tube defects.

UNIT-III

LOWER LIMB **20hours**

a.Osteology: Hip bone, femur, tibia, fibula, patella, articulated foot

b.Soft parts: Gluteal region, front and back of the thigh (femoral triangle, femoral canal and inguinal canal), medial side of the thigh, adductor canal, popliteal fossa, anterior and posterior compartment of leg, sole and dorsum of the foot, lymphatic drainage of lower limb, venous drainage of the lower limb, blood supply of the lower limb, arches of foot.

c.Joints: hip joint, knee joint, ankle joint, joints of the foot.

d.Applied anatomy of - femoral sheath, femoral canal, sciatic nerve and its branches, obturator nerve, foot drop, varicose veins and various joints.

E.Surface anatomy and X-rays.

UNIT-IV: **20hours**

Thorax:

Osteology: thoracic vertebrae,sternum, ribs and joints

a. Soft parts - Intercostal muscles and accessory muscles of respiration: origin, insertion, nerve supply and action. Diaphragm: origin, insertion, nerve supply and action, openings in the diaphragm. Intercostal space-boundaries, intercostal nerves and vessels. Movements of respiration.

b.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

c.Respiratory system- Outline of respiratory passages - pleura and lungs: position, parts, relations, blood supply and nerve supply; lungs —emphasize on broncho-pulmonary segments

d.Azygos vein, oesophagus, trachea and thoracic duct.

e.Surface anatomy and X-rays

Back:

a. Osteology: vertebral column, curvatures, intervertebral discs, movements.

b.soft parts: muscles of back, thoracolumbar fascia.

c.Spinal cord & Meninges — tracts, blood supply

d.Applied anatomy of posture & gait, line of gravity, centre of gravity. abnormal curvatures, prolapsed of intervertebral disc, lumbar puncture.

e.Surface anatomy and X-rays

UNIT-V

Abdomen and Pelvis: 8hours

a.Osteology: lumbar vertebrae, pelvis (male & female), sacrum, joints

b.Soft parts: Anterior abdominal wall, Rectus sheath, external genitalia, inguinal canal.

c.Organs- stomach, small intestine, large intestine, liver, pancreas, spleen, urinary system, supra renal glands, reproductive system male and female — supports of uterus.

d.Perineum: male, female — superficial and deep perineal pouches, ischio-rectal fossa, pelvic diaphragm.

E.Applied anatomy of reproductive system and perineum in parturition and family planning.

Course Outcomes:

1. Study and Apply the Clinical knowledge on the Lower Extremity.

2.Apply anatomical knowledge in clinical practice.

3.Understand the features of the Thorax & Vertebral column

4. Anatomical knowledge of the abdomen & pelvis in clinical practice

5.Learn the concepts of anatomy in embryology.

Textbooks:

Gross Anatomy(AnyOne):

1. Human anatomy by I.B. Singh-Volumes.

2.Human Anatomy B.D. Chaurasia Volumes

General Anatomy(AnyOne):

1.Hand book of General Anatomy by B.D. Chaurasia

2. Principles ofGeneralAnatomybyA.K.Datta

Micro anatomy(AnyOne):

1.Textbook of HumanHistology with colour Atlas.InderbirSingh

2.Atlas of Histology by DiFiore

Neuro anatomy:

1.Text book of Human Neuro anatomy by Inderbir Singh.

2.Clinical Neuro anatomy for medical students by VishramSingh

Genetics (Any One):

1.Essentials of Human Embryology byBhatnagar,Kothari,Mehta.

2.Human Genetics by S.D.Gangane

Reference books:

1. Principles of anatomy and physiology by Tortora
2. Cunninghams Manual of Practical Anatomy
3. Clinical Anatomy for Medical Students by Richard Snell
4. MOORE [Kieth L], Clinically Oriented Anatomy
5. Anatomy & Physiology by Ross & Wilsons, 8th edition, Churchill Livingston.
6. Grays Anatomy

BPTT1505 PHYSIOLOGY-II L T P C

3 0 0 3

Course Description:

This course provides a detailed in-depth discussion of the fundamental reactions of living organisms specific to the human body. It emphasizes the concepts of cells, primary tissue, connective tissue, skin, muscle, nervous tissue, gastrointestinal tract, kidneys, uterus, urinary tract, pregnancy, and endocrine system.

Course Objectives:

1.UnderstandthebasicconceptsofCirculatorySystem.

2.Understandthemechanismsofurineformationanditssignificance

3.Correlatethemechanismsofhormonalactionandtheirinfluenceonthehumanbody.

4.GainknowledgeaboutvariousReproductivesystem.

5. Understand the importance of the role of exercise in physical and mentalwell-beingandphysiologicalchangesduringExercisesinvarioussystems

UNIT-I

CIRCULATION 14hours

Structure & Properties of cardiac muscle, cardiac cycle.

i.ECG, Heart sounds, cardiac output.

ii. Factors regulating the action of the heart.

iii. Blood pressure — its maintenance and regulation.

iv. Cerebral circulation, renal circulation, pulmonary circulation.

V .Effects of exercise, effects of postural changes.

vi. Lymph, factors affecting flow of lymph.

UNIT-II

RESPIRATION 12 hours

I.Defense mechanisms in the respiratory tract, mucociliary transport, mechanics of respiration.

ii. Transport of blood gases. Acid-base balance.

iii. Lung function tests (including lung volumes), Artificial ventilation.

iv. Nervous and chemical regulation of respiration

v. Hypoxia-types and causes

vi. Effects of exercise on respiration.

UNIT-III

EXERCISE PHYSIOLOGY 4 hours

I. Exercise metabolism. Oxygen debt, Respiratory quotient

ii.Development of endurance, factors affecting endurance and muscle strength. Factors affecting general and cardiorespiratory endurance. Aerobic and anaerobic work. Efficiency of muscular activity, aerobic versus anaerobic (eg.speed, work, load, fatigue, diet, obesity)

iii.Age and exercise, age changes in muscle function, age changes in CVS, age changes in pulmonary function, age and physical work capacity, age and nervous system.

iv.Environment and exercise, adaptation to heat and cold, exercise in heat and in cold. Human limitation in heat, acclimatization to heat, exercise at high altitudes.

UNIT-IV

EXCRETION 11 hours

i. Structure of nephron

ii. Formation of urine

iii. Micturition

ENDOCRINES

Outline of the various hormones and their actions with special emphasis on thyroid and parathyroid hormones

UNIT-V

REPRODUCTION 4 hours

i. Male reproductive system.

ii. Female reproductive system

iii. Outline of pregnancy, functions of placenta, parturition, lactation and contraceptive measures.

iv.Physiology of foetus, factors that affect foetal growth

HUMAN EXPERIMENTS30hours

1.ExaminationofRadial pulse

2.Recording of systemic arterial blood pressure andeffect ofexerciseon BP

3.Examination of chest for heart

4.Examination of chest for lungs

5.Pulmonary functiontests

6.Demonstration of vital capacity measurement andPeak expiratoryflowrate

COURSEOUTCOMES:

1.Understand the basic concepts of Circulatory System.

2.Understand the mechanisms of urine formation and its significance

3.Correlate the mechanisms of hormonal action and their influence on the human body.

4.Gain knowledge about various Reproductive system.

5.Understand the importance of the role of exercise in physical and mental well-being and physiological changes during Exercises in various systems

Text books

1.Medical physiologyby ABS Mahapatra

2.Essentials of Medical physiologybysembulingam

Reference books: -

1.Text Book of Human Physiology by Chatterji

2.Human Physiology by Chaudary.

3.Human Physiology by Guyton.

4.Concise Physiology for Under Graduates - Prof. A.K. JAIN.

5.R. Chandra Mouli - Text Book of Physiology.

BPTT1506 **BIO-CHEMISTRY** **L T P C**

3 0 0 3

CourseDescription:

This course provides a detailed in-depth discussion of the Biochemicaland functional organization of the cell and sub cellular organelles. Basic structural, biochemical and functional aspects of bio molecules and their interrelations and about the nutrients

Course Objectives:

1.Biochemical and functional organization of the cell and sub cellular organelles.Basic structural, biochemical and functional aspects of bio molecules and their interrelations.

3.Basic and clinical aspects of enzymology.

4.Basic and nutritional aspects of vitamins

5.Basic principles of biological oxidation and bioenergetics.Outlines of digestion and absorption of bio molecules

UNIT-I

NUTRITION: 5 hours

a) Importance of nutrition

b) Calorimetry - energy values, calorimeters, respiratory quotient and its significance, specific dynamic action of food.

c) Basal metabolic rate - definition, normal values, factors affecting B.M.R. food, energy expenditure for various activities.

d) Nutritional aspects of carbohydrates, fat and fibers

e) Nutritional aspects of proteins - essential and non essential amino acids, chemical score, digestibility coefficient, biological value, net protein utilization, nutritional classification of proteins (complete and incomplete), nitrogen balance and its significance.

f) Composition of food, balanced diet, dietary recommendations, nutritional supplementation.

g) Protein - energy malnutrition, Kwashiorkor and Marasmus

UNIT-II

CARBOHYDRATES, LIPIDS,PROTEINS: 15 hours

a) Definition, chemistry, classification, common carbohydrates, their sources and composition.

b) Digestion and absorption of carbohydrates.

c) Glycolysis - aerobic, anaerobic, energetics, regulation, Coris cycle, Gluconeogenesis.

d) Citric acid cycle and its energetics

e) Glycogenesis, glycogenolysis and their regulation, role of liver and muscle glycogen.

f) Hormonal regulation of blood sugar level.

g) Metabolic disorders of glycogen, lactose intolerance, diabetes mellitus.

LIPIDS:

a) Definition, classification of lipids, classification of fatty acids, examples and functions of common lipids, essential fatty acids and their importance.

b) Classification, sources and functions of lipoproteins

c) Digestion and absorption of lipids

d) Beta-oxidation and its energetics, regulation

e) Fatty acid biosynthesis, energetics, regulation

f) Fat metabolism in adipose tissue, lipoprotein lipase, hormone sensitive lipase.

g) Ketone body formation and utilisation

h) Cholesterol and its importance, common hyperlipoproteinemia.

PROTEINS:

a) Definitions of proteins and amino acids, classification of amino acids and proteins, essential amino acids, functions of amino acids and proteins

b) Enzymes - definition, coenzymes, factors affecting enzyme activity, regulation of enzyme activity, enzyme inhibition, isoenzymes and clinical significance of

enzymes.

c) Digestion and absorption of proteins.

d) Transamination, deamination and urea cycle.

e) Specialised products produced from amino acids — Phenylalanine, Tyrosine, Tryptophan, Arginine, Glycine, Methionine

UNIT-III **10 hours**

MUSCLE CONTRACTION: Contractile elements in muscle, process of muscle contraction.

CONNECTIVE TISSUE: Biochemistry of connective tissue, collagen, glycoproteins, proteoglycans.

CELL BIOLOGY: Cell membrane structure, mechanism of transport across cell membrane, intracellular organelles and their functions, briefly cytoskeleton.

HORMONE ACTION: Classification of hormones and mechanism of hormone action

I. Receptors, signal transduction, second messengers (Ca, cAMP, Inositol Phosphates) and their role in cell function.

ii.Neurotransmitters.

UNIT-IV

VITAMINS: 8hours

i.Definition, classification according to solubility

ii.Individual vitamins - sources, coenzyme forms, functions, RDA. Digestion, absorption and transport, deficiency and toxicity.

TRACE MINERALS:

I. Individual minerals — Calcium, Phosphate, Iron, Magnesium, Fluoride, Selenium, Molybdenum, Copper, Zinc, Sources, RDA, Digestion, Absorption, Transport,Excretion, Functions, Disorders.

ii.Phosphate, calcium and iron in detail.

UNIT-V

GENETICS: 7hours

Nucleic acids — Functions of DNA and RNA, differences between DNA and RNA Genetic code.

ACID - BASE BALANCE, WATER AND ELECTROLYTES:

I. Body water, osmolarity, extra and intracellular sodium and potassium, regulation of water & electrolyte balance, buffers, pH., buffer systems in the blood.

ii.Role of lungs and kidneys in acid-base balance.

CLINICAL BIOCHEMISTRY

I. Relevance of blood levels of glucose, urea, calcium, phosphates, pH, bicarbonate, enzymes, lipids and lipoproteins.

ii.Urine levels of sugar, creatinine, proteins

iii.Competitive inhibitors, clinically important enzymes.

iv.Liver function tests.

v.Renal function tests

Course Outcomes:

At the end of the course the student should be able to understand

1.Basic principles of metabolism and overview of important bio molecules, their regulation and integration.

2.Biochemical principles of signal transduction and its role in metabolic integration.

3.Basic principles of fluid, electrolyte and acid — base balance&Basic principles of nutrition including minerals.

4.Biochemistry of muscle, connective tissue and muscle contraction.

5.Basic molecular concepts of body defense and homeostasis.Basic biochemistry of diseases involving Neuro Musculo skeletal system.

Text books:

1.Essentials of Biochemistry — U.Satyanarayana

Reference books:

1.Text Book of Bio-chemistry - Ranganatha Rao

2.Text Book of Medical Bio-chemistry - Chatterjee &Schinde

III SEMESTER

TAUT2101 **HEALTH AND WELLNESS** **L T P C**
3 0 0 3

Course Description:

The course is designed to help students to learn more about human health. This course helps to understand how current health knowledge helps to make future human beings even stronger and healthier.

Course Objectives:

1. To help understand the importance of a healthy lifestyle
2. To familiarize students about physical and mental health
3. To create awareness of various life style related diseases
4. To understand the multiple dimensions of health and wellness, including physical, mental, emotional, social, and environmental aspects
5. To Equip students with the knowledge and skills to develop, implement, and maintain healthy lifestyle practices

UNIT-I **9 Hrs**

Define and differentiate health and wellness, Importance of health and wellness, Basic concepts of genetics, including genes, DNA, chromosomes, and inheritance patterns. Genetic factors affecting macronutrient (carbohydrates, proteins, and fats) digestion. Genetic variations associated with micronutrient (vitamins and minerals) digestion; malnutrition, under nutrition and over nutrition

UNIT-II **9 Hrs**

Brief overview of Body systems – Skeletal system, Muscular system, Circulatory System, Lymphatic system, Cardiovascular system, Respiratory system, Nervous system (Central nervous system, Peripheral nervous system, Somatic and Autonomic nervous systems), Digestive system, Urinary system, Endocrine system, Reproductive system, Integumentary system

UNIT-III **9 Hrs**

Sedentary lifestyle and its risk of disease, Lifestyle Disease and its Management, Factors affecting mental health - Stress, anxiety, and depression, Identification of suicidal tendencies, Substance abuse (Drugs, Cigarette, Alcohol), de-addiction, counselling and rehabilitation. Four Vital signs- Pulse rate, Respiratory rate, Blood pressure, Body temperature, other measurements-Body mass index, Waist-Hip Ratio, Basal Metabolic Rate

UNIT-IV **9 Hrs**

Risk factors and Pathology of the following Diseases and their Management –

- Diabetes
- Hypertension
- Coronary Heart Disease
- Obesity
- Osteoporosis

- Osteoarthritis
- Rheumatoid-arthritis
- Cancers (Blood, Breast, Brain, Lung, Liver and Kidney)
- Polycystic ovarian syndrome (PCOS)
- Pain (including Low Back pain)

UNIT-V **9 Hrs**

Introduction to Functional Foods; Nutrients and Bioactive Compounds in Functional Foods; Functional Foods for Cardiovascular Health, Weight Management, Immune Function, Cognitive Health, Chronic Disease Prevention; Yoga and its importance in Health and Wellness

Course Outcomes:

Upon successful competition of the course the student would be able to -

1. Understand the relationship between fitness and wellness
2. Gain knowledge regarding various aspects and its practical implication for Wellbeing.
3. Learn about behavior change theories and strategies for promoting healthy habits such as exercise, stress management, and nutrition
4. Study techniques for setting realistic health goals, creating wellness plans, and overcoming barriers to maintaining a healthy lifestyle.
5. Learn about the principles of a balanced diet, regular physical activity, mental health management, social relationships, and environmental factors that influence health

Text Books:

1. Physical Activity and Health by Claude Bouchard, Steven N. Blair, William L. Haskell.
2. Mental Health Workbook by Emily Attached & Marzia Fernandez, 2021.
3. Mental Health Workbook for Women: Exercises to Transform Negative Thoughts and Improve WellBeing by Nashay Lorick, 2022.

Reference Books:

1. Lifestyle Diseases: Lifestyle Disease Management, by C. Nyambichu & Jeff Lumiri, 2018.
2. Physical Activity and Mental Health by Angela Clow & Sarah Edmunds, 2013.

TAUT2201 COMMUNITY ENGAGEMENT L T P C
3 0 0 3

Course Description:
This course provides degree-seeking students with an array of opportunities to engage in an immersive community service-learning experience. It further helps to understand the resources, optimize the recourses in future days, and address the gaps in the communities.

Course Objectives:
Students undergoing this course are expected to:

1. Understand community issues, needs, problems, strengths and recourses
2. Demonstrate the ability to work with a diverse population
3. Formulate more precise personal and professional life goals
4. Demonstrate the ability to communicate effectively and collaborate with institutions and public
5. Demonstrate the ability to take initiative, follow directions, lead, and solve problems

UNIT-I Social Structure 5 Hrs
Concept of Society; Community; Association and Institution; Individual and Society; Social Groups- Meaning, Characteristics and Classification; Social Process; Social Change; Structure and Characteristics of urban, rural and tribal communities.

UNIT-II Social Organisation and Disorganisation 5 Hrs
Social Organisation- meaning, elements and types; Voluntary Associations; Social System- definition, types and roles; Social Control- meaning, aims and process of social control; Social norms, morals and values; Social Disorganisation- definition, causes, control and planning.

UNIT-III Social Problems and Welfare State 8 Hrs
Social Problems- Poverty, Housing, food supply, illiteracy, Prostitution, dowry, child labour, child abuse, delinquency, crime, substance abuse, HIV/ AIDS, Covid-19; Venerable Group- elderly, handicapped, minority and another marginal group; Fundamental rights of individual, women and children, NITI Aayog, Ministry of Social Justice & Empowerment, Ministry of Rural Development, Ministry of Tribal Affairs, Ministry of Health & Family Welfare, and Role of Local Bodies for transformation; Corporate Social Responsibility; Social Work.
Proposed Field activities: Field visit- Interaction with Local Self Government, Visit of Gram Panchayat & Staff, Socio-Economic Survey *(5 hours/ one day).*

UNIT-IV Communication Strategies and Community Engagement 18 Hrs
Social Behaviour Change Communication (SBCC); Focused Group Discussion; SWOT analysis; Participatory Learning Action.
Proposed Field activities: Meeting, Mobilizing, Transect Walk, Identification of Natural Leaders, Timeline, Mapping, Case Study, Documentation; Outreach- Special Camp Viz., Health Education, Medical Camp, Environment Protection, Sustainability, Technology & Innovation, Nutrition, Swachh Bharat (*15 Hours/ 4 days).*

UNIT-V Sustainable Development Goals 2023 9 Hrs
Millennium Development Goals; Sustainable Development Goals (SDGs) 2030- 17 Goals; SDG Pyramid; Localizing SDGs; Gram Panchayat Development Plan (GPDP).

Proposed Field activities: Mapping the activities with SDG 2030 (6 Hours/ 1 day).

Course Outcomes:

By the end of the course, students should able to:

1. Understand and apply the concept related to community and social structure.
2. Develop the ability to involve and work with the social system.
3. Understand various social problems emerging in society and solve them.
4. Apply SBCC tools and SWOT analysis.
5. Appreciate Sustainable Development Goals and contribute beyond SDG 2030.

Text Books:

1. Krishna Kant Singh & Ram Shankar Singh, (2011), Social Work and Community Development.
2. Makara Rumley, (2020), Modern-Day Strategies for Community Engagement: How to Effectively Build Bridges Between People and the Bottom Line.

Reference Books:

1. Hall, B. L., Tandon, R. & Tremblay, C. (2015). Strengthening Community University Research Partnerships: Global Perspectives.
2. http://unescochaircbrsr.org/unesco/pdf/UNESCO%20Book%20Web_with%20BookCovers_Aug202015_FINAL.pdf
3. GUNi (Ed.). (2014). Knowledge, Engagement and Higher Education: Contributing to Social Change (Higher Education in the World 5). Hampshire (UK)/New York (USA): Palgrave Macmillan.
4. UNESCO Chair in Community Based Research & Social Responsibility in Higher Education (2015). Institutionalizing Community University Research Partnerships: A User's Manual. http://unescochair-cbrsr.org/unesco/pdf/CURP_Guidelines.pdf
5. Vallaeys, F. (2014). University Social Responsibility: A Mature and Responsible Definition. In GUNi (Ed.), Knowledge, Engagement and Higher Education: Contributing to Social Change (Higher Education in the World 5) (pp. 88-96).

TAUT2202 **CLINICAL NUTRITION** **L T P C**
3 0 0 3

Course Description:

Upon completion of the course, students will be prepared to apply their knowledge of clinical nutrition to promote health and manage diseases effectively, contributing to multidisciplinary healthcare teams. This course is essential for healthcare professionals, nutritionists, dietitians, and anyone interested in understanding the role of nutrition in clinical care and wellness promotion.

Course Objectives:

To enable the students to:

1. Develop proficiency in conducting comprehensive nutritional assessments using various methods such as dietary recall, biochemical tests, and anthropometric measurements.
2. Understand the impact of diet on the prevention, management, and progression of chronic diseases commonly encountered in clinical practice, including diabetes, cardiovascular diseases, and obesity.
3. Acquire skills in designing individualized nutrition plans tailored to specific patient needs and health conditions across different life stages (e.g., pediatric, geriatric, maternal).
4. Evaluate ethical issues related to nutritional counseling, respecting cultural dietary practices, and providing evidence-based dietary recommendations within clinical settings.
5. Critically appraise current research and controversies in clinical nutrition, integrating evidence-based guidelines into decision-making processes to optimize patient outcomes.

UNIT-I **9 Hrs**

Introduction to nutrition - Food as source of nutrients, functions of food, definition of nutrition, nutrients & energy, adequate, optimum & good nutrition, malnutrition, Effect of cooking & heat processing on the nutritive value of foods, role of nutrition in prior pregnancy, during pregnancy, during lactation, in adolescence, Fitness, Athletics & Sports

UNIT-II **9 Hrs**

Food guide - Basic five food groups How to use food guide (according to R.D.A.) Interrelationship between nutrition & health: - Visible symptoms of good health, Use of food in body - Digestion, Absorption, transport & utilization, Role of fibres in human nutrition. malnutrition, Protein energy malnutrition.

UNIT-III **9 Hrs**

Biomolecules as a nutrient: Carbohydrates: Functions, classification, food sources, storage in body. Fats & oils: composition, saturated and unsaturated fatty acids, classification, food sources, function of fats. Proteins - composition, sources, essential & non-essential amino acids, functions, Protein deficiency.

UNIT-IV **9 Hrs**

Water minerals and Vitamins: Water - as a nutrient, function, sources, requirement, water balance & effect of deficiency. Minerals - macro & micronutrients. - Functions, sources. Bioavailability and deficiency of Calcium, Iron, Iodine, Sodium & Potassium, Vitamins (water & fat soluble) - definition, classification & functions.

UNIT-V **9 Hrs**

Role of nutrients in disease management: Importance of nutrition in kidney and liver diseases with respect to their nutritional value. Case study- diabetes, cancer, Osteoporosis, Heart related diseases, role of Antioxidants as a nutrient in disease control.

Course Outcomes:

Upon completion of the course, the student shall be able to

1. Demonstrate proficiency in conducting thorough nutritional assessments using a variety of methods, interpreting results, and applying findings to develop dietary recommendations.
2. Apply knowledge of macro and micronutrients, dietary supplements, and hydration to design effective nutrition plans for individuals with diverse health needs and conditions.
3. Implement dietary interventions that contribute to the prevention, management, and improvement of chronic diseases, integrating nutritional strategies into comprehensive healthcare plans.
4. Evaluate and address ethical considerations in nutritional counseling, respecting cultural diversity and individual preferences while adhering to professional standards and evidence-based practices.
5. Critically analyze current research literature in clinical nutrition, utilizing evidence-based guidelines to make informed decisions and enhance patient outcomes in clinical settings.

Text Books:

1. Kathleen ML and Escott S. Krause's Food, Nutrition and Diet Therapy, 9thedn, W.B. Saunders Company Pennsylvania, 2000.
2. Davidson S, Passmore R, Breck JFT. Human Nutrition and Dietetics, The English Language Book Society and Churchill Livingston, 1975.

Reference Books:

1. Thomas B. Manual of Dietetic Practice. Blackwell Scientific Publications, Oxford, London, 1988.
2. Robinson CH. Normal and Therapeutic Nutrition. Oxford Publishing Co, Bombay, 1972.

TAUT2203 EMOTIONAL INTELLIGENCE AND MENTAL HEALTH L T P C
3 0 0 3

Course Description:

This course will explore the relationship between emotional intelligence and mental health. Students will learn about the importance of emotional intelligence in promoting positive mental health, and will develop skills in recognizing and regulating emotions, managing stress, and building resilience. The course will cover topics such as emotional intelligence theories, emotional regulation strategies, mindfulness, self-compassion, and the impact of emotions on mental health.

Course Objectives:

By the end of this course, students will be able to:

1. Understand the role of emotional intelligence in mental health
2. Develop skills in recognizing and regulating emotions
3. Understand the impact of stress on mental health and develop strategies for managing stress
4. Understand the importance of self-compassion in promoting positive mental health
5. Develop critical thinking and analytical skills in relation to emotional intelligence and mental health

UNIT-I **9 Hrs**

Introduction to Emotional Intelligence and Mental Health; Definition and history of emotional intelligence, the role of emotional intelligence in mental health, Professional organizations and ethical codes related to emotional intelligence

UNIT-II **9 Hrs**

Theoretical Perspectives on Emotional Intelligence; Ability model of emotional intelligence, Trait model of emotional intelligence, Mixed model of emotional intelligence, Mindfulness and Mental Health, Mindfulness and Mental Health.

UNIT-III **9 Hrs**

Stress and Mental Health, Resilience and Mental Health; The impact of stress on mental health, Stress management techniques (e.g., relaxation techniques, time management, exercise) Definition and benefits of resilience, Factors that contribute to resilience,Building resilience in oneself and others.

UNIT-IV **9 Hrs**

Self-Compassion and Mental Health, Emotions and Relationships; Definition and benefits of self-compassion, Practice of self-compassion, Relationship between self-compassion and mental health,Emotions and Relationships

UNIT-V **9 Hrs**

Emotional Intelligence in the Workplace, Ethics and Emotional Intelligence; Emotional intelligence and job performance, the role of emotional intelligence in leadership, Emotional

intelligence training in the workplace, Ethical issues related to emotional intelligence, Professional codes and standards related to emotional intelligence

Final Project Presentations
Students will present their final projects, which may include research papers, case studies, or other projects related to emotional intelligence and mental health.

