



**FUTURE
UNIVERSITY**
Learn. Associate. Transcend.

RECOMMENDED COMPOSITION OF THE BOARD OF STUDIES AND ITS FUNCTIONS

I. Composition:

1. Head of the Department/School concerned (Chairman)
2. The entire faculty of each specialization.
3. Two Academic experts in the subject from outside the University dually approved by Vice Chancellor
4. One representative from allied area relating to placement
5. Two UG/ PG meritorious students.

II. Term:

The term of the nominated members shall be one year.

III. Meeting:

The chairman of BoS shall draw the schedule for meeting of the Board of Studies. The meeting may be scheduled as and when necessary, but at least once a year.

IV. Functions:

The Board of Studies of a department in the college shall:

- (a) Prepare syllabi for various courses keeping in view the objectives of the college, interest of the stakeholders and national requirement for consideration and approval of the Academic Council;
- (b) Suggest methodologies for innovative teaching and evaluation techniques;
- (c) Suggest panel of names to the Academic Council for appointment of examiners; and
- (d) Coordinate research, teaching, extension and other academic activities in the department/college.

[Signature]
Chairman (Bareilly)

[Signature]

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Academic Council
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Minutes of the Board of Studies Meeting

Name of Faculty: Faculty of Nursing & paramedical Sciences

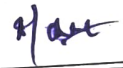
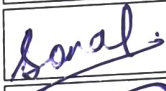
Date: 06/09/2025

Time: 11.00 AM

Venue: Conference Room Future University

Chairperson:

Panel Of BOS Attendees:

Sr. No.	Name	Designation	Position	Signature
1	Prof. Shamshad Alam	Professor	Chairperson	
2	Prof. Sonal Syal	Professor	Member	
3	Prof. Imran Khan	Professor	Member	
4	Dr. Sakshi Bhatnagar	Assot. Prof.	Academic Expert (External Member)	
5	Dr. Neha Singh	Assot. Prof.	Clinical Expert (External Member)	
6	DR. Pankaj Mishra	PVC	Special Guest	

Agenda Items Discussed

1. Implementation of the NEP & UNIVERSITY POLICY

The Chairperson initiated discussions on the implementation of the university Policy. Members unanimously agreed on the steps needed to align the university's curriculum and policies with the guideline.

2. Adoption of the NEP Credit Framework and Guidelines:

The Credit Framework and its detailed guidelines were reviewed and adopted. The framework will be implemented BPT programs starting from the upcoming academic session 2025-26.

3. Curriculum Design for 4-year B. P.T Programs (Annexure 1):

The panel discussed and finalized the curriculum structure for 4-year B.P.T. programs as per guidelines (Annexure 1)

4. B.P.T Attributes as per Curricular & Credit Framework Guidelines for Programs:

The Course attributes were discussed, and confirmation was given to align them with the curricular and credit framework guidelines. This will ensure that the students meet the intended learning outcomes.

5. Minimum Credit Requirements for Degree Award (Annexure 2):

The minimum credit requirements for each category of degree programs were discussed and approved as per guide line Annexure 2.

6. Letter Grades and Grade Points (Annexure 3):

The panel confirmed the adoption of letter grades and grade points based on the grading system outlined in Annexure 3.

7. Computation of SGPA and CGPA (Annexure 4):

The method for calculating SGPA (Semester Grade Point Average) and CGPA (Cumulative Grade Point Average) was reviewed, and Annexure 4 was approved for implementation.

8. Vision & Mission of Faculty/Department:

The vision and mission statements of the respective faculties and departments were discussed and finalised . (Annexure -5)

9. Proposed Syllabus & Course Curriculum for 2025-26 (Bachelor of physiotherapy (BPT) programme):

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CSaleel Bhattacharya

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The syllabus and course curriculum for the academic session 2025-26 were reviewed and recommended for approval. Members emphasized the need to integrate skill-based learning.

10. Internship structure and clinical posting schedule.

Approved the structured 6 month internship plan and rotation schedule.

11. Benchmarking with Reputed Institutes in India and Abroad:

A comparative analysis of the curriculum with reputed institutes in India and abroad was discussed. The panel agreed on incorporating global best practices to enhance the curriculum quality.

12. Any Other Points with the Permission of the Chairperson:

No additional points were raised. The meeting was adjourned with the conclusion that the approved changes would be implemented in the forthcoming academic session.

Action Items:

- Ensure the timely implementation of all approved agendas.
- Review of the revised vision and mission statements in the next meeting.

The meeting concluded at office with a vote of thanks by the Chairperson.

Chairperson's Signature:

[Signature]

Professor, []

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Academic Expert (External Member) Name,

Dr. Sakshi Bhattacharya

Clinical Expert (External Member) Name,

Dr. Neha Singh

Internal Members Name,

Affiliation and Signature:

[Signature]

Affiliation and Signature:

[Signature]

Affiliation and Signature:

Annexure 01

Skill Component in the Curricular Design for Four Year Undergraduate Program (FYUGP)

S. No	Broad category of Course	Minimum Credit Requirement	Minimum Credit Requirement	
		3-year UG	4-year UG	
1	Major (Core)	60	80	Upto 50% of these could be from Skill based Courses
2	Minor Stream can be 2	12+12	16+16	These may also be skill based courses
3	Multi-disciplinary	9	9	
4	Ability Enhancement course	8	8	
5	Skill Enhancement Course	9	9	These are Employability Skills/ Soft Skills. Life Skills
6	Value added course common for all UG	6-8	6-8	
7	Summer internship	2-4	2-4	
8	Research Project/ Dissertation	-	12	
	TOTAL	120	160	

Annexure 02

S. No.	Broad Category of Course	Minimum Credit Requirement	
		3-year UG	4-Year UG
1	Major (Core)	60	80
2	Minor Stream	24	32
3	Multidisciplinary	09	09
4	Ability Enhancement Courses (AEC)	08	08
5	Skill Enhancement Courses (SEC)	09	09
6	Value Added Courses common for all UG	06 - 08	06 - 08
7	Summer Internship	02 - 04	02 - 04
8	Research Project / Dissertation	-	12
	Total	120	160

Dr. Anil Kumar
Chairman

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Annexure 03

Letter Grade	Grade Point
O (outstanding)	10
A+ (Excellent)	9
A (Very good)	8
B+ (Good)	7
B (Above average)	6
C (Average)	5
P (Pass)	4
F (Fail)	0
Ab (Absent)	0

When students take audit courses, they may be given pass (P) or fail (F) grade without any credits.

Dr. Ravi
(Dr. Ravi Shrivastava)

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Annexure 04

7.2. Computation of SGPA and CGPA

The UGC recommends the following procedure to compute the Semester Grade Point Average (SGPA) and Cumulative Grade Point Average (CGPA):

- i. The SGPA is the ratio of the sum of the product of the number of credits with the grade points scored by a student in all the courses taken by a student and the sum of the number of credits of all the courses undergone by a student, i.e.

$$SGPA (S_i) = \sum (C_i \times G_i) / \sum C_i$$

Where C_i is the number of credits of the i^{th} course and G_i is the grade point scored by the student in the i^{th} course.

Example for Computation of SGPA

Semester	Course	Credit	Letter Grade	Grade point	Credit Point (Credit x Grade)
I	Course 1	3	A	8	3 X 8 = 24
I	Course 2	4	B+	7	4 X 7 = 28
I	Course 3	3	B	6	3 X 6 = 18
I	Course 4	3	O	10	3 X 10 = 30
I	Course 5	3	C	5	3 X 5 = 15
I	Course 6	4	B	6	4 X 6 = 24
		20			139
		SGPA			139/20=6.95

- ii. The Cumulative Grade Point Average (CGPA) is also calculated in the same manner taking into account all the courses undergone by a student over all the semesters of a programme, i.e.

$$CGPA = \sum (C_i \times S_i) / \sum C_i$$

where S_i is the SGPA of the i^{th} semester and C_i is the total number of credits in that semester.

Example for Computation of CGPA

Semester 1	Semester 2	Semester 3	Semester 4	Semester 5	Semester 6
Credit: 21 SGPA: 6.9	Credit: 22 SGPA: 7.8	Credit: 25 SGPA: 5.6	Credit: 28 SGPA: 6.0	Credit: 26 SGPA: 6.3	Credit: 25 SGPA: 8.0

Sauri
(Sauri Bhambhani)

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Budget: Board of Studies

Name of Faculty: Paramedical sciences

S. No	Particulars	Amount	Pack	Total
1	Remuneration	5000 (including TA for Local) (otherwise 5000 + TA)	02	10000
2	Lunch	500	02	500
3	Snacks	100	02	200
4	Miscellaneous			100
			Grand Total	10800/-

Chairperson

Chairman
Chairman

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Faculty of Paramedical sciences

Vision Statement

To be a leading faculty of Paramedical sciences recognized globally for excellence in producing knowledgeable competent graduate nurse with clear critical thinking skills responding to the changing needs of profession, health care delivery system and society.

Mission Statement

1. Utilize critical thinking to synthesize knowledge derived from physical, biological, behavioral sciences, and humanities, in the practice of health professional .
2. Provide promotive, preventive and restorative health services in line with National Health Policies and programs.
3. Integrate professional caring into practice decisions that encompass values, ethical, and moral and legal aspects of Physiotherapy
4. Apply concepts of leadership, autonomy and management to the practice of Physiotherapy to enhance quality and safety in health care.
5. Integrate research findings and Physiotherapy theory in decision making in evidence-based practice.

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Clare (Bhulien)

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Board of Studies

Name of Faculty: Faculty of Nursing & Paramedical sciences

(Paramedical Sciences)

Attendance Sheet

Sr. No.	Name	Designation	Position	Signature
1	Prof. Shamshad Alam	Professor	Chairperson	<i>[Signature]</i>
2	Prof. Sonal Syal	Professor	Member	<i>[Signature]</i>
3	Prof. Imran Khan	Professor	Member	<i>[Signature]</i>
4	Ms. Karishma Saxena	student	Member	
5	Ms. Mansi Belwal	student	Member	<i>[Signature]</i>
6	Dr. Sakshi Bhatnagar	Assot . Prof.	Academic Expert (External Member)	<i>[Signature]</i>
7	Dr. Neha singh	Assot . Prof.	Clinical Expert (External Member)	<i>[Signature]</i>
8	DR. Pankaj Mishra	PVC	Special Guest	

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Chairperson

(Prof. Shamshad Alam)

[Signature]
(Dr. Sakshi Bhatnagar)

[Signature]

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Bachelor of Physiotherapy (BPT)

Academic Programme

Duration: 4years & 6 months internship

Curriculum and Syllabus
(Based on Choice Based Credit System)
Effective from the Academic year
2025-2026

Curriculum and Syllabus
(Based on Choice Based Credit System)
Effective from the Academic year
2025-2026

1. INTRODUCTION

The Bachelor of Physiotherapy (BPT) undergraduate degree course is a 4-year and 6 months (8 semesters & 6 months internship) fulltime program. The program is generic in nature and has a component of additional learning of one area leading to another area with choice based study in the final year to focus the career development based on his/her interest. The program focuses on overall development of the student including language and soft skill, emergency care and professional ethics. Psychosomatic aspects of training are a component through all the areas.

