Guidelines for Regulation and Curriculum of the Programs Offered



Contents- may include the following

(to be modified as per the requirements and select those which are applicable)

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YENEPOYA
(DEEMED TO BE UNIVERSITY)
Recognized under Sec 3(A) of the UGC Act 1956
Accredited by NAAC with 'A' Grade

Office of the Registrar
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Mangalore - 575018
Ph: 0824-2204667/68/69/71
Fax: 0824-2203943

NOTIFICATION – 23/32-ACM/2018 dtd. 03.09.2018

Sub: Starting of courses on Choice Based Credit System

Ref: Resolution of the Academic Council at its meeting held on 11.08.2018 vide agenda – 23

*****

The Academic Council at its meeting held on 11.08.2018, vide agenda – 23 approved the proposal to start following courses on Choice Base Credit System and subsequently ratified by the Board of Management.

1. M.S.W. (Master of Social Work)
2. M.H.A. (Master in Hospital Administration)
3. M.Sc. (Bioscience)
4. M.P.T. (Master of Physiotherapy)
5. M.P.H. (Master in Public Health)

The Regulations for the said courses as recommended by the Faculty of Allied Health & Basic Sciences has been approved.

(Dr. G. Shreekumar Menon)
REGISTRAR
mj

Copy to:

1. Dean, Faculty of Allied Health & Basic Sciences
2. The Coordinator, Choice Based Credit System
3. Dy. Director, YRC
4. HoD, Department of Public Health
5. HoD, Department of MSW
6. HoD, Department of Hospital Administration
7. Academic Section

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No.YU/REG/AC(7-5)/Noti./2011

28.07.2011

NOTIFICATION

Sub: Syllabus of MPT in Paediatrics (2nd Year Paper I & II) and MPT in Manual Therapy (2nd Year Paper I & II)

Ref: Agenda No.5 of the minutes of 7th Academic Council meeting held on 21st July 2011.

==XX==

The Syllabus of MPT in Paediatrics (2nd Year Paper I & II) and MPT in Manual Therapy (2nd Year Paper I & II) as proposed by the Board of Studies Physiotherapy and recommended by the Faculty of Allied Health Science is hereby approved by the Academic Council and Board of Management at their meetings held on 21st & 22nd July 2011 respectively are hereby by notified for implementation.

REGISTRAR

To:

The Principal, YPC

Cc to:

- Controller of Examinations, YU

YENEPOYA
UNIVERSITY

Office of the Registrar
University Road,
Deralakatte
Mangalore - 575018
Ph: 0824-2204667/68/69/71
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NOTIFICATION – 2-ACM/2009 dtd.10/05/2009

Sub: Curriculum for M.P.T. course

Ref: Resolution of the Academic Council at its 2nd meeting held on 05.05.2009 vide Agenda -5

******

The curriculum for M.P.T course submitted by the Board of Studies, Yenepoya Physiotherapy College has been approved at the 2nd meeting of Academic Council held on 05.05.2009 and subsequently at the meeting of Board of Management.

This notification is issued for implementation with effect from the academic year 2009-2010.

REGISTRAR

Registrar
Yenepoya (Deemed to be University)
University Road, Deralakatte
Mangalore 575 018

To:

The Principal – Yenepoya Physiotherapy College

Copy to:

1. Controller of Examinations
2. File copy

1. Preamble

The Master of Physiotherapy is a 2-year fulltime program with 4 semesters (15 weeks per semester) through Choice Based Credit System leading to the degree that equips the student with analytical, evidence based and Hands on learning skills. The program is generic in nature and has a component of additional learning of one area leading to an elective in that area. Psychosomatic aspects of training are a component through all the elective areas.

2. Definitions

a) **Academic Year:** Two consecutive (one odd + one even) semesters constitute one academic year.

b) **Choice Based Credit System**: The CBCS provides choice for students to select from the prescribed courses (core, elective or minor or soft skill courses).

c) **Course:** Usually referred to, as "papers" is a component of a programme. The courses shall define learning objectives and learning outcomes. A course shall compriselectures/tutorials/laboratorywork/fieldwork/outreachactivities/projectwork/vocationaltraining/viva/seminars/termpapers/assignments/presentations/self-studyetc.oracombination of some of these.

d) **Credits:** Credit defines the quantum of contents/syllabus prescribed for a course and determines the number of hours of instruction required per week. Thus, normally in each of the courses, credits will be assigned on the basis of the number of lectures/tutorial laboratory work and other forms of learning required, to complete the course contents minimum of 15-weekschedule: One credit=1hour of lecture per week/two hours of practical/three hours of clinical rotation, field work/posting. All courses need not carry the same credits

e) **Programs:** An educational program leading to award of a degree, diploma or certificate.

f) **Grade Point**: It is a numerical weight allotted to each letter grade on a10-pointscale.

g) **Credit Point**: It is the product of grade point and number of credits for a course.

h) **Cumulative Grade Point Average (CGPA**): It is a measure of overall cumulative performance of a student over all semesters. The CGPA is the ratio of total credit

points secured by a student in various courses in all semesters and the sum of the total credits of all courses in all the semesters. It is expressed up to two decimal places.

i) **Letter Grade:** It is an index of the performance of students in a said course. Grades are denoted by letters: O+, O, A+, A, B+, P, F.

j) **Semester Grade Point Average (SGPA):** It is a measure of performance of work done in a semester. It is ratio of total credit points secured by a student in various courses registered in a semester and the total course credits taken during that semester. It shall be expressed up to two decimal places.

k) **Transcript or Grade Card or Certificate:** Based on the grades earned, a grade certificate shall be issued to all the registered students after every semester. The grade certificate will display the course details (code, title, number of credits, grade secured) along with SGPA of that semester.

l) **Semester System and Choice Based Credit System:** The semester system accelerates the teaching-learning process. The credit-based semester system provides flexibility in designing curriculum and assigning credits based on the course content and hours of teaching. The choice-based credit system provides a cafeteria _type approach in which the students can take courses of their choice, undergo additional courses and acquire more than the required credits, and adopt an interdisciplinary approach to learning.

Types of Courses

a) **Core course**: a course that should compulsorily be studied by a candidate as a core requirement is termed as a core course.

b) **Skill Enhancement Course**: These courses are aimed at improving practical, professional & procedural knowledge requirement for carrying the highly skilled task related to the field of study

c) **Open Elective**: Generally, a course which can be chosen from a pool of courses and which may be very specific or specialized or advanced or supportive to the discipline/subject of study or which provides an extended scope or which enables an exposure to some other discipline or subject or domain or nurtures the candidate‘s proficiency skill.

A candidate shall have the freedom to choose Multidisciplinary Open Elective courses during the academic duration of the particular PG programme offered by Yenepoya (deemed to be) University through the PG departments or SWAYAM/MOOC external online platforms or a mix of courses offered by Yenepoya (deemed to be) University and SWAYAM/MOOC as appropriate.

i. A candidate opting for SWAYAM/MOOC courses shall have the freedom to choose the courses of once own choice and complete such courses before appearing fourth Semester End Examination.

ii. A candidate shall compulsorily submit the pass certificate of each course successfully completed to the controller of examination of Yenepoya (deemed to be) University through the proper channel before appearing the fourth semester end examination.

iii. A candidate opting multidisciplinary open elective courses offered by the Yenepoya (deemed to be) University through the PG departments need to take up these courses generally during second and third semesters of the programme.

iv. A candidate shall not take the courses offered by the department in which she/he is enrolled.

v. Registration for the multidisciplinary open elective courses offered by the Yenepoya (deemed to be) University shall be at least one week prior to the commencement of the course with the CBCS coordinator. The CBCS unit shall notify the list of courses after being approved by the respective BOS. For SWAYAM/MOOC courses shall be as per the enrollment notification by the respective implementation authorities.

Yenepoya (deemed to be) University shall adapt the regulations of UGC governing SWAYAM/MOOC courses as amended from time to time.

3. Eligibility for admission

Candidates who have passed B.Sc. (PT) or BPT degree from institutions where the mode of study is a full-time program, with minimum 3½ years duration from this university or any other university in India or abroad as equivalent with not less than 50% of marks in aggregate and have completed 6 months of compulsory rotating internship in Physiotherapy Colleges recognized by Yenepoya (Deemed to be University), Karnataka are eligible

OR

Candidates who have passed BPT through Bridge Course or through Lateral Entry after completing their Diploma in Physiotherapy from institutions where the mode of study is a full-time program from this university or any other university in India or abroad as equivalent with not less than 50% of marks in aggregate and have completed 6 months of compulsory rotating internship in Physiotherapy Colleges recognized by Yenepoya (Deemed to be University) - Karnataka are eligible.

4. Duration of the program

The duration of the programme shall extend over 4 semesters (2 academic years) of 15weeks or more each with a minimum of 90 actual working days of instructions in each semester and 2–3 weeks of examinations.

5. Maximum period for completion of the program

A candidate shall complete the four semesters (two years) programme within five years from the date of admission.

a) Candidates admitted to the program abstaining for more than 3 months must seek readmission in to the appropriate semester.
b) The candidate shall follow the syllabus in vogue (currently approved/ is being followed) for the program.
c) All re-admissions of candidates are subject to the approval of the Yenepoya (Deemed to be University).

6. Aim of the Program

7. Objectives/Outcomes of the program (Knowledge/Skill/Attitude/Communication)

- Program Outcomes

After successful completion of MPT Program, the students will be able to:

PO 01- Evaluate, assess, functionally diagnose, treat and rehabilitate in the field of specialized Physiotherapy utilizing advanced and current techniques building on the knowledge gained from entry level education. (KSA)

PO 02- Practice professional autonomy and promote health in the community through professionally guided practice by referral as well as first contact mode using evidence-based practices. (KSA)

PO 03- Impart research basis to validate techniques during professional practice towards quality health care delivery. (KSA)

PO 04- Develop appropriate professional relationships in multi-disciplinary set up to provide total care. (S A C)

PO 05- Appreciate the necessity for lifelong updation with recent advances in the professional practice to provide excellent patients care.(A S C)

PO 08- Inculcate quality patient care with ethical values and standards (S A)

PO 09- Carry out independent research studies and disseminates the knowledge (KSAC)

- Program Specific Outcomes

Program structure

	Broad category of course	**Hours/Credits**	**Course (Title + Course Code)**
1.	**Discipline-Specific Courses**		
a)	Theory	3	Principles of PT Practice & Ethics of Practice: AH02PT1CC1
		3	**Part A**-Research Methodology **Part-B**- Biostatistics-AH02PT1CC2
		4	Evidence Based Practice & Teaching Methodology-AH02PT1CC3
b)	Practical (SEC)*	**4**	SEC Group 1 -AH02PT2SEC1
		4	SEC Group 2 -AH02PT3SEC1
		2	SEC Group 3- AH02PT4SEC1
c)	Clinical (SEC)*	**6**	Physiotherapy Clinical practice-I AH02PT1SEC1

		9	Physiotherapy Clinical practice-II AH02PT2SEC2
		9	Physiotherapy Clinical Practice-III- AH02PT3SEC2
		3	Physiotherapy Clinical Practice-IV- AH02PT4SEC2
d)	Simulation-based (SEC)*		
2.	**Curriculum Enrichment Courses**		
a)	Field Visit		
b)	Community Posting		
c)	Industry / Clinical Internship		
d)	Research Project	**12**	Dissertation - AH02PT4RP1
3.	**Electives**		
a)	Discipline-Specific Electives	**4**	DSE Group 1-AH02PT1DSE1
		4	DSE Group 2 -AH02PT2DSE1
		4	DSE Group 3-AH02PT3DSE1s
		3	DSE Group 4- AH02PT4DSE1
b)	Interdisciplinary Courses (*See Notes1*)		
c)	Ability Enhancement Courses • *Soft skills development* • *Language and communication skill development* • *Analytical skill development* • *Personality and professional development* • *Employability skill development*		
d)	Value Added Courses		
e)	Open elective courses (Coursera)	**3**	Open elective-AH02PTOE
		3	Open Electives- AH02PTOE
	Total	**80**	

SEC: Skill Enhancement Course

Note 1: Courses from other disciplines

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Discipline Specific Electives (DSE) Group 1: Semester 1

Sl. No.	Course Code	Specialization	Course Name
1.	AH02PT1DSE1A	MPT in Musculoskeletal Sciences	Basic Sciences for Musculoskeletal PT
2.	AH02PT1DSE1B	MPT in Sports	Basic Sciences for Sports PT
3.	AH02PT1DSE1C	MPT in Neurosciences	Basic Sciences for Neuro PT
4.	AH02PT1DSE1D	MPT in Cardiovascular & Pulmonary Sciences	Basic Sciences for Cardiovascular & Pulmonary PT
5.	AH02PT1DSE1E	MPT in Pediatrics	Basic Sciences for Pediatric PT
6.	AH02PT1DSE1F	MPT in Geriatrics	Basic Sciences for Geriatric PT
7.	AH02PT1DSE1G	MPT in Oncology & Palliative Care	Basic Sciences for Onco PT
8.	AH02PT1DSE1H	MPT in Women's Health, Obstetrics & Gynecology	Basic Sciences for Women's Health & OBG PT

Discipline Specific Electives (DSE) Group 2: Semester 2

Sl. No.	Course Code	Specialization	Course Name
1.	AH02PT2DSE1A	MPT in Musculoskeletal Sciences	Physical & Functional Diagnosis for Musculoskeletal PT - A
2.	AH02PT2DSE1B	MPT in Sports	Physical & Functional Diagnosis for Sports PT - A
3.	AH02PT2DSE1C	MPT in Neurosciences	Physical & Functional Diagnosis for Neuro PT - A
4.	AH02PT2DSE1D	MPT in Cardiovascular & Pulmonary Sciences	Physical & Functional Diagnosis for Cardiovascular & Pulmonary PT - A
5.	AH02PT2DSE1E	MPT in Pediatrics	Physical & Functional Diagnosis for Pediatric PT - A
6.	AH02PT2DSE1F	MPT in Geriatrics	Physical & Functional Diagnosis for Geriatric PT - A
7.	AH02PT2DSE1G	MPT in Oncology & Palliative Care	Physical & Functional Diagnosis for Onco PT - A
8.	AH02PT2DSE1H	MPT in Women's Health, Obstetrics & Gynecology	Physical & Functional Diagnosis for Women's Health & OBG PT - A

Skill Enhancement Courses (SEC) Group 1: Semester 2

Sl. No.	Course Code	Specialization	Course Name
1.	AH02PT2SEC1A	MPT in Musculoskeletal Sciences	Physical & Functional Diagnosis for Musculoskeletal PT - B
2.	AH02PT2SEC1B	MPT in Sports	Physical & Functional Diagnosis for Sports PT - B
3.	AH02PT2SEC1C	MPT in Neurosciences	Physical & Functional Diagnosis for Neuro PT - B
4.	AH02PT2SEC1D	MPT in Cardiovascular & Pulmonary Sciences	Physical & Functional Diagnosis for Cardiovascular & Pulmonary PT - B

5.	AH02PT2SEC1E	MPT in Pediatrics	Physical & Functional Diagnosis for Pediatric PT - B
6.	AH02PT2SEC1F	MPT in Geriatrics	Physical & Functional Diagnosis for Geriatric PT - B
7.	AH02PT2SEC1G	MPT in Oncology & Palliative Care	Physical & Functional Diagnosis for Onco PT - B
8.	AH02PT2SEC1H	MPT in Women's Health, Obstetrics & Gynecology	Physical & Functional Diagnosis for Women's Health & OBG PT - B

Discipline Specific Electives (DSE) Group 3: Semester 3

Sl. No.	Course Code	Specialization	Course Name
1.	AH02PT3DSE1A	MPT in Musculoskeletal Sciences	General Physiotherapy in Musculoskeletal PT - A
2.	AH02PT3DSE1B	MPT in Sports	General Physiotherapy in Sports PT – A
3.	AH02PT3DSE1C	MPT in Neurosciences	General Physiotherapy in Neuro PT – A
4.	AH02PT3DSE1D	MPT in Cardiovascular & Pulmonary Sciences	General Physiotherapy in Cardiovascular & Pulmonary PT - A
5.	AH02PT3DSE1E	MPT in Pediatrics	General Physiotherapy in Pediatric PT – A
6.	AH02PT3DSE1F	MPT in Geriatrics	General Physiotherapy in Geriatric PT – A
7.	AH02PT3DSE1G	MPT in Oncology & Palliative Care	General Physiotherapy in Onco PT – A
8.	AH02PT3DSE1H	MPT in Women's Health, Obstetrics & Gynecology	General Physiotherapy in Women's Health & OBG PT - A

Skill Enhancement Courses (SEC) Group 2: Semester 3

Sl. No.	Course Code	Specialization	Course Name
1.	AH02PT3SEC1A	MPT in Musculoskeletal Sciences	General Physiotherapy in Musculoskeletal PT - B
2.	AH02PT3SEC1B	MPT in Sports	General Physiotherapy in Sports PT – B
3.	AH02PT3SEC1C	MPT in Neurosciences	General Physiotherapy in Neuro PT – B
4.	AH02PT3SEC1D	MPT in Cardiovascular & Pulmonary Sciences	General Physiotherapy in Cardiovascular & Pulmonary PT - B
5.	AH02PT3SEC1E	MPT in Pediatrics	General Physiotherapy in Pediatric PT – B
6.	AH02PT3SEC1F	MPT in Geriatrics	General Physiotherapy in Geriatric PT – B
7.	AH02PT3SEC1G	MPT in Oncology &	General Physiotherapy in

		Palliative Care	Onco PT – B
8.	AH02PT3SEC1H	MPT in Women's Health, Obstetrics & Gynecology	General Physiotherapy in Women's Health & OBG PT – B

Discipline Specific Electives (DSE) Group 4: Semester 4

Sl. No.	Course Code	Specialization	Course Name
1.	AH02PT4DSE1A	MPT in Musculoskeletal Sciences	Advanced Physiotherapy in Musculoskeletal PT - A
2.	AH02PT4DSE1B	MPT in Sports	Advanced Physiotherapy in Sports PT – A
3.	AH02PT4DSE1C	MPT in Neurosciences	Advanced Physiotherapy in Neuro PT – A
4.	AH02PT4DSE1D	MPT in Cardiovascular & Pulmonary Sciences	Advanced Physiotherapy in Cardiovascular & Pulmonary PT - A
5.	AH02PT4DSE1E	MPT in Pediatrics	Advanced Physiotherapy in Pediatric PT – A
6.	AH02PT4DSE1F	MPT in Geriatrics	Advanced Physiotherapy in Geriatric PT – A
7.	AH02PT4DSE1G	MPT in Oncology & Palliative Care	Advanced Physiotherapy in Onco PT – A
8.	AH02PT4DSE1H	MPT in Women's Health, Obstetrics & Gynecology	Advanced Physiotherapy in Women's Health & OBG PT - A

Skill Enhancement Courses (SEC) Group 3: Semester 4

Sl. No.	Course Code	Specialization	Course Name
1.	AH02PT4SEC1A	MPT in Musculoskeletal Sciences	Advanced Physiotherapy in Musculoskeletal PT - B
2.	AH02PT4SEC1B	MPT in Sports	Advanced Physiotherapy in Sports PT – B
3.	AH02PT4SEC1C	MPT in Neurosciences	Advanced Physiotherapy in Neuro PT – B
4.	AH02PT4SEC1D	MPT in Cardiovascular & Pulmonary Sciences	Advanced Physiotherapy in Cardiovascular & Pulmonary PT - B
5.	AH02PT4SEC1E	MPT in Pediatrics	Advanced Physiotherapy in Pediatric PT – B
6.	AH02PT4SEC1F	MPT in Geriatrics	Advanced Physiotherapy in Geriatric PT – B
7.	AH02PT4SEC1G	MPT in Oncology & Palliative Care	Advanced Physiotherapy in Onco PT – B
8.	AH02PT4SEC1H	MPT in Women's Health, Obstetrics & Gynecology	Advanced Physiotherapy in Women's Health & OBG PT – B

8. Attendance

a) Each course (theory, practical, clinical etc.) shall be treated as an independent unit for the purpose of attendance. Candidates having minimum 80% attendance in each of the Courses can only qualify to appear for the Semester End Examination. The Candidates with less than 80% of attendance shall be required to repeat that Course by attending the semester.

b) There shall be no provision for condonation of shortage of attendance.

c) For SWAYAM/MOOC/NPTEL it shall be as per the regulations governing the courses of implementing authority.

d) The HOD/Course Coordinator through the Dean of Faculties shall announce the names of the candidates who will not be eligible to take the Semester End-Examinations (SEE) in the various courses and send a copy of the same to the Controller of Examinations (COE) Office. Registrations of such candidates for those courses shall be treated as cancelled.

9. Syllabus / Course contents

- Course Outcomes
- Course Specific Outcomes

SEMESTER-I

Principles of PT Practice & Ethics of Practice

Course: Core **Course Code: AH02PT1CC1**

Credits: 2 **No of Hours: 30**

Course outcomes:

CO1: Elaborate the principles of physiotherapy practice.

CO2: Discuss about professional competencies and safety guidelines related to physiotherapy practice

CO3: Solve the ethical issues in professional practice

CO4: Compile the history and evolution of medical ethics

CO5: Predict ethical issues in research and publication

Unit	No. Of hours	Content	Must Know	Good to Know	Desirable To know	Weightage %	Type of questions
Unit I	10	**Principles of Physiotherapy Practice** 1.1. History of the development of the physiotherapy profession		✓		20	SE, LE
		1.2. Principles of practice in the physiotherapy profession, privacy, confidentiality, shared decision-making, equality, and equity.	✓				
		1.3. Clinical reasoning: Models of clinical reasoning, processes involved in clinical decision making, principles of evidence-based practice in physiotherapy	✓				
		1.4. Laws governing physiotherapy practice: NCAHP Act, Consumer Protection Act, Rights of persons with disability act.	✓				

Unit II	10	**Professional competencies** 2.1. Qualification: Required basic qualifications and skills, education framework, management skills, entrepreneurship, and leadership skills in physiotherapy practice. 2.2. Responsibilities: Physiotherapy manager (staffing responsibilities, patient care, fiscal responsibilities, legal and ethical responsibilities, communication responsibilities), academician, and researcher. 2.3. ICT: Use of information technology and promotion using social media in professional practice. Patient/caregiver satisfaction survey following physiotherapy interventions. 2.4. NABH and safety guidelines: NABH Guidelines for physiotherapy practice, fire safety guidelines, pollution control guidelines, biomedical waste management, and disposal guidelines, and universal precautions for infection control in physiotherapy practice	✓ ✓	 ✓ ✓		30	SE, LE

		2.5. Insurance: Professional indemnity insurance policy, guidelines for insurance policy related to physiotherapy treatments	✓				

Unit III	5	**Professional Ethics** 3.1. Code of ethics for physiotherapists (IAP & World Physiotherapy). 3.2. Ethical issues in practice of physiotherapy: Clinical, Research and Academics	✓			20	SE, LE
Unit IV	20	**Research Ethics and Publication Ethics** 4.1. History and evolution of ethics - Helsinki declaration; Nuremberg Code; Principles of ethics and its importance – Principles of ethics: Autonomy, Beneficence, Non-maleficence, Justice. 4.2. ICMR Guidelines General principles, Responsible conduct of research, Risk benefit assessment. 4.3. Informed Consent: Informed Consent Process Components of informed consent document, Procedure in obtaining informed consent, Special situations, waivers, and proxy consent. 4.4. Ethics committee: Roles and Responsibilities of IEC Ethical Review process, Classification of projects for review, Roles and responsibilities of members, Communications with	✓ ✓ ✓ ✓			30	LE, SE

		investigators and authorities 4.5. Research integrity: Fabrication, falsification, plagiarism, and available software to detect plagiarism. 4.6. Publication Ethics: Importance of publishing, Authorship guidelines according to ICMJE, role of the corresponding author, order of authorship, Conflict of Interest, corrigendum, erratum and retraction.	✓	✓			

❖ **LE-** Long Essay**, SE-** Short Essay

Reference books:

1. Mostrom E, Jensen GM. Handbook of Teaching and Learning for Physical Therapists. 3rd edition; Elsevier, Philadelphia, USA, 2012.
2. Shepard KF, Jensen GM. Handbook of Teaching for Physical Therapists. 2nd edition; Butterworth-Heinemann Ltd, USA, 2002.
3. Fairchild S, O'Shea R. Pierson and Fairchild's Principles & Techniques of Patient Care. 7th edition; Elsevier, Philadelphia, USA, 2022.
4. Haddad A, Doherty R, Purtilo R. Health Professional and Patient Interaction. 10th edition; Elsevier, Philadelphia, USA, 2023.
5. Raja K, Davis F, Sivakumar T. Ethical Issues: Perspectives for the Physiotherapists. 1st ed edition; PeePee Publishers and Distributors Pvt, New Delhi, India, 2006.
6. Gabard D L, Martin M W. Physical Therapy Ethics. 2nd edition; F.A. Davis Company, Philadelphia, USA, 2010.
7. WMA Declaration of Helsinki – Ethical principles for medical research involving human participants, October 2024. https://www.wma.net/policies-post/wma-declaration-of-helsinki/
8. National Ethical guidelines for Biomedical and Health Research involving human participants. Indian Council of Medical Research; New Delhi, India, 2017

9. Beauchamp TL, Childress JF. Principles of Biomedical Ethics. 8th edition; Oxford University Press, London, UK, 2019.
10. Vaughn L. Bioethics: Principles, Issues, and Cases. 5th edition; Oxford University Press, London, UK, 2022

Biostatistics & Research Methodology

Course: Core **Course Code: MCE021C3**

Credits: 3 **Number of Hours: 45**

Course Objectives (COs):

CO1: To understand the role of Biostatistics in the disciplines of Health Sciences

CO2: To appropriate summary measures and graphical tools for the data

CO3: To understand the concept of uncertainty in biological data and to know the importance of probability and probability distributions

CO4: To acquire the skills of selecting suitable sampling technique for specific research design.

CO5: To know the importance and method of sample size determinations.

CO6: To restate the research hypothesis in terms of statistical hypothesis and to understand the principles of hypothesis testing.

CO7: To be able to distinguish between parametric and nonparametric tests..

CO8:To know about bivariate and multivariate data, Measures of relationship: correlation and regression. Interpret the results of correlation and regression analysis.

COURSE CONTENT

Unit	Hrs	content	Must know	Good to know	Desirable to know	Weightage	Type of questions
Unit I	3	Statistics and Health Science, Scope and	✓			**5%**	**SE,LE**

		limitations of Statistics. 1.1 Data- types and sources, 1.2 Types of variables- continuous and discrete, 1.3 Fundamental scales of measurement- nominal, ordinal, ratio and scale					
Unit II	3	4.1. Measures of central tendency and dispersion 4.2. Measures of central tendency- Mean, median, mode, Partition values, 4.3. Measures of dispersion- range, mean deviation, standard deviation, quartile deviation 4.4. Merits and demerits. 4.5. Coefficient of variation- application 4.6. Graphs and diagrams for data presentation. 4.7. Skewness and Kurtosis, Box plot.	✓			**5%**	**SE,LE**

Unit III	3	3.1 Probabilityand Probability Distributions 3.2 Medical Uncertainties and Probability. 3.3 Random experiment, sample space, events, types of events, probability, properties of probability, conditional probability, 3.4 Bayes theorem - uses in Health science. 3.5 Sensitivity, Specificity, Positive predictive value (PPV), Negative Predictive Value (NPV),ROC Curve. Binomial distribution, Poisson distribution, Normal distribution	✓			**5%**	**SE,LE**
Unit IV	3	Theory of Sampling 4.1 Concept of population and sample, Random sampling, Sampling and non-sampling errors,	✓			**5%**	**SE,LE**

		4.2 Pilot Study, Importance of Probability sampling. 4.3 Methods of random sampling: Simple random sampling, stratified and systematic Sampling methods. 4.4 Sample size calculation					
Unit V	7	5.1 Inferential StatisticsEstimation: 5.2 Parameter and Statistic, point estimation and Interval estimation. 5.3 Hypothesis testing: Concept of statistical hypothesis and research hypothesis, 5.4 errors in decision making Type-I and Type II error, , size and power of the 5.5 statistical test, level of significance, p value and statistical significance. 5.6 Statistical Vs Medical significance 5.7 Parametric Tests:	✓			**10%**	**SE,LE**

		Hypothesis testing for continuous data- one and two sample t test, paired t test, z-test, One-way ANOVA. Multiple Comparison tests. 5.8 Non parametric tests- need and scope, sign test, median test, Mann Whitney U test, Wilcoxon Signed rank test, 5.9 Chi-square test of Independence of Attributes					
Unit VI	3	Correlation and Regression 6. 1Correlation coefficient- for continuous data, assumptions, hypothesis about correlation coefficient, 6. 2Confidence interval for correlation coefficient, rank correlation, intra class correlation, correlation versus causation, 6. 3Simple linear regression and	✓			**5%**	**SE,LE**

		Multiple linear regression. Estimation and testing, interpretation, prediction and application. 6. 4Introduction to Logistic Regression					
Unit VII	4	Research Design in Health Research **7.1** Types of Study design, Descriptive and Analytical Studies, Prospective, Retrospective Studies, Cohort studies, Case-control studies. **7.2** Advantages and Disadvantages, **7.3** Concept of Relative Risk and Odds Ratio, Stratified Analysis for Confounding factors. **7.4** Attributable Risk, Preventive Fraction	✓			**10%**	**SE, LE**
		Research					
Unit 1	1	Introduction Need for research Types of research Outlining the research	✓			**5%**	**SE, LE**

		process					
Unit II	2	Review of Literature Importance, sources & steps Critical appraisal of research article	✓			**5%**	**SE, LE**
Unit III	5	Research Design Types of research – Qualitative & Quantitative Experimental & Non Experimental, Survey – advantages & disadvantages	✓			**10%**	
Unit IV	2	Research Process Framing a research question Research title Aim & Objectives, Assumptions, Limitations & Delimitations, Variables Hypothesis – formation & testing	✓			**10%**	**SE, LE**
Unit V	2	Data collection & analysis Data sources, technique of data collection, tools Reliability & validity	✓			**15%**	**SE, LE**

		Process of data collection Pilot study – method, need					
UnitVI	4	Interpretation & presentation of data Qualitative & quantitative analysis Graphical representation of data Conclusion & discussion	✓			**5s%**	**SE, LE**
Unit VII	2	Discussion, Conclusion and References	✓			**5%**	**SE, LE**
		Essentials of writing a research paper along with process of publication	✓				

References:

1) Balavendra Antonisamy Prasanna S. Premkumar, Solomon Christopher, Principles and Practices in Biostatistics. Elsevier ,2017

2) Jerrold H .Zar, Biostatistical Analysis. 5 th Edition, Pearson, 2016.

3) Arun Badra Kanhal, Mahajan Methods in Biostatistics for Medical Students and Bernard Rosner, Fundamentals of Biostatistics. 8thEd. CENGAGELearning;2016

5) K VisveswaraRao, Biostatistics a Manual of Statistical Methods for Use in Health Nutrition and Anthropology. 2 nd Edition, JAYPEE, 2009.

6) Wayne W Daniel, Biostatistics A Foundation for Analysis in the Health Sciences. 7 th Ed. John Wiley& Sons; 2005

EVIDENCE-BASED PRACTICE & TEACHING METHODOLOGY

Course: Core Course **Code: AH02PT 1CC3**

Credits: 4 **Number of Hours: 60**

COURSE OUTCOMES:

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

CO 1- Explain the concepts and development of Evidence Based Practice.

CO 2- Discuss about Searching, Evaluating and Analyzing of evidence.

CO 3- Explain about Using and Building evidence in practice

CO 4- Discuss about Communication of Evidence and Research Dissemination.

CO 5- Explain the concept of education, various methods of teaching, learning and evaluation used in classroom and clinical teaching.

CO 6- Apply the principles, philosophies, models in the curriculum development and evaluation

CO 7- Discuss the importance and methods in guidance and counselling for students and faculty.

COURSE CONTENTS:

UNIT	NO. OF HOURS	CONTENT	MUST KNOW	GOOD TO KNOW	DESIRABLE TO KNOW	WEIGHTAE %	TYPE OF QUESTIONS
Unit I	**6**	**1. Introduction to Evidence Based Practice**: 1.1. Definitions, Evidence Based Practice 1.2.Concepts of Evidence based Physiotherapy: Awareness, Consultation, Judgment, and	✓			**10**	LE, SE

		Creativity 1.3. Development of Evidence based knowledge, The Individual Professional, Professionals within a discipline, and Professionals across disciplines 1.4. Evidence Based Practitioner: The Reflective Practitioner- Using the E Model					
Unit II	**9**	**2. Finding and Assessing Evidence:** 2.1 Measuring outcomes in Evidence Based Practice, Measuring Health Outcomes, Measuring clinical outcomes, Inferential statistics and Causation. 2.2 Searching for the Evidence: Asking Questions, identifying different sources of evidence, Electronic Bibliographic databases and World Wide Web, Conducting a literature search. Step by-step search for evidence 2.3 Evaluating the evidence; Levels of evidence in research using quantitative methods, Levels of evidence classification system, Outcome Measurement, The	✓			**15**	LE, SE

		critical review of research using qualitative methods. 2.4 Economic evaluation of the evidence- Types, conducting and critically reviewing economic evaluation					
Unit III	**10**	**3. Systematically reviewing,** Using **the evidence and Building of evidence in practice:** 3.1. Stages of systematic reviews, Meta-analysis, The Cochrane collaboration 3.2. Critically Appraised Topics (CATs)- Format, Using and Drawbacks 3.3. **Clinical Practice Guidelines (CPG), Algorithms, Clinical pathways**, Legal implications in clinical pathways and CPG, Comparison of CPGs, Algorithms and Clinical Pathways	✓			**16**	LE, SE
Unit IV	**5**	**4. Communicating evidence to clients, managers and funders:** 4.1. Effectively communicating evidence, Evidence based communication in the face of uncertainty; Evidence based communication opportunities in everyday practice	✓			**9**	LE, SE

		4.2. Research dissemination and transfer of knowledge: Models of research transfer, Concrete research transfer strategies, Evidence based policy					
Unit V	**05**	**5. Concept of teaching and learning** 5.1 Meaning, definition, Aims, functions, types and agencies of education. Essential of physiotherapy education. Major philosophies (Naturalism, Idealism, Pragmatism). 5.2 Definitions and relationship between teaching and learning. 5.3 **Basics of adult learning: Theories of teaching** (Mental discipline theories, naturalistic theories, apperception theories). 5.4 **Theories of learning** (Thorndike's connectionism, Watson's and Pavlov's classical conditioning, Skinner's operant conditioning, kohler's gestalt) Individual differences	✓			**9**	SE
Unit VI	**10**	**6. Curriculum** 6.1. Definition, Objectives, bases, types of curriculum				**16**	LE,SE

		(Competency-based, Outcome -based, Performance- based, Objectives-based) and process of curriculum development. Models (SPICES model) and approaches (Problem based and case based learning). Current trends in curriculum planning, National education policy of India 6.2. Formulating learning outcomes (Taylor's principle, Blooms taxonomy, Millers Pyramid, Models of skill acquisition (Dreyfus model). Curriculum evaluation, mapping of SLOs to COs & POs. 6.3. Master plans of courses, Master rotational plan, individual rotational plan.	✓				
Unit VII	**10**	**7. Methods and techniques of teaching and evaluation.** **7.1. Methods and technique** 7.1.1. Methods of study in educational psychology. 7.1.2. Strategies of teaching,	✓			**16**	LE,SE

		planning for teaching, writing Lesson plans. Teaching aids. **7.2. Physiotherapy Clinical education** **7.3. Measurement and evaluation** 7.3.1. Nature, functions and levels of measurement 7.3.2. Assessment- types 7.3.3. Achievement tests – construction of achievement tests. Standardized tests and their uses. Intelligence tests, personality tests					
Unit VIII	**05**	**8. Guidance and counseling for students and faculty** 9.1. Meaning, characteristics, nature, objectives Principle, classification and, techniques of guidance. 9.2. Counseling – meaning, characteristics, objectives, principles, types. 9.3. Guidance and counseling for students and faculty. 9.4. Faculty development and development of personnel for PT services.	✓			**9**	SE

- **LE-** Long Essay**, SE-** Short Essay

Recommended books

1. Pagliarulo MA. Introduction to physical therapy. 4th ed. St. Louis: Elsevier.
2. Herbert R, Jamtvedt G, Mead J, Hagen KB. Practical evidence-based physiotherapy. Edinburgh: Elsevier Butterworth-Heinemann.
3. Moore M, Philip I. Evaluating the evidence: evidence-based practice. 2nd ed. London: Wiley-Blackwell; 2015.
4. Shepard KF, Jensen GM, editors. Handbook of teaching for physical therapists. 1st ed. Oxford: Butterworth-Heinemann.
5. Ram CS. Pedagogy in physiotherapy education. New Delhi: AITBS Publishers.