Course Outcomes:

1. Able to provide an overview of emotional intelligence and mental health
2. Will understand the importance of emotional intelligence
3. The impact of stress on mental health, Stress management techniques
4. Relationship between emotional intelligence and mental health
5. Understand the importance of Emotional Intelligence in the workplace.

Text Books:

1. Neff, K. (2011). Self-compassion: Stop Beating Yourself Up and Leave Insecurity Behind. HarperCollins.
2. Goleman, D. (2007). Emotional Intelligence (10th ed.). Bantam Books.

Reference Books:

1. Covey, Stephen R., author. (2020). The 7 habits of highly effective people: powerful lessons in personal change. New York :Simon& Schuster.
2. Tolle, E. (2016). The power of now: A guide to spiritual enlightenment. Yellow Kite.

TAUT2204 **HUMAN RIGHTS** **L T P C**
3 0 0 3

Course Description:

This course offers a comprehensive introduction to the field of human rights, exploring the historical development, philosophical foundations, and contemporary issues surrounding the protection and promotion of human rights globally. Students will engage with key concepts, major international human rights instruments, and the roles of various actors in the human rights landscape.

Course Objectives:

This course is intended to prepare the students to

1. Know Human Rights, its need importance, and kind of rights
2. Understand the Human Rights of vulnerable groups
3. Identify and analyze key international human rights documents and treaties.
4. Know about the institutions enforcing the Human Rights
5. Understandthe violations of Human Rights and the safeguards available to citizens.

UNIT-I Concept of Human Rights – Indian and International Perspectives **5 Hrs**

a. Evolution of Human Rights
b. Definitions under Indian and International documents

UNIT-II Broad classification of Human Rights and Relevant Constitutional Provisions. -

11 Hrs

a. Right to Life, Liberty and Dignity
b. Right to Equality
c. Right against Exploitation
d. Cultural and Educational Rights
e. Economic Rights
f. Political Rights
g. Social Rights

UNIT-IIIHuman Rights of Women and Children **11 Hrs**

a) Social Practice and Constitutional Safeguards
b) Female Foeticide and Infanticide
c) Physical assault and harassment
d) Domestic violence
e) Conditions of Working Women

UNIT-IV Institutions for Implementation **9 Hrs**

a. Human Rights Commission
b. Judiciary

UNIT-V Violations and Redressal **9 Hrs**

a. Violation by State
b. Violation by Individuals
c. nuclear weapons, bio war and terrorism
d. Safeguards.

Course Outcomes:

After the successful completion of this course the students will be able to

1. Know about Human Rights, its need importance and kind of rights
2. Understand the Human Rights of vulnerable groups
3. Know about the institutions enforcing the Human Rights
4. Understand the violations of Human Rights and the safeguards available to citizens.
5. Develop critical thinking and analytical skills by examining case studies and current events.

Text Books:

1. Human Rights in India: Historical, Social and Political Perspectives (Law in India) Hardcover – Illustrated by Chiranjivi J. Nirmal (Author)
2. History of Human Rights, Narrated by Andrea Giordani

Reference Books:

1. The Universal Declaration of Human Rights- UNO publication
2. Making Sense of Human Rights- by James Nickel.
3. The Idea of Natural Rights- by Brian Tierney.
4. The Law of Peoples- by John Rawls.
5. On Human Rights. - by James Griffin.
6. Human Rights: Contemporary Issues by V.K. Ahuja
7. Human Rights, M Girija, S Chand Edu tech Pvt. Ltd.

TAUT2205 **INDUSTRY 4.0** **L T P C**
3 0 0 3

Course Description:
The Industry 4.0 aims to the "smart" and connected production systems that are designed to sense, predict, and interact with the physical world, so as to make decisions that support production in real-time. In manufacturing, it can increase productivity, energy efficiency, and sustainability.

Course Objectives:
The objective of this course is to make students:

1. To impart basic idea in Industry 4.0.
2. To provide students with good depth of knowledge of designing Industrial 4.0 Systems for various application.
3. To learn the artificial intelligence and machine learning techniques/ tools in health care.
4. To understand the bigdata technology and its applications in health care.
5. To learn the design and analysis of Industry 4.0 systems for healthcare applications.

UNIT-I **9 Hrs**

Introduction: Introduction, Historical Context, General framework, Application areas, Dissemination of Industry 4.0 and the disciplines that contribute to its development, Artificial intelligence, The Internet of Things and Industrial Internet of Things, Additive manufacturing, Robotization and automation, Current situation of Industry 4.0.

UNIT-II **9 Hrs**

Cyber Physical System: Introduction to Cyber Physical Systems (CPS), Architecture of CPS- Components, Data science and technology for CPS, Emerging applications in CPS in different fields. Case study: Application of CPS in health care domain.

UNIT-III **9 Hrs**

Artificial Intelligence & Machine Learning: Artificial Intelligence: Artificial Intelligence (AI) – What & Why? History of AI- Foundations of AI, the AI Environment, Application Domains and Tools.

Machine Learning- Introduction–Definition–Types of Machine Learning–Supervised, Unsupervised, Reinforcement Learning–Algorithms for Machine Learning–Problems solved by Machine Learning-Applications areas of Machine Learning in Health care.

UNIT-IV **9 Hrs**

Big Data & Cloud Computing: What is Big Data, Evolution of Big Data, sources of Big Data? Characteristics of Big Data Vs – Big Data Myths- Data Discovery-Traditional Approach, Big Data Technology: Big Data Technology Process– Applications of Bigdata in Healthcare.

Cloud Computing: Need– Definition – Types of Cloud-Types of Services– SaaS, PaaS, Iaas

UNIT-V **9 Hrs**

Impact of Industry 4.0 on Healthcare Industry: An introduction Discover how Industry 4.0 is impacting and transforming the Healthcare Industry including self-diagnosis systems for patients, real-time diagnosis, 3D printed organs and Internet-of-Medical Things (IOMT).

Course Outcomes:

Upon completion of the course, student will be able to:

1. Understand the basic concepts of Industry 4.0 and the other related fields
2. Analyze, design and develop systems to solve the Engineering problems by integrating thermal, design and manufacturing Domains.
3. Understand the various artificial intelligence and machine learning tools in health care domain.
4. Apply bigdata technology in health care applications.
5. Apply the learned Engineering knowledge for the Development of society and self.

Text Books:

1. Jean-Claude André, —Industry 4.0, Wiley- ISTE, July 2019, ISBN: 781786304827, 2019.
2. Diego Galar Pascual, Pasquale Daponte, Uday Kumar, —Handbook of Industry 4.0 and SMART Systems, Taylor and Francis,2020

Reference Books:

1. P. Kaliraj, T. Devi, BigDataApplicationsinIndustry4.0, 2022, ISBN9781032008110, CRC Press, Taylor & Francis Group
2. P. Kaliraj, Devi Thirupathi, "Artificial Intelligence Theory, Models and Applications", Auerbach Publications, CRC Press, Taylor and Francis group, 2021.
3. EthemAlpaydin, "Introduction to Machine Learning", Third Edition, MIT Press, 2014.
4. P. Kaliraj, T. Devi, Industry 4.0 and Education: Transformative Technology and Applications, 2022, CRC Press, Taylor & Francis Group.

TAUT2206 MEDICAL TERMINOLOGY L T P C
3 0 0 3

Course Description:

The purpose of this course is to develop a student's understanding and use of hospital and medical terminology. There is a focus on understanding the terns commonly used to identify the cause and effects of disease conditions.

Course Objectives:

1. To understand the associate medical terms with specific body systems.
2. To identify and interpret diagnostic and symptomatic terms related to the diseases specific to each body system.
3. To describe designated diagnostic testing procedures (laboratory, x-ray, surgical, pharmacy, etc.).
4. To Enable students to understand, use, and correctly pronounce a wide range of medical terms.
5. To Prepare students to effectively communicate with healthcare professionals and patients using accurate medical terminology.

UNIT-I **9 Hrs**

Basics of medical terminology, Specialties in a Hospital, The Human body in health and disease

UNIT-II **9 Hrs**

The Skeletal System, The Muscular System, The lymphatic and immune systems

UNIT-III **9 Hrs**

The Respiratory System, The Circulatory System, The Digestive System, The Urinary System

UNIT-IV **9 Hrs**

The Nervous system, Special senses - Eyes and Ears, Skin - The Integumentary system

UNIT-V **9 Hrs**

The Endocrine system, The Reproductive System, Diagnostic procedures, Nuclear Medicine and Pharmacology

Course Outcomes:

Upon successful completion of the course student would be –

1. Able to Identify and interpret complex medical terms by breaking them into their component word parts in order to decipher their meaning.
2. Able to understand common diseases and disorders of the body systems
3. Able to identify diagnostic tools and techniques for the common diseases and disorders of the human body
4. Able to interpret medical records, lab reports, and other documentation to ensure clear and precise communication within healthcare teams and with patients
5. Able to learn the roots, prefixes, and suffixes that form medical terms, as well as the terminology related to various body systems, diseases, procedures, and treatments. Students will be able to deconstruct complex terms into their component parts to understand their meanings.

Text Books:

1. Medical Terminology for Health Professions, 7th Edition by Ann Ehrlich; Carol L Schroeder, ISBN 13: 9781111543297, Published by Delmar Cengage Learning (2013)
2. Workbook for Ehrlich/Schroeder's Medical Terminology for Health Professions, 7th by Carol Schroeder, Ann Ehrlich Published by Delmar Cengage Learning; 7th edition, 2012, ISBN-13 : 978-1111543280

Reference Books:

1. Quick and Easy Medical Terminology - With Access by Peggy C. Leonard, ISBN13: 978-0323595995, 9th Edition
2. Medical Terminology Systems: A Body Systems Approach - With Access by Barbara A. Gylys, ISBN13: 978-0803658677, 8th Edition
3. Understanding Medical Terminology by Agnes C. Frenay, ISBN13: 978-0697140586, 9th Edition

TAUT2207 **SOCIAL NETWORK ANALYSIS** **L T P C**
3 0 0 3

Course Description:

A thorough introduction to Social Network Analysis (SNA), an interdisciplinary topic that studies the connections and interactions between people, groups, and things in various social contexts, is provided in this course. Students will receive a broad understanding of the core ideas, approaches and uses of SNA in a variety of disciplines. The course will cover data gathering methods, network visualization, fundamental network metrics, sophisticated network ideas and practical SNA implementations. Students will learn the skills necessary to evaluate social networks and gain useful insights from intricate network data through hands-on exercises.

Course Objectives:

1. To introduce students to the foundational concepts and historical background of Social Network Analysis (SNA).
2. To familiarize students with the basic building blocks of social networks, including nodes and edges and different types of social networks (e.g., online, offline, professional, friendship).
3. To provide students with an understanding of key network measures such as degree centrality, betweenness centrality, clustering coefficients and network density.
4. To demonstrate real-world applications of SNA, such as social network mining, influence and opinion dynamics, social network marketing and cybersecurity.
5. To equip students with practical skills for analyzing and interpreting social network data.

UNIT-I **9 Hrs**

Overview of Social Network Analysis: Definition, history and key concepts. Nodes and Edges: Understanding the basic building blocks of social networks. Types of Social Networks: Exploring different types of social networks (e.g., online, offline, professional, friendship).Importance and Applications of SNA: How SNA is used in various fields (e.g., Engineering, Sociology, Psychology, Marketing and Business).

UNIT-II **9 Hrs**

Data Collection Methods: Techniques for gathering social network data (e.g., surveys, interviews, online platforms). Data Representation: Different formats for representing network data (e.g., adjacency matrix, edge list).Network Visualization: Introduction to visualization tools fornd interpreting network structures.

UNIT-III **9 Hrs**

Degree Centrality: Identifying influential nodes based on their connections. Betweenness Centrality: Understanding nodes that act as bridges in the network. Clustering Coefficients: Analyzing the degree of interconnectedness within local neighbourhoods. Network Density: Assessing the overall connectivity of a social network.

UNIT-IV **9 Hrs**

Small World Phenomenon: Exploring the "six degrees of separation" concept. Homophily and Social Influence: Understanding how social networks shape individuals' behaviour and beliefs. Network Resilience and Robustness: Examining the impact of node removal on the network's stability. Network Motifs: Identifying recurring patterns in complex social networks.

UNIT-V **9 Hrs**

Social Network Mining: Using SNA to extract meaningful patterns and insights from large-scale networks. Influence and Opinion Dynamics: Analyzing how information spreads through social networks. Social Network Marketing: Leveraging SNA for targeted marketing campaigns and product promotion. Online Social Networks and Cyber security: Understanding network-based threats and vulnerabilities.

Course Outcomes:

By the end of the course, students will be able to:

1. Comprehend the foundational concepts, methodologies and tools of Social Network Analysis.
2. Extract meaningful insights from social network data, identifying influential nodes and understanding network dynamics.
3. Apply SNA concepts to real-world challenges in areas such as marketing, cyber security and social dynamics.
4. Utilize SNA techniques to inform decision-making processes.
5. Conduct and interpret SNA in various domains effectively.

Text Books:

1. Social Network Analysis: Methods and Applications" by S. K. Garg, 2019, Wiley India.
2. Introduction to Social Network Analysis: Concepts, Methods and Applications" by R. K. Singh, 2020, Springer India.

Reference Books:

1. Social Network Analysis: Methods and Applications" by Stanley Wasserman, Katherine Faust (1994, Cambridge University Press)
2. Analyzing Social Networks" by Stephen P. Borgatti, Martin G. Everett, Jeffrey C. Johnson (2013, SAGE Publications)
3. Networks, Crowds and Markets: Reasoning About a Highly Connected World" by David Easley, Jon Kleinberg (2010, Cambridge University Press).

TAUT220 ANTIBIOTIC RESISTANCE &BIOMEDICAL WASTE MANAGEMEN L T P C
3 0 0 3

Course Description:

This course covers antibiotics and drug resistance, including mechanisms and trends, and explores biomedical waste management, focusing on segregation, treatment, and disposal. Emphasis is placed on antimicrobial stewardship and modern technologies for handling biomedical waste and ensuring environmental safety.

Course Objectives:

Students undergoing this course are expected to:

1. Understand the history, mechanisms, and types of antibiotic resistance.
2. Analyze trends in drug resistance and actions to combat it.
3. Evaluate the consequences of antibiotic resistance and implement antimicrobial stewardship.
4. Learn principles and practices of biomedical waste management and environmental safety.
5. Utilize modern technologies and personal protective equipment for effective biomedical waste handling.

UNIT-I **9 Hrs**

Antibiotics: Antibiotic Resistance, History of antibiotics, How resistance happens and spreads, Types of resistance- intrinsic, acquired, passive.

UNIT-II **9 Hrs**

Drug resistance - I: Trends in drug resistance, Actions to fight resistance, Bacterial persistence, Antibiotic sensitivity

UNIT-III **9 Hrs**

Drug resistance - II: Consequences of antibiotic resistance, Antimicrobial Stewardship – Barriers and opportunities, tools and models in hospitals.

UNIT-IV **9 Hrs**

Biomedical waste management and environmental safety - I: Definition of Biomedical, Waste, Waste minimization, BMW – Segregation, collection, transportation, treatment and disposal (including colour coding).

UNIT-V **9 Hrs**

Biomedical waste management and environmental safety- II: Liquid BMW, Radioactive waste, Metals / Chemicals / Drug waste, BMW Management & methods of disinfection, Modern Technology for Handling BMW, Use of Personal protective equipment (PPE), Monitoring & controlling cross-infection (Protective devices).

Course Outcomes:

At the end of this course, students should be able to:

1. Explain antibiotic resistance, its history, and mechanisms.
2. Analyse trends and strategies in drug resistance management.
3. Assess the consequences of antibiotic resistance and implement antimicrobial stewardship.
4. Understand principles and practices of biomedical waste management.

5. Apply modern technologies and PPE for effective biomedical waste handling and infection control.

Text Books:

1. "Antibiotics: Actions, Origins, Resistance" by Christopher Walsh
2. "Antimicrobial Stewardship: Principles and Practice" by Matthew Laundy, Lynda A. Sisson, and Matthew Dryden.

Reference Books:

1. "Biomedical Waste Management in Hospitals: A Manual for Health Professionals" by Sushrut S. N. H.

TAUT2209 BEHAVIOR CHANGE COMMUNICATION L T P C
3 0 0 3

Course Description:
This course introduces students to the fundamentals of behavioral theory, research and interventions in health education and promotion. The course will expose students to a wide range of theories, basic statistics and the use of open-source software in the analysis and evaluation of health aspects at the community level in a holistic manner. Furthermore, students will understand the concept of intersectoral and multidisciplinary coordination in order to improve data visualization in health education and promotion through the use of appropriate statistical tools.

Course Objectives:
1. To understand the behavioral, social and cultural factors associated with health and illness.
2. To explore factors that influence and barriers to practicing health behavior and changing poor health habits across age groups.
3. To understand the structure of society, the role of society and various types of communication and identify the role of society, community, health education and communication in health.
4. To describe the methods, models, tools and processes used in understanding health behavior change, health education and promotion.
5. To apply relevant social and behavioral theories to diagnose and understand individual, social network, organizational, community and policymaker behaviors associated with the planning, implementation, evaluation and maintenance of community-based primary health care programs.

UNIT-I 5 Hrs
Introduction to Social and Health Behavioral Health, Importance of social and behavioral factors in health, Historical perspectives on population and diseases.

UNIT-II 8 Hrs
Health behavior: role of behavior factors in disease and disorders, Health behavior, health habits, Illness behavior, Practicing and changing health behavior, Barrier to modify poor health behavior, intervening with children, adolescents, adults and at risk, social determinants of Health, Changing health habits.

UNIT-III 12 Hrs
Basic concepts of society, community, and family, Society: features and types, Concept of culture: characteristics, elements, variability, social institutions: marriage and family. Working with communities, Community: Definition, concept of community participation, Benefits of community participation, Health communication, Communication: Definition, scope and requirements, Types of communication, Components of communication, Communication stages, Common communication approach, Methods of communication, Characteristics of effective communication, Barriers of effective communication.

UNIT-IV 10 Hrs

Health Behavior Models, Social Epidemiology, Health belief model, Theory of planned behavior, Transtheoretical Model and change process, Social network theory, Diffusion of innovation, Social reaction to diseases, Comparative health cultures, Health disparities.

UNIT-V **10 Hrs**

Introduction Social network analysis, Basic of social network analysis, Introduction to open-source software and classification in health approaches,Introduction to Node XL software, Install, data visualize, data analysis and application among community level for policy-maker behaviors associated with the planning, implementation, evaluation, and maintenance of community-based health programs.

Course Outcomes:

End of the course completion student would be

1. Understand behavioral, social and cultural factors associated with health and illness.
2. Develop strategies to address barriers to practicing healthy behaviors and changing poor health habits across age groups.
3. Analyze the structure of society and various types of communication and identify the role of society, community, health education and communication in health.
4. Apply appropriate methods, models, tools and processes for understanding health behavior change, health education and promotion.
5. Utilize SNA tools, strategies and social and behavioral theories to diagnose and understand individual, social network, organizational, community and policymaker behaviors in community-based primary health care programs.

Text Books:

1. Essentials of health behavior: Social and behavioral theory in publichealthbyMarkEdberg(JonesandBartlettpublishers
2. Mahajan BK. Methods in Bio-statistics. Jaypee Brothers, Medical Publishers (p) Ltd., G16, EMCA House, 23/23B, Ansari Road, Daryaganj, Post Box: 7193, New Delhi 110 002, India, 1991. List Current Essential Reference

Reference Books:

1. FosterandAnderson:MedicalAnthropology,Wiley,NewYork
2. Anderson & Taylor, Sociology: Understanding a DiverseSociety.
3. Neubeck and Glasberg, Selected Material from Sociology: Diversity, Conflict, andChange.

TAUT2201A **DISABILITY MANAGEMENT** **L T P C**
3 0 0 3

Course Description:

Disability Management course is designed to provide students with an in-depth understanding of the strategies, practices, and policies essential for supporting individuals with disabilities in various settings. This course covers the principles and techniques of disability management, focusing on creating inclusive environments in the workplace, educational institutions, and the community.

Course Objectives:

1. Understand the social, medical, and legal aspects of disability.
2. Evaluate the impact of disability on individuals and society.
3. Analyze policies and regulations related to disability management.
4. Develop strategies for supporting individuals with disabilities in various contexts.
5. Promote inclusivity and diversity in the workplace and community.

UNIT-I Introduction to Disability Management **9 Hrs**

Definition and classification of disabilities**,** Historical perspectives on disability**,** Disability as a social construct**,** Medical aspects of Disability**,** Common medical conditions leading to disability**,** Assessing functional limitations and impairments

UNIT-II Social and Psychological Aspects of Disability **9 Hrs**

The impact of disability on quality of life, Stigma and discrimination, Coping and psychological adjustment to disability, Role of healthcare professionals in disability management, Psychological Interventions and Chronic Health Disorders; Therapies, Pharmacological Interventions, Individual Therapy, Relaxation, Stress Management and exercise, Social Support Interventions, Help on the Internet, Support Groups

UNIT-III Legal and Ethical Framework **9 Hrs**

Disability rights and legislation, Equal opportunity and anti-discrimination laws, Ethical considerations in disability management, Emerging technologies and their impact on disability management, the future of disability policy and practice

UNIT-IV Workplace Disability Management **9 Hrs**

Reasonable accommodation and the Americans with Disabilities Act (ADA), Return-to-work programs Workplace diversity and inclusion, Current Issues

UNIT-V Community and Public Health Approach **9 Hrs**

Community resources and services for individuals with disabilities, Accessibility and universal design Disability awareness and advocacy, Analysis of real-life cases in disability management, Developing disability management plans, Accommodation strategies and their implementation, Current Issues and Future Trends

Course Outcomes:

By the end of the course, the students would be able to;

1. Understand various aspects and causes of disability.

2. Get insight on the efficacy of interventions and therapies to deal disability.
3. Assess the ethical and legal consideration of disability.
4. Acknowledge the importance of ADA act and it implementation in workplace.
5. Know and participate in various community based disability programs.

Text Books:

1. Preventing chronic disease: a vital investment. WHO global report. Geneva, World Health Organization, 2005 (http://www.who.int/chp/chronic_disease_ report/en, accessed 15 May 2008).
2. Singh D. Transforming chronic care: evidence about improving care for people with long-term conditions. Birmingham, University of Birmingham, 2005.

Reference Books:

1. Chronic diseases [web site]. Geneva, World Health Organization, 2008 (http://www.who.int/topics/chronic_disease/en, accessed 15 May 2008).
2. National Center for Health Statistics definitions: health condition [web site]. Atlanta, UnitedStates Centers for Disease Control and Prevention, 2008.

TAUT2201B **DISASTER MANAGEMENT** **L T P C**
3 0 0 3

Course Description:

The Disaster Management course is designed to provide students with a comprehensive understanding of the principles, strategies, and practices essential for effectively managing disasters. This course explores the various types of natural and human-made disasters, their causes, impacts, and the processes involved in mitigating, preparing for, responding to, and recovering from such events.

CourseObjectives:

The main objectives of this course are to:

1. Toimpartknowledgeandconceptsofdisaster,disastermanagementanddisasterrisk reduction.
2. ToenhancethestudentsunderstandingonHazardVulnerabilityandRiskAnalysis
3. Todevelop positiveattitudetowards practical response todifferent stages of disaster
4. To management by adopting advance technology and sustainable development.
5. Toensuredisasterresponseskillsinassessment,analysis,interventionandevaluation inthe Practice of reducing disaster risk.

UNIT-I **9 Hrs**

ConceptsofDisasterandVulnerability

- Hazardsanddisasters-Concepts,vulnerabilityandrisks
- Hazardanddisastertype-Natural,Water-related,PandemicandHumaninducedhazardsanddisasters
- Causes and impacts of disasters- Impact onnatural eco-system;physical,psychological andsocial impact
- Disasterandfinancialresilience
- GISandRemoteSensing

Disastervulnerabilityprofileof India-Specifictogeographicalregionsandstates(asper regional significance).

UNIT-II **9 Hrs**

DisastersInterventionPractices

- DisasterManagementCycle-Rescue,relief,rehabilitation,reconstruction,prevention,mitigationand preparedness
- Disasterriskreduction(ORR)-communitybasedORR,Institutionsconcernedwithsafety,Disaster mitigation and construction techniques as per Indian Standard
- Earlywarningsystems
- TraumaandStressmanagement
- First-aidandemergency procedures

Awarenessgenerationstrategiesforthecommunityonsafepracticesindisaster(asperregio nal significance)

UNIT-III **9 Hrs**

DisasterManagement

Componentsofdisastersmanagement-Preparednessofrescue&relief,mitigation, rehabilitation & reconstruction

Institutionalframeworkofdisastermanagementin India(NDMA-SDMA-DDMA,NDRF,Civic volunteers, NIDM),
Phasesofdisasters/riskmanagementandpost-disasterresponses
Compensationandinsurance

UNIT-IV **9 Hrs**

Applicationsofremotesensing&GISindisastermanagement

- Capacitybuildingfordisaster/damagemitigation(structuralandnon-structuralmeasures).
- DisasterriskreductionstrategiesandNationalDisasterManagementGuidelines
- DisasterManagementAct-2005
- Regionalissuesasperregionalrequirement/ universitycantakeminimumtwotopicsasper High Powered Committee.

UNIT-V **9 Hrs**

Practicalexposurerequirements: Fieldwork/communityvisitandVulnerabilityMapping,Safecommunityplanningandimplementation,MockDrill/Regionalissuesasperregion/university

Course Outcomes:

Upon completionofthiscourse,thestudentwillbeableto:

1. Defineandanalysisfactorscontributingtodisasters,threatstodevelopment,lifeandnature
2. Demonstrate,andpracticedisasterriskreductionactivitiestowardssustainabledevelopment
3. Formulate,organize and assessdisasterriskreduction
4. Plan activitiesaccordingto the nature of disasters and factors of vulnerabilities
5. Able to mitigate disaster and educate communities

ModeofEvaluation: ContinuousAssessmentTest,Quizzes,Assignments,Multiplechoicequestionstest,fieldworkreport,projectreport.

Text Books:

1. “Disaster Management” by Harsh K. Gupta
2. “Disaster Management: Future Challenges and Opportunities” by Jagbir Singh

Reference Books:

1. Singh, R. (2017), "Disaster Management Guidelines for Earthquakes, Landslides, Avalanches and Tsunami". Horizon Press Publications
2. Taimpo (2016), "Disaster Management and Preparedness" CRC Press Publications
3. Nidhi, G.D. (2014), "Disaster Management Preparedness". CBS Publications Pvt. Ltd.
4. Gupta, A. K., Nair, S.S., Shiraz, A. and Dey, S.(2013), "Flood Disaster Risk Management- CBS Publications Pvt. Ltd.
5. Singh, R. (2016), "Disaster Management Guidelines for Natural Disasters" Oxford University Press Pvt. Ltd.

TAUT2201C HUMAN VALUES& PROFESSIONAL ETHICS L T P C
3 0 0 3

Course Description:

The Human Values and Professional Ethics course aims to explore the fundamental principles that underpin ethical behavior and moral reasoning. This course provides students with an understanding of core human values and ethical frameworks, fostering the development of personal integrity, social responsibility, and professional ethics. Through this course, students will engage with key philosophical theories, contemporary ethical issues, and the application of ethical principles in various contexts.