Objectives:

At the end of the BPT programme, the graduate shall:

- Acquire the knowledge of foundation courses like Human Anatomy, Human Physiology, Exercise Therapy and Electrotherapy along with the basic medical subjects which will provide a strong foundation for their practice of Physiotherapy.
- Develop the required skills & techniques of physiotherapy to assess & treat various physical and functional disorders of the human body.
- Acquire the attitude to practice the profession with moral and ethical values.
- Have the interests for providing physiotherapy services to the needy in the community. Inculcate the various skills in patient care handling including communication skills, confidence, clinical reasoning, counseling and research.

2. DURATION OF COURSE:

- BPT course will be a full time course.
- Duration will be four years followed by compulsory six months rotator internship.
- This course shall be divided into four professional examinations namely BPT Part-1 at the end of first academic year, BPT Part-II at the end of second academic year, BPT Part-III at the end of third academic year, BPT Part-IV at the end of fourth academic year,

Dr. S. S. S. S. S.
(Dr. S. S. S. S. S.)

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3. EXAMINATION:

- There shall be an university examination at the end of each academic semester in the form of theory papers and practical examinations. The candidate shall be required to appear in every subject as specified in the course structure for each semester.

A	Theory Course	Marks
	End Semester Exam	70
	Mid Semester Exam	20
	Teachers Assessments -Assignments, quizzes, presentation etc	10
	Total	100
B	Practical/Laboratory courses	
	End Semester External Exam	50
	End Semester Internal Exam	50
	Practical's performance (Experiment)	30
	Viva	10
	File Record	5
	Attendance	5
	Total	100
C	Dissertation /Thesis /Projects	
	Assessment by internal Examiner	50

4. ATTENDANCE

No student shall be considered to have pursued a regular course of study and be eligible to take examination unless he/she has attended 75% of the total number of lectures, tutorials, seminars and practical conducted in each semester, during his/her course of study. Under special circumstances, the Head/Director of Institute or University may allow students with at least 65% attendance to take the examination. It will be the student's accountability to ensure a minimum of 70% attendance in Theory and Practical Papers. It is compulsory for the students to appear and attempt all Theory, seminar and Practical Papers for evaluation of their final result. Student will have to obtain a minimum of 45% Credit Points/marks in all Theory and Practical Paper examination respectively. This criterion will be pertinent to the both calendar years and subjected to examination schedule of Future University.

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5. EXAMINATIONS AND ASSESSMENT

1. The examination for the BPT degree will consist of both formative and summative pattern: Written assignment as required or stipulated by the teacher, Clinical, oral, and practical examinations as the case may be.
2. For the course subjects, two internal assessment examinations (one periodical & one preliminary examination) shall be conducted by the faculty at specified intervals, during the course of the semester, will be calculated and simplified for 20% of the final total of the University marks and submitted to the Head of the institution for including in the University examination.
3. For the Supervised Clinical/Practical Training of the respective semester, student should complete the assignments, records, journals, case submissions, case presentations, as applicable per subject.

The SPT/SCT shall carry 5 marks and submitted to the Head of the institution for including in the University practical examination.

4. Student should pass in the Internal Assessment exams with 35% to appear for the University examinations. Continuous clinical assessment will be carried out throughout the semester.

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(Jaust Bhadwaj)

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6. CRITERIA FOR PASSING

- Obtaining a minimum of P grade in each paper.
- A student may apply, within two weeks from the date of declaration of the result, for re- checking of the examination script(s) of a specific course(s) on the payment of prescribed fees. Re-checking shall mean verifying whether all the questions and their parts have been duly marked as per the question paper, and the totaling of marks. In the event of a discrepancy being found, the same shall be rectified through appropriate changes in both the result as well as marks-sheet of the concerned semester-end examination
- A student obtaining less than P Grade assigned to a course (paper) and failing in the course of ODD/EVEN Sem shall be allowed to re-appear in the same ODD/EVEN end semester examination of the course in a subsequent semester(s).
- The marks obtained by such out of teacher(s) continuous evaluation component shall remain unchanged.

The University reserves the right to amend these regulations from time to time to meet the changing needs & requirements of the Course.

Grade Points:

The successful candidates will be placed in a 10-point grading system with the following letter grades as given below will:

No	Letter Grade	Grade Point
1	O (Outstanding)	10
2	A+ (Excellent)	9
3	A (Very Good)	8
4	B+ (Good)	7
5	B (Above Average)	6
6	C (Average)	5
7	P (Pass)	4

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Dr. S. S. Chakraborty
Classical Pharmacology

6. CRITERIA FOR PASSING

- Obtaining a minimum of P grade in each paper.
- A student may apply, within two weeks from the date of declaration of the result, for re-checking of the examination script(s) of a specific course(s) on the payment of prescribed fees. Re-checking shall mean verifying whether all the questions and their parts have been duly marked as per the question paper, and the totaling of marks. In the event of a discrepancy being found, the same shall be rectified through appropriate changes in both the result as well as marks-sheet of the concerned semester-end examination
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6	C (Average)	5
7	P (Pass)	4

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8	F (Fail)	0
9	AB (Absent)	0

- A student obtaining Grade 'F' shall be considered failed and will be required to reappear in the Examination.
- For non-credit courses 'Satisfactory' or 'Unsatisfactory' shall be indicated instead of the letter grade and this will not be counted for the computation of SGPA/CGPA.

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Satish
(Satish Bhatia)

Neeraj

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B.P.T-Bachelor of Physiotherapy**CURRICULUM****Total No.of Credits: 200****I Semester**

Category	Code	Course	Hours/Week			Credits
			Lecture	Tutorial	Practical	
Core	BPT1101	Psychology & Sociology-Theory	4	0	0	4
Core	BPT1102	Anatomy-I Theory	4	0	0	4
Core	BPT1103	Physiology-I-Theory	4	0	0	4
Core	BPT1170	Anatomy-I Viva	0	0	2	2
Core	BPT1171	Physiology-I Viva	0	0	2	2
Elective	UCC1101	IKS-I(Indian Knowledge System)	1	0	0	1
Elective	BPT1104	DSE Elective-I-Theory	3	0	0	3
Total			16	0	4	20

IISemester

Core	BPT1201	Orientation in PT & First Aid-Theory	4	0	0	4
Core	BPT1202	Anatomy-II Theory	4	0	0	4
Core	BPT1203	Physiology-II-Theory	4	0	0	4
Core	BPT1272	Anatomy-II Viva	0	0	2	2
Core	BPT1273	Physiology-II Viva	0	0	2	2
Elective	UCC1201	AI for Everyone	3	0	0	3
Elective	BPT1204	GE Elective-I- Theory	3	0	0	3
Total			18	0	4	22

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III.Semester

Core	BPT2301	Clinical Medicine & Pharmacology-Theory	4	0	0	4
Core	BPT2302	Exercise Therapy-I- Theory	4	0	0	4
Core	BPT1374	Exercise Therapy-I- Practical	0	0	2	2
Core	BPT2303	Electrotherapy-I-Theory	4	0	0	4
Core	BPT1375	Electrotherapy-I- Practical	0	0	2	2
Core	BPT2304	Biomechanics -I-Theory	4	0	0	4
Elective	BPT2305	GE Elective-II-Theory	4	0	0	4
Total			20	0	4	24

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IV Semester

Core	BPT2401	Microbiology/Pathology–Theory	4	0	0	4
Core	BPT2402	Exercise TherapyII-Theory	4	0	0	4
Core	BPT1476	Exercise TherapyII-Practical	0	0	2	2
Core	BPT2403	Electrotherapy–II-Theory	4	0	0	4
Core	BPT1477	Electrotherapy–II- Practical	0	0	2	2
Core	BPT2404	Biomechanics II-Theory	4	0	0	4
Elective	BPT2405	AEC Elective-II–Theory	4	0	0	4
Total			20	0	4	24

V.Semester

Core	BPT3501	General Surgery , Plastic Surgery & burns-Theory	4	0	0	4
Core	BPT3502	Professional Ethics /Administration/ Marketing -Theory	4	0	0	4
Core	BPT3503	Evidence Based practice-Theory	4	0	0	4
Core	BPT3504	Principles of Bio Engineering–Theory	4	0	0	4
Core	BPT1578	Principles of Bio Engineering– Practical	0	0	2	2
Elective	BPT3505	DSE Elective-III–Theory	4	0	0	4
Total			20	0	2	22

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VI Semester

Core	BPT3601	Clinical Cardio – Pulmonary diseases– Theory	4	0	0	4
	BPT1679	Clinical Cardio – Pulmonary diseases– Practical	0	0	2	2
Core	BPT3602	Physiotherapy in Cardio pulmonary diseases– Theory	4	0	0	4
Core	BPT1680	Physiotherapy in Cardio pulmonary diseases– Practical	0	0	2	2
Core	BPT3603	Physiotherapy in OBG & Women health–Theory	4	0	0	4
Core	BPT1681	Physiotherapy in OBG & Women health– Practical	0	0	2	2
Core	BPT3604	Community Medicine– Theory	4	0	0	4
Elective	BPT3605	DSE Elective-IV–Theory	4	0	0	4
Total			16	0	4	20

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VII Semester

Core	BPT4701	Clinical Neurology & Psychiatry–Theory	4	0	0	4
Core	BPT1782	Clinical Neurology & Psychiatry– Practical	0	0	2	2
Core	BPT4702	Physiotherapy in Neurology –Theory	4	0	0	4
Core	BPT1783	Physiotherapy in Neurology- Practical	0	0	2	2
Core	BPT4703	Clinical orthopaedics & Traumatology-Theory	4	0	0	4
Core	BPT4704	Physiotherapy in Orthopaedics–Theory	4	0	0	4
Elective	BPT4705	SEC Elective-I–Theory	4	0	0	4
Total			20	0	8	24