MPT in Musculoskeletal Science

SEMESTER-II

Basic Sciences for Musculoskeletal Physiotherapy

Course Type: Core **Course Code: AH02PT1DSE1A**

Credits: 4 **Number of Hours: 60**

Course Outcomes:

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

CO1: Describe the fundamentals and principles of musculoskeletal rehabilitation and their role in restoring function and reducing disability.

CO2: Explain the physiology of exercise and its effects on the musculoskeletal, cardiovascular, respiratory, nervous, and metabolic systems.

CO3: Analyse the mechanical basis of human movement, posture, and gait, including methods for gait and movement analysis.

CO4: Appraise pain in detail, including its types, mechanisms, assessment, and implications for therapeutic intervention.

➢ COURSE CONTENT:

Unit	No. Hours	Content	Must Know	Good to Know	Desirable To know	Weightage %	Type of questions
Unit	**02**	3.1 Basic Concepts of Musculoskeletal System 3.2 1.1 Anatomy and Physiology of Musculoskeletal system 3.3 The Skeletal system 3.4 The Articular system 3.5 The Neuro-muscular system		✓		**10**	**SE, SA**
Unit	**02**	3.6 Basic Concepts of Anthropometry 3.7 2.1 Definition 3.8 2.2 Tools for Measurement 3.9 2.3 Body Size 3.102.4 Determination of Body Shape 3.112.5 Tissues Composing the Body 3.122.6 Human Variation 3.132.7 Methods in Body composition analysis.	✓			**10**	**LE, SE,**

Unit	**02**	**Basic Concepts of Biomechanics** 3.14Introduction to Kinesiology and Biomechanics. 3.15Principle of Biomechanics 3.16Nature and importance of Biomechanics in Physiotherapy 3.17Methods of kinetics and kinematics investigation 3.18Analytical tools and techniques: Isokinetic Dynamometer, Kinesiological EMG, Electronic Goniometer, Force Platform, Videography	✓			**10**	**SA**
Unit	**14**	**Physiological Basis of Human Movement** 4.1 Basic concepts of exercise metabolism 4.2 Measurement of exercise capacity 4.3 Oxygen supply during exercise 4.4 Energy cost of activity 4.5 Neuromuscular system 4.6 Musculoskeletal adaptation to exercise 4.7 Structural and functional	✓			**15**	**LE, SE,**

		adaptations to resistance training 4.8 Special aids to exercise training and performance 4.9 Exercise performance and environmental stress					
Unit	**25**	4.10Kinesiology & Pathomechanics 4.11Upper limb joints 4.12Lower limb joints 4.13Spinal Joints 4.14Temporomandibular joints 4.15Skeletal tissues 4.16Soft tissues	✓			**15**	**LE, SE**
Unit	**02**	Posture Postural control Postural analysis Postural deviations	✓			**10**	**LE, SE,**
Unit	**03**	Pain Pain pathways, pathophysiology Types of pain Theories and models of pain Pain assessment: Somatic, Visceral and Referral Tools in pain assessment	✓			**15**	**LE, SE,**
Unit	**10**	**Gait and function** 8.1 Gait Analysis: Kinetic and Kinematic Analysis 8.2 Pathological Gait:		✓		**15**	**LE, SE,**

		Kinetic and Kinematic Analysis 8.3 Kinetic and Kinematic analysis of various functional activities					

Recommended books:

1. Levangie PK, Norkin CC. Joint Structure and Function: A Comprehensive Analysis. Fifth ed. Philadelphia: F.A. Davis; 2011.
2. Mcardle WD, Katch FI, Katch VL. Exercise physiology. Philadelphia, PA; London: Lippincott Williams & Wilkins; 2004.
3. Kenney, W. L., Wilmore, J. H., & Costill, D. L. (2015). Physiology of Sport and Exercise; Champaign, IL: Human Kinetics.
4. Oatis CA. Kinesiology: the mechanics and pathomechanics of human movement.2nd ed. Lippincott Williams & Wilkins. 2009.
5. Hall JE. Guyton and Hall textbook of medical physiology. 13th ed. Elsevier; 2016.
6. Martin Koltzenburg, S. B McMahon, Irene Tracey, Dennis C Turk. Wall and Melzack's textbook of pain. 6th ed. Philadelphia, PA: Elsevier/Saunders; 2013.

SEMESTER-II

Physical and Functional diagnosis in Musculoskeletal Physiotherapy- A

Course Type: Core Course Code: AH02PT2DSE1

Credits: 3 Number of Hours: 45 hours

Course Outcomes:

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

CO1: Understand the basic concepts and perform detailed assessment leading to physiotherapy diagnosis in various musculoskeletal conditions, including ergonomic risk evaluation.

CO2: Explain and apply the SOPIER format for comprehensive musculoskeletal assessment.

CO3: Understand, discuss, and utilize various assessment tools and outcome measures used in musculoskeletal rehabilitation.

CO4: Screen all major joints and perform differential diagnosis using appropriate special tests, while identifying red flags in musculoskeletal conditions.

- **COURSE CONTENT:**

Unit	No. of Hours	Content	Must Know	Good to Know	Desirable To know	Weightage %	Type of questions
Unit	**10**	**Fundamentals of Musculoskeletal assessment** 1.1 Introduction to assessment & evaluation 1.2 Medical & Physiotherapy model of diagnosis 1.3 SOAPIER format 1.4 Basic assessment methods 1.5 Physical assessment as a screening tool 1.6 Relationship between assessment, evaluation and outcome measurement 1.7 Documenting SOAP notes 1.8 Clinical reasoning in musculoskeletal conditions	✓			**20**	**LE, SE,**

Unit	**10**	**Screening** 2.1 Head, Neck and Back 2.2 Shoulder and Upper extremity 2.3 Sacrum, Sacroiliac and Pelvis 2.4 Lower Quadrant: Buttock, Hip, Groin, Thigh, and Leg 2.5 Chest and Ribs	✓			**20**	**LE, SE,**
Unit	**10**	**Physiotherapy diagnosis in Musculoskeletal system** 3.1 Differential diagnosis 3.2 Special tests used in Musculoskeletal examination 3.3 Screening for potential referred pain Red flags 3.4 Investigation methods/ Diagnostic Imaging 3.5 Electrophysiological testing/ Electrodiagnosis 3.6 Exercise testing in musculoskeletal disease, injury and Dysfunction	✓			**25**	**SA**
Unit	**10**	**Physical Assessment** 4.1 Fractures, including Pre-operative and post-operative assessments 4.2 Hand Injuries, Soft tissue repairs. 4.3 Musculoskeletal assessment of Amputations	✓			**20**	**LE, SE,**

		4.4 Degenerative Conditions and orthopedic diseases 4.5 Musculoskeletal assessment Burns 4.17Prescription of orthotic devices/ splints in musculoskeletal disease, injury and Dysfunction					
Unit	**05**	**Functional Assessment** 5.1 Functional Assessment scales used in Trauma and Musculoskeletal dysfunction 5.2 Critical decision making in selection of outcome measures 5.3 Ergonomics Risk assessment in Musculoskeletal disorders 5.4 Use of ICF in Musculoskeletal diagnosis 5.5 Fitness evaluation specific to age, gender and disorders standard methods with norm referencing for India 5.6 Evaluation of work capacity and return to work	✓			**15**	**LE, SE**

Recommended books:

1. Quinn, L.& Gordon, J.(2003).Functional outcomes-Documentation for rehabilitation. Saunders (Elsevier Science), St. Louis, Missouri.
2. Scrub notes: A medical student blog. How to write a History/ Physical or SOAP note on the wards. Retrieved January 17, 2009

3. Delitto,A.&Snyder-Mackler,L.(1995).Thediagnosticprocess:examplesinorthopedic physical therapy. Physical therapy, 75:203-211.
4. Carol A Otis. Kinesiology: The Mechanics and Pathomechanics of Human Movement.3e. Lippincott Williams and Willkins.2016.
5. Nicola J petty, Ann P Moore. Neuromusculoskeletal examination and assessment-A handbook for therapists. Churchill Livingstone. 2000.
6. David J Magee. OrthopaedicPhysicalAssessment.7e.Elsevier.2021
7. Rose s garlat Myers. Saunders manual of physical therapy practice. Saunders. 1995

SEMESTER-II

Physical and Functional diagnosis in Musculoskeletal Physiotherapy- B

Course Type: Core | Course Code: AH02PT2SEC1

Credits: 3 | Number of Hours: 45 hours

Course Outcomes:

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

CO1: Evaluate using SOPIER format for musculoskeletal assessment

CO2: Asses by applying various tools and outcome measures used in musculoskeletal rehabilitation.

CO3: Screen all the joints and perform differential diagnosis using appropriate special tests and identify red flags.

➢ COURSE CONTENT:

Unit	No. of Hours	Content	Must Know	Good to Know	Desirable To know	Weightage %
Unit I	**10**	**Musculoskeletal assessment** 1.1 SOAPIER format 1.2 Clinical reasoning in musculoskeletal conditions	✓			**20**
Unit II	**10**	**Screening** 2.5 Examination, Palpation and functional assessment	✓			**20**
Unit	**10**	**Physiotherapy diagnosis in Musculoskeletal system** 3.2 Differential diagnosis 3.2 Special tests used in Musculoskeletal examination 3.3 Screening for potential referred pain Red flags	✓			**20**
Unit	**10**	**Physical Assessment**	✓			**20**
Unit V	**05**	**Functional Assessment**	✓			**20**

Recommended books:

1. Quinn, L.& Gordon, J. (2003).Functional outcomes-Documentation for rehabilitation. Saunders (Elsevier Science), St. Louis, Missouri.
2. Scrub notes: A medical student blog. How to write a History/ Physical or SOAP note on the wards. Retrieved January 17, 2009
3. Delitto, A. & Snyder-Mackler,L.(1995).Thediagnosticprocess:examplesinorthopedic physical therapy. Physical therapy, 75:203-211.

4. Carol A Otis. Kinesiology: The Mechanics and Pathomechanics of Human Movement.3e. Lippincott Williams and Willkins.2016.
5. Nicola J petty, Ann P Moore. Neuromusculoskeletal examination and assessment-A handbook for therapists. Churchill Livingstone. 2000.
6. David J Magee. OrthopaedicPhysicalAssessment.7e.Elsevier.2021
7. Rose s garlat Myers. Saunders manual of physical therapy practice. Saunders. 1995

General Physiotherapy in Musculoskeletal Sciences-A

Course: DSE **Course Code: AH02PT3DSE1A**

Credits: 03 **Number of hours: 45 Hours**

- Course Outcomes:

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

CO1: Analyze musculoskeletal dysfunction in terms of Biomechanical, Kinesiological and Bio physical basis & co-relate the same with the provisional diagnosis, routine radiological & Electro-physiological investigations and arrive at appropriate functional diagnosis with clinical reasoning.

CO2: Explore the anatomical rationale for the clinical tests used in differential diagnosis.

CO3: Recognize the implication of dysfunction on the Neuro-Musculoskeletal system and the student‘s clinical decision making.

Unit	Hrs	Content	Must Know	Good To Know	Desirable To Know	Weightage %	Type Of Questions

Unit I	7hrs	**1. Upper Limb fractures, Dislocation and other common conditions** 1.1 Orthopedic and PT management of all upper limb fractures and their complications. 1.2 Dislocations of shoulder and elbow with medical, surgical and PT management. 1.3 Physical therapy Rehabilitation followed by Putti-Platt, Bankart's, Magnusson stalk and Bristow operations. 1.4 Other common conditions: 1.4.1 Rotator cuff injuries 1.4.2 Impingement syndrome 1.4.3 Supraspinatus tendinitis 1.4.4 Bicipital tendinitis 1.4.5 Thoracic outlet syndrome 1.4.6 Shoulder Hand syndrome 1.4.7 Carpal tunnel syndrome 1.4.8 A.C joint sprain 1.4.9 Subacromial bursitis 1.4.10 Adhesive capsulitis 1.4.11 Myofacial pain	✓ ✓ ✓ ✓			15	LE, SE

		syndrome 1.4.12 Primary fibromyalgia syndrome 1.4.13 Tennis elbow 1.4.14 Trigger finger 1.4.15 Dequervain‘s disease 1.4.16 Dorsal ganglion 1.4.17 Flexion and Extension tendon injuries 1.4.18 Dupuytren‘s contracture 1.4.19 Raynaud‘s phenomenon. 1.5 Causes and Mechanism of sports injuries and prevention of sports injures of Upper Limb	✓				

Unit II	7hrs	2.1 Lower Limb Fractures, Dislocations and Other Common Conditions 2.2 Orthopedics and PT management of all Lower Limb fractures and their Complications. 2.2 Hip, Knee and patella dislocations, its medical, surgical and PT management. 2.3 Ligament injuries around knee and ankle. 2.3.1 Physical rehabilitation after ACL and PCL reconstruction. 2.3.2 Osteochondritis dissecans 2.3.3 Popliteus strain 2.3.4 Plica syndrome 2.3.5 Illiotibial band friction syndrome 2.3.6 Meralgia paresthetica 2.3.7 Trochanteric bursitis 2.3.8 Osteitis pubis 2.3.9 Piriformis syndrome 2.3.10 Tarsal tunnel syndrome 2.3.11 Flat foot 2.3.12 Hallux Valgus 2.3.13 Hallux rigidus 2.3.14 Huglands deformity 2.3.15 Sinus tarsi syndrome 2.3.16 Turf toe 2.3.17 Interdigital neuroma 2.3.18 Inferior heel pain.	✓ ✓ ✓			15	LE, SE

		2.4 Causes and Mechanism of sports injuries and prevention of sports injuries of Lower limb.	✓				
Unit III	4hrs	2. Spine Fractures 3.1 Fractures of cervical spine, thoraco- lumbar spine its medical, surgical and PT management	✓			10	LE, SE
Unit	5hrs	3. Degenerative and Inflammatory joint disorders 4.1. Osteoarthritis, rheumatoid arthritis, degenerative and inflammatory spinal disorders	✓			15	LE, SE
Unit V	8hrs	4. Orthopedic Surgeries and its rehabilitation 5.1 Osteotomy 5.2 Bone graft 5.3 Bone fixation 5.4 Distraction histogenesis 5.5 Arthrotomy, realignment, arthrodesis, arthroplasty, microsurgery, tendon transfer 5.6 Amputation		✓		15	SE

Unit VI	6hrs	Congenital orthopedic conditions and its PT management 6.1 Congenital dysplasia of hip 6.2 CTEV 6.3 Slipped capital femoral epiphysis 6.4 AVN of femoral head 6.5 Coxa vara 6.6 Coxavalga 6.7 Forefoot varus 6.8 Forefoot valgus 6.9 Congenital vertical talus.	✓			10	LE, SE
Unit VII	4hrs	7. Spinal deformities 7.1. Orthotic, Surgical and PT management	✓			10	LE, SE
Unit VIII	4hrs	8. Pharmacology in Orthopedics 8.1 Basic knowledge of common drugs used in orthopedics, their effects, interactions, relevance to PT modalities (NSAIDS, Antipyretics, antibiotics, antihypertensive, diabetic drug therapy)			✓	10	SE

- Recommended Books:

1. Magee DJ, Zachazewski JE, Quillen WS, Manske RC, editors. Pathology and intervention in musculoskeletal rehabilitation. 3rd ed. St. Louis: Elsevier; 2021.
2. McRae R, Esser M. Practical fracture treatment. 6th ed. Edinburgh: Elsevier; 2016.
3. Jull G, Moore A, Falla D, Lewis J, McCarthy C, Sterling M. Grieve's Modern Musculoskeletal Physiotherapy. 4th ed. Elsevier; 2015.
4. Solomon L, Warwick D, Nayagam S. Apley's system of orthopaedics and fractures. 10th ed. Boca Raton: CRC Press; 2018
5. Canale ST, Beaty JH, editors. Campbell's operative orthopaedics. 14th ed. Philadelphia: Elsevier; 2021.
6. Brotzman SB, Manske RC, Daugherty K. Clinical orthopaedic rehabilitation: an evidence-based approach. 4th ed. Philadelphia: Elsevier; 2021.
7. Goodman CC, Snyder TEK. Differential diagnosis for physical therapists: screening for referral. 6th ed. St. Louis: Elsevier; 2020.

General Physiotherapy in Musculoskeletal Sciences-B

Course: SEC **Course code: AH02PT3SEC1B**

Credits: 04 **Number of hours: 90 Hours**

- Course Outcomes:

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

CO1: Analyze the musculoskeletal dysfunction in terms of Biomechanical, Kinesiological and Biophysical basis & co-relate the same with the provisional diagnosis, routine radiological & Electro-physiological investigations and arrive at appropriate functional diagnosis with clinical reasoning.

CO2: Demonstrate appropriate subjective, objective & physical examination, and document with proper outcome measures, follow-ups and home programs.

CO3: Record appropriate scale, outcome measures and evaluate the progression.

CO4: Use safe, effective and clinically relevant physiotherapy techniques to treat musculoskeletal problems.

CO5: Discuss the clinical ethics and patient safety.

Unit	Hrs	Content	Must Know	Good to Know	Desirable To know	Weightage %

Unit I	25hrs	**1. Conservative, Pre-operative & post-operative Physiotherapy management of following musculoskeletal problems:** 1.1 Upper Limb, Lower limb & spinal fractures, Dislocation 1.2 Other common conditions: 1.2.1 Rotator cuff injuries 1.2.2 Impingement syndrome 1.2.3 Supraspinatus tendinitis 1.2.4 Bicipital tendinitis 1.2.5 Thoracic outlet syndrome 1.2.6 Shoulder Hand syndrome 1.2.7 Carpal tunnel syndrome 1.2.8 A.C joint sprain 1.2.9 Subacromial bursitis 1.2.10 Adhesive capsulitis 1.2.11 Myofacial pain syndrome 1.2.12 Primary fibromyalgia syndrome 1.2.13 Tennis elbow 1.2.14 Trigger finger 1.2.15 Dequervain‘s disease 1.2.16 Dorsal ganglion 1.2.17 Flexion and Extension tendon injuries 1.2.18 Dupuytren‘s contracture **1.2.19** Raynaud‘s phenomenon.	✓ ✓			25
Unit II	25hrs	**2. Ligament injuries around knee and ankle:**	✓			25

		2.1.1 Osteoarthritis, rheumatoid arthritis, degenerative and inflammatory spinal disorders				
Unit III	20hrs	**3. Congenital orthopedic conditions and its PT management:** 3.1.1 Congenital dysplasia of hip 3.1.2 CTEV 3.1.3 Slipped capital femoral epiphysis 3.1.4 AVN of femoral head 3.1.5 Coxa vara 3.1.6 Coxa valga 3.1.7 Forefoot varus 3.1.8 Forefoot valgus 3.1.9 Congenital vertical talus 3.1.10 Spinal deformities	✓			25
Unit IV	20hrs	**4. Read radiographs, Bone scans, CT and MRI.**	✓			25

- Recommended Books:

1. Magee DJ, Zachazewski JE, Quillen WS, Manske RC, editors. Pathology and intervention in musculoskeletal rehabilitation. 3rd ed. St. Louis: Elsevier; 2021.
2. McRae R, Esser M. Practical fracture treatment. 6th ed. Edinburgh: Elsevier; 2016.
3. Jull G, Moore A, Falla D, Lewis J, McCarthy C, Sterling M. Grieve's Modern Musculoskeletal Physiotherapy. 4th ed. Elsevier; 2015.
4. Solomon L, Warwick D, Nayagam S. Apley's system of orthopaedics

and fractures. 10th ed. Boca Raton: CRC Press; 2018

5. Canale ST, Beaty JH, editors. Campbell's operative orthopaedics. 14th ed. Philadelphia: Elsevier; 2021.
6. Brotzman SB, Manske RC, Daugherty K. Clinical orthopaedic rehabilitation: an evidence-based approach. 4th ed. Philadelphia: Elsevier; 2021.
7. Goodman CC, Snyder TEK. Differential diagnosis for physical therapists: screening for referral. 6th ed. St. Louis: Elsevier; 2020.

SEMESTER- IV

Advanced Physiotherapy in Musculoskeletal Sciences-A

Course: DSE | Course code: AH02PT4DSE1A

Credits: 04 | Number of hours: 60 Hours

Course Outcomes:

At the end of the course the learner should be able to

CO1: Describe the basic theories and principles of various types of manual therapy

CO2: Identify the scope of manual therapy and summarize basic biomechanics of synovial joint and its related soft tissues

CO3: Use the anatomical rationale for the clinical tests used in differential diagnosis through manual therapy.

CO4: Learn the ability to perform an appropriate subjective and physical examination, with development of suitable analytical skills to evaluate data obtained.

CO5: Indicate the indications and contra-indications, treatment efficacy, and clinical applications of each kind of manual therapy

CO6: numerate the indications, limitations, and contra-indication of joint mobilization and soft tissue mobilization

Unit	Hrs	Content	Must Know	Good to Know	Desirable To know	Weightage %	Type of questions
Unit I	4hrs	**1. Introduction to Manual Therapy** 1.1. History, Background and concepts of Manual therapy, comparing Grades of moments (Maitland, Cyriax & Kaltenbron) 1.2. Clinical Reasoning: Surface anatomy, Palpation, Assessment, differential diagnosis and treatment planning	✓ ✓			8%	LE, SE
Unit II	8hrs	2. **Maitland's Concept** 2.1. Basics of Subjective and Physical Examination 2.2. Movement diagram 2.3. Maitland's Concepts Various Joints:- Cervical, Thoracic, Lumbar, SI.Disc pathologies. Peripheral Joints. 2.4. Home Programme 2.5. HVLT 2.6. Indications and contraindications	✓ ✓ ✓ ✓ ✓ ✓			8%	LE, SE
Unit	8hrs	**3. Mulligan's Concept** 3.2. NAGs, SNAGs, MWM 3.2. Mechanical Basis of SNAGs.	✓ ✓			8%	LE, SE

		3.3. Indications and contra indications 3.4. Application of concepts in spinal and peripheral dysfunction. 3.5. Current trends in Mulligan concept 3.6. Home program	✓ ✓ ✓ ✓				
Unit IV	5hrs	**McKenzie Concept** **4.1** Postural Syndrome, Dysfunction Syndrome and Derangement Syndromes. **4.2** Indications and contraindications **4.3** Approaches to Cervical, Thoracic and Lumbar spine **4.4** Home program	✓ ✓ ✓ ✓			8%	LE, SE
Unit V	4hrs	**5. Combined Movements** 5.1 Regular and Irregular pattern in Cervical, thoracic, and Lumbar region **5.2** Importance of Combined Movements in spinal dysfunction diagnosis and treatment **5.3** Indications and contra indications **5.4** Home program	✓ ✓ ✓ ✓			8%	LE, SE
		Muscle Energy Technique **6.1** Fryette's Laws of physiological spinal motion	✓				

Unit VI	6hrs	6.2 Segmented vertebral dysfunction 6.3 NRS, ERS, FRS 6.4 Indications and contra indications 6.5 Technique and its application 6.6 Home program	✓ ✓ ✓ ✓ ✓			8%	LE, SE
Unit VII	4hrs	**Cyriax** 7.1 Selective Tissue Tension Test 7.2 Indications and contra indications 7.3 Technique and its application 7.4 Deep Friction Massage 7.5 Indication, Assessment and Management Soft Tissue Lesions 7.1 Merits and Demerits of Cyriax concepts in the management of tissue lesions	✓ ✓ ✓ ✓ ✓			7%	LE, SE
		7.2 Home program					
Unit VIII	4hrs	**8. Myofascial Release** 8.1 Concepts 8.2 Indications and contra indications 8.3 Technique and its application	✓ ✓ ✓			8%	LE, SE

Unit IX	6hrs	**9. Neural Mobilization** 9.1 Basics, Neuro Anatomy/ Neuro dynamics 9.2 Indications and contra indications 9.3 Adverse Neural testing 9.4 Home program	✓ ✓ ✓ ✓			8%	LE, SE
Unit X	2hrs	**10. Positional techniques concept** 10.1 Indications and contra indications 10.2 Technique and its application	✓ ✓			5%	LE, SE
Unit XI	2hrs	**Trigger point therapy concept** 11.1 Indications and contra indications 11.2 Technique and its application	✓ ✓			5%	LE, SE
Unit XII	2hrs	**Taping techniques** 12.1 Indications and contra indications 12.2 Technique and its application		✓ ✓		4%	SE
UNIT XIII	1hr	**13. Recent Advances in manual therapy**		✓		5%	SE
UNIT XIV	1hr	**14. Integrated Approaches in Manual Therapy**		✓		2%	SE
Unit XV	1hr	**15. Adjunct therapy to manual therapy**		✓		4%	SE
		15.1 Yoga, Naturopathy, Acupuncture, Acupressure, Dry		✓			

		needling, IASTM etc					
UNIT XVI	1hr	**16. Ethical Issue in Manual Therapy Practice**		✓		2%	SE
UNIT XVII	1hr	**17. Clinical Record Maintenance in Manual Therapy**		✓		2%	SE

- **Recommended books:**

1. Magee DJ, Zachazewski JE, Quillen WS, Manske RC, editors. Pathology and intervention in musculoskeletal rehabilitation. 3rd ed. St. Louis: Elsevier; 2021.
2. Perrin DH. Athletic taping and bracing. 3rd ed. Champaign (IL): Human Kinetics; 2005.
3. Chaitow L, Crenshaw K. Muscle energy techniques: advanced soft tissue techniques. 3rd ed. Edinburgh: Elsevier Health Sciences; 2006.
4. McCarthy CJ. Combined movement theory: rational mobilization and manipulation of the vertebral column. Edinburgh: Churchill Livingstone; 2010.
5. Goodman CC, Snyder TEK. Differential diagnosis for physical therapists: screening for referral. 6th ed. St. Louis: Elsevier; 2020.

Advanced Physiotherapy in Musculoskeletal Sciences- B

Course: SEC **Course code: AH02PT4SEC1B**

Credits: 04 **Number of hours: 90 Hours**

- **Course Outcomes:**

At the end of the course the learner should be able to

CO1: Identify the scope and apply appropriate manual therapy in a given problem with at most safe and care.

CO2: Understand the indications and contra-indications, treatment efficacy, and clinical applications of each kind of manual therapy

CO3: Indicate the indications, limitations, and contra-indication of joint mobilization and soft tissue mobilization

CO4: Effectively implement integrated approach

Course content:

Demonstrate the following techniques with safe and proper techniques

Unit	Hrs	Content	Must Know	Good To Know	Desirable To Know	Weightage %
Unit I	9hrs	Maitland‘s	✓			10%
Unit II	9hrs	McKenzie	✓			10%
Unit III	9hrs	Mulligan’s	✓			10%
Unit IV	9hrs	Muscle Energy Technique	✓			10%
Unit V	9hrs	Cyriax	✓			10%
Unit VI	9hrs	Myo fascial release	✓			10%
Unit VII	9hrs	Neural Mobilization	✓			10%
Unit VIII	9hrs	Positional release technique	✓			10%
Unit IX	9hrs	Trigger point therapy	✓			10%
Unit X	9hrs	Taping techniques	✓			10%

- **Recommended Books:**

1. Magee DJ, Zachazewski JE, Quillen WS, Manske RC, editors. Pathology and intervention in musculoskeletal rehabilitation. 3rd ed. St. Louis: Elsevier; 2021.

2. Perrin DH. Athletic taping and bracing. 3rd ed. Champaign (IL): Human Kinetics; 2005.
3. Chaitow L, Crenshaw K. Muscle energy techniques: advanced soft tissue techniques. 3rd ed. Edinburgh: Elsevier Health Sciences; 2006.
4. McCarthy CJ. Combined movement theory: rational mobilization and manipulation of the vertebral column. Edinburgh: Churchill Livingstone; 2010.
5. Goodman CC, Snyder TEK. Differential diagnosis for physical therapists: screening for referral. 6th ed. St. Louis: Elsevier; 2020.

MPT in Sports Science

SEMESTER-I

BASIC SCIENCES FOR SPORTS PHYSIOTHERAPY

Course: Core **Course Code: AH02PT1DSE1**

Credits: 4 **No of Hours: 60 Hours**

Course description: This course provides foundational knowledge in sports medicine, exercise physiology, biomechanics, posture, gait analysis, and pain mechanisms essential for physiotherapy practice in athletic settings

Course Outcome: At the end of the course students will be able to

CO 1- Explain the basic of sports medicine, physiological, biomechanical, kinesiological, and Patho mechanical basis of sports and injuries.

CO 2- Discuss the various concepts, of exercise training, their effects, and the factors influencing exercise performance.

CO 3- Explain gait, Posture, and its analysis.

CO 4- Describe the concept and theories of pain and pain assessment

CO 5- Discuss biomechanics of musculoskeletal system, and some common sporting injuries,

Unit	No. Of hours	Content	Must know	Good to know	Desirable to know	Weightage %	Type of questions
Unit I	**08**	1.1.History of sports medicine 1.2.FIMS and its evolution. 1.3.The role of Physical therapy in Sport, exercise, and physical activity 1.4. Ethics in sports medicine		✓		13	SE
Unit II	**16**	**Exercise Physiology** 2.1. Energy for physical activity 2.2. Energy delivery and utilization 2.3. Strength training 2.4.Structural and functional adaptations to resistance training 2.5.Special aids to exercise training and performance 2.6. Exercise performance and environmental stress. 2.7. Body composition and	✓			27	LE,SE

		energy balance 2.8. Aging and physical activity.					
Unit III	**10**	3.1. Posture 3.2. Gait and functions	✓			17	SE
Unit IV	**10**	Pain	✓			16	SE
Unit V	**16**	Biomechanics of common sporting injuries 5.1.Mechanical functions of movements 5.2.Biomechanics of Upper limb, Lower limb, Spinal joints, and Temporo mandibular joints 5.3.Skeletal tissues & Soft tissues 5.4.Biomechanics of cycling		✓		27	LA, SE

❖ **LE**- Long Essay**, SE**- Short Essay**, SA**- Short Answer

Recommended books

1. Brukner P, Karim Khan. Clinical sports medicine. 3e. TATA McGraw-Hill, New Delhi. 2008
2. Brukner P, Karim Khan. Clinical Sports Medicine: Injuries, VOL. 1, 5e, McGraw-Hill Education. Australia. 2017
3. Gregory S Kolt, Lynn Syder-Mackler. Physical therapies in Sport and exercise. 2ndEdn. Elsevier. 2008.

4. Clive Brewer. Athletic Movement Skills-Training for sports performance. Human kinetics.2017.
5. P.Muzumdar. Physiology of Sports and Exercise. New Cental Book Agency (P) ltd.Howra.2011.
6. https://www.iasp-pain.org/

CSOs

At the end of the course students will be able to

UNIT	CSOs
UNIT I	1. Outline the history of sports medicine, and evolution of FIMS (CO1) 2. List and discuss the role of physical therapy in sports. (CO1) 3. Explain ethics in sports medicine. (CO1)
UNIT II	1. Recall the basics of exercise physiology (CO1, CO2). 2. Explain various concepts, of exercise training, their effects, and the factors influencing exercise performance.(CO2). 3. Relate aging and physical activity (CO1,CO2)
UNIT III	1. Explain importance of posture in athletic movement and evaluate postural deviations.(CO 1,CO3) 2. Recall the growth and development of musculoskeletal system, maturation and development of gait and gait cycle. (CO1,CO3) 3. Discuss biomechanical analysis of the normal and pathological gait and explain energy expenditure of gait. (CO3) 4. Explain kinetic and kinematic analysis of various functional activities. (CO1,CO3,CO5)
UNIT IV	1. Explain the pathways, pathophysiology and types ,theories and models of pain.(CO 1,CO4) 2. Describe the assessment of pain and discuss the tools used of pain assessment. (CO 4)
UNIT V	1. Outline the mechanical functions of movement, biomechanics and pathomechanics of Upper lime, lower limb, spine and temporomandibular joints.(CO1, CO5) 2. Explain biomechanics of throwing, swimming, tennis, over head sports,

	water polo, volleyball and cycling (CO1,CO5)

UNITS	CSO	CO1	CO2	CO3	CO4	CO5
I	1	High	Low	Low	Low	Low
	2	High	Low	Low	Low	Low
	3	High	Low	Low	Low	Low
II	1	Moderate	High	Low	Low	Low
	2	Moderate	High	None	Low	Low
	3	Moderate	High	None	Low	Low
III	1	Moderate	Low	High	Low	Low
	2	Moderate	Low	High	Low	Low
	3	None	Low	High	Low	Low
	4	Moderate	Low	High	Low	Moderate
IV	1	Moderate	Low	Low	High	Low
	2	None	Low	Low	High	Low
V	1	Moderate	Low	Low	Low	High
	2	Moderate	Low	Low	None	High

Physical and functional Diagnosis in Sports Physiotherapy-A

Course: Core Course code: AH02PT**2DSE1**

Credits: 4 Number of hours: 60

Course description: Course focus on sports injuries, multidisciplinary rehabilitation, and biomechanical analysis of extremities for performance and injury prevention. Students learn evidence-based physical and functional assessments, pre-participation screening, clinical outcome measures, and training monitoring.