Course Objectives:

1. Understand the need, guidelines, content, and process for Value Education.
2. Understand the concept of harmony within oneself.
3. Understand the values in human relationships.
4. Understand the interconnectedness and mutual fulfillment among the four orders of nature.
5. Understand the implications of a holistic understanding of harmony on professional ethics.

UNIT-I **9 Hrs**

Introduction – Need, guidelines, content and process for Value Education Value Education

- Understanding the need, basic guidelines, content and process for Value Education
- Self-exploration what is it? Its content and process; "Natural acceptance" and Experiential Validation as the mechanism for self-exploration.

UNIT-II **9 Hrs**

Understanding harmony in the human being- Harmony in myself!

- Understanding human being as a coexistence of the sentient I and the material body
- Understanding the harmony of I with the body: Sanyam and Swasthya; correct appraisal of physical needs, meaning of prosperity in detail.

UNIT-III **9 Hrs**

Understanding harmony in the Family and Society- Harmony in Human relationship

- Understanding values in human –
- Human relationship; meaning of Nyaya and program for its fulfillment to ensure Ubhay-trupti; Trust (Vishwas) and Respect (Samman) as the foundational values of relationship
- Visualizing a universal harmonious order in society-Undivided Society (AkhandSamaj), Universal Order (SarvabhaumVyawastha) from family to world family.

UNIT-IV **9 Hrs**

Understanding Harmony in Nature; Coexistence

- Interconnectedness and mutual fulfillment among the four orders of nature- recyclability and self-regulation in nature.
- Holistic perception of harmony at all levels of existence.

UNIT-V **9 Hrs**

Implications of the above Holistic understanding of harmony on professional ethics

- Definitiveness of Ethical Human Conduct
- Basis for Humanistic Education, Humanistic Constitution and Humanistic Universal Order
- Competence in professional ethics
- Ability to utilize the professional competence for augmenting universal human order

Course Outcomes:

After the completion of this course, the learners will be able to:

1. Students will be able to explain the need, guidelines, content, and process for Value Education.
2. Students will demonstrate an understanding of the harmony within oneself, identifying the sentient self and the material body.
3. They will be capable of visualizing and explaining the concept of a universal harmonious order from the family level to the global level.
4. They will recognize and explain the importance of recyclability and self-regulation in nature, and develop a holistic view of harmony at all levels of existence.
5. They will be able to define and advocate for ethical human conduct in their professional lives.

Text Books:

1. "Value Education and Professional Ethics"** by R.S. Naagarazan
2. "Human Values and Professional Ethics"** by Rishabh Anand

Reference Books:

1. Mind and Body: Holistic Approach"byDr. V.K. Sharma
2. "Integrative Body-Mind Training"** by Yi-Yuan Tang
3. Understanding Harmony in the Family and Society
4. "Human Values and Professional Ethics"** by Jayashree Suresh
5. "Ethics in Engineering Practice and Research"** by Caroline Whitbeck

TAUT2201D INFECTION PREVENTION AND CONTROL **L T P C**
3 0 0 3

Course Description:
This course covers infection control principles, antibiotic resistance, and antimicrobial stewardship. Students will learn about sterilization, disinfection, hand hygiene, PPE, and managing drug resistance in healthcare settings.

Course Objectives:
Students undergoing this course are expected to:

1. Understand evidence-based infection control practices.
2. Learn prevention and control of healthcare-associated infections.
3. Analyse the history and mechanisms of antibiotic resistance.
4. Examine trends and actions to combat drug resistance.
5. Implement antimicrobial stewardship in hospitals.

UNIT-I **9 Hrs**
Evidence-based infection control principles and practices: Sterilization, Disinfection, Effective hand hygiene, Use of Personal Protective Equipment (PPE).

UNIT-II **9 Hrs**
Infection control: Prevention & control of common healthcare-associated infections, Components of an effective infection control program, Guidelines (NABH and JCI) for Hospital Infection Control.

UNIT-III **9 Hrs**
Antibiotics: Antibiotic Resistance, History of antibiotics, How resistance happens and spreads, Types of resistance- intrinsic, acquired, passive.

UNIT-IV **9 Hrs**
Drug resistance: Trends in drug resistance, Actions to fight resistance, Bacterial persistence, Antibiotic sensitivity.

UNIT-V **9 Hrs**
Consequences of antibiotic resistance,Antimicrobial Stewardship – Barriers and opportunities, tools and models in hospitals

Course Outcomes:
At the end of this course, students should be able to:

1. Apply effective infection control practices.
2. Prevent and manage healthcare-associated infections.
3. Explain the history and spread of antibiotic resistance.
4. Identify and combat drug resistance trends.
5. Implement antimicrobial stewardship strategies.

Text Books:

1. "Infection Prevention and Control: Theory and Practice for Healthcare Professionals" by

Debbie Weston

2. "Antibiotics: Actions, Origins, Resistance" by Christopher Walsh

Reference Books:

1. "Antimicrobial Stewardship: Principles and Practice" by Matthew Laundy, Lynda A. Sisson, and Matthew Dryden

TAUT2201E **NSS & YOUTH DEVELOPMENT** **L T P C**
3 0 0 3

Course Description:

The National Service Scheme (NSS) aims to develop students' personalities through community service and national integration. It encourages students to work towards societal development, fostering a sense of responsibility and civic duty. The program bridges academic learning and real-life experiences, promoting overall personal growth and social awareness among youth.

Course Objectives:

1. To explain the nature, functions and importance of NSS.
2. To explain the role of NSS in the context of youth, community and voluntary service.
3. To develop the necessary communication and soft skills.
4. To appreciate the importance of health, hygiene and sanitation for a healthy nation.
5. To develop the concept and skills of managing environment issues and disaster management.

UNIT-I **9 Hrs**

Youth Development Program in India and Role of Youth Leaders National Youth Policy; Youth Development Program at National Level, State Level, Volunteer Level; Youth centric and youth led organizations Role and Importance of youth leadership, Leadership capability and its development.

UNIT-II **9 Hrs**

Meaning type of leader, Qualities, Traits, Role, Importance of a Good Leader Social, psychologic factors affecting the youth.
Life Skills-Self-awareness, Empathy, Effective Communication, Decision Making; Role of Music and Art in Youth Development.

UNIT-III **9 Hrs**

Basic Features of the Indian Constitution consumer protection act right to Information; Child Protection Act, Problems of Aging: Problems Protection of Interests.

UNIT-IV **9 Hrs**

Side effects of modern lifestyle and their countermeasures Diet, exercise, sleep in Indian lifestyle; Collection, Utilization and Camp; Management of Camps; Biography of Swami Vivekananda.

UNIT-V **9 Hrs**

Field Work - Rural visit- campaign- rally- Competitions.

Course Outcomes:

After the completion of this course, the learners will be able to:

1. Explain the role and functions of NSS.

2. Appraise the role of NSS volunteers in developing the society as a whole.
3. Develop the necessary skills of effective communication, leadership and healthy living.
4. Develop the necessary skills to mitigate disasters and other environmental challenges.
5. Develop consciousness about personal health and hygiene.

Text Books:

1. Communication Skills by N Rao & R P Das (HPH)
2. Biodiversity, Environment & Disaster Management by Shamna Hussain (Unique Publishers)

Reference Books:

1. NSS Manual published by the Ministry of Youth Affairs & Sports, Govt. of India
2. National Youth Policy Document
3. National Service Scheme - A Youth Volunteers Programme For Under Graduate Students as Per UGC Guidelines by J D S Panwar, A K Jain & B K Rathi (Astral)
4. Environmental Studies by P K Pandey (Mahaveer Publications)

BPTT2501 **EXERCISE THERAPY-I** **L T P C**

3 0 4 5

Course Description:

In this course the student will learn the principles, technique and effect of exercise as a therapeutic modality in the restoration of physical function.

Course Objectives:

1: In this course the student will learn the principlesof exercises as a therapeutic modality in the restoration of physical function.

2. In this course the student will learn the technique of exercises as a therapeutic modality in the restoration of physical function.

3.In this course the student will learn the effect of exercisesas a therapeutic modality in the restoration of physical function.

4.The student will be able to list the indications and contraindicationsOf various types of exercise therapy

5.The student will be able to demonstrate the different techniques and describe their effects.

UNIT-I **10hours**

A.MECHANICS: Define the following terms and describe the principles involved with suitable examples.

i. Force: Composition of force, Parallelogram of forces.

ii. Equilibrium:Stable,unstable,neutral.

iii. Gravity: Centre o gravity, Line of gravity.

iv. Levers:1st, 2nd and3rdorder.Their examples in the human body and their practical Application in physiotherapy, Forces applied to the body levers.

v. Pulleys:Fixed,Movable

vi. Springs;Series,Parallel.

vii. Tension.

viii. Elasticity:Hookslaw.

ix. Axis:Sagittal,Frontal,And Horizontal.

x. Planes:Sagittal,Frontal,Horizontal

xi. Definitions of: Speed, Velocity, Work, Energy, Power, Acceleration, Momentum, Friction and Inertia.

II. MUSCLEACTION:

i. Muscle work: Isotonic (concentric, eccentric), isometric(static)

ii. Group actions: Agonists (prime movers), antagonists, synergists, fixators

iii. Angle of muscle pull, mechanical efficiency of the muscles

UNIT-II **16hours**

MOVEMENTS:

Explain the following terms with suitable examples:

i. Anatomic movements: Flexion, Extension, Abduction, Inversion, Eversion, Supination, Pronation, Internal rotation, External rotation, Gross flexion, Gross extension, Trunk side flexion.

ii. Surface anatomy of the individual joints.

Iii.Rhythm of movement.

Iv. Timing of movement.

v. Duration of movement

vi. Classification of movement: Active, Passive.

vii. Effects of exercise: Physiological effects, Therapeutic effects.

viii. List the indications and contraindications of the following and demonstrate the technique for each:

a. Active movements:

Voluntary(free, active assisted,assistedresisted,resisted),

Involuntary (associated, reflex, peristaltic/visceral, cardiac).

b. Passivemovements:

Relaxed passive, mobilizing passive (forced P.M.

Manipulations, serial manipulations), passive stretching.

PASSIVEMOVEMENTS:

I. Describe the types, techniques, indications and contraindications, physiological Effects and passive movements of joints.

ii. Demonstrate passive stretching of following muscles/muscle groups of each upper limit and describe the indications, contraindications, physiological effects, advantages and disadvantages: pectoralis major, biceps brachii, triceps brachii, long flexors of the fingers.

iii. Lower limb: rectus femoris, iliotibial band (tensorfascialata)gastrocnemius, soleus, hamstrings, hip adductors, iliopsoas.

iv. Neck: Sternocleidomastoid mastoid

UNIT-III **16 hours**

MUSCLEGRADING:

I. Describe the types of muscle grading, key to muscle grading, techniques of muscle testing.

ii. Demonstrate the skill to grade the individual and group muscles of upper and lower limb, neck and trunk muscles

RE-EDUCATIONOFMUSCLES:

i. Describe the term re-education of muscles and the techniques, spatial summation and temporal summation.

ii. Demonstrate the various re-education techniques and facilitating methods for Various groups of muscles.

iii. Demonstrate the progressive exercises in strengthening by using various applications:(according to their muscle power) Grade-I to Grade-IV.

iv. Functional re-education—Mat exercises

PROGRESSIVERESISTANCEEXERCISE:

i. Describe the following exercises, their advantages and disadvantages and demonstrate the techniques of the following types of PREs: Fractional System,

Macqueen's set system, McQueen's power system.

ii. Demonstrate practically each system using: Delorme's boot, dumbbells, sand bags in pulleys, powder board and suspension therapy.

UNIT- IV: **10 hours**

ACTIVEMOVEMENTS:

i. Describe the types, techniques, indications and contraindications, physiological effects, advantages and disadvantages of active movements for the following muscle groups: Shoulder abductors, shoulder forward flexors, Triceps brachii, hip

Abductors, hip flexors, quadriceps femoris abdominal muscles, back extensors.

ii. Describe the home programme for strengthening neck muscles and back extensors

GONIOMETRY:

i. Describe the normal range of various joints. Describe goniometer, range of

Measuring systems (180), foot, trunk and head, techniques of goniometer.

ii. Demonstrate measuring of individual joint range using goniometer.

iii. Demonstrate measurement of limb girth (using measuring tape): arm, forearm, thigh, calf.

UNIT-V **8hours**

RELAXATION:

i. Describe: Relaxation,Musclefatigue,Muscle spasm.

ii. Describe: General causes, signs and symptoms of tension (mental and physical)

iii. Factors contributing to fatigue, types of relaxation (local and general),

Indications of relaxation, techniques of relaxation.

iv. Breathing exercises-different types

v. Demonstrate the techniques of relaxation (local and general

COMPLICATION OF BED REST:

i. Describe the complications of patients on prolonged bed rest.

ii. Burgers exercises

iii. Demonstrate maintenance exercises for patients on prolonged bed rest

Course Outcomes:

After the completion of the course the student can able to

1: Understand the various types of muscle action

2. Gain knowledge about active ,passive movements and passive stretching.

3. Understand the concepts of Muscle grading and how to re-educate the muscles

4.The student will be able Demonstrate measuring of individual joint range using goniometer

5. Demonstrate the techniques of relaxation and maintenance exercises for patients on prolonged bed rest

Text books:

1. Principles of Exercise Therapy—Dena Gardener.

2. Practical Exercise Therapy—Hollis.

3. Therapeutic Exercise foundation &techniques—Kisner.

Reference books:

1. Muscle testing and function-F.Kendal.

2. Muscle testing- Danial & Worthing hams.

3. Measurement of joint motion—a guide to Goniometry-Cynthia Norkin.

4. Therapeutic Exercise foundation and techniques-Carolyn Kisner.

5. Text Book of Therapeutic Exercise-S. Lakshmi Narayana.

6.Fundamentals of Physiotherapy-Kumar

7. Principle of Exercise Testing and Interpretation-Kalrlman Wasswerman.

8. Exercise Therapy-Prevention and Treatment of disease-John Gormly.

9. Manual of massage and measurement—Edith. M.Prosser.

10. Massage for therapists—Margaret Hollis.

11. Principal and practice of Therapeutic Massage-Akhoury Gourang Sinha.

12.Hand book of Clinical Massage-Mario-Paul—Cassar.

BPTT2502 **BIOMECHANICS** **LT P C**

4 0 4 6

Course Description:

This course supplements the knowledge of anatomy and enables the student to have a better understanding of the principles of biomechanics and their application in musculoskeletal function and dysfunction

CourseObjectives:

1: This course supplements the knowledge of anatomy and enables the student to have a better understanding of the principles of biomechanics and their application in Musculoskeletal function and dysfunction.

2: student will be able to demonstrate an understanding of the principles of Biomechanics and Kinesiology and their application in health and disease.

3.Student will be able to understand the joint structure and function

4.Understand the axis and plane of motion for any given motion at a specific joint

5.understand the muscle structure and function

UNIT-I **10 hours**

A. MECHANICS:

1. Describe the types of motion, planes of motion, direction of motion and quantity of motion.

2.Define forces, force vectors,componentsofforces.

3. Describe gravity, segmental centres of gravity, centre of gravity of the human body, stability and centre of gravity, relocation of the centre of gravity.

4. Describe Reactionforces, Newton's lawofreaction.

5. Describe equilibrium—Law of inertia and establishing equilibrium of an object.

6. Describe objects in motion: Law of acceleration, joint distraction in a linear force system and force of friction.

7.Describe concurrent force system: Composition of forces, Muscle action lines, total muscle force vector, divergent muscle pulls, and anatomic pulleys.

8. Describe parallel force systems: -First class levers, second class levers, third class levers, torque, and mechanical advantage.

9.Define moment arm: Moment arm of a muscle force, moment arm of gravity and anatomic pulleys.

10. Describeequilibriumoflever.

B. JOINT STRUCTURE AND FUNCTION: Describe the basic principles of joint design and a human joint.

2Describe the tissues present in human joints including dense fibrous tissue, bone, cartilage and connective tissue.

3. Classify joints, synarthrosis, amphiarthrosis, diarthrosis, sub classification of synovial joints.

4. Describe joint function, kinematic chains, rangeofmotion.

5. Describe the general effects of injury and disease.

C.MUSCLE STRUCTURE AND FUNCTION:

1. Describe mobility and stability functions of muscles.

2. Describe elements of muscle structure, compositions of muscle fiber, the motor unit, and types of muscle fibers, muscle fiber size, arrangement and number, muscle tension, length-tension relationship.

3. Describe types of muscle contraction, speed and angular velocity, applied load, voluntary control, torque & isokinetic exercise.

4. Summarize factors affecting muscle tension.

5. Classify muscles: spurt and shunt muscles, tonic andphasic muscles.

6. Factors affecting muscle function: Type of joint and location of muscle attachment, number of joints, passive insufficiency, sensory receptors.

UNIT-II12 hours

A.THE VERTEBRAL COLUMN:

1.Articulations, ligaments and muscles, typical vertebra,

Intervertebral disc.

2.Describe factors affecting stability and motility

3. Regional structure and functions of cervical, dorsal, lumbar and sacral vertebrae.

4. Describe the muscles of the vertebral column—flexors, extensors, rotators and Lateral flexors.

5. 5.Describe the effects of injury and developmental deficits.

Describethefollowing:

1. The curves of the vertebral column using appropriate terminology.

2. The articulations of the vertebral column.

3. The major ligaments of the vertebral column.

4. The structural components of typical and a typical vertebra.

5. The intervertebral disc.

6. Regional characteristics of vertebral structure.

7. Motions of the vertebral column.

8. Lumbar pelvic rhythm.

9. Rotation of the vertebrae in each region.

1. Movements of the ribs during rotation.

B. POSTURE:

-Describe the effects of gravity and indicate the

Location of the gravity line in the sagittal plane in optimal Posture.

-Analyse the posture with respect to theoptimalalignmentofjointsintheantero-posteriorandlateralviews.

Describe:

1. The position of the hip, knee and ankle joints in optimal erect posture.

2. The position of body's gravity line in optimal erect posture using appropriate points of Reference.

3. The effects of gravitational movements on body segments in optimal erect posture.

4. The gravitational movements acting around the vertebral column, pelvis, hip, knee and Ankle in optimal erect posture.

5. Muscles and ligamentous structures that counter balance gravitational movements in Optimal erect posture.

6. The following postural deviations: Pesplanus, hallux valgus, pescavus, idiopathic scoliosis, kyphosis and lordosis.

7. The effects of above postural deviations on the body structures i.e., ligaments, joints and muscles.

D.MECHANICS OF RESPIRATION:

1. Describe the work of breathing.

2. Movements of breathing.

3. Respiratorymuscles.

4. Complianceoflungs&chestwall.

UNIT-III **15hours**

A.THE SHOULDER COMPLEX:

1. Describe the structural components of the shoulder complex including the articulating surfaces, capsular attachments and ligaments and movements of the :

i)Sternoclavicular

ii)Acromioclavicular

iii)Scapulothoracic

IV) Glenohumeral.

2. Describe the function of the shoulder complex including dynamic stability of the glenohumeral joint, Musculo humeral rhythm, scapula thoracic and gleno humeral contributions.

3. Describe the muscles of elevation (Deltoid, Supraspinatus, Infraspinatus, Teres minor, Subscapularis, Upper Trapezius, lower Trapezius, Serratus anterior, and Middle Trapezius & Rhomboids).

4. Describe the muscles of depression, Latissimus dorsi, Pectoralis, Teres Major, Rhomboids).

B.THE ELBOW COMPLEX:

1. Describe the structure of the Humeroulnar and Humeroradial joints including articulating surfaces, joint capsule, ligaments & muscles.

2. Describe the function of the Humero ulnar and Humero radial joints including the Axis of motion, Range of motion, Muscle action.

3. Describe the structure of the superior and inferior radioulnar joints.

4.Describe the function of the superior and inferior radioulnarjoints.

5. Describe the mobility and stability of the elbow complex and its relationship to hand and wrist.

6. Describe the effects of injury and the resistance to longitudinal compression forces, to distraction forces and to medial-lateral forces.

C.THE WRIST AND HAND COMPLEX:

1. Describe the wrist complex including radiocarpal joint, mid carpal joint and the ligaments of the wrist complex.

2. Describe the function of the radio carpal and midcarpal joints including the movements and muscles involved.

3. Describe the hand complex including: structure of (Carpo metacarpal, Metacarpophalangeal and Interphalangeal joints of fingers, ligaments, range of motion.

4. Describe the finger musculature including extrinsic, MCP and intrinsic muscles.

5. Describe the structure of the Carpometacarpal, MCP and IP joints of thumb.

6. Describe the structure of the extrinsic& intrinsic muscles of thumb.

7. Describe prehension, power,cylindrical,spherical& hook grips.

8. Describe precision handling, pad to pad, tip to tip and pad to side prehension and functional position of wrist and hand.

UNIT-IV **15 hours**

A.HIP COMPLEX:

1.Describe the general features of the hip joint including articulating surface of the Pelvis & the femur; angulations ;angle of torsion; internal architecture of hip and Pelvis; joint capsule. Ligaments & muscles (flexors, extensors, one joint extensors, Two joint extensors, adductors, rotators and lateral rotators).

2.Describe the function of hip—rotation between pelvis, spine and hip; Pelvic motion—anterior and posterior pelvic, lumbar pelvic rhythm, lateral pelvic tilting, and pelvic rhythm.

3. Summarize the pelvic motions in the static erect posture.

4.Describe femoral motion.

5. Describe hip stability in erect bilateral stance, sagittal equilibrium and unilateral stance.

6. Describe reduction of forces and abnormalities with weight shifting and cane and Deviations from normal in muscular weakness.

Describe the following:

1. The articulating surfaces of the pelvis and femur.

2. The structure and function of the trabecular systems of pelvis and femur.

3. The structure and function of the ligaments of the hip.

4. The angle of inclination and the angle of torsion.

5. The planes and axes of the following pelvic motions and the accompanying motions at the lumbar spine and hip joints, pelvic rotation, and anterior, posterior and lateral tilting Of the pelvis.

6. The muscle activity that produces tilting and rotation of the pelvis.

7. Motions of the femur on the pelvis including planes and axes of motion.

8. The structure and function of all the muscles associated with the hip joint.

9. The forces that act on the head of femur.

10.The position of greatest stability at the hip

B.THE KNEE COMPLEX:

1.Describe the structures of the tibiofemoral joint, articulating surfaces on femur and tibia, the menisci, joint capsule and bursae, ligaments and other supporting structures, anterior, posterior, medial and lateral stability muscles involved; knee flexors &extensors: axes of knee complex: mechanical axis, anatomic axis and axis of motion.

2. Describe the functions of the tibiofemoral joint: range of motion: flexion, extension, rotation, abduction, adduction, locking and unlocking; function of menisci and muscle function.

3. Describe the structure of the patella femoral joint.

4. Describe the function of the patella femoral joint.

5. Describe the effects of injury and disease of the tibiofemoral and patella femoral joints.

Describe the following:-

1. The articulating surfaces of tibiofemoral and patellofemoral joints.

2. The joint capsule.

3. The anatomic and mechanical axes of knee.

4. Motion of the femoral condyles during flexion and extension in a closed kinematic chain.

5. Motion of the tibia in flexion and extension in an open kinematic chain.

THE ANKLE FOOT COMPLEX:

1. Describe the structure, ligaments, axis and function of the following :

Ankle joint, tibiofibular joints, subtalar joints, Talocalcaneal navicular joints, transverse tarsal joint .Tarsometatarsal joint, Plantar arches, metatarsophalangeal joints, Interphalangeal joints.

2.Describe the terminology unique to the ankle foot complex, including inversion, eversion ,pronation, supination, dorsi flexion, plantar flexion, flexion, extension, adduction and abduction.

Describe:

1. The compound articulations of the ankle, subtalar, talocalcaneonavicular, transverse tarsal and tarsometatarsal joint.

2. The role of the tibiofibular joints and supporting ligaments.

3. The degrees of freedom and range of motion available at the joints of the ankle and the foot.

4. The significant ligaments that support the ankle, subtalar and transverse tarsal joints.

5. The Tri planar nature of ankle joint motion.

6. The articular movements that occur in the weight-bearing subtalar joint during inversion-eversion.

7. The relationship between tibial rotation and subtalar/ talocalcaneonavicular inversion-eversion.

8. The relationship between hind foot inversion—eversion and motility-stability of the transverse tarsal joint.

9. The functions of the tarsometatarsal joints, including when, motion at these joints is called upon.

10. Supination—pronation of the fore foot at the tarsometatarsal joints.

11. Distribution of weight with in the foot.

12. The structure and function of the plantar arches including the primary supporting structure.

13. Muscles supplementing plantar arch.

14. The effects of toe extension on the plantar arch.

15. The general function of the extrinsic muscles of ankle & foot.

16. The general function of the intrinsic muscles of foot.

UNIT-V8hours

A. TEMPOROMANDIBULAR JOINT:(TMJ)

1.Introduction

2. General features

3.Structure & articulation

4.Function/dysfunction

GAIT

1. The stance, swing and double support phases of gait.

2.The time and distance parameters of gait.

Describe:

1. Joint motion at the hip, knee and ankle for one extremity during a gait cycle.

2. The location of line of gravity in relation to the hip, knee and ankle during the stance phases of gait.

3. The gravitational movements of force acting at the hip, knee and ankle during the stance phase.

Course Outcomes:

1.Gain knowledge about the types of motion, planes of motion, direction of motion and quantity of motion and types of forces

2.Understand the basicprinciplesofjointdesignandahumanjoint.

3.Understand the various types of muscles and factorsaffectingmuscletension

4.learn to Analyse the posture with respect to theoptimalalignmentofjoints in the antero-posteriorandlateralviews.

5.Understand the mechanics of respiration.

Textbooks :

1. Text Book of Biomechanics—Cynthia Norkin

Reference Books:

1. The Physiology of the joints (VolumeI,II,III)-IAKapandji.

2.Clinical Kinesiology and Anatomy-Lynn.S.Lippert

BPTT2503 LOW AND MEDIUM FREQUENCY L T P C

3 0 4 5

Course Description:

This course supplements the knowledge of various low frequency currents and the modalities and enables the student to have a better understanding of the principles of working of the low frequency currents using modalities and their therapeutic application in musculoskeletal and neurological dysfunction

Course Objectives:

1: In this course the student will learn the principles, technique of application of low frequency currents

2.Learn the therapeutic effect of modality in the restoration of physical function.

3.The student will be able to list out the indications and contraindications

Of various Low and Medium Frequency currents

4: The student will be able to demonstrate the different techniques and describe the physiological and therapeutic effects of Low and Medium Frequency currents

5.Gain knowledge about the modalities in re-education of muscle function in peripheral nerve injuries.