VIII.Semester

Core	BPT4801	Community Based Rehab/ Disability Evaluation – Theory	4	0	0	4
Core	BPT1884	Community Based Rehab/ Disability Evaluation – VivaVoce	0	0	2	2
Practical	BPT4802	Clinical Reasoning in Physiotherapy management -Practical	0	0	4	4
Project	BPT4803	Project-Viva voce	0	0	10	10
Elective	BPT4804	DSE Elective-V–Theory	2	0	0	2
Elective	BPT4805	SEC Elective-II–Theory	2	0	0	2
Total			8	0	16	24

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CREDITS

Total Hours of Instruction (Lectures, Tutorial, Practicals, Viva Voice)-

180 Credits.

Internship Training Programme (6Months)-

20 Credits

GrandTotal -- 200 Credits

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List of Discipline Specific Elective Courses

BPT1104	English for communication	1 st Semester
BPT1204	Computer & its application in PT	2 nd Semester
BPT3505	Biostatistics/Research Methodology	5 th Semester
BPT3605	Ergonomics	6 th Semester
BPT4804	Clinical testing	8 th Semester

List of Generic Elective Courses

BPT2303	Cardiopulmonary resuscitation	3 rd Semester
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List of Ability Enhancement Compulsory Courses

UCC1104	IKS (Indian Knowledge System)	1 st Semester
UCC1201	AI for Everyone	2 nd Semester
BPT2405	Hospital Management	4 th Semester

List of Skill Enhancement Elective Courses

BPT4705	Computer Languages	7 th Semester
BPT4805	Effective English	8 th Semester

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Syllabus Core Courses

1stYear (1stSemester)

PSYCHOLOGY & SOCIOLOGY

Course Objectives:

The objective of this course is that after 100 hours of lectures, demonstrations, practical and clinics the student will be able to recognize and help with the psychological factors involved in disability, pain, disfigurement, unconscious patients, chronic illness, death, bereavement and medical – surgical patients/conditions. They should also understand the elementary principles of behavior for applying in the therapeutic environment.

Course Outcomes:

- The Course out come is to know about the
1. Psychosocial assessment of patients in various develops mental stages.
 2. Explain the concept of stress and its relationship to health, sickness and one's profession.
 3. Identify ego defense mechanisms and learn counseling techniques to help those in need.
 4. Help to understand the reason of non-compliance among patients and improve compliance behavior.
 5. Help them gain insight into the applications of psychology in the field of Physiotherapy.

UNIT I

PSYCHOLOGY

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1. DEFINITION OF PSYCHOLOGY

Basic information in relation to following school, Methods, and Branches.

(A) Schools : Structuralism, Functionalism, Behaviorism, Gestalt

psychology and psychoanalysis.

(B) Methods : Introspection, Survey, Observation and experimental method.

(C) Branches : Abnormal, Industrial, Educational, Child, Social, Clinical,

Counseling, Evolution of the Definition – Psychology

Application of psychology in physiotherapy.

2. HEREDITY AND ENVIRONMENT

Nature – Nurture controversy.

- Relative Importance of Heredity and Environment

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- Twins—Identical and Fraternal twins
- Internal and External environment.

3. DEVELOPMENT AND GROWTH BEHAVIOUR

Infancy to old age—36 developments (Physical, Cognitive, Socio-emotional)

(A) Babyhood

(B) Early, Middle, Late Childhood

(C) Adolescence

(D) Adulthood

(E) Middle Adulthood

(F) Old age

4. INTELLIGENCE

Definitions, IQ

3 types of Intelligence— Social, Mechanical and Abstract Intelligence

Various Intelligence tests—verbal & Nonverbal test, performance test.

5. MOTIVATION

The “Why” of Behavior, motives, Incentives and Reinforcement, motivation cycle.

Physiological and psychological Needs.

Primary needs—Hunger, Thirst, Air, Sleep, Sex Elimination Activity, Avoidance of pain, Safety & Security.

Secondary needs—Love and Affection, Self-esteem, Self-Actualization.

Abraham Maslow's Need hierarchy theory.

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UNIT II

1. EMOTIONS

Definition, Importance of Emotion, Differentiate from feelings. Emotion and nervous system. Types of Emotion – Primary and Mixed Emotions.
Theories of Emotion (James-Lange theory and Cannon-Bard theory)
Role of RAS, Hypothalamus, cerebral cortex, sympathetic Nervous system, Adrenal gland. Emotion and Disease: Skin rashes, Migraine, Ulcer, etc.
Nature and control of anger, fear and anxiety.

2. PERSONALITY

Definition, list the components, Physical characteristics character abilities, temperament, Interest and attitudes.

Role of heredity, Nervous system, family and culture on personality development Basic concepts of Freud. Dynamics of personality

Id, Ego, Super Ego.

Psycho sexual developmental stages of Sigmund Freud stages oral, anal, Phallic, latency and genital stages.

Psychosocial developmental stages of Erickson (8) stages

Personality Assessment:

- (a) Paper-pencil tests, questionnaires & Inventories (BAI, CPI, MMPI)
- (b) Interview—Standardised, unstandardised and stress Interviews.
- (c) Projective Techniques: 1) TAT—Thematic Apperception test.

2) Sentence Completion Test.

3) Rorschach's Inkblot Test.

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3. LEARNING

Definition, Laws of learning by

Thorndike Theories of Learning:

- 1) Conditioning theories - Classical conditioning, Operant conditioning
- 2) Insight Learning.
- 3) Trial and Error learning.

Effective ways to learn:

Massed Vs Spaced, Whole Vs part, Recitation Vs Reading, Serial Vs Free Recall
Incidental Vs Intentional Learning, Role of Language, Knowledge of Results,
Association, Organization and Mnemonic methods.

4. THINKING

Definition, Concepts - 5 types of concepts

Creatively - steps in creative thinking.

Delusions - faculty thinking types (Reference, Influence, Singult,
Persecution, Grandeur and Hypochondria and Nihilistic delusions).

5. FRUSTRATION

Sources and solutions of frustration (Internal & External) Reactions of

Frustration Conflicts and its 4 types

1. Approach Conflict
2. Avoidance-Avoidance Conflict
3. Approach-Avoidance Conflict
4. Double Approach-Avoidance Conflict

Stress - How to cope up with stress.

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(Lawrence Bhattacharya)

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1. SENSATION, ATTENTION AND PERCEPTION

List the senses, sensation and sensory experiences—vision, auditory, Gustatory, Cutaneous, olfactory, Equilibrium, Kinesthetic and visceral sense.

Types of attention—voluntary, Involuntary & Habitual

- Division of attention, Internal (Subjective) & External (objective) factors which influences Attention.
- Span of Attention.
- Nature of stimulus, Intensity, color, Repetition, movement, size.

Perception and perceptual organization.

- Disorders of perception (Hallucination & its types—visual, auditory cutaneous, gustatory, olfactory hallucination.
- Errors of perception (Illusion —“Muller-Lyer” illusion—Horizontal vertical illusion.
- Principles of perception—figure ground principle
- Principle of closure
- Grouping principles.
 - a. Similarity
 - b. Proximity
 - c. Continuity
- Other factors influencing perception—Interest, Motives, Values, Needs, Moods, Sex, Religion and past experience.

2. LEADERSHIP

3 styles of leadership

- Autocratic Leadership
- Democratic Leadership
- Laissez-faire Leadership (free-rein)
- Traits of a leader.
- Leadership can be cultivated or not?

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3. DEFENSE MECHANISM OF THE EGO

Successful and unsuccessful Defense mechanisms

Importance of Defense Mechanisms.

- Compensation, Repression, Regression, Denial, Rationalization (Sour grapes & Sweet lemon), projection, Identification, Introjections, Acting out, Depersonalization.

4. MEMORY AND FORGETTING

Forgetting—Decay through disuse

Interference effects

Memory—How to improve memory, Attention and

Concentration. How to face exam and overcome exam stresses.

5. THERAPY

Neurotic and psychotic disorders

Psychosomatic and somato-psychotic diseases

Childhood disorder – Autism

- Mental Retardation

General out time:

Therapy for mild mental disorders (for psychotic problems)

Counseling and guidance

Psychotherapy, coping strategies for stress, anger and Anxiety.

Psychological Relaxation Techniques.

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1. INTRODUCTION

Definitions of sociology, Sociology as a science of society, uses of the study of sociology, application of knowledge of sociology in physiotherapy.

2. SOCIALIZATION

Meaning of socialization, influence of social factor on personality, socialization in hospitals, socialization in the rehabilitation of patients.

3. SOCIAL GROUPS

Concept of social groups, influence of formal and informal groups on health and sickness, the role of primary groups and secondary groups in the hospital and rehabilitation settings.

4. FAMILY

Influence of family on human personality, discussion of changes in the functions of a family. Influence of the family on the individual's health, family and nutrition, the effects of sickness on family, and psychosomatic disease.

5. SOCIAL PROBLEMS OF THE DISABLED

Consequences of the following social problems in relation to sickness and disability; -
remedies to prevent these problems.

Population explosion

Poverty and unemployment

Beggary

Juvenile delinquency

Prostitution

Alcoholism

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Dr. S. S. Chandra

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6. SOCIALCONTROL

Meaning of social control, role of norms, folkways, customs, morals, religion law and other means of social control in the regulation on human behavior, Social deviance and disease.

7. SOCIALSECURITY

Social security and social legislation in relation to the disabled.

Dr. S. S. Rastogi
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1. SOCIOLOGY AND HEALTH

Social factors affecting health status, social consciousness and perception of illness. Social consciousness and meaning of illness, Decision making in taking treatment. Institutions of health, their role in the improvement of the health of the people.

2. CULTURE

Components of culture, impact of culture on human behavior, Cultural meaning of sickness, Response of sickness & choice of treatment (role of culture as social consciousness to molding the perception of reality), Culture induced symptoms and disease, Sub – culture of medical workers.

3. COMMUNITY

Concept of community, role of rural and urban communities in public health, role of community in determining beliefs, practices and home remedies in treatment.

4. CASTE SYSTEM

Features of the modern caste system and its trends.

5. SOCIAL WORKER

Medical social worker

6. SOCIAL CHANGE

Meaning of social change, Factors of social change, human adoption and social change, social change and stress. Social change and deviance. Social change and health programmes, the role of social planning in the improvement of health in rehabilitation.