Course objective: At the end of the course the student will be able to

CO1- Explain the various types of sports injuries and illustrate the concept of a multidisciplinary team approach in sports rehabilitation

CO2- Analyze the biomechanical aspects of extremity movements related to sports performance and injury prevention.

CO3-Apply the principles and evaluate evidence-based physical and functional assessment methods relevant to sports physiotherapy

CO4- Design and justify the processes for pre-participation screening, diagnosis, selection of clinical outcome measures, and monitoring of training in sports injury management.

Unit	No. Of hours	Content	Must know	Good to know	Desirable to know	Weightage %	Type of questions
Unit I	**10**	**INTRODUCTION** 1.1.The team approach 1.2.Sports injuries 1.3.Biomechanical assessment (Upper & Lower limb)	✓			16	SE

Unit II	**15**	**PRINCIPLES OF DIAGNOSIS** 2.1.Assessment (On field &Off field) 2.2.Investigations 2.3.Equipments and tools for assessment. 2.4.Decision making and selection of appropriate tests relevant to the sports. 2.5.Assessment protocols (anthropometry, flexibility &v balance, agility & sprinting, muscle power, strength & endurance, cardio pulmonary fitness) 2.6.Monitoring training (Heart rate measurement, Body weight maintenance and hydration status, fluid loss evaluation, Internal training load, Perpetual wellbeing, Physical readiness)	✓ ✓ ✓ ✓	✓		25	LE,SE
Unit III	**10**	SCREENING FOR SPORT AND EXERCISE PARTICIPATION 3.1.Goals and objectives of screening examination 3.1.Procedure of screening examination 3.2.Determining clearance	✓			17	LE

Unit IV	**10**	CLINICAL OUTCOMES IN SPORT AND EXERCISE 4.1.Framework for identifying clinical outcomes 4.1.Selection of clinical outcome measures 4.2.Collecting, analyzing and interpreting outcome measures 4.3.Current evidences in assessment and evaluation in sports.	✓			17	SE
Unit V	**15**	SPORT SPECIFIC TEST **5.1.Soccer:** Arrowhead Drill (SPARQ), Balsom Agility Run, FIFA Change of Direction Ability (CODA) — forwards and sideways running over 8-10 meters (Football Assistant Referees) **5.2.Basketball:** Lane Agility Drill (SPARQ) **5.3.Cricket:** Run-a-three **5.4.Hockey:** Shuttle Cross Pick-Up (SPARQ)	✓			25	SE

- **LE**- Long Essay**, SE**- Short Essay

REFERENCES

1. Brukner P, Karim Khan. Clinical sports medicine. 3e. TATA McGraw-Hill, New Delhi. 2008
2. Brukner P, Karim Khan. Clinical Sports Medicine: Injuries, VOL. 1, 5e, McGraw-Hill Education. Australia. 2017
3. Gregory S Kolt, Lynn Syder-Mackler. Physical therapies in Sport and exercise. 2nd Edn. Elsevier. 2008.

4. Clive Brewer. Athletic Movement Skills-Training for sports performance. Human kinetics.2017.
5. Nicola J petty, Ann P Moore. Neuromusculoskeletal examination and assessment-A handbook for therapists. Churchill Livingstone. 2000.
6. Delitto A, Snyder-Mackler L. The diagnostic process: examples in orthopedic physical therapy. PhysTher. 1995 Mar;75(3):203-11. doi: 10.1093/ptj/75.3.203. PMID: 7661931.
7. Schmitz, Thomas, OSullivan, Susan, Fulk, George . Physical Rehabilitation .6e. F.A. Davis Co. 2014.
8. Quinn, L., Gordon, J.. Documentation for Rehabilitation- A Guide to Clinical Decision Making in Physical Therapy. 3 e. Elsevier. 2015.
9. Clive Brewer. Athletic Movement Skills-Training for sports performance. Human kinetics.2017.
10. David H Fukuda. Assessment of Sport and athletic performance. Human kinetics. USA. ISBN 978-1-4925-5988-7

CSOs

At the end of each unit student will be able to

UNIT	CSOs
UNIT I	4. Understand the concept of team approach in sports rehabilitation and explain various sports injuries.(CO1,CO2) 5. -Discuss the biomechanical assessment of Upper and Lower limb sport injuries.(CO1,CO2)
UNIT II	1. Discuss various assessment protocols, investigations, equipments and tools used for the on field & Off field assessment.**(CO1,CO2,CO3)** 2. Explain the decision making in the selection of sport specific tests.**(CO3,CO4)** 3. Understand the monitoring of training. **(CO4)**
UNIT III	5. Explain the importance of pre participation screening its procedure and clearance**.(CO1, CO4)**
UNIT IV	3. Explain the evidence based selection of clinical outcome measures and its interpretations. **(CO3,CO4)**
UNIT V	3. Discuss selection of special tests specific to Soccer, Basket ball, Cricket and Hockey. **(CO3,CO4)**

UNITS	CSO	CO1	CO2	CO3	CO4
I	1	High	Moderate	Low	Low
	2	High	Moderate	Low	Low
II	1	Moderate	High	High	Low
	2	Low	Low	High	High
	3	Low	Low	Low	High
III	1	Moderate	Low	Low	High
IV	1	Low	Low	High	High
V	1	Low	Low	High	High

Physical and functional Diagnosis in Sports Physiotherapy-B

Course: Core Course code: AH02PT2SEC1

Credits: 3 Number of hours: 90

Course description: This course focuses on hands-on examination of limbs, investigations, tools/equipment, protocols for fitness/agility/power, training monitoring, and ethical decision-making.

Course objective: At the end of the course student will be able to

CO1- Perform and analyze physical, functional, and biomechanical assessments of extremities relevant to sports physiotherapy.

CO2- Execute and interpret evidence-based diagnostic procedures in sports injury assessment

CO3- Demonstrate clinical reasoning and apply effective decision-making and documentation skills in accordance with current professional standards

CO4- Exhibit and adhere to ethical and professional standards in all aspects of clinical and sports practice.

Course content

Unit	No. Of hours	Content	Must Know	Good to Know	Desirable To know	Weightage %	Type of questions
Unit I	15	Biomechanical assessment of Upper limb & Lower limb	✓			17	OSCE/OSPE VIVA
Unit II	40	Principles of Diagnosis 2.1.Clinical Assessment: History & Examination 2.2. Relevant investigations • X Rays, Bone scan, CT, MRI, US Scan. • EMG, NCV, ECG,Stress ECG, Echocardiograpy,PFT • Muscle assessment: Compartment pressure testing 2.3.**Equipment and tools:** Anthropometric equipment, Resistant equipment, Gravity based equipment, Distance or Length measuring equipment, Timing equipment, Heart rate and GPS monitors, Treadmills, Ergometers, and Questionnaires (Scales). 2.4.Decision-making and selection of appropriate tests relevant to different sports 2.5.Assessment protocols • **Anthropometric and Body composition:** BMI calculation, Segmental	✓ ✓ ✓	✓		44	Scenario/Case based OSCE/OSPE VIVA

		circumferences, Skinfold assessment ,Bio electrical impedance • **Flexibility and balance:** Sit and reach test, Back-scratch test, Shoulder elevation test,Total body rotation tests, Lumbar stability test, Functional reach test, Balance error scoring system (BESS),Tandem gait test • **Agility and Sprinting:** (Pro agility/20 -yard shuttle run) 5-10-5 test ,T-Test,505 agility test, Three-Cone drill, 40 yard shuttle test, SEMO Agility test,Zig-Zagtest,Y-shaped reactive agility test, Hexagon agility test, Straight line sprint, Repeated sprint ability test,Repeated change-of-direction test,300-yard shuttle run, Illinois agility test,Quadrant jump test,Quick feet test,Foot tapping speed test, **Speed:** Reaction time tests • **Power:** Vertical jump (or Countermovement jump) test, Standing long jump (or broad jump) test, Single-leg triple hop test, Medicine ball chest press test, Forward overhead medicine ball throw test, Backward overhead medicine ball throw test, Rotating medicine ball throw test ,Stair sprint power (or Margaria-kalamen) test, Rowing ergometer peak power test	✓ ✓				

		• **Muscular strength and endurance** • **One repetition maximum strength test:** back squat, leg press, bench press and bench pull. • Multiple-repetition maximum strength test • Maximal handgrip strength test • **Static muscular endurance tests:** prone bridge (plank), half-squat (wall-sit), and flexed-arm hang (bent- arm hang). • **Dynamic muscular endurance tests:** partial curl-ups (bent-knee sit-ups), push-ups, squats and pull-ups. • YMCA bench press test • **Cardiopulmonary fitness:** 20-meter multi-stage shuttle run (or PACER or beep test),Yo-Yo intermittent recovery test,Distance-based walk and run tests,Time-based walk or run tests (12-minute test),Submaximal step test (or Queens College or YMCA step test),Submaximal rowing ergometer test,45-second squat test (or Ruffier-Dickson test) 2.6.**Monitoring training** (Heart rate measurement, Body weight maintenance and hydration status,					

		fluid loss evaluation, Internal training load, Perpetual wellbeing, Physical readiness)					
Unit III	15	Screening for Sport and Exercise participation.	✓			17	Scenario/Case based Viva Voce
Unit IV	20	• Clinical outcomes in sport and exercise • Sport specific test **Soccer:** Arrowhead Drill (SPARQ), Balsom Agility Run, FIFA Change of Direction Ability (CODA) — forwards and sideways running over 8-10 meters (Football Assistant Referees) **Basketball:** Lane Agility Drill (SPARQ) **Cricket:** Run-a-three **Hockey:** Shuttle Cross Pick-Up (SPARQ)	✓			22	OSCE/OSPE Scenario/Case based Viva Voce

REFERENCES

1. Brukner P, Karim Khan. Clinical sports medicine. 3e. TATA McGraw-Hill, New Delhi. 2008
2. Gregory S Kolt, Lynn Syder-Mackler. Physical therapies in Sport and exercise. 2nd Edn. Elsevier. 2008.
3. Clive Brewer. Athletic Movement Skills-Training for sports performance. Human kinetics.2017.
4. Nicola J petty, Ann P Moore. Neuromusculoskeletal examination and assessment-A handbook for therapists. Churchill Livingstone. 2000.
5. Schmitz, Thomas, OSullivan, Susan, Fulk, George . Physical Rehabilitation .6e. F.A. Davis Co. 2014.
6. Quinn, L., Gordon, J.. Documentation for Rehabilitation- A Guide to Clinical Decision Making in Physical Therapy. 3 e. Elsevier. 2015.

7. Clive Brewer. Athletic Movement Skills-Training for sports performance. Human kinetics.2017.
8. David H Fukuda. Assessment of Sport and athletic performance. Human kinetics. USA. ISBN 978-1-4925-5988-7
9. Kendall NA,LintonSJ,Main CJ. Guide to assessing Psychological Yellow flags in acute low back pain: Risk factors for long term disability and work loss (http://kemdallburton.com/library resources/psychological_yellow-flags.pdf). Wellington. New Zealand: Accident rehabilitation and compensation insurance Corporation of New Zealand and the nationalcommittee;1997.

General Physiotherapy in Sports-A

Course: Core Course code: AH02PT3DSE1

Credits: 4 Number of hours: 60

Course description: Covers injury prevention, first aid, regional sports injuries, non-traumatic conditions, exercise prescription, team care, travel preparations, sports psychology, and pharmacology/doping rules.

Course objectives:

At the end of the course students will be able to

CO 1- Implement basic treatment protocols effectively as a member of a multidisciplinary sports rehabilitation team, demonstrating appropriate communication, collaboration, and professional conduct

CO2- Select and administer appropriate physical modalities and exercise interventions safely and effectively in the management of sports-related conditions.

CO3-Monitor, evaluates, and document patient progress using relevant clinical outcome measures, ensuring evidence-based progression of treatment.

CO 4-Demonstrate foundational understanding of pharmacological and sports psychology principles and integrate them appropriately in athlete management.

Content

Unit	No. of hours	Content	Must Know	Good to Know	Desirable to know	Weightage %	Type of questions
Unit I	15	**1.1. Principles of injury prevention** **1.2. Recovery** **1.3. Management principles in the physical therapies:** Muscles, Tendon, Ligament, Bone, Nerves and Cartilage. **1.4. First aid management:** On field & Off field.	✓			25	LE/ SE
Unit II	20	**2.1. Regional sport injuries and management**: Sports concussion, Headache, Facial injuries, Spine, Shoulder, Elbow, Wrist and hand, Pelvis, hip and Groin, Knee, Patellofemoral joint, Foot, Ankle &Lower leg, Chest pain, Low backpain, Buttock pain. **2.2. Non – traumatic medical condition in athlete:** DOMS, Runner's high, Exercise induced asthma, Infections, Hypertension , Urine abnormalities, Exercise addictions **2.3. Correction of abnormal biomechanics**: Prescription of Orthoses, correction of abnormal mechanics. **2.4. Physiotherapy in conservative & surgical management of sports injuries:** PRICE protocol, Immobilization and early mobilization, Heat & Cold, Mobilization techniques, Electro physical agents.	✓			33	LE/ SE
Unit III	10	**3.1. Exercise based conditioning and rehabilitation: Strength** training, interval training, Endurance training, Stabilization	✓			17	SE
Unit IV	10	**4.1. Providing team care:** The off field team, Pre-season assessment, Educate team members and other essentials (Facilities, Record keeping, Confidentiality, and 'Team clinicians bag'). **4.2. Travelling with a team:** Preparation, Air travel	✓			17	SE

		& Jet lag, The medical room, Drug testing, local contacts, psychological skills and Personal coping skills. **4.3.Sports psychology:** Role of a Sports Psychologist, Predictive models of injury, Psychological factor involved in performance, Pre – competitive anxiety, Injury prone profile, Relaxation training.					
Unit V	05	**Pharmacological agents in sports an exercise:** **5.1.**Therapeutic agents (NSAIDs, Corticosteroids, Analgesics, Hyperbaric Oxygen, Anti arthritic agents, Muscle relaxants, Antibiotics &anti viral agents, Oral contraceptives, Asthma medications) **5.2.**Legal considerations **5.3.**Performance enhancing drugs: Historical perspective, The world anti-doping code, Substances and methods prohibited at all times, **5.4.**Drug testing	✓			8	

References

1. P.Muzumdar. Physiology of Sports and Exercise. New Cental Book Agency (P) ltd. Howra.2011.
2. Peter Bruckner, Karim Khan. Clinical Sports Medicine: The Medicine of Exercise. 5e, Vol 2. McGraw Hill. McGraw Hill 2019
3. Gregory S Kolt, Lynn Syder-Mackler. Physical therapies in Sport and exercise. 2nd Edn. Elsevier. 2008.
4. Clive Brewer. Athletic Movement Skills-Training for sports performance. Human kinetics.2017.
5. David H Fukuda. Assessment of Sport and athletic performance. Human kinetics. USA. ISBN 978-1-4925-5988-7
6. www.wada-ama.org

CSOs

At the end of each unit student will be able to

UNIT	CSOs
UNIT I	6. Explain the principles of injury prevention, recovery, and physiotherapy management of soft tissue injuries.(CO1,CO2) 7. Describe and analyze on-field and off-field first aid management in sports injury situations (CO1,CO2)
UNIT II	4. Analyze the physiotherapy management of regional, traumatic, and non-traumatic sports injuries..(CO1,CO2,CO3) 5. Evaluate physiotherapy approaches in conservative and surgical management of sports injuries, integrating biomechanical correction and orthotic principles.(CO1,CO2,CO3,CO4)
UNIT III	6. Discuss the principles and applications of exercise-based conditioning and rehabilitation programs in sports physiotherapy.(CO1,CO2,CO3)
UNIT IV	4. Explain the role of the physiotherapist as a team member in providing comprehensive team care and preparation for sports travel .CO1) 5. Describe the role of sports psychology in optimizing athlete performance and recovery..(CO4)
UNIT V	4. Describe commonly used pharmacological agents in sports and exercise, and explain their legal and ethical considerations, including doping regulations.(CO4)

CO-CSO Mapping

UNITS	CSO	CO1	CO2	CO3	CO4
I	1	High	Moderate	None	Low
	2	High	High	None	Low
II	1	Moderate	High	High	Low
	2	Moderate	High	High	Low
III	1	Moderate	High	High	Low
IV	1	High	Low	Low	Low

	2	Low	Low	Low	High
V	1	Low	Low	Low	High

General Physiotherapy in Sports-B

Course: Core Course code: AH02PT**3SEC1**

Credits: 3 Number of hours: 90

Course description: Couse emphasizes hands-on management of regional injuries, non-traumatic athlete conditions, conservative/surgical protocols, exercise conditioning, and practical team support like pre-season assessments and record-keeping.

Course objectives: at the end of the course students will be able to

CO1: Implement basic treatment protocols effectively in sports rehabilitation through appropriate planning and development.

CO2: Evaluate and document patient progress using relevant clinical outcome measures.

CO3: Select and apply appropriate physical modalities and exercise interventions in the management of sports injuries.

CO4: Modify and progress treatment protocols based on clinical findings and patient response.

Unit	No. Of hours	Content	Must Know	Good to Know	Desirable To know	Weightage %	Type of questions
Unit I	30	• **Regional sport injuries and management:** Sports concussion, Headache, Facial injuries, Spine, Shoulder, Elbow, Wrist and hand, Pelvis, hip and	✓			33	OSCE/OSPE Case based/Scenario based Viva voce

		Groin, Knee, Patellofemoral joint, Foot, Ankle &Lower leg, Chest pain, Low backpain, Buttock pain. • **Correction of abnormal biomechanics**: Prescription of Orthoses, correction of abnormal mechanics.					
Unit II	30	• **Non – traumatic medical condition in athlete:** DOMS, Runner's high, Exercise induced asthma, Hypertension, Exercise addictions • **Physiotherapy in Conservative & Surgical management of sports injuries**: PRICE protocol, Immobilization and early mobilization, Heat & Cold, Mobilization techniques, Electro physical agents,	✓			33	
Unit III	10	• **Exercise based conditioning and rehabilitation: Strength** training, interval training, Endurance training,	✓			12	

		Stabilization.					
Unit IV	20	• **Providing team care:** The off-field team, Pre-season assessment, Educate team members and other essentials (Facilities, Record keeping, Confidentiality, and 'Team clinicians bag' • **Travelling with a team**	✓	✓		22	

References

1. P.Muzumdar. Physiology of Sports and Exercise. New Cental Book Agency (P) ltd. Howra.2011.
2. Peter Bruckner, Karim Khan. Clinical Sports Medicine: The Medicine of Exercise. 5e, Vol 2. McGraw Hill. McGraw Hill 2019
3. Gregory S Kolt, Lynn Syder-Mackler. Physical therapies in Sport and exercise. 2nd Edn. Elsevier. 2008.
4. Clive Brewer. Athletic Movement Skills-Training for sports performance. Human kinetics.2017.
5. David H Fukuda. Assessment of Sport and athletic performance. Human kinetics. USA. ISBN 978-1-4925-5988-7
6. www.wada-ama.org

Advanced Physiotherapy in Sports-A

Course: Core Course code: AH02PT**4DSE1**

Credits: 4 Number of hours: 60

Course description: Covers sports performance factors like muscle fiber typing, anthropometry, nutrition/supplements; female-specific issues; sport-specific injuries exercises for special groups (children, elderly, disabled, chronic illnesses); and advanced techniques .

Course objectives: at the end of the course students will be able to

CO1- Explain the concepts of sports performance and analyze the selection of sports based on muscle fibre typing, anthropometry, nutrition, and supplementation.

CO2- Discuss and evaluate recent developments in sports physiotherapy, including gender specific injuries and exercise considerations for active individuals and athletes with medical conditions.

CO3-Design and justify advanced, evidence based treatment protocols in sports rehabilitation.

CO4- Apply evidence to revise and enhance treatment protocols in response to emerging clinical insights and patient outcomes

Unit	No. Of hours	Content	**Must know**	**Good to know**	**Desirable to know**	**Weightage %**	**Type of questions**
Unit I	10	1.1. **Sports performance:** 1.1.1. Muscle fiber typing and prediction of sports selection and performance. 1.1.2. Anthropometry and performance, 1.1.3. Overtraining syndrome and Fitness. 1.2. **Nutrition & Supplements in Enhancing sport performance:** 1.2.1. **Nutrition:** maximizing energy	✓			16.66	LE

		stores, achieving ideal body weight, Bulking up, ensuring sufficient intake of vitamins and minerals, Maintaining adequate hydration, optimizing the pre competition meal 1.2.2. **Supplements:** Supplements for strength and power sports, weight restricted sports, and high intensity exercises, Supplement contamination.					
Unit II	05	**2.1.Female Sports specific problems:** **2.1.1.** Gender difference in sports participation **2.1.2.** Amenorrhea, menstrual synchrony, injury to female reproductive system. **2.1.3.** Effect of exercise on menstrual cycle and performance. **2.1.4.** Exercises in pregnancy, Lactation, Menopause, and eating disorders. **2.1.5.** Care of breast **2.1.6.** Common sports injuries in women	✓			8.33	SE

Unit III	15	**3.1 Sports Specific injuries:** Special emphasis on risk factors, nature of sports and preventive with respect to individual sports. 3.1.1. **Individual event:** Field and track method. 3.1.2. Team events. 3.1.3. Contact and Non – contact Sports. 3.1.4. Water sports	✓			25	SE
Unit IV	15	**4.1.Sports and exercises in active groups**: Children and adolescents, Older persons, Athletes with disability and Female athlete **4.2.Sports in chronic illness**: Rheumatoid arthritis, Diabetes, Hypertension, Congenital heart diseases, Asthma, Sports anemia, Epilepsy and Spinal deformities.	✓			25	LE/SE
Unit V	15	**5.1.Advanced techniques :** Manual therapies, Motor control, Dry needling, Tapping, Orthotics & Assistive devises, Plyometrics, Core strengthening, Sports massage, Yoga therapy	✓			25	SE

References:

1. P.Muzumdar. Physiology of Sports and Exercise. New Cental Book Agency (P) ltd. Howra.2011.
2. Peter Bruckner, Karim Khan. Clinical Sports Medicine: The Medicine of Exercise. 5e, Vol 2. McGraw Hill. McGraw Hill 2019
3. Gregory S Kolt, Lynn Syder-Mackler. Physical therapies in Sport and exercise. 2nd Edn. Elsevier. 2008.

4. Clive Brewer. Athletic Movement Skills-Training for sports performance. Human kinetics.2017.
5. David H Fukuda. Assessment of Sport and athletic performance. Human kinetics. USA. ISBN 978-1-4925-5988-7
6. www.wada-ama.org

CSOs

At the end of each unit student will be able to

UNIT	CSOs
UNIT I	8. Analyze muscle fibre typing and anthropometric characteristics in relation to sports selection and athletic performance. (CO1) 9. Explain the role of nutrition and supplementation in enhancing sports performance. (CO1)
UNIT II	6. Discuss female-specific sports related problems and propose preventive physiotherapy strategies. (CO2)
UNIT III	7. Examine the nature, risk factors, and preventive approaches to injuries in individual, team, contact, non-contact, and water sports. (CO1,CO3,CO4)
UNIT IV	6. Preescribe and evaluate exercise prescription and sports participation strategies for active athletes and individuals with chronic illnesses.(CO2,CO4)
UNIT V	5. Explain the concepts, principles, indications, contraindications, and techniques of motor control, dry needling, taping, plyometrics, core strengthening, sports massage, and yoga. (CO2, CO3, CO4)

CO-CSO Mapping

UNITS	CSO	CO1	CO2	CO3	CO4
I	1	High	Low	Low	Low
	2	High	Low	Low	Low

II	1	Low	High	Low	Low
III	1	Moderate	Low	Moderate	Moderate
IV	1	Low	High	Low	High
V	1	Low	High	High	High

Advanced Physiotherapy in Sports-B

Course: Core Course code: AH02PT**4SEC1**

Credits: 2 Number of hours: 90

Course description: Focuses on practical application of advanced techniques and documentation skills with clinical reasoning, individual decision making, patient safety, and ethical teamwork

Course objectives: at the end of the training student will be able to

CO1: Design and implement evidence based advanced treatment protocols in sports rehabilitation, ensuring patient safety and demonstrating effective communication, teamwork, and professional ethics.

CO2: Assess and document patient progress using appropriate outcome measures, demonstrating sound clinical reasoning, empathy, and ethical responsibility in professional practice.

Unit	No. Of hours	Content	Must Know	Good to Know	Desirable To know	Weightage %	Type of questios

Unit I	50	Advanced techniques 1) Manual therapies- 2) Tapping 3) Plyometrics 4) Core strengthening 5) Sports massage 6) Dry needling 7) Yoga therapy	✓ ✓ ✓ ✓ ✓	✓	✓	56	OSCE/OSPE Case/Scenario based Viva-voce
Unit II	40	Documentation	✓			44	

References:

1. P.Muzumdar. Physiology of Sports and Exercise. New Cental Book Agency (P) ltd. Howra.2011.
2. Peter Bruckner, Karim Khan. Clinical Sports Medicine: The Medicine of Exercise. 5e, Vol 2. McGraw Hill. McGraw Hill 2019
3. Gregory S Kolt, Lynn Syder-Mackler. Physical therapies in Sport and exercise. 2nd Edn. Elsevier. 2008.
4. Clive Brewer. Athletic Movement Skills-Training for sports performance. Human kinetics.2017.

MPT in Neuro Physiotherapy

SEMESTER I

BASIC SCIENCES FOR NEURO PHYSIOTHERAPY

Course: Core Course Code: AH02PT1DSE1C

Credits: 3 No of Hours: 60 Hours

Course Outcome

At the end of the course the students will be able to:

- To explain the applied neuro-anatomy and neurophysiology of central and peripheral nervous systems and relate to the control of movement.
- To analyse the reflex maturation and neurodevelopment of milestones across life span
- To review the physiology of neuromuscular system, biomechanics of nervous system and distinguish the pathophysiology of tonal dysfunctions
- To explain the mechanisms of neural plasticity and apply the motor control and motor learning principles in brain recovery
- To discuss the role of exercise in health promotion and disease prevention

Unit	No. of hours	Content	Must know	Good to know	Desirable to know	Weightage %	Type of questions
Unit I	24	**Neuro-anatomy and Neuro Physiology of nervous system:** Sensory System, spinal cord and its connections, Brainstem and its Connections, Cerebellum, Cerebrum, Basal Ganglia, Limbic System, Cranial and Spinal Nerves, Autonomic Nervous System, Posture, Voluntary movement and Locomotion, Vestibular System	✓			20	LE, SE
Unit II	8	**Motor Development:** Reflex, Gross Motor, Fine Motor, and Sensory development,	✓			10	SE

		Cognitive development, Social development					
Unit III	8	**Basics in physiology of nerve and muscle:** Properties and resting membrane potential of nerve and muscle, anatomy of neuromuscular junction, generation and propagation of action potential across nerve, and sliding filament theory of muscle contraction, muscle structure and function	✓			10	SE
Unit IV	4	**Biomechanics of the nervous system**	✓			10	SE
Unit V	4	**Pathophysiology of tonal dysfunctions**	✓			20	SE
Unit VI	4	**Neural plasticity and Brain recovery mechanisms**	✓			20	LE
Unit VII	8	**Exercise Promotion and Disease Prevention:** Concept of Health, disease, disability and neuro-rehabilitation care delivery within the Indian context incorporating caregiver education and training, Need for motivation in neurological patients, Defining and describing health behavior, Techniques for promoting positive healthy lifestyle behavior	✓			10	SE

References:

1. Splittgerber R. Snell's Clinical Neuroanatomy. 9th ed. Philadelphia: Wolters Kluwer; 2024.
2. Mancall EL, Brock DG. Gray's Clinical Neuroanatomy: The Anatomical Basis for Clinical Neuroscience. 1st ed. Philadelphia: Elsevier/Saunders; 2011
3. Kandel ER, Koester JD, Mack SH, Siegelbaum SA, editors. Principles of Neural Science. 6th ed. New York: McGraw Hill; 2021.
4. Fulk GD, Chui KK, editors. O'Sullivan & Schmitz's Physical Rehabilitation. 8th ed. Philadelphia: F.A. Davis; 2024.
5. Hall JE, Hall ME. Guyton and Hall Textbook of Medical Physiology. 14th ed. Philadelphia: Elsevier; 2021
6. Latash ML, Singh T. Neurophysiological Basis of Motor Control. 3rd ed. Champaign: Human Kinetics; 2024.
7. Poddar S, Bhagat A. Anatomy of the Central Nervous System. 10th ed. Patna: Scientific Book Company; 2011.

SEMESTER II

Physical and Functional Diagnosis in Neuro Physiotherapy A

Course: Core | Course Code: AH02PT2DSE2C

Credits: 4 | No of Hours: 60 Hours

Course Outcome

At the end of the course the students will be able to:

- Critically appraise the theoretical foundations and psychometric properties of various neurological assessment tools to justify their selection in complex clinical decision-making.
- Analyze from functional outcome measures to differentiate between activity limitations and participation restrictions in patients with progressive vs. non-progressive neurological disorders.
- Integrate knowledge of pain neurophysiology with patient-reported outcome measures to formulate a multidimensional pain management strategy for diverse clinical scenarios.

- Interpret and critique the kinematic and kinetic parameters of human gait, EMG, NCV findings
- Evaluate the legal and ethical frameworks of physical disability evaluation to generate structured expert reports based on international classification standards (ICF)

Unit	No. of hours	Content	Must know	Good to know	Desirable to know	Weightage %	Type of questions
Unit I	18	**Body Structure and Function Assessment in Neurological Disorders:** Assessment of Cerebral Cortical function [Consciousness, Higher Functions, Sensory functions, Perception, Motor functions, Synergy, Speech, Vision etc.]; Assessment of cerebral cortical dysfunction in Progressive and Nonprogressive disorders of Central Nervous System; Assessment of Basal Ganglia functions [Motor planning, Movement initiation and control, Muscle Tone]; Assessment of dysfunction in movement disorders; Assessment of Cerebellar functions [Motor coordination and sensory integration of visual, vestibular, and proprioceptive systems]; Assessment of movement	✓			25	LE, SE

		dysfunction in cerebellar disorders; Assessment of Spinal Cord & Brainstem functions [Muscle functions, Sensory functions, Reflexes and Autonomic functions]; Assessment of movement dysfunction in Progressive and Nonprogressive disorders of the spinal cord; Assessment of the Peripheral nervous system including Muscle and Neuromuscular junction functions [Motor, sensory, and peripheral autonomic functions]; Assessment of sensory, motor, and autonomic dysfunction in peripheral nerve injuries, polyneuropathies, neuromuscular junction, and muscle disorders.					
Unit II	5	**Neurological investigations:** Electrophysiological investigations [EMG, SD curve and FG Test, Nerve conduction studies, and Evoked Potentials] Neuroimaging [Ultrasound, CT, MRI, FMRI, PET, TMS, EEG] Biochemical [CSF, Muscle and Nerve Biopsy]	✓			10	SE
Unit III	10	Motor Behavior Assessment: Postural control assessment; Gait assessment and Other Gross	✓			10	SE

		movement assessment; Reach, Grasp and Manipulation Assessment; Motor control and Motor Learning Assessment; Assessment of Activities and Instrumental activities of daily function; Assessment of Health Behaviors and Exercise adherence; Assessment of Environmental Barriers and Facilitators; Assessment of Personal Barriers and Facilitators.					
Unit IV	5	**Activity Limitation and Participation Restriction Assessment using Functional Outcome Measures:** Generic outcome measures: Activities of Daily Living, Instrumental Activities of Daily Living, International Classification of Functioning Outcome measure, Participation Level Measure, Quality of Life Measures;Goal setting in progressive and non-progressive neurological disorders across ICF domain outcomes based on rate of prognosis	✓			20	LE, SE
Unit V	10	**Pain assessment:** Historical perspective, theories of	✓			15	LE, SE

		pain, and classification of pain, clinical manifestations. Tools and instruments of pain assessment, body charts, and pathological assessment (Questionnaires and Pain Rating Scales).					
Unit VI	6	**Disability evaluation:** Physical disability evaluation and disability diagnosis;Gait assessment and analysis	✓			10	LE
Unit VII	3	**Concepts of Electromyography**: Instrumentation and signal characteristics, Amplifying the EMG signal	✓			5	SE
Unit VIII	3	**Concepts of Nerve Conduction Velocity:** Instrumentation, Motor nerve conduction velocity, Sensory Nerve conduction velocity				5	SE

References:

1. Splittgerber R. Snell's Clinical Neuroanatomy. 9th ed. Philadelphia: Wolters Kluwer; 2024.
2. Mancall EL, Brock DG. Gray's Clinical Neuroanatomy: The Anatomical Basis for Clinical Neuroscience. 1st ed. Philadelphia: Elsevier/Saunders; 2011
3. Kandel ER, Koester JD, Mack SH, Siegelbaum SA, editors. Principles of Neural Science. 6th ed. New York: McGraw Hill; 2021.
4. Fulk GD, Chui KK, editors. O'Sullivan & Schmitz's Physical Rehabilitation. 8th ed. Philadelphia: F.A. Davis; 2024.
5. Hall JE, Hall ME. Guyton and Hall Textbook of Medical Physiology. 14th ed. Philadelphia: Elsevier; 2021

6. Latash ML, Singh T. Neurophysiological Basis of Motor Control. 3rd ed. Champaign: Human Kinetics; 2024.
7. Poddar S, Bhagat A. Anatomy of the Central Nervous System. 10th ed. Patna: Scientific Book Company; 2011.
8. Bickley LS, Szilagyi PG, Hoffman RM. Bates' Guide to Physical Examination and History Taking. 13th ed. Philadelphia: Wolters Kluwer; 2021
9. Campbell WW. DeJong's The Neurologic Examination. 8th ed. Philadelphia: Wolters Kluwer; 2020
10. Misra UK, Kalita J. Clinical Neurophysiology: Nerve Conduction, Electromyography, Evoked Potentials. 4th ed. Elsevier India; 2019.
11. Campbell WW. DeJong's The Neurologic Examination. 8th ed. Philadelphia: Wolters Kluwer; 2020.
12. Kimura J. Electrodiagnosis in Diseases of Nerve and Muscle: Principles and Practice. 4th ed. New York: Oxford University Press; 2013.
13. Shumway-Cook A, Woollacott MH. Motor Control: Translating Research into Clinical Practice. 6th ed. Philadelphia: Wolters Kluwer; 2023.
14. Prasad K, Yadav R, Spillane J. Bickerstaff's Neurological Examination in Clinical Practice. 7th ed. New Delhi: Wiley India; 2023

SEMESTER II

Physical and Functional Diagnosis in Neuro Physiotherapy B

Course: Core **Course Code: AH02PT2SEC1**

Credits: 4 **No of Hours: 120 Hours**

Course Outcome

At the end of the course the students will be able to:

- Demonstrate proficiency in selecting and executing a comprehensive battery of clinical assessment tools, justifying their use based on the specific pathophysiology of the neurological disorder.