UNIT-I **9hours**

BASICPHYSICS

A. STATIC ELECTRICITY

1.Structure of matter

2.Structure of atom

3.Theories of electricity

4.Production of electrical charge

5.Characters of charged body

6.Potential and capacity

B. CURRENT ELECTRICITY

1.Electric current

2.Resistances: series andparallel

3.Regulation of intensity

4.Electrical energy and power

5.Thermal effect and electric current

C.CHEMICAL EFFECTS OF CURRENTS

1.Ions and compounds

D.MAGNETISM AND METERS:

1.Nature of magnets

2.Magnetic effect of an electric current

3.Moving coil milli ammeter

4.Voltmeter

E. ELECTROMAGNETIC INDUCTION

1.Principles

2.Static transformers

F. CONDENSER

1.Potential and capacity

2.Capacitor and construction

3.Electricfield

G.MAINSUPPLY

1.Production

2.Wiring of houses

UNIT-II **10 hours**

LOW FREQUENCY

A. DC FOR TREATMENT

1.Cellbattery

2.RectificationofAC

3.DCfortreatment

4.Careofapparatus

5.Surging

B. MODIFIED DC

1.ModificationofDC

2.Therapeuticeffects

3.Methodsandtechniques

4.Methodsofapplication

C.CONSTANTDC

1.Therapeuticeffects

2.Cathodalandanodalgalvanism

3.Technique

D.IONISATION

1.Theories

2.Effects

3.Techniques

4. Surgicalionization.

E. ELECTRIC SHOCK

1.Causes

2.Earthshock

3.Burns-electrical,chemical

4.Preventionsandmanagement

UNIT-III **10 hours**

A. FARADIC AND SINUSOIDAL APPARATUS

1.Faradic current and coils

2.Sinusoidal currents

B. FARADIC AND SINUSOIDAL CURRENTS

1.Physiological and therapeutic effects

2.Technique

C.ELECTRICAL STIMULATION OF NERVE AND MUSCLE

1.Muscle contraction

2.Duration of stimulus

3.Frequency

UNIT-IV **8 hours**

ELECTRICAL REACTIONS

1.Changes in electrical reactions

2.FGtest

3.SDcurve

4.EMG, NCV

ELECTROANALGESIA

1.Pain—definition

2.Acute/chronicpain

3. Theories of pain: specificity, summation, pattern theories.

4.Pain gate mechanism

5.Descending pain suppression mechanism

6.TENS

7.Types of TENS

8.Parameters

9.Dosage

10.Indications

11.Contraindications

12.Dangers

UNIT-V **8 hours**

MEDIUM FREQUENCY

A. Types of Medium frequency currents and characteristics of different medium

Frequency currents (amplitude, duration and frequency)

B. Interferential Therapy

1.Introduction

2.Principles

3.Physiological effects

4.Indications

5.Contraindications

6.Dosage

7.Methods of applications

8.Dangers

Course Outcomes:

1. In this course the student will learn the principles, technique of application of low frequency currents

2.Learn the therapeutic effect of modality in the restoration of physical function.

3.The student will be able to list out the indications and contraindications

Of various Low and Medium Frequency currents

4.The student will be able to demonstrate the different techniques and describe the physiological and therapeutic effects of Low and Medium Frequency currents

5.Gain knowledge about the modalities in re-education of muscle function in peripheral nerve injuries.

Text books:

1. ClaytonsElectrotherapy.

2.EletrotherapyExplained-LowandReed

3. BasicsofElectrotherapy-SubhashKhatri

Reference books:

1. ElectrotherapyExplained—Joseph Kahn.

2. Electrotherapy-S.Kitchen.

3.Text book of electrotherapy-Jagmohan singh

IV SEMESTER

BPTT2504 **PATHOLOGY** **L T P C**

2 0 0 2

Course Description:

This course will provide the knowledge of pathological changes that occurs in common diseases.

Course Objectives:

1: The student will be able to demonstrate an understanding of thePathology of common diseases that therapists would encounter intheir daily practice.

2: The course will also help therapists understand how to protect themselves and their patients from nosocomial infections during their interactions

3.Provides accurate disease diagnoses, guides Student effective physiotherapy treatment plan and contributes to preventive measures for common diseases

4.student will learn microscopic and macroscopic pathological changes of the diseases.

5.Pathology offering vital insights into the roots and remedies of musculoskeletal, neurological and cardiorespiratory conditions.

UNIT-I **5 hours**

Introduction:

1. Concepts of disease, classification.

2. Bacterial, viral and parasitic infections-a general outline.

3. Inflammation and repair; Degeneration, necrosis and gangrene.

4.Haemorrhage shock, embolism, thrombosis

UNIT-II **3 hours**

1.Deficiency diseases

2.Tumours: Aetiology &spread . Common tumours

3.Urinary system

UNIT-III **5 hours**

1.Tuberculosis, Leprosy, Typhoid

2.Skin: Leprosy

3.Scleroderma and Psoriasis

UNIT-IV **8 hours**

1.Respiratory system: Pneumonias, Bronchiectasis, Emphysema, Chronic bronchitis, Asthma

2.Blood: Anemia, Heart and blood vessels, common congenital anomalies, Rheumatic&Coronary heart diseases

UNIT-V **9 hours**

1. Bone and joints: Autoimmune diseases, septic arthritis, Osteomyelitis,

2.Rheumatoid Arthritis.

3. Volkmann'sIschemia

4.. Diseases of muscle including Poliomyelitis, Myopathies

5.Central nervous system: CNS infections, vascular disorders.

Course Outcomes:

1: The student will be able to demonstrate an understanding of the Pathology of common diseases that therapists would encounter in their daily practice.

2: The course will also help therapists understand how to protect themselves and their patients from nosocomial infections during their interactions

3.Provides accurate disease diagnoses, guides Student effective physiotherapy treatment plan and contributes to preventive measures for common diseases

4.student will learn microscopic and macroscopic pathological changes of the diseases.

5.Pathology offering vital insights into the roots and remedies of musculoskeletal, neurological and cardiorespiratory conditions

Text books:

1.Essential Pathology for physiotherapy students - Mohan

2.Text Book of Pathology-Robbins.

Reference books:

1.Text Book of Pathology-William Boyd.

BPTT2505 **MICRBIOLOGY** **L T P C**

2 0 0 2

Course Description:

This course will provide the knowledge of micro-organisms that causes common diseases.

Course Objectives:

1: The student will be learning theMicro-organisms causing common diseases that therapist would encounter in their daily practice.

2: The course will also help therapists understand how to protect themselves and their patients from nosocomial infections during their interactions

3.Student will gain the knowledge about Hospital acquired infections.

4.Learn basic methods of sterilization.

5.Acquire knowledge of common immunological disorders and their resultant effects on the human body.

UNIT-I **8hours**

General Microbiology:

a. History

classification of Microorganisms, morphology of Bacteria, Viruses and Fungi.

c. Important virulence factors of Bacteria

d.Sterilization and Disinfection

e. Antibacterial, antifungal and antiviral agents.

f. Infection types, Source, transmission, spread

UNIT-II **5 hours**

Fundamentals of immunology:

A . Innate and Acquired Immunity

b.Antigen,Antibody

c. Immune Response

d. Hypersensitivity Reactions

UNIT-III **6 hours**

Pathogenesis, Disease spectrum, management and prevention of :(Emphasis on Bacterial and Viral infections)

a. Respiratory tract Infections:

b. Tuberculosis and Leprosy

UNIT-IV **6hours**

Pathogenesis, Disease spectrum, management and prevention of :(Emphasis on Bacterial and Viral infections)

a. CNS infections: Meningitis, Encephalitis, Poliomyelitis

b. GIT infections: (with additional emphasis on important parasitic diseases, Hepatitis viruses)

c. Blood stream infections

UNIT-V **5hours**

Pathogenesis, Disease spectrum, management and prevention of :(Emphasis on Bacterial and Viral infections)

a. Genitourinary infections: Urinary tract infections, sexually transmitted Infections

Wound infections and anaerobic infections

b. Hospital acquired infections: Types, causes and prevention stream

Course Outcomes:

1: The student will be learning the Micro-organisms causing common diseases that therapist would encounter in their daily practice.

2: The course will also help therapists understand how to protect themselves and their patients from nosocomial infections during their interactions

3.Student will gain the knowledge about Hospital acquired infections.

4.Learn basic methods of sterilization.

5.Acquire knowledge of common immunological disorders and their resultant effects on the human body.

Text books:

1.TextBookofMicrobiology-Anantanarayan
2.TextBook of Microbiology-Baweja

Reference books:

1.EssentialsofMedicalMicrobiology-RajeshBhatia-RattanLalIcchpujani.

BPTT2501 EXERCISE THERAPY-II L T P C

3 0 4 5

Course Description:

In this course the student will learn the principles, technique and effect of exercise as a therapeutic modality in the restoration of physical function.

Course Objectives:

1: In this course the student will learn the principles of exercises as a therapeutic modality in the restoration of physical function.

2. In this course the student will learn the technique of exercises as a therapeutic modality in the restoration of physical function.

3. In this course the student will learn the effect of exercises as a therapeutic modality in the restoration of physical function.

4.The student will be able to list the indications and contraindications Of various types of exercise therapy

5. The student will be able to demonstrate the different techniques and describe their effects

UNIT-I 8 hours

A.SUSPENSIONTHERAPY:

I. Describe the basic principle of simple pendulum and pendular movement.

ii. Describe the type of suspension: Pendular, axial, eccentric fixation (anterior, posterior, medial & lateral).

iii. Explain the indications and technique for each type of suspension.

Iv . Demonstrate axial and eccentric fixation for mobilizing, strengthening and reeducation of various muscles and joint

B.HYDROTHERAPY:i. Describe Hydrostatic pressure, upward thrust of water buoyancy.

ii. List the indications and contra-indications for hydrotherapy.

iii. Describe the dress of patients and the therapist and necessary hydrotherapy equipment.

iv. Types of hydrotherapy: Sterile pool contrast bath, whirl pool bath, hubbard tank.

v. Construction of hydrotherapy tank: Design of construction, safety features, cleaning the pool, water heating systems, hygiene of patient and pool.

UNIT-II **8 hours**

A. PELVICTILT:

Describe the following:

i. Normal pelvic tilts, alterations from normal: anterior tilt (forward), posterior tilt (back ward) lateral tilt.

ii. Muscles responsible for alterations and pelvic rotation.

iii. Identification of normal pelvic tilts, pelvic rotation and altered tilts and their corrective measures.

B. STARTING POSITIONS:

I. Describe the following starting positions, their muscle work effects and uses.

ii. Specify the importance and derived positions for each one.

Standing,kneeling, sitting,lying,hanging

C.POSTURE:

i. Describe the following: Posture (static and dynamic),Definition of good posture,Muscles responsible for good posture. Postural mechanisms, Definition of Abnormal posture (Kyphosis, Scoliosis, Lordosis, Kypho-scoliosis, Kypholordosis),

ii. Assessment of posture (inspection, Scoliosis, Lordosis, Kypho-scoliosis, Kypholordosis),

iii. Assessment of posture(inspection, measurement—length of legs, width of pelvis, plumb line—R.O.M.o f trunk in flexion, extension ,side flexion and

rotation.

iii. Describe and demonstrate postural correction by: Strengthening of muscles, Mobilization of trunk, Relaxation. Active correction of the deformities, passive Correction(traction), postural awareness, abdominals and back extensors.

iv. Outline principles in bracing of the trunk and surgical correction.

v. Demonstrate practically: Identification of abnormal posture, and postural corrective measures.

UNIT-III **7 hours**

A.JOINTMOBILITY:

Describe the following:

i. Joint ranges (outer range ,middle range, inner range),individual joint structures, joint movements (anatomic, accessory), causes of joint range limitations, prevention of joint stiffness,positioning (physiological resting position).

ii. Passive range of movement, methods of relaxation, active exercises, manual mobilization techniques.

iii.Forcedpassivemovements:smallamplitudes,largeamplitudes.

iv. Muscle strengthening techniques (PNF):Hold-relax, slow reversal, rhythmic stabilization, repeated contractions.

v. Accessory movements: Posterior, anterior, superior and inferior glide, traction and approximation.

vi. Indications and contra-indications for mobilization of individual joints; demonstrate practically the various mobilization techniques for individual joints and teaching home programme

B. COORDINATION:

Define balance (static and dynamic)

Explain the mechanism of neuromuscular co-ordination.

Describe the in coordination due to: Lower motor neuron lesions(flaccidity) Upper motor neuron lesions (spasticity) Cerebellar lesions, Loss of kinesthetic sense (tabes dorsalis, syringomyelia, and leprosy), Imbalance due to muscular disease.

Describe re-education of balance.

Describe re-education of co-ordination: Frenkel's exercises, proprioceptive neuromuscular facilitation (PNF)techniques.

Demonstrate the re-education techniques ofbalance and coordination

UNIT-IV **10hours**

A.GAIT:

i. Define gait and center of gravity of the human body.

ii. Describe muscles responsible for normal gait, six determinants of gait (pelvic rotation, pelvic tilt, hip flexion, lateral displacement of pelvis, knee flexion, instance phase, normal foot pattern during walking).

iii. Describe the walking cycle: Stance (heel strike, foot flat, midstance, and foot off), Swing (acceleration, midswing and deacceleration).

iv. Describe the following pathological gaits: Gluteus medius Gait, Gluteus maximus gait, Hip flexor weakness gait, Quadriceps weakness gait, Foot drop gait, Hemiplegic gait, Ataxic waddling gait, Equinus gait, Calcaneus gait, Equino varus gait.

v. Demonstrate skill in identifying pathological gait and proper gait training.

B. CRUTCH WALKING:

i. Describe the following:

a. Components of a crutch,

b. Types or classification of crutches

c. Characters of good crutch

d. Preparing a patient for crutch walking

e. Crutch walking muscles,

f. Measurement of crutches (axillary piece, handpiece),

g. Crutch stance, crutch palsy,

h. Types of crutch walking (4point,3point,3point (non-weight bearing and partial weight bearing), modified 3point (paraplegic and shuffling gait, swing to and swing through)

ii. Demonstrate crutch measurement

(sitting, standing and lying positions) and various types of crutch walking (even ground, stairs and ramps

UNIT-V **12hours**

A. Soft Tissue Manipulation:

i. History of massage.

ii. Mechanical points to be considered

iii. Points to be considered while giving massage

a. Manipulations.

b. The time of the day for treatment.

c. The comfort and support of the patient (draping and positioning)

d. Position of operator (therapists' stance)

e. Using body weight

f. Contact and continuity

g. Techniques, indications and contra—indications.

iv. Physiological effects of massage on various systems of body.

Effects on: Excretory system, Circulatory system, Muscular system, Nervous system &Metabolic system.

B. Define and describe the various manipulation

techniques used in massage.

1.Stroking manipulation: Effleurage, stroking

2. Pressure manipulations: Kneading, squeezing, stationary, circular ironing (reinforced kneading), finger kneading, petrissage (picking up, wringing, rolling), frictions.

3. Percussion manipulation: tapotement, hacking, clapping, beating & pounding.

4. Shaking manipulations: vibration, shaking.

C. Define and describe the technique, effects, uses and contra-indications of the Following manipulations:

1. Stroking manipulations.

2. Pressure manipulations.

3. Percussion manipulations.

4. Shaking manipulations.

D. Demonstrate the following techniques on patients/models:

i. Massage for upper limb:

a. Scapular region

b. Shoulder joint

c. Upper arm

d. Elbow joint

e. Forearm

f. Wrist joint

g. Hand.

ii. Massage for lower limb:

a. Thigh

b. Knee joint

c. Leg

d.Foot (includinganklejointsandtoes)

iii. Massage for back:

a. Neck and upper back

b. Middle and lower back

c. Gluteal region, arm &leg.

iv. Massage for the face

Course Out comes:After the completion of the course the student can able to

1: Understand the principles and techniques of suspension therapy and hydrotherapy

2. Gain knowledge about starting and derived positions

3. Understand the Posture and how to assess the posture

4.The student will be able Demonstrate the pathological gaits and gait training by using mobility aids

5. Demonstrate the soft tissue manipulations

Text books:

1. Principles of Exercise Therapy—Dena Gardener.

2. Practical Exercise Therapy—Hollis.

3. Therapeutic Exercise foundation &techniques—Kisner.

Reference books:

1. Muscle testing and function-F.Kendal.

2. Muscle testing- Danial & Worthing hams.

3. Measurement of joint motion—a guide to Goniometry-Cynthia Norkin.

4. Therapeutic Exercise foundation and techniques-Carolyn Kisner.

5. Text Book of Therapeutic Exercise-S. Lakshmi Narayana.

6.Fundamentals of Physiotherapy-Kumar

7. Principle of Exercise Testing and Interpretation-Kalrlman Wasswerman.

8. Exercise Therapy-Prevention and Treatment of disease-John Gormly.

9. Manual of massage and measurement—Edith. M.Prosser.

10. Massage for therapists—Margaret Hollis.

11. Principal and practice of Therapeutic Massage-Akhoury Gourang Sinha.

12.Hand book of Clinical Massage-Mario-Paul—Cassar.

BPTT2507 **HIGH FREQUENCY** **L T P C**

3 0 45

Course Description:

This course supplements the knowledge of various high frequency currents and the modalities and enables the student to have a better understanding of the principles of working of the high frequency currents using modalities and their therapeutic application in musculoskeletal and neurological dysfunction and pain.

Course Objectives:

1: In this course the student will learn the principles, technique and effect of therapeutic modality in the restoration of physical function.

2: The student will be able to list the indications and contraindications

Of various HIGH FREQUENCY modalities

3: The student will be able to demonstrate the different techniques and describe the physiological and therapeutic effects of HIGH FREQUENCY modalities

4 : The student will be able to demonstrate the techniques of application of various modalities for relief of pain (Clinical decision making)

5.Learns about the mechanism of pain relief by various modalities

UNIT-I **9 hours**

BASIC PHYSICS:

A. Define electricity: Discuss its properties briefly.

1.Describe the 2 types of electricity—static, current.

2.Cell battery, electrical energy and power

B.Magnetism;Discussbriefly:

1.Nature-molecular theory

2.Magnetic effect of an electric current

3.Properties

C.Define electromagnetic induction.Discuss:

1.EMF

2.Principles of Dynamo

3.Principles, construction & types of transformers

4. Choke coil.

D. Condensers.

Define and discuss:

1.Principles

2.Measurement

3.Factors determining capacity

4.Construction

5.Field between condensers

6.Charging and discharging

7. Discharge through inductance & capacitive resistance.

E. Rectifiers

1.Types of rectifiers

• Valve rectifiers-diode valve, triode valve—construction, function

• Metal rectifiers—construction & function of rectifiers

2.Types of rectification—half wave & full wave rectification

3.Smoothening circuit

F. Explain with diagram the working and use of the fuse and grid, switch and reversal switch

G.Discuss the various devices usedinregulating intensity of current.—rheostat And potential divider

H.Define oscillation. What is "capacitance" and "inductance"? Give an example of an oscillating system:

1. What is the frequency of oscillation and how is it calculated in brief?

2. What do you mean by damping of oscillation?

3. How does transfer of energy between 2 circuits take place?

Physics of heat & Radiation

1.Heat & temperature

2.Physical effects of heat

3.Transmission of heat

4.Radiantenergy

5.Electromagnetic spectrum

6.Laws governing radiations

7.Reflectors

8.Inverse square law

UNIT-II **12 hours**

I.SHORTWAVE DIATHERMY:

A. PROPERTIES OF H.F. CURRENTS

1. Sustained and unsustained.

2.Damped and undamped

3.Impedance

4. Define Nodes and Antinodes. Explain, with examples the field's set up etc.

5. Define wavelength.

B. TYPES OF HIGH FREQUENCY CURRENTS

C.PRODUCTION OF H.F. CURRENTS;

1.Principles

2. Construction of apparatus with diagram.

3. Tuning of machine.

4. Regulation of current.

D.METHODS:

1.Condenser field

2. Cable method.

3. Effectsof2fields.

E. PHYSIOLOGICAL AND THERAPEUTIC EFFECTS OF S.W.D.

F. TECHNIQUE OF APPLICATION:

1. Testing machine.

2. Preparation of patient.

3.Types of electrodes

4.Position and size of electrodes

5.Selection of electrode-electrostatic field & electromagnetic field

6.Electrostatic field—spacing need & types

And position Size of electrodeApplication

7.Electromagnetic field—Cable method of applications

8.Dosage

G. PULSED ELECTROMAGNETIC ENERGY

H. DANGERS AND PRECAUTIONS.

I.INDICATIONS AND CONTRA-INDICATIONS.

II.MICROWAVE DIATHERMY(M.W.):

A.1.PRODUCTION—EXPLAINWITHDIAGRAM

2. Explain how the magnetron works within.

3. Application of M.W.

4.Physiological effects

5. Therapeutic effects.

B. TECHNIQUE OF APPLICATION—DOSAGE(INDETAIL)

C.INDICATIONS & CONTRA—INDICATIONS.

D.DANGERS.

UNIT-II **I8 hours**

ACTINOTHERAPY

A. INFRAREDRAYS:

1. I.R. WAVE LENGTH AND FREQUENCY.

2. Types of generators and their working.

3. Physiological effects.

4. Therapeutic effects and uses.

B. TECHNIQUE OF IRRADIATION.

1.Choice of apparatus

2.Preparation of patient

3.Arrangement of lamp

4.Application of treatment

5. Duration and frequency.

C.BRIEFLY DISCUSS DANGERS

D.INDICATIONS & CONTRA—INDICATIONS.

E. THERAPEUTIC USES—

I.PHYSIOLOGICAL EFFECTS.

II.ULTRAVIOLET RADIATION:

A. PHYSICS

1.Electric arc

2. Process of ionization.

3. Transmission of current through gases.

4.Types of lamps

B. CONSTRUCTION OF LAMPS

1.High pressure mercury vapour lamps

2.Kromayer lamp

3. Tridymite formation.

4.Cooling

5.Spectrum —mercury vapour lamp

6. Fluorescent tube for U.V.Production.

7.PUVA apparatus

8. Care of lamp

C.PHYSIOLOGICAL AND THERAPEUTIC EFFECTS—IN DETAIL;

PHOTO-SENSITIZATION—

D.INDICATION, CONTRAINDICATION AND DANGERS.

E. TECHNIQUE OF APPLICATION;

1.Test dose

2.Local treatment

3.General irradiation

4.Treatment

F. CONDITIONS (COMMON) IN WHICH ABOVE TREATMENT IS GIVEN

G. SENSITISERS

H. FILTERS

I.COMPARISON BETWEEN I.R.&U.V.

UNIT-IV **8 hours**

HEAT & COLDTHERAPY

A) THERAPEUTIC CONDUCTION HEATING

1.General principles

2.Thermal regulatory mechanism

3.Physiological regulation

4.Physiological effects of local tissue heating

5.Sites of tissue heating

6.Burns

7.Paraffin wax bath

8.Hydrocollatoral packs

9.Hydrotherapy

10.Heated air treatment

11.Fluidotherapy

12.Electric heating pads

13.Physiological & therapeutic effects of superficial heating

14.Indications/contraindications

B) CRYOTHERAPY

1. Physiological changes due to cooling of the skin

2.Therapeutic uses of cold

3.Methods of application

4.Contrasting heat & cold treatment

5.Vapocoolant sprays—cryokinetics &cryostretch

6.Dangers & contraindications

UNIT-V **8hours**

ULTRASONIC THERAPY

A. What is U.S.Therapy

B. Explain with the aid of diagram the production of U.S. Waves and Piezo Electric Effect.

C. Three Properties of U.S. Wavesi n detail

1)Reflection

2)Transmission and

3)Absorption

D.Properties of ultrasonic field/depth of penetration in relation to(a)intensity and(b)

Frequency.

E .Effects on tissues:

1 Thermal

2 Mechanical

3 Chemical and biological

4 Effects of ultrasound on inflammation &repair process

F .CouplingMedia

G. Mode of U.S—pulsed and continuous mode.

H. Therapeutic uses of U.S

I. Techniques of application:

1 Method

i. Direct contact

ii. Water bath

iii. Waterbag

2.Dosage in acute and chronic conditions

3. Testing of apparatus.

J. Dangers

K. Indications & contra—indications.

L. Phonophoresis, drugs used in phonophoresis & its application

TRACTION

1. Effects of spinal traction

2. Types

3. Application techniques

4. Indications

5. Adverse effects of spinal traction

6. Contraindications

7. Precautions

Course Outcomes:

1: In this course the student will learn the principles, technique and effect of therapeutic modality in the restoration of physical function.

2: The student will be able to list the indications and contraindications

Of various HIGH FREQUENCY modalities

3: The student will be able to demonstrate the different techniques and describe the physiological and therapeutic effects of HIGH FREQUENCY modalities

4: The student will be able to demonstrate the techniques of application of various modalities for relief of pain (Clinical decision making).

5.Understand the mechanism of pain relief by various high frequency modalities.

Text books:

1. Claytons Electrotherapy.

2.EletrotherapyExplained-LowandReed

3. Basics of Electrotherapy-Subhash Khatri

Reference books:

1. Electrotherapy Explained—Joseph Kahn.

2. Electrotherapy-S.Kitchen.

3.Text book of electrotherapy-Jagmohan singh

--

V SEMESTER

PEDIATRICS & GENERAL MEDICINE & PHARMACOLOGY

BPTT3501L T P C

4 0 0 4

Course Description:

This course introduces the general infectious and inflammatory disease of the adults, growth and development and paediatric diseases. Introduce the students to basic pharmacology of various common medications used and their effects on patients at rest and during physical activity

Course Objectives:

1: Introduce the students to basic pharmacology of various common medications used and their Effects on patients at rest and during physical activity

2: The student will be able to explain the growth and development of a child

3:The student will be able to List the maternal and neonatal factors contributing to high-risk pregnancy and the neonate

4.Student learn about the various infectious diseases and diseases of bones and joints, metabolic diseases

5.Gain knowledge of cardiorespiratory diseases.

UNIT-I **18 hours**

GENERALMEDICINE:

A. INFECTIONS:

Outline the etiology, mode of spread, clinical features, diagnosis, management and prevention

Of the following infections:

a. Viral—Japanese encephalitis,chikungunya and related viral arthritis, herpes simplex,

Varicella, Measles, Rubella, hepatitisB, hepatitis and HIV infections.

b. Bacterial— Hansen'sdisease andtetanus.

c. Parasitic—Filariasis.

B. HEMATOLOGY:

Outline the etiology ,clinical features, diagnosis and management of the following disorders:

a. Iron, folic acid and B12 deficiency anemia.

B. Bleeding and clotting disorders with a special stress on haemophilia.

C.DISORDERS OF BONE, JOINT AND CONNECTIVE TISSUES:

1.Brief introduction to concepts of autoimmune disease.

2.Define systemic lupus erythematosus, polymyositis, dermatomyositis, Polyarteritis nodosa, and scleroderma.

3. Rheumatoid arthritis—Describe etiology, clinical features and complications, drug Therapy and nonpharmacological therapy.

4.Osteoarthritis—Describe etiology, clinical features and complications and review Nonsteroidal anti—inflammatory drugs and steroids.

D.RENAL DISEASES:

1. Define and briefly outline acute and chronic renal failure.

2. Urinary tract infection: pathogenesis .Outline common clinical complications produced By UTI.

E.METABOLICDISEASES:

Outline theetiology, clinical features, diagnosis and management of the following disorders: Diabetes mellitus, obesity and disorders of calcium metabolism.