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Dr. S. S. Chaturvedi

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Dr. S. S. Chaturvedi

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HEALTH PSYCHOLOGY(APPLIED)–Not for Exams

A. PSYCHOLOGICAL REACTIONS OF A PATIENT

Psychological reactions of a patient during admission and treatment: anxiety, shock, denial, suspicion, questioning, loneliness, regression, Shame, guilt, rejection, fear, withdrawal, depression, egocentricity, concern about small matters, narrowed interests, emotional over reactions, perpetual changes, confusion, disorientation, hallucinations, delusions, illusions, anger, hostility loss of hope.

B. REACTION TO LOSS

Reactions to loss, death and bereavement: shock and disbelief, development of awareness, restitution resolution. Stages of acceptance as proposed by Kubler – Ross.

C. STRESS

Physiological and psychological changes, Relation to health and sickness: Psychosomatics, Professional stress, burnout.

D. COMMUNICATIONS

Types – verbal, non – verbal, elements in communication, barriers to good communication, developing effective communication, specific communication techniques of counselors.

E. COMPLIANCE

Nature, factors, contributing to non compliance, improving compliance

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F. EMOTIONAL NEEDS

Emotional needs and psychological factors in relation to unconscious patients, handicapped patients, bed-ridden patients, chronic pain, spinal cord injury, paralysis, cerebral palsy, burns, amputations, disfigurement, head injury, degenerative disorders, parkinsonism, leprosy incontinence and mental illness.

G. GERIATRIC PSYCHOLOGY

Specific psychological reactions and needs of geriatric patients.

H. PAEDIATRIC PSYCHOLOGY

Specific psychological reactions and needs of pediatrics patients.

I. BEHAVIOUR MODIFICATION

Application of various conditioning and learning principles to modify patient behavior.

J. SUBSTANCE ABUSE

Psychological aspects of substance abuse: smoking, alcoholism and drug addiction.

K. PERSONALITY STYLES

Different personality styles of patients.

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Evaluation

TotalHours: 100

Textbooks:

1. Morgan&King,IntroductiontoPsychology,3rdEd,1994
2. SachdevaD.R.&Bhushan.V,AnintroductiontoSociology,KitabMahalLimited, 1974.

References:

1. ClifordT.Morgan-IntroductiontoPsychology,ELBS,2Ed, 1990
2. Hilgard&Atkinson- IntroductiontoPsychology,CBS,3Ed, 1994
3. Madan.G.R.IndianSocialProblems,Vol.1,ChennaiAppliedPublications,1973.

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ANATOMY-I

Course Objectives:

The objective of this course is that after 180 hours of lectures, demonstrations and practicals the student will be able to demonstrate knowledge in human anatomy as in necessary for the study and practice of physiotherapy.

Course Outcomes:

On completion of the paper, students are expected to

1. Understand the structural and functional importance of cell and different types of tissues.
2. Detail anatomical knowledge of Digestive, cardiovascular system & Genito- Urinary and outline of Endocrine system.
3. Understanding the different type of classification and general features of bone, joints and muscular tissues.
4. The structural and functional importance of muscles, joints, long and short nerves and different spaces in upper limb including applied aspect.
5. Knowledge of greater vessels, muscles and structural and functional importance of different viscera in head and neck region outline of visual, auditory and taste pathways, including applied aspect.

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a. Introduction

1. Define Anatomy and mention its subdivisions.
2. Name regions, cavities and system of the body.
3. Define anatomical position and anatomical terms.

b. Cell

1. Define a cell.
2. Mention the shape, size and parts of a cell.
3. Name and mention the functions of organelles. Name the inclusion bodies.
4. Define chromosomes and genes.
5. Review mitosis and meiosis. Mention the main events, but stages not necessary.

c. Tissues

1. Classify tissues.
2. Classify and mention the microscopic structure of types of tissues such as epithelial, connective, muscular and nervous tissues. Give examples for each type of tissue.

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a. Introduction to Bones (Osteology)

1.
 - a. Define skeleton.
 - b. Mention the subdivisions of skeleton. Name the bones in each subdivision. Know the number of bones in each subdivision and total number of bones.
 - c. Classify the bones and give examples.
 - d. Enumerate the common surface features of the bones.
 - e. Define ossification. Explain the types of ossification and give examples. Define ossification centre. Explain the growth of a long bone in length and width.
 - f. Indicate blood supply and nerve supply of a bone.
2. When regional anatomy is taught:
 - a. Identify the name and correctly orientate the bone.
 - b. Identify surfaces, borders and all other surface features.
 - c. Mark and indicate the muscle and ligaments attachments on the bone.

b. Introduction to Joints (Syndesmology/Arthology)

1.
 - a. Define a joint or articulation.
 - b. Classify the joints and give examples for each type. Define each type of joint.
 - c. Mention the basic features of a synovial joint.
 - d. Define the axis and movement possible in a synovial joint.
 - e. Define range of movement and limiting factors.
 - f. Indicate the blood supply and nerve supply in general.
 - g. Define stability of a joint.
 - h. Demonstrate common movements.
2. When regional anatomy is taught:
 - a. Mention the type, the articular surfaces, ligaments, and movements, axis of the movements, chief muscles producing the movements, limiting factors, nerve supply and blood supply of all individual joints.
 - b. Mention the factors for stability.
 - c. Articulate the factors for stability.

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d. Indicate applied anatomy for all joints.

c. **Introduction to Muscles (Skeletal Muscle)(Myology)**

1.
 - a. Define a skeletal muscle.
 - b. Define fasciae, tendon, and aponeurosis.
 - c. Classify the skeletal muscles by shape etc., and give examples.
 - d. Define origin, insertion, muscle work (contractions), type of muscle work, range of musclework; group actions-protagonists, antagonists, synergists and fixators: shunt and spurt muscles; types of levers with examples.
2. When the regional anatomy is taught:
 - a. Mention the position, origin, insertion, nerve supply and actions of the skeletal muscles.(for the skeletal muscles of soft Palate, Pharynx and larynx, position, action and nerve supply may be sufficient)
 - b. Indicate the groups of muscles by position and action, group action and nerve supply of group of muscles.
 - c. Indicates segmental innervations of muscles.
 - d. Predict the result of paralysis of individual and group of muscles.

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1. Pectoral regions:

- Outline the features of pectoral region.
- Name, identify and correctly orientate the sternum, Clavicle, scapula and humerus.
- Outline the main features of the bones of shoulder girdle.
- Identify the parts, borders and surfaces of sternum. Mention its other features.
- Identify the ends, surfaces curvatures and other features of clavicle.
- Identify the borders, angles, surfaces, processes, fossae and other features of scapula.
- Identify the ends, head, greater and lesser tubercles, anatomical and surgical necks, capitulum, trochlea, radial, coronoid and olecranon fossae and epicondyles of humerus.
- Locate and identify the muscles of pectoral region. Mention their origin, insertion, nerve supply and action.

2. Scapular region:

- Comprehend the main features of the muscles in the scapular region.
- State the layered arrangements of the muscles of the back.
- Name and identify the muscles of scapular region. Mention their origin, insertion, nerve supply and actions.
- Demonstrate the bony landmarks of scapula, humerus and clavicle.

3. Axilla:

- Mention and identify the boundaries and contents of axilla.

Name the branches of axillary artery. Name and identify the cords and branches of brachial plexus and mention their root value.

- Illustrate the formation of brachial plexus.

4. Shoulder Girdle:

- Comprehend the main features of the joints of the shoulder girdle and state their functions.
- Name the joints of shoulder girdle. Identify the articular surfaces and name the

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Ligaments and movements of sternoclavicular and acromioclavicular joints. Mention the types of joints.

- c. Demonstrate and name the movements of scapula. Mention the chief muscles producing these movements. Correlate movements of scapula.
- d. Assign functional roles to the articular disc and coracoclavicular ligament.

5. Shoulder joint:

- a. Mention the type, articular surfaces and ligaments of the shoulder joint.
- b. Define and demonstrate the movements of shoulder joint.
- c. Name and identify the chief muscles producing these movements. Analyse these movements and mention their limiting factors.
- d. Mention the blood supply and nerve supply of this joint.
- e. Analyse the association of movements of scapula and movements of shoulder joints.
- f. Mention the limiting factors and the factors for its stability.

6. Upper arm:

- a. Name and identify the muscles at the front and back of the upper arm.
- b. Name and identify the ends, borders, surfaces and features of the humerus. Identify the head, anatomical neck, tubercles, surgical neck, bicipital groove, condyle, capitulum, trochlea, epicondyles, radial, coronoid and olecranon fossae.
- c. Mention the origin, insertion, nerve supply and actions of the muscles present front and back of the upper arm.
- d. Indicate the course, relations and distribution of radial and musculospiral nerves.

7. Elbow joint:

- a. Mention the type, articular surfaces and ligaments of elbow joints.
- b. Define and demonstrate the movements. Name the chief muscles producing these movements.
- c. Mention the factors for stability and limiting factors.
- d. Indicate the applied anatomy.
- e. Mention the blood supply and nerve supply.
- f. Explain the carrying angle.

8. Forearm, Wrist and Hand:

- a. Mention the bones of forearm, identify the ends, borders, surfaces and features of radius and ulna.

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- b. Identify the head ,neck ,tuberosity and styloid process of radius.
- c. Identify the coronoid process ,olecranon process ,trochlear notch, tuberosity, head, styloid process of ulna, radial notch of ulna and ulnar notch of radius.
- d. Name and identify the carpal bones,metacarpal bones and phalanges in an articulated hand.
- e. Mention the position ,origin,insertion,nerve supply and action of these muscles.
- f. Indicate the course,relations and distribution of median,ulnar and radial nerves.
- g. Mention the type, articular surfaces and ligaments of radioulnar joints. Define the movements of supination and pronation. Mention the axis and muscles producing these movements. Analyse these movements and apply it to the functional role in routine day today actions.
- h. Mention the position and distribution of radial and ulnar arteries and ulnar, median and radial nerves.
- i. Name and locate the carpal bones. Mention the type, articular surface and ligaments of wrist joint. Define and demonstrate the movements and mention the muscle producing them. Mention its blood supply and nerve supply.
- j. Predict the result of paralysis of muscles of the forearm.
- k. Mention the functional implications of prehension in the structure of hand.
- l. Indicate the arrangements of tendons of the digits, retinaculae, fibrous flexor sheaths and synovial sheaths.
- m. Evaluate the hinge type of interphalangeal joints, ellipsoid type of Metacarpophalangeal joints and saddle type of carpometacarpal joint.
- n. Name and identify the small muscles of the hand. Mention their position, origin, insertion, nerve supply and action.
- o. Mention the types of bones formed and ligaments of the joints of the hand. Define the movements and the muscles producing these movements. Predict the result of paralysis of the various types of grip.
- p. Demonstrate the types of grip.