- Integrate standardized functional outcome measures to quantify activity limitations and participation restrictions, formulating a prognostic clinical picture for both progressive and non-progressive disorders
- Appraise and implement specialized pain assessment instruments across diverse clinical scenarios, synthesizing patient-reported outcomes with clinical observations to guide therapeutic intervention.
- Conduct a systematic physical disability evaluation and generate a professional report adhering to statutory guidelines and international classification standards (ICF).

Unit	No. of hours	Content	Must know	Good to know	Desirable to know	Weightage %	Type of questions
Unit I	40	**Neurological examination of adult neurological conditions:** Perform the bedside assessment of higher mental function Perform the bedside assessment of cranial nerves Perform the superficial, deep, and cortical sensory examination Perform the bedside motor assessment of tone, voluntary movement control, and synergy Assess superficial and deep reflex testing Perform equilibrium and nonequilibrium tests Demonstrate the clinical reasoning and decision-making process for the management of the patient based on the evaluation	✓				OSCE, Long case, short case, Viva
Unit II	40	**ICF framework-based Outcome measures in neurological**	✓				OSCE, Long case, short

		rehabilitation: Identify the psychometric properties of validated clinical outcome measures; Choose and apply the impairment-based outcome measures used in neurological conditions; Choose and apply the activity-based outcome measures used in neurological conditions; Choose and apply the participation-based outcome measures used in neurological conditions; Display ethical and professional behavior (Autonomy, Beneficence, and Justice) during the evaluation					case, Viva
Unit III	40	**Clinical decision-making process for the management of patients with neurological disorders:** Plan a comprehensive physical examination; Construct a problem list and plan short-term and long-term goals based on the evaluation findings; Plan and take part in performing physiotherapy treatment techniques underlying the principles of motor control, learning, and brain plasticity in neurological conditions.	✓				OSCE, Long case, short case, Viva

References:

1. Bickley LS, Szilagyi PG, Hoffman RM. Bates' Guide to Physical Examination and History Taking. 13th ed. Philadelphia: Wolters Kluwer; 2021
2. Campbell WW. DeJong's The Neurologic Examination. 8th ed. Philadelphia: Wolters Kluwer; 2020
3. Misra UK, Kalita J. Clinical Neurophysiology: Nerve Conduction, Electromyography, Evoked Potentials. 4th ed. Elsevier India; 2019.
4. Campbell WW. DeJong's The Neurologic Examination. 8th ed. Philadelphia: Wolters Kluwer; 2020.
5. Kimura J. Electrodiagnosis in Diseases of Nerve and Muscle: Principles and Practice. 4th ed. New York: Oxford University Press; 2013.
6. Shumway-Cook A, Woollacott MH. Motor Control: Translating Research into Clinical Practice. 6th ed. Philadelphia: Wolters Kluwer; 2023.
7. Prasad K, Yadav R, Spillane J. Bickerstaff's Neurological Examination in Clinical Practice. 7th ed. New Delhi: Wiley India; 2023
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9. Mancall EL, Brock DG. Gray's Clinical Neuroanatomy: The Anatomical Basis for Clinical Neuroscience. 1st ed. Philadelphia: Elsevier/Saunders; 2011
10. Kandel ER, Koester JD, Mack SH, Siegelbaum SA, editors. Principles of Neural Science. 6th ed. New York: McGraw Hill; 2021.
11. Fulk GD, Chui KK, editors. O'Sullivan & Schmitz's Physical Rehabilitation. 8th ed. Philadelphia: F.A. Davis; 2024.
12. Hall JE, Hall ME. Guyton and Hall Textbook of Medical Physiology. 14th ed. Philadelphia: Elsevier; 2021
13. Latash ML, Singh T. Neurophysiological Basis of Motor Control. 3rd ed. Champaign: Human Kinetics; 2024.
14. Poddar S, Bhagat A. Anatomy of the Central Nervous System. 10th ed. Patna: Scientific Book Company; 2011.

General Physiotherapy in Neurosciences A

Course Type: Core **Course Code: AH02PT3DSE1**

Credits: 3 **Number of Hours: 45**

Course Outcome

After completing the course the students will:

CO1: Assess and plan an evidence based physiotherapy management of neurological conditions involving brain and spinal cord

CO2: Assess and plan an evidence based physiotherapy management for diseases of muscles, neuro-muscular junction, cranial and spinal nerves

CO3: Assess and plan an evidence based physiotherapy management for vestibular disorders

Course Content

Unit	Hrs	Content	Must know	Good to know	Desirable to know	Weightage	Type of question
Unit I	3	PT Intervention of Central Motor Control	✓			5%	SE,LE
Unit II	6	PT Intervention for Tonal Abnormalities	✓			5%	SE,LE
Unit III	3	PT Interventions for Peripheral Nervous System	✓			5%	SE,LE
unit IV	3	Physiotherapy Intervention for ANS Dysfunction	✓			5%	SE,LE
Unit V	4	PT Interventions for Perceptual and Cognitive Dysfunction	✓			10%	SE,LE
Unit VI	3	PT Interventions for Traumatic Conditions of CNS	✓			5%	SE,LE
Unit VII	3	PT Management for Demyelinating, Inflammatory, Infectious and	✓			10%	SE,LE

		Degenerative Conditions					
Unit VIII	2	PT Management for CNS Neoplasia	✓			5%	SE,LE
Unit IX	3	PT Management of Congenital Neurological Disorders	✓			5%	SE,LE
Unit X	3	PT Management for Cerebellar Disorders				5%	SE,LE
Unit XI	2	PT Management of Oromotor Dysfunctions				5%	SE
Unit XII	2	PT Management for Visual Deficits				5%	SE
Unit XIII	3	PT Management of Vestibular Dysfunction				10%	SE,LE
Unit XIV	2	PT Management for Bladder and Bowel Dysfunction				10%	SE,LE
Unit XV	2	PT Management for Psychosomatic Conditions				5%	SE
Unit XVI	**2**	PT Management for Postoperative Neurosurgical Conditions				5%	SE,LE

Reference books:

1. Adams RD, Victor M, 97:603-5.

2. Adler SS, Beckers D, Buck M. PNF in practice: an illustrated guide. Springer Science & Business Media; 2007 Dec 22.

3. Ayres AJ, Robbins J. Sensory integration and the child: Understanding hidden sensory challenges. Western Psychological Services; 2005.

4. Basmajian JV. Biofeedback: Principles and practice for clinicians. Williams & Wilkins; 1979.

5. Bobath B. Adult hemiplegia: evaluation and treatment. Elsevier Health Sciences; 1990.

6. Butler DS, Jones MA. Mobilisation of the nervous system. Elsevier Health Sciences; 1991.

7. Campbell WW, DeJong RN. DeJong's the neurologic examination. Lippincott Williams & Wilkins; 2005.

8. Carr JH, Shepherd RB. A motor relearning programme for stroke. Aspen Pub; 1987.

9. Connolly BH, Montgomery P. Therapeutic exercise in developmental disabilities. Slack Incorporated; 2005. 10.Davies PM, Davies PM. Starting again. Springer-Verlag; 1994 May.

11.Davies PM. Right in the middle: selective trunk activity in the treatment of adult hemiplegia. Springer Science & Business Media; 1990 May 11.

12.Davies PM. Steps to follow: the comprehensive treatment of patients with hemiplegia. Springer Science & Business Media; 2000 May 8.

13.Fredericks CM. Pathophysiology of the motor systems: principles and clinical presentations. Fredericks CM, Saladin LK, editors. Philadelphia, PA: FA Davis; 1996 Jan.

14.Gjelsvik BE, Syre L. The Bobath concept in adult neurology. Thieme; 2016 Mar 16.

15.Herdman SJ, Clendaniel R. Vestibular rehabilitation. FA Davis; 2014 Jul 24.

16.Johnstone M, Barton E. Restoration of normal movement after Stroke. WB Saunders Company; 1995. 17.Kimura J. Electrodiagnosis in diseases of nerve and muscle: principles and practice. Oxford university press; 2001 Mar 15.

18.Levitt S. Treatment of cerebral palsy and motor delay. John Wiley & Sons; 2013 May 9.

19.Lindsay KW, Bone I, Callander R. Neurology and neurosurgery illustrated. New York: Churchill Livingstone; 1997 Aug.

20.Misra UK; et al. Principles of Neurophysiology. Elsevier Health Sciences; 2010

21.O'Sullivan SB, Schmitz TJ, Fulk G. Physical rehabilitation. FA Davis; 2013 Jul 23.

22.Patten J. Neurological differential diagnosis. Springer Science & Business Media; 1996.

23.Preston DC, Shapiro BE. Electromyography and Neuromuscular Disorders E-Book: ClinicalElectrophysiologic Correlations (Expert Consult-Online). Elsevier Health Sciences; 2012 Nov 1.

24.Umphred DA, Lazaro RT, Roller M, Burton G, editors. Neurological Rehabilitation-E-Book. Elsevier Health Sciences; 2013 Aug 7.

25.Wade DT. Measurement in neurological rehabilitation.

26.Wyan Parry CB, Salter M. M. Knott and DE Voss, Proprioceptive Neuromuscular Facilitation.

27.Related scientific publications including position statements, guidelines, landmark trials, systematic reviews and meta-analysis and recent trials

General Physiotherapy in Neurosciences B

Course Type: Core **Course Code: AH02PT3SEC1**

Credits: 3 **Number of Hours: 45**

Course Outcome

After completing the course the students will:

CO1: Demonstrate the neuro-physiotherapy approaches and contemporary neurophysiotherapy treatment techniques in the clinical practice of neurological conditions

CO2: Perform assessment procedures and physiotherapy interventions of neonatal, paediatric and adult neurological conditions

CO3: Plan and prescribe an appropriate orthotic device and provide physiotherapy treatment for patients with tonal dysfunctions, oromotor and vestibular disorders

CO4: Demonstrate assessment and retraining methods for people with balance, mobility and locomotor disorders in neurological conditions

CO5: Practice ethical principles and discuss health related information and display verbal and written communication with patients/ clients, caregivers, peers and health care professionals and ability to work as a team

Course Content

Unit	Hrs	Content	Must know	Good to know	Desirable to know	Weightage	Type of question
Unit I	3	PT Intervention for Tonal Abnormalities	✓			5%	SE,LE
Unit II	4	PT Interventions for Sensory Dysfunction	✓			5%	SE,LE
Unit III	3	PT Interventions in ICU Management of Neurological Conditions	✓			10%	SE,LE
unit IV	3	Physiotherapy Intervention or Posture and Balance Dysfunctions	✓			10%	SE,LE
Unit	3	NMES & FES in	✓			10%	SE,LE

V		Neurological Management					
Unit VI	2	PT Gait Dysfunctions Interventions for	✓			5%	SE,LE
Unit VII	3	Functional Re-education Techniques	✓			5%	SE,LE
Unit VIII	3	PT Interventions for Perceptual and Cognitive Dysfunction	✓			10%	SE,LE
Unit IX	3	PT management of Stroke Conditions	✓			5%	SE,LE
Unit X	3	PT Management for Cerebellar Disorders				5%	SE,LE
Unit XI	3	PT Interventions for Traumatic Conditions of Spine				5%	SE,LE
Unit XII	3	PT Management for Degenerative Conditions				5%	SE,LE
Unit XIII	3	PT Management for Cerebellar Disorders				5%	SE,LE
Unit XIV	3	Prescription of Functional and Assistive Aids in Neurological Disorders				10%	SE,LE
Unit XV	3	Electrodiagnosis & Biofeedback Training in Neurological Disorders				10%	SE,LE

Reference books:

1. Adams RD, Victor M, 97:603-5.

2. Adler SS, Beckers D, Buck M. PNF in practice: an illustrated guide. Springer Science & Business Media; 2007 Dec 22.

3. Ayres AJ, Robbins J. Sensory integration and the child: Understanding hidden sensory challenges. Western Psychological Services; 2005.

4. Basmajian JV. Biofeedback: Principles and practice for clinicians. Williams & Wilkins; 1979.

5. Bobath B. Adult hemiplegia: evaluation and treatment. Elsevier Health Sciences; 1990.

6. Butler DS, Jones MA. Mobilisation of the nervous system. Elsevier Health Sciences; 1991.

7. Campbell WW, DeJong RN. DeJong's the neurologic examination. Lippincott Williams & Wilkins; 2005.

8. Carr JH, Shepherd RB. A motor relearning programme for stroke. Aspen Pub; 1987.

9. Connolly BH, Montgomery P. Therapeutic exercise in developmental disabilities. Slack Incorporated; 2005. 10.Davies PM, Davies PM. Starting again. Springer-Verlag; 1994 May.

11.Davies PM. Right in the middle: selective trunk activity in the treatment of adult hemiplegia. Springer Science & Business Media; 1990 May 11.

12.Davies PM. Steps to follow: the comprehensive treatment of patients with hemiplegia. Springer Science & Business Media; 2000 May 8.

13.Fredericks CM. Pathophysiology of the motor systems: principles and clinical presentations. Fredericks CM, Saladin LK, editors. Philadelphia, PA: FA Davis; 1996 Jan.

14.Gjelsvik BE, Syre L. The Bobath concept in adult neurology. Thieme; 2016 Mar 16.

15.Herdman SJ, Clendaniel R. Vestibular rehabilitation. FA Davis; 2014 Jul 24.

16.Johnstone M, Barton E. Restoration of normal movement after Stroke. WB Saunders Company; 1995. 17.Kimura J. Electrodiagnosis in diseases of nerve and muscle: principles and practice. Oxford university press; 2001 Mar 15.

18.Levitt S. Treatment of cerebral palsy and motor delay. John Wiley & Sons; 2013 May 9.

19.Lindsay KW, Bone I, Callander R. Neurology and neurosurgery illustrated. New York: Churchill Livingstone; 1997 Aug.

20.Misra UK; et al. Principles of Neurophysiology. Elsevier Health Sciences; 2010

21.O'Sullivan SB, Schmitz TJ, Fulk G. Physical rehabilitation. FA Davis; 2013 Jul 23.

22.Patten J. Neurological differential diagnosis. Springer Science & Business Media; 1996.

23.Preston DC, Shapiro BE. Electromyography and Neuromuscular Disorders E-Book: ClinicalElectrophysiologic Correlations (Expert Consult-Online). Elsevier Health Sciences; 2012 Nov 1.

24.Umphred DA, Lazaro RT, Roller M, Burton G, editors. Neurological Rehabilitation-E-Book. Elsevier Health Sciences; 2013 Aug 7.

25.Wade DT. Measurement in neurological rehabilitation.

26.Wyan Parry CB, Salter M. M. Knott and DE Voss, Proprioceptive Neuromuscular Facilitation.

27.Related scientific publications including position statements, guidelines, landmark trials, systematic reviews and meta-analysis and recent trials

Advanced Physiotherapy in Neurosciences -A

Course Type: Core **CourseCode: AH02PT4DSE1**

Credits: 3 **Number of Hours:** 45

Course Outcome

After completing the course the students will:

CO1: Assess and plan an evidence based physiotherapy assessment and management for patients with traumatic brain injury and spinal cord injury.

CO2: Develop comprehensive physiotherapy assessment and plan an evidence based rehabilitation for people with compressive myelopathies, surgically managed stroke, tumors, spinal dysraphism, peripheral nerve injuries, as well as disorders of CSF circulation and cranio-vertebral junction anomalies

CO3: Develop a structured respiratory care and mobilization protocol for patients following neurosurgical procedures.

CO4: Plan physiotherapy management following functional neurosurgical procedures and stem cell therapy

Course Content

Unit	Hr	Content	Must know	Good to know	Desirable to know	Weightage	Type of question
Unit I	10	Advanced Physiotherapy Management of the following conditions: 1.1 Stroke, 1.2 Traumatic CNS lesions, 1.3 Cerebellar Disorders, 1.4 Parkinsonism, PNL, 1.5 Myopathies, 1.6 Neuromyopathies & NMJ Disorders, Demyelinating and Degenerative Conditions,	✓			2%	SE,LE

		1.7 CNS Neoplasias, Sensory Dysfunction, 1.8 Psychiatric Problems, and Congenital Neurological Conditions					
Unit II	11	Treatment Approaches in Neurological Conditions: PNF, Rood's Approach, NDT, MRP, Vojta Therapy, Neuromuscular Therapy, Vocational Rehabilitation, Mental Imagery, Virtual Reality, Hippotherapy, Robotic Movt. Therapy, Alternative Therapy, Craniosacral Therapy, Genetic Counselling, Stem Cell & Gene Therapy, Transcranial Stimulation, Hydrotherapy, Eclectic Approach & Artificial Intelligen	✓			20%	SE,LE
Unit III	2	IBR/CBR	✓			5%	SE,
unit IV	3	Neurological Orthosis	✓			5%	SE,LE
Unit V	5	Pain modulation and Rehabilitation	✓			10%	SE,LE
Unit VI	2	Sports Training in Neurological Conditions	✓			10%	SE,LE
Unit VII	2	Tele Rehabilitation,	✓			5%	SE
Unit VIII	2	Inter & Transdisciplinary Approaches	✓			5%	SE,LE
Unit	3	pharmacology in	✓			5%	SE,

IX		Neurological Conditions					
Unit X	5	Palliative Care in Neurological Conditions	✓			10%	SE,

Reference books

1. Adams RD, Victor M, Ropper AH. Principles of Neurology. 6th. Edition. Singapore, McGraw-Hıll Book Co. 1997:603-5.

2. Adler SS, Beckers D, Buck M. PNF in practice: an illustrated guide. Springer Science & Business Media; 2007 Dec 22.

3. Basmajian JV. Biofeedback: Principles and practice for clinicians. Williams & Wilkins; 1979.

4. Bobath B. Adult hemiplegia: evaluation and treatment. Elsevier Health Sciences; 1990.

5. Bromley I. Tetraplegia and paraplegia: a guide for physiotherapists. Elsevier Health Sciences; 2006.

6. Campbell WW, DeJong RN. DeJong's the neurologic examination. Lippincott Williams & Wilkins; 2005

7. Carr JH, Shepherd RB. A motor relearning programme for stroke. Aspen Pub; 1987.

8. Connolly BH, Montgomery P. Therapeutic exercise in developmental disabilities. Slack Incorporated; 2005.

9. Davies PM, Davies PM. Starting again. Springer-Verlag; 1994 May.

10. Davies PM. Right in the middle: selective trunk activity in the treatment of adult hemiplegia. Springer Science & Business Media; 1990 May 11.

11. Davies PM. Steps to follow: the comprehensive treatment of patients with hemiplegia. Springer Science & Business Media; 2000 May 8.

12. Gjelsvik BE, Syre L. The Bobath concept in adult neurology. Thieme; 2016 Mar 16.

13. Herdman SJ, Clendaniel R. Vestibular rehabilitation. FA Davis; 2014 Jul 24.

14. Johnstone M, Barton E. Restoration of normal movement after Stroke. WB Saunders Company; 1995.

15. Lindsay KW, Bone I, Callander R. Neurology and neurosurgery illustrated. New York: Churchill Livingstone; 1997 Aug.

16. O'Sullivan SB, Schmitz TJ, Fulk G. Physical rehabilitation. FA Davis; 2013 Jul 23.

17. Umphred DA, Lazaro RT, Roller M, Burton G, editors. Neurological Rehabilitation-E-Book. Elsevier Health Sciences; 2013 Aug 7.

18. Wade DT. Measurement in neurological rehabilitation.

19. Wyan Parry CB, Salter M. M. Knott and DE Voss, Proprioceptive Neuromuscular Facilitation.

20. Related scientific publications including position statements, guidelines, landmark trials, systematic reviews and meta-analysis and recent trials

Advanced Physiotherapy in Neurosciences -B

Course Type: Core **Course Code: AH02PT4SEC1**

Credits: 2 **Number of Hours: 30**

Course Outcome

After completing the course, the students will:

CO1: Perform a detailed evaluation of patients with neurological conditions and measure patient outcomes of patients with neurosurgical conditions

CO2: Demonstrate patient centered approach and work with an interprofessional team and deliver evidence-based physiotherapy for patients with neurosurgical conditions

CO3: Discuss health related information and display verbal and written communication with patients/ clients, caregivers, peers and health care professionals and ability to work as a team Practice ethical principles during assessment and treatment

Course Content

Unit	Hr	Content	Must know	Good to know	Desirable to know	Weightage	Type of question
Unit I	9	Advanced Physiotherapy Management of the following conditions: 1.9 Stroke, 1.10 Traumatic CNS lesions, 1.11 Cerebellar Disorders, 1.12 Parkinsonism,	✓			30%	OSCE, SE,LE

		PNL, 1.13 Myopathies, 1.14 Neuromyopathies & NMJ Disorders, Demyelinating and Degenerative Conditions, 1.15 CNS Neoplasias, Sensory Dysfunction, 1.16 Psychiatric Problems, and Congenital Neurological Conditions					
Unit II	9	Treatment Approaches in Neurological Conditions: PNF, Rood's Approach, NDT, MRP, Vojta Therapy, Neuromuscular Therapy, Vocational Rehabilitation, Mental Imagery, Virtual Reality, Hippotherapy, Robotic Movt. Therapy, Alternative Therapy, Craniosacral Therapy, Genetic Counselling, Stem Cell & Gene Therapy, Transcranial Stimulation, Hydrotherapy, Eclectic Approach & Artificial Intelligen	✓			25%	OSCE, SE,LE
Unit III	2	IBR/CBR	✓			10%	SE,
unit IV	3	Neurological Orthosis	✓			10%	SE,LE
Unit V	3	Pain modulation and Rehabilitation	✓			10%	SE,LE
Unit VI	2	Sports Training in Neurological Conditions	✓			10%	SE,LE
Unit VII	2	Tele Rehabilitation,	✓			5%	SE

Reference books

1. Adams RD, Victor M, Ropper AH. Principles of Neurology. 6th. Edition. Singapore, McGraw-Hıll Book Co. 1997:603-5.

2. Adler SS, Beckers D, Buck M. PNF in practice: an illustrated guide. Springer Science & Business Media; 2007 Dec 22.

3. Basmajian JV. Biofeedback: Principles and practice for clinicians. Williams & Wilkins; 1979.

4. Bobath B. Adult hemiplegia: evaluation and treatment. Elsevier Health Sciences; 1990.

5. Bromley I. Tetraplegia and paraplegia: a guide for physiotherapists. Elsevier Health Sciences; 2006.

6. Campbell WW, DeJong RN. DeJong's the neurologic examination. Lippincott Williams & Wilkins; 2005

7. Carr JH, Shepherd RB. A motor relearning programme for stroke. Aspen Pub; 1987.

8. Connolly BH, Montgomery P. Therapeutic exercise in developmental disabilities. Slack Incorporated; 2005.

9. Davies PM, Davies PM. Starting again. Springer-Verlag; 1994 May.

10. Davies PM. Right in the middle: selective trunk activity in the treatment of adult hemiplegia. Springer Science & Business Media; 1990 May 11.

11. Davies PM. Steps to follow: the comprehensive treatment of patients with hemiplegia. Springer Science & Business Media; 2000 May 8.

12. Gjelsvik BE, Syre L. The Bobath concept in adult neurology. Thieme; 2016 Mar 16.

13. Herdman SJ, Clendaniel R. Vestibular rehabilitation. FA Davis; 2014 Jul 24.

14. Johnstone M, Barton E. Restoration of normal movement after Stroke. WB Saunders Company; 1995.

15. Lindsay KW, Bone I, Callander R. Neurology and neurosurgery illustrated. New York: Churchill Livingstone; 1997 Aug.

16. O'Sullivan SB, Schmitz TJ, Fulk G. Physical rehabilitation. FA Davis; 2013 Jul 23.

17. Umphred DA, Lazaro RT, Roller M, Burton G, editors. Neurological Rehabilitation-E-Book. Elsevier Health Sciences; 2013 Aug 7.

18. Wade DT. Measurement in neurological rehabilitation.

19. Wyan Parry CB, Salter M. M. Knott and DE Voss, Proprioceptive Neuromuscular Facilitation.

20. Related scientific publications including position statements, guidelines, landmark trials, systematic reviews and meta-analysis and recent trials

MPT in Cardiovascular and Pulmonary Physiotherapy

SEMESTER-I
Basic Sciences in Cardiovascular and Pulmonary Physiotherapy

Course: Core **Course Code: AH02PT1DSC1D**

Credits: 4 **No of Hours: 60 Hours**

Course Description: The course will enhance the application of biomedical and behavioral scientific knowledge to physiotherapy evaluation and management of pulmonary and cardiovascular dysfunction, Describe the etiology, epidemiology, pathogenesis and clinical presentation of pulmonary and cardiovascular disorders. Conduct assessments and develop treatment plans for patients.

Course Outcome:

After completing the course, the students will be:

1. Able to explain the principles of oxygen transport and describe the steps in oxygen transport pathway
2. Able to describe cardiopulmonary anatomy
3. Able to describe cardiopulmonary physiology
4. Able to describe the cardiopulmonary biomechanics and pathomechanics
5. Able to explain the exercise metabolism, energy needs of exercise and responses of cardiovascular, respiratory, neuromuscular systems and environmental considerations of exercise

Unit	No. Of Hours	Content	Must Know	Good To Know	Desirable To Know	Weightage %	Type of questions
Unit I	5	Oxygen Transport: The basis for cardiopulmonary physical therapy 1. Principles of oxygen transport		✓		10	SE

		2. Steps in the oxygen transport pathway		✓			
Unit II	15	Cardiopulmonary anatomy 2.1. Thorax 2.2. Muscles of respiration 2.2. Upper airways 2.2. Lower airways 2.2. Lungs 2.2. Heart 2.2. Systemic circulation 2.2. Pulmonary circulation 2.2. Lymphatic circulation	✓ ✓ ✓ ✓ ✓	✓ ✓ ✓	✓	20	LE, SE
Unit III	15	Cardiopulmonary physiology 1. Control of breathing 2. Reflexes 3. Ventilation 4. Perfusion 5. Diffusion 6. Ventilation and perfusion matching 7. Cardiac reflexes 8. Coordination of cardiac events 9. Transport of oxygen by the blood 10. Transport of carbon dioxide	✓ ✓ ✓ ✓ ✓ ✓	✓ ✓ ✓	✓ ✓ ✓	20	LE, SE

Unit IV	5	Cardiopulmonary biomechanics and pathomechanics 1. Movements of the thorax 2. Mechanical factors in breathing 3. Pathomechanics 4.3.1. Spinal deformities 4.3.2. Chest wall deformities 4.3.3. COPD 4.3.4. Obesity 4.3.5. Neuromuscular disorders	✓ ✓ ✓ ✓	 ✓	 ✓ ✓	10	LE, SE
Unit V	20	Exercise Physiology 1. Fundamentals of exercise metabolism 2. Energy for short term exercise 3. Energy for longer duration exercise 4. Metabolic responses to exercise 5. Metabolic occurrences during exercise 6. Measurement of metabolism 7. Normal cardiorespiratory responses to acute aerobic exercise 8. Acute cardiorespiratory responses to exercise 9. Factors influencing acute cardiorespiratory responses to exercise 5.10 Factors affecting the acute neuromuscular responses to resistance exercise 5.11 Hemodynamic responses to acute resistance exercise 5.12 Environmental considerations for exercise	 ✓ ✓ ✓ ✓ ✓ ✓ ✓	 ✓ ✓	 ✓ ✓ ✓	40	LE, SE

❖ **LE**- Long Essay**, SE**- Short Essay

Recommended books

1. Wolters Kluwer. Clinical Anatomy by regions. Richard Snell, 2nd edi>on.
2. Guyton & Hall Textbook of Medical Physiology by John E. Hall; 13th ed; Elsevier
3. Donna Frownfelter & Elizabeth Dean; Cardiovascular and Pulmonary Physical Therapy: Evidence to Practice by 5th Ed, Elsevier (2012)
4. Hillegass Ellen .Essentials of Cardiopulmonary Physical Therapy ; 4th Ed, Elsevier (2017)
5. Irwin Scot & Tecklin Jan Stephen .Cardiopulmonary Physical Therapy: A Guide to Practice ; 4th Ed, Mosby (2004)
6. Alexandra Hough .Physiotherapy in Respiratory Care: An Evidence based approach to Respiratory and Cardiac Management; 3rd Ed, Nelson Thornes Ltd (2001)
7. Levangie PK, Norkin CC. Joint structure and function: a comprehensive analysis. FA Davis; 2011.
8. William McArdle, Frank I. Katch, Victor K. Katch. Exercise Physiology: Energy, Nutrition and Human Performance; 7th edition (2010)
9. William McArdle et al .Essentials of Exercise Physiology ; Wolters Kluwer Health Inc (2016)

SEMESTER II
Physical and functional diagnosis in cardiovascular and pulmonary physiotherapy A

Course Type: Core **Course Code: AH02PT2DSE2D**

Credits: 4 **Number of Hours: 60**

Course Description: This course will provide the knowledge on physical capabilities and limitations to develop targeted treatment plans. Inspection, palpation, Auscultation and assessing patients' ability to perform physical activities. Functional diagnosis and also the outcome measures used for assessing the patients' overall fitness.

Course Outcome:

After completing the course, the students will be:

1. Able to describe the method of taking a comprehensive medical history
2. Able to explain the methods of conducting a cardiovascular and respiratory physical examination and their interpretations
3. Able to explain the different laboratory and imaging techniques used in cardiovascular and respiratory problems and their interpretations
4. Able to explain the various monitoring systems used in intensive care unit and their interpretations
5. Able to explain the different evaluation and diagnostic tools used in cardiovascular and respiratory problems and their interpretations
6. Able to explain the international classification of functioning, disability and health used in cardiovascular and respiratory problems and their interpretations

Unit	No. of Hours	Content	Must Know	Good To Know	Desirable To Know	Weightage %	Type of questions
Unit I	3	History taking	✓			10	SE

Unit II	7	Physical Examination 2.1 Observation 2.2 Palpation 2.3 Percussion 2.4 Auscultation	 ✓ ✓	 ✓ 	 ✓ 	30	LE, SE
Unit III	20	Laboratory and Imaging techniques 3.1 Chest X-Ray 3.2 Arterial Blood Gases 3.3 Pulmonary Function Tests 3.4 Electrocardiogram 3.5 Multisystem Assessment and Laboratory Investigations 3.6 Special Tests	 ✓ ✓ ✓ 	 ✓ ✓	 ✓ 	30	LE, SE
Unit IV	10	Monitoring Systems in the Intensive Care Unit		✓		10	LE, SE
Unit V	15	Questionnaires and scales used in cardiopulmonary physical therapy	✓			10	LE, SE
Unit VI	5	International classification of functioning, disability and health in cardiovascular and respiratory disorders		✓		10	LE, SE

❖ **LE**- Long Essay**, SE**- Short Essay

Recommended books

1. Cardiovascular and Pulmonary Physical Therapy: Evidence to Practice by Donna Frownfelter & Elizabeth Dean; 5th Ed, Elsevier (2012)
2. Essentials of Cardiopulmonary Physical Therapy by Hillegass Ellen; 4th Ed, Elsevier (2017)
3. Cardiopulmonary Physical Therapy: A Guide to Practice by Irwin Scot &Tecklin Jan Stephen; 4th Ed, Mosby (2004)
4. Physiotherapy in Respiratory Care: An Evidence based approach to Respiratory and Cardiac Management by Alexandra Hough; 3rd Ed, Nelson Thornes Ltd (2001)

Physical and functional diagnosis in cardiovascular and pulmonary physiotherapy B

Course Type: Core Course Code: AH02PT2SEC1D

Credits: 4 Number of Hours: 120

Course Description: Course Description: This course will provide the knowledge on physical capabilities and limitations to develop targeted treatment plans. Inspection, palpation, Auscultation and assessing patient's ability to perform physical activities. Functional diagnosis and also the outcome measures used for assessing the patient's overall fitness.