F.GERIATRICS:

List diseases commonly encountered in the elderly population and their role in causing

disability: hypertension, ischemic heart disease, cerebrovascular accidents, benign prostatic hyperplasia, cataracts, other causes of falling vision, Alzheimer's disease

UNIT-II **14 hours**

A.CARDIOVASCULAR DISEASES:

Outline the etiology, clinical features, diagnosis and management of the following disorders:

a. Heart failure.

b. Rheumatic fever.

c. Infective endocarditis.

d. ischemic heart disease.

e. Hypertension.

f. congenital heart diseases :ASD ,VSD, Fallots Tetra logy, PDA

g. Pulmonary embolism, deep vein thrombosis, pulmonary infarction.

h. Peripheral vascular diseases

B. RESPIRATORY DISEASES:

Outline the etiology, clinical features, diagnosis and management of the following disorders:

a. Common conditions like bronchitis, pneumonia, tuberculosis, bronchiectasis, Emphysema and lung abscess.

B. Pleural diseases like pleural effusion, empyema, pneumothorax and hydropneumothorax.

c. Obstructive airway diseases like bronchial asthma, COPD and cystic fibrosis.

D. Interstitial lung diseases.

E. Occupational lung diseases.

f. Chest wall deformities: funnel chest, pigeon chest, barrel chest, kyphoscoliosis of Thoracic spine.

g. Introduction to intensive respiratory care

UNIT-III **12 hours**

PHARMACOLOGY

Introduce the students to basic pharmacology of various common medications used and their effects on patients at rest and during physical activity.

I. General Pharmacology:

a.Terminology (definitions)

b.Routes of drug administration

pharmacokinetics. (brief)

pharmacodynamics

e.Adverse drug effects. (reaction)

f.Treatment of drug poisoning

II.Drug acting on ANS:

a.Cholinergic drugs

b.Anti-cholinergic drugs

c.Adrenergic drugs

d.Anti-adrenergic drugs

III.Drugs acting on peripheral nervous system:

a. skeletal muscle relaxants

b.Local anaesthetics

IV.Drugs acting on CNS:

a. Anaesthetics

b.Anti-epileptics

c.Anti-parkinsonism drugs

d.Anti psychotics

V.Drugs acting on respiratory system:

a.Drugs used for cough and asthma

VI. Drugs acting on CVS:

a.Anti-hypertensive drugs

b.Anti-anginal and myocardial infarction drugs

c.Drugs used to treat CHF (congestive heart failure)

VII.Drug effects of endocrine system:

a.Growth hormone

b.Thyroid hormone

c.Insulin

d.Corticosteroids

VIII.Chemotherapy:

a.Penicillin

b.Quinolones

c.Anti T.B. drugs

d.Antileprotics

e.Anti-malarial drugs

IX.Others

a. Diuretics

b. Anti-emetics

UNIT-IV **8 hours**

PAEDIATRICS

1.Describe the growth and development of a child from birth to 12 years, including physical, social, adaptive development.

2.List the maternal and neonatal factors contributing to hig risk pregnancy and the neonate; inherited diseases; maternal infection - viral and bacterial; maternal diseases incidental to pregnancy, such as gestational diabetes, pregnancy-induced hypertension; chronic maternal diseases such as heart disease, renal failure, tuberculosis, diabetes, epilepsy, bleeding in the mother at any trimester.

Appropriate management of high risk pregnancies, prevention of neonatal and postnatal infections, metabolic problems,outline prevention.

3.Briefly describe community programmes: International (WHO), national and local for prevention of poliomyelitis, blindness, deafness, mental retardation and hypothyroidism. Outline the immunization schedule for children.

4.Cerebral Palsy: Define and briefly outline prenatal, perinatal and postnatal etiology, briefly mention pathogenesis, types of cerebral palsy (classification), findings on examination: general examination, examination of C.N.S., musculoskeletal system, respiratory system, gastro intestinal tract and nutritional status.

Briefly outline associated defects: Mental retardation, microcephaly, blindness, hearing and speech impairments, squint and convulsions. Briefly outline treatment and prevention.

5.Spina bifida, meningomyelocele: Outline development; clinical features-lower limbs, bladder and bowel control; complications - U.T.I. & hydrocephalus; medical treatmentand surgical treatment

UNIT-V **8hours**

1.Muscular dystrophy: outline various forms, modes of inheritance and clinical manifestation; physical findings in relation to disabilities, progression of various forms and prognosis. Describe treatment goals in fatal and nonfatal forms.

2.Acute C.N.S. infections: Classify (bacterial and viral) and outline the acute illness, C.N.S. sequelae leading to mental retardation, blindness, deafness, speech defect, motor paralysis,

bladder and bowel problems, seizure disorder and specific problems such as subdural effusion, hydrocephalus, pressure sores, feeding difficulties.

3. Stills disease: Classification, pathology in brief, physical findings, course & prognosis. Outline treatment, prevention and correction of deformity

4.Lung infections: Outline the clinical finding, complications and medical treatment of bronchiectasis, lung abscess and bronchial asthma

5. Normal diet of newborn and child: List dietary calories, fat, protein, mineral and vitamin requirement in a normal child and in a child with malnutrition. Classify andoutlineetiology, findings and treatment of Rickets: Vitamin D deficiency and Vit.Dresistant rickets.

Course Outcomes:

1: Introduce the students to basic pharmacology of various common medications used and their Effects on patients at rest and during physical activity

2: The student will be able to explain the growth and development of a child

3: The student will be able to List the maternal and neonatal factors contributing to high-risk pregnancy and the neonate

4.Student learn about the various infectious diseases and diseases of bones and joints, metabolic diseases

5.Gain knowledge of cardiorespiratory diseases.

Text books:

1.Essentials of Pediatrics - O.P.Ghai.

2.Text book of Pharmacology — Tripati

3.Principles and Practice of Medicine — Davidson.

Reference books:

1.Physiotherapy in Pediatrics: Shepherd

2.Pharmacology for Physiotherapist - K.AshokShenoy& K V Ramesh

3.Text Book Pharmacology for Physiotherapist –PadmajaUday Kumar.

4.Illustrated Pharmacology — Lippincott.

5.Medicine for students and Practitioners — K.Chaudhury.

BPTT3502 **General surgery/OBG** **L T P C**

2 0 0 2

Course Description:

This course covers relevant aspects of General Surgery, and Gynaecology & Obstetrics

Course Objectives:

1: The student will be able to demonstrate a general understanding of the diseases that therapists would encounter in their practice.

2: They should have a brief idea of the etiology and pathology, patient's symptoms and resultant functional disability. This would help the candidates to understand the limitations imposed by the diseases on any therapy that may be prescribed.

3: Particular effort is to be made to avoid over-burdening the student with clinical signs and diagnostic methods except in certain specific diseases such as rheumatoid arthritis, other diseases of bones and joints, diseases of respiratory, cardiovascular and nervous systems requiring specific attention of physiotherapist.

4: Broad outline of goals of pharmacological and surgical therapy should be given in those diseases in which physical therapy will be an important component of overall treatment.

5.Gain knowledge about the depth of burns and deformities due to burns.

UNIT-I **8 hours**

1.Describe abdominal surgical incisions.

2.Outline the post operative complications in: Nephrectomy, Appendicectomy, Herniorrhaphy, mastectomy, Thyroidectomy, Colostomy, Adrenalectomy, Cystectomy, Hysterectomy, prostatectomy, Cholecystectomy, Ileostomy.

UNIT-II **8 hours**

1.Classify burns by depth and surface area; outline the causes, medical management and precautions in the acute stage.

2.List the potential deformities due to burns, methods of prevention and precautions. Mention cosmetic and functional treatment measures.

3.Outline the plastic surgery procedures and management in rehabilitation of burns, including splinting methods for common deformities and prevention of burns contractures.

UNIT-III **4 hours**

1.Review the anatomy of the female pelvis and embryonic and fetal development.

2.Outline the physiological skeletal changes during pregnancy, delivery and postpartum period

UNIT-IV **6 hours**

1.Describe an antenatal programme in preparation for labour.

2.Outline the mechanism of labour and postnatal management after normal delivery, forceps delivery and caesarian sections.

UNIT-V **4 hours**

1.Complications of child birth — outline.

2.Outline the pre-disposing factors of stress incontinence and prolapse uterus.

Course Outcomes:

1.Student learn various surgeries and their complications.

2. Learn about the potential deformities to burns and role of physiotherapy in prevention of contractures.

3.Gain knowledge about various physiological changes during pregnancy.

4.Learn about the anti-natal and post Natal programme

5.Understand the predisposing factors for stress incontinence and prolapse Uterus.

Text books:

1.Text book of general surgical conditions: Cash.

2.Physiotherapy in Obstetrics &Gynecology – Polden

3.Physiotherapy in Obstetrics and Gynecology - Jill Mantle.

Reference books:

1.Essentials of Surgery -S.B.Agarwal.

2.Burn Care - David N Hemdon.

3.Text Book of Physiotherapy for Obstetric and Gynaecological conditions - G.B. Madhuri

CLINICAL ORTHOPEDIC CONDITIONS FOR PHYSIOTHERAPISTS

BPTT3503 **L T P C**

3 0 0 3

Course Description:

Following the basic science and clinical science courses this course introduces the students to the orthopaedic conditions which commonly cause disability. Particular efforts are to be made to avoid burdening the student with any detail pertaining to diagnosis which will not contribute to their understanding of the limitations imposed by orthopaedic pathology on the functioning of the individual.

Course Objectives:

1.The student will be able to demonstrate an understanding of orthopaedic conditions causing disability and their management.

2.Student will be able to gain knowledge of principles of treatment procedures in orthopaedics.

3.Basic knowledge of fractures dislocations and implants.

4.Learn about infectious bone diseases.

5.Learn about congenital deformities.

UNIT-I **12 hours**

A. INTRODUCTION TO ORTHOPEDICS:

Introduction to orthopedic terminology, common orthopedic diseases dealt with, clinical examination, common investigations. Radiological and imaging technics in orthopedics.

B. PRINCIPLES OF TREATMENT PROCEDURES IN ORTHOPEDICS:

1.Non operative procedures:

•Splints

•Tractions

Their indications, usage, limitations.

2.Operative procedures:List indications, contraindications, and briefly Outline the principles of

•Soft tissue release operations

•Tendon transfers

•Osteotomy

•Arthrodesis

C.BASIC KNOWLEDGE OF IMPLANTS:

Wires, pins, nails, rods, plate and screws, external fixators and Illizarov fixator.

D.SPORTS INJURIES AND MANAGEMENT:

1.Sprains and Muscle Strains: List common sites of sprains and muscle strains and describe the clinical manifestations and treatment with special reference to ankle, knee and shoulder.

2.Internal derangements of knee Joint: Meniscal injuries and injuries of the cruciate ligaments.

E. FRACTURES & DISLOCATIONS:

General Principles.

1.Fractures, dislocations and subluxation — classifications of fractures with respect to etiological fractures, geometrycommunication to the environment.

2.General & local signs & symptoms of fractures & dislocations.

3.Outlines of management principles of fractures & dislocations:

Reduction procedures — immobilization procedures — plaster of paris application and complications — functional cast bracing — various internal fixations.

4.Outline of prevention & treatment of complications of fractures including fracture disease, Volkmann's ischemic contracture, Sudecks osteodystrophy, avascular necrosis, stiffness of the joints Carpal Tunnel syndrome, myositis ossificans, and shoulder hand syndrome.

5.Fracture healing — Factors influencing fracture healing.

UNIT-II **12 hours**

A. UPPER LIMB FRACTURES & DISLOCATIONS:

1.Enumerate all major long bond fractures and joint injuries of upper limb.

2.Brief description of the clinical features, principles of management and complications

should be limited to the following fractures: Shoulder dislocations, surgical neck of humerus fracture, fracture greater tuberosity, fracture shaft of humerus, supracondylar fracture humerus, elbow dislocations, monteggia fracture, forearm bone fractures, Colles's fracture, scaphoid fractures.

B. LOWER LIMB FRACTURES & DISLOCATIONS:

1.Enumerate all major long bone fractures and joint injuries of lower limb.

2.Brief description of the clinical features, principles of management and complications should be limited to the following fractures. Dislocations of the hip, intracapsular fracture neck of femur, extra capsular fracture neck of femur, fracture shaft of femur, supracondylar fracture femur, fracture patella, condylar fractures of lower end of femur and upper end of tibia, fracture shaft of tibia, ankle fractures, fracture of the calcaneum and fracture of the 5th metatarsal bone.

C.SPINAL FRACTURES AND DISLOCATIONS:

Outline the mechanism, clinical features, principles of management and complicationsof spinal injuries.

UNIT-III **8 hours**

A. HAND INJURIES:

Outline the clinical features, management and complications of: skin and soft tissue injury, tendon injury, bone and joint injury — Bennets fracture — mallet finger.

B. RECURRENT DISLOCATIONS:

Outline the mechanism, clinical features, principles of management and complications of recurrent dislocation of the shoulder and patella.

C.PERIPHERAL NERVE INJURIES:

Outline the clinical features and management, including reconstructive surgery on:

1.Radial, median and ulnar nerve lesions.

2.Sciatic and lateral popliteal nerve lesions.

3.Brachial plexus injuries including Erbs, Klumpkes crutch palsy.

D.AMPUTATIONS:

1.Classify amputations, list indications for surgery.

2.Outline pre-operative, operative and prosthetic management.

3.Outline prevention and treatment or complications.

UNIT-IV **6 hours**

A.BONE& JOINT INFECTIONS:

Outline the etiology, clinical features, management and complications of:

•Acute osteomyelitis

Chronic osteomyelitis

Septic arthritis

•Tuberculosis of hip, knee and spine

B. BONE& JOINT TUMORS:

General account of classification, clinical features and management of

benign and malignant bone tumours. Only general principles are to be

gives; study of specific individual bone tumours is not essential.

C.MISCELLANEOUS CONDITIONS:

Clinical features and management of Painful are syndrome

Tennis elbow Plantar fasciitis

D. LEPROSY:

Orthopedic affections of leprosy which include outlines of clinical features and management of claw hand, foot drop, trophic ulcers.

UNIT-V **7 hours**

A. CHRONIC ARTHRITIS:

Outline the pathology, clinical features, mechanism of deformities, management and complications of: Rheumatoid arthritis, Osteoarthritis of major joints and spine, Ankylosing spondylitis.

O.SPINAL DEFORMITIES:

Classify spinal deformities and outline the salient clinical features,

management and complications.

P.POLIOMYELITIS:

Outline the management of residual paralysis including use of orthosis, and principles of muscle transfers.

Q.CONGENITAL DEFORMITIES:

Outline the clinical features and management of CTEV, CDH flat foot,

vertical talus, limb deficiency, spina bifida, meningomyelocele and wry neck.

R. EVALUATION OF LOW BACK ACHE:

Etiological factors of LBA — prolapsed intervertebral disc, spondylitis, spondylolisthesis, lumbar canal stenosis.

Course Outcomes:

1.The student will be able to demonstrate an understanding of orthopaedic conditions causing disability and their management.

2.Student will be able to gain knowledge of principles of treatment procedures in orthopaedics.

3.Basic knowledge of fractures dislocations and implants.

4.Learn about infectious bone diseases.

5.Learn about congenital deformities.

Text books:

1.Text book of Orthopaedics by Dr.M.Natarajam

2.Text book of Orthopaedics — John Ebnezar.

Reference books:

1.System of orthopaedics by Graham Apley

2.Clinical Orthopaedics by Richardson

3.Outline of Orthopaedics — Adams

4.Outline of Fractures — Adams.

5.Orthopedics and fractures — Ronald MC Rae.

PHYSIOTHERAPY FOR ORTHOPEDIC CONDITIONS

BPTT3504 **L T P C**

4 09 8.5

Course Description:

This course serves to integrate the knowledge gained by the students in clinical orthopaedics with skills gained in exercise therapy, electrotherapy and massage, thus enabling them to apply these in clinical situations of dysfunction due to musculoskeletal pathology.

Course Objectives:

1.The student will be able to identify disability due to musculoskeletal dysfunction

2.Assess, evaluate, diagnosedisability due to musculoskeletal dysfunction

3.Set treatment goals and apply their skills in exercise therapy, electrotherapy and massage in clinical situations to restore musculoskeletal function.

4.Understand the Principles of Physiotherapy Management in Fractures.

5.Learn about Biomechanical principles of orthotics &prosthetic appliances.

UNIT-I **14 hours**

(A)Physiotherapy Assessment of Patient with Orthopedic conditions (Peripheral & vertebral) with relevant special tests.

Describe briefly the general and PT assessment of the vertebral column: Subjective examination history, occupation, symptoms, major problems;

Objective Examination

1.Observation of body type, musculature, deformity & gait.

2. Palpation — Temperature, swelling, bony prominences, local tenderness.

3. Postural evaluation using a plumb line.

4. Active movements of the vertebral column — flexion, extension, lateral flexion and rotation.

Specific tests: straight leg raising, prone knee bend, passive neck flexion, Kernigs sign.

5. Proximal joints of pelvic and shoulder girdles.

6. Neurological tests for muscle strength, sensation and reflexes.

(C)Poliomyelitis

Review of clinical presentation, investigations, medical & surgical management, physiotherapy orthopaedics assessment & management prior to and after surgical interventions, reconstructive surgeries with emphasis on tendon transfers. Role of orthotics, floor reaction orthosis (FRO), post-polio syndrome.

(D)Leprosy

(B)Principles of interpretation of Physiotherapy orthopaedic Examination finding & selection of appropriate physiotherapy techniques.

(B)Cerebral palsy

Review of clinical presentation, investigations, medical & surgical management, physiotherapy orthopaedic assessment & management for surgically and conservatively managed cases.

Review of clinical presentation, investigations, medical & surgical management, physiotherapy orthopedic assessment &management prior to and after surgical interventions (tendon transfers). Risks of anesthetic limb and outline its care to prevent complications.

UNIT-II **12 hours**

(A)Principles of Physiotherapy Management in Fractures.

Guidelines of treatment of fracture during immobilization period and mobilization period. Review the mechanism of injury, clinical features, treatment and complications and describe the PT management and home programme for the following injuries:

1. Fracture clavicle, upper 1/3 of humerus, shaft of humerus, supra and inter condylar fractures of the humerus.

2. Fracture head of radius, olecranon process, shafts of radius and ulna, Colls.

3.Fracture scaphoid, Bennetts and metacarpal, neck

4.Fracture pelvis, neck, trochanter and shaft of femur, supracondylar fracture and injuries of the knee joint & patella.

5. Fracture proximal tibia, both bones of leg, Potts and Dupuytren's, calcaneum andmetatarsal.

6. Dislocation of (a) Hip: congenital, traumatic, posterior & central (b) \ Shoulder: anterior & recurrent (c) Patella.

(B)Specific fractures and dislocationsPhysiotherapy assessment & management of upper limb fractures and dislocations, lower limb fractures and dislocations including pelvis and spinal fractures.

UNIT-III **10 hours**

(A)Deformities

Review of clinical presentation, investigations, medical & surgical management, Physiotherapy assessment & management for the following conditions.

(1) CTEV

(2) CDH

(3) Torticollis

(4) Scoliosis

(5) Kyphosis

(6) Lordosis

(7)Coxavara

(8) Genu varum

(9) Genuvalgum

(10) Genu recurvatum

(11)Pesplanus

(12)Pescavus

(H)Spinal conditions

Review of clinical presentation, investigations, medical & surgical management,

B.Physiotherapy assessment & management and home program for the following

(1) Cervical spondylosis

(2) Lumbar spondylosis

(3) Spondylolisthesis

(4) Spinal canal stenosis

(5) Spondylosis

(6) IVDP

(7) Coccydynia

(8) Sacro-iliac joint dysfunction

(9) Sacralization

(10) Lumbarization

UNIT-IV **10 hours**

(A)Degenerative and inflammatory conditions

Review of clinical presentation, investigations, medical & surgical management, Physiotherapy assessment & management of the following.

(1) Osteoarthritis of knee

(2) Osteoarthritis of hip

(3) Osteoarthritis of hand

(4) Rheumatoid arthritis

(5) Ankylosing spondylitis

(6) Gout

(7) Perthes disease

(8) Osteoporosis

(9)Haemophilia

(B)Infective conditions —

Review of clinical presentation, investigations, medical & surgical management, Physiotherapy assessment & management for the following.

(1) Osteomyelitis — acute & chronic

(2) Septic arthritis

(3) Pyogenic arthritis

(4) TB spine

5)TB knee

(6) TB hip

UNIT-V **14 hours**

(**A)** Introduction to Bioengineering —

a. Classification of orthotics & prosthetics.

Biomechanical principles of orthotics&prosthetic appliances.

C.Designing of upper extremity & lower extremity prosthesis

D.Indications& contraindications

E.Advantages& disadvantages of orthosis& prosthesis.

F.Checkout of orthosis& prosthesis.

G.Footwear prescription & modifications.

(B)Amputations-

(1)Definition

(2)Types

(3)Levels

(4)Indications

(5)Physiotherapy assessment

(6)Aims

(7)Management: pre &post operative

(8) Physiotherapy with emphasis on stump care & bandaging

(9) Ideal stump

(10) Pre& post prosthetic training

(11) Prosthetic checkout

(12) Pylon

(13) Complications of amputation & their management

(C) Orthopaedic surgeries

i. Brief overview of surgical procedure and technique of the following common orthopedic surgeries such as — open reduction and internal fixation (ORIF), arthroplasty-types, osteotomy, reconstructive surgeries, tendon transplants with emphasis on hand injures, soft tissue release-types, soft tissue repair, arthrodesis, arthroscopy, synovectomy, spinal decompression, spinal stabilization, reattachment of limbs, external fixators.

ii.Pre and postoperative PT assessment, goals, precautions and PT management of above-mentioned surgeries. Pre and postoperative PT management of common surgeries of shoulder, elbow, forearm, wrist, hand, hip, knee, ankle and foot with emphasis on TKR, THR, and ACL reconstruction surgery protocols.

(D)Sports physiotherapy and soft tissue conditions

i.Types of injuries to soft tissue (ligaments, muscles, tendons, nerves, capsule, meniscus, bursa etc;), stages of soft tissue healing, treatment guidelines for soft tissue injuries in acute, sub acute and chronic stages.

ii.Prevention and rehabilitation of soft tissue injuries.Periarthritis of shoulder, supraspinatus tendinitis, rotator cuff tendinitis and tear, biceps tendonitis, sub acromion bursitis, lateral epicondylitis, medial epicondylitis, olecranon bursitis, carpal tunnel syndrome, Dupuytren's contracture, dequervains disease, trigger finger, wry neck, piriformis syndrome, iliotibial tract syndrome, knee- ligament and meniscal injuries, quadriceps, hamstring and calf strain, chondromalacia patella, patellar tendinitis, pre patellar bursitis, ankle sprain, tendo Achilles tendinitis, plantar fasciitis, metatarsalgia, Morton's neuralgia.

iii.Role of physiotherapy in prevention and treatment of sports injuries.

E. Applied yoga in orthopaedic conditions.Brief outline about epiphyseal injuries.

Course Outcomes:

1.The student will be able to identify disability due to musculoskeletal dysfunction

2.Assess, evaluate, diagnose disability due to musculoskeletal dysfunction

3.Set treatment goals and apply their skills in exercise therapy, electrotherapy and massage in clinical situations to restore musculoskeletal function.

4.Understand the Principles of Physiotherapy Management in Fractures.

5. Learn about Biomechanical principles of orthotics & prosthetic appliances.

Text books:

(1) Cash Text book of orthopedics and rheumatology

(2)Tidy's physiotherapy

(3) Text book of orthopedics for physiotherapist — Jayant Joshi.

Reference books:

(1) Sports Medicine — C.S.Jayaprakash.

(2) Text Book of Sports Medicine — Das.

(3) Therapeutic exercise — Kisner

(4) Orthopaedic physical assessment — Magee.

(5)ClinicalOrthopedic Rehabilitation — Brent & Brotzman.

PHYSICAL FUNCTION AND DIAGNOSIS

BPTT3505 **L T P C**

3 0 0 3

Course Description:

Physical and Functional Diagnosis focuses on the basic assessment skills for physical and Functional diagnosis i.e. Musculoskeletal, Neurological and Cardiovascular-Respiratory in order to study the various impairments and their impact on activity and participation of the individual Understand the use of appropriate tools or instruments of assessment for diagnosis in various diseases and disorders including musculoskeletal, neurological and cardio-vascular pulmonary conditionsUnderstand the use of diagnosis for physiotherapy practice.

To learn the applied aspect of the subject for physiotherapy practice.

Course Objectives:

1:Acquire fundamental and advanced knowledge in Physical and Functional diagnosis

2: Formulate and prescribe specific treatment plans for the people with cardiac, pulmonary, Orthopaedic, Neurological and Paediatric disorders.

3: Conduct a comprehensive physiotherapy intervention safely and competently

4: Monitor and reassess the patient progress and modify treatment plan

5:Use problem solving principles and evidence-based practice in decision making in assessment and management of patients

UNIT-I **4 hours**

1. **Introduction** of physical and functional diagnosisPhysical Diagnosis and its importance in clinical practiceFunctional Diagnosis and its importance in clinical practice

2. **Subjective examination** including Name, age, sex, height, weight, BMI, address, occupation, chief complain, present history, past history, personal history, history of hospitalization,medical and surgical history, family history, etc..

3.**Assessment of Pain**: with techniques and clinical reasoning

Types of pain: Somatic, referred, Neurogenic, Visceral, etc.

Location, duration, progressive or non-progressive, localize or generalize, distribution, quality, diurnal variations, Modifying factors, Severity, nature ofpain, tissue irritabilityMeasurement and DocumentationVisual Analogue Scale (VAS), NumericalRating Scale(N.R.S.)

McGill's modified questionnaire (including Body charts)Loss of function

Developing Differential Diagnosis (DD)

UNIT-II **9 hours**

Objective examination

Vitals parameter - PR, RR, BP, Temp, Hydrates

Level of consciousness, Glasgow Coma Scale (GCS), Higher mental function(time, place, person, etc...) mental status, communication, memory, cognitive,Cranial Nerves Examination

Systemic examination PICCKLE

Inspection (LOOK): with techniques and clinical reasoning

Body built, Posture, swelling, wasting, perspiration, breathing pattern,

deformity, asymmetry, tropical changes, and symmetry of structure.

Lines and tube attached with the patients including external appliance,assistive devices, footwear.

Palpation (FEEL): with techniques and clinical reasoning

Tenderness, swelling / oedema, temperature, asymmetry, spasm,

Surface contour, tautness

Auscultation:

Techniques with Clinical Reasoning, Breath sounds, Heart sounds.

Percussion e.g. thorax and abdominal

UNIT-III **16 hours**

Examination:

Sensory examination: with techniques and clinical reasoning,Superficial ,deep and cortical sensation examination, Dermatome Examination techniquesand clinical reasoning

Motor Examination: with techniques and clinical reasoning

Muscles Girth, wasting – Atrophy and Hypertrophy

Muscles Tone: Normal, hypo and hypertonic

Modified Ashworth scale

Myotomes - Examination techniques and clinical reasoning

Reflex : Deep and superficial reflex

Muscles Power: Muscle grading / manual muscle testing (MMT)

1.Introduction, Principles

2.Uses, Precaution and Contraindication

3.Types of muscle grading

4.Available ROM method

5.Grading system - Medical Research Council (MRC)

6.Demonstrate the skill to grade

Head, Face, neck, shoulder and Upper limb muscle

Trunk muscle, pelvic muscles including respiratory muscles

Lower limb muscle

Chest Expansion Measurement:

Chest Circumference Hemi thorax, Book method, chest symmetry, etc.