9. Nerves of Upperlimb:

- a. Comprehend and apply the knowledge of the position and distribution of upper limb nerves.
- b. Mention the root values of the nerves.
- c. Identify the nerves and mention the position, course , relations and distribution of nerves of upper limb.
- d. Predict the result of injury to these nerves.

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10. Blood Vessels of Upper Limb:

- a. Comprehend and apply the knowledge of the position and distribution of blood vessels and lymph nodes.
- b. Trace the main arteries and veins.
- c. Indicate their position name the main branches of tributaries.
- d. Name and locates the lymph nodes.

11. Cutaneous Nerves of Upper Limb:

- a. Name the cutaneous nerves and illustrates the areas of their distribution.
- b. Illustrate the dermatomes.

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Head and Neck

Musculoskeletal and Neurovascular features. Identify the anterior and posterior triangles of neck. Name the sub divisions.

List the contents.

1. a. State the main features of the skull and the facial skeleton.
 - b. Identify the large skull bones and their parts.
 - c. Identify the cranial fossae and hypophyseal fossa.
 - e. Identify and name the main muscle of the face. Mention their nerve supply and action.
 - f. Predict the results of paralysis to the facial muscles and sequel of injury to the facial nerve. (VII Nerve)
 - g. Map the cutaneous distribution of the three divisions of the trigeminal (Vth) nerve on the face.
2. a. Identify the general features of a typical cervical vertebra, atlas, axis and seventh cervical vertebra.
 - b. Identify the erector spinae, sternomastoid, scalene muscles and geniohyoid. Mention their attachments, actions and nerve supply.
 - c. Identify the phrenic, accessory and vagus nerves. Mention their distribution.
 - d. Identify and state the position, distribution and root values of the nerves of cervical and brachial plexuses.
 - e. Demonstrate the action of sternocleidomastoid.
 - f. Mention the type, articular surface, ligaments, movements and muscles producing these movements, at the atlanto-occipital and atlanto-axial joints. Demonstrate these movements and the movements of the cervical part of vertebral column.
3. a. Identify the subclavian, vertebral and carotid arteries. Mention the position and extent of these arteries.
 - b. Identify the components of the Circle of Willis. Mention the distribution of internal and external carotid and vertebral arteries. Predict the sequelae of occlusion of these arteries.
 - c. Define the modes of distribution of pre and postganglionic efferent neurons in sympathetic and para sympathetic nervous system.
 - d. Name the cranial nerves containing para sympathetic fibers and mention their distribution.

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- e. Distinguish between sympathetic and para sympathetic systems in relation to their functions.

Temporomandibular joint:

1. State the type, articular surfaces, ligaments, possible movements, muscles performing the movements and nerve supply of the Temporomandibular joint.
2. Palpate and identify the joint and its articular surfaces.
3. Identify and name the muscles of mastication. Mention their actions and nerve supply.

Mouth:

1. State the main features of the mouth cavity, tongue, palate, salivary glands, teeth and gums.
2. Mention the sensory and motor innervations of the tongue.
3. Identify the salivary glands.
4. Demonstrate movements of the tongue and palate.
5. Test and produce the swallowing (gag) reflex.
6. Predict the sequelae of lesions of the VIIth and XIIth cranial nerves.

Pharynx:

1. State the position and extent of the pharynx.
2. State the three sub division and the features of each sub division.
3. Name the muscles of pharynx and their action.
4. Mention the sensory and motor innervations of the pharynx.

Larynx and Trachea:

1. Identify the hyoid and state its parts.
2. Identify the larynx and name its parts.
3. State the boundaries of laryngeal inlet and glottis.
4. Identify the vocal and vestibular folds.
5. State the movements of the laryngeal cartilages. Name the laryngeal muscles.
6. Mention their attachment, actions and nerve supply.
7. Define the position, extent and gross structure of the trachea.
8. State the mechanics of phonation and speech, production of sound voice and speech.

Examiner
Classmate

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Cranial nerves:

1. Enumerate the cranial nerves in serial order.
2. Relate and interpret the number to the names.
3. Indicate the nuclei of origin of termination.
4. Mention the attachments to the brain and the cranial exits.
5. State the sensory and motor distribution.
6. State the position and course of VIIth nerve.
7. Predict the sequel of lesion.

Eye:

1. State the position of the lacrimal apparatus, the functional implications of structure of the eye and the lacrimal apparatus.
2. Mention the three sub divisions of the ear.
3. Mention the nerve endings for hearing and equilibrium.

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SYSTEMS

a. Endocrine system

1. List the endocrine organs and mention their positions.
2. Mention the hormones produced by each endocrine organ.

b. Digestive System

1.
 - a. List the parts of the digestive system.
 - b. Mention the boundaries and features of mouth.
 - c. Classify teeth.
 - d. Mention position, extent, subdivisions, communications, internal features and muscles of pharynx.
 - e. Name the tonsils and define fauces.
 - f. Identify the internal features of the mouth and the pharynx on the specimen.
2.
 - a. State the position, course and extent of oesophagus.
 - b. Identify oesophagus on the specimen.
 - c. State its basic nerve supply.
3.
 - a. Mention the position, gross structure of the stomach.
 - b. Identify the stomach, its borders, surfaces and its subdivisions.
4.
 - a. Name the subdivisions of the intestines mention their position.
 - b. Mention the differences between small and large intestine.
5.
 - a. Name the arteries arising from abdominal aorta. Name the organ supplied by these branches.
 - b. Name the positions of the principal autonomic visceral nerve plexuses in the abdomen and pelvis, and state the organs supplied by them.
6. Mention the position and gross features of the liver and biliary system.
7. Name the position and subdivisions of the pancreas.

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8. a. Name the major salivary glands.
- b. Indicate their positions.
- c. Mention the site of openings of their ducts

a. Genito-Urinary System

1. a. Comprehend the basic functional implications and the basic structure of the kidney and ureter.
 - b. Mention the position, size and shape of the kidney.
 - c. Name the immediate relations of the kidney.
 - d. Indicate the cortex, medulla, pyramids, sinus, calyces and pelvises of urethra in macro section of kidney.
 - e. Illustrate the structure of a nephron.
 - f. Identify the urethra and indicates the position of the ureter.
-
2. a. State the anatomy of the bladder and urethra.
 - b. Mention the position, shape, size and surfaces of the bladder.
 - c. Indicate the immediate relations of the bladder.
 - d. Mention the basic innervations of the bladder.
 - e. Name and identify the sub divisions of the male urethra.
 - f. Mention the position, extent and immediate relations of the male urethra.
 - g. Locate and identify the female urethra.
 - h. Mention the position, extent and immediate relations of the female urethra.
 - i. Name the sphincter of the urethra.
-
3. a. List and locate the parts of the male reproductive system. State the anatomy and functional considerations of the testis, male accessory organs of reproduction and external organs.
 - b. Name the constituent structures of the spermatic cord.
 - c. Mention the position of the inguinal canal.
 - d. Name the component structure and parts of the penis.

Dr. Anshu
Dr. Anshu

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4.
 - a. List and locate the parts of the female reproductive system. State the anatomy and functional considerations of ovary ,uterine tubes,uterus,vagina and female external genitalia.
 - b. Mention the basic features of parts of the female external genitalia.
 - c. Enumerate the factors responsible for the maintenance of the position of the uterus and anatomy of its prolapse.
 - d. Mention the position, extent and gross structure of the female breast.
5. Name the common internal and external ilia carteries.

Total Hours: 180

valuation

Text Book

1. Chaurasia , Human Anatomy – VOL I, VOL II, VOL III, 7th Edition ,CBS, 2016.
2. Text Book of Anatomy, Vishram Singh–VOL I ,VOL II ,VOL III ,3rd Edition ,CBS, 2018.

References:

1. Nigle Palastanga, Anatomy and human movement, Butter worth Heinmannpub. 4th Ed , 2007.
2. Cunningham's Manual of Practical anatomy (for practical classes only) Vol.1, 2 and 3. Romanes, Oxford university press, 3Ed, 2006.
3. Gray's Anatomy, William Bannister, Churchill Living Stone pub, 3 Ed, 2007.


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PHYSIOLOGY-I (BPT0103)

Course Objective

The Objective of this course is that after 180 hours of lectures, demonstrations Lab practicals the student will be able to demonstrate an understanding of elementary human physiology dealing with cell, skin, muscle, blood and other important systems of the body.

Course Outcomes:

The Course outcome is to know about the

1. Outline of structural and functional importance of cell, muscle and skin.
2. Detail knowledge of different type and function of blood cells.
3. Outline of different parts and functions of excretory, endocrine system.
4. Basic biochemistry knowledge of different type of digestion.
5. Understanding the carbohydrate ,protein and lipid metabolism

UNIT 1

36

A. CELL INTRODUCTION

- Outline of basic concept of cell structure and its functions
- Transport through cell membrane
- Homeostasis

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B. SKIN

- Structure
- Functions

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Dr. Saurabh Sharma

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- Bloodflow
- Temperature regulation

C. BLOOD

- Blood components and its structure
- Plasma proteins
- RBC ,Erythropoiesis
- ESR
- Anaemia
- WBC and its functions
- Immunity & its types
- Platelets & its functions
- Coagulation of blood and clotting mechanism
- blood groups

Sana
(Class teacher)

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UNIT2

MUSCLE

- Classification of muscles
- Structure of a skeletal muscle
- Properties of a skeletal muscle
- Neuromuscular junction & excitation contraction coupling
- Changes during muscle contraction
- Single muscle twitch ,quantum & wave summation
- Tetany , myasthenia gravis
- All or none law
- Types of muscle contraction
- Muscle fatigue
- Muscle action potential
- EMG-overview
- Aerobic & anaerobic view
- Endurance & muscle strength
- Age related changes in muscle
- Age related changes in physical work capacity

UNIT3

36

A. DIGESTION

- Mouth & salivary glands
- Mechanism & regulation of gastric juice secretion
- Bile & pancreatic secretion
- Secretions of small and large intestines
- Movements (motility) of the GI tract

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Chaiti Bhatia

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B. EXCRETION

- Structure of nephron
- Juxta Glomerular apparatus
- Renal circulation
- Formation of urine
- Micturition
- Renal failure

UNIT 4

36

ENDOCRINE SYSTEM

- Hormones
- Pituitary gland- its functions & abnormalities
- Thyroid gland -its functions and abnormalities
- Thyroxin
- Parathyroid glands & physiology of bone

UNIT 5

36

BIO CHEMISTRY

- Cell-biochemical morphology of cell
- Carbohydrate chemistry-definition, general
- Classification properties & functions.
- Carbohydrate metabolism, glycolysis, TCA cycle
- Gluconeogenesis, HMP shunt, diabetes.
- Lipid chemistry
- Definition, general classification, properties & functions.
- Lipid metabolism-ketogenesis, ketolysis, functions of lipoproteins, oxidation of fatty acids

Jan
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Evaluation

TOTAL HOURS :180

TextBooks:

1. John E.Hall, Arthur C .Guyton,Text Book of Physiology,Saunders,12th Edition,2010
2. S.S.Randhawa , Medical Bio Chemistry ,PVBooks,1Ed, 2013
3. Chatterjee, Human Physiology, Central book agency ,4 th edition,1958.