Course Outcome:

After completing the course, the students will be:

1. Able to demonstrate comprehensive history taking
2. Able to demonstrate physical examination skills such as observation, palpation, percussion and auscultation
3. Able to demonstrate the interpretations of different laboratory and imaging techniques used in cardiovascular and respiratory problems
4. Able to demonstrate the interpretations of various monitoring systems used in intensive care unit
5. Able to demonstrate the use and interpretations of the different evaluation and diagnostic tools used in cardiovascular and respiratory problems
6. Able to demonstrate the use and interpretations of the international classification of functioning, disability and health used in cardiovascular and respiratory problems

Unit	No. Of Hours	Content	Must Know	Good To Know	Desirable To Know	Weightage %	Type of questions
Unit I	10	History taking	✓			10	SB

Unit II	25	Physical Examination 2.1 Observation 2.2 Palpation 2.3 Percussion 2.4 Auscultation	 ✓ ✓	 ✓ 	 ✓ 	30	SB, OSPE
Unit III	25	Laboratory and Imaging techniques 3.1 Chest X-Ray 3.2 Arterial Blood Gases 3.3 Pulmonary Function Tests 3.4 Electrocardiogram 3.5 Multisystem Assessment and Laboratory Investigations 3.6 Special Tests	 ✓ ✓ ✓ ✓ 	 ✓	 ✓ 	30	SB, OSPE
Unit IV	25	Monitoring Systems in the Intensive Care Unit		✓		10	SB, OSPE
Unit V	20	Questionnaires and scales used in cardiopulmonary physical therapy	✓			10	SB, OSPE, VIVA
Unit VI	15	International classification of functioning, disability and health in cardiovascular and respiratory disorders		✓		10	VIVA

Recommended books

1. Cardiovascular and Pulmonary Physical Therapy: Evidence to Practice by Donna Frownfelter & Elizabeth Dean; 5th Ed, Elsevier (2012)
2. Essentials of Cardiopulmonary Physical Therapy by Hillegass Ellen; 4th Ed, Elsevier (2017)
3. Cardiopulmonary Physical Therapy: A Guide to Practice by Irwin Scot &Tecklin Jan Stephen; 4th Ed, Mosby (2004)
4. Physiotherapy in Respiratory Care: An Evidence based approach to Respiratory and Cardiac Management by Alexandra Hough; 3rd Ed, Nelson Thornes Ltd (2001)

SEMESTER-III
General cardiovascular and pulmonary physiotherapy A

Course Type: Core
Credits: 4

Course Code: AH02PT3DSE3D
Number of Hours: 60

Course Description: This course will cover the assessment, management and rehabilitation of patients with cardiovascular and pulmonary conditions. Exercise physiology and prescription on pulmonary rehabilitation and cardiac rehabilitation and also the role of physiotherapy in intensive care and acute care settings.

Course Outcome

After completing the course, the students will be:

1. Able to describe the cardiopulmonary pathophysiology of obstructive and restrictive lung diseases, coronary and congestive heart diseases
2. Able to explain the cardiopulmonary manifestations of systemic conditions
3. Able to explain and describe the cardiopulmonary physical therapy interventions
4. Able to describe the delivery of cardiopulmonary physical therapy in medical and surgical conditions, cardiopulmonary manifestations of systemic conditions, and intensive care

Unit	No. of Hours	Content	Must Know	Good To Know	Desirable To Know	Weightage %	Type of questions
Unit I	10	Cardiopulmonary pathophysiology 1.1 Obstructive lung disease 1.2 Restrictive lung disease 1.3 Coronary heart disease 1.4 Congestive heart failure		✓		20	LE, SE

Unit II	10	Cardiopulmonary manifestations of systemic conditions Cardiopulmonary system Musculoskeletal system Connective tissue conditions Collagen vascular conditions Neurological system Gastrointestinal system Hepatic system Renal system Hematological system Endocrine system Immunological system Nutritional disorders		✓		20	LE, SE

Unit III	25	Cardiopulmonary physical therapy interventions 3.1 Mobilization and exercise 3.2 Body positioning 3.3 Facilitating ventilation patterns and breathing strategies 3.4 Lung expansion therapy 3.5 Airway clearance techniques 3.6 Respiratory muscle weakness and training 3.7 Exercise testing and training 3.8 Patient education 3.9 Humidification 3.10 Oxygen therapy 3.11 Aerosol therapy	✓			30	LE, SE
Unit IV	15	Guidelines for the delivery of cardiopulmonary physical therapy 5.1 Medical Conditions 5.2 Surgical Conditions 5.3 Cardiopulmonary manifestations of systemic conditions 5.4 Intensive Care	✓			30	LE, SE

❖ **LE-** Long Essay**, SE-** Short Essay

References

1. Cardiovascular and Pulmonary Physical Therapy: Evidence to Practice by Donna Frownfelter & Elizabeth Dean; 5th Ed, Elsevier (2012)
2. Essentials of Cardiopulmonary Physical Therapy by Hillegass Ellen; 4th Ed, Elsevier (2017)
3. Cardiopulmonary Physical Therapy: A Guide to Practice by Irwin Scot &Tecklin Jan Stephen; 4th Ed, Mosby (2004)
4. Physiotherapy in Respiratory Care: An Evidence based approach to Respiratory and Cardiac Management by Alexandra Hough; 3rd Ed, Nelson Thornes Ltd (2001)
5. Exercise Physiology: Energy, Nutrition and Human Performance by William McArdle, Frank I. Katch, Victor K. Katch; 7th edition (2010)
6. Essentials of Exercise Physiology by William McArdle et al; Wolters Kluwer Health Inc (2016)
7. ACSM's Guidelines for Exercise Testing and Prescription by Linda S Pescatello et al; 9th Ed, Wolters Kluwer Health Inc (2014)

General cardiovascular and pulmonary physiotherapy B

Course Type: Core | Course Code: AH02PT3SEC2D

Credits: 4 | Number of Hours: 120

Course Description: This course will cover the assessment, management and rehabilitation of patients with cardiovascular and pulmonary conditions. Exercise physiology and prescription on pulmonary rehabilitation and cardiac rehabilitation and also the role of physiotherapy in intensive care and acute care settings.

Course Outcome

After completing the course, the students will be:

1. Able to demonstrate the cardiopulmonary physical therapy interventions
2. Able to demonstrate the delivery of cardiopulmonary physical therapy in medical and surgical conditions, cardiopulmonary manifestations of systemic conditions, and intensive care

Unit	No. Of Hours	Content	Must Know	Good to Know	Desirable to Know	Weightage %	Type of questions
Unit I	70	Demonstrations of Cardiopulmonary physical therapy interventions 3.1 Mobilization and exercise 3.2 Body positioning 3.3 Facilitating ventilation patterns and breathing strategies 3.4 Lung expansion therapy 3.5 Airway clearance techniques 3.6 Respiratory muscle weakness and training 3.7 Exercise testing and training 3.8 Patient education 3.9 Humidification 3.10 Oxygen therapy 3.11 Aerosol therapy	✓	✓	✓ ✓	40	SB, OSPE, VIVA
Unit II	50	Demonstrations of the delivery of cardiopulmonary physical therapy 5.1 Medical Conditions 5.2 Surgical Conditions 5.3 Cardiopulmonary manifestations of systemic conditions 5.4 Intensive Care	✓ ✓ ✓	✓		60	SB, VIVA

References

1. Cardiovascular and Pulmonary Physical Therapy: Evidence to Practice by Donna Frownfelter & Elizabeth Dean; 5th Ed, Elsevier (2012)
2. Essentials of Cardiopulmonary Physical Therapy by Hillegass Ellen; 4th Ed, Elsevier (2017)

3. Cardiopulmonary Physical Therapy: A Guide to Practice by Irwin Scot &Tecklin Jan Stephen; 4th Ed, Mosby (2004)
4. Physiotherapy in Respiratory Care: An Evidence based approach to Respiratory and Cardiac Management by Alexandra Hough; 3rd Ed, Nelson Thornes Ltd (2001)
5. Exercise Physiology: Energy, Nutrition and Human Performance by William McArdle, Frank I. Katch, Victor K. Katch; 7th edition (2010)
6. Essentials of Exercise Physiology by William McArdle et al; Wolters Kluwer Health Inc (2016)
7. ACSM's Guidelines for Exercise Testing and Prescription by Linda S Pescatello et al; 9th Ed, Wolters Kluwer Health Inc (2014)

SEMESTER-IV
Advanced cardiovascular and pulmonary physiotherapy A

Course Type: Core | Course Code: AH02PT4DSE4D
Credits: 3 | Number of Hours: 45

Course Description: This course describes the advanced cardiovascular and pulmonary physiotherapy approaches and also gives a specialized knowledge and skills in managing patients with heart and lung conditions using evidence based practice.

Course Outcome

After completing the course, the students will be:

1. Able to explain the clinical reasoning in cardiovascular and respiratory physiotherapy
2. Able to explain the process of evidence-based practice in cardiac and pulmonary rehabilitation for secondary and tertiary prevention and for target populations, primordial and primary prevention of noncommunicable diseases and behavioural strategies for promoting health and the strategies on using the workplace as a site for promotion of health and wellbeing
3. Explain the evidence-based assessment and exercise interventions for cancer patients with medical, surgical and palliative management, interventions to promote wound healing, and interventions and rehabilitation strategies for renal disease
4. Explain the assessment and management of critically ill neonates, infants, paediatric and elderly patients
5. Explain the assessment and management of organ transplant patients

6. Apply clinical reasoning in choosing appropriate assessment methods of pain and justify evidencebased physiotherapy interventions for pain management

7. Explain the drugs used for cardiovascular and pulmonary disorders and their effect on exercise

Course Contents

Unit	No. of Hours	Content	Must Know	Good To Know	Desirable To Know	Weightage %	Type of questions
Unit I	4	Clinical reasoning in Cardiorespiratory physiotherapy practice and	✓			10	SE
Unit II	15	management Evidence based practice in cardiopulmonary physiotherapy practice 2.1 Cardiac and pulmonary rehabilitation for secondary and tertiary prevention and for target populations 2.2 General cardiorespiratory physiotherapy practice 2.3 Primordial and primary prevention of noncommunicable diseases 2.4 Behavioural strategies for promoting general health, worksite health and wellness	✓ ✓	✓	✓	30	LE, SE
Unit III	10	Cancer and Renal rehabilitation, Burns and Wound healing		✓		15	LE, SE
Unit IV	5	The Neonatal, Paediatric and the Aging Patient		✓		15	LE, SE
Unit V	4	The Transplant Patient	✓			10	LE, SE

Unit VI	4	Assessment and management of pain in cardiorespiratory and metabolic disorders			✓	10	SE
Unit VII	3	Pharmacology in respiratory and cardiovascular systems			✓	10	SE

❖ **LE**- Long Essay**, SE**- Short Essay

References

1. Cardiovascular and Pulmonary Physical Therapy: Evidence to Practice by Donna Frownfelter & Elizabeth Dean; 5th Ed, Elsevier (2012)
2. Essentials of Cardiopulmonary Physical Therapy by Hillegass Ellen; 4th Ed, Elsevier (2017)
3. Cardiopulmonary Physical Therapy: A Guide to Practice by Irwin Scot & Tecklin Jan Stephen; 4th Ed, Mosby (2004)
4. Physiotherapy in Respiratory Care: An Evidence based approach to Respiratory and Cardiac Management by Alexandra Hough; 3rd Ed, Nelson Thornes Ltd (2001)
5. Guide to Evidence Based Physical Therapy Practice by Dianne V Jewell; Jones and Bartlett Publishers (2008)
6. Braddom's Physical Medicine and Rehabilitation by Cifu David X et al; 5th Ed, Elsevier (2016)
7. O'Sullivan SB, Schmitz TJ, Fulk G. Physical rehabilitation. FA Davis; 2013 Jul 23.
8. Pharacology in Rehabilitation by Cha
9. rles D. Ciccone, 4th Ed; Jaypee

Advanced cardiovascular and pulmonary physiotherapy B

Course Type: Core Course Code: AH02PT4SEC3D

Credits: 2 Number of Hours: 60

Course Description: This course describes the advanced cardiovascular and pulmonary physiotherapy approaches and also gives a specialized knowledge and skills in managing patients with heart and lung conditions using evidence based practice.

Course Outcome

After completing the course, the students will be:

1. Able to demonstrate the process of evidence-based practice in cardiac and pulmonary rehabilitation for secondary and tertiary prevention and for target populations, primordial and primary prevention of noncommunicable diseases and behavioural strategies for promoting health and the strategies on using the workplace as a site for promotion of health and wellbeing
2. Able to demonstrate the evidence-based assessment and exercise interventions for cancer patients with medical, surgical and palliative management, interventions to promote wound healing, and interventions and rehabilitation strategies for renal disease
3. Able to demonstrate the assessment and management of critically ill neonates, infants, paediatric and elderly patients
4. Able to demonstrate the assessment and management of organ transplant patients
5. Able to demonstrate the clinical reasoning in choosing appropriate assessment methods of pain and justify evidence-based physiotherapy interventions for pain management

Unit	No. of Hours	Content	Must Know	Good To Know	Desirable To Know	Weightage %	Type of questions
Unit I	30	Evidence based practice in cardiopulmonary physiotherapy practice 1.1 Cardiac and pulmonary rehabilitation for secondary and tertiary prevention and for target populations 1.2 General cardiorespiratory physiotherapy practice 1.3 Primordial and primary prevention of	✓ ✓	✓		40	SB, OSPE, VIVA

		noncommunicable diseases 1.4 Behavioural strategies for promoting general health, worksite health and wellness			✓		
Unit II	05	Cancer and Renal rehabilitation, Burns and Wound healing		✓		10	SB, VIVA
Unit III	10	The Neonatal, Paediatric and the Aging Patient		✓		20	SB, OSPE, VIVA
Unit IV	05	The Transplant Patient	✓			20	SB, OSPE, VIVA
Unit V	10	Assessment and management of pain in cardiorespiratory and metabolic disorders			✓	10	SB, OSPE, VIVA

References

1. Cardiovascular and Pulmonary Physical Therapy: Evidence to Practice by Donna Frownfelter & Elizabeth Dean; 5th Ed, Elsevier (2012)
2. Essentials of Cardiopulmonary Physical Therapy by Hillegass Ellen; 4th Ed, Elsevier (2017)
3. Cardiopulmonary Physical Therapy: A Guide to Practice by Irwin Scot & Tecklin Jan Stephen; 4th Ed, Mosby (2004)
4. Physiotherapy in Respiratory Care: An Evidence based approach to Respiratory and Cardiac Management by Alexandra Hough; 3rd Ed, Nelson Thornes Ltd (2001)
5. Guide to Evidence Based Physical Therapy Practice by Dianne V Jewell; Jones and Bartlett Publishers (2008)
6. Braddom's Physical Medicine and Rehabilitation by Cifu David X et al; 5th Ed, Elsevier (2016)
7. O'Sullivan SB, Schmitz TJ, Fulk G. Physical rehabilitation. FA Davis; 2013 Jul 23.
8. Pharmacology in Rehabilitation by Charles D. Ciccone, 4th Ed; Jaypee

MPT in Paediatrics

SEMESTER-I
Basic Sciences in Paediatrics

Course: Core **Course Code: AH02PT1DSE1E**

Credits: 4 **No of Hours: 45**

Hours

Course outcomes:

CO1: Revise embryogenesis of various human systems

CO2: Recall motor control theories and learning process

CO3: Identify various NICU theoretical framework

CO4: Explain the basics on posture and movement for Paediatric disorders

Course Content

Unit	No. Of hours	Content	Must Know	Good to Know	Desirable To know	Weightage %	Type of questions
Unit I	15	**Embryogenesis** 1.5. Musculoskeletal system 1.6. Sensory responses and tactile system 1.7. Vestibular system 1.8. Olfactory and Gustatory Development 1.9. Auditory system 1.10. Visual system 1.11. Maturational, pathophysiological & recovery process in the CNS	 ✓ ✓ ✓ ✓ ✓	 ✓ ✓		25	SE

Unit II	15	**Theory: Motor control and motor learning processes** 2.6.Reflex theory 2.7.Systems theory 2.8.Hierarchal theory 2.9.Ecological theory 2.10. Motor programming theory 2.11. Dynamic system theory 2.12. Motor learning processes	✓ ✓ ✓ ✓ ✓	 ✓ 	 ✓ 	25	SE, LE
Unit III	15	**NICU theoretical framework** 3.3.Levels of neonatal care 3.4.Neuronal Group Selection Theory 3.5.Synactive theory 3.6.Newborn Individualized Developmental Care and Assessment Program (NIDCAP) 3.7.Neonatal pain physiology	 ✓ ✓ ✓ ✓ ✓	 	 	25	LE, SE

Unit IV	15	**Basics of posture and movement in paediatrics** 4.7. Pathomechanics and clinical biomechanics of posture and movement in various Pediatric conditions 4.8. Functional mechanics and pathomechanics of gait in children 4.9. Physiology of movement 4.10. Pathophysiology of Movement disorders	✓ ✓ ✓	✓		25	SE

❖ **LE-** Long Essay**, SE-** Short Essay

Recommended books

1. Spearing EM, Pelletier ES, Drnach M. Tecklin's Pediatric Physical Therapy. 6th ed. Philadelphia, USA: Wolters Kluwer Health, Inc.; 2022.
2. Palisano R, Orlin M, Schreiber J. Campbell's Physical Therapy for Children. 6th ed. St Louis, United States: Elsevier; 2022.
3. Fulk G, Chui K. O'Sullivan & Schmitz's Physical Rehabilitation. 8th ed. Philadelphia, USA: FA Davis Company; 2024.
4. Shumway-Cook A, Woollacott MH, Rachwani J, Santamaria V. Motor Control: Translating Research into Clinical Practice. 6th ed. Philadelphia USA: Wolters Kluwer Health, Inc.; 2023.

SEMESTER-II
Physical and Functional Diagnosis in Paediatrics – A

Course: Core **Course Code: AH02PT2DSE1**

Credits: 4 **No of Hours: 60**

Hours

Course outcomes:

CO1: Express general paediatric assessment methods and tools for Paediatric disorders

CO2: Evaluate the neonates admitted to neonatal intensive care units

CO3: Identify various condition-specific pediatric assessment tools

CO4: Describe about the physiotherapy assessments at schools and community levels

Unit	No. Of hours	Content	Must Know	Good to Know	Desirable To know	Weightage %	Type of questions

Unit I	20	**General Paediatric assessment** 1.12. Typical developmental milestones: Gross motor, Fine motor, Social and language, Advanced motor 1.13. Vitals: SPO2, HR/PR, RR, BP (Reference values) 1.14. Chest: Auscultation, added sounds, heart sounds, chest expansion 1.15. HMF: Orientation, attention, memory, calculations, abstract thinking, GCS, Short orientation-Memory concentration test, disorders of speech (aphasia), alexia and agraphia 1.16. Cranial nerve examination 1.17. Sensory: Superficial, deep, combined cortical. Motor: MMT, goniometry. Tone: MAS, tardieu. Reflexes: Primitive, superficial, deep tendon 1.18. Coordination: Equilibrium and non-equilibrium 1.19. Perception: Cancellation tests 1.20. Gait: Step length, Stride length, cadence, pathological gait. Walk test: 10mWT, 6MWT, 30SWT 1.21. Functional measures: Functional	✓ ✓ ✓ ✓ ✓ ✓	✓ ✓		25	SE

		Independence Measure for Children (WeeFIM), functional reach test (FRT), timed-up and go test (TUG)	✓				
		1.22. ICF framework	✓				
Unit II	10	**Neonatal assessment** 2.13. Prenatal screening: Anomaly scan, quadruple test, triple marker test	✓			25	SE, LE
		2.14. Classification: Neonate based on gestation age, Birth weight classification		✓			
		2.15. Pain assessment: NIPS, PIPP-R	✓				
		2.16. NICU Equipments (Radiant warmer, isolette, open crib, bag and mask, nasal cannula, HFNC, CPAP, HHHNC, CMV, HFJV, HFOV, iNO, ECMO, pulse oximeter, phototherapy, gavage tube, PIV, CVL, PICC, UA, UA)			✓		
		2.17. State-Related behaviors, APGAR	✓				
		2.18. HIE: Sarnat and Sarnat classification	✓				
		2.19. Obstetrics Brachial Plexus Injury: Narakas' classification, Mallet Scale, Modified Mallet Scale, Active Movement Scale, Gilbert-Tassin System					

Unit III	20	**Condition-specific pediatric assessment tools** 3.8. CP: GMFCS, VFCS, MACS, CFCS, EDBCS, GMFM-88,66 3.9. Brain injury: Paediaric Rancho scale, Rancho Los Amigos levels of cognitive functioning, Adelaide Pediatric Coma scale, Pediatric Coma scale, Children's orientation and Amnesia test. 3.10. Spinal cord injury: INCSCI, ASIA impairment scale, Penn Spasm frequency scale, WISCI, Central cord syndrome 3.11. Stroke: Brunnstrom grading, NIHS, letter cancellation test, 3.12. Muscular dystrophy: Functional grades for arm and shoulders (Brooke), Functional grades for hip and legs (Vignos) 3.13. Orthopaedic conditions: CDH, Torticollis, Club foot, Scoliosis 3.14. Burn: Lund and Browder, Vancouver scar assessment scale	✓ ✓ ✓ ✓ ✓ ✓			25	LE, SE

Unit IV	10	**Paediatric Assessment in community and School settings** 4.11. Limb length: True length, apparent length 4.12. Flexibility test: SRT, BSRT, MBSRT, VSRT 4.13. Endurance: ACSM criteria 4.14. Strength: ACSM criteria 4.15. ACSM criteria for aerobic, strength and flexibility training for childhood obesity	✓ ✓ ✓ ✓	✓		25	SE

❖ **LE**- Long Essay**, SE**- Short Essay

Recommended books

1. Campbell's Physical therapy for Children, 6th Edition
2. Tecklin's Pediatric Physical Therapy, 6th Edition
3. DeJong's The Neurologic exanination, 7th Edition
4. O'Sullivan & Schmitz's Physical Rehabilitation, 8th Edition
5. ACSM's Guidelines for Exercise Testing and Prescription, 11th Edition

SEMESTER-II
Physical and Functional Diagnosis in Paediatrics – B

Course: Core **Course Code: AH02PT2SEC1E**

Credits: 4 **No of Hours: 120 Hours**

Course outcomes:

CO1: Acquire clinical knowledge about general paediatric assessment methods

CO2: Clinically evaluate the neonates admitted to neonatal intensive care units

CO3: Clinically assess and functionally document the progress of paediatric conditions

CO4: Have a brief idea about the physiotherapy assessments at schools and community levels

Unit	No. Of hours	Content	Must Know	Good to Know	Desirable To know	Weightage %	Type of questions

Unit I	40	**General Paediatric assessment** 1.23. Typical developmental milestones: Gross motor, Fine motor, Social and language, Advanced motor 1.24. Vitals: SPO2, HR/PR, RR, BP (Reference values) 1.25. Chest: Auscultation, added sounds, heart sounds, chest expansion 1.26. HMF: Orientation, attention, memory, calculations, abstract thinking, GCS, Short orientation-Memory concentration test, disorders of speech (aphasia), alexia and agraphia 1.27. Cranial nerve examination 1.28. Sensory: Superficial, deep, combined cortical. Motor: MMT, goniometry. Tone: MAS, tardieu.	✓ ✓ ✓ ✓ ✓	✓		25	OSCE, OSPE

		Reflexes: Primitive, superficial, deep tendon					
		1.29. Coordination: Equilibrium and non-equilibrium	✓				
		1.30. Perception: Cancellation tests		✓			
		1.31. Gait: Step length, Stride length, cadence, pathological gait. Walk test: 10mWT, 6MWT, 30SWT	✓				
		1.32. Functional measures: Functional Independence Measure for Children (WeeFIM), functional reach test (FRT), timed-up and go test (TUG)	✓				

Unit II	20	**Neonatal assessment** 2.20. Prenatal screening: Anomaly scan, quadruple test, triple marker test 2.21. Classification: Levels of NICU Neonate based on gestation age, Birth weight classification 2.22. Pain assessment: NIPS, PIPP-R 2.23. NICU Equipments (Radiant warmer, isolette, open crib, bag and mask, nasal cannula, HFNC, CPAP, HHHNC, CMV, HFJV, HFOV, iNO, ECMO, pulse oximeter, phototherapy, gavage tube, PIV, CVL, PICC, UA, UA) 2.24. State-Related behaviors, APGAR 2.25. HIE: Sarnat and Sarnat classification 2.26. Obstetrics Brachial Plexus Injury: Narakas' classification, Mallet Scale, Modified Mallet Scale, Active Movement Scale, Gilbert-Tassin System	✓ ✓ ✓ ✓ ✓	✓	✓	25	OSCE, OSPE, LC, SC

Unit III	40	**Condition-specific pediatric assessment tools** 3.15. CP: GMFCS, VFCS, MACS, CFCS, EDBCS, GMFM-88,66 3.16. Brain injury: Paediaric Rancho scale, Rancho Los Amigos levels of cognitive functioning, Adelaide Pediatric Coma scale, Pediatric Coma scale, Children's orientation and Amnesia test. 3.17. Spinal cord injury: INCSCI, ASIA impairment scale, Penn Spasm frequency scale, WISCI, Central cord syndrome 3.18. Stroke: Brunnstrom grading, NIHS, letter cancellation test, 3.19. Muscular dystrophy: Functional grades for arm and shoulders (Brooke), Functional grades for hip and legs (Vignos) 3.20. Orthopaedic conditions: CDH, Torticollis, Club foot, Scoliosis 3.21. Burn: Lund and Browder, Vancouver scar assessment scale	✓ ✓ ✓ ✓ ✓ ✓ ✓			25	OSCE, OSPE, LC, SC

Unit IV	20	**Paediatric Assessment in community and School settings** 4.16. Limb length: True length, apparent length 4.17. Flexibility test: SRT, BSRT, MBSRT, VSRT 4.18. Endurance: ACSM criteria 4.19. Strength: ACSM criteria 4.20. ACSM criteria for aerobic, strength and flexibility training for childhood obesity	✓ ✓ ✓ ✓	✓		25	OSCE, OSPE,

❖ OSPE - Objective Structured Practical Examination, OSCE - Objective Structured Clinical Examination, LC- Long Case, SC- Short Case

Recommended books

6. Campbell's Physical therapy for Children, 6th Edition
7. Tecklin's Pediatric Physical Therapy, 6th Edition
8. DeJong's The Neurologic exanination, 7th Edition
9. O'Sullivan & Schmitz's Physical Rehabilitation, 8th Edition
10. ACSM's Guidelines for Exercise Testing and Prescription, 11th Edition

SEMESTER-III
General Physiotherapy in Paediatrics – A

Course: Core **Course Code: AH02PT3DSE1E**
Credits: 4 **No of Hours: 60 Hours**

Course outcomes:

CO1: Elaborate the concept of carious paediatric treatment approaches

CO2: Discuss neonatal physiotherapy techniques for the neonates admitted with various neonatal conditions

CO3: Develop ability to manage neurological and musculoskeletal disorders

CO4: Design the physiotherapy management for cancer, burn, cardiac disorders, Pulmonary and respiratory conditions

UNIT	NO. OF HOURS	CONTENT	MUST KNOW	GOOD TO KNOW	DESIRABLE TO KNOW	WEIGHTAGE %	TYPE OF QUESTIONS
Unit I	10	**General Paediatric treatment approaches** 1.33. Rood's approach 1.34. Neurodevelopment treatment 1.35. Proprioceptive neuromuscular facilitation (PNF) 1.36. Brunnstrom's approach 1.37. Motor relearning programme 1.38. Sensory integration	✓ ✓ ✓ ✓	✓		25	SE

Unit II	10	**Neonatal physiotherapy for neonatal conditions** 2.27. Respiratory distress syndrome 2.28. Hyperbilirubinemia 2.29. Intraventricular haemorrhage 2.30. Periventricular leukomalacia 2.31. Hypoxic ischaemic encephalopathy 2.32. Bronchopulmonary dysplasia 2.33. Meconium aspiration syndrome 2.34. Fetal alcohol spectrum disorder 2.35. Other neonatal disorders: Patent ductus arteriosus. Gastroesophageal reflux, Necrotizing enterocolitis, Retinopathy of prematurity, chorioamnionitis, neonatal abstinence syndrome	✓ ✓ ✓ ✓ ✓	 ✓ 	 ✓ 	25	SE

Unit III	15	**Physiotherapy management of neurological and musculoskeletal disorders** 3.22. Cerebral palsy 3.23. Brain injury 3.24. Spinal cord injury 3.25. Childhood Stroke and infantile hemiplegia 3.26. Spina bifida and hydrocephalus 3.27. Brachial Plexus injury 3.28. Muscular dystrophy and spinal muscular atrophy 3.29. Down syndrome 3.30. Autism spectrum disorders 3.31. Juvenile idiopathic arthritis 3.32. Other musculoskeletal disorders: Congenital limb deficiencies (longitudinal radial	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓			25	LE, SE

		deficiency, proximal femoral focal deficiency), developmental dysplasia of Hip, congenital dislocation of hip, Torticollis, clubfoot, arthrogryposis multiplex congenita, osteogenesis imperfecta, CTEV, Scoliosis, joint hypermobility syndrome, Blount disease, Legg-Calve-Perthes disease, limb length discrepancy, Juvenile idiopathic arthritis					

Unit IV	10	**Management of cancer, burn, cardiac disorders, Pulmonary and respiratory conditions** 4.21. Rehabilitation of child with cancer 4.22. Rehabilitation of child with burn Burn 4.23. Childhood Obesity management 4.24. Congenital heart defects: Acyanotic congenital heart defects (Patent ductus arteriosus, atrial septal defects, ventricular septal defects, atrioventricular septal defects, cooarctation of aorta, aortic stenosis, pulmonary stenosis), cyanotic heart defects (Tetralogy of fallot, Transposition of great arteries and double-outlet right ventricle, hypoplastic left heart syndrome) 4.25. Airway clearance teachniques: Postural drainage, percussion, vibration, autogenic drainage, forced expiratory technique, PEP breathing, flutter, acapella, high-frequency chest wall oscillation, breathing exercises 4.26. Pulmonary and respiratory conditions: Atelectasis,	✓ ✓ ✓ ✓ ✓	✓		25	SE, LE

		Respiratory muscle weakness, Childhood asthma, Cystic fibrosis					

- **LE**- Long Essay**, SE**- Short Essay

Recommended books

1. Spearing EM, Pelletier ES, Drnach M. Tecklin's Pediatric Physical Therapy. 6th ed. Philadelphia, USA: Wolters Kluwer Health, Inc.; 2022.
2. Palisano R, Orlin M, Schreiber J. Campbell's Physical Therapy for Children. 6th ed. St Louis, United States: Elsevier; 2022.
3. Shepherd RB. Physiotherapy in Pediatrics. 3rd ed. Oxford, UK: Butterworth-Heinemann; 1995.
4. Fulk G, Chui K. O'Sullivan & Schmitz's Physical Rehabilitation. 8th ed. Philadelphia, USA: FA Davis Company; 2024.
5. Liguori G. ACSM's Guidelines for Exercise Testing and Prescription. 11th ed. Philadelphia USA: Wolters Kluwer Health, Inc.; 2021.

SEMESTER-III

General Physiotherapy in Paediatrics – B

Course: Core **Course Code: AH02PT3SEC1E**

Credits: 6 **No of Hours: 90 Hours**

Course outcomes:

CO1: Design paediatric physiotherapy management using various paediatric treatment approaches

CO2: Improve neonatal physiotherapy skills for the neonates admitted with various neonatal conditions

CO3: Build clinical ability to manage neurological and musculoskeletal disorders

CO4: Plan the physiotherapy management for cancer, burn, cardiac disorders, Pulmonary and respiratory conditions

UNIT	NO. OF HOURS	CONTENT	MUST KNOW	GOOD TO KNOW	DESIRABLE TO KNOW	WEIGHTAGE %	TYPE OF QUESTIONS
Unit I	10	**General Paediatric treatment approaches** 1.39. Rood's approach 1.40. Neurodevelopment treatment 1.41. Proprioceptive neuromuscular facilitation (PNF) 1.42. Brunnstrom's approach 1.43. Motor relearning programme 1.44. Sensory integration	✓ ✓ ✓ ✓ ✓ ✓			25	OSCE, OSPE, LC, SC

Unit II	10	**Neonatal physiotherapy for neonatal conditions** 2.36. Respiratory distress syndrome 2.37. Hyperbilirubinemia 2.38. Intraventricular haemorrhage 2.39. Periventricular leukomalacia 2.40. Hypoxic ischaemic encephalopathy 2.41. Bronchopulmonary dysplasia 2.42. Meconium aspiration syndrome 2.43. Fetal alcohol spectrum disorder 2.44. Other neonatal disorders: Patent ductus arteriosus. Gastroesophageal reflux, Necrotizing enterocolitis, Retinopathy of prematurity, chorioamnionitis, neonatal abstinence syndrome	✓ ✓ ✓ ✓ ✓ ✓ ✓	 ✓ 	 ✓ 	25	OSCE, OSPE, SC

Unit III	15	**Physiotherapy management of neurological and musculoskeletal disorders** 3.33. Cerebral palsy 3.34. Brain injury 3.35. Spinal cord injury 3.36. Childhood Stroke and infantile hemiplegia 3.37. Spina bifida and hydrocephalus 3.38. Brachial Plexus injury 3.39. Muscular dystrophy and spinal muscular atrophy 3.40. Down syndrome 3.41. Autism spectrum disorders 3.42. Juvenile idiopathic arthritis 3.43. Other musculoskeletal disorders: Congenital limb deficiencies (longitudinal radial deficiency, proximal femoral focal deficiency), developmental dysplasia of Hip, congenital dislocation of hip, Torticollis,	✓ ✓ ✓ ✓ ✓ ✓ ✓	✓ ✓ ✓		25	OSCE, OSPE, LC, SC

		clubfoot, arthrogryposis multiplex congenita, osteogenesis imperfecta, CTEV, Scoliosis, joint hypermobility syndrome, Blount disease, Legg-Calve-Perthes disease, limb length discrepancy					
Unit IV	10	**Management of cancer, burn, cardiac disorders, Pulmonary and respiratory conditions** 4.27. Rehabilitation of child with cancer ✓ 4.28. Rehabilitation of child with burn Burn ✓ 4.29. Childhood Obesity management ✓ 4.30. Congenital heart defects: Acyanotic congenital heart defects (Patent ductus arteriosus, atrial septal defects, ventricular septal defects, atrioventricular septal defects, cooarctation of aorta, aortic stenosis, pulmonary stenosis), cyanotic heart defects (Tetralogy of fallot, Transposition of great arteries and double-outlet right ventricle, hypoplastic left heart ✓				25	OSCE, OSPE, LC, SC

		syndrome) 4.31. Airway clearance teachniques: Postural drainage, percussion, vibration, autogenic drainage, forced expiratory technique, PEP breathing, flutter, acapella, high-frequency chest wall oscillation, breathing exercises 4.32. Pulmonary and respiratory conditions: Atelectasis, Respiratory muscle weakness, Childhood asthma, Cystic fibrosis	✓	✓			

- **OSPE** - Objective Structured Practical Examination, **OSCE** - Objective Structured Clinical Examination, **LC** - Long Case, **SC** - Short Case

Recommended books

1. Spearing EM, Pelletier ES, Drnach M. Tecklin's Pediatric Physical Therapy. 6th ed. Philadelphia, USA: Wolters Kluwer Health, Inc.; 2022.
2. Palisano R, Orlin M, Schreiber J. Campbell's Physical Therapy for Children. 6th ed. St Louis, United States: Elsevier; 2022.
3. Shepherd RB. Physiotherapy in Pediatrics. 3rd ed. Oxford, UK: Butterworth-Heinemann; 1995.
4. Fulk G, Chui K. O'Sullivan & Schmitz's Physical Rehabilitation. 8th ed. Philadelphia, USA: FA Davis Company; 2024.
5. Liguori G. ACSM's Guidelines for Exercise Testing and Prescription. 11th ed. Philadelphia USA: Wolters Kluwer Health, Inc.; 2021.