Limb Length Measurement

Q- Angle Measurement with techniques and clinical reasoning

Tightness, Contracture and Deformity

UNIT-IV **7 hours**

Balance tests: Clinical importance with techniques and clinical reasoning, Romberg test, Hall pike test,Functional reach test etc

Coordination tests with techniques and clinical reasoning Equilibrium and non-equilibrium tests

Coordination Tests in Standing, Walking, Sitting or Supine, Finger to nose, Finger to therapist finger, Finger to

finger, Alternate nose to finger, Finger opposition, Pronation /Supination, Alternate heel to knee, Drawing an

imaginary circle on air with UE and LE, etc.

Gait Measurement with techniques and clinical reasoning Normal and abnormal gait, Gait parameters

assessment procedures Gait Evaluation and demonstrate Pathologic gait examination

Description of some of the most commonly used types of observational gait analysis; Advantages and

disadvantages.

Functional Diagnosis – measures – Basics

Functional Activity Specific Assessment – FIM, ADLs scales

Assessment of health and wellness

Functional evaluation: ICIDH, ICIDH2 and ICF - brief

The concepts of health status impairment; functional limitations; disability and handicap; definition of

functional activity and the purposes and components of the functional assessment

UNIT-V **9 hours**

Special Outcome measures for Cardiovascular and pulmonary system

Breath Holding Test, Rate of Perceived Exertion (R.P.E.)

Target Heart Rate (RHT), 6-minute walk test, 3-minute walk test, 2-minute walk test

Outcome measures for Musculoskeletal system examination with techniques and clinical reasoning -

Techniques with clinical reasoning Low Back Functional Scale (LBFS), Neck Disability Index (NDI)

Outcome measures for Neuromuscular system examination with techniques and clinical reasoning

10 meter walk test, Time up and go test (TUG), Get up and go test (GUG), MASS, STREAM

Course Outcomes:

1: Acquire fundamental and advanced knowledge in Physical and Functional diagnosis

2: Formulate and prescribe specific treatment plans for the people with cardiac, pulmonary, Orthopaedic, Neurological and Pediatric disorders.

3: Conduct a comprehensive physiotherapy intervention safely and competently CO4: Monitor and reassess the patient progress and modify treatment plan

4: Use problem solving principles and evidence-based practice in decision making in assessment and management of patients

5: Identify the scope and limitations of professional practices, manage appropriately.

Text books:

1.Orthopedic Physical Assessment, Magee DJ. 5th edition. Saunders

2.Hand Rehabilitation- A practical Guide. 2nd edition. Clark GL. Churchill Livingstone

3. Muscles: Testing and Function, with Posture and Pain: 5th edition. Kendall FP; McCreary EK et al. Lippincott Williams and

Wilkins

Reference books:

1. Practical Exercise Therapy: 3rd edition. Hollis M; Cook PF. Wiley-Blackwell

2. Training in the Community for the people with disabilities. Goerdt et al. World Health Organization

3. Physiotherapy for Respiratory and Cardiac Problems. Adults and Paediatrics. 3rd ed. Pryor JA, Webber BA. London:

Churchill Livingstone, 2002.

4. Training in the Community for the people with disability – Hallender Padmini Mendes

Hand Rehabilitation - Clark W.

VI SEMESTER

CLINICAL NEUROLOGY FOR PHYSIOTHERAPISTS

BPTT3506 **L T P C**

3 0 0 3

Course Description:

This course introduces the students to the neurological conditions which commonly cause disability. Particular effort is to be made to avoid burdening the student with any detail pertaining to diagnosis which will not contribute to their understanding of the limitations imposed by neurological pathology on the functioning of the individual

Course Objectives:

1: The student will be able to demonstrate an understanding of neurological conditions causing disability and their management.

2.Student will learn Clinical assessment of neurological function

3.Gain knowledge about neural pathology, clinical features

4.Learn about infectious and degenerative diseases of nervous system.

5.Gain knowledge about radiographic diagnosis, medical management.

UNIT-I **8hours**

A.NEURO ANATOMY:

i. Review the basic anatomy of the brain and spinal cord including: blood supply of the brain and spinal cord, anatomy of the visual pathway, connections of the cerebellum and extrapyramidal systemrelationship of the spinal nerves to the spinal cord segments. Long tracts of the spinal cord, the brachial and lumbar plexuses, and cranial nerves.

B.NEUROPHYSIOLOGY:

i.Review the structure and function of

a) neuron b) synapse c) supporting tissue.

ii.Organization and function of:

a) cerebral hemispheres

b) cerebellum

c) spinal cord

d) peripheral nerves

e) pyramidal system

f) extra pyramidal system

iii.Review in brief the neurophysiological basis of learning, motor control, motor learning: tone and disorders of tone and posture, bladder control, muscle contraction and movement and pain.

C.ASSESSMENT:

Clinical assessment of neurological function to be taught through bedside demonstration of clinics.

1.Basic history taking to determine whether the brain, spinal cord or peripheral nerve is involved.

2.Assessment of higher mental function such as orientation, memory, attention, speech and language.

3.Assessment of cranial nerves.

4.Assessment of motor power.

5.Assessment of sensory function: touch, pain and position

6.Assessment of tone: spasticity, rigidity and hypotonia.

7.Assessment of cerebellar function.

8.Assessment of higher cortical function — apraxia etc.

9.Assessment of gait abnormalities.

10.Assessment of ADL activity

11.Functional status of individual with neurological dysfunction

UNIT-II **8 hours**

1.Vestibular disorders

2.Congenital and childhood disorders.

a.Cerebral palsy

b.Hydrocephalus

c.Spina bifida

3.Movement disorders — dystonia, chorea, ballismus, athetosis, tics,myoclonus and wilsons disease.

4.Cerebellar lesions — ataxia, Friedreich's hereditary, cerebellar ataxia &Tabes dorsalis

UNIT-III 9hours

1.Demyelinating diseases (central and peripheral)

a.Guillian — Barre syndrome

b.Acute disseminated encephalomyelitis.

c.Transverse myelitis.

d.Multiple sclerosis.

2.Degenerative disorders.

a.Parkinsons disease.

b.Dementia

3.Infections

a.Pyogenic meningitis sequelae.

b.Tuberculous infection of central nervous system.

c.Poliomyelitis.

UNIT-IV **12 hours**

1.Cerebrovascular accidents.

a. General classification, thrombotic, embolic, haemorrhagic & inflammatory strokes.

b. Gross localization and sequelae.

c. Detailed rehabilitative programme

2.Trauma — broad localization, first aid and management of sequelae of head injury and spinal cord injury.

3.Diseases of the spinal cord.

a. Craniovertebral junction anomalies.

b. Syringomyelia

c. Cervical and lumbar disc disease.

d. Tumours

e. Spinal arachnoiditis

UNIT-V **8 hours**

1.Diseases of the muscle: classification, signs, symptoms, progression and management.

2.Peripheral nerve disorders.

a. Peripheral nerve injuries: localization and management

b.Entrapment neuropathies.

c.Peripheral neuropathies.

3.Miscellaneous.

a.Epilepsy; definition, classification and management

b.Myasthenia Gravis: definition, course and management

c. Intracranial tumours: broad classification, signs and symptoms.

d.Motor neuron disease.

e.Management of unconscious patient

f.Management of Japanese encephalitis.

Course Outcomes:

1:The student will be able to demonstrate an understanding of neurological conditions causing disability and their management.

2.Student will learn Clinical assessment of neurological function

3.Gain knowledge about neural pathology , clinical features

4.Learn about infectious and degenerative diseases of nervous system.

5.Gain knowledge about radiographic diagnosis ,medical management.

Text books:

1.Davidsons principles and practice of medicine.

2.Neurology and neuro surgery illustrated -Lindsay

3.Brains diseases of nervous system.

Reference books:

1.Neuro Anatomy — Inderbir Singh.

2.Clinical Neuro Anatomy — Vishram Singh.

3.Clinical Neuro Physiology — U.K. Misra.

4.Neurological Examination — Robert J. Schwartzman.

5.Neurological Differential Diagnosis — John Patten.

6.ABC of Spinal Cord Injury — David Grundy.

PHYSIOTHERAPY IN NEUROLOGICAL CONDITIONS

BPTT3507 **L T P C**

4 0 98.5

Course Description:

This course serves to integrate the knowledge gained by the students in clinical neurology with the skills gained in exercise therapy, electrotherapy and massage, thus enabling them to apply these in clinical situations of dysfunction due to pathology in the nervous system.

Course Objectives:

1.The student will be able to identify disability due to neurological dysfunction, 2.The student will be able to set treatment goals and apply their skills in exercise therapy, electrotherapy and massage in clinical situation to restore neurological function.

3.Gain knowledge in various therapeutic approaches in the management of sensory abnormalities.

4.Gain knowledge in various therapeutic approaches in the management of abnormal muscle tone in various neurological disorders.

5.Describe and demonstrate the treatment of motor disabilities.

UNIT-I **14 hours**

i.Review the factors influencing alpha motor neuron activity.

ii.Review the neurological basis of muscle tone and movement and demonstrate the following:

a) hypotonia

b) hypertonia — spasticity and rigidity

c)ataxia d) athetosis e) chorea.

B. PRINCIPLES OF ASSESSMENT:

Review a) skills in history taking b) assessment of higher functions, cortical sensations, cranial nerves, dorsal column sensation and pain and temperature sensations c) assessment of motor function : grading of muscle poer, assessment of range of movement, balance and coordination d) assessment of superficial and deep reflexes e) assessment of reflex maturation in terms of stimulus, position, negative / positive reactions and their significance f) assessment of gait — both normal and abnormal (spastic, ataxic and paralytic patterns).

Emphasis should be placed on teaching accurate assessment techniques and various recording methods eg.Colourcoding on body charts, graphs etc

C.PRINCIPLES OF TREATMENT:

Review the treatment principles as follows:-

a.Sensory re-education: hypersensitivity, hyposensitivity and anaesthesia.

b.Treatment of altered tone: hypertonicity and hypotonicity

c.Motor re-education: strengtheningexercises, coordination exercises, joint mobilization exercises, uses of equilibrium and labyrinthine system, use of PNF patterns, controlled sensory stimulation to bias the spindle cell eg. vibration, tactile, ice etc., use of stretch to elicit movement (facilitation), light joint compression (inhibition), use of reflex activity to improve motor function, physio genic sequence of motor behaviour.

d.Treatment to improve functions: free exercises, gait training with and without aids, activities of daily living, mat exercises and exercises and recreation.

e.Review the use of ambulatory aids in neurological conditions: in spastic upper motor neuron lesions, in lower motor neuron lesions, in dorsal column dysfunction and cerebellar dysfunction.

f.Review the use of splints and braces in spastic upper motor neuron and flaccid lower motor neuron lesions in both upper and lower limb.

g.Review the management of chronic pain in neurological conditions with respect to the pain, treatment modalities available, selection criteria for each modality and possible complications.

h.Vestibular rehabilitation

i.General principles and selection of orthoses and assistive devices, training of patients with orthoses in various neurological conditions.

UNIT-II **10 hours**

A.CEREBRAL PALSY:

i.Define cerebral palsy and

ii.Describe the topographical classification — monoplegia, diplegia, paraplegia, hemiplegia & tetraplegia.

iii.Describe types of cerebral palsy; spastic, athetotic, mixed.

iv.Identify common associated problems: visual, hearing, speech and intelligence.

v.Assessment:

•Assess reflex activity at different levels: cortical, mid brain, brain stem, spinal.

•Assess developmental milestones from birth to five years. Assess functional ability: Prone to supine (rolling), crawling to sitting quadripod, crawling, kneeling kneel — stand, stand with support and walking.

•Examine for contractures as follows: hip: flexion, adduction, internal rotation;knee: flexion; ankle: plantarflexion, inversion / eversion; flexion contractures of elbow, wrist & fingers and spinal deformities.

•Treatment — Describe and demonstrate the treatment of motor disabilities: passive movement, stretching of soft tissue to tightness, use of ice to reduce spasticity, positioning the child to prevent soft tissue contractures, to inhibit abnormal reflexes and to facilitate rotational movement.

•Describe and demonstrate techniques of carrying of different types of CP children, encouraging bimanual activities in different starting positions like prone, sitting and standing and activities across the midline.

•Describe appropriate home programmes for positioning the child, handling them and assisting improvement of function, • introduction to treatment techniques: Bobath, Rood.

B.Parkinsonism:

i.Review the natural history, course and prognosis.

- Identify and assess problems in posture, sitting, kneeling and standing balance, voluntary and automatic movements,rigidity, tremor and gait.

- Assess also hearing, speech, fingers, dexterity.

-Describe disability grading according to Yalu.

ii. Demonstrate treatment: postural awareness and relaxation training, gait training, techniques; associated reactions, heel-toe gait. Overcoming obstacles, start and stop on command, turning and walking backwards, forwards and sidewards.

- Describe an appropriate home exercise programme.

C.MUSCULAR DYSTROPHY:

- Describe stages of the disease: -

- ambulatory, wheel chair and bed stages. –

- Describe significance of exercises - resistive, active and free. Identify and assess common contractures and deformities.

- Assess range of motion and muscle power. Assess functional ability.

-Demonstrate treatment programme for strengthening weak muscles, active movements and hydrotherapy. Increase range of motion by suspension therapy, power board, passive stretching. Positioning etc. demonstrate gait training with appropriate orthoses.

- Describe management of chest complications: breathing exercises, chestpercussion, drainage of secretions, and assisted coughing

UNIT-III **10 hours**

A.SPINAL CORD LESIONS:

- Describe types of spinal cord lesions. – Describe signs of tract and root interruptions.

- Describe positioning of the patient in acute spinal cord injury.

- Describe assessment of the motor system: tone, power of specific muscles, range of motion and limb girth.

- Describe the assessment of sensorysystem and reflexes.

- Describeassessment of functional ability and balance reactions in appropriate cases. – Describe assessment of respiratory function: muscles of respiration, coughing ability and vital capacity.

-Describe how the level of lesion is ascertained.

Treatment:

-Describe the stages of immobilization & stage when loading of the spine is allowed.

-Describe spinal orthosis. Demonstrate motor re-education programs and a program for respiratory care in high level paraplegics and quadriplegics

Demonstrate progressive ambulation, mat exercises, various strengthening programmes, methods of decreasing spasticity and improving sitting balance.

-Demonstrate various types of paraplegic gaits and re-education in functional activities; transfers and protective falling.

-Describe common ambulatory aids used in paraplegics and common splints used in tetraplegics.

-Describe the use of hydrotherapy in paraplegics.

-Describe the concept of team approach in rehabilitation of these patients.

B.MULTIPLE SCLEROSIS

UNIT-IV **10 hours**

A.C.V.A. (CEREBRO VASCULAR ACCIDENTS):

- Define hemiplegia and

- identify the following: Sensory disturbance, alteration in tone, loss of selective movement, loss of balance reactions and communication problems.

-Treatment: Describe the unilateral and bilateral approaches to treatment. Describe positioning in the supine position, on the affected and on the unaffected side.

-Demonstrate activities inthe recumbent position: arm mobilization, trunk elongation, scapular movement, arm

A.C.V.A. (CEREBRO VASCULAR ACCIDENTS):

- Define hemiplegia and

- identify the following: Sensory disturbance, alteration in tone, loss of selective movement, loss of balance reactions and communication problems.

-Treatment: Describe the unilateral and bilateral approaches to treatment. Describe positioning in the supine position, on the affected and on the unaffected side.

-Demonstrate activities inthe recumbent position: arm mobilization, trunk elongation, scapular movement, arm elevation, activities for a recovering arm: activities for the lower limb i.e., hip and knee flexion over the side of the bed, knee extension with dorsiflexion, hip control, isolated knee extension. Mat activities: demonstrate rolling on to affected and unaffected sides, sitting and kneeling.

-Describe the technique of making a patient sit passively and active assisted sitting.

-Demonstrate transfer techniques.

Describe activities in siting: equal weight transference on both buttocks, shuffling on buttocks, weight transfer through arms balance, reactions of trunk

— head.

-Demonstrate activities in the standing position : standing from plinth, from chair (assisted and independent), weight bearing on affected leg, knee control in standing, weight transfers forwards, backward and side wards, gait training and stair climbing. –Describe tilt board activities in the lying and sitting positions.

-Describe additional methods of stimulation using verbal cues, ice, pressure & tapping. -- Describe management of shoulder pain and shoulder hand syndrome.

-Identify and describe a hemiplegic gait, identify synergy components and abnormal reflex activities.

-Demonstrate re-education of gait: motor re- learning techniques, functional approach and use of orthoses.

B.PT Management in HEAD INJURIES and

C.PT Management in MOTOR NEURON DISEASES.

D.CEREBELLAR LESIONS:

- Identify and assess abnormal tone, decomposition of movement, rapid alternate movements, pleurosthotonus, proprioception, dysmetria, posture and gait.

Treatment: Demonstrate exercise for incoordination — Frenkel's and weighted exercise. Demonstrate techniques for re-education of balance and equilibrium reactions by visual compensation.

-Describe use of appropriate aids for ambulation depending on the severity of affectation — walker, elbow crutches, quadruped walking sticks etc.,

UNIT-V **12 hours**

A.PERIPHERAL NERVE LESIONS:

- Identify types of peripheral nerve lesions.

-Assess the motor system: specific muscles, range of motion, active and passive ranges, muscle girth.

-Assess sensory system: touch, pain, temperature, parasthesia, nerve regeneration.

-Assess autonomic function: sweating, skin condition, soft tissue atrophy. Treatment: describe muscle re-education techniques: electrical stimulation (selection of current); active, assisted, resisted movements; passive education and pain relief by various modalities.

-Describe the common splints used in peripheral nerve lesions; static, dynamic and functional, muscle transfers: preparation for transfer assessment of muscle power, stretching of soft tissue tightness, post-operative management: pressure bandaging & muscle re-education after transfer.

-Describe a home programme.

B. POLYNEUROPATHIES

Evaluation and management of the above condition, history, observation, palpation, motor & sensory examination, reflex testing, differential diagnosis, balance and co-ordination examination, gait analysis, functions analysis.

List of problems and complications, short- and long-term goals and management of systemic complications and physiotherapy intervention.

C.GUILLINA — BARRE SYNDROME.

D.POLIOMYELITIS:

-Define poliomyelitis and review the stages in the disease, acute recovery and residual paralysis.

-Describe treatment in the acute state: heat, chest care, positioning. Describe the assessment of a patient in the recovery stage: active and passive range of motion, soft tissue tightness, muscle power & spinal deformities.

-Demonstrate treatment in the recovery stage: muscle strengthening, progressive resistive exercise: active — assisted, active - resistive exercise.

-Describe the role of suspension and hydrotherapy.

-Describe the treatment of soft tissue tightness by passive stretching, auto stretching and positioning.

-Demonstrate treatment in the stage of residual paralysis, pre-operative assessment of contractures: hip flexion, TEL contracture, knee flexion and foot deformities.

- Describe also assessment of limb length discrepancy and spinal deformities.

-Review orthotic aids commonly used in themanagement of polio. -Describe tendon transfer operations commonly performed.

-Describe functional retraining for self-care, gait training and posturecorrection

Course outcomes:

1.The student will be able to identify disability due to neurological dysfunction,

2.The student will be able to set treatment goals and apply their skills in exercise therapy, electrotherapy and massage in clinical situation to restore neurological function.

3.Gain knowledge in various therapeutic approaches in the management of sensory abnormalities.

4. Gain knowledge in various therapeutic approaches in the management of abnormal muscle tone in various neurological disorders.

5. Describe and demonstrate the treatment of motor disabilities.

Text books

1.Cash Text Book of Neurology for Physiotherapy

2.Physical Rehabilitation — Assessment and Treatment by Susan B.Os Sullivan Thomas J.Schemitz

Reference books:

1.Key issues in Neurological physiotherapy — Ada / canning.

.2.Neurological Examination in clinical practice — John Spillane, Bicker staffs

3.Neurological Physiotherapy — Susan Edwards.

4.Steps to follow: The comprehensive treatment of patients with Hemiplegia — Patricia M Davies.

5.Adult hemiplegia — Bobath.

6'.Physiotherapy in Neuro conditions — Glady Samuel Raj.

7.Neuromusculo skeletal examination — Nicola J. Petty.

8.Stroke — Hanley.

9.Clinical Evaluation and Management of Spasticity — David A Gelber.

10.Neurological rehabilitation — DancyUmphred.

BPTT3508 **Women's Health** **L T P C**

3 0 0 3

Course Description:

The purpose of the course is to analyse, interpret, and assess appropriate exercise regimens for women with unique needs, to raise awareness and conduct research in this field, and to recognise the importance and knowledge of women's health in the larger community. Examine natural physiological changes in women in order to cope with their overall fitness.

Course Objectives:

1: To learn about the importance of antenatal fitness .

2: Develop the exercise prescription knowledge to pregnancy women - past, present and future

3: Demonstrate advanced physiotherapy exercise program for sports women

4: Design the individualized exercise programme for antenatal women

5.design of exercises for women undergone gynaecological surgeries

UNIT-I **10hours**

A. Introduction about Women's Health:

Health education and health promotion: The Physiotherapist's role in women's health.

Basic Review of Anatomy & Physiology Of female body: Anatomy of pelvic floor muscles and the Reproductive organs of the body, Physiology of menstrual cycle –ovulation cycle, uterine cycle, duration, Hormonal regulation of menstruation and menstrual disorders, Premenstrual disorder and Post-menopausal disorder, Definition, Classification, Etiology, Pathogenesis, Clinical Features, Clinical Investigation and Complications. Medical, Surgical And Physiotherapy Management (Assessment And Treatment) including Rehabilitation

UNIT-II **12 hours**

A. AntenatalAnd Postnatal:

- Diagnosis of Pregnancy,

- Physiological changes during Pregnancy,

- Complications during Pregnancy, Gestational diabetes,

-Normal labour, Physiotherapy during labor, Normal Puerperium,

-Antenatal Assessment

-Prenatal training, Postnatal Assessment,

-Postnatal complications, Postnatal Exercise, Multiple childbirth and Maternal and child care, Early paediatric problems, Medical termination of pregnancy and its complications.

B. Overview of prenatal and postpartum exercise viewpoint / Need & scope.

The high-risk prenatal patient, pre-existing conditions.

Hospitals protocols (conception to birth) PhysiotherapyIn Antenatal Period And Labour:

•Antenatal EXERCISE FIRST TRIMESTER/relaxation /mobility

•Antenatal Exercise prescription – sedentary, active, athlete's group indication & contradiction (modification as per condition), Antenatal exercises, Aerobic Exercise during pregnancy,

•couple counselling & lifestyle modification to support early pregnancy

•Pregnancy changes and effects on musculoskeletal and posture/each trimester (evaluation & exercise prescription)

UNIT-III **10 hours**

Fitness for athletic pregnant women

•Antenatal EXERCISE SECOND TRIMESTER/ fit pregnancy

•Antenatal EXERCISE third TRIMESTER/ Birth preparation

•EARLY postnatal DAY 1 TO 7

•Early postpartum, care

•ASSESSMENT SCALE

•Post-c-section Recovery plane, after vaginal birth recovery plane & perineum care.

•Diastasis recti assessment & management.

•Discussion on Childbirth education classes setup.

•Postnatal exercise Pilates Based on mat &ball – Basic

•Late postnatal rehabilitation

•Postnatal exercise Pilates Based on mat &ball – Basic to modified

•Discussion the pattern of fat distribution its management

•Psychological counseling during antenatal & Couple therapy

UNIT-IV **8hours**

A. Urogenital Dysfunctions:

Prolapse of uterus, Incontinence,

low backache.

B.Physiotherapy role in Hysterectomy cases.

c pelvic floor rehabilitation: -

Explain various mechanisms and therapeutic techniques and precautions used in pelvic floor rehabilitation.

1.Electrotherapy

2.Bio feedback

3.Mobilization & manipulation

4.Ergonomic advice

UNIT-V **5 hours**

conditions in older women:

Significant changes during older age in the female body, Anthropometric measurements, Obesity during old age, Complications of Ageing, Menopause and the Climacteric, Osteopenia and Osteoporosis.

Course Outcomes:

1: To learn about the importance of antenatal fitness .

2: Develop the exercise prescription knowledge to pregnancy women - past, present and future

3: Demonstrate advanced physiotherapy exercise program for sports women

4: Design the individualized exercise programme for antenatal women

5.design of exercises for women undergone gynaecological surgeries

Text books:

1.Physiotherapy in Obstetrics and Gynaecology. 1st edition. Mantle J, Polden M. Butterworth-Heinemann publications

2. Tidy physiotherapy. 15th edition. Porter S. Elsevier's Publications.

3. Tidy physiotherapy 12th edition. Thompson A; Skinner A. Butterworth-Heinemann publications

1.Dc Dutta’s Textbook Of Obstetrics By Hirlal Konar

2.Howkins & Bourne Shaw's Textbook OfObstetrics By Padubidiri

3.Management Of Labour By Sabaratnam

4.Arias” Practical Guide To High Risk Pregnancy And Delivery By Amarnath Bhide, Sabaratnam Arulkumaran

5.Womens Health- RuthSapsford,Lippincott,1998

6.Obstetric AndGynecologic Care In Physical Therapy By Rebecca Gourtey Stephenson, Linda J. O Connor,2000

Reference books:

1.Physiotherapy In Obstetrics And Gynecology-Polden And Mantle, Jaypee Brothers

2.Womens Health And Fitness Guide-Michele Ketties,2006

3.Journal Of Women’s Health Physical Therapy

4.The Association Of Charted Physiotherapist In Women’s Health Journal.

BPTT3509 **COMMUNITY MEDICINE** **L T P C**

3 0 0 3

Course Description:

This course will enable students to understand the effects of the environment and the community dynamics on the health of the individual.

Course Objectives:

1:The student will be able to demonstrate an understanding of the influence of social and environmental factors on the health of the individual and society.

2.Learn about the preventable and non preventable diseases

3.Education about industrial hazards

4.Measures to take during pandemic disease state.

5.Knowledge about community based rehabilitation

UNIT-I **15 hours**

A.Outline the natural history of diseases and the influence of social, economic and cultural aspects of health and diseases.

B.Outline the various measures of prevention and methods of intervention especially for diseases with disability.

C.Outline the national care delivery system and the public health administration system at central and state level.

D.Outline selected national health programmes.

E.Define occupational health and list methods of prevention of occupational diseases and hazards.

F.Outline the employees state insurance scheme and its benefits.

G.Describe the social security measures for protection from occupational hazards, accidents, diseases, and the workman's compensation Act.

H.Outline the objectives and strategies of the National Family Welfare Programme.