References:

1. L.PrakasamReddy ,Concise Medical Physiology ,JPBrothers ,3rdEdi ,1999
2. Shettynandhini, Biochemistry for Physiotherapist and AHS, JPbros ,1Ed,2008
3. Sembulingam, Essentials of Physiology , JP Medical Ltd ,6thEd,2013
4. Sujith Kumar Chaudhri,Concise medical physiology,New Central Book Agency
6th Ed, 2011
5. U.Sathyanarayana ,Essentials of Biochemistry, Book and Allied(P) Ltd,Kolkata,1999
6. Ganong' s review of medical physiology kim.E.Barrett 25thedition.
7. DM.Vasudevan Text book of biochemistry for medical students 7thedition.


(Gauri Bhattacharya)







Indian Knowledge System (IKS-I)

UNIT 1: Indian Education

- **Vedic Education:** Focuses on the traditional system of learning during the Vedic period.
- **Spiritual and Moral Development:** The role of education in promoting ethics and spiritual growth.
- **Intellectual Growth:** How Vedic education contributed to intellectual advancement.
- **Social and Cultural Refinement:** The cultural impact of education on society.

UNIT 2: Methodology of Indian Knowledge System

- **Pramana:** The means of obtaining knowledge and validation in Indian philosophy.
- **Nyaya:** Logical reasoning and debate in the Indian knowledge tradition.

UNIT 3: Indian Metallurgy

- **Indian Text for Metallurgy:** Ancient Indian scriptures related to metallurgy.
- **Important Specimens of Metals Preserved/Found:** Notable examples of metalwork from Indian history.
- **Vedic References of Metals:** Mentions of metals in Vedic texts and their significance.

UNIT 4: Indian Health Sciences

- **Literature:**
 - **Vedic Foundations of Ayurveda:** Ancient texts that form the basis of Ayurveda.
 - **Ayurveda Concern for Good Health:** Focus on holistic well-being.
 - **Three Guna, Three Dosha, Panch Mahabhoot, Sapta Dhatu, Six Rasa:** Concepts central to Ayurveda.
 - **Dincharya & Ritucharya:** Daily and seasonal regimens for health.
- **Practical:**
 - **Sushruta Samhita:** Ancient text on surgery.
 - **Charaka Samhita:** Ayurvedic text on medicine.
 - **Ashtanga Hridaya – Sutra Sthana:** An Ayurvedic classic.
 - **Qualities of a Surgeon:** The required attributes of a good surgeon.
 - **Surgical Practices:** Ancient Indian surgical methods.

UNIT 5: Foundational Literature of Indian Civilization

- **Vedang, Ayurveda, Natya Shastra, Dharma Shastra, Arthashastra:** Key texts that shaped Indian civilization in various fields like linguistics, health, arts, law, and politics.

UNIT 6: Bharatavarsha—A Land of Rare Natural Endowments

- **Seasons, Land Variations, Heritage, Natural Resources, Geographical Isolation:** The geography of India and how it shaped the country's culture, heritage, and resources.

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1stYear (2ndSemester)

ORIENTATION IN PHYSIOTHERAPY & FIRST AID (BPT0201)

CourseObjective:

The objective of this course is that after 100 hours of lectures, demonstration, practicals and clinicals, the student shall be able to demonstrate and understand the principles of first aid and demonstrate skill in giving first aid treatment in emergencies that may be met in the community and in his/her practice as therapist.

CourseOutcomes:

1. Students should have understood the importance of first aid how it can be attempted during various emergency needs, what are the common positions which can be attempted while giving first aid & should know the indications and contraindications while giving first aid for different emergency needs.
2. Students should have understood the common musculoskeletal and respiratory and wounds how to manage those injuries during the golden period of the injury, know the different treatment method for each musculoskeletal and respiratory and wound management.
3. Students should know how the spinal cord or brain injuries will be handled during the emergency situations & will also understand different ways of wound care and hemorrhage management.
4. Students should have understood about the internal structure damage in person encounter during shock & should know how to perform a differential evaluation for diagnosing a shock.
5. Student should have understood how the natural disasters can affect the persons living environment & should know the different ways to be followed during disaster in order to rescue the people from the emergency needs. They should be aware of emergency resources available through which they can save the life of the people.

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UNIT I

20

1. Introduction

Definition of first aid ,importance of First aid,Golden rules of First aid,scope and Concept of emergency.

2. FirstAidEmergencies

1. Burnsandscaalds:Causes,Degreeofburns,Firstaidtreatment,General treatment.
2. Poisoning:Classification(irritants,acid,alkaliandnarcotics),signsandsymptoms.First aid treatment, General treatment.
3. Trauma due to foreign body intrusion:Eye,ear,nose,throat,stomach and lungs.
4. Bites:First aid,signs,symptoms and treatment.
 - a. Dogbite: Rabies.
 - b. Snakebite:Neurotoxin ,bleeding diathesis.

UNIT II

20

1. Skeletal injuries

Introduction to fracture,Types of fractures ,mechanisim of injury,Signs and symptoms.

Rules of treatment ,Transportation of patient with fracture ,First aid measures in Dislocation of joints, treatment for muscle injuries.

2. Respiratory Emergencies

1. Asphyxia : Etiology,Signs and symptoms ,rules of treatment.
2. Drowning : Definition and management.
3. Artificial Respiration: Indications, Types and techniques.

3. Wounds and Hemorrhage

1. Broad outline of Anatomy and Physiology of the circulatory system.
2. Wounds: Classification,management.
3. Hemorrhages: Classification,signs and symptoms ,rules for treatment of hemorrhage

Qaush
Chaiti Shrivastava

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4. Treatment of hemorrhage from special areas(Scalp,mouth,nose,ear ,palmand various veins)
5. Internal Hemorrhages :Visible and concealed.

Ravi
(Suresh Bhaluwa)

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UNIT III

20

1. Shock and Unconsciousness

Definition; Types of shock, common causes of shock, signs and symptoms of shock (Assessment of established shock). General and special treatment of established Shock.

2. Transportation of the injured

1. Methods of transportation : Single helper , hand seat, stretcher, wheeled transport (ambulance).
2. Precautions taken : Blanket lift, Air and sea travel.

UNIT IV

20

1. Community Emergencies

Role of first aider (immediate and late) in fire, explosions, floods and earthquakes.

2. Community Resources

Police assistance , voluntary agencies (local, national, international) and ambulance services (functions)

UNIT V

20

Orientation and Introduction to physiotherapy

1. Acquire the geographical orientation of the various concerned sections of the college & the clinical training areas.
2. Get the overall idea about the graduate program & its scope in the professional
3. Practice
4. Learn the bed- side manners. General ethical code & discipline of the department
5. Acquire the skill of History taking in general.

Jeetu
Chauhan Bhavika

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Evaluation

Total Hours: 100

TextBooks:

1. Hoon R.S, Firstaid to the injured ,St.John Ambulance Association, 10thEd, 2014.
2. GardnerWard & PeterJ .Roylance, New Advanced FirstAid,London Butter Worths , 3rd edition, 2001.

References:

1. Raine Hardhins and Hunt Vaheirs,Urgencies and emergencies for Nurses ,English Universities Press Ltd, 1965.
2. First Aid, American Red Cross,The Balckiston company, Philadephia,1945.
3. Golqalla A soi ,A hand book of emergencies ,Bombaysam and company,1986.

Qasr
Qasr Bhalwa

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ANATOMY- II (BPT0202)

Course Objectives:

The objective of this course is that after 180 hours of lectures, demonstrations and practicals the student will be able to demonstrate knowledge in human anatomy as in necessary for the study and practice of physiotherapy.

Course Outcomes:

On completion of the paper, students are expected to know

1. Basic anatomical knowledge of cardio vascular, lymphatic system
2. Detail anatomical knowledge of nervous system.
3. The structural and functional importance of muscles, joints, long and short nerves and different spaces in lower limb, including applied aspect.
4. Basic anatomical knowledge of boundaries and contents of thoracic, abdominal and pelvic cavity.
5. Outline of visual, auditory and taste pathways, including applied aspect.

UNIT I

36

OSTEOLOGY & MYOLOGY OF LOWER EXTREMITY

LowerExtremity

1. a. Name identify and orientate hip bone, femur, tibia, fibula and patella.
b. Identify the components and features of hip bones. Identify the ends, borders, surfaces, head, neck, trochanters, condyles and epicondyles of femur and the features of the tibia and fibula.
c. Identify and mention the origin, insertion, nerve supply and action of the muscles in the front of thigh.
d. Mention the boundaries and contents of femoral triangle and sub sartorial canal.
e. Indicate the position, course and distribution of femoral nerve.

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- f. Indicate the course and main branches of femoral artery and mention the blood supply of neck of femur.
- g. Indicate the position of femoral vein.

2. Medial side of Thigh:

- a. Name and identify the muscles of the medial side of thigh. Mention their origin, insertion, nerve supply and action.
- b. Indicate the course, relations and distribution of obturator nerve.

3. Back of Thigh:

- a. Identify and mention the position, origin, insertion, nerve supply and action of the hamstring muscles.
- b. Indicate the position, course, relation and distribution of sciatic nerve.

4. Gluteal region:

- a. Identify and mention the position, origin, insertion, nerve supply and action of the muscles.
- b. Name and mention the position and course of the nerves found there and names of the arteries present in the Gluteal region.

5. Hip Joints:

- a. Mention the type, articular surface and ligaments.
- b. Define the movements and name the chief muscles producing the movements.
- c. Mention the blood supply, nerve supply, factors for stability and limiting factors.
- d. Indicate applied anatomy.

6. Knee Joints:

- a. Mention the type, articular surfaces and ligaments.
- b. Define the movements and name the chief muscles responsible for the movements.
- c. Analyse the movements.