SEMESTER-IV
Advanced Physiotherapy in Paediatric PT – A

Course: Core **Course Code: AH02PT4DSE1E**
Credits: 3 **No of Hours: 45 Hours**

Course outcomes:

CO1: Learn the concept of various recent paediatric treatment approaches

CO2: Acquire ability to manage neonatal pain and promote neuromotor development

CO3: Gain knowledge about recent advances in management of paediatric disorders

CO4: Have a brief idea about the physiotherapy management of in obstetric and gynaecological conditions.

UNIT	NO. OF HOURS	CONTENT	MUST KNOW	GOOD TO KNOW	DESIRABLE TO KNOW	WEIGHTAGE %	TYPE OF QUESTIONS
Unit I	10	**Recent approaches in paediatric rehabilitation** 1.45. Constraint induced movement therapy (CIMT) and modified Constraint induced movement therapy (mCIMT) 1.46. Virtual reality 1.47. Bodyweight supported overground and treadmill training 1.48. Mirror therapy and mental/motor imagery 1.49. Hippotherapy 1.50. Telerehabilitation 1.51. Stem cell therapy 1.52. Transcranial direct current stimulation (tDCS) 1.53. Transcranial Magnetic Stimulation (TMS)	 ✓ ✓ ✓ ✓ ✓ ✓	 ✓ ✓ ✓ 		25	LE, SE
		Management of				25	SE

Unit II	10	**neonatal pain and neuromotor development** 2.45. Various non-pharmacological neonatal pain treatment 2.46. Unimodal stimulation: Auditory, visual, oral, tactile, vestibular 2.47. Multimodal stimulation: Kinaesthetic stimulation 2.48. Multisensory stimulation: Neonatal massage	 ✓ ✓ ✓	✓			
Unit III	15	**Recent advances in management of paediatric disorders** 3.44. Cerebral palsy 3.45. Brain injury 3.46. Spinal cord injury 3.47. Childhood Stroke and infantile hemiplegia 3.48. Muscular dystrophy and spinal muscular atrophy 3.49. Down syndrome 3.50. Autism spectrum disorders	 ✓ ✓ ✓ ✓ ✓ ✓ ✓			25	LE, SE

Unit IV	10	**Management in obstetric and gynaecological conditions** 4.33. Antenatal care 4.34. Relieving pregnancy discomfort and preparation for labour 4.35. Postnatal care 4.36. Incontinence 4.37. Common gynaecological conditions [vulvitis, vaginitis, cervicitis, salpingitis, pelvic inflammatory disease, cervical carcinoma, endometriosis, (displacements and genital prolapse – cystocele, urethrocele, rectocele, enterocele, uterine prolapse), early menarche, amenorrhoea, dysmenorrhoea, oligomenorrhoea, menorrhoea, psychosexual problems, vaginismus, dyspareunia and hysterectomy] 4.38. PCOS & APCOS (Adolescent PCOS)	✓ ✓ ✓ ✓	✓		25	SE, LE

❖ **LE**- Long Essay**, SE**- Short Essay

Recommended books

11. Campbell's Physical therapy for Children, 6th Edition
12. Tecklin's Pediatric Physical Therapy, 6th Edition
13. Polden M, Mantle J. Physiotherapy in obstetrics and gynaecology. Butterworth-Heinemann; 1990
14. Mantle J, Haslam J, Barton S. Physiotherapy in obstetrics and gynaecology. 2nd edition. Butterworth-Heinemann Elsevier; 2004
15. O'Sullivan & Schmitz's Physical Rehabilitation, 8th Edition

SEMESTER-IV
Advanced Physiotherapy in Paediatric PT – B

Course: Core **Course Code: AH02PT4SEC1E**
Credits: 2 **No of Hours: 60 Hours**

Course outcomes:
CO1: Design paediatric physiotherapy management using various recent paediatric treatment approaches

CO2: Improve neonatal physiotherapy skills to manage neonatal pain and promote neuromotor development

CO3: Build clinical ability based on evidence based advance management of paediatric disorders

CO4: Plan the physiotherapy management in obstetric and gynaecological conditions.

Unit	No. Of hours	Content	Must Know	Good to Know	Desirable To know	Weightage %	Type of questions

Unit I	10	**Recent approaches in paediatric rehabilitation** 1.54. Constraint induced movement therapy (CIMT) and modified Constraint induced movement therapy (mCIMT) 1.55. Virtual reality 1.56. Bodyweight supported overground and treadmill training 1.57. Mirror therapy and mental/motor imagery 1.58. Hippotherapy 1.59. Telerehabilitation 1.60. Stem cell therapy 1.61. Transcranial direct current stimulation (tDCS) 1.62. Transcranial Magnetic Stimulation (TMS)	✓ ✓ ✓ ✓ ✓ ✓	✓ ✓ ✓		25	OSCE, OSPE, LC, SC

Unit II	10	**Management of neonatal pain and neuromotor development** 2.49. Various non-pharmacological neonatal pain treatment 2.50. Unimodal stimulation: Auditory, visual, oral, tactile, vestibular 2.51. Multimodal stimulation: Kinaesthetic stimulation 2.52. Multisensory stimulation: Neonatal massage	✓ ✓ ✓		✓	25	OSCE, OSPE, LC, SC
Unit III	15	**Recent advances in management of paediatric disorders** 3.51. Cerebral palsy 3.52. Brain injury 3.53. Spinal cord injury 3.54. Childhood Stroke and infantile hemiplegia 3.55. Muscular dystrophy and spinal muscular atrophy 3.56. Down syndrome 3.57. Autism spectrum disorders	✓ ✓ ✓ ✓ ✓ ✓			25	OSCE, OSPE, LC, SC

Unit IV	10	**Management in obstetric and gynaecological conditions** 4.39. Antenatal care 4.40. Relieving pregnancy discomfort and preparation for labour 4.41. Postnatal care 4.42. Incontinence 4.43. Common gynaecological conditions [vulvitis, vaginitis, cervicitis, salpingitis, pelvic inflammatory disease, cervical carcinoma, endometriosis, (displacements and genital prolapse – cystocele, urethrocele, rectocele, enterocele, uterine prolapse), early menarche, amenorrhoea, dysmenorrhoea, oligomenorrhoea, menorrhoea, psychosexual problems, vaginismus, dyspareunia and hysterectomy] 4.44. PCOS & APCOS (Adolescent PCOS)	✓ ✓ ✓ ✓ ✓	✓		25	OSCE, OSPE, LC, SC

❖ **OSPE** - Objective Structured Practical Examination, **OSCE** - Objective Structured Clinical Examination, **LC** - Long Case, **SC** - Short Case

Recommended books

16. Campbell's Physical therapy for Children, 6th Edition

17. Tecklin's Pediatric Physical Therapy, 6th Edition

18. Polden M, Mantle J. Physiotherapy in obstetrics and gynaecology. Butterworth-Heinemann; 1990
19. Mantle J, Haslam J, Barton S. Physiotherapy in obstetrics and gynaecology. 2nd edition. Butterworth-Heinemann Elsevier; 2004
20. O'Sullivan & Schmitz's Physical Rehabilitation, 8th Edition

MPT in Geriatrics
SEMESTER-I
BASIC SCIENCES FOR GERIATRICS

Course Type: Core **Course Code: AH02PT1DSE1**
Credits: 4 **Number of Hours: 60**

COURSE OUTCOMES:

After completing the course, the students will be able to;

CO 1- Explain theories of aging and physiological changes associated with aging.

CO 2- Outline the comprehensive geriatric assessment and geriatric care in different settings.

CO 3- Appraise evidence guiding best practice regarding exercise prescription for older adults.

CO 4- Summarize the scope, values, and limitations of professional practices, manage and refer appropriately.

CO 5- Describe the concepts and advances in geroscience and gerotechnology..

COURSE CONTENTS:

UNIT	NO. OF HOURS	CONTENT	MUST KNOW	GOOD TO KNOW	DESIRABLE TO KNOW	WEIGHTAGE %	TYPE OF QUESTIONS
Unit I	6	1.1. Demography and epidemiology 1.2.Describe the population aging trends and international comparisons 1.3.Explain the dynamics of	✓			10	SE, SA

		health in later life. 1.4.Summarize the economics of aging. 1.5.Outline mortality, disease status and disability among older adults.					
Unit II	11	2.1. Concepts about aging 2.2. Myths and stereotypes about aging 2.3. Cultural aspects of aging 2.4. Biology of aging 2.5. Longevity, cellular and molecular aging 2.6. Theories of aging 2.7. Biological, psychological and sociological theories	✓			18	LE, SE, SA LE, SE
Unit III	18	3. Physiological changes in various systems 3.1. Aging musculoskeletal system 3.2. Aging nervous system 3.3. Aging cardiovascular system 3.4. Aging respiratory system 3.5. Aging digestive system. 3.6. Aging immune system 3.7. Aging on other systems 3.8.Thermoregulation consideration for aging patients. 3.9.Arthrokinesiologic consideration in the aged adult 3.10.Sensomotor changes and adaptations in the older adult	✓			30	LE, SE, SA
Unit VI	5	4. Aging and frailty 4.1. Define frailty. 4.2. Outline the causes and risk factors of frailty. 4.3. Explain the mechanisms and detect the symptoms and measure the signs of frailty. 4.4. Identify and relate the consequences of frailty. 4.5. Organize the methods to modulate frailty.	✓			8	LE, SE, SA

Unit V	7	5.1. Geriatric pharmacology 5.2. Describe the magnitude of medication problem in elderly. 5.3. Describe pharmacokinetics and pharmacodynamics in elderly. 5.4. Appraise adverse drug reaction and mention the factors contributing to adverse drug reactions in elderly. 5.5..Explain minimizing overdose and maximising compliance. 5.6. Outline the implications for a physiotherapist Geroscience and gerotechnology 5.7. Summarize the advances in gerotechnology (including mhealth / telerehab). 5.8. Outline the concept of geroscience and gerotechnology.	✓			12	SE, SA
Unit VI	4	6.1. Nutrition and aging 6.2. Identify the nutritional needs and changes with advancing years 6.3. Recognise and list the health consequences of under- and over nutrition 6.4. Outline the approaches to challenge suboptimal nutritional status. 6.5. Explain the implications for a physiotherapist	✓			7	SE, SA
Unit VII	6	7.1. Communication strategies 7.2. Identify and report older adult's abilities, contextual factors, activity limitations, and participation restrictions impact communication during the rehabilitation process. 7.3. Choose modified communication methods to deliver effective management for older Adults 7.4. Interprofessional team in care of older adults 7.5. Describe the role and identify the contributions of members of a comprehensive	✓			10	LE, SE, SA

		geriatric assessment team					
Unit VIII	3	8.1. Psychological and social aspects of aging 8.2. Explain the concepts of: a. Depression b. Role transitions c. Grief and bereavement d. Fear of death e. Fear of dying f. Substance abuse g. Ideation h. Social functioning in late life Outline the implications for a physiotherapist	✓			5	LE, SE, SA

❖ **LE**- Long Essay**, SE**- Short Essay**, SA**- Short Answer

Recommended books

- Developing cultural competence in Physical Therapy Practice by JillBlack Lattanzi, Larry D. Purnell (F.A.Davis Company, Philadelphia 2006)
- Epidemiology of Aging – An ecological approach by William A. Satariano (Jones And Bartlett publishers, 2006).
- 3.Textbook of Geriatric Medicine and Gerontology by Fillit, Howard (8th Edition) Publisher: Clinical Key
- Current Diagnosis and Treatment in Geriatrics by Williams, Brie A Publisher: Access Medicine(McGraw Hill)
- Staples WH, Kegelmeyer D, Heitzman J. Geriatric physical therapy. McGraw-Hill; 2016 Mar 29.
- Guccione AA, Avers D, Wong R. Geriatric Physical Therapy-eBook. Elsevier Health Sciences; 2011 Mar7.

- Centers for Disease Control and Prevention, Falls Among Older Adults: An Overview. Available at http://www.cdc.gov/ncipc/factsheets/adultfalls.htm.

Geriatrics Rehabilitation- Carole Lewis and Jennifer Bottomley

SEMESTER-II

PHYSICAL AND FUNCTIONAL DIAGNOSIS IN GERIATRIC PT - A

Course Type: DSE **Course Code: AH02PT2DSE1**

Credits: 4 **Number of Hours: 60**

COURSE OUTCOME:

After completing the course, the students will be able to;

CO 1- Apply appropriate assessment procedures and treatment techniques confidently in geriatric care.

CO 2- Formulate an evaluation procedure based on the severity, functional status, and clinical condition of older adults, with due consideration of risks and potential complications.

CO3- Justify and interpret selected assessment procedures and develop an appropriate plan of care for the geriatric population.

COURSE CONTENT:

Unit	No. Of hours	Content	Must Know	Good to Know	Desirable To know	Weightage %	Type of questions

Unit I	10	1.1.Assessment Procedures related to the Geriatric Conditions 1.2.Principles and concepts of assessment 1.3.A conceptual framework for examination, evaluation and diagnosis of elderly. 1.4.Functional assessment of the elderly. 1.5.Environmental design: accommodating sensory changes in the elderly 1.6. Cognitive impairment	✓			17	LE, SE
Unit II	10	2.1. Evaluation and assessment of elderly. 2.2. Outline comprehensive geriatric assessment 2.3. Explain Hypothesis Oriented Algorithm for Geriatric physiotherapist	✓			17	LE, SE
Unit III	20	3.1. Examination of various systems 3.1.1. Vascular examination 3.1.2 Musculoskeletal examination 3.1.3 Neurological examination 3.1.4 Physical assessment 3.1.5 Cognitive assessment 3.1.6 Psychosocial assessment 3.1.7 Activities of daily living 3.1.8 Assessment of falls	✓			33	LE, SE
Unit IV	8	3.1. Evaluation scales 3.2. Evaluation Scales used in Geriatrics	✓			13	LE, SE

Unit V	6	5.1. Documentation and delegation in various care settings 5.2 Take part in a variety of methods used to communicate among healthcare professionals regarding the status and wellbeing of older adults. 5.3. Appraise relevant evidence guiding best practice regarding continuity of treatment across services and during transitions between care settings.	✓			10	LE, SE
Unit VI	6	6.1. Geriatric care in various settings 6.2. Explain the care of community-dwelling elderly. 6.3. Explain institutionalised care of elderly- acute and long-term care setting.	✓			10	SE

❖ **LE-** Long Essay**, SE-** Short Essay

Recommended books

1. Felsenthal G, Garrison SJ, Steinberg FU. Rehabilitation of the aging and elderly patient. Baltimore: Williams & Wilkins; 1994.
2. Osa J. Physical therapy of the geriatric patient. New York: Churchill Livingstone; Year not specified.
3. Lewis CB, Bottomley J. Geriatric physical therapy: a clinical approach. St. Louis: Mosby-Year Book; 1993.
4. Kauffman TL. Geriatric rehabilitation manual. New York: Churchill Livingstone; 1999.
5. Cifu DX. Manual of geriatric rehabilitation. New York: Demos Medical Publishing; 2003.
6. Brill PA. Functional fitness for older adults. Champaign (IL): Human Kinetics; 2004.

SEMESTER-II

Physical and Functional Diagnosis in Geriatric PT – B

Course Type: SEC Course **Code: AH02PT2SEC1**

Credits: 4 **Number of Hours: 120**

COURSE OUTCOME:

After completing the course, the students will be able to;

CO 1- Demonstrate assessment techniques for various body systems.

CO 2- Apply appropriate clinical tests and measurement tools.

CO 3- Identify and document suitable outcome measures for use in the clinical setting using the prescribed format.

CO 4- Document assessment findings and outcome measures in the prescribed format.

COURSE CONTENT:

UNIT	NO. OF HOURS	CONTENT	MUST KNOW	GOOD TO KNOW	DESIRABLE TO KNOW	WEIGHTAGE %	TYPE OF QUESTIONS
Unit I	50	Assessment of various systems pertinent to geriatric patient • Musculoskeletal system • Neurological system • Cardiopulmonary system • Integumentary system	✓			33	LE
Unit II	25	Specific tests and measures in various systems	✓			25	LE
Unit III	25	Various outcome measures relevant to the various conditions pertaining to geriatric conditions.	✓			25	LE
Unit IV	20	Documentation of the assessment in	✓			17	LE

		the prescribed format.					

❖ **LE-** Long Essay**, SE-** Short Essay

SEMESTER-III

GENERAL PHYSIOTHERAPY IN GERIATRICS – A

Course Type: DSE **Course Code: AH02PT3DSE1**

Credits: 4 **Number of Hours: 60**

COURSE OUTCOME:

After completing the course, the students will be able;

CO1- Describe the management of common clinical conditions in older adults.

CO2- . Identify aging with disability in older adults.

CO3- Identify issues related to the aging workforce.

CO4- Explain factors influencing quality of life in older adults across the continuum of care.

CO5- Describe caregivers, caregiving, and caregiver burden across the continuum of care for older adults.

COURSE CONTENT:

UNIT	NO. OF HOURS	CONTENT	MUST KNOW	GOOD TO KNOW	DESIRABLE TO KNOW	WEIGHTAGE %	TYPE OF QUESTIONS
Unit I	22	**1.1.Management of various clinical conditions in geriatric population.** **1.1.1.** Musculoskeletal conditions	✓			36	LE, SE

		1.1.2. Neurological conditions **1.1.3.** Cardio respiratory conditions **1.1.4.** Gastrointestinal disorders **1.1.5.** Urologic disorders in elderly **1.1.6.** Endocrine and metabolic disorders **1.1.7.** Sexual dysfunction in elderly **1.1.8.** Neoplasm in elderly **1.1.9.** Dermatologic diseases and disorders **1.1.10.** Infectious diseases in elderly **1.1.11.** Functional vision changes in aging. **1.1.12.** Functional hearing changes in aging. **1.1.13.** Nutritional deficiency disorders **1.1.14.** Sleep problems in elderly. **1.1.15.** Psychiatric problems in elderly					
Unit II	10	**2.1. Quality of Life (QOL) in older adults.** 2.1.1. Define QOL and illustrate its dimensions & domains. 2.1.2. Describe the factors influencing QOL and explain the indicators of poor QOL. 2.1.3. Appraise QOL models and	✓			17	LE, SE

		evidence based strategies for improving QOL.					
Unit III	10	**3.1. Accessibility and older adults** 3.1.1. Outline the concept of accessibility and universal design. 3.1.2. Recommend design considerations incorporating the principles of universal Design. 3.1.3. Describe ergonomics for the aging population. 3.1.4. Appraise environmental modifications for older adults.	✓			17	LE, SE
Unit IV	6	**4.1. Caregiving in older adults** 4.1.1. Define caregivers, caregiving, and caregiver burden. 4.1.2. Appraise positive and negative aspects of caregiving. 4.1.3. Explain the predictors of caregiver burden. 4.1.4. Assess and formulate means to address caregiver burden.	✓			10	LE, SE

Unit V	6	**5.1. Aging with disability** 5.1.1. Define aging with disability. 5.1.2. Explain the demographics of aging with congenital and acquired disabilities. 5.1.3. Appraise the factors affecting aging with disability. 5.1.4. Explain and identify the problems of individuals aging with disability. 5.1.5. Choose measures to facilitate function in individuals aging with disability	✓			10	LE, SE,
Unit VI	6	**6. Aging work force** 6.1. Explain the demographics of aging workforce 6.2. Appraise the challenges faced by aging workers. 6.3. Evaluate the impact & implications of aging workforce 6.4. Explain the role of physiotherapy in aging workforce. 6.5. Construct worksite wellness programs for aging workers	✓			10	SE

- **LE**- Long Essay**, SE**- Short Essay

Recommended books

1. Fillit HM, Rockwood K, Young JB, editors. *Textbook of geriatric medicine and gerontology*. 8th ed. London: Elsevier; Available from: ClinicalKey.
2. Williams BA, Chang A, Ahalt C, Chen H, Conant R, Landefeld CS. *Current diagnosis and treatment: geriatrics*. New York: McGraw-Hill Education; Available from: AccessMedicine.

3. Staples WH, Kegelmeyer DA, Heitzman J. *Geriatric physical therapy*. New York: McGraw-Hill Education; 2016.
4. Guccione AA, Avers D, Wong R. *Geriatric physical therapy*. 3rd ed. St. Louis: Elsevier Mosby; 2011.
5. American Geriatrics Society, British Geriatrics Society, American Academy of Orthopaedic Surgeons Panel on Falls Prevention. Guideline for the prevention of falls in older persons. *J Am Geriatr Soc*. 2001;49:664–672.
6. Thompson M. *FOCUS: geriatric physical therapy—balance and motor control*. Alexandria (VA): Section on Geriatrics, American Physical Therapy Association; 2001.
7. Cifu DX, editor. *Braddom's physical medicine and rehabilitation*. 5th ed. Philadelphia: Elsevier Saunders; 2015.
8. DeLisa JA, Gans BM, Walsh NE, editors. *DeLisa's physical medicine and rehabilitation: principles and practice*. 5th ed. Philadelphia: Lippincott Williams & Wilkins.
9. Kumar S. *Multidisciplinary approach to rehabilitation*. New Delhi: Jaypee Brothers Medical Publishers.

SEMESTER-III

General Physiotherapy in Geriatrics – B

Course Type: SEC Course **Code: AH02PT3SEC1**

Credits: 4 **Number of Hours: 120**

Course outcome:

After completing the course, the students will be able to;

CO1- Perform physiotherapy assessment and evaluation in individuals with diseases and disorders.

CO2- Apply appropriate physiotherapy techniques in individuals with diseases and disorders to improve health and well-being.

CO3- Recognize and relate the processes involved in clinical decision-making during physiotherapy evaluation and treatment.

COURSE CONTENTS:

UNIT	NO. OF HOURS	CONTENT	MUST KNOW	GOOD TO KNOW	DESIRABLE TO KNOW	WEIGHTAGE %	TYPE OF QUESTIONS
Unit I	30	Physiotherapy assessment in health conditions among older adults	✓			25	LE
Unit II	30	Physiotherapy management of health conditions among older adults.	✓			25	LE
Unit III	30	Ethical and professional behavior (Autonomy, Beneficence and Justice) during evaluation and reducing caregiver burden	✓			25	LE
Unit IV	30	Physiotherapy assessment and management of health conditions in aging workforce	✓			25	LE

- **LE-** Long Essay**, SE-** Short Essay

SEMESTER-IV

Advanced Physiotherapy in Geriatrics – A

Course Type: DSE **Course Code: AH02PT4DSE1**

Credits: 3 **Number of Hours: 45**

COURSE OUTCOME

After completing the course, the students will be able ;

CO1- Evaluate evidence related to screening, health promotion, health maintenance, and disease and injury prevention in older adults.

CO2- Explain barriers faced by older adults and apply appropriate methods for their modification.

CO3- Explain healthy aging initiatives.

CO4- Recommend suitable design considerations and technology adoption to facilitate the care of older adults.

COURSE CONTENT:

Unit	No. Of hours	Content	Must Know	Good to Know	Desirable To know	Weightage %	Type of questions
Unit I	1	**1.1.Palliative and supportive care and end of life care.** 1.1.1. Describe the process for end-of-life care. 1.1.2. Discuss the steps involved in decision making in end-of-life care. 1.1.3. Explain the ethical dilemmas in end of life. 1.1.4. Explain management strategies in palliative Care. 1.1.5. Discuss the role of physiotherapist in palliative and end of life care	✓			24	LE, SE

Unit II	10	**2.1. Fitness among older adults** 2.2.1. Review fitness evaluation protocols and principles of exercise prescription 2.1.2. Assess health, fitness and wellness in older adults. 2.1.3. Debate exercise as medicine in aging	✓			23	LE, SE
Unit III	8	**3.1. Elderly athletes.** 3.1.1. Assess injuries among older athletes. 3.1.2. Explain hydration, nutrition and training requirements in elderly athletes. 3.1.3. List the sport events for older adults	✓			18	LE, SE
Unit IV	6	**4. Health promotion** 4.1. Identify, apply, and evaluate best available evidence that promote independent healthy living across domains at the individual, institutional, community and societal levels. 4.2. Evaluate the evidence for screening, health promotion and maintenance, disease and injury prevention among patients, clients, and caregivers in a culturally appropriate manner.	✓			13	LE, SE

Unit V	4	**5.1. Primordial and primary prevention.** 5.1.1. Appraise the concepts and strategies for primordial and primary prevention in older adults	✓			9	SE
Unit VI	8	**6. Technology for adaptive aging** 6.1. Compare and contrast different technology to optimize patient safety, function and independence for older adults. 6.2. Assess technology use for older adults. 6.3. Plan technology assisted management for older adults. 6.4. Select appropriate technology to facilitate independence in older adults 6.5. Appraise the concerns with acceptance of technology	✓			13	LE, SE

❖ **LE**- Long Essay**, SE**- Short Essay

Recommended books

1. Brill PA. *Functional fitness for older adults*. Champaign (IL): Human Kinetics; 2004.
2. Chodzko-Zajko W, editor; American College of Sports Medicine. *ACSM's exercise for older adults*. Philadelphia: Lippincott Williams & Wilkins; 2013.
3. Baechle TR, Westcott WL. *Fitness professional's guide to strength training older adults*. Champaign (IL): Human Kinetics; 2010.
4. Staples WH, Kegelmeyer DA, Heitzman J. *Geriatric physical therapy*. New York: McGraw-Hill Education; 2016.
5. Guccione AA, Avers D, Wong R. *Geriatric physical therapy*. 3rd ed. St. Louis: Elsevier Mosby; 2011.

6. National Research Council. *Technology for adaptive aging*. Washington (DC): National Academies Press; 2004

SEMESTER-IV

Advanced Physiotherapy in Geriatrics – B

Course Type: SEC Course **Code: AH02PT3SEC1**

Credits: 2 **Number of Hours: 60**

COURSE OUTCOME:

After completing the course, the students will be able to;

.**CO1-** Evaluate and manage geriatric patients in a palliative care setting.

CO2- Evaluate physical fitness in older adults.

CO3- Assess older adult athletes.

CO4- Recommend appropriate design considerations and technology adoption to facilitate care of older adults.

COURSE CONTENTS:

UNIT	NO. OF HOURS	CONTENT	MUST KNOW	GOOD TO KNOW	DESIRABLE TO KNOW	WEIGHTAGE %	TYPE OF QUESTIONS
Unit I	20	Assessment and management in palliative care setting	✓			34	LE
Unit II	20	Fitness assessment of elderly.	✓			33	LE
Unit III	20	Assessment and management of elderly athletes.	✓			33	LE

❖ **LE-** Long Essay**, SE-** Short Essay

BASIC SCIENCES IN ONCOLOGY & PALLIATIVE CARE

Course Type: Core **Course Code: AH02PT1DSC1G**

Credits: 4 **Number of Hours: 60**

Course Outcome

After completing the course, the students will be able to:

CO1: Explain the epidemiology, incidence, nature of cancer.

CO2: Describe the physiology of exercise and its effect on various systems in cancer patients

CO3: Discuss the pain mechanisms and its behaviour in detail in cancer patients

CO4: Discuss the role of exercise in health promotion and cancer prevention.

Course Content:

Unit	Hrs	Content	Must know	Good to know	Desirable to	Weightage	Type of questions
Unit I	16hrs	Introduction to Oncology and its epidemiology 1.1 Cancer: Epidemiology- Incidence- Prevalence – Global, National, State and Local- Disease burden- Concept of cancer- Risk factors- Trends and Issues; 1.2 Nature of Cancer- Normal cell biology & Biology of the cancer cell-	✓			**20%**	**LE, SE**

		Systemic effects of tumor growth; Etiology of Cancer- Risk factors- Carcinogens – genetic factors, chemical carcinogens, radiation, Viruses, Immune system failure, rapid tissue proliferation- Hormone changes, diet, and emotional factors					
Unit II	**20hrs**	Exercise Physiology 2.1 Fundamentals of exercise metabolism, Energy for short term exercise, Energy for longer duration exercise, 2.2 Metabolic responses to exercise, Metabolic occurrences during exercise, 2.3 Measurement of metabolism, 2.4 Normal cardiorespiratory responses to acute aerobic exercise, Acute cardiorespiratory responses to exercise, 2.5 Factors influencing acute cardiorespiratory responses to exercise, Factors affecting the acute neuromuscular responses to resistance exercise, Factors affecting the	✓			**20%**	**LE, SE**

		musculoskeletal responses to resistance exercise, 2.6 Hemodynamic responses to acute resistance exercise and Environmental considerations for exercise, 2.7 Exercise and cancer related fatigue					
Unit III	**8 hrs**	Pain 3.1 Painpathways, pathophysiology, types of pain, 3.2 Theories & models of pain, Pain: Somatic, Visceral & Referral, 3.3 Pain Behaviour in cancer patients	✓			**20%**	**LE, SE**
Unit IV	**8hrs**	Exercise Promotion and Cancer Prevention 4.1 Concept of Health, disease, disability and cancer 4.2 rehabilitation care delivery within the Indian context incorporating caregiver education and training, Need for motivation in cancer patients, 4.3 Defining and describing health behavior, Causes of positive and negative health behaviors, 4.4 Techniques for promoting positive healthy lifestyle behavior among cancer patients	✓			**20%**	**LE, SE**

Unit V	**8hrs**	Introduction to Palliative Care 5.1 The worldwide status of Palliative care: development, and policy, Challenge of Palliative Medicine, 5.2 Palliative and supportive care, spiritual support, family, friends and peer support.	✓			**20%**	**LE, SE**

References:

1. David J Kerr, Daniel G Haller, Cornelis JH van de Velde, Michael Baumann. Oxford Textbook of Oncology. Oxford University Press. 3rd Edition (2015).

2. Nathan Cherny, Marie Fallon, Stein Kaasa, Russell Portenoy, David C Currow. Oxford Textbook of Palliative Medicine. Oxford University Press. 5th Edition (2015).

3. William McArdle, Frank I. Katch, Victor K. Katch. Exercise Physiology: Energy, Nutrition and Human Performance; 7th edition (2016).

4. William McArdle et al., Essentials of Exercise Physiology. Wolters Kluwer Health Inc (2016).

5. Stephen McMahon, Martin Koltzenburg, Irene Tracey, Dennis C. Turk. Wall & Melzack's Textbook of Pain. Elsevier Health Sciences, 21 Jun 2013.

Physical & Functional Diagnosis for Onco Physiotherapy-A

Course Type: Core **Course Code: AH02PT2DSC1G**

Credits: 4 **Number of Hours: 60**

Course Outcome

After completing the course, the students will be able to:

CO1: Describe the investigations and differential diagnosis of Cancer with its interpretations.

CO2: Explain the physiotherapy assessment procedures in cancer conditions.

CO3: Explain the international classification of functioning, disability and health with reference to cancer problems and their interpretations.

CO4: Discuss the pain assessment and other outcome measures used in oncological physiotherapy practice.

CO5: Discuss the assessment tools of palliative care.

Course Content:

Unit	Hrs	Content	Must know	Good to know	Desirable to know	Weightage	Type of question
Unit I	15hrs	Investigations and Differential Diagnosis of Cancer & its Interpretations 1.1 History taking, physical examination- Staging and grading of tumors- Classification- Common diagnostic tests- Blood investigation- Hematological, Bio-chemical, Tumor markers, Hormonal assay- Cytology- Fine needle aspiration cytology (FNAC)- Histopathology: Biopsy 1.2 Diagnostic imaging- types of diagnostic imaging techniques in various types of cancer, clinical interpretation and significance(Chest X-Ray, Barium swallow, Barium enema, USG abdomen, Endoscopy, Colonoscopy, Mammography and mammogram, MRI, Ultra sound, PET and SPECT, CT scan Gastroscopy, Laparoscopy, Pap smear test, bone scan, Nuclear	✓			**25%**	**LE, SE**

		and radio imaging. 1.3 Differential diagnosis of (bone and soft tissue, breast, gynecological, lung, GI, head and neck and pediatric cancers					
Unit II	**20hrs**	Physiotherapy Assessment in cancer 2.1 Respiratory assessment, Cardiovascular assessment, Neurological assessment (Head & Neck cancers), Muscle strength testing, 2.2 Performance status, Quality of life (QOL), 2.3 Evaluation of Cancer related fatigue and other complications, 2.4 Neuropsychological testing, Lymphatic system assessment, Functional status, Device Assessment (Orthotics), 2.5 Pelvic floor Testing	✓			**25%**	**LE, SE**
Unit III	**5hrs**	ICF based assessment in Cancer Conditions International classification of functioning, disability and health in cancer conditions	✓			**10%**	**LE, SE**
Unit IV	**5hrs**	Pain Assessment & other Outcome Measures in cancer 4.1 Tools and instruments of pain Assessment, Body charts, and Pathological assessment in cancer (Questionnaires and Pain Rating Scales) 4.2 Outcome measures and evaluation in oncological physiotherapy for	✓			**20%**	**LE, SE**

		cognitive impairment and disability, focal disabilities, global measures of disability, motor impairment, ADL and extended ADL tests, Quality of life, pain, stress and anxiety					
Unit V	**15hrs**	Assessment Tools of Palliative Care Domains and Sub Domains of Palliative Care & its assessment tools, Quality Indicators, Application of Assessment Tools	✓			**20%**	**LE, SE**

References:

1. David J Kerr, Daniel G Haller, Cornelis JH van de Velde, Michael Baumann. Oxford Textbook of Oncology. Oxford University Press. 3rd Edition (2015).

2. Nathan Cherny, Marie Fallon, Stein Kaasa, Russell Portenoy, David C Currow. Oxford Textbook of Palliative Medicine. Oxford University Press. 5th Edition (2015).

3. Polden M, Mantle J. Physiotherapy in Obstetrics and Gynaecology. 1st edition; Jaypee Brothers, New Delhi, India, 1994.

4. Stephen McMahon, Martin Koltzenburg, Irene Tracey, Dennis C. Turk. Wall & Melzack's Textbook of Pain. Elsevier Health Sciences, 21 Jun 2013.