I.Define community based and institution-based rehabilitation. Describe the advantages and disadvantages of institution and community-based rehabilitation.

J.Describe the following communicable diseases with reference to reservoir, mode of transmission, route of entry and levels of prevention: a) Poliomyelitis b) Meningitis c) Encephalitis d) Tuberculosis, e) Filariasis, f) Leprosy g) Tetanus & h)Measles.

K.Describe the epidemiology of rheumatic heart disease, cancer, chronic degenerative disease and cerebrovascular accidents.

L.Outline the influence of nutritional factors such as protein energy malnutrition, anemia, vitamin deficiency and minerals on disability.

M.List the principles of health education, methods of communication and role ofA. Outline the natural history of diseases and the influence of social, economic and cultural aspects of health and diseases.

B.Outline the various measures of prevention and methods of intervention especially for diseases with disability.

C.Outline the national care delivery system and the public health administration system at central and state level.

D.Outline selected national health programmes.

E.Define occupational health and list methods of prevention of occupational diseases and hazards.

F.Outline the employees state insurance scheme and its benefits.

G.Describe the social security measures for protection from occupational hazards, accidents, diseases, and the workman's compensation Act.

H.Outline the objectives and strategies of the National Family Welfare Programme.

I.Define community based and institution-based rehabilitation. Describe the advantages and disadvantages of institution and community-based rehabilitation.

J.Describe the following communicable diseases with reference to reservoir, mode of transmission, route of entry and levels of prevention: a) Poliomyelitis b) Meningitis c) Encephalitis d) Tuberculosis, e) Filariasis, f) Leprosy g) Tetanus & h)Measles.

K.Describe the epidemiology of rheumatic heart disease, cancer, chronic degenerative disease and cerebrovascular accidents.

L.Outline the influence of nutritional factors such as protein energy malnutrition, anemia, vitamin deficiency and minerals on disability.

M.List the principles of health education, methods of communication and role of health education in rehabilitation services.

N.Define the role of community leaders and health professionals in health education.

O.Outline the role of international health agencies in rehabilitation of the disabled.

P.Hospital waste management: Sources of hospital waste, health hazards, waste management.

Q.Disaster Management : Natural and man made disasters, disaster impact and response, relief phase, epidemiologic surveillance and disease control, nutrition, rehabilitation, disaster preparedness.

R.Mental Health: Characteristics of a mentally healthy person, types of mental illness, causes of mental ill health, prevention, mental health services, alcohol and drug dependence. emphasis on community aspects of mental health. Role of physiotherapist in mental health problems such as mental retardation

UNIT-II **I5 hours**

•Intoduction to Community Medicine:

History of medicine - evolution of community medicine - medicine in the olden days — different systems of medicine in different parts of world — origin of modern medicine — sanitary awakening — discovery of bacteria, viruses — origin of public health, social & preventive medicine & community medicine — health for all — millennium development goals.

•Basic Concepts of Health &Disease :Definitions — dimensions — determinants - indicators - measurement of health — concepts of well being — standards & levels of living — natural history of diseases — concepts of control & prevention - modes of interventions- health policy & goals.

•Application of Social and Behavioural Sciences in Community Medicine:

Humanities in community medicine — medical sociology — social factors in health & disease — families — types of families — role of family in health & disease - acculturation — social health problems - social organizations - organizational behaviour - leadership — delegation — motivation — emotions — group dynamics — group discussions — behaviour change communication — skills of communication — counselling in health & disease

—health economics.

UNIT-III **6hours**

Demography & Family Welfare Planning:

Definition — demographic cycle —population explosion - population trends in india and world — census india 2011 — family welfare planning — contraceptives - national family welfare programme — national population policy — gender issues and women's health.

•Applied Nutrition:

Nutrients and their requirements — malnutrition among infants &under fives — growth monitoring and nutritional surveillance — nutritional anaemia — vitamin A deficiency —

iodine deficiency disorders — food consumption surveys — other nutritional health problems- national

nutrition policy — nutrition intervention programmes — prevention of food adulteration - food fortification — food toxins.

UNIT- IV **10 hours**

Environmental Health:

Concepts of basic sanitation - potable water — water purification standards

endemic fluorosis — disposal of solid and liquid wastes - pollution of air, water, soil etc, - global warming.

•General Epidemiology & its applications:

Concepts in epidemiology — epidemiology of communicable and non- communicable

•Environmental Health:

Concepts of basic sanitation - potable water — water purification standards

—endemic fluorosis — disposal of solid and liquid wastes - pollution of air, water, soil etc, - global warming.

•General Epidemiology & its applications:

Concepts in epidemiology — epidemiology of communicable and non- communicable diseases — methods of epidemiology — causation & association — epidemiological surveillance of diseases - outbreak investigation.

•Epidemiology of Communicable Diseases:

Vaccine preventable diseases: measles, pertussis, diphtheria, tuberculosis, tetanus, hepatitis B, poliomyelitis — water-borne diseases: cholera, typhoid, viral hepatites, food poisoning, amoebiasis, ancylostomiasis — vector-borne diseases: malaria, filariasis, dengue, Japanese encephalitis, KFD, chikungunya fever, plague — acute respiratory infections — HIV/AIDS — STDs — tuberculosis — leprosy — SARS- influenza — swine flu — avian flu — zoonotic diseases — rabies — ARBO viral diseases — rickettsial diseases, etc.

•Epidemiology of Non-Communicable diseases: Diabestes — obesity — hypertension — cardiovascular diseases — accidents

— blindness — cancers.

UNIT-V **9hours**

Maternal & Child Health:

Preventive obstetrics &pediatrics — antenatal care — intra natal care - post natal care — neo-natal care — post neo-natal care — feeding of children• Maternal & Child Health:

Preventive obstetrics &pediatrics — antenatal care — intra natal care - post natal care — neo-natal care — post neo-natal care — feeding of children

— breast feeding —supplementary feeding — weaning of children - growth monitoring — prevention of child health problems — low birth weight - delivery of MCH services — under fives clinics — MCH clinics - indicators of MCH care — neo-natal mortality — post-neo-natal mortality - perinatal mortality - infant mortality — under five mortality — maternal mortality — juvenile delinquency — congenital malformations.

•National HealthProgrammes:

Revised National TB Control Programme — leprosy eradication programme — anti malaria programme — national filariasis control programme — national vector-borne diseases control programme - reproductive & child health programme — MCH services — integrated child development programme — immunization programme - school health programme — integrated management of neo-natal & childhood illnesses programme — national AIDS control programme — national rural & urban health mission — national mental health programme — national cancer control programme — national programme for prevention of diabetes, cardiovascular diseases and stroke, - national programme for control of occupational diseases — integrated diseases surveillance project — national water supply and sanitation programme — minimum needs programme — 20 point programme.

•Occupational Health:

Introduction — occupational hazards — occupational diseases — pneumoconioses — lead poisoning — occupational cancers — radiation hazards — accidents in industries — sickness absenteeism — health problems due to industrialization — health protection of industrial workers — prevention & control of occupational diseases — legislations: factories act — mines act - ESI act.

•Health Management and Administration:

Concepts of health care, medical care, health planning — planning cycle — management methods & techniques - reports of important health & development committees: Bhore, Mudaliar, Jungalwala, Kartar Singh, Srivastava & others — health care delivery in India — primary health centers, sub centers, community health centers, etc.

•Miscellaneous:

Rehabilitation — community —based rehabilitation - hospital wastes management - disaster management — geriatric health problems — medical entomology — vector control - medical genetics — research methodology — medical ethics — international Health Regulations — ICD - NGOs — WHO — UNCF — ILO — FAO — WB —CARE — DFID - SIDA , etc.

Course outcomes:

1.The student will be able to demonstrate an understanding of the influence of social and environmental factors on the health of the individual and society.

2.Learn about the preventable and non preventable diseases

3.Education about industrial hazards and communicable disease

4.Measures to take during pandemic disease state.

5.Knowledge about community based rehabilitation

Text books:

1.Prevention & Social Medicine - Park & Park.

2.Review in community medicine - Seshubabu.

Reference books:

1.Hand Book of Preventive and Social Medicine - Vidya Ratan.

2.Essential of community medicine - A Practical Approach. - D A Hiremath.

3.Text Book of community Medicine and community Rehabilitation - Dr. T. Bhaskara Rao.

BPTT4501 **Biostatistics & Research methodology** **L T P C**

3 0 0 3

Course Description:

This course provides postgraduate students with recall of concepts of research methods and Biostatistics to enable them to perform advanced research project in the field of Physiotherapy. It involves selection of appropriate statistical techniques to address questions of healthcare relevance. It explores current and anticipated developments in medical statistics as applied to physiotherapists. It is designed to teach postgraduate physiotherapy to develop and perform self, Trans and multidisciplinary research methods.

Course Objectives:

1: Recall basic concepts of Research methodology and Biostatistics relevant to Physiotherapists

2: Integrate the concepts of Research methods and Biostatistics in planning and conducting professional and inter-professional research

3: Demonstrate knowledge and understanding of the concept of variables, measures of central tendency, measures of dispersion and concepts of descriptive and inferential statistics

4: Demonstrate the use of basic research methods in analyzing health care problems and biomedical data

5: Perform statistical analysis of collected data using statistical tools & software and recommend solutions

UNIT-I **7 hours**

1.Introduction to research methodology: meaning of research ,objectives of research ,motivation in research, Types of researches & research approaches, criteria for good research ,problems encountered by researchers in India

2.Research problem: statement of research problem, statement of purpose and objectives of research problem, necessity of defining problem

3.Research design: Meaning of research design, Need for research design, features of good research design

UNIT-II **12 hours**

1.Sampling design: criteria for selecting procedure , Implications for sampling design , stepsin sampling design , different types of sampling designs

2.Measurement & scaling techniques: measurement in research, scales in research sources of error in measurement , technique of developing measurement tools, meaning of scaling & its classification important scaling techniques

3.Methods of data collection : collection of primary data , collection of data through questionnaires & schedules , Differences between questionnaires & schedules

4.Sampling fundamentals : need for sampling & some fundamental definitions , important sampling distributions

UNIT-III 8 hours

1.Processing & analysis of data: processing operations, problems in processing, types of analysis, statistics in research, Measures of central tendency, Dispersion, Asymmetry relationship

2.Testing of Hypothesis: what is Hypothesis, basic concepts concerning testing of hypothesis, limitations of testing of hypothesis

3.Computer technology: Introduction to computers, computer application in research, computers & researcher

UNIT-IV 10 hours

1.Introduction to BIOSTATISTICS: : Meaning , definition , characteristics of statistics , importance of study of statistics ,Branches of statistics , statistics and health science including physiotherapy , parameters and estimates , descriptive and inferential statistics variables and their types , measurement scales

2.Tabulation of Data : Basic principles of graphical representations , types of diagrams — histograms , frequency polygons , smooth frequency polygon , cumulative frequency curve , non probability curve

UNIT-V 8 hours

1.Measure of central tendency: Need for measure of central tendency, definition and calculation of mean -ungrouped & grouped, Meaning of calculation ofMode, comparison of mean, median and mode

2.Probability and standard deviation: Meaning of probability of standard distribution, THE BINOMIAL DISTRIBUTION, the normal distribution, divergence from normality — skewness, kurtosis

Course Outcomes:

1.Recall basic concepts of Research methodology and Biostatistics relevant to Physiotherapists

2: Integrate the concepts of Research methods and Biostatistics in planning and conducting professional and inter-professional research

3: Demonstrate knowledge and understanding of the concept of variables, measures of central tendency, measures of dispersion and concepts of descriptive and inferential statistics

4: Demonstrate the use of basic research methods in analyzing health care problems and biomedical data

5: Perform statistical analysis of collected data using statistical tools & software and recommend solutions

Text books:

1.Carolin Hicks Research for Physiotherapy.

2.Text book of Biostatistics by SundarRao.

3.Text book of Biostatistics and Research methodology by U.Satyanarayana

Clinical Cardio Respiratory conditions for physiotherapists

BPTT4502 **L T P C**

3 0 0 3

Course Description:

This course introduces the student to the cardio - thoracic conditions which commonly cause disability. Particular effort is to be made to avoid burdening the student with any detail pertaining to diagnosis which will not contribute to their understanding of the limitations imposed by cardio - thoracic pathology on the functioning of the individual.

Course Objectives:

1:The student will be able to demonstrate an understanding of cardio - thoracic conditions causing disability and their management.

2.To analyze the patient with artificial airway and provide physiotherapy management procedures in intensive care unit (ICU).

3.To demonstrate appropriate airway clearance techniques in different patient population and manual facilitation techniques for the respiratory muscles in different breathing patterns.

4.To demonstrate appropriate management to reduce work of breathing and improve lung volumes.

5.To demonstrate the appropriate chest physiotherapy management techniques for various post operative pulmonary conditions.

UNIT-I **8hours**

A.ANATOMY AND PHYSIOLOGY:

1.Describe in detail the anatomy of the thoracic cage.

2.Describe in detail the anatomy of the lungs, bronchi and bronchopulmonary segments.

3.Relationship of the bony thorax and the lungs to each other and to the abdominal contents.

4.Briefly describe the variations in the bony cage in the following conditions:

a.Cervical ribs: thoracic outlet syndrome

b.Rickets - rickety rosary

c.Depression deformities: pectus excavatum

d.Protrusion deformities: pectus carinatum (pigeon chest)

e.Scoliosis

f.Kyphosis

g.Rare deformities: sternal clefts, absent sternum, Poland syndrome, fused ribs, absent ribs, Jenunes disease.

5.Describe the movements of the thorax: Bucket handle, pump handle.

6.List the muscles of respirations involved in inspiration and expiration (including accessory muscles of respiration).

7.List the mechanical factors involved in breathing. Describe briefly factors affecting lung compliance and airway resistance

8.Describe in detail the cough reflex

UNIT-II **8 hours**

1.List the factors affecting diffusion of oxygen and carbon-dioxide in the lungs. Explain ventilation, perfusion and their inter relationship.

2.Describe the physiological control of respiration and highlight the function of the medullary and pontine respiratory centres and central and peripheral chemoreceptors.

3.Pulmonary function assessment: Briefly describe the pulmonary function tests and their use; briefly outline the basis and value of blood gas analysis.

4.Describe in brief the anatomy of the heart and its blood supply and briefly outline the electrical activity or the myocardium and normal ECG.

5.Describe the mechanism for maintenance of blood pressure.Fundamentals of ECG recording and basic interpretation.

6.Briefly describe the principles of Echocardiography: M-mode, Doppler (trans thoracic and trans oesophageal echocardiography)

UNIT-III **8 hours**

1.Briefly outline the principles of cardio vascular stress testing.

2.Basics of arrhythmias, syncope and its management.

3.Principles, indication and methodology of temporary and permanent pacemarker implantation

4.Fundamentals of cardiac catheterization: angioplasty, percutaneous balloon mitral valvotomy, pulmonary valvotomy, aortic valvotomy, device closure of patent ductus arteriosus, atrial septal defects, ventricular septal defects.

5.Outline the energy expenditure of various common daily activities.

6.INTENSIVE CARE:

a.Outline briefly the principles of various ventilators and their use.

b. Tracheostomy: definition, indications, procedure, complications and advantages.

c.Describe in detail the following post-operative procedures: management of endotracheal / endonasal tube, tracheal suction.

weaning the patient from the ventilator, extubating technique, post extubation care.

7.MISCELLANEOUS:

1.Briefly outline the management of a patient after a myocardial infarction.

2.Briefly outline the management of a patient with chronic obstructive airway disease.

8.RECENT ADVANCES:

1.Transcatheter aortic and mitral valve implantation.

UNIT-III **8 hours**

1.Briefly outline the principles of cardio vascular stress testing.

2.Basics of arrhythmias, syncope and its management.

3.Principles, indication and methodology of temporary and permanent pacemarker implantation

4.Fundamentals of cardiac catheterization: angioplasty, percutaneous balloon mitral valvotomy, pulmonary valvotomy, aortic valvotomy, device closure of patent ductus arteriosus, atrial septal defects, ventricular septal defects.

5.Outline the energy expenditure of various common daily activities.

6.INTENSIVE CARE:

a.Outline briefly the principles of various ventilators and their use.

b. Tracheostomy: definition, indications, procedure, complications and advantages.

c.Describe in detail the following post-operative procedures: management of endotracheal / endonasal tube, tracheal suction.

weaning the patient from the ventilator, extubating technique, post extubation care.

7.MISCELLANEOUS:

1.Briefly outline the management of a patient after a myocardial infarction.

2.Briefly outline the management of a patient with chronic obstructive airway disease.

8.RECENT ADVANCES:

1.Transcatheter aortic and mitral valve implantation.

UNIT-IV **12 hours**

CARDIAC SURGERY:

1.Introduction to cardiac surgery: define extra cardiac operations, closed intra-cardiac operations and open cardiac operations.

2.Principles of cardiopulmonary bypass and its complications. Define hypothermia and deep circulatory arrest.

3.Myocardial preservation techniques during cardiopulmonary bypass.

4.Principles of left heart bypass (left aorta femoral bypass), femoral bypass, Gotts shunt, minimally access surgery, port access surgery

5.Cardiac conditions requiring closed heart surgery:

a.Congenital diseases: Patent ductus arteriosus, coarctation of aorta.

b.Acquired heart diseases: mitral stenosis

6.Cardiac conditions requiring open heart surgery: briefly describe the pathophysiology, clinical presentations and management of the following conditions:

a.Congenital diseases: atrial septal defect, ventricular septal defects, pulmonary stenosis, tetralogy of Fallot, double outlet right ventricle. transposition of great vessels, AV canal defect.

b.Acquired diseases: mitral stenosis, mitral regurgitation, aortic stenosis, aortic regurgitation, and mixed valvular lesions.

Coronary artery disease: clinical presentation, pathophysiology and management: PTCA and stenting, off pump coronary artery bypasssurgery (OPCAB), on pump coronary artery bypass grafting, minimally invasive direct coronary artery bypass (MIDCAB).

7.Intra-aortic balloon pump: principles, indications, advantages and disadvantages

8.Fundamental principles of ventricular assist devices

9.Cardiac transplantation

10.Principles of robotic surgery in cardiac surgery

UNIT-V **10hours**

THORACIC SURGERY:

1.Pathophysiology of various forms of chest trauma. Cardiac tamponade.

2.Describe very briefly the clinical features and management of the following: simple and multiple rib fractures, flail chest, stove in chest, pneumothorax, hemothorax, hemopneumothorax. Lung contusion, laceration, injury to heart, great vessels and injury to the tracheo-bronchial tree.

3.Empyema thoracis: definition, causes, management. Briefly describe intercostals drainage, rib resection, decortication and window operation.

4.Pulmonary Tuberculosis: clinical presentation, pathology, and management.

List the manifestations of pulmonary tuberculosis and briefly describe tuberculoma, bronchiectasis sicca, broncho stenosis. Clinical presentation of destroyed lung and management. Management of hemoptysis. Define massive hemoptysis and the strategies involved in the management of patients with massive hemoptysis including bronchial artery embolization, cryoablation.

5.Outline briefly the clinical features and management of the following suppurative lesions of the lung; bronchiectasis, lung abscess, bronchopneumonia & aspergillosis.

6.Outline briefly the clinical features and management of carcinoma lung.

7.Outline the extent, use and complications of the following surgical incisions: anterolateral thoracotomy, posterolateral thoracotomy and median sternotomy.

8.Describe and define the following and the post-operative management of patients who have undergone wedge resection, segmentectomy, lobectomy, bilobeotomy, pneumonectomy, pleuropneumonectomy& tracheostomy.

9.Describe in detail the preoperative assessment and management of a patient posted for thoracotomy.

10.One lung anaesthesia: principle, indications and contraindications.

11.Video — assisted thoracoscopy surgery: principle, indications, contraindications and advantages.

12.Describe the principles of cardio-pulmonary resuscitation, cardiac massage, artificial respiration, defibrillators and their uses.

13.Advanced life support system

Course Outcomes:

1.To analyze the patient with artificial airway and provide physiotherapy management procedures in intensive care unit (ICU).

2.To demonstrate appropriate airway clearance techniques in different patient population and manual facilitation techniques for the respiratory muscles in different breathing patterns.

3.To demonstrate appropriate management to reduce work of breathing and improve lung volumes.

4.To demonstrate the appropriate chest physiotherapy management techniques for various post operative pulmonary conditions.

5.To demonstrate interpersonal and communication skills and approach the patients, relatives, and caregivers with empathy.

Text books:

1.Cardiac Rehabilitation by Piyush Jain.

2.Davidsons principles & practice of medicine.

3.Text book of Heart, Chest & Vascular diseases for Physiotherapist - Patrica A dowine.

Reference books:

1.Frownfelter D, Dean E. Principles and Practice of Cardiopulmonary Physical Therapy – E-book: Evidence to practice, 5th Edition. Elsevier Health Sciences; 2014.ISBN : 9780323291170.

2.Irwin S, Tecklin JS. Cardiopulmonary Physical Therapy: A Guide to Practice, 4th Edition. USA: Mosby Inc.; 2004. ISBN: 9780323018401.

Physiotherapy for Cardio Respiratory conditions

BPTT4503 **L T P C**

4 0 6 7

Course Description:

This course serves to integrate the knowledge gained by the students in clinical cardiorespiratory conditions with skills gained in exercise therapy, electrotherapy and massage, thus enabling them to apply these in clinical situations of dysfunction due to cardiorespiratory pathology.

Course Objectives:

1:The student will be able to identify cardiorespiratory dysfunction, set treatment goals and apply their skills in exercise therapy, electrotherapy and massage in clinical situations to restore cardiorespiratory function

2.To analyze the patient with artificial airway and provide physiotherapy management procedures in intensive care unit (ICU).

3.To demonstrate appropriate airway clearance techniques in different patient population and manual facilitation techniques for the respiratory muscles in different breathing patterns.

4.To demonstrate appropriate management to reduce work of breathing and improve lung volumes.

5.To demonstrate the appropriate chest physiotherapy management techniques for various post operative pulmonary conditions.

UNIT-I **12 hours**

A.ANATOMY:

1.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.

2.Respiratory system:

•Outline of the respiratory passages.

•Pleura and lungs: position, parts, relations, blood supply and nerve supply.

•Lungs — emphasis on bronchopulmonary segments and their applied aspects.

•Diaphragm: origin, insertion, nerve supply and action

•Intercostal muscles and accessory muscles of respiration: origin, insertion, nerve supply and action.

3.Thorax

•List the main bones and joints of thoracic cage. Mention the boundaries and contents of thoracic cavity.

•Analyse pump handle and bucket handle movement of ribs.

•Surface anatomy of heart and lungs.

B.PHYSIOLOGY:

1.Cardiovascular system:

•Properties of cardiac muscle, cardiac cycle.

•ECG, heart sounds, cardiac output.

•Factors regulating the action of the heart.

•Blood pressure, its maintenance and regulation.

•Renal circulation, pulmonary circulation

•Vascular mechanics

•Lymph factors affecting its flow.

2.Respiratory system:

•Defence mechanism in the respiratory tract, mucociliary transport, mechanics of respiration.

•Transport of blood gases, acid base balance.

•Neural and chemical regulation of respiration.

C.GENERAL OVERVIEW: ASSESSMENT

— Describe physical assessment in cardio respiratory dysfunction.

1.Inspection:

posture (recumbent, erect orthopneic): breathing pattern (rate, rhythm and pattern, use of accessory muscles), chest movement (symmetry, intercostals and diaphragmatic components), chest deformity (barrel chest, pigeon chest); spinal deformity (scoliosis, kyphosis, kyphoscoliosis); sputum (colour, type, volume, consistency); cough (types, productive / non-productive, presence of a normal cough reflex).

2.Palpation:

Tactile and vocal fremitus, mobility of cervical and thoracic spine, shoulder girdle, rib cage.

3.Percussion: dullness and hyperresonance.

4.Auscultation: Normal and abnormal breath sounds.

5.Measurement: Chest expansion at different levels (axiliary, nipple, xiphoid); exercise tolerance (six minute walking test).

6.Cardiac dysfunction: evaluation of risk factors, respiratory system evaluation, heart rate rhythm.

7.Physical assessment in post-operative lung and cardiac conditions: surgery details, date, duration, events, types and extent, incision, vitals, drains, pain, ROM, thoracic cavity, neck, shoulder girdle, thoracic spine, chest excursion, air entry, sputum, posture, neurological complications, exercise tolerance.

UNIT-II **15 hours**

A. GENERAL OVERVIEW: PHYSICAL TREATMENT:

1.Describe indications, goals and procedure of breathing exercise. Describe diaphragmatic breathing, localized basal expansion, apical expansion, specific segmental exercise raising the resting respiratory level.

2.Describe chest mobilization exercises.

3.Describe relaxation positions for the breathless patient: high side, lying, sitting, relaxed sitting, forward lean, standing, relaxed standing.

4.Describe controlled breathing during walking and during functional activity.

5.Describe exercise for the breathless patient: exercise tolerance testing and exercise programme.

6.Describe the technique of huffing and coughing, forced expiratory technique, vibratory chest shaking and percussion, autogenic drainage, active cycle of breathing, inspiratory muscle training and flutter.

7.Describe techniques of postural drainage, including indications, general precautions and contra indications, preparation of drainage of individual bronchopulmonary segments, modified postural drainage and continuing postural drainage as a home programme.

8.Outline the history of mechanical respiration. Define the following terms a) respirator b) lung ventilator c) resuscitators d) body ventilator e) electrosimulator f) IPPB g) PEEP h) CPAP i) SIMV j) NEEP. Classify ventilators by their cycling control (volume cycling, pressure cycling, time cycling and mixed cycling). Describe the principles of operation of commonly used ventilators and outline the use of the following types: I) bear II) Bennett

III) Emerson IV) Bird.

Outline the principles of aerosol therapy. Describe the physical properties of aerosols and their deposition in the alveoli. Describe the principles of operation of nebulisers.

9.Outline the principles of humidification therapy and methods of correcting humidity deficits. Describe the principles of operation of pass — over humidifiers and bubble — diffusion aerosol therapy. Describe the physical properties of aerosols and their deposition in the alveoli. Describe the principles of operation of nebulizers.

10.Outline the principles of humidification therapy and methods of correcting humidity deficits. Describe the principles of operation of pass — over humidifiers and bubble — diffusion humidifiers.

11.Describe techniques of sterile nasopharyngeal and endotracheal suctioning.

B. PHYSIOTHERAPY IN OBSTRUCTIVE LUNG DISEASES:

1.Assess: Effort of breathing, extent of wheeze, pattern of breathing, sputum production, chest deformity, exercise tolerance (patients effort tolerance).

2.Identify problems: Decreased outflow due to bronchospasm, anxiety due to difficulty in ventilation, exhaustion due to increased work of disturbed breathing. Increased secretions which are difficult to remove, decreased exercise tolerance.

3.Demonstrate treatment techniques: Relaxation postures and techniques, reassurance and education about disease, controlled breathing, breathing exercise, postural drainage, vibratory shaking, huffing and coughing, graduated exercise programme and posture correction.

UNIT-III **14 hours**

A. PHYSIOTHERAPY IN CHEST INFECTIONS:

1.Assess: Sputum, cough, fever and dysponea.

2.Identify problems: Productive cough with risk of hemoptysis, exhaustion due to increased work of breathing, chest deformity, decreased exercise tolerance.

3.Demonstrate treatment techniques: Postural drainage with use of adjuncts, percussion, vibration, huffing and coughing to expectorate, mobilizing exercises to thorax and graduated exercise.

B. PHYSIOTHERAPY IN RESTRICTIVE LUNG DISORDERS:

1.Assess: Chest expansion at different levels, mobility of thorax and spine, posture (kyphosis or scoliosis) and tests for exercise tolerance (six minute walking test).

2.Identify problems: Decreased expansion of lung due to restriction of chest wall movement causing decreased ventilation, defective posture and decreased exercise tolerance.

3.Demonstrate treatment techniques: Vigorous mobilizing exercises to thorax and spine, breathing exercise to increase ventilation and drain secretions, exercises for posture correction, graduated exercises to increase tolerance.

C.PRINCIPLES OF INTENSIVE CARE PHYSIOTHERAPY:

Describe the principles of intensive care therapy.

1.Demonstrate knowledge of the following equipment: endotracheal tubes, tracheostomy tubes, humidifier, ventilators, high frequency ventilators, differential ventilators, CPAP masks, Suction pump, electrocardiogram, pressure monitors — arterial, central venous, pulmonary artery and pulmonary wedge: intracranial and temperature monitors.

2.Assess : Special instructions pertaining to any operation performed, respiration, level of consciousness, colour, blood pressure, pulse, temperature, sputum expectorated (colour and quantity), drugs (time of last dose of analgesic given), drains, presence of pacemaker or intraaortic balloon pump. ECG and blood gas results. Describe chest radiograph with respect to expansion of lungs, size of heart, presence of secretions and placement of chest tubes.

UNIT-IV **13 hours**

A. PHYSIOTHERAPY AFTER PULMONARY SURGERY:

Pre operative:

1.Assess: special instructions pertaining to operative procedure performed, breath sounds, cyanosis, respiratory rate, temperature and pulse, blood pressure, drainage from pleural drain (bubbling or winging), sputum expectorated, analgesia, movements of chest wall (symmetry) position of patient and effort of breathing, chest radiograph and blood gases.

2.Identify problems: Pain due to intercostal drain in situ, decreased air entry, retained secretions, decreased movements of the shoulder of affected side, decreased mobility and poor posture.

3.Demonstrate treatment techniques: deep breathing and segmental breathing exercises, vibrations, percussions, huffing and coughing, full range active assisted arm exercises, ankle foot exercises, trunk exercises, posture correction, positioning of patient, IPPB inhalations.

B. PHYSIOTHERAPY AFTER CARDIAC SURGERY:

Pre operative:

1.Assess patients' medical history, normal breathing pattern of patient, pulse, respiratory rate, BP. Thoracic mobility, posture and patients exercise tolerance.

2.Identify problems: Excess secretions, decreased mobility of thorax, defective posture, decreased exercise tolerance. Demonstrate treatment techniques: Explain to the patients about their operation and about the incision. ICU. Endotracheal tube, central lines, nasogastric tube, catheter, ECG, leads, drains, peripherallines, temperature probe etc. Teach breathing

exercises, slanting of incision, huffing and coughing, correct posture, range of motion, exercises totrunk andshoulder, active exercises to ankle and foot. Post operative: Assess special instructions pertaining to operative procedure performed, type of incision, blood pressure, pulse rate, respiration, colour, time of last analgesic dose, drains, temperature, ECG. chest x-ray and blood gases.

Post operative:1.Identify problems: Pain, decreased air entry, retained secretions, reduced arm and leg movements. Decreased mobility.

2.Demonstrate treatment techniques: Deep breathing exercises, suctioning, active / assisted exercises to arm and leg, graduated exercise programme.

C.PHYSIOTHERAPY IN GENERAL SURGERY:

1.Assess the patients medical history, past treatment, breathing pattern, ability to cough and pain.

2.Identify problems: Pain, increased secretions. Defective posture and correction and graduated exercise programme.

3.Demonstrate treatment techniques: Breathing exercise, huffing and coughing, mobilizing exercise, posture correction and graduated exercise programme.

UNIT-V6 hours

A. PHYSIOTHERAPY IN REHABILITATION AFTER MYOCARDIAL INFARCTION:

1.Describe the role of the physiotherapist in a coronary care unit during the first 48 hours.

2.Describe the principles of formulation of an exercise programme, bed exercises, walking, stair climbing.

3.Describe a home exercise programme and advise leisure activities.

4.Describe physiotherapy for complications after myocardial infarction: chest infection, cerebral embolism and shoulder hand syndrome.

B. PERIPHERAL VASCULAR DISEASES:

1.Outline the pathology, distribution and symptoms of atherosclerosis, intermittent claudication, Burgers disease, Raynaud’s disease and arterial embolus.

2.Assessment of the above conditions.

3.Management of the above conditions.

Course Outcomes:

1.To analyze the patient with artificial airway and provide physiotherapy management procedures in intensive care unit (ICU).

2.To demonstrate appropriate airway clearance techniques in different patient population and manual facilitation techniques for the respiratory muscles in different breathing patterns.

3.To demonstrate appropriate management to reduce work of breathing and improve lung volumes.

4.To demonstrate the appropriate chest physiotherapy management techniques for various post operative pulmonary conditions.

5.To demonstrate interpersonal and communication skills and approach the patients, relatives, and caregivers with empathy.

Text books:

1.Cash Text for Chest, Heart & Vascular disorders.

2.The Brompton guide to chest physiotherapy by D.U.Gasket.

3.Text book of Cardiopulmonary rehabilitation - Scott Irwin.

4.Cardiopulmonary Physical therapy — Dona frownfelter

5.Clinical Physical therapy — Webber & Prayer.

Reference books:

1.Frownfelter D, Dean E. Principles and Practice of Cardiopulmonary Physical Therapy – E-book: Evidence to practice, 5th Edition. Elsevier Health Sciences; 2014.ISBN : 9780323291170.

2.Irwin S, Tecklin JS. Cardiopulmonary Physical Therapy: A Guide to Practice, 4th Edition. USA: Mosby Inc.; 2004. ISBN: 9780323018401.

PROGRAMME ELECTIVE-I (Hand rehabilitation)

BPTT4601 a **L T P C**

3 0 0 3

COURSE DESCRIPTIOIN:

This course imparts clinical knowledge about physiotherapy practice in general and hand surgical conditions for various ailments with hands on training to apply various treatment techniques to hand injured patients

COURSE OBJECTIVES:

1: Assess and treat soft tissue conditions of hand

2: Evaluate and treat tendon injuries of hand

3: Evaluate and treat fracture and mutilating injuries of hand

4: Evaluate and treat Nerve injuries of hand

5: Apply principles to fabricate hand splints

UNIT-I **5hours**

Hand

I. Evaluation of Hand

General clinical and physiotherapy evaluation of hand edema- Various methods of evaluation and its management.

Sensibility assessment.

UNIT-II **12 hours**

Soft tissue conditions of hand

Claw hand, Trigger finger, deQuervain's Disease, Dupuytren's disease.

Tendon injuries

1) Flexor tendon injuries – post operative physiotherapy management

2) Extensor tendon injuries - post operative physiotherapy management

3) Tendon transfer – indications, selection of tendons for transfer, tendon excursion,. post operative physiotherapy management

4) Tenolysis- post operative physiotherapy management

UNIT-III **12 hours**

Mutilating injuries of hand

1)Reid's classification

2)Physiotherapy management of mutilated hand

3)Prescription of hand prosthesis.

Post operative Physiotherapy management of Nerve injuries

1.Radial nerve injury

2.Ulnar nerve injury

3.Median nerve injury

4.Neurolysis

UNIT-IV **10 hours**

Fractures of hand

Physiotherapy management of

Fracture of carpal bones

Fractures of metacarpal bones

Fractures of bones of phalanx

Fabrication of hand splints

Indications, armamentarium required for hand splints,

UNIT-V **6 hours**

Plastic surgery in hand

Burns – Types,clinical anatomy, clinical and therapeutic management and complications of Burns in hand

Skin Grafts – Indications, types, limitations, pre and post operative physiotherapeutic management of same

Course Outcomes:

1: Assess and treat soft tissue conditions of hand

2: Evaluate and treat tendon injuries of hand

3: Evaluate and treat fracture and mutilating injuries of hand

4: Evaluate and treat Nerve injuries of hand

5: Apply principles to fabricate hand splints

Text books:

1.Rehabilitation of the hand. Surgery and therapy- Scheider James M Hunter.MD-3rd edition Mosby

2.Occupational Hand and Upper extremities injuries and disease- Mortan L-Kasdam. Mosby. Hanley &Belfi

3.Hand rehabilitation- A quick reference guide and review- Nancy Falkenstein.Mosby

4.Physical rehabilitation- assessment and treatment- Susan B. O.Sullaivan-4th edition Jaypee

5.Thomas J Schmitz

6.Cash's Text book of general Medical &,surgical condition for physiotherapists- Patricia A. Downie

7.Examination of the hand and wrist- Raoul Tubiana. Mosby

Reference books:

1.Hand secrets- Peter J L Jebson and Mortan.LKasvan

2.Hand therapy- Principles and practice- Maureen Salter

Hand rehabilitation- Gaylord L.Clark, EF Shaw Wilgis-2nd edition Mosby

PROGRAMME ELECTIVE -I (Entrepreneurship for physiotherapist)

BPTT4601b **L T P C**

3 0 0 3

Course Description:

This course describes about the skill development in clinical set up and management

COURSE OBJECTIVE:

1. Setup own clinical setup and develop communication skills

2. Able to manage finances in the clinical setting.

3.Learns about the models of health care improvements.

4. Knowledge about legal and ethical considerations.

5.Gain knowledge in managing and supervising Communicating with skill Strategic planning, structural framework

UNIT-I **2 hours**

Introduction to entrepreneurial physical therapist.: Motivations for private practice. Essential entrepreneur characteristics and knowing the entrepreneur talents. Opportunities and threats associated with private practice. Case studies of successful physiotherapy entrepreneurs

UNIT-II **10 hours**

Theories and Regulations: Theories and models of health care improvements. Theories and models of innovation and entrepreneurship for idea development and idea feasibility analysis. Patient safety regulations and ethics regulation.

UNIT-III **10 hours**

Guiding behaviour and legal and ethical considerations: Values and ethical principles: personal values, philosophical statement, mission statement, vision statement, professional ethics, selected behaviour related documents of the Indian physiotherapy association (IAP). Clinical establishment act standard for physiotherapy centre in India. Legal framework in India in business environment Health care system and regulatory rules and reforms in India. Role of documentation Liability with various practice settings Legal issues, private malpractice insurance.

UNIT-IV **15 hours**

Business acumen Leading, managing and supervising Communicating with skill Strategic planning, structural framework, importance of networking Organizing for business success Management and decision-making Marketing basics Employment and labour law in India

UNIT-V **8 hours**

Financial awareness, Management and funding: Economic principles accounting and financing making structured personal financial decision, inter professional collaboration and teamwork, change management, Diversity, Exploring funding options such as loans, grants, and investment

COURSE OUTCOMES:

1.Analysis of opportunities and rule out the ability to become an entrepreneur.

2.Build up communication and management skills required to become and acquired knowledge regarding theories and safety regulations.

3.Explain the rules and regulations to be adopted as per IAP

4.Practice professional behaviour required for being an entrepreneur.

5.Inculcate basic financial awareness skills in order to manage finances.

Text Books :

1. Managerial and supervisory principles for physical therapists. 3rd edition. Larry J nosse.

2. The physical therapist's business practice and legal guide. Sheila k. Nicholson.

3." Physiotherapy Entrepreneurship: Building your practice from the ground up"

4. "The Physiotherapist's Playbook: Strategies for successful

5."Healthy Business, Healthy Patients: Entrepreneurial Principles for Physiotherapists"

VIII SEMESTER

BPTT4506 REHABILITATION MEDICINE L T P C

4 0 98.5

COURSE DESCRIPTION:

Following the basic sciences and clinical sciences course, this course will enable the students to understand their role in the management of disability.

COURSE OBJECTIVES:

1: The concept of team approach in rehabilitation (practical demonstration, with contributions from all members of the team).

2: Diagnostic features in physical conditions (practised through clinical demonstration).

3: Medical and surgical aspects of disabling conditions (explained in relation to rehabilitation).

4: Residual potentials in patients with partial or total disability (temporary or permanent)

5: Appropriate goals (long and short term) in treatment & rehabilitation

UNIT-I **12 hours**

A. INTRODUCTION:

-Define the term rehabilitation. Explain its aims and principles.

-Discuss team work involved in rehabilitation. Explain briefly the role of each team member.

B. COMMUNITY BASED REHABILITATION MODULE:

Describe a CBR module and compare this with an institution-based rehabilitation system.

B. THERAPEUTIC TECHNIQUES:

Explain the theory and mechanism of therapeutic techniques and relevant precautions, for the following: -

1.Joint mobilization and manipulation

2.Reducing spasm.

3.Assisting weak muscles.

4.Increasing endurance

5.Muscle re-education following muscle transfer surgery.

6.Strengthening muscles.

7.Increasing co-ordination.

8.Improving balance.

9.Gait training with various assistive aids

UNIT-II **12 hours**

A. COMMUNICATION PROBLEMS:

Identify communication problems, classify these and outline principles of treatment and training

B. BEHAVIOURAL PROBLEMS:

Identify behavioural problems in the disabled and outline principles of management.

C.PAIN:

Describe the theories of pain and discuss therapeutic management of pain using various modalities.

UNIT-III **16hours**

A. EVALUATION OF PHYSICAL DYSFUNCTION:

Demonstrate methods of evaluation for physical dysfunction & management of disabilities with particular reference to: Spinal cord injury (paraplegia and tetraplegia), poliomyelitis, brain injury, (including stroke and cerebral palsy) arthritic conditions, muscular dystrophy, Hansens disease, peripheral nerve lesions. Fracture disease & chronic cardio — respiratory dysfunction.

B. DISABILITY EVALUATION:

Outline the principles of disability evaluation and discuss its use.

C.ORTHOTIC DEVICES:

Explain the principles involved in prescribing orthotic devices and fabrication for different parts of the body. Outline the purpose of each type and list major indications & contra indications and demonstrate methods of training in their use.

D.PROSTHETIC DEVICES:

Describe types of artificial limb and their functions. Demonstrate methods of pre and post training and their use.

I.MOBILITY AIDS:

Demonstrate knowledge of the indications for different types of mobility aids, and their functions eg. wheelchairs, walkers, crutches.

UNIT-IV **8 hours**

A. GERIATRIC REHABILITATION:

•Life history

•Sociological & technological aspects

•The ageing body

•Theories of ageing:physiological : environmental

•Locomotor system

•Cardio-respiratory system

•Neurological function

•Autonomic function

•Metabolic function

•Approach to the treatment

•Interview

•Examination

•Aims of intervention

•Role of the Physiotherapist

B. PALLIATIVE CARE:

1.Define the term palliative care

2.Role of team members in palliative care

3.Explain briefly the role of each team member

4.Palliative care in terminal illness

UNIT-V **12 hours**

A.LEGAL ASPECTS:

Outline legal aspects of disability, terms of compensation for disability and benefits available to the disabled.

B. SOCIAL IMPLICATIONS:

Outline the social implications of disability for the individual and for the community.

C.PRE-VOCATIONAL EVALUATION:

Discuss methods and team involvement in pre-vocational evaluation and training.

D.ARCHITECTURAL BARRIERS:

Describe architectural barriers and possible modifications, with reference to rheumatoid arthritis, cerebrovascular accident, spinal cord injury, and other disabling conditions. Parkinsons disease, amputation, muscular dystrophy, cerebral palsy, poliomyelitis, peripheral nerve lesions, Hansens disease, multiple sclerosis.

COURSE OUTCOMES:

1: The concept of team approach in rehabilitation (practical demonstration, with contributions from all members of the team).

2: Medical and surgical aspects of disabling conditions (explained in relation to rehabilitation).

3: Residual potentials in patients with partial or total disability (temporary or permanent)

4: Appropriate goals (long and short term) in treatment & rehabilitation

5: Learns the concepts of community based rehabilitation.

Text books:

1.Text book of rehabilitation medicine by Sunder.

2.Text Book of rehabilitation medicine by Delisa.

3.Geriatrics Rehabilitation - Tidys physiotherapy

4.Cash Text Book of General Surgery.

5.Physical Rehabilitation Assessment and treatment - Susan O Sullivan.

Reference books:

1.Physiological basics of Rehabilitation Medicine - Downy and Darlings.

2.Hand Book of Physical Medicine and Rehabilitation - Randall and Broddom.

3.Manual of Physical Medicine and Rehabilitation - Christopher M Brammer.

4.Joan E. Edelstein - Jan Bruckner - Orthotics A comprehensive clinical approach.

PROGRAMME ELECTIVE-II (STRENGTH AND CONDITIONING)

BPTT4602a **L T P C**

3 0 0 3

COURSE DISCRIPTION:

This course means engaging in activity to improve performance and/or fitness; this is best accomplished by understanding general seven sports training principles: overload, reversibility, progression, individualization, periodization, and specificity. In this course students may be able to learn

Project Based Learning (PBL)

COURSE OBJECTIVES:

1: To give knowledge and skills to enter the fitness industry as a skilled strength and conditioning expert

2: To demonstrate professional practice with moral values and ethical principles of training

3: To provide relevant practice parameters for Strength & Conditioning professionals to utilize when carrying out their responsibilities in providing services to athletes or other participants.

4.Gain knowledge on basic physical fitness

5.Sports specific training

UNIT-I **6hours**

BASICS OF PHYSICAL FITNESS

•Basic Physical fitness components: Strength, Speed, Endurance, Mobility.

•Introduction to methods of improving– General exercises, special exercises, competition specific exercises

•Factors determining quality of training

•Model of training

•Stages of trainer and Trainee relationship: Rapport Investigation, Planning and Action.

UNIT-II **9 hours**

COMPONENTS AND PRINCIPLES OF SPORTS TRAINING

•Components of Sports Training: Meaning of the terms Unit, Session, Micro Cycle, Meso Cycle and Macro Cycle

•Physiological basis of Periodization - Periodization models - Types of Periodization

•Periodization of strength training, speed training, endurance training

•Principles of Sports training: Principle of variation of training - Principle of specificity - Principle of individualization - Principle of over load - Principle of diminishing return

•Force-velocity - Relationship Scientific and systematic planning

UNIT-III **14 hours**

FACTORS OF SPORTS TRAINING

•Classification of Sports, Physical activity and physical exercises.

•Exercise selection - General adaptation to Physical exercises.

• Additional means of training - Application of knowledge of sports performance

•Speed, Agility and Quickness: Forms of speed in various sports –

FACTORS DETERMINING SPEED ABILITY

•Heredity

• Reaction time

•Muscle composition and elasticity

• Flexibility - Warm-up

•Psychic factors

• Biomechanical factors

•Methods of developing speed

• Load intensity

•Work interval

• Rest interval

•Number of repetitions

•Way of rest

•Training frequency

UNIT-V **8 hours**

MEASUREMENT OF PHYSICAL FITNESS AND MOTOR FITNESS:

Tuttle Pulse Ratio Test,

Harvard Step Test,

Cooper's 12 Minutes Run / Walk Test.

AAHPER Youth Fitness Test

JCR Test

Kraus – Weber Muscular Fitness Test

Course outcomes:

1: To give knowledge and skills to enter the fitness industry as a skilled strength and conditioning expert

2: To demonstrate professional practice with moral values and ethical principles of training

3: To provide relevant practice parameters for Strength & Conditioning professionals to utilize when carrying out their responsibilities in providing services to athletes or other participants.

4.Gain knowledge on basic physical fitness

5.Sports specific training

Text books:

1.Hoeger W.W.K, Fitness and Wellness, Human Kinetics Publishers.

2.Baechle T.R., Essentials Of Strength Training And Conditioning, 3/E. Human Kinetics Publishers

3Dick W. Frank, Sports Training Principles 4thed. (London: A&C Black Ltd.),2002.

4.Anderson ,Foundations of Athletic Training, 6e (HB), Human Kinetics Publishers

5.NASM , NASM Essentials of Sports Performance Training, First Edition Revised, Human Kinetics Publishers

Reference books:

1.Derek Hansen, Steve Kennelly, Plyometric Anatomy, Human KineticsPublishers

2.Tuder B. Bompa& Mihal C. Carera, Periodiation Training for Sports, HumanKinetics,2005 (IInd Edition)

3.Sreedhar. K., Sports Training Methods, Chidambaram, Sowmi Publications, 2007.Clive Brewer, Athletic Movement Skills: Training for Sports Performance, Human Kinetics Publishers.

4.Lee E. Brown,Vance Ferrigno ,Training for Speed, Agility, and Quickness, Human Kinetics Publishers.

5.Mike McGuigan, PhD, CSCS ,Monitoring Training and Performance in Athletes, Human Kinetics Publishers.

6.Marie Dunford, PhD, RD ,Fundamentals of Sport and Exercise Nutrition, Human Kinetics Publishers.

7.Steven B. Heymsfield, Timothy G. Lohman, ZiMian Wang, Scott B. Going, , Human Body Composition, Second Edition, Human Kinetics Publishers.

8.National Strength and Conditioning Association (NSCA) Bill I. Campbell, Marie A. Spano, ,NSCA's Guide to Sport and Exercise Nutrition, Human Kinetics Publishers.

9.Kang , Nutrition and Metabolism in Sports, Exercise and Health, Human Kinetics Publishers.

10.Fink, Practical Applications in Sports Nutrition, 5/Ed, Human Kinetics Publishers.

11.S.S. Roy, Sports Management: Friends Publications: New Delhi.

12.Samiran Chakrabarty, Sports Management: Sports Publications: Delhi, 1998.

13.ACSM, ACSM's Health-Related Physical Fitness Assessment Manual, 5Ed, Human Kinetics Publishers.

14.Vern Gambetta ,Athletic Development: The Art & Science of Functional Sports Conditioning, Human Kinetics Publishers.

PROGRAMME ELECTIVE-II(PE-II) SPINAL MANIPULATIONS

BPTT4602b **L T P C**

3 0 0 3

Course description:

This course enables the candidate to develop the ability to assess the somatic assessment and for various musculoskeletal conditions. This program provides knowledge in learning the principles, concepts and different school of thought of various manual therapy techniques which enhances better hands-on practices for various musculoskeletal disorders. This program also enhances more realistic, evidence based practice and multifactorial approach to the examination and treatment procedure in order to address the musculoskeletal pain.

Course objectives:

1. Understanding the anatomy, pathoanatomy and age related changes of the spinal column, pelvic complex.

2.Proficient in applying spinal column, pelvic complex, examination procedures.

3.Determining a differential diagnosis based on an integrated examination of the joint, muscle and neural systems.

4.Proficient in applying an appropriate manual therapy treatment strategy incorporating manual treatment techniques and specific exercise

5.Specific exercise programmes to prevent contractures and deformities.

UNIT-I **8 hours**

INTRODUCTION TO SPINAL MANIPULATION

Overview of spinal anatomy and biomechanics (Introduction to Spinal Mobilization Techniques ,Anatomical Considerations for Spinal Mobilization, Principles of Manual Therapy)

- Historical context and evolution of spinal manipulation techniques

- Principles and goals of spinal manipulation

- Safety considerations and contraindications

UNIT-II **12 hours**

ASSESSMENT AND DIAGNOSIS

- Patient assessment techniques for spinal disorders

1. Assessment Procedures for Spinal Mobility, Precautions and Contraindications, Patient Positioning for Spinal Mobilization, Soft Tissue Techniques for Spinal Mobilization, Articular Techniques for Spinal Mobilization, Combined Movement Techniques, Clinical Applications and Case Studies, Safety and Risk Management, Integration with Exercise Therapy, Recent Advances in Spinal Mobilization Techniques,Patient Education and Home Exercises, Documentation and Evaluation of Treatment Outcomes

- Differential diagnosis of spinal conditions

- Imaging modalities in spinal assessment

- Case studies and practical exercises

UNIT-III **10 hours**

MANUAL TECHNIQUES FOR SPINAL MOBILIZATION

- Introduction to various manual mobilization techniques (e.g., soft tissue mobilization, joint mobilization)

- Application of mobilization techniques to different regions of the spine (cervical, thoracic, lumbar)

- Hands-on practice sessions with supervision and feedback

UNIT-IV **10 hours**

HIGH-VELOCITY LOW-AMPLITUDE (HVLA) THRUST TECHNIQUES

- Theory and principles behind HVLA thrust techniques

1.Introduction to HVLA Thrust Techniques, Biomechanical Principles of HVLA Thrust, Historical Development and Evolution, Safety Considerations and Precautions, Contraindications for HVLA Thrust, Patient Assessment and Screening, Patient Positioning for HVLA Thrust, Technique Selection and Application, Force Application and Direction, Combination with Soft Tissue Techniques, Integration with Exercise Therapy

- Indications and contraindications for HVLA thrust techniques

- Demonstration and practice of HVLA thrust techniques on spine models and simulated patients

- Risk management and patient communication during HVLA procedures

UNIT-V **5 hours**

INTEGRATION AND ADVANCED CONCEPTS

- Integrating spinal manipulation into comprehensive treatment plans

- Advanced techniques and variations in spinal manipulation

- Special populations and considerations (e.g., pediatric, geriatric, pregnant patients)

- Ethical and legal aspects of spinal manipulation practice

Course Outcomes:

1.Understanding the anatomy, pathoanatomy and age related changes of the spinal column, pelvic complex.

2.Proficient in applying spinal column, pelvic complex, neural, muscle examination procedures.

3.Determining a differential diagnosis based on an integrated examination of the joint, muscle and neural systems.

4.Proficient in applying an appropriate manual therapy treatment strategy incorporating manual treatment techniques and specific exercise

5.Specific exercise programmes to prevent contractures and deformities

Text books:

1.Clinical Biomechanics of the Spine" by Augustus A. White III and Manohar M. Panjabi: This textbook provides a comprehensive overview of the biomechanics of the spine, including how various manipulative techniques affect spinal structures.

2.Orthopaedic Manual Therapy" by Chad Cook: While not exclusively focused on spinal manipulations, this book covers a wide range of manual therapy techniques, including those used for the spine.

3.The Lumbar Spine: Mechanical Diagnosis & Therapy" by Robin McKenzie: This book focuses on the McKenzie Method of Mechanical Diagnosis and Therapy (MDT), which includes assessment and treatment techniques for various spinal conditions.

4.Manual Therapy of the Extremities" by Stanley Paris and Timothy W. Flynn: Though it primarily deals with extremity manual therapy, it also discusses spinal manipulation techniques and their applications.

Reference books :

1."Textbook of Clinical Chiropractic: A Specific Biomechanical Approach" by Gregory Plaugher: This textbook offers insights into chiropractic techniques, including spinal manipulative therapy, from a clinical perspective.

2.Orthopaedic Manual Physical Therapy: From Art to Evidence" by Christopher H. Wise and Jeffrey D. Robinson: This book provides an evidence-based approach to manual therapy, including spinal manipulations, integrating research findings into clinical practice