Janu
Chaiti Bhushan

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- d. Know the blood supply and nerve supply.
 - e. Indicate applied anatomy.
 - f. Define locking and unlocking of the joints.
7. Popliteal fossa:
- a. Indicate the boundaries and contents.
 - b. Mention the position and branches of tibia and common peroneal nerves.
8. Front of Leg and Dorsum of Foot:
- a. Name and identify the tarsal bones, metatarsal bones and phalanges in an articulated foot.
 - b. Name and identify the muscles.
 - c. Mention the position, origin, insertion, nerve supply and actions of the muscles.
 - d. Position and distribution of deep peroneal nerve.
 - e. Indicate the position and attachments of extensor retinaculae.
 - f. Mention and identify the features of the tibia and fibula.
9. Lateral Side of Leg:
- a. Name and identify the muscles.
 - b. Mention the position, origin, insertion, nerve supply and action of the muscles.
 - c. State the position, course and distribution of superficial peroneal nerve.
 - d. State the position and attachment of peroneal retinacula.
10. Back of Leg and Sole of Foot:
- a. Name and identify the features of the bones of the foot.
 - b. Name and identify the muscles of back of leg.
 - a. Mention the position, arrangement, origin, insertion, nerve supply and action of the muscles.
 - b. State the position, course and distribution of tibial artery.
 - c. State the position and distribution of posterior tibial artery.
 - d. Mention the position and attachment of flexor retinaculum.
 - e. Mention the arrangement, origin, insertion, nerve supply and action of muscles for the maintenance of the arches of foot.
 - f. Indicate the types, formation and factors for the maintenance of the arches of foot.

Lauren
Chaiti Bhadani

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- g. Mention the type, articular surface, ligaments, movement's of chief muscles for the movement, axis of movements and applied anatomy of tibiofibular joints, ankle joints, subtalar joints, M.P.joints and I.P. joints.
- h. Palpate and identify the tendons around the ankle and dorsum of foot.

11. Nerves:

- a. Indicate the position, formation and branches of lumbar and sacral plexuses.
- b. Mention the root values of the nerves.
- c. Mention the position, course, relation and distribution of the nerves.
- d. Predict the result of injury to the nerves.
- e. Illustrate cutaneous innervation of dermatomes.

12. Blood vessels:

- a. Indicate the position of arteries and their main branches.
- b. Indicate the position of veins and their main tributaries.
- c. Indicate the position of lymph nodes.

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Gaur Prashant

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Arun

TRUNK & THORAX

Vertebral Column:

1. State the basic osteology of vertebral column.
2. Identify the parts of a typical vertebra. Identify and state the main features of typical vertebra in each group of vertebrae. Identify a typical vertebra.
3. State the form, structure and movements of joints of vertebral column. Mention the movements and the muscles producing them.
4. Identify the intervertebral disc and mention its parts.
5. State the formation and ligaments of the intervertebral joints.
6. Name and identify the curvatures of the vertebral column and indicate the deformities.
7. State the contents of vertebral canal.

Thorax:

1.
 - a. State the main features of the bones and joints of thoracic cage. Mention the boundaries.
 - b. State the parts and features of sternum.
 - c. Define true, false and floating ribs. Mention the parts and features of typical rib. Know the main features of a typical rib.
 - d. Mention the type and formation of the joints between rib and vertebrae, between costal cartilage and sternum and between costal cartilages.
 - e. Mention the type and formation of the joints between the parts of sternum. Indicate the importance of sternal angle.
 - f. Analyse pump handle and bucket handle movements of ribs.
 - g. Palpate bony landmarks such as jugular notch, sternal angle, xiphisternum and spines of thoracic vertebrae.
2.
 - a. Define inter costal space and list the contents. Mention the course and branches of typical intercostal nerve. Name the muscles of thorax. Mention the origin, insertion, nerve supply and action of intercostal muscles and diaphragm.

Dr. J. S. R. Sharma
(Dr. J. S. R. Sharma)

Academic Counsellor
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- b. Name the structure passing through the diaphragm and mention the orifices in the diaphragm.
3. a. Define the boundaries and subdivision of the mediastinum and list the contents.
Identify the contents.
- b. State the features of thoracic parts of sympathetic trunk.

Leonor
(Sauri Bhattacharya)

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ABDOMEN & PELVIS

Abdomen:

1. a. Mention the main features of lumbar vertebrae, sacrum and coccyx.
- b. Mention the formation and sub divisions of the bony pelvis. List the features of the female bony pelvis and their roles.
- c. Mention the type, articular surfaces, ligaments and movements of the joints of pelvis.
2. a. Define abdominal cavity.
- b. List the layers of anterior abdominal wall. Name and mention the origin, insertion, nerve supply and action of the muscles and the features of these muscles.
- c. Explain the formation of rectus sheath and list its contents.
- d. Define inguinal canal and know its position, extent, formation and contents. Indicate its clinical importance. Define inguinal hernia.
- e. Name and identify the muscles of posterior abdominal wall. Give their origin, insertion and action. List the organs on the posterior abdominal wall. Name the blood vessels on the posterior wall.
- f. State the anatomy of lumbar region. Understand the disposition of muscles of the back in layers. Mention the arrangement of lumbar fascia. Identify the muscles in region. Understand the lumbar routes to abdomen. Identify and mention the attachments and actions of the large muscles of back. (at least the ones ending at the head).
- g. Distinguish abdominal cavity and peritoneal cavity.
- h. Mention the features of lumbar part of sympathetic trunk and other sympathetic ganglia.
- i. Mention the branches and distribution of the abdominal aorta and iliac arteries.
- j. State the inferior vena cava and iliac veins and mention their tributaries.
3. a. Mention the position and formation of lumbar plexus. Name its branches

Dr. S. S. S.
Chait. R. S. S.

Dr. S. S. S.

Dr. S. S. S.

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- b. State the anatomy of lumbar region. Understand the disposition of muscles of the back in layers. Mention the arrangement of lumbar fascia. Identify the muscles in region. Understand the lumbar routes to abdomen. Identify and mention the attachments and actions of the large muscles of back. (at least the ones ending at capitis).
 - c. Distinguish abdominal cavity and peritoneal cavity.
 - d. Mention the features of lumbar part of sympathetic trunk and other sympathetic ganglia.
 - e. Mention the branches and distribution of the abdominal aorta and iliac arteries.
 - f. State the inferior vena cava and iliac veins and mention their tributaries.

4.
 - a. State the anatomy of lumbar region. Understand the disposition of muscles of the back in layers. Mention the arrangement of lumbar fascia. Identify the muscles in region. Understand the lumbar routes to abdomen. Identify and mention the attachments and actions of the large muscles of back. (at least the ones ending at capitis).
 - b. Distinguish abdominal cavity and peritoneal cavity.
 - c. Mention the features of lumbar part of sympathetic trunk and other sympathetic ganglia.
 - d. Mention the branches and distribution of the abdominal aorta and iliac arteries.
 - e. State the inferior vena cava and iliac veins and mention their tributaries.

5.
 - a. State the anatomy of lumbar region. Understand the disposition of muscles of the back in layers. Mention the arrangement of lumbar fascia. Identify the muscles in region. Understand the lumbar routes to abdomen. Identify and mention the attachments and actions of the large muscles of back. (at least the ones ending at capitis).
 - b. Distinguish abdominal cavity and peritoneal cavity.
 - c. Mention the features of lumbar part of sympathetic trunk and other sympathetic ganglia.
 - d. Mention the branches and distribution of the abdominal aorta and iliac arteries.
 - e. State the inferior vena cava and iliac veins and mention their tributaries.

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Pelvis

1. State the main features of subdivisions ,boundaries ,walls and floor of pelvis.
2. Mention the features of the pubic symphysis and sacroiliac joints.
3. Distinguish and mention the major difference between the male and female.
4. Identify the muscles of the pelvic floor and mention their attachments, actions and nerve
5. Mention the structure of the urogenital diaphragm.

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UNIT IV

NEURO ANATOMY

Nervous System

1.
 - a. Define the subdivisions of nervous system. Define central, peripheral and autonomic nervous system and name their subdivisions. Comprehend the position and form of the spinal cord, its structure and functions in terms of neuronal connections.
 - b. Indicate the position and extent of the spinal cord.
 - c. Illustrate the principal features shown in a transverse section of the spinal cord.
 - d. Specify the basic features of mono and multisynaptic spinal reflex pathway.
 - e. Illustrate the white and grey matter and anterior, lateral and posterior columns of the spinal cord
 - f. Mention the origin, termination and position of important ascending and descending tracts, sites of crossing of fibers of these tracts, and function of each tract.
 - g. State the main consequence of spinal cord transection and hemisection and explain the rationale of cordotomy.
 - h. Indicate the blood supply and meninges of spinal cord.
2.
 - a. Name the subdivisions of the brain. Identify and mention the external features of the brain.
 - b. Mention the internal structures and basic features of the brain stem and name the nuclei and fibre tracts with special emphasis on cranial nerve nuclei.
 - c. Identify and mention the parts of the cerebellum.
 - d. Mention the external features and internal structures of the cerebellum.

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Various afferent and efferent fibers tracts and their origin and termination.

- e. Mention the features of the gross components of the cerebrum.
 - f. Mention and identify the location of gyri, sulci and cortical areas.
 - g. State and identify association, commissural and projection fibers.
 - h. Define and identify components of fore brain, including cerebral cortex, insula, olfactory bulb, olfactory tract, uncus, fornix, basal ganglia, thalamus, hypothalamus, internal capsule, corpus callosum etc.
 - i. Predict the result of damage to internal capsule.
 - j. Outline sensory and motor pathways and trace these pathways.
 - k. Name sensory and motor nerve endings with their functions.
 - l. Define pyramidal motor system and name its tracts.
 - m. Define upper and lower motor neurons.
 - n. Name the parts and tracts of the extra-Pyramidal system and indicate their functions.
3. Outline the basic structures of sensory organs: -Nose, Tongue, Eye, Ear and Skin.
4. Briefly outline the nature and basics of muscle tone, Mention the anatomical pathways involved in the production and maintenance of muscle tone.
5. a. State the formation, circulation and drainage of CSF.
- b. Locate and identify the ventricles.
- c. Identify and name the meninges and spaces around it and locate the cisterns.
- d. Define lumbar puncture and cisternal puncture.
- e. State the feature of the meninges.
- f. Recognise the difference between extradural, subdural and subarachnoid haemorrhage.
6. a. Outline the arrangements of major blood vessels around the brain and spinal cord.
- b. Mention the arteries forming the circle of Willis.
- c. Name the branches of major arteries supplying the brain and spinal cord and mention the parts they supply.
- d. Predict the result of blockage or rupture of central deep branches.
- e. Predict the result of occlusion of cerebral arteries.

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- f. Predict the result of occlusion of vertebral or basilar arteries.
 - g. Identify and mention the connections of dural venous sinuses.
 - h. Name and identify the parts of the limbic system. Mention their function in emotion and behaviour.
7. a. Mention the position and structure of the autonomic nervous system.
 - b. Mention the sites of origin and termination of the pre ganglionic and post ganglionic sympathetic and parasympathetic fibers.
 - c. Name and locate the sympathetic and parasympathetic ganglia.
 - d. Summarise the functional differences between sympathetic and parasympathetic systems.
8. a. Enumerate the cranial nerve sensorial order.
 - b. Mention the nuclei, origin and termination. Indicate the site of attachment to brain/brain stem.
 - c. Explain the general distribution of the cranial nerves and the course of root of VII nerve.
 - d. Predict the result of injury to cranial nerves.
9. a. Anatomy of spinal cord-review.
 - b. Name the groups of spinal nerves.
 - c. Explain the formation and branches of the spinal nerves and distribution of anterior and posterior rami.
 - d. Locate and name the plexuses of nerves.
 - e. Indicate the course and distribution of branches of the plexuses of nerves.

Course
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a. Cardio-Vascular System

1.
 - a. Comprehend the external and internal features of the structure of the heart and their implications.
 - b. Mention the position of the heart.
 - c. Identify and name the chambers, surfaces and borders of the heart.
 - d. Identify the venaecavae , pulmonary trunk and aorta.
 - e. Mention the internal features of the heart chambers.
2.
 - a. State the basic features of blood supply and nerve supply of the heart.
 - b. State the basic arrangement of the pericardium.
 - c. Identify the coronary arteries and coronary sinus.
 - d. Name the parts of the conducting system of the heart.
3.
 - a. Mention the position and general distribution of major arteries and veins. Name their main branches.
 - b. Name the types of arteries and veins. Give examples and indicate the basic microscopic structure of types of blood vessels.

b. Lymphatic System

1. Comprehend the general and regional arrangements of the lymphatic system.
2. Name the lymphatic organ and mention their location.
3. Illustrate the basic structural features of lymphatic vessel, lymphatic, thymus, spleen and tonsils.
4. Assign functional roles to the lymphatic system.
5. State the position and immediate relation of the spleen.

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c. Respiratory System

1.
 - a. List the parts of the respiratory system.
 - b. Comprehend the functional anatomy of the parts of the respiratory system.
 - c. Mention the basic features of innervations of bronchi and lungs.
2.
 - a. State the position, extent, gross and microscopic structure of the parietal pleura
 - b. Comprehend the arrangements of pleura. Mention the parts and position of the parietal pleura
 - c. Name the recesses of pleura.
 - d. Identify the trachea and bronchi.
 - e. Identify the right lung and left lung.
 - f. Name the components of the hilum of lung.
 - g. Name the broncho pulmonary segments.
 - h. Illustrate the main features of the microscopic structure of the lung.
 - i. Identify the borders and surfaces of the lung on the specimen.

Evaluation

Total Hours: 180

Text Book

1. Chaurasia, Human Anatomy-VOL I, VOL II, VOL III, 7th Edition, CBS, 2016.
2. Text Book of Anatomy, Vishram Singh-VOL I, VOL II, VOL III, 3rd Edition, CBS, 2018

References:

1. Nigle Palastanga, Anatomy and human movement, Butterworth Heinmann pub.
2. 4th Ed, 2007
3. Cunningham's Manual of Practical anatomy (for practical classes only) Vol. 1, 2 and 3.
4. Romanes, Academic Council Press, 3rd Ed, 2006.
5. Gray's Anatomy William Bannister, Churchill Living Stone pub, 3rd Ed, 2007

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PHYSIOLOGY-II (BPT0203)

Course Objective:

The Objective of this course is that after 200 hours of lectures, demonstrations Lab practicals the student will be able to demonstrate an understanding of elementary human physiology dealing with cell, skin, muscle, blood and other important systems of the body.

Course Out comes:

The Course out come is to know about the

1. Brief outline of cardiovascular and respiratory system.
2. Outline of different parts and functions of reproductive system.
3. Detail knowledge of centra lnervous system, peripheral nervous, supporting tissues and autonomic nervous system.
4. Brief knowledge of pathway of vision, auditor and taste.
5. Understanding of the applied aspect of cardio vascular ,nervous and respiratory system.

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UNIT 1

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NERVOUS SYSTEM

- Structure of a neuron
- Classification of nerve fibres
- Properties of nerve fibres
- Receptors
- Synapse & synaptic transmission
- Reflexes & properties of reflexes
- Spinal cord and its pathway
- Spinal tracts and its functions
- Physiology of pain
- Brainstem, thalamus, basal ganglia
- Cerebrum; cerebral cortex
- Proprioceptors
- Posture & equilibrium
- Vestibular apparatus
- EEG
- CSF
- Autonomic nervous system

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2 a. CARDIO VASCULAR SYSTEM

- Cardiac muscle— structure & properties
- Cardiac cycle
- Heart sounds
- ECG; arrhythmia
- Cardiac output
- Factors regulating the action of heart
- Heart rate
- Arterial blood pressure & its regulation
- Coronary circulation
- Cerebral circulation
- Haemorrhage
- Circulatory shock
- Cardio vascular adjustments during exercise

2 b. RESPIRATION

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- Overview of respiratory tract
- Defence mechanism in respiratory tree
- Mucociliary transport
- Mechanics of respiration
- Pulmonary circulation
- Lung volumes & pulmonary function tests
- Transport of blood gases
- Acid-base balance
- Artificial ventilation
- Neural & chemical regulation of respiration
- Hypoxia & its types
- Effects of exercise on respiratory system

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- Acclimatization
- High altitude and respiration
- Decompression sickness

UNIT 3

36

SPECIAL SENSES

- Vision
- Audition
- Olfaction
- Gustation
- Vestibular apparatus

UNIT 4

REPRODUCTIVE SYSTEM

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- Overview of male & female reproductive system
- Menstrual cycle
- Pregnancy & parturition
- Placenta & its functions
- Lactation
- Contraceptive measures
- Physiology of foetus
- Factors affecting foetal growth

UNIT 5

BIOCHEMISTRY

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- Protein chemistry
- Definition, general classification, properties & functions
- Protein metabolism
- Urea cycle

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- Enzymes– definition ,classification ,properties , factors affecting enzyme action & clinical importance
- Electron transport chain
- Vitamins–sources,deficiency manifestations

Evaluation

Total Hours:180

Text Books:

1. JohnE.Hall, ArthurC. Guyton,Text Book of Physiology, Saunders,12th Edition,2010
2. S.S.Randhawa, Medical Bio Chemistry, PVBooks, 1Ed, 2013
3. Chatterjee, Human Physiology,Central book agency,4th edition,1958.

References:

1. L.Prakasam Reddy,Concise Medical Physiology ,JP Brothers,3rdEdi,1999
2. Shettynandhini, Biochemistry for Physiotherapist and AHS, JP bros,1Ed,2008
3. Sembulingam, Essentials of Physiology ,JP Medical Ltd, 6th Ed, 2013
4. Sujith Kumar Chaudhri,Concise medical physiology,New Central Book Agency,6th Ed, 2011
5. U. Sathyanarayana, Essentials of Biochemistry, Book and Allied (P)Ltd, Kolkata ,1stEd,1999
6. Ganong's review of medical physiology kim.E.Barrett 25thedition.
7. D M .Vasudevan Textbook of biochemistry for medicalstudents7thedition.

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Prasanth Bhaskar

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FSEC301	AI FOR EVERYONE	L T P	2 credits
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Course Objectives:

CO1	Introduce fundamental concepts of Artificial Intelligence (AI) and its real-world applications.
CO2	Familiarize students with basic AI techniques such as machine learning, natural language processing, and computer vision.
CO3	Enhance understanding of ethical considerations and societal impacts of AI.
CO4	Develop problem-solving skills using AI tools and frameworks.
CO5	Encourage critical thinking about the future of AI in various domains such as healthcare, education, business, and security.

Unit-I

Introduction to AI (Concept + Hands-on): What is AI? Understanding AI vs. Machine Learning vs. Deep Learning, AI in daily life: Smart assistants, AI in social media, AI in e-commerce, Prompt Engineering, Real Life Applications of AI. Tools: Explore AI-based tools (Google AI, ChatGPT, MetaAI, Gemini).

Unit-II

Introduction to Machine Learning and Deep Learning: Introduction to learning theory, Methods and Models. Supervised vs. Unsupervised Learning (Examples from real life), Reinforcement Learning, Introduction to ANN and Deep Learning.

Unit-III

Computer Vision & Image Processing: Introduction to Image processing and Computer Vision ?, Hardware used, Face Recognition, Object Detection, and AI-powered Cameras, How AI understands text & speech, AI in Chatbots, Sentiment Analysis, and AI-based Translation Practical

Unit-IV

AI in Automation & Robotics: AI-powered automation in businesses, How AI is used in robotics and smart homes, Ethical and Responsible AI, Bias in AI and fairness in decision-making, How to use AI responsibly.

Unit-V

Mini AI Projects (Without Coding): Hands-on Project Options:
 AI for Image Classification: Train an AI model to recognize objects
 Create an AI Chatbot: Use Dialog flow or Chatbot.com
 AI in Business: Automate tasks using AI-based productivity tools.
 * Students will present their AI Project (Simple AI-based tool using existing platforms)
 Complete an AI-based quiz & get a certification.



Text books and References:

1. **Stuart Russell & Peter Norvig** – *Artificial Intelligence: A Modern Approach* (Pearson, 4th Edition)
2. **John Paul Mueller & Luca Massaron** – *Artificial Intelligence For Dummies* (Wiley) “A beginner-friendly guide to AI concepts, applications, and future trends.”
3. **Thomas H. Davenport & Nitin Mittal** – *All in on AI: How Smart Companies Win Big with Artificial Intelligence* (Harvard Business Review Press), Explains AI strategies in business and industry.

COURSE OUTCOMES:

CO1	Understand the fundamental principles and applications of AI in different industries.
CO2	Explain key AI techniques, including supervised and unsupervised learning, deep learning, and neural networks.
CO3	Analyze ethical challenges and biases in AI systems and their impact on society.
CO4	Apply AI-driven solutions in fields like healthcare, finance, and automation.
CO5	Critically evaluate the benefits and risks associated with AI technologies.

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