5. Donna Frownfelter, Elizabeth Dean. Cardiovascular and Pulmonary Physical Therapy: Evidence to Practice, 5th Ed, Elsevier, 2012.

6. O'Sullivan SB, Schmitz TJ, Fulk G. Physical Rehabilitation. FA Davis; 2013.

7. Geraint Fuller. Neurological Examination Made Easy. 6th Edition. Elsevier. 2019

8. David J Magee. Orthopaedic Physical Assessment.7edn. Elsevier. 2021

9. World Health Organization. How to use the ICF: A practical manual for using the International Classification of Functioning, Disability and Health (ICF). Exposure draft for comment. October 2013. Geneva: WHO

Physical & Functional Diagnosis for Onco Physiotherapy-B

Course Type: Core **Course Code: AH02PT2SEC1G**

Credits: 4 **Number of Hours: 120**

Course Outcome

After completing the course, the students will be able to:

CO1: Demonstrate physical examination procedures of respiratory system, cardiovascular system metabolic system, integumentary system and neuro-musculoskeletal systems in cancer patients

CO 2: Demonstrate the clinical reasoning for the interpretation of assessment findings in cancer

CO3: Evaluate with validated outcome measures based on problem findings in cancer patients

CO4: To demonstrate the pain assessment and its behavior in cancer patients

CO5: To demonstrate the assessments of palliative care.

Course Content

Unit	Hrs	Content	Must	Good to know	Desirable to	Weightage	Type of question
Unit I	**30hrs**	Physical Examination Procedures Respiratory assessment, Cardiovascular assessment, Neurological assessment (Head & Neck cancers), Muscle strength testing, Performance status, Quality of life (QOL), Cancer related fatigue, Distress, Lymphedema,	✓			**20%**	**SE,LE**

		Functional status, Device Assessment (Orthotics), Pelvic floor Testing					
Unit II	**40hrs**	Clinical Reasoning & Interpretation of Assessment Findings Respiratory assessment, Cardiovascular assessment, Neurological assessment (Head & Neck cancers), Muscle strength testing, Performance status, Quality of life (QOL), Cancer related fatigue, Distress, Lymphedema, Functional status, Device Assessment (Orthotics), Pelvic floor Testing	✓			**20%**	**SE,LE**
Unit III	**20hrs**	Selection of Outcome Measures Reliability and Validity, Feasibility & Practicality of Outcome measures	✓			**20%**	**SE,LE**
Unit IV	**15hrs**	Pain Tools and instruments of pain assessment, Bodycharts, and Pathological assessment (Questionnaires and Pain Rating Scales) in cancer	✓			**20%**	**SE,LE**
Unit V	**15hrs**	Assessment Tools of Palliative Care Domains and Sub Domains of Palliative Care & its assessment tools, Quality Indicators, Application of Assessment Tools	✓			**20%**	**SE,LE**

References:

1. David J Kerr, Daniel G Haller, Cornelis JH van de Velde, Michael Baumann. Oxford Textbook of Oncology. Oxford University Press. 3rd Edition (2015).

2. Nathan Cherny, Marie Fallon, Stein Kaasa, Russell Portenoy, David C Currow. Oxford Textbook of Palliative Medicine. Oxford University Press. 5th Edition (2015).

3. Polden M, Mantle J. Physiotherapy in Obstetrics and Gynaecology. 1st edition; Jaypee Brothers, New Delhi, India, 1994.

4. Stephen McMahon, Martin Koltzenburg, Irene Tracey, Dennis C. Turk. Wall & Melzack's Textbook of Pain. Elsevier Health Sciences, 21 Jun 2013.

5. Donna Frownfelter, Elizabeth Dean. Cardiovascular and Pulmonary Physical Therapy: Evidence to Practice, 5th Ed, Elsevier, 2012.

6. O'Sullivan SB, Schmitz TJ, Fulk G. Physical Rehabilitation. FA Davis; 2013.

7. Geraint Fuller. Neurological Examination Made Easy. 6th Edition. Elsevier. 2019

8. David J Magee. Orthopaedic Physical Assessment.7edn. Elsevier. 2021

9. World Health Organization. How to use the ICF: A practical manual for using the International Classification of Functioning, Disability and Health (ICF). Exposure draft for comment. October 2013. Geneva: WHO

General Physiotherapy in Oncology & Palliative Care-A

Course Type: Core **Course Code: AH02PT3DSC1G**

Credits: 4 **Number of Hours: 60**

Course Outcome

After completing the course, the students will be able to:

C01: Discuss the physiotherapy management of the complications due to cancer treatments
CO2: Develop the plan of management of various regional cancer in oncological physiotherapy

CO3;Discuss the various approaches, aids, appliances and adaptive functional devices in oncological physiotherapy practice

CO4:Explain the pain management, supportive and palliative care in cancer patients

Course Content:

Unit	Hrs	Content	Must	Good to know	Desirable to	Weightage	Type of question
Unit I	**12hrs**	Physiotherapy management of the complications due to cancer treatments Medical Interventions in Cancer: Chemotherapy, radiation therapy and adjunct therapy in cancer patients: Physiotherapy management for neuro-musculoskeletal complications due to cancer treatments.	✓			**30%**	**SE,LE**
Unit II	**20hrs**	Regional Cancer and its Physiotherapy Management 2.1 Head and neck cancers, Breast cancer, Cancers of Reproductive system, Bone tumors, Systemic cancers, CNS Neoplasia, Lung cancer, Metastatic cancers, Gastrointestinal cancers 2.2 Physiotherapy management in Intensive care units (ICU) of cancer patients 2.3 Physiotherapy management for various dysfunctions (Bowel and Bladder, Sexual, Neuro-musculoskeletal and Nutritional deficiency) seen in different types of	✓			**30%**	**SE,LE**

		cancer					
Unit III	**20hrs**	es, Aids and appliances, unctional devices to ysfunction in cancer ES, Biofeedback, Muscle on approach, Sensory ion, Balance Training, l release technique, and facilitation Functional re-education, ing, ADL training, oncological conditions.	✓			**20%**	**SE,LE**
Unit IV	**8 hrs**	Supportive and Palliative Care & Pain Management in Cancer patients 4.1 Pain management in cancer, 4.2 Rehabilitation act and financial aid for cancer patients, palliative therapy in cancer patients, 4.3 Psychosomatic conditions in cancer and their management	✓			**20%**	**SE,LE**

References:

1. David J Kerr, Daniel G Haller, Cornelis JH van de Velde, Michael Baumann. Oxford Textbook of Oncology. Oxford University Press. 3rd Edition (2015).

2. Nathan Cherny, Marie Fallon, Stein Kaasa, Russell Portenoy, David C Currow. Oxford Textbook of Palliative Medicine. Oxford University Press. 5th Edition (2015).

3. William McArdle, Frank I. Katch, Victor K. Katch. Exercise Physiology: Energy, Nutrition and Human Performance; 7th edition (2016).

4. Stephen McMahon, Martin Koltzenburg, Irene Tracey, Dennis C. Turk. Wall & Melzack's Textbook of Pain. Elsevier Health Sciences, 21 Jun 2013.

General Physiotherapy in Oncology & Palliative Care-B

Course Type: Core **Course Code: AH02PT3SEC1G**

Credits: 4 **Number of Hours: 120**

Course Outcome

After completing the course, the students will be able to:

CO1: Demonstrate the physiotherapy management of the complications due to cancer treatments

CO2: Develop the plan of management of various regional cancer in oncological physiotherapy

CO3: Demonstrate the various approaches, aids, appliances and adaptive functional devices in oncological physiotherapy practice

CO4: Discuss the pain management, supportive and palliative care in cancer patients

Course Content:

Unit	Hrs	Content	Must	Good to	Desirable	Weightage	Type of question
Unit I	**30hrs**	Physiotherapy management of the complications due to cancer treatments Medical Interventions in Cancer: Chemotherapy, radiation therapy and adjunct therapy in cancer patients: Physiotherapy management for neuro-musculoskeletal complications due to cancer treatments.	✓			**30%**	**SE,LE**
Unit II	**30hrs**	Regional Cancer and its Physiotherapy Management 2.4 Head and neck cancers, Breast cancer, Cancers of Reproductive system, Bone tumors, Systemic cancers, CNS	✓			**30%**	**SE,LE**

		Neoplasia, Lung cancer, Metastatic cancers, Gastrointestinal cancers 2.5 Physiotherapy management in Intensive care units (ICU) of cancer patients 2.6 Physiotherapy management for various dysfunctions (Bowel and Bladder, Sexual, Neuro-musculoskeletal and Nutritional deficiency) seen in different types of cancer					
Unit III	**40hrs**	es, Aids and appliances, unctional devices to ysfunction in cancer ES, Biofeedback, Muscle on approach, Sensory ion, Balance Training, l release technique, and facilitation Functional re-education, ing, ADL training, oncological conditions.	✓			**20%**	**SE,LE**
Unit IV	**20hrs**	Supportive and Palliative Care & Pain Management in Cancer patients 4.4 Pain management in cancer, 4.5 Rehabilitation act and financial aid for cancer patients, palliative therapy in cancer patients, 4.6 Psychosomatic conditions in cancer and their management	✓			**20%**	**SE,LE**

References:

1. David J Kerr, Daniel G Haller, Cornelis JH van de Velde, Michael Baumann. Oxford Textbook of Oncology. Oxford University Press. 3rd Edition (2015).

2. Nathan Cherny, Marie Fallon, Stein Kaasa, Russell Portenoy, David C Currow. Oxford Textbook of Palliative Medicine. Oxford University Press. 5th Edition (2015).

3. William McArdle, Frank I. Katch, Victor K. Katch. Exercise Physiology: Energy, Nutrition and Human Performance; 7th edition (2016).

4. Stephen McMahon, Martin Koltzenburg, Irene Tracey, Dennis C. Turk. Wall & Melzack's Textbook of Pain. Elsevier Health Sciences, 21 Jun 2013.

Advanced Physiotherapy in Oncology & Palliative Care-A

Course Type: Core Course Code: AH02PT3DSC1G

Credits: 3 Number of Hours: 45

Course Outcome

After completing the course, the students will be able to:

1. Evaluate the recent advances in oncological physiotherapy for patient care.
2. Discuss the evidence available for assessment and management of oncological conditions
3. Evaluate the psychosocial impact of oncological physiotherapy and palliative care on cancer patients and their caretakers

Course Content:

Unit	Hrs	Content	Must	Good to know	Desirable to	Weightage	Type of question
Unit I	**25hrs**	1.1 Recent advances and evidences in interventions for	✓			**60%**	**SE,LE**

		impairments of cancer 1.2 Genetic counselling, Stem cell therapy, Gene therapy, Targeted therapy, Immunotherapy, hormone therapy, thermal ablation, radionics, atomics and Nanomedicine 1.3 Recent advances in pain modulation and rehabilitation 1.4 Orthosis – prescription and training. Prosthetic management for mastectomy 1.5 Psychiatric problems in oncological conditions and physiotherapy (BAT, CBT), Psychological aspects of adaptation during various aspects of disabilitiesSelf-treatment, 1.6 Exercise precaution, management and exercise prescription for home program, Report writing, conceptual framework for clinical practice 1.7 Mental imagery technique, virtual reality therapy, Pilate's therapy, Hydrotherapy/ Aqua therapy in oncological patients.					

Unit II	**15hrs**	Advances in the Physiotherapy Management of oncological conditions Recent advances in the physiotherapy management of Head and Neck cancer, Breast cancer, Bone tumors, Lung cancer, Systemic cancer Sports and Physical training in cancer patients	✓			**20%**	**SE,LE**
Unit III	**5hrs**	Psychosocial impact of physiotherapy and palliative care in cancer patient Impact of cancer treatment on function and its rehabilitation Psychosocial impact on cancer patient, spouse, family members, and society	✓			**20%**	**SE,LE**

References:

1. David J Kerr, Daniel G Haller, Cornelis JH van de Velde, Michael Baumann. Oxford Textbook of Oncology. Oxford University Press. 3rd Edition (2015).

2. Nathan Cherny, Marie Fallon, Stein Kaasa, Russell Portenoy, David C Currow. Oxford Textbook of Palliative Medicine. Oxford University Press. 5th Edition (2015).

3. William McArdle, Frank I. Katch, Victor K. Katch. Exercise Physiology: Energy, Nutrition and Human Performance; 7th edition (2016).

4. Stephen McMahon, Martin Koltzenburg, Irene Tracey, Dennis C. Turk. Wall & Melzack's Textbook of Pain. Elsevier Health Sciences, 21 Jun 2013.

Advanced Physiotherapy in Oncology & Palliative Care-B

Course Type: Core **Course Code: AH02PT4SEC1G**

Credits: 2 **Number of Hours: 60**

Course Outcome

CO1.Evaluate the recent advances in oncological physiotherapy for patient care.
CO2: Discuss the evidence available for assessment and management of oncological conditions

Course Content:

Unit	Hrs	Content	Must	Good to know	Desirable to	Weightage	Type of question
Unit I	**35hrs**	1.8 Recent advances and evidences in interventions for impairments of cancer 1.9 Genetic counselling, Stem cell therapy, Gene therapy, Targeted therapy, Immunotherapy, hormone therapy, thermal ablation, radionics, atomics and Nanomedicine 1.10 Recent advances in pain modulation and rehabilitation 1.11 Orthosis – prescription and training. Prosthetic management for mastectomy 1.12 Psychiatric problems in oncological conditions and physiotherapy (BAT, CBT), Psychological aspects of adaptation during various aspects of disabilitiesSelf-treatment,	✓			**80%**	**SE,LE**

		1.13 Exercise precaution, management and exercise prescription for home program, Report writing, conceptual framework for clinical practice 1.14 Mental imagery technique, virtual reality therapy, Pilate's therapy, Hydrotherapy/ Aqua therapy in oncological patients.					
Unit II	**25hrs**	Advances in the Physiotherapy Management of oncological conditions Recent advances in the physiotherapy management of Head and Neck cancer, Breast cancer, Bone tumors, Lung cancer, Systemic cancer Sports and Physical training in cancer patients	✓			**20%**	**SE,LE**

References:

1. David J Kerr, Daniel G Haller, Cornelis JH van de Velde, Michael Baumann. Oxford Textbook of Oncology. Oxford University Press. 3rd Edition (2015).

2. Nathan Cherny, Marie Fallon, Stein Kaasa, Russell Portenoy, David C Currow. Oxford Textbook of Palliative Medicine. Oxford University Press. 5th Edition (2015).

3. William McArdle, Frank I. Katch, Victor K. Katch. Exercise Physiology: Energy, Nutrition and Human Performance; 7th edition (2016).

4. Stephen McMahon, Martin Koltzenburg, Irene Tracey, Dennis C. Turk. Wall & Melzack's Textbook of Pain. Elsevier Health Sciences, 21 Jun 2013.

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MPT in Women's Health and OBG

SEMESTER I

Basic Sciences for Women's Health and OBG PT

Course Type: DSC | Course Code: AH02PT1DSC1H

Credits: 4 | Number of Hours: 60

Course Outcome

After completing the course, the students will be able to:

- Describe the reproductive anatomy and physiology
- Explain the physical, and physiological changes during pregnancy, labour, puerperium and menopause with associated complications
- Explain the gynecological conditions and surgery
- Describe the causes for incontinence and its types

Unit	No. Of hours	Content	Must Know	Good to Know	Desirable To know	Weightage %	Type of questions
Unit 1	12	**Anatomy of female reproductive system & Physiology of Pregnancy** 1.1 Breast 1.2 Abdominal muscles 1.3 Pelvis - pelvic axis, position, obstetric diameters and shape and abnormal bony pelvis 1.4 Perineum & pelvic floor 1.5 Reproductive tract-ovaries, fallopian tubes, uterus and vagina, urethra and anorectal region 1.6 Menstrual cycle & disorders of menstrual cycle 1.7 Pregnancy and fetal development	✓ ✓ ✓ ✓ ✓ ✓			20	LE, SE

		Physical and physiological changes of pregnancy on various systems - endocrine, reproductive, cardiovascular, respiratory, breast, skin, gastrointestinal system, nervous system, urinary system, musculoskeletal system					
Unit 2	**6**	**Physical and physiological changes of labour and puerperium** 2.1 Stages of labour, process of normal labour, mechanics of labour, duration of labour, positioning in labour 2.2 Effect of labour on pelvic floor and perineum 2.3 Medical and surgical management and interventions in labour 2.4 Anatomical & physiological changes during postpartum period 2.5 Intra uterine devices · 2.6 Miscarriage, MTP and sterilization	✓	✓	✓ ✓	10	SE
Unit 3	**6**	**Complications of pregnancy** 3.1 Anemia, Genital herpes, HIV, Sickle cell Disease, Thalassemia 3.2 Ante-partum hemorrhage, Ectopic pregnancy, pre-eclamptic toxaemia and eclampsia, Gestational diabetes 3.3 Placenta praevia, intrauterine growth retardation, intrauterine death		✓ ✓	✓	10	SE

		3.4 Multiple pregnancies, polyhydramnios, oligohydramnios, fibroids 3.5 Breech position, Unstable lie, and transverse lie.	 ✓	✓			
Unit 4	12	**Complications of labour & the puerperium** 4.1 Failure to progress, fetal distress, maternal distress 4.2 Malpresentation-breech presentation, malposition-occipito-posterior position 4.3 Prolapse or presentation of cord, incoordinate uterine activity 4.4 Contracted pelvis and cephalopelvic disproportion, placental abruption, multiple births, perineal trauma, retained placenta and placenta accrete 4.5 Postpartum haemorrhage, venous thrombosis, pulmonary embolism, gravitational oedema, puerperal infection, and vesicovaginal fistula.	 ✓ ✓	 ✓ ✓ ✓		10	SE
Unit 5	6	**Menopause** 5.1 Physical symptoms-hot flushes and night sweats 5.2 Vaginal soreness-atrophic vaginitis, and dry skin 5.3 Psychological and emotional symptoms 5.4 Sexuality in climacteric	 ✓	 ✓ ✓	✓ ✓ ✓	10	SE

		5.5 Postmenopausal problems, osteoporosis, arterial disease 5.6 Administration of hormone replacement therapy			✓		
Unit 6	6	**Gynaecological conditions** 6.1 Vulva (vulvitis), vagina (vaginitis), cervix (cervicitis), uterus (endometritis), fallopian tubes (salpingitis), pelvic inflammatory disease 6.2 Cystocele, urethrocele, rectocele, enterocele, uterine prolapse 6.3Ammenorrhoea, dysmenorrhoea, breakthrough bleeding, premenstrual tension, dysfunctional uterine bleeding 6.4 Common Cancer in Women	✓	✓	✓ ✓	10	SE
Unit 7	6	**Gynaecological surgery** 7.1 Excision of genital structures- hysterectomy, vaginal hysterectomy, abdominal hysterectomy, oophorectomy, ovarian cystectomy, salpingectomy, myomectomy 7.2 Cone biopsy, radical vulvectomy, radiotherapy prior to surgery, colporrhaphy, Fothergill or Manchester repair, Gilliam's venterosuspension, Salpingostomy 7.4 Surgery for stress Incontinence- Marshall-Marcherri-Krantz			✓ ✓ ✓	10	SE

		urethropexy 7.5 Burch's colposuspension and Stamey's operation 7.6 Surgeries related to cancer conditions in women.		✓	✓		
Unit 8	6	**Incontinence of urine and faeces** 8.1 Storage and voiding of urine, micturition cycle 8.2 Neurological control of continence, neurological control of defaecation 7.1 Incontinence of faeces, incontinence of urine and types 7.2 Overactive bladder syndrome	✓ ✓ ✓	✓		20	LE, SE

REFERENCES

1. Henry Gray, Anatomy of the Human Body, 42nd ed, 2020

2. C.Guyton, John E. Hall, Textbook of medical physiology, W.B.Saunder company- Harcourt Brace Jovanovich, Inc., 13th ed., 2020

3. D.C Datta -Textbook of Gynaecology, 17th ed., 2016

4. D.C Datta -Textbook of Obstetrics, 17th ed., 2019

SEMESTER-II
Physical and Functional Diagnosis in Women's Health and OBG PT -A

Course Type: DSC Course Code: AH02PT2DSC1H

Credits: 4 Number of Hours: 60

Course Outcome

After completing the course, the students will be able to:

- Explain the hematological investigations, imaging techniques.
- analyse assessment methods for various WH & OBG conditions
- Describe the cancer screening, lymphedema test, and incontinence assessments.
- Critically assess the newborns with available scales

UNIT	NO. OF HOURS	CONTENT	MUST KNOW	GOOD TO KNOW	DESIRABLE TO KNOW	WEIGHTAGE %	TYPE OF QUESTIONS
Unit 1	**6**	**Haematological investigations** 1.1 Blood and urine investigations of endocrinal disorders in pregnant women, investigations during pregnancy -Dual Marker, Triple test, quadruple test, Glucose Challenge & Tolerance Test, Biophysical Profile, Amniocentesis, Chronic Villi Sampling, non-stress test and partograph		✓		10	LE, SE
Unit 2	**6**	**Imaging techniques** 2.1 Imaging techniques used in the diagnosis of conditions related to women's health- USG, MRI, CT, Mammography, Hysterosonography, Cystometry		✓		10	SE
Unit 3	**8**	**Assessment of WH & OBG conditions** 3.1 SOAPIER 3.2 History taking 3.3 Physical examination 3.4 International classification of functioning, disability and health in WH & OBG conditions.	 ✓ ✓ ✓			10	LE, SE

Unit 4	**6**	**Cancer Screening in Women** 4.1 Cancer screening guidelines, policies and national programs across the lifespan of a woman 4.2 Self-Examination as a tool of cancer screening	✓ ✓			15	LE, SE
Unit 5	**10**	**Lymphedema tests and measures** 5.1 Tests and measures to screen for and measure the involvement of integumentary and lymphatic system	✓			15	LE, SE
Unit 6	**12**	**Urinary incontinence assessment** 6.1 Examination of perineum and pelvic floor, frequency/volume chart, pad test, biofeedback, pelvic floor muscle grading, urethral pressure profilometry, uroflowmetry, distal urethral electric conductance, electrophysiological tests, measurement of perineal descent,.anorectal manometry, pyelogram, and cystourethroscopy or cystoscopy	✓			20	LE, SE
Unit 7	**12**	**Newborn Examination** 7.1 General Observation - Respiratory system & Musculoskeletal system, Oro-motor evaluation, Neurodevelopmental maturation, General movement assessment 7.2 Scales in the evaluation of new born-New Ballard score, APGAR Score, Down's Score, Silverman Anderson scale, Hammersmith Infant Neurological Examination Assessment, INFANIB.	✓ ✓			20	LE, SE

REFERENCES

1. Jean M Irion, Glenn L Irion, Women's health in physical therapy, 2010
2. Adrian Cristian MD, Breast Cancer and Gynecologic Cancer Rehabilitation, 2020
3. Giulio A. Santoro, Andrzej P. Wieczorek, Pelvic Floor Disorders - a multidisciplinary textbook, 2021
4. A.L. Baert, K. Sartor, Imaging Pelvic Floor Disorders, 2003
5. Tecklin's Pediatric Physical Therapy, 5th edition, 2015
6. Gab Kovacs, Paula Briggs , Lectures in Obstetrics, Gynaecology & Women's Health, 2015
7. D.C Datta -Textbook of Gynaecology, 17th ed., 2016
8. D.C Datta -Textbook of Obstetrics, 17th ed., 2019

Physical and Functional Diagnosis in Women's Health & OBG PT B

Course Type: SEC | Course Code: AH02PT2SEC1H

Credits: 4 | Number of Hours: 120

Course Outcomes:

After completing the course the students will be able to:

- Examine the various WH & OBG cases and interpret the investigation results of various WH & OBG conditions
- Plan a skilled and effective subjective and physical examination, select outcome measures, and demonstrate clinical decision making in the management of the individuals with WH & OBG disorders.
- Justify the interpretation of various investigative procedures.
- Utilize various measures for cancer screening in women.
- Make use of various tests and measures to rule out lymphedema.
- Demonstrate the assessment of individuals with urinary incontinence.
- Examine the new born with valid and reliable assessment methods.
- Apply and choose the appropriate outcome measures in the evaluation and management of WH & OBG disorders.

UNIT	NO. OF HOURS	CONTENT	MUST KNOW	GOOD TO KNOW	DESIRABLE TO KNOW	WEIGHTAGE %	TYPE OF QUESTIONS
Unit 1	**30**	**Examination of WH & OBG conditions** 1.1 Explain and perform the assessment of individuals with various WH & OBG conditions 1.2 Discuss health related information with clients, caregivers, peers and health care professionals and display ability to work as a team 1.3 Demonstrate the clinical reasoning and decision making process for the management of the patient based on the evaluation	✓ ✓ ✓			20	LE, SE
Unit 2	**25**	**ICF framework based Outcome measures in WH & OBG conditions** 2.1 Identify the psychometric properties of validated clinical outcome measures 2.2 Choose and apply the impairment-based outcome measures used in WH & OBG conditions 2.3 Choose and apply the activity-based outcome measures used in WH & OBG conditions 2.4 Choose and apply the participation-based outcome measures used in WH & OBG conditions 2.5 Discuss health related information with clients, caregivers, peers and health care professionals and displays ability to work as a team 2.6 Display ethical and professional behavior during evaluation	✓ ✓ ✓ ✓ ✓			20	LE, SE

Unit 3	**25**	**Clinical decision-making for the management of WH & OBG conditions** 3.1 Plan a comprehensive physical examination 3.2 Construct problem list and plan short term and long-term goals based on the evaluation findings 3.3 Plan and take part in performing physiotherapy treatment techniques 3.2 Discuss health related information with clients, caregivers, peers and health care professionals and displays ability to work as a team	✓ ✓ ✓ ✓			20	LE, SE
Unit 4	**8**	**Hematological investigations** 4.1 Blood and urine investigations of endocrinal disorders in pregnant women, investigations during pregnancy -Dual Marker, Triple test, quadruple test, Glucose Challenge & Tolerance Test, Biophysical Profile, Amniocentesis, Chronic Villi Sampling, non-stress test and partograph		✓		5	SE
Unit 5	**6**	**Imaging techniques** 5.1 Imaging techniques used in the diagnosis of conditions related to women's health- USG, MRI, CT, Mammography, Hysterosonography, Cystometry		✓		5	SE
Unit 6	**10**	**Cancer Screening in Women** 6.1 Self-Examination as a tool of cancer screening	✓			10	LE, SE
Unit 7	**12**	**Lymphedema tests and measures**				10	LE, SE

		7.1 Tests and measures to screen for and measure the involvement of integumentary and lymphatic system	✓				
Unit 8	**20**	**Urinary Incontinence Assessment** 8.1 Examination of perineum and pelvic floor, frequency/volume chart, pad test, biofeedback, pelvic floor muscle grading, distal urethral electric conductance, electrophysiological tests, measurement of perineal descent, interpretations of various investigation procedures	✓			10	LE, SE
Unit 9	**20**	**Newborn Examination** 9.1 General observation - Respiratory system, Musculoskeletal system, Oro-motor evaluation, Neurodevelopmental maturation, scales in the evaluation of new born - New Ballard score, APGAR score, Downes score, Silverman Anderson scale, Hammersmith Infant Neurological Examination Assessment, INFANIB, General movement assessment	✓			20	LE, SE

REFERENCES

1. Jean M Irion, Glenn L Irion, Women's health in physical therapy, 2010
2. Adrian Cristian MD, Breast Cancer and Gynecologic Cancer Rehabilitation, 2020
3. Giulio A. Santoro, Andrzej P. Wieczorek, Pelvic Floor Disorders - a multidisciplinary textbook, 2021
4. A.L. Baert, K. Sartor, Imaging Pelvic Floor Disorders, 2003
5. Tecklin's Pediatric Physical Therapy, 5th edition, 2015

6. Gab Kovacs, Paula Briggs, Lectures in Obstetrics, Gynaecology & Women's Health, 2015
7. D.C Datta -Textbook of Gynaecology, 17th ed., 2016
8. D.C Datta -Textbook of Obstetrics, 17th ed., 2019

SEMESTER-III

General Physiotherapy in Women's Health and OBG PT – A

Course Type: DSC | Course Code: AH02PT3DSC1H

Credits: 4 | Number of Hours: 60

Course Outcome

After completing the course, the students will be able to:

- Prescribe exercises to women in their antenatal and postnatal period following the current exercise guidelines
- Explain the physiotherapy assessment and management of women with high risk pregnancy, women with neuro-musculoskeletal dysfunctions during pregnancy and in women with postpartum complications following normal delivery and lower segment caesarian section
- Discuss the role of Physiotherapy and pain coping strategies during normal labor

UNIT	NO. OF HOURS	CONTENT	MUST KNOW	GOOD TO KNOW	DESIRABLE TO KNOW	WEIGHTAGE %	TYPE OF QUESTIONS
Unit 1	**5**	**Exercise Prescription and fitness testing in adolescent girls** 1.1 Nutrition in adolescence 1.2 Effects of exercise on the menstrual cycle and their overall performance 1.3 Common pelvic floor dysfunctions, and exercise prescription in adolescent girls 1.4 Guidelines for health related fitness evaluation and exercise prescription in adolescent girls	✓ ✓ ✓	✓		10	SE

Unit 2	**4**	**Exercise prescription for female athletes** 2.1 Nutrition in female athlete 2.2 Female athletic triad with emphasis on long-term health consequences	✓ ✓			10	SE
Unit 3	**3**	**Exercise prescription in antenatal and postnatal period** 3.1 Evidence based exercise prescription for women during antenatal and postnatal period	✓			10	LE, SE
Unit 4	**3**	**Exercise testing and exercise prescription in women with** 4.1 Obesity, PCOS, Infertility, Osteoporosis, Pre, peri and post-menopause, Diastasis Recti abdominis 4.2 Musculoskeletal Conditions such as neck and upper back strain, TMJ Pain, Thoracic outlet syndrome, costal rib pain, Carpel tunnel syndrome, Dequervain's diseases, Sacroiliac joint dysfunction (anterior and posterior innominate), Symphysis pubis dysfunction, Low back pain, piriformis syndrome, coccyx pain, knee and patella dysfunction, Nerve palsies, muscle and tendon injuries.	✓ ✓			10	LE, SE
Unit 5	**5**	**Physical Agents in women's health and OBG conditions** 5.1 Effects and evidence for using various physical agents			✓	10	SE

Unit 6	**5**	**Breast Cancer Rehabilitation, Lymphedema & its Physiotherapy Management** 6.1 Preoperative and postoperative evidence-based Physiotherapy assessment and management of patients with breast cancers 6.2 Role of physiotherapy in the management of patients following chemotherapy and radiotherapy 6.3 Guidelines for the treatment of lymphedema, strategies to maintain the integrity of integumentary system, role of physiotherapy in complete decongestive therapy in the management of lymphedema and evidence based physiotherapy assessment & management of acute and chronic lymphedema	✓ ✓ ✓			20	LE, SE

Unit 7	**15**	**Physiotherapy for high risk pregnancy, during labour & Postpartum complications** 7.1 Complications associated with prolonged bed rest during pregnancy, risk factors associated with high-risk pregnancy 7.2 Physiotherapy assessment and management for women with high risk pregnancy such as Gestational Hypertension/Pre-eclampsia/Eclampsia, Gestational Diabetes, Preterm labour, Multiple Gestation, Placenta previa, Abruption placenta, Incompetent cervix, heart disease in pregnancy, UTI in pregnancy, Vaginal Birth After Caesarean Section (VBAC) 7.3 Non-pharmacological techniques for the management of labour 7.4 Role of physiotherapy and pain coping strategies during labour, TENS in labour 7.5 Traditional practices related to pregnancy and postpartum management 7.6 Positions for delivery, types of delivery, maternal positions and		✓ ✓ ✓	✓	20	LE, SE

		state during labour 7.7 Management of pain and discomforts during labour 7.8 Stress management during labour, relaxation techniques, breathing techniques, massage 7.9 Immediate and late postpartum complications and management following normal vaginal delivery, episiotomy and caesarian section 7.10 Compensatory postural strategies of women during postpartum period and its implications 7.11 Types of postpartum mood disorders, Physiotherapy management of postpartum mood disorders. 7.12 Role of orthotics and assistive devices for musculoskeletal dysfunctions during postpartum period.	✓ ✓ ✓ ✓	✓ ✓			

Unit 8	**20**	**Physiotherapy management in Lactation disorders , female sexual dysfunctions, pelvic pain, gynecological conditions and surgeries** 8.1 Pathophysiology, causes, clinical features of breast engorgement. Common issues associated with breast feeding. 8.2 Musculoskeletal, obstetric, gynaecological and psychological factors contributing to pelvic pain 8.3 Physiotherapy for pelvic pain syndromes such as levator spasm, chronic pelvic pain, vulvar pain, interstitial cystitis, coccydynia, descending perineum syndrome, dyssynergic pain, proctalgia fugax, endometriosis 8.4 General sexual dysfunction, orgasmic dysfunction, vaginismus, and dyspareunia, psychosexual problems 8.5 Physiotherapy assessment and management of female sexual dysfunctions 8.6 Pre and post physiotherapy management for gynecological surgeries & surgeries	✓ ✓	✓ ✓	✓	10	SE

REFERENCES

1. Rebecca Gourley Stephenson, Linda J. O'Connor, Obstetric and Gynecologic Care in Physical Therapy, 2000
2. Blandine Calais Garmain, Preparing for a gentle birth : the pelvis in pregnancy, 2012
3. Beate Carriere, Cynthia Markel Feldt, The Pelvic floor, 2006
4. Jean M Irion, Glenn L Irion, Women's Health in Physical Therapy, 2010
5. Stuart Porter, Tidy's physiotherapy, 15th ed., 2013
6. Ruth Sapsford, Joanne Bullock-Saxton, Sue Markwell. Women's Health: A Textbook for Physiotherapists, 1997
7. Jill Mantle, Jeanette Haslam, Physiotherapy in Obstetrics and Gynaecology- international edition, 2004
8. Polden M, Mantle J. Physiotherapy in Obstetrics and Gynaecology, 1994.
9. D.C Datta -Textbook of Gynaecology, 17th ed., 2016
10. D.C Datta -Textbook of Obstetrics, 17th ed., 2019

General Physiotherapy in Women's Health and OBG PT - B

Course Type: SEC Course Code: AH02PT3SEC1H

Credits: 4 Number of Hours: 60

Course Outcome

After completing the course, the students will be able to:

- Prescribe exercises to women in their antenatal and postnatal period following the current exercise guidelines
- Perform the physiotherapy assessment and management of women with high risk pregnancy, women with neuro-musculoskeletal dysfunctions during pregnancy and in women with postpartum complications following normal delivery and lower segment caesarian section
- Demonstrate the role of Physiotherapy and pain coping strategies during normal labor

UNIT	NO. OF HOURS	CONTENT	MUST KNOW	GOOD TO KNOW	DESIRABLE TO KNOW	WEIGHTAGE %	TYPE OF QUESTIONS
Unit 1	**10**	**Exercise Prescription and fitness testing in adolescent girls** 1.1 Exercise during menstrual cycle 1.2 Exercise prescription in adolescent girls 1.3 Health related fitness evaluation	✓ ✓	 ✓ 		10	SE
Unit 2	**10**	**Exercise prescription for female athletes** 2.1 General exercise prescription for female athletes	 ✓			10	SE
Unit 3	**20**	**Exercise prescription in antenatal and postnatal period** 3.1 Evidence based exercise prescription for women during antenatal and postnatal period: Early bird classes, Relaxation techniques and Stress Management during pregnancy, Aquanatal exercises during antenatal period, Antenatal Pilates and Postnatal Pilates 3.2 Orthotic management during pregnancy 3.3 Ergonomic advice during pregnancy	 ✓ ✓ ✓			20	LE, SE

Unit 4	**10**	**Exercise testing and exercise prescription in women with** 4.1 Musculoskeletal conditions, Obesity, PCOS, Infertility, Osteoporosis, Pre, peri and post-menopause	✓			10	SE
Unit 5	**15**	**Breast Cancer Rehabilitation, Lymphedema & its Physiotherapy Management** 5.1 Preoperative and postoperative evidence-based Physiotherapy assessment and management of patients with breast cancers 5.2 Role of physiotherapy in the management of patients following chemotherapy and radiotherapy. 5.3 Evidence based physiotherapy assessment management of the acute and chronic lymphedema	✓ ✓ ✓			20	LE, SE

Unit 6	**25**	**Physiotherapy for high risk pregnancy, during labour & Postpartum complications** 6.1 Physiotherapy assessment and management for women with high risk pregnancy 6.2 Role of physiotherapy and pain coping strategies during labour, TENS in labour, Relaxation techniques, Breathing techniques and Massage. 6.3 PT management following normal vaginal delivery, caesarian section, episiotomy 6.4 Compensatory postural strategies of women during postpartum period and Physiotherapy in the management of postpartum mood disorders 6.5 Role of orthotics and assistive devices for musculoskeletal dysfunctions during postpartum period	✓ ✓ ✓ ✓	✓		20	LE, SE

Unit 7	**30**	**Physiotherapy management in Lactation, pelvic pain, female sexual dysfunctions, gynecological conditions and surgeries** 7.1 Education on Breast Feeding Positions 7.2 Physiotherapy for pelvic pain syndromes 7.3 Physiotherapy assessment and management of female sexual dysfunctions 7.4 Physiotherapy management for gynecological conditions 7.5 Pre and post physiotherapy management for gynecological surgeries	✓ ✓ ✓ ✓	 ✓ 		10	SE

REFERENCES

1. Augustus A White, Clinical biomechanics of spine , 2006
2. Rebecca Gourley Stephenson, Linda J. O'Connor, Obstetric and Gynecologic Care in Physical Therapy, 2000
3. Blandine Calais Garmain, Preparing for a gentle birth : the pelvis in pregnancy, 2012
4. Beate Carriere, Cynthia Markel Feldt, The Pelvic floor, 2006
5. Jean M Irion, Glenn L Irion, Women's Health in Physical Therapy, 2010
6. Stuart Porter, Tidy's physiotherapy, 15th ed., 2013
7. Ruth Sapsford, Joanne Bullock-Saxton, Sue Markwell. Women's Health: A Textbook for Physiotherapists, 1997
8. Jill Mantle, Jeanette Haslam, Physiotherapy in Obstetrics and Gynaecology- international edition, 2004
9. Polden M, Mantle J. Physiotherapy in Obstetrics and Gynaecology, 1994.
10. D.C Datta -Textbook of Gynaecology, 17th ed., 2016
11. D.C Datta -Textbook of Obstetrics, 17th ed., 2019

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SEMESTER-IV
Advanced Physiotherapy in Women's Health and OBG PT –A

Course Type: DSC Course Code: AH02PT4DSC1H

Credits: 3 Number of Hours: 45

Course Outcome

After completing the course, the students will be able to:

- Critically analyse the evidence-based PT practice in OBG conditions.
- Discuss the role of physiotherapy in lifestyle diseases and infertility
- Critically discuss the advanced PT techniques in various OBG conditions

UNIT	NO. OF HOURS	CONTENT	MUST KNOW	GOOD TO KNOW	DESIRABLE TO KNOW	WEIGHTAGE %	TYPE OF QUESTIONS
Unit 1	**10**	**Evidence-based PT practice in OBG disorders across life span** 1.1 Assessment and management of obstetric and gynecological diseases across the life span and recommendation of strategies for implementation of evidence-based practice assessment and management strategies	✓			40	SE
Unit 2	**10**	**Evidence-based Physiotherapy practice in lifestyle diseases** 2.1 Assessment and management of lifestyle diseases and recommendation of strategies for implementation of evidence-based practice assessment and management strategies	✓			20	LE, SE

Unit 3	**10**	**Physiotherapy in infertility** 3.1 Exercises to improve fertility, following IVF			✓	10	SE
Unit 4	**15**	**Physiotherapy using advanced techniques** 4.1 Urinary incontinence, PCOS, obesity-liposuction, bariatric surgery, menopause	✓			30	LE, SE

REFERENCES

1. Kamini A Rao, The Infertility manual, 5th ed., 2024

2. Michelle Tollefson, Nancy Eriksen, Neha Pathak, Improving Women's Health Across Lifespan, 2021

3. Paul Abrams, Linda Cardozo, Saad Khoury, Alan wein, Incontinence, 5th ed., 2013

Advanced Physiotherapy in Women's Health and OBG PT -B

Course Type: SEC

Course Code: AH02PT4SEC1H

Credits: 2

Number of Hours: 60

Course Outcome

After completing the course, the students will be able to:

- Evaluate critically the evidence-based PT practice in OBG conditions
- Demonstrate the role of physiotherapy in lifestyle diseases
- Critically evaluate the advanced PT techniques in various OBG conditions

Unit	No. Of hours	Content	Must Know	Good to Know	Desirable To know	Weightage %	Type of questions
Unit 1	**30**	**Evidence-based PT practice in OBG disorders across life span** 1.1 Assessment and management of obstetric and gynecological diseases across the life span and recommendation of strategies for implementation of evidence-based practice assessment and management strategies	✓			40	LE, SE
Unit 2	**20**	**Evidence-based Physiotherapy practice in lifestyle diseases** 2.1 Assessment and management of lifestyle diseases and recommendation of strategies for implementation of evidence-based practice assessment and management strategies	✓			30	LE, SE
Unit 3	**10**	**Physiotherapy using advanced techniques** 3.1 Urinary incontinence, PCOS, obesity-liposuction, bariatric surgery, menopause		✓		30	LE, SE

REFERENCES

1. Michelle Tollefson, Nancy Eriksen, Neha Pathak, Improving Women's Health Across Lifespan, 2021
2. Paul Abrams, Linda Cardozo, Saad Khoury, Alan wein, Incontinence, 5th ed., 2013

10. Teaching - Learning methods course-wise

Teaching - Learning method	Courses
Experiential learning	•
Integrated/Inter-disciplinary learning	•
Participatory learning	• Clinical Training-I • Clinical Training-II • Clinical Training-III • Clinical Training-IV
Problem-solving methodologies	• Clinical Training-I • Clinical Training-II • Clinical Training-III • Clinical Training-IV
Self-directed learning	
Patient-centric and Evidence-based learning	• Clinical Training-I • Clinical Training-II • Clinical Training-III • Clinical Training-IV
The Humanities	•
Project-based learning	Dissertation
Role-play	
Team-work	• Clinical Training-I • Clinical Training-II • Clinical Training-III • Clinical Training-IV
Reflective writing	
Any other	

11.Scheme of Examination

- Internal Assessment (Frequency, Pattern-Theory, and Practical)

a. Evaluation of a course shall be done based on continuous internal assessment (CIA) mode followed by semester end university examination (SEE) for each course.

b. The components of CIA (Continuous Internal Assessment) may include sessional tests, Seminar/ Journal Club/ Case Studies /Assignment and other activities as determined by the board of studies in the respective departments.

c. The marks for CIA shall be 50% and SEE shall be 50%.

d. Candidate should achieve **minimum 50% marks for CIA as well as SEE** for a pass, and the **minimum marks for CIA+SEE shall be 50% in aggregate for pass per course.**

e. There shall be examinations at the end of each semester ordinarily during February/March for odd semesters and August/September for even semesters

f. The SEE duration shall be two and half hours.

Continuous Internal assessment format (Distribution of marks)	
Continuous Internal assessment (IA) components	**Maximum Marks**
Average of two IA Exams	20
Case Studies/Seminar/Assignments/Quizzes etc	30
Total Marks	**50**

- University Examination (Pattern-Theory, and Practical)

- Departmental examination, if any (Ability Enhancement Courses/ Value Added Courses)

12. Eligibility to appear for University Examination

Students should have secured 50% in CIA and must have not less than 80% of attendance in Theoretical, Practical and clinical practice.

13. Criteria for passing

a. A candidate shall be declared to have passed the PG program if he/she secures atl east CGPA of 5.0 (Course Alpha-Sign Grade P) in the aggregate of both internal assessment and semester end examination marks. The candidates who pass all the semester examinations in the first attempts in Two years are eligible for ranks provided they secure at least a CGPA of 8.0 (atleast AlphaSign Grade A).

b. The results of the candidates who have passed the fourth semester examination but not passed the lower semester examinations shall be declared as NCL (Not Completed Lower semester examinations). Such candidates shall be eligible for the degree only after completion of all the lower semester examinations.

c. A candidate who passes the semester examinations in parts is eligible for only CGPA and Alpha-Sign Grade but not for ranking.

d. A candidate who fails in any of the project work/project report/dissertation shall reappear for the same and pass the examination subsequently within the nearest semester and examination schedule.

Carry over provision:

Carry over shall be allowed to the candidates up to IV semesters.

14. Grading and Classification

The results at the end of the fourth semester shall be classified on the basis of CGPA obtained in the four semesters and the corresponding overall letter grade. The letter grade as described below shall be adopted.

Letter Grade	CGPA Range
O+(Outstanding)	9.0–10.0
O(Excellent)	8.0–8.99
A+(Very Good)	7.0–7.99
A(Good)	6.0–6.99
B+(Average)	5.5–5.99
P(Pass)	5.0–5.49
F(Fail)	<5.0

15. Declaration of Class

1. The class shall be awarded on the basis of Cumulative marks scored in all the Courses
2. First Class with Distinction= Aggregate Marks 75% and above
3. First Class = Aggregate Marks 60 to 74.9%
4. Second Class= Aggregate Marks 50 to 59.9%

16. Logbook/Portfolio (if applicable)

Attached in annexure.

17. Recommended books (In Vancouver style)

17.1 Mostrom E, Jensen GM. Handbook of Teaching and Learning for Physical Therapists. 3rd edition; Elsevier, Philadelphia, USA, 2012.

17.2 Shepard KF, Jensen GM. Handbook of Teaching for Physical Therapists. 2nd edition; Butterworth-Heinemann Ltd, USA, 2002.

17.3 Fairchild S, O'Shea R. Pierson and Fairchild's Principles & Techniques of Patient Care. 7th edition; Elsevier, Philadelphia, USA, 2022.

17.4 Haddad A, Doherty R, Purtilo R. Health Professional and Patient Interaction. 10th edition; Elsevier, Philadelphia, USA, 2023.

17.5 Raja K, Davis F, Sivakumar T. Ethical Issues: Perspectives for the Physiotherapists. 1st ed edition; PeePee Publishers and Distributors Pvt, New Delhi, India, 2006.

17.6 Gabard D L, Martin M W. Physical Therapy Ethics. 2nd edition; F.A. Davis Company, Philadelphia, USA, 2010.

17.7 WMA Declaration of Helsinki – Ethical principles for medical research involving human subjects, October 2013. https://www.wma.net/policies-post/wma-declaration-of-helsinki-ethical-principles-for-medical-research-involving-human-subjects/

17.8 National Ethical guidelines for Biomedical and Health Research involving human participants. Indian Council of Medical Research; New Delhi, India, 2017

17.9 Beauchamp TL, Childress JF. Principles of Biomedical Ethics. 8th edition; Oxford University Press, London, UK, 2019.

17.10 Vaughn L. Bioethics: Principles, Issues, and Cases. 5th edition; Oxford University Press, London, UK, 2022.

18. Journals (In Vancouver style)

Nil

19. Any other information (Program paths and exit options, Semesters and breaks, Progression and Carryover, etc.)

19.1 Re-Entry after Break of the study:

a. Candidates admitted to the program abstaining for more than 3 months must seek readmission in to the appropriate semester.

b. The candidate shall follow the syllabus in vogue (currently approved/ is being followed) for the program.

c. All re-admissions of candidates are subject to the approval of the Yenepoya (Deemed to be University).

19.2 GUIDE

The academic qualification and teaching experience required for recognition by thisuniversity is as per the criteria for recognition of MPT teachers for guides.

Criteria for recognition of MPT teacher / guide

- MPT/ M.Sc. (PT) with four years teaching experience working on a full-timeposition at a recognized institution.
- The age of guide / teacher shall not exceed 60 years.
- The guide student ratio shall be 1:5

Change of Guide

In the event of registered guide leaving the college for any reason or in the event of death of guide, guide may be changed with prior permission from the university.

19.3 Evaluation of dissertation

- Every candidate pursuing MPT degree course is required to carry out work on a selected research project under the guidance of a recognized postgraduate teacher. The results of such a work shall be submitted in the form of dissertation. The topic of research shall be from the area of the elective paper.
- The dissertation is aimed to train a graduate student in research methods and techniques. It includes identification of a problem, formulation of a hypothesis search and review of literature getting acquainted with recent advances, designing of a research study, collection of data, critical analysis, and comparison of results and drawing conclusions.
- Every candidate shall submit to the Controller of Examination of university in the prescribed proforma a synopsis containing particulars of proposed dissertation work within 9 months from the date of commencement of the course on or before the dates notified by the university. The synopsis shall be sent through the proper channel. Such synopsis will be reviewed, and the university will register the dissertation topic.

- No change in the dissertation topic or guide shall be made without prior approval of the university. Guide will be a facilitator, advisor of the concept and hold responsible in correctly directing the candidate in the methodology and not responsible for the outcome and results.

20. Annexures

- Blueprint for Theory and Practical Examination
- Question paper layout for theory examinations

Question Paper Pattern

COURSES HAVING MAXIMUM MARKS= 50				**Duration**
Type of question	**Number of questions**	**Marks for each question**	**Total**	
LONG ESSAY TYPE	02	15	30	150 min
SHORT ESSAY TYPE	02	10	20	
Total			**50**	

COURSES HAVING SECTION A & SECTION B [25 + 25 = 50] MARKS]				**Duration**
Type of question	**Marks for each question**	**Number of questions**	**Total**	
LONG ESSAY TYPE	15	Part A – 01 Part B – 01	15 15	150 minutes
SHORT ESSAY TYPE	10	Part A – 01 Part B – 01	10 10	
		Total	**50**	

Practical Examination:

Sl. No.	Components	Marks
1	OSPE/OSCE	15
2	Case Based/Scenario Based	20
3	Viva Voce	15
Total Marks		50

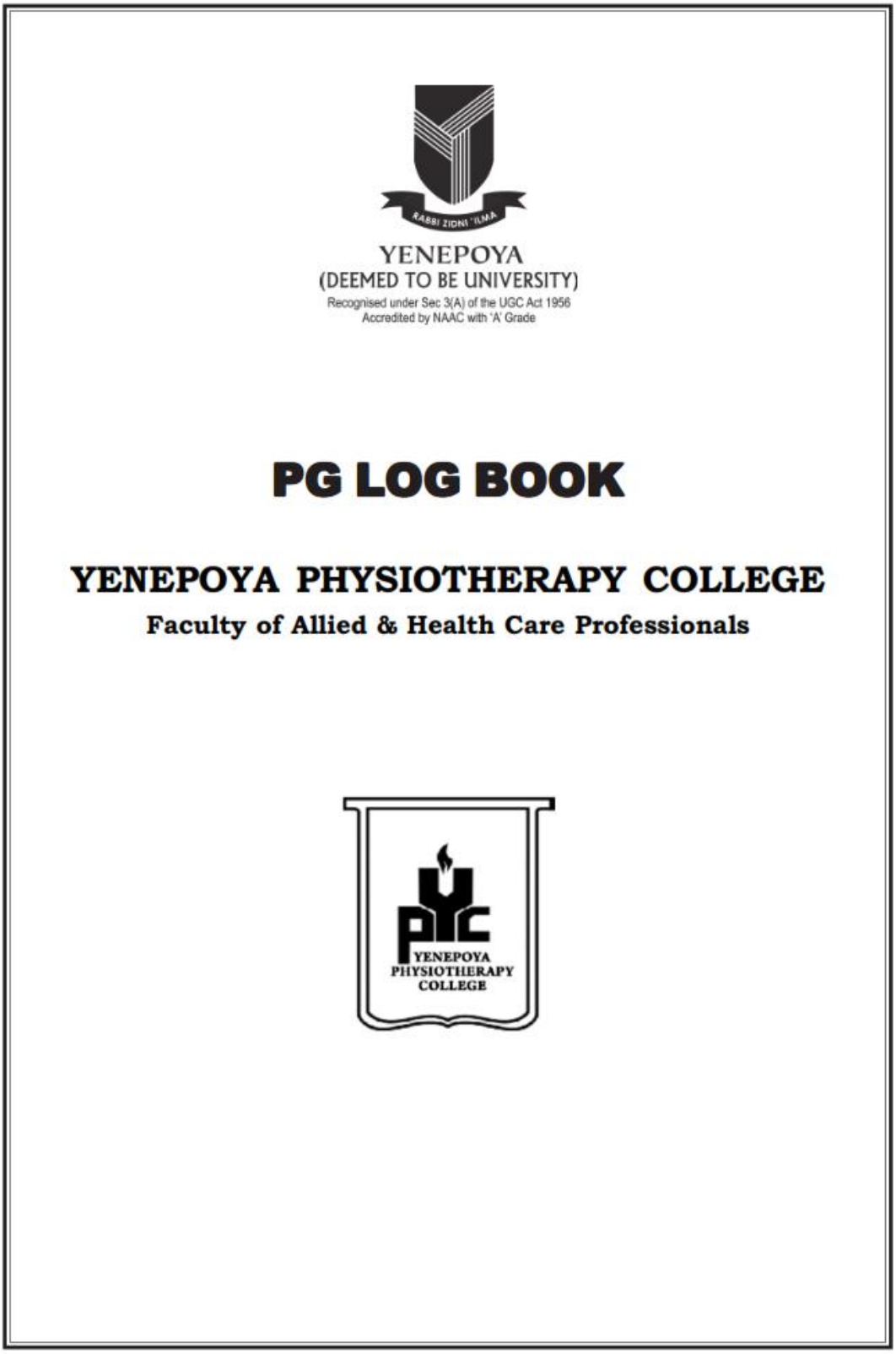
PARTICULARS OF PRACTICAL & VIVA-VOCE

a) Practical examination will be aimed at examination of clinical skills and competence of the candidates for undertaking independent work as a specialist.

b) Viva-Voce examination shall aim at assessing depth of knowledge, logical reasoning, confidence &oral communication skills.

c) OSCE/OSPE-shall have minimum of 3 stations.

- **Logbook template (if applicable)**



YENEPOYA
(DEEMED TO BE UNIVERSITY)
Recognised under Sec 3(A) of the UGC Act 1956
Accredited by NAAC with 'A' Grade

PG LOG BOOK

YENEPOYA PHYSIOTHERAPY COLLEGE

Faculty of Allied & Health Care Professionals

YENEPOYA
PHYSIOTHERAPY
COLLEGE

AIMS AND OBJECTIVES

To create an environment for the generation of new knowledge through meaningful research adhering to ethical standards.

To provide quality care to the patient based on agreed and established clinical standards.

To communicate clearly and effectively with patients and work as effective members of the health care team.

To extend the knowledge acquired and generated for the development of the community in health care management.

SCOPE OF THE POSTGRADUATE PROGRAM

Critically evaluate approaches to Physiotherapy care and increase the practical skill in chosen areas. Gain an understanding of clinical audit in applied Physiotherapy and to develop the ability to initiate change and lead in the development of their profession through research. To upgrade their communicating skills and develop their ability as life-long learners.

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GRADUATE ATTRIBUTES – MPT

Knowledge : The student must demonstrate comprehensive knowledge and understanding of curricular content over and above that of a graduate.

Communication : Students must be able to communicate quickly, effectively and efficiently in oral and written English with all members of the health care team.

Analyse & Critical Thinking : Post graduate student should be able to analyse, critically appraise, draw relevant assumptions or implications, formulate arguments, and formulate a scientific approach to knowledge development.

Problem Solving : Students must demonstrate capacity to extrapolate theoretical knowledge and apply competencies gained to solve non- familiar problems, complex problems and real life situations.

Awareness of moral, ethical and legal issues : Students must demonstrate moral /ethical values in conduct, awareness of ethical issues related to patient care, work practices, refraining from malpractice, unethical behaviour, falsification, plagiarism, misinterpretation of data, non-adherence to intellectual property rights, adhering to truthful, unbiased actions in all aspects of work without discrimination based on age, race, gender, sexual preference, disease, mental status, lifestyle, opinions or personal values.

Lifelong Learning : Students must demonstrate ability to acquire knowledge and skills through ongoing learning, participation in continuous education programs, engaging in self-paced, self-directed learning aimed at personal development, meeting social and cultural objectives, skill development, adapting to changing environment and workplace requirements and challenges.

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Name :

Address :

Batch :

Semester/Year :

Register No : Campus ID :

Email : Phone no: Student :

Parent :

Qualifications :

Institute	University	Year of passing

Work Experience (If any)

Institute	From	To

5

Teaching & Learning Activities

Activities	Total
Seminars*	
Clinical Presentation # (Bedside)	
Special Clinics	
Journal Presentation* / Journal Club	
Case presentation°	
Pedagogy * / UG teaching	
Community Work / Camp / Field Visits	
Continuing Physiotherapy Education (CPE) / Workshops / Conference Attended	
Paper / Poster presented at any conference	
Publications	
Swayam / MOOC courses attended	

* Minimum of 2 required at the end of each semester

° Minimum of 1 required at the end of each semester

Minimum of 4 required at the end of each semester

Paper / Poster presented (Minimum1 in 2 years)

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CLINICAL POSTING

SEMESTER- I

Ward	Date of Posting	Signature of Ward Incharge
OPD		
ORTHO (Unit I, II,III)		
General Medicine / Pulmonary Medicine / ENT		
Neurology / Neurosurgery		
General Surgery / Urology / Oncology / Radiology		
ICU		
PEDIATRICS		
OBG		
Geriatric		
Ayush Campus Kinya		
Community / External Posting		
Any Special Ward Posting Eg. COVID Ward etc		

- **Any other Checklists/Formats for assessment**

Yenepoya Physiotherapy College, Yenepoya (Deemed to Be University)

Check List-2

Model Check-List for Evaluation of Seminar Presentations

Name of the Student : ……

Name of the Faculty / Moderator: ……

Date : ……

SI.No	Items for observation during Presentation	Poor (0)	Below Average (1)	Average (2)	Good (3)	Very Good (4)
1.	Whether other relevant Publications Consulted					
2.	Whether cross references have been Consulted					
3.	Completeness of Preparation					
4.	Clarity of Presentation					
5.	Understanding of subject					
6.	Ability of answer questions					
7.	Time Scheduling					
8.	Appropriate use of Audio-Visual aids					
9.	Overall Performance					
10.	Any Other Observations					
	Total Score					

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Yenepoya Physiotherapy College, Yenepoya (Deemed to Be University)
Master of Physiotherapy-Journal Presentation Marking Grid

Student's Name: **Evaluator's Name:**

Area & National Weightage	0-1.5 Marks (Unacceptable)	2-4.5 Marks (Poor)	5-5.5 Marks (Satisfactory)	6-7 Marks (Good)	7.5-10 Marks (Excellent)	Marks Awarded
Source & Relation of the Selected Article & Timely Circulation (10%)						____x 1
Introduction, Literature Review & Objectives (10%)						____x 1
Methodology (10%)						____x 1
Results & Interpretations (10%)						____x 1
Discussion & Conclusion (10%)						____x 1
Critical Appraisal (20%)						____x 2
Presentation (20%)						____x 2
Journal Club Discussion (10%)						____x 1
Comments						Total Marks for 100

Date of Case Presentation:

Signature of the Evaluator:

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Yenepoya Physiotherapy College, Yenepoya (Deemed to Be University)
Master of Physiotherapy-Case Presentation Marking Grid

Student's Name: **Evaluator's Name:**

Case Diagnosis:

Area & National Weightage	0-1.5 Marks (Unacceptable)	2-4.5 Marks (Poor)	5-5.5 Marks (Satisfactory)	6-7 Marks (Good)	7.5-10 Marks (Excellent)	Marks Awarded
Subjective Assessment (10%)						____x 1
Objective Assessment (10%)						____x 1
Discussion I Selection of Assessment (10%)						____x 1
Discussion II Interpretation & Evaluation (30%)						____x 3
Discussion III (Treatment Plan) (10%)						____x 1
Treatment / Evaluation (20%)						____x 2
Presentation (10%)						____x 1
Comments						Total Marks for 100

Date of Case Presentation:

Signature of the Evaluator:

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Yenepoya Physiotherapy College, Yenepoya (Deemed to Be University)

Master of Physiotherapy - Clinical Practice Grid

APPENDIX II: CLINICAL ASSESSMENT FORM

Physiotherapy Clinical Practice

Student Name: Date:

Clinical Speciality: Clinical Supervisor:

The distribution of marks

		Overall Score	Student's Score
Part I	Professionalism	4	
Part II	Communication	4	
Part III	Patient Assessment	24	
Part IV	Analysis	32	
Part V	Patient Treatment	32	
Part VI	Documentation	4	
	Total	100	

Criteria for assessment of clinical placement

Grade		Criteria
4	Excellent	Demonstrate excellent performance and fully achieved all the learning outcomes during the clinical placement. Do not require supervision and guidance most of the time to achieve level of independence in clinical practice.
3	Good	Demonstrate good performance and 75% of the learning outcomes achieved. Require minimal supervision and guidance to achieve level of independence in clinical practice.
2	Fair	Demonstrate satisfactory performance and 50% of the learning outcomes achieved. Require moderate supervision and guidance to achieve level of independence in clinical practice.
1	Poor	Demonstrate poor and inconsistent performance and only 25% of the learning outcomes achieved. Require a lot of supervision and guidance to achieve level of independence in clinical practice.
0	Very Poor	Demonstrate very poor performance or have not achieved the learning outcomes. Require maximum supervision and guidance to achieve level of independence in clinical practice

Mark according to the criteria for assessment above, put a tick (√) on the appropriate column for each learning outcome

PART I: Professionalism					
Learning outcome By the end of this placement the student will able to:	Very Poor 0	Poor 1	Fair 2	Good 3	Excellent 4
Demonstrate appropriate professional behaviours and attitudes - maintain proper professional attire and behaviour while dealing with patients - take responsibility for their own patients - maintain patient confidentiality (comply with best practice in this area) -					
TOTAL:					

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CLINICAL HANDBOOK FOR STUDENTS

PHYSIOTHERAPY CLINICAL PRACTICE I

PART II: Communication						
	Learning outcome By the end of this placement the student will able to:	Very Poor 0	Poor 1	Fair 2	Good 3	Excellent 4
1	**Communicate effectively with the patient and /or family/carer** - demonstrate an appropriate level of confidence in approaching patients and establishes a rapport with patients and /or family/carer - aware of and demonstrate appropriate verbal and non-verbal skills and listening skills in interactions with patients and /or family/carer - explain clearly the basic aspects of management and care to patient and /or family/carer - respect the rights, dignity and individuality of the patient and /or family/carer					
	TOTAL:					
PART III: Patient Assessment						
	Learning outcome By the end of this placement the student will able to:	Very Poor 0	Poor 1	Fair 2	Good 3	Excellent 4
1	**Retrieve relevant information from available sources** - select relevant information from available sources prior to initiation of assessment - integrate this information into the subsequent assessment					
2	**Perform a subjective examination** - Obtaining consent before proceeding with the assessment - execute a logical, systematic and comprehensive interview to identify the patients' problems - use more open questions - generate pertinent information which inform the subsequent objective examination **- exhibit some flexibility in enquiry in response to patient cues**					
3	**Select appropriate physical examination procedures** - appropriately select assessment procedures according to the condition/diagnosis, severity of the condition, the physical needs of patient and psychosocial needs of patients - awareness of contraindications and precautions in the selection of assessment procedures - rationalise for the assessment procedures selected **- discuss the reliability and validity of the assessment procedure**					
4	**Perform an physical examination procedures safely** - explain purpose and format of objective assessment - identify and clear hazards in environment prior to and during assessment - maintain appropriately close proximity to patients during assessment **- monitor patient response to assessment and modifies / discontinues assessment where patient safety is at risk** - maintain a safe environment					
5	**Demonstrate appropriate handling skills in physical examination procedures for accuracy of findings** - position self optimally when executing the objective examination **- adhere to documented site policy on manual handling for the technique relating to accuracy in the skill** **- employ careful and reflective handling of patients during assessment** **- effectiveness of the skill employed for assessment to gain reliable & accurate findings relating to the patients condition and needs**					
6	**Ensure patient comfort and dignity during assessment** - position patients for their comfort and dignity during assessment - minimise physical and psychological stress during assessment - using appropriate touch during assessment					
PART IV: Analysis						
	Learning outcome By the end of this placement the student will able to:	Very Poor 0	Poor 1	Fair 2	Good 3	Excellent 4
1.	**Interpret the assessment findings** - identify salient points (problems) from assessment (impairments, dysfunction) - recognise typical patterns of clinical presentation in the case - provide a hypothesis for the provisional diagnosis for the case and discuss the variations in the clinical presentation of the case					

2.	**Evaluate assessment finding (I)** - assess the severity of the patient's condition - provide evidences from the clinical case for the suggested severity - provide scientific explanation for the suggested severity (pathophysiological, pathomechanical, psychosocial …) - suggest factors that limits patient's ability to continue or comply with assessment tasks and possible treatment tasks					
3.	**Evaluate assessment finding (II)** - suggest any other coexisting problems and complications to underlying pathology - provide evidences from the assessment findings of the clinical case - justify for the coexisting problems and complications of the underlying pathology (eg. suggest and explain factors that causes impairments, functional limitation)					
4.	**Evaluate assessment finding (III)** - formulate an appropriate problem list based on assessment findings and related basic sciences and clinical theory like pathophysiology & pathomechanics - **prioritise the problems of the patients**					
5.	**Set realistic goals** - use assessment findings to set appropriate short term & long term goals of treatment - Short term goals help in the achievement of the long term goals - Long term goals appropriate to the needs of the patient - Short and long term goals is holistic					
6.	**Plan a treatment programme** - use assessment findings to plan treatment - suggest / select appropriate treatments base on the evaluation of assessment findings - suggest/select appropriate treatments base that will achieve the short and long term goals					
7.	**Justify the treatment programme** *(general, not specific treatment techniques)* - able to explain the rationale for choice of treatment program to supervisor / patient based on the evaluation of assessment findings - demonstrate evidence of links between theory and practice - justify treatment programme using evidence based practice					
8.	**Prioritising the goals of treatment** - explain the importance of prioritising to achieve that specific goal/s - suggest the treatment to be used to achieve the prioritised goal/s					
	TOTAL:					

PART V: Patient Treatment						
	Learning outcome By the end of this placement the student will able to:	Very Poor 0	Poor 1	Fair 2	Good 3	Excellent 4
1.	**Justify the treatment prescribed for the condition** - select and justify the treatment techniques given for the patient based on the effect required to be achieved, condition and needs of the patient. - Explain the effect of the techniques based on scientific explanation - Justify the treatment prescribed based on the evidences of best practice					
2.	**Justify the treatment dosage prescribed for the condition** - select and justify the appropriate dosage of each treatment given for the patient based on the effect required to be achieved, condition and needs of the patient.					
3.	**Implement safe practice during treatment** - obtaining consent before proceeding with the treatment - check contraindications & precautions prior to treatment - check equipments conform to patients' needs - demonstrate safety in the use of equipment under supervision - ensure a safe environment during and after treatment - always give standard warnings and carry out checks					
4.	**Implement treatment program effectively** - position self optimally when treating patients - demonstrate the skill of selected basic treatment techniques accurately & effectively ***- implement clinical /treatment instructions appropriately and clearly*** ***- demonstrate careful and reflective handling of patients during treatment*** ***- modify the handling of the skill according to the condition of the patient*** ***- effectiveness of the skill employed for treatment***					
5.	**Evaluate the effects of each treatment** - measure clinical outcome for own patients using defined subjective and objective markers ***- appropriately assess patient response to treatment techniques***					

6.	**Educate patient appropriately** - teach aspects of management and care to patients/carers in an effective manner for remedial care and for prevention of complications - write down instructions e.g. home exercise programs for patients - teach patients the safe use of selected aids and equipment e.g. walking aids					
7.	**Progression of treatment** - identify clinical indications for progression of treatment - suggest the technical methods of progressing the treatment - justify the technical methods of progressing treatment					
8.	**Evaluate the effects of the treatment program** - select appropriate outcome measure/s appropriate to the condition and the needs of the patient to assess the holistic effect of the treatment program. - ***justify the selected outcome measure/s based on evidences on its validity and reliability***					
	TOTAL:					
PART VI: Documentation						
	Learning outcome By the end of this placement the student will able to:	Very Poor 0	Poor 1	Fair 2	Good 3	Excellent 4
1	**Document a comprehensive and appropriate database showing evidence of clinical reasoning** - follow a systematic approach to writing the database using SOAP - include all components of a database relevant to the patient - include all components of the POMR format in all notes - record subjective and objective findings in a logical manner using SOAP notes - document analysis of assessment and treatment concisely, briefly, clearly and informatively. - use appropriate terminology / abbreviations					
	TOTAL:					

Clinical Supervisor's Signature: Date: