THE APOLLO UNIVERSITY

DIVISION OF ALLIED HEALTH SCIENCES

SCHOOL OF HEALTH SCIENCES

COURSE STRUCTURE & SYLLABI
(B.Sc. PHYSICIAN ASSISTANT)

FOR 2023 ADMITTED BATCH

A DIVISION OF AHERF

The Apollo University

A DIVISION OF AHERF

VISION

The Apollo University aspires to create knowledge, thought leadership, and global leaders for the future, preparing them for a constantly evolving world and empowering them to build a healthier and more equitable society.

MISSION

The Mission is to achieve this vision through transformative education, developed at the intersection of healthcare, science, technology, and management, having roots in innovation & research, in an inclusive culture that fosters practical oriented knowledge, stimulates critical thinking and sustains our legacy of pioneering and excellence, for the benefit of humanity.

PROGRAM EDUCATIONAL OBJECTIVES (PEO)

PEO-1	**Clinical Competence:** Provide students with strong theoretical knowledge and practical training to develop competency in clinical examination, diagnosis, and management of common medical conditions under physician supervision.
PEO-2	**Patient-Centered Care:** Train students to deliver compassionate, ethical, and patient-centered healthcare services across diverse populations in various healthcare settings.
PEO-3	**Diagnostic and Clinical Decision-Making Skills:** Develop the ability to collect patient history, perform physical examinations, interpret diagnostic tests, and assist physicians in making appropriate clinical decisions.
PEO-4	**Effective Communication and Teamwork:** Prepare students to communicate effectively with patients, caregivers, physicians, nurses, and other healthcare professionals, and to work efficiently as part of a multidisciplinary healthcare team.
PEO-5	**Clinical Procedures and Technology:** Provide training in performing basic medical procedures and using modern medical technologies and diagnostic equipment commonly used in hospitals and clinical settings.
PEO-6	**Emergency and Critical Care Skills:** Equip students with the knowledge and skills to assist in emergency care, trauma management, and critical care situations.
PEO-7	**Community and Preventive Healthcare:** Encourage participation in community health programs, preventive medicine, and health education to improve public health awareness.
PEO-8	**Lifelong Learning and Professional Development:** Promote continuous professional development and encourage students to stay updated with advances in medical science and healthcare practices.

PROGRAM OUTCOMES (PO)

PO1: Clinical Knowledge and Skills: Apply biomedical and clinical sciences knowledge to assist physicians in patient assessment, diagnosis, and management.

PO2: Patient Care : Provide safe, effective, and patient-centered care under physician supervision in various healthcare settings.

PO3: Communication Skills: Communicate clearly and effectively with patients, families, and healthcare professionals to ensure accurate information exchange and improved patient outcomes.

PO4: Multidisciplinary Teamwork: Work collaboratively as a member of a multidisciplinary healthcare team to provide coordinated and comprehensive patient care.

PO5: Professionalism and Ethics: Demonstrate professional behaviour, ethical practice, empathy, and respect for patient confidentiality and cultural diversity.

PO6: Clinical Procedures and Technical Skills: Assist in and perform basic clinical procedures, diagnostic tests, and therapeutic interventions following established medical protocols.

PO7: Leadership and Responsibility: Demonstrate leadership qualities, accountability, and responsibility in clinical practice and healthcare delivery.

PO8: Evidence-Based Practice and Research: Use scientific reasoning and evidence-based medicine to support clinical decisions and participate in healthcare research activities.

PO9: Lifelong Learning and Professional Growth: Engage in continuous learning and professional development to maintain competence and adapt to advancements in healthcare.

PROGRAM SPECIFIC OUTCOMES (PSO)

PSO-1	Ability to apply knowledge of **medical sciences, clinical procedures, and diagnostic techniques** in assisting physicians for effective patient care and management.
PSO-2	Ability to **communicate effectively and work collaboratively in a multidisciplinary healthcare team**, ensuring patient-centred care and professional practice.
PSO-3	Ability to acquire **clinical, technical, and managerial skills** required to assist in medical procedures, patient monitoring, and healthcare delivery, making them competent and employable healthcare professionals.

THE APOLLO UNIVERSITY

ACADEMIC REGULATIONS

SCOPE:

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

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

1. ADMISSION INTO THE PROGRAM

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

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

The Apollo University will widely notify the counselling schedule for admissions into the academic programs in the media. The provisional admission will be given to the eligible students during the counselling scheduled by The Apollo University. The selected candidates will be provisionally

admitted into the program of his/her choice if the candidate meets the program specific requirements in addition to academic performance qualifying exam. Admission is purely based on merit and so merely meeting the requirements will not ensure admission. The University does not discriminate based on gender, race, region, religion, disability or nationality. The University reserves the right to make admissions based on various criteria which is specified in the admission brochure.

2. ELIGIBILITY CRITERIA

Undergraduate programs

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

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

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

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

3. PROGRAMS

The Apollo University offers variety of programs which includes certificate, undergraduate, postgraduate, and Research. The list of programs on offer for the academic year 2021-22 are annexed in Annexure 2.

Minimum duration of the program

The minimum duration of each program depends on the type of program, viz., undergraduate, postgraduate, integrated programs, etc., and the faculty which offers the program. The maximum duration of the program is N+2 years, where N stands for the minimum duration of the program as mentioned in Annexure 2. If the student has not obtained the minimum number of credits within the stipulated time, the Vice-Chancellor may extend the maximum duration in extenuating circumstances upon receiving a request along with reasons from the student for not completing the program on time.

4. CHOICE BASED CREDIT SYSTEM

The choice-based credit system (CBCS) facilitates the education student-centric. It provides the

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

5. STRUCTURE OF THE PROGRAM

The Program structure Consists of

i) University Courses
   - A. University Core
   - B. University Electives

ii) Faculty Courses
   - A. Faculty Core
   - B. Faculty Electives

iii) Program Courses
   - A. Program Core
   - B. Program electives

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

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

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

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

6. MEDIUM OF INSTRUCTION

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

7. REGISTRATION

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

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

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

8. ATTENDANCE REQUIREMENTS

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

9. EVALUATION

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

Details of Assessment Procedure are furnished below in Table 1.

Table 1: Assessment Procedure

S. No.	Component of Assessment	Marks Allotted	Type of Assessment	Scheme of Evaluation
1	Theory	40	Continuous Evaluation	i) Twenty (20) marks for mid examinations. Three mid examinations shall be conducted for 20 marks each; average of the best two performances shall be taken into consideration. ii) Ten (10) marks for Quizzes, Assignments and Presentations. iii) Ten (10) marks for periodic evaluation, case studies and projects
		60	Semester-end Examination	iv) Sixty (60) marks for Semester-end examinations
	Total	**100**		
2	Laboratory	100	Continuous Evaluation	i) 80 marks with equal weightage to all experiments subject to conduct of minimum of 10 experiments. ii) 20 marks for the end exam (with one of our university teachers as external other than course teacher)
3	Internship	100	Continuous Evaluation	i) Eighty (80) marks for periodic evaluation and Internship report by the Project Supervisor. ii) Twenty (20) marks for final Report presentation and Viva-voce, by a panel of internal examiners. iii) Students shall undergo TWO internships during the course of time and the evaluation shall be done during final semester.

4	Project work	100	Continuous Evaluation	iv) (80) marks for periodic evaluation and technical report writing by the Project Supervisor. ii) Twenty (20) marks for final Report presentation and Viva-voce, by a panel of internal examiners
5	Students Seminars	100	Continuous Evaluation	Each student has to give a seminar on any topic in consultation with the faculty member in charge A detailed report shall be submitted to the in charge. 60 marks for periodic evaluation including report preparation and 40 marks for viva voce by a panel of examiners.

GRADING SYSTEM

Based on the student performance during a given semester, a final letter grade will be awarded at the end of the semester in each course. The letter grades and the corresponding grade points are as given in Table 2.

Table 2: Grades & Grade Points

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

SEMESTER GRADEPOINTAVERAGE (SGPA)

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

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

Where

C=number of credits for the course,

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

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

CUMULATIVE GRADE POINT AVEARGE (CGPA)

A similar formula is used to arrive at Cumulative Grade Point Average (CGPA), considering the student's performance in all the courses taken in all the semesters up to the particular point of time. Table 3 shows the CGPA required for the award of class after the successful completion of the program.

Table3: CGPA required for award of Class

Class	CGPA Required
First Class with Distinction	≥8.0*
First Class	≥6.5

Second Class	≥5.5
Pass Class	≥5.0

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

11. REAPPEARANCE

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

11.1 Procedure for revaluation

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

11.2 ASSESSMENT MECHANISM

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

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

11.3 Semester End Examination

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

Odd semester examinations in November/ December and

Even semester examination in May/June

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

Under-Graduation Programs

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

11.4 Post Evaluation Programme:

Under the Post Evaluation Programme there are three menus:

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

11.5 Provision for improvement

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

Provision for Re-totalling and Revaluation of valued answer scripts

- UG candidates may apply for re-totalling / revaluation of valued answer scripts, to the Controller of Examinations through the Heads of Departments and Principal / Dean, in the prescribed forms, remitting the prescribed fee within 7 days from the date of publication of results. Revaluation of answer scripts is permissible only for the current semester papers and not for any arrear paper.
- Those wish to apply for revaluation of final semester papers can do so within five days from the date of publication of results. In re-valuation, the answer papers will be valued by an external examiner and if there is a difference of 15 marks between the

two evaluations then the script will be sent for third valuation which is final and the mark awarded by the third examiner will be taken into the account.

- Revised mark statement will be issued after withdrawing the previous one, if the marks obtained in revaluation / retotaling are higher than the marks obtained earlier. In other cases, the original marks obtained earlier will be retained and the matter will be intimated to the student concerned as 'No change'.
- A candidate who applies for revaluation should not apply for retotaling.

Restrictions to appear for the examinations

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

12. BETTERMENT OF GRADES

A student who has secured only a Pass or Second class and desires to improve his/her Class can appear for Betterment Examinations only in Theory courses of any Semester of his/her choice, conducted in Summer Vacation along with the Special Examinations. Betterment of Grades is permitted 'only once' immediately after completion of the program of study.

13. DETENTION AND RE-ADMISSION

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

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

14. GROOMING AND ATTIRE FOR STUDENTS

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

The Dress Code to be in compliance on academic premises while attending: Formal Functions of the Institution / Lectures / Practicals / Dining Area / Library / Labs / Office Areas.

Students shall follow appropriate attire during Academic and Non-Academic hours on the campus. Students shall wear clean, neat, pressed and presentable clothing, and command respect by dressing in accordance with responsible personal norms. Students shall always wear The Apollo University ID Card with the Lanyard.

Grooming and Formal Wear - Boys:

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

Smart Casuals for Boys:

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

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

Smart Casuals for Girls:

Jeans with long Kurtis / Long Skirts / Long Frocks.

Attire for Non-Academic Hours On Campus:

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

Dress Code for Boys:

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

Dress Code for Girls:

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

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

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

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

15. ELIGIBILITY FOR AWARD OF THE DEGREE

The undergraduate degree will be of 4-years/ 3-years (Lateral Entry) of duration. A student shall be

declared as eligible for the award of the degree if the candidate has successfully secured the minimum number of required credits as specified in the curriculum corresponding to the branch of his/her study within the stipulated time.

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

16. DISCRETION POWER

Not with-standing anything contained in the above sections, the Vice Chancellor may review all exceptional cases, and give his decision, which will be final and binding.

ANNEXURE 1

ELIGIBILTY FOR QUALIFYING EXAM FOR UNDERGRADUATE PROGRAMS

Program Type	**Program Name**	**Eligibility**
Bachelor's	**Physician Assistant**	Passed with at least 45% (40% in case the candidates belong to reserved category) marks with Botany, Zoology, Physics and Chemistry or Inter vocational with Bridge course of Biological and Physical Sciences (or) APOSS with Biological Sciences and Physical Sciences from a recognized board or other equivalent board or Intermediate and attain 17 Years as on 31st December of Calendar Year.

ANNEXURE 2

PROGRAMS OFFERED BY SCHOOL OF TECHNOLOGY

FROM ACADEMIC YEAR 2021-22

Sl. No.	Program	Expanded	Level	Minimum Duration in Years (N)
1	B.Sc. PAT	B.Sc. Physician Assistant	Bachelor's	4
2.	B.Sc. MLT	B.Sc. Medical Lab Technology	Bachelor's	4
3.	B.Sc. IMT	B.Sc. Imaging Technology	Bachelor's	4
4.	B.Sc. AOTT	B.Sc. Anaesthesiology and Operation Technology	Bachelor's	4
5.	B.Sc. RDT	B.Sc. Renal Dialysis Technology	Bachelor's	4
6.	B.Sc. RTT	B.Sc. Respiratory Therapy Technology	Bachelor's	4
7.	B.Sc. EMT	B.Sc. Emergency Medical Technology	Bachelor's	4
8.	BOPT	Bachelors in Optometry	Bachelor's	4

THE APOLLO UNIVERSITY
B.Sc. PHYSICIAN ASSISTANT
PROGRAMME STRUCTURE
I - Semester

3 Week Induction Programme						
Course Code	**Course Name**	**Periods per week**			**Credits**	**Hours per week**
		L	**T**	**P**		
AHSJ1301	Anatomy	3	1	2	5	6
AHSJ1302	Physiology	3	1	2	5	6
AHSJ1303	Biochemistry	3	1	2	5	6
TAUT1101	University Core -I (Communicative English)	3	0	0	3	3
	University Elective I	3	0	0	3	3
--	Mentoring	0	0	0	0	1
--	Library	0	0	0	0	1
--	Physical Activity	0	0	0	0	2
--	Extra-curricular activities	0	0	0	0	2
--	Co-curricular activity	0	0	0	0	2
--	Self- Learning	0	0	0	0	2
	Seminar	0	0	0	0	2
TOTAL		**15**	**3**	**6**	**21**	**36**

University Elective – I
Semester – I

S. No	Name of the Course	Host Department
1	Basics of Physiotherapy	School of Health Sciences – Physiotherapy
2	Biostatistics	School of Health Sciences – BMS & GMB
3	Constitution of India	School of Social Sciences
4	Ethical Hacking	School of Technology - CSE
5	Fundamentals of Computers	School of Technology - CSE
6	Gender and Development	School of Social Sciences
7	Leadership Development	School of Management
8	Mathematical Thinking	School of Technology
9	Nursing	Apollo Institute of Nursing
10	One Health	School of Health Sciences – PH
11	Basic emergency care and life support skills	School of Health Sciences – AHS
12	Basics of Health Management	School of Health Sciences – AHS
13	Entrepreneurship	School of Management
14	Managerial Economics	School of Management
15	Organic Farming	School of Health Sciences – BMS & GMB
16	Personality Development	School of Health Sciences – Psychology
17	Social Entrepreneurship	School of Management

II - Semester

Course Code	Course Name	Periods per week			Credits	Hours per week
		L	T	P		
AHSJ1304	Microbiology	3	1	2	5	6
AHSJ1305	Pathology	3	1	2	5	6
AHSJ1306	Pharmacology	3	1	2	5	6
TAUT1102	University Core-II (Environmental studies)	3	0	0	3	3
--	University Elective-II	3	0	0	3	3
PAST1501	Fundamentals of Physician Assistant	3	0	0	3	3
--	Mentoring	0	0	0	0	1
--	Library	0	0	0	0	1
--	Physical Activity	0	0	0	0	2
--	Extra-curricular activities	0	0	0	0	2
--	Self-Learning	0	0	0	0	2
--	Seminar	0	0	0	0	1
TOTAL		**18**	**3**	**6**	**24**	**36**

University Elective – II
Semester – II

S. No	Name of the Course
Indian Languages	
1	Telugu
2	Tamil
3	Hindi
4	Professional English
Foreign Languages	
5	French
6	German
7	Spanish
8	Japanese

III - Semester

Course Code	Course Name	Periods per week			Credits	Hours per week
		L	T	P		
PAST2501	General Medicine and Pharmacology	3	1	0	4	4
PAST2502	General Surgery	3	1	0	4	4
PAST2503	Pediatrics	3	1	0	4	4
PASL2501	Clinical skills I	0	0	12	6	12
TAUT2101	University core-3 (Health and wellness)	3	0	0	3	3
TAUT2201	University electives-3	3	0	0	3	3
--	Mentoring	0	0	0	0	1
--		0	0	0	0	2

IV - Semester

Course Code	Course Name	Periods per week			Credits	Hours per week
		L	T	P		
PAST2504	Anaesthesiology and Geriatric	3	1	0	4	4
PAST2505	Clinical Microbiology	3	1	0	4	4
PAST2506	Obstetrics and Gynaecology	3	1	0	4	4
PASL2502	Clinical skills II	0	0	20	10	20
--	Mentoring	0	0	0	0	1
--	Extra-curricular activities	0	0	0	0	2
--	Library	0	0	0	0	1
TOTAL		**9**	**3**	**20**	**22**	**36**

V - Semester

Course Code	Course Name	Periods per week			Credits	Hours per week
		L	T	P		
PAST3501	Orthopaedics	3	1	0	4	4
PAST3502	Hematology/Transfusion medicine	3	1	0	4	4
PAST3503	Nephrology/DVL	3	1	0	4	4
PASL3501	Clinical skills III	0	0	16	8	16
PAST3601a PAST3601b PAST3601c	Programme Electives – I a) OPHTHALMOLOGY b) RADIOLOGY* c) FORENSIC MEDICINE*	3	0	0	3	3
--	Mentoring	0	0	0	0	1
--	Extra-curricular activities	0	0	0	0	2
--	Seminar	0	0	0	0	1
--	Library	0	0	0	0	1
TOTAL		**12**	**3**	**16**	**23**	**36**

***Applicable from 2024 Admitted Batches.**

VI - Semester

Course Code	Course Name	Periods per week			Credits	Hours per week
		L	T	P		
PAST3504	Cardiology/Pulmonology	3	1	0	4	4
PAST3505	Neurology	3	1	0	4	4
PAST3506	Gastroenterology	3	1	0	4	4
PASL3502	Clinical skills IV	0	0	16	8	16
PAST3602a PAST3602b PAST3602c	Program elective II a) GENETICS b) OTORHINOLARYNGOLOGY* c) PSYCHIATRY*	3	0	0	3	3
--	Mentoring	0	0	0	0	1
--	Extra-curricular activities	0	0	0	0	2
--	Seminar	0	0	0	0	1
--	Library	0	0	0	0	1
TOTAL		**12**	**3**	**16**	**23**	**36**

***Applicable from 2024 Admitted Batches.**

VII Semester

Course Code	Course Name	Periods per week			Credits	Hours per Semester
		L	T	P		
PASI4501*	Internship-I			48	25	1104
TOTAL				**48**	**25**	**1104**

VIII Semester

Course Code	Course Name	Periods per week			Credits	Hours per Semester
		L	T	P		
PASI4502*	Internship-II			48	25	1104
PASP4501	Project			8	6	180
TOTAL				**56**	**31**	**1284**

*** Internship Evaluation can be Submitted at the end of the Year.**

I SEMESTER

AHSJ1301 **ANATOMY** **L T P C**
3 1 2 5

Course Description:

This course will cover anatomy with special emphasis on general anatomy including anatomical position, anatomical planes, cell structure, tissues and upper and lower limbs focusing on important muscles, arteries, veins, and nerves which are of significant clinical importance. This course also covers important and relevant anatomical knowledge of all systems namely nervous, cardiovascular, respiratory, gastrointestinal, reproductive, and excretory systems.

This course also covers practical teaching of osteology, gross anatomy of important viscera, radiology and histology.

Course Objectives:

Students undergoing this course are expected to:

1. Understand and learn the origin, insertion, action, and nerve supply of clinically important muscles.
2. Understand and learn the origin, course, branches and clinical aspects of important vessels and nerves.
3. Explain the location, external features, relations, blood supply, clinical importance of organs of nervous, cardiovascular, respiratory, gastrointestinal, reproductive, endocrine and excretory systems.

THEORY

Total: 60 Hrs

UNIT-I **12Hrs**

INTRODUCTION

- Introduction to anatomy
- Define Anatomy and list its sub-divisions.
- Describe the Anatomical position.

General Histology

- Describe the human cell and its organelle.
- Describe the types of cell division and give examples.
- List out the types of tissues and describe their basic structure.
- Briefly describe the types of connective tissue including specialized connective tissue
- Describe the types and functions of epithelia.

UPPER LIMB

- Name the important bones, muscles, blood vessels & nerves of the upper limb.
- Briefly describe the movements of joints and the nerve supply and actions of the important muscle groups of the upper limb
- Describe the location and course of the major blood vessels & nerves of the upper limb.

UNIT-II **12 Hrs**

LOWER LIMB

- Name the important bones, muscles, blood vessels & nerves of the lower limb
- Briefly describe the movements of joints, nerve supply and actions of the important muscle groups of the lower limb
- Describe the location and course of the major blood vessels & nerves of the lower limb

RESPIRATORY SYSTEM

- Name the parts of the respiratory system.
- Briefly describe the pleura and its disposition
- Describe the external features of the lungs and their relations.
- Name the bronchopulmonary segments in each lung and explain their significance.
- Briefly describe the mechanism of respiration

UNIT-III **12 Hrs**

CARDIOVASCULAR SYSTEM

- Describe the important external and internal features of the heart.
- Briefly describe the blood supply of the heart
- Describe the circulation of blood through the heart and types of circulation.
- Describe the aorta and its branches.
- List out the major veins that join into the superior and inferior vena cavae.
- Briefly describe the lymphatic system and its function

NERVOUS SYSTEM

- Classify nervous system.
- Describe briefly the external and internal features of the spinal cord, its coverings and blood supply.
- Describe briefly the external and internal features of the brainstem and the functional significance of the tracts and nuclei seen in the brainstem.
- Briefly describe the cerebellum and its peduncles

- Describe the cerebrum in brief and its lobes and functional areas of importance.
- Briefly describe the circulation of cerebrospinal fluid

UNIT-IV **12 Hrs**

ENDOCRINE SYSTEM

- Name the endocrine glands and the hormones secreted by each.
- Briefly describe the anatomy and physiology of the pituitary, thyroid, parathyroid, Adrenal, and pancreas.

REPRODUCTIVE SYSTEM

- Describe briefly the male reproductive system.
- Describe briefly the female reproductive system.
- List out the hormones released by the organs in the reproductive system**.**

EXCRETORY SYSTEM

- Describe briefly the excretory system.

UNIT-V **12 Hrs**

GASTROINTESTINAL SYSTEM

- Briefly describe the extent, important anatomical features, and relations of various parts of the gastrointestinal tract.
- Describe the important anatomical features, surface anatomy, relations and functions, and blood supply of the liver.
- Briefly describe the parts, important features and functions of the oesophagus, stomach, duodenum, small intestine, and large intestine.
- Describe briefly the important anatomical features, position and relations and functions of pancreas and spleen.
- Briefly describe the blood supply of the gastrointestinal system.

Course outcomes:

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

- Explain the origin insertion, action, nerve supply, and clinical importance of muscles.
- Understand and learn the origin, course, branches and clinical aspects of important vessels and nerves.
- Explain the location, external features, relations, blood supply, and clinical importance of various organs of nervous, cardiovascular, respiratory, gastro-intestinal, reproductive, and excretory systems.

PRACTICALS **Total: 30 Hrs**

Course Objective: The course will cover Anatomy with special emphasis on osteology, histology, demonstration of viscera, radiology.

The assessment of the students will be undertaken with the help of following exercises.

- Spotters
- Viva

Textbooks:

1. Manipal manual of Human anatomy
2. Human anatomy & Physiology for Nursing – Mahindra Kumar Anand & Meena Verma
3. Understanding Human Anatomy & physiology – Willian Davis (McGraw Hill)
4. Anatomy & physiology – Kaarna Muni Shekhar
5. Textbook of Anatomy – Chaurasia
6. Textbook of Anatomy – TS Ranganathan Human Anatomy – Fattana.

Reference Books:

1.Textbook of Anatomy-Vishram Singh

AHSJ1302 PHYSIOLOGY L T P C

3 1 2 5

Course Description: The goal of this course is to help students in understanding functions, regulation, and integration of organ systems of the human body.

Course Objectives:

- Describe the concept of homeostasis.
- Interpret the structure of the cell membrane and describe the transport mechanisms for solute and water across the cell membrane. Explain the basis of membrane potential.
- Describe the structure and functional organization of the human nervous system and its subdivisions. Discuss the role of nervous system in homeostasis.
- Understand how heart and blood vessels work to maintain a constant delivery of blood flow (oxygenated) to all the tissues and simultaneously how the blood is returned (deoxygenated/ venous blood) to the heart. Explain how cardiovascular system adjust its activity to meet the demands placed by the body during activities of daily life (E.g., exercise)
- Describe the basic anatomy and functions of the pulmonary system.
- Explain the role of kidney in blood pressure, electrolyte, and fluid homeostasis.
- Elaborate on how the structure of gastrointestinal tract suited for digestion and absorption. Discuss the mechanism of digestion and absorption at various levels of gastrointestinal tract.
- Describe how endocrine organs are involved in regulation of growth, metabolism, fluid and electrolyte balance and reproduction.

THEORY Total: 60 Hrs

UNIT-I 10 Hrs

1. **General Physiology (Cell Physiology)**
   - Homeostasis
   - Cell structure and functions of cell with special emphasis on characteristics of cell membranes, Transport mechanisms across cell membrane.
   - Body Fluid Compartments (volume, composition, and units to measure solute concentration).
2. **Nerve-Muscle Physiology**

- Neuron (structure and function), Classification of neurons, Neuroglia, Type of nerve fibers, Resting membrane potential and Action potential.
- Neuromuscular Junction (skeletal muscle) and Neuromuscular blocking drugs
- Classification and functions and structure of muscles, Excitation contraction coupling, Mechanism of muscle contraction
- Differences between skeletal, smooth, and cardiac muscle.
- Applied physiology: Nerve injury, Myasthenia gravis, Neuromuscular junction blockers, Muscular dystrophy.

3. Blood (Hematology)

- Composition of blood, functions of cellular (RBC, WBC, and platelets) and non-cellular (plasma and plasma proteins) components of blood.
- RBC (Erythrocyte): Erythropoiesis and factors affecting it, Normal count, and variations. Hemoglobin: Functions and recycling of hemoglobin, Jaundice, Anemia.
- WBC: Classification, morphology, site of production, functions, normal and differential count, and variations. Immunity.
- Platelets: Origin, normal count, and functions (role in hemostasis).
- Hemostasis: Clotting factors and their role in hemostasis. Disorders of Hemostasis.
- Blood groups: ABO & Rh systems, Erythroblastosis fetalis, Hazards of mismatched blood transfusion
- Reticuloendothelial system

UNIT-II **13 Hrs**

1. Nervous system (Central Nervous system)

- Parts (gross connections)
- **Cerebral hemisphere**: parts, corpus callosum, cerebral cortex, and functions of frontal, parietal, temporal, and occipital lobes of the cerebrum.
- Connections between motor cortex and subcortical structures and spinal cord (descending tracts). Connections between spinal cord and thalamus- somatosensory cortex of parietal lobe (ascending tracts).
- Upper and lower motor neurons
- Descending and ascending tracts (origin, location, course, and termination)
- **Subcortical structures**

Basal ganglia, Thalamus, Hypothalamus, and Limbic system. Nuclei of subcortical structures, its connections with various parts of the brain and its functions.

- **Brain stem**: (Midbrain, Pons, and Medulla oblongata)

Nuclei, connections, and its functions

- **Cerebellum**

Physiological anatomy: lobes, cerebella cortex, connections (afferent and efferent), functions and applied aspects.

- Reticular formation and its functions
- Sleep

- **Spinal cord:** parts of gray matter and constituents of white matter. Applied physiology. **Peripheral Nervous System**
- Divisions and constituents of the peripheral nervous system
- Functions of cranial and spinal nerves
- Physiological anatomy of somatic nervous system and its functions
- Physiological anatomy of autonomic nervous system (sympathetic and parasympathetic) and its functions

2. Special senses

- **Vision** –Functional anatomy of eye, visual pathway. Applied physiology: lesions along visual pathway and its effect. Refractive errors.
- **Hearing**– Physiological anatomy of ear, Mechanism of hearing, and auditory pathway. Applied physiology: deafness.
- **Olfaction** –receptors and pathway, function, and its applied physiology
- **Gustation**-modalities, receptor, function, taste pathway, and its applied physiology

UNIT- III **14 Hrs**

1. Cardiovascular system

- Physiological anatomy of the heart, autonomic innervation, and its action on the heart, pulmonary and systemic circulation
- Properties of cardiac muscle
- Conducting system of the heart
- Electrocardiogram
- Cardiac cycle, Heart sounds.
- Vascular system (branching), hemodynamics, factors influencing resistance to the blood flow.
- Cardiac output: definition, factors regulating it and measurement of cardiac output.
- Blood pressure: Definition, components, determinants of blood pressure and factors regulating it.
- Lymphatic system and its functions
- Pulse
- Applied aspects of cardiovascular physiology: myocardial infarction, heart failure, shock, and others
- Cardiovascular changes during exercise

2. Respiratory System

- Physiological anatomy of the respiratory tract, conducting and respiratory zone of the respiratory tract, pleural and pleural cavity, mechanics of respiration, changes in intrapleural and intrapulmonary pressures during respiratory cycle.
- Compliance and factors affecting it (surface tension and surfactant), respiratory distress syndrome.
- Lung volumes and capacities
- Respiratory membrane, partial pressure of gases, transport of O_2 and CO_2, Oxyhemoglobin dissociation curve.
- Regulation of respiration (Chemical and Neural)

- Hypoxia, dyspnea, apnea, asphyxia, and cyanosis
- Artificial respiration

UNIT-IV **13 Hrs**

1.Digestive System

- Introduction to Gastrointestinal system and Physiological anatomy of the wall of Gastrointestinal tract
- **Salivary glands** and its function, mastication, pharynx, and Deglutition
- **Stomach:** physiological anatomy, composition of Gastric juice (HCL secretion), its functions and its regulation.
- Vomiting reflex.
- **Liver and gall bladder**: Bile composition and its functions, and other functions of the liver, functions of the gall bladder. Enterohepatic circulation
- **Pancreas:** Pancreatic juice composition, its functions and regulation of its release.
- **Small intestine:** Succus entericus composition, functions, and regulation of its release. Small intestinal motility and its functions.
- **Large intestine:** function, movements, and Defecation reflex
- Digestion and absorption of carbohydrates, fats, and proteins.

2.Renal System

- Physiological anatomy & functions of the kidney, blood supply and special features of blood flow to the kidney. Structure and types of nephrons
- Histology of the renal corpuscle: Juxtaglomerular apparatus.
- Mechanisms of formation of urine: Glomerular filtration rate (GFR), Tubular reabsorption (Special emphasis on reabsorption of water, Na+, Glucose, HC03- and Ca2+) and tubular secretion (special emphasis on secretion of K+ and H+). Renal handling of urea, Renal threshold, and Tubular maximum.
- GFR: Starling forces acting across the glomerular capillaries and factors affecting GFR
- Concentration of urine: role of counter-current multiplier and counter-current exchanger
- Role of kidney in Regulation of blood pressure and pH
- Diuresis, diuretics, renal clearance. Renal function tests.
- Artificial kidney (Dialysis)
- Skin: Physiological anatomy of the skin and its role in temperature regulation.

UNIT-V **10 Hrs**

1. Endocrine System

- Physiological anatomy & functions of the kidney, blood supply and special features of blood flow to the kidney. Structure and types of nephrons
- Histology of the renal corpuscle: Juxtaglomerular apparatus.
- Mechanisms of formation of urine: Glomerular filtration rate (GFR), Tubular reabsorption (Special emphasis on reabsorption of water, Na+, Glucose, HC03- and Ca2+) and tubular secretion (special emphasis on secretion of K+ and H+). Renal handling of urea, Renal threshold, and Tubular maximum.
- GFR: Starling forces acting across the glomerular capillaries and factors affecting GFR
- Concentration of urine: role of counter-current multiplier and counter-current exchanger

- Role of kidney in Regulation of blood pressure and pH
- Diuresis, diuretics, renal clearance. Renal function tests.
- Artificial kidney (Dialysis)
- Skin: Physiological anatomy of the skin and its role in temperature regulation.

2. Reproductive system

- Introduction to reproductive system, sex differentiation, and Puberty.
- **Male reproductive system**, physiological anatomy of the testis and its functions, functions of testosterone, Spermatogenesis, and its regulation.
- **Female reproductive system**; physiological anatomy of ovaries and uterus.
- Functions of ovaries; Oogenesis and ovarian cycle, functions of Estrogen and Progesterone, and menstrual cycle.
- Physiological changes during pregnancy, pregnancy tests, parturition & lactation.
- Male & Female contraceptive methods

Course Outcome:

At the end of the course, students should

- Have thorough knowledge and appreciation of the concepts in Human physiology
- understand the role of all organ systems in homeostasis
- understand how the organ systems work in unison to bring out integrated physiological responses to challenges such as exercise, fasting and ascent to high altitude, and how they can sometimes fail
- be able to perform, analyze and report on experiments and observations in physiology

be able to apply their knowledge in their respective branches of Allied Health Sciences

PRACTICALS **Total: 30 Hrs**

HEMATOLOGY

- Microscope
- Estimation of Hemoglobin
- Estimation of bleeding time and clotting time
- Measurement of ESR – demo
- Estimation of PCV – demo
- Perform RBC count of given blood sample.
- Perform WBC count of given blood sample.
- Perform a Differential Leucocyte Count.
- Calculation of blood indices

CLINICALS

A. Cardiovascular system

- Examination of radial pulse
- Measurement of blood pressure
- Recording of ECG- demo
- Measure of weight and height and calculate body mass index

- Demonstrate JVP, apex beat, percussion of cardiac borders, auscultation of heart sounds.

B. Respiratory system

- Measurement of respiratory rate and temperature
- Examination of respiratory system and temperature
- Spirometry demo

C. Nervous system

- Examination of cranial nerves
- Motor system examination
- Examination of reflexes
- Examination of the sensory system

D. Special senses

- Eye: Tests for vision (Acuity and colour perception)
- Ear: Hearing tests

Textbooks:

1. HH Sudhakar D Venkatesh "Basics of Medial Physiology", 5th edition, Wolters Kluwer,2023.
2. K Sembulingam, Prema Sembulingam, "Essentials of Physiology for Paramedical Students" JAYPEE, 2021.

Reference Books:

1. John E Hall and Michael E. Hall, Guyton & Hall, "Textbook of Medical Physiology" 14th edition, 2020
2. Eric P. Widmaier, Hershel Raff, and Kevin T. Strang "Vanders Human Physiology" 15TH edition, 2018.

AHSJ1303 BIOCHEMISTRY

L T P C

3 1 2 5

Course Description:

This course introduces students to the structure and function of essential biomolecules, which are the organic compounds that constitute the various components of living cells. The course covers the biochemical reactions that facilitate cellular growth, maintenance, reproduction, and energy utilization and storage.

Course Objectives:

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

- Understand the structure and functions of the cell membrane and organelles.
- Comprehend the chemistry of carbohydrates, lipids, proteins, and nucleic acids.
- Explain enzyme actions, mechanisms, inhibition, and clinical enzymology.
- Grasp the significance of nutrition, including vitamins and minerals.
- Describe the structure and functions of immunoglobulins and hemoglobin.

THEORY Total: 60 Hrs

UNIT-I 4 Hrs

Cell and Membrane: Cell organelles and their functions, membrane structure, transport mechanisms across membranes, ionophores, membrane proteins, and transporters.

UNIT- II: 15 Hrs

Chemistry of Biomolecules

- **Chemistry of Carbohydrates:** Definition, classification, important monosaccharides, stereoisomers, anomers, mutarotation, and reactions of monosaccharides (tautomerization, reduction, dehydration, osazone formation). Important disaccharides and polysaccharides.
- **Chemistry of Lipids:** Definition, classification, nature of fatty acids, triacylglycerol, saponification, iodine number, rancidity, antioxidants, complex lipids, steroids, and cholesterol functions.
- **Chemistry of Amino Acids, Peptides, and Proteins:** Definition, classification, peptide bonds, biologically important peptides, essential and non-essential amino acids, protein structure (primary, secondary, tertiary, quaternary), precipitation, denaturation, coagulation, and color reactions of amino acids.
- **Chemistry of Nucleic Acids:** Nitrogenous bases, nucleosides, nucleotides, DNA, genes, and types of RNA involved in protein synthesis.

UNIT-III: 5 Hrs

Enzymes: Definition, classification, factors affecting enzyme activity, mechanism of action, coenzymes, proenzymes, isoenzymes, measurement units, competitive and non-competitive inhibitors, and clinical enzymology with normal values.

UNIT- IV: 12 Hrs

Nutrition and Vitamins

- **Nutrition:** Calorific values of food, basal metabolic rate, specific dynamic action, energy requirements, nutritional importance of carbohydrates, lipids, proteins, nitrogen balance, protein supplementation, Kwashiorkor, Marasmus, and Recommended Dietary Allowance (RDA).
- **Vitamins:** Overview of chemistry, sources, requirements, biochemical functions, deficiency symptoms of vitamins A, D, E, K, B-complex (thiamine, riboflavin, niacin, pantothenic acid, pyridoxine, biotin, folic acid, B-12), and Vitamin C.
- **Mineral Metabolism:** Classification of macro and micro elements, including sodium, potassium, calcium, phosphorus, iron, iodine, magnesium, copper, zinc, fluoride, manganese, selenium, and molybdenum.

UNIT -V: 4 Hrs

Immunology and Hemoglobin

- **Immunology:** Definitions of antigens and antibodies, structure and functions of antibodies.
- **Hemoglobin:** Structure and functions of hemoglobin, its derivatives, degradation process, and jaundice.

Course Outcomes:

Upon successful completion of this course, students will be able to:

- Describe the structures and functions of cell membranes and organelles.
- Understand and explain the chemistry and classifications of major biomolecules.
- Classify enzymes and explain their mechanisms, inhibition types, and clinical relevance.
- Comprehend the basics of nutrition, including sources, recommended dietary allowances (RDA), functions, and deficiency symptoms of vitamins and minerals.
- Explain the structure and functions of immunoglobulins and hemoglobin.

Textbooks: latest editions

1. Concise Textbook of Biochemistry for Paramedical Students (2nd Edition, 2023) by DM Vasudevan
2. A Textbook on Biochemistry for Paramedical Students (2022) by Dr. Kiran Dahiya

Reference Book:

1. Textbook of Biochemistry for Medical Students (10th Edition, 2023) by DM Vasudevan

TAUT1101 COMMUNICATIVE ENGLISH L T P C

3 0 0 3

Course Description:

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

Course Objectives:

The objective of this course is to make students to:

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

UNIT-I **9 Hrs**

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

UNIT-II **9 Hrs**

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

UNIT-III **9 Hrs**

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

UNIT-IV **9 Hrs**

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

UNIT-V **9 Hrs**

Presentations: Self-Introduction; Individual Presentation; Group Discussions; Debates.

Course Outcomes:

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

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

Text Books:

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

Reference Books:

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

TAUT1201A BASICS OF PHYSIOTHERAPY L T P C

3 0 0 3

Course Description:

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

Course Objectives:

The objective of this course is to make students to:

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

5. Provide participants with a substantial understanding of physiotherapy and promote safe practices and ethical behaviour in physiotherapy practice.

UNIT-I Basics of Physiotherapy **5 Hrs**

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

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

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

UNIT-III Acute injuries & management and the uses of Orthotics & Prosthetics **10 Hrs**

i .Mechanism of injury

ii. Acute muscle injuries

-Muscle strain

-Risks of muscle strain

-Muscle imbalance:

-Muscle inflexibility:

iii. Ligament sprain and difference between sprain and strain

iv. Orthotics & Prosthetics

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

i. work-related musculoskeletal disorders (MSDs).
ii. Risk factors associated with work-related MSDs & Possible Causes
iii. Common ergonomic symptoms
iv. Different types of Ergonomics & principles of ergonomics and v. Ergonomic Control Methods
v. Awkward body postures – hazards
vi. Physical Activity and exercise
vii. Physical Fitness and Maximum Oxygen Consumption
viii. Aerobic Exercise Training and Physiological Response to Aerobic Exercise
ix. Cardiovascular Response to Exercise and Respiratory Response to Exercise
x. Responses Providing Additional Oxygen to Muscle and Exercise Program
xi. Warm-Up Period, Aerobic Exercise Period and Cool-Down Period Application

UNIT-V Education & Awareness about common diseases and BLS **12 Hrs**

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

Course Outcomes:

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

Text Books:

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

Reference Books:

1. John Ebenezer- Essentials of Orthopedics for Physiotherapists- 3rd edition 2016
2. Davidson's principles and practice of medicine
3. Fundamentals of Ergonomics in Theory and Practice- Alan Hedge- 2019
4. Introduction to Ergonomics, Third Edition" -Robert Bridger- 2018
5. Human Factors and Ergonomics in Practice: Improving System Performance and Human Well-Being"- Steven Shorrock, Claire Williams- 2020
6. Acute Care Handbook for Physical Therapists- Jaime C. Paz, Michele P. West- 2019
7. Sports Injury Prevention and Rehabilitation: Integrating Medicine and Science for

Performance Solutions" David Joyce, Daniel Lewindon- 2015
8. Orthotic Intervention for the Hand and Upper Extremity: Splinting Principles and Process"- Marylyn A. Jacobs, Noelle M. Austin- 2013
9. Prosthetics and Orthotics: Lower Limb and Spine"- Joan E. Edelstein, Alex Moroz- 2017
10. "Essentials of Physiotherapy"- Prakash Narain Tandon- 2016
11. Pathology for the Physical Therapist Assistant - Catherine C. Goodman, Kenda S. Fuller- 2020 (3rd Edition)

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

Course Description:

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

Course Objectives:

1. Gain a solid understanding of biostatistical principles including descriptive statistics, probability, hypothesis testing, and regression analysis.
2. Apply these principles to analyze data from biological and health sciences, focusing on

experimental and observational studies.

3. Critically interpret statistical results and effectively communicate findings to different audiences.
4. Develop proficiency in using statistical software for data manipulation, analysis, and visualization.
5. Design studies, evaluate literature, and collaborate in interdisciplinary teams, preparing for advanced study and research in biostatistics and related fields.

UNIT-I Descriptive methods **9 Hrs**

Frequency Distribution, Characteristics of a Frequency Distribution, Tabular and Graphical Presentation of Data: Line Graphs, Bar Charts, Histograms, Ogives.

UNIT-II Measures of central tendency **9 Hrs**

Arithmetic Mean, Median, Mode, Position of Averages, Selection of the Appropriate Measure of Central Tendency, Geometric Mean, Harmonic Mean.

UNIT-III Measures of dispersion **9 Hrs**

Range, Interquartile Range, Mean Deviation, Variance and Standard Deviation

UNIT-IV Sampling Designs **9 Hrs**

Sampling and Sample Designs, Significance of Probability and Non-probability sampling methods, Crossover Design, Case Control Design, Cohort Study Design, Designing clinical trials -Single- and Double-Blind Experiments.

UNIT-V Data analysis and interpretation **9 Hrs**

Tests of hypothesis, Tests of significance, chi-square test, Goodness of fit, Analysis of variance.

Course Outcomes:

1. Ability to design experiments, sampling variables, analyze the biological data, interpret andpresent the results in meaningful way.
2. Create tables and graphs for data presentation
3. Describe measures of central tendency and dispersion along with calculating probability features of experiments.
4. Discuss the correlation between various types of data along with associated variables.
5. Test hypothesis and carry out related statistical tests

Text Books:

1. Daniel WW, Cross CL (2013) Biostatistics: A Foundation Sciences
2. Biostatistics: A Foundation for Analysis in the Health Sciences, 11th Edition Chad L. Cross, Wayne W. Daniel , ISBN: 978-1-119-49657-1, December 2018

Reference Books

1. Forthofer RN, Lee ES, Hernandez M (2006) To Design, Analysis, and Discovery. Elsevier Ltd., Amsterdam.
2. Principles of Biostatistics, 3rd Edition, By Marcello Pagano, Kimberlee Gauvreau, Heather Mattie (2022).

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

3 0 0 3

Course Description:

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

Course Objectives:

1 To realize the significance of constitution of India to students from all walks of life and help them to understand the basic concepts of Indian constitution.
2 To identify the importance of fundamental rights as well as fundamental duties.
3 To understand the functioning of Union, State and Local Governments in Indian federal system.
4 To learn procedure and effects of emergency, composition and activities of election commission and amendment procedure.
5 To acquire knowledge to appear for competitive examinations.

UNIT-I **9 Hrs**

Historical Background – Constituent Assembly of India – Philosophical Foundations of The Indian Constitution – Preamble – Constitutional amendments

UNIT-II **9 Hrs**

Fundamental Rights – Directive Principles of State Policy – Fundamental Duties – Citizenship – Constitutional Remedies for Citizens;

UNIT-III **9 Hrs**

Union Government – Structures of the Union Government and Functions – President – Vice President – Prime Minister – Cabinet – Parliament – Supreme Court of India – Judicial Review.

UNIT-IV **9 Hrs**

State Government – Structure and Functions – Governor – Chief Minister – Cabinet – State Legislature – Judicial System in States – High Courts and other Subordinate Courts.

UNIT-V **9 Hrs**

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

Course Outcomes:

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

1. Understand and explain the significance of Indian Constitution as the fundamental law of the land.

2. Exercise his fundamental rights in proper sense at the same time identifies his responsibilities in national building.
3. Analyze the Indian political system, the powers and functions of the Union, State and Local Governments in detail
4. Understand Electoral Process, Emergency provisions and Amendment procedure.
5. Take part in competitive examinations with confidence.

Text Books:

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

Reference Books:

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

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

3 0 0 3

Course Description:

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

use of the tools and techniques.

Course Objectives:

The objective of this course is to make students to:

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

UNIT-I **9 Hrs**

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

UNIT-II **9 Hrs**

Footprinting: Footprinting, Types, Using ping and ns Lookup commands in Windows command line. Scanning: Scanning, Basics of Scanning, Basic Techniques of Scanning, Enumerating DNS using dns enum, Performing flag scan using hping3.

UNIT-III **10 Hrs**

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

UNIT-IV **9 Hrs**

Types, Sniffing, Packet Analysis & Session Hijacking: Sniffing, Packet Analysis, Types of Sniffing, Active and Passive Sniffing Techniques, Session Hijacking. Cryptography: Cryptography, Digital Signature, Hash Functions.

UNIT-V **8 Hrs**

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

Course Outcomes:

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

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

Text Books:

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

Reference Books:

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

TAUT1201E FUNDAMENTALS OF COMPUTERS L T P C

3 0 0 3

Course Description:

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

Course Objectives:

The objective of this course is to make students to:

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

UNIT-I **9 Hrs**

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

UNIT-II **9 Hrs**

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

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

UNIT-III **9 Hrs**

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

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

UNIT-IV **9 Hrs**

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

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

UNIT-V **9 Hrs**

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

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

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

Course Outcomes:

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

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

Text Books:

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

Reference Books:

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

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

3 0 0 3

Course Description:

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

Course Objectives:

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

UNIT-I Basic Concepts and Theories of Feminism 10 Hrs

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

UNIT-II Gender Issues 10 Hrs

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

UNIT-III Gender Perspectives in Development 10 Hrs

Gender Analysis Tools: Gender budgeting, Gender mainstreaming, SIG, Gender Parity Index, Gender

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

UNIT-IV Mechanisms Addressing Issues and Best Practices 10 Hrs

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

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

UNIT-V Gender and Media 5 Hrs

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

Course Outcomes:

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

1. Understand the concept of gender and the social construction of feminity and masculinity
2. Develop sensitivity towards the existing practices leading to gender discrimination and marginalization in society.
3. Develop the ability to identify social, economic and political systems that adversely affect the well-being and functioning of women.

4. Suggest affirmative action in planning to promote gender equity, equality, and safety for women and sexual minorities
5. Understand the major theoretical and empirical issues that emerge in the gender field.

Text Books:

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

Reference Books:

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

Notes

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

TAUT1201G LEADERSHIP DEVELOPMENT L T P C

3 0 0 3

Course Description:

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

Course Objectives:

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

UNIT-I 9 Hrs

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

UNIT-II 9 Hrs

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

UNIT-III 9 Hrs

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

UNIT-IV 9 Hrs

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

UNIT-V 9 Hrs

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

Course Outcomes:

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

Text Books:

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

Reference Books:

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

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

3 0 0 3

Course Description:

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

Course Outcomes:

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

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

UNIT-I **9 Hrs**

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

UNIT-II **9 Hrs**

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

UNIT-III **9 Hrs**

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

UNIT-IV **9 Hrs**

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

UNIT-V **9 Hrs**

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

Course Outcomes:

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

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

Text Books:

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

Reference Books:

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

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

Course Description:

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

Course Objectives:

Students undergoing this course are expected to:

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

UNIT-I **03 Hrs**

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

UNIT-II **12 Hrs**

Vital signs: Temperature: Physiology, regulation, factors affecting body temperature, Assessment of body temperature: sites, technique and special considerations.

Pulse: Physiology & regulation, characteristics of the pulse, factors affecting pulse, Assessment of the pulse: sites, location, technique and special considerations.

Respiration: Physiology and regulation, mechanics of breathing, characteristics of the respiration, factors affecting respiration, Assessment of respiration: technique and special considerations.

Blood pressure: Physiology and regulation, characteristics of the blood pressure, factors affecting blood pressure. Assessment of blood pressure: sites, equipment and technique and special

considerations. Recording of vital signs.

Pain: Definition, types physiology of pain and factors influencing the pain

UNIT-III **8 Hrs**

Basic life support / basic cardiopulmonary life support (BLS/BCLS)

Introduction, definition, purposes, indications, contraindications and steps in procedure.

UNIT-IV **12 Hrs**

Home care management of Diabetes and Hypertension

Diabetes- Introduction to Diabetes Mellitus – A National and Global burden: Classification, risk factors, pathophysiology, manifestations, screening, diagnostic criteria and complications, The treatment Modalities of Diabetes Mellitus: (Life style modifications

Diet therapy, Exercise, Medical Management, Self-Management, Practical Aspects: Blood Glucose monitoring, Diabetic foot care, Exercises, Diabetic Diet Planning, Self-Insulin administration)

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

UNIT-V **10 Hrs**

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

Course Outcomes:

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

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

Text Books:

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

Reference Books:

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

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

Course Description:

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

Course Objectives:

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

UNIT-I **9 Hrs**

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

UNIT-II **9 Hrs**

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

UNIT-III **9 Hrs**

Zoonotic diseases and One Health, Overview of zoonotic diseases and their impact on human and animal health, The ecology of zoonotic diseases and how they emerge and spread, Case studies of

major zoonotic disease outbreaks, such as Ebola and COVID-19, The One Health approach to preventing and controlling zoonotic diseases.

UNIT-IV **9 Hrs**

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

UNIT-V **9 Hrs**

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

Course Outcomes:

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

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

Text Books:

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

Reference Books:

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

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

Course Description:

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

Course Objectives:

Students undergoing this course are expected to:

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

UNIT-I Basic Life Support (BLS) and CPR 9 Hrs

Introduction to BLS and CPR, Steps of Adult, Child, and Infant CPR, Airway Management, Rescue Breathing and Chest Compressions

UNIT-II Automated External Defibrillator (AED) 9 Hrs

What is an AED? When and How to Use an AED, Safety Precautions, Different types of Defibrillators

UNIT-III Basic First Aid Techniques 9 Hrs

Principles of First Aid, Managing Bleeding and Wounds, Fractures and Sprains, Burns and Scalds.

UNIT-IV Recognizing Medical Emergencies 9 Hrs

Identifying Common Medical Emergencies, Initial Assessment and Response, Managing Breathing and Cardiac Emergencies.

UNIT-V Practical Skills Practice **9 Hrs**

Hands-on CPR Practice, AED Operation Drills, First Aid Skills Practice, Scenario-Based Training

Course Outcomes:

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

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

Text Books:

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

TAUT1201L BASICS OF HEALTH MANAGEMENT L T P C

3 0 0 3

Course Description:

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

Course Objectives:

Students undergoing this course are expected to:

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

UNIT-I Basic Life Support 9 Hrs

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

UNIT-II First Aid 9 Hrs

Introduction to First Aid Principles, Managing Wounds and Bleeding, Fractures and Musculoskeletal

Injuries, Burns and Scalds Treatment, Handling Medical Emergencies (e.g., heart attack, choking, seizures)

UNIT-III Stroke **9 Hrs**

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

UNIT-IV Non-Communicable Diseases **9 Hrs**

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

UNIT-V Communicable Diseases **9 Hrs**

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

Course Outcomes:

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

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

Text Books:

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

Reference Books:

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

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

Course Description:

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

Course Objectives:

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

UNIT-I **9 Hrs**

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

UNIT-II **9 Hrs**

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

UNIT-III **9 Hrs**

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

UNIT-IV **9 Hrs**

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

UNIT-V **9 Hrs**

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

Course Outcomes:

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

Text Books:

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

Reference Books:

1. Anil Kumar, S., ET.al., Entrepreneurship Development, New Age International Publishers, New Delhi
2. Khanka, SS, Entrepreneurship Development, S. Chand, New Delhi
3. Peter F. Drucker,Innovation and Entrepreneurship

4. A.Sahay, M. S. Chhikara, New Vistas of Entrepreneurship: Challenges &Opportunities

TAUT1201O MANAGERIAL ECONOMICS L T P C
3 0 0 3

Course Description:

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

Course Objectives:

1. Understand the fundamentals of Economics and Managerial economics
2. Apply the Concept of Production cost and revenues for effective Business decision
3. Analyze how to invest their capital and maximize returns.
4. Understand different forms of business organizations
5. Evaluate Business organizations and marketing strategies

UNIT-I 9 Hrs

Introduction: Meaning, Nature, Significance, Functions, and Advantages, ME and its role in other

fields. Demand - Concept, Function,Law of Demand - Demand Elasticity- Types – Measurement. Demand Forecasting- Factors governing forecasting and methods.

UNIT-II **9 Hrs**

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

UNIT-III **9 Hrs**

Cost& Break-Even Analysis - Cost concepts and Cost behavior- Break-Even Analysis (BEA) - Determination of Break-Even Point (Simple Problems)-Managerial significance and limitations of Break-Even Analysis.

UNIT-IV **9 Hrs**

Business Organizations Introduction – Nature, meaning, significance, functions and advantages. Forms of Business Organizations- Sole Proprietary - Partnership - Joint Stock Companies - Public Sector Enterprises.

UNIT-V **9 Hrs**

Markets Types of Markets - Perfect and Imperfect Competition - Features of Perfect Competition Monopoly- Monopolistic Competition–Oligopoly-Price-Output Determination - Pricing Methods and Strategies.

Course Outcomes:

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

Text Books:

1. Varshney & Maheswari: Managerial Economics, Sultan Chand, 2013.
2. Aryasri: Business Economics and Financial Analysis, 4/e, MGH, 2019.

Reference Books:

1. Ahuja Hl Managerial economics Schand,3/e,2013
2. S.A. Siddiqui and A.S. Siddiqui: Managerial Economics and Financial Analysis, New Age International, 2013.
3. Joseph G. Nellis and David Parker: Principles of Business Economics, Pearson, 2/e, New Delhi.

TAUT1201P **ORGANIC FARMING** **L T P C**
3 0 0 3

Course Description:

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

Course Objectives:

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

UNIT-I **9 Hrs**

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

UNIT-II **9 Hrs**

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

UNIT-III **9 Hrs**

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

UNIT-IV **9 Hrs**

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

UNIT-V **9 Hrs**

Marketing and Economics of Organic Farming, Market trends and consumer demand for organic products, Certification and labeling requirements for organic products, Marketing strategies for organic farmers: direct sales, farmers markets, CSA (Community Supported Agriculture), Economic viability and profitability of organic farming, Government support programs and incentives for organic farmers.

Course Outcomes:

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

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

Text Books:

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

Reference Books:

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

TAUT1201Q PERSONALITY DEVELOPMENT L T P C
3 0 0 3

Course Description:

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

Course Objectives:

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

UNIT-I Introduction to Personality Development **9 Hrs**

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

UNIT-II Communication Skills and Interpersonal Skills **9 Hrs**

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

UNIT-III Critical Thinking, Problem Solving and Self-Esteem **9 Hrs**

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

UNIT-IV Time Management and Stress Management **7 Hrs**

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

UNIT-V Professional Development and Leadership Skills **11 Hrs**

Resume writing and job interview skills; Professional etiquette and workplace behavior Networking skills; Traits of effective leaders; Leadership styles and theories; Developing leadership qualities; Personal Branding, Building a personal brand; Online presence and social media etiquette; Personal branding strategies; Final self-assessment and reflection on personal growth

Course Outcomes:

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

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

5. Develop and demonstrate leadership qualities in various scenarios.

Text Books:

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

Reference Books:

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

TAUT1201R **SOCIAL ENTREPRENEURSHIP** **L T P C**
3 0 0 3

Course Description:

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

Course Objectives:

1. Understand the role of social entrepreneurship in societies, economies and politics
2. Explain the three pillars of social entrepreneurship.
3. Describe different types of partners for social entrepreneurs and their particular

advantages.

4. Understand the typical process steps of a marketing conception.
5. Describe the characteristics of the financing structure of social enterprises.

UNIT-I **9 Hrs**

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

UNIT-II **9 Hrs**

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

UNIT-III **9 Hrs**

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

UNIT-IV **9 Hrs**

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

UNIT-V **9 Hrs**

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

Course Outcomes:

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

Text Books:

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

Reference Books:

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

II SEMESTER

AHSJ1304 **MICROBIOLOGY** **L T P C**

3 1 2 5

Course Description: This course will cover on general properties of pathogenic bacteria, viruses, fungi and parasites along with immune mechanisms, its response, methods of sterilization and disinfection, healthcare associated infections and hospital infection control practices. It helps the student to understand the natural history of infectious diseases to deal with etiology, pathogenesis, clinical features, laboratory diagnosis, treatment and control of infections in the community including immunoprophylaxis.

Course Objectives:

Students undergoing the course shall be expected to:

- Learn the general properties, structure and physiological aspects of bacteria and identification of bacteria.
- Learn about infection, immunity, various antigen-antibody reactions, immune mechanisms and hypersensitivity reactions and various infection control practices.
- Learn about pathogenesis, laboratory diagnosis and prophylactic measures of various bacterial infections.
- Learn about general properties of viruses and fungi and morphology, pathogenesis, laboratory diagnosis and prophylactic measures of various viral and fungal infections.
- Learn about classification of parasites and their morphological forms, life cycle, pathogenesis, laboratory diagnosis and prophylactic measures of various parasitic infections.

THEORY **Total: 60 Hrs**

UNIT-I **10 Hrs**

INTRODUCTION TO MEDICAL MICROBIOLOGY

- Importance of Medical Microbiology
- Historical aspects

GENERAL PROPERTIES & PHYSIOLOGICAL ASPECTS OF BACTERIA

- Structure of bacteria and its appendages like capsule, flagella, pili and spore
- Classification based on morphology, arrangement and motility
- Microscopy & Staining techniques
- Bacterial Growth Curve, Nutritional requirements of bacteria

BACTERIAL IDENTIFICATION METHODS

- Culture media, Culture Methods

- Specimen collection and transport to the laboratory
- Laboratory methods of Identification of Bacteria
- Antibiotic Sensitivity testing – Diffusion and Dilution methods

UNIT-II **12 Hrs**

INFECTION CONTROL PRACTICES

Infection – Definition, types and sources of infection, mode of transmission, types of infectious diseases, microbial pathogenicity

- Sterilization, Disinfection and Asepsis
- Standard Safety Precautions
- Biomedical Waste Management
- Hospital acquired infections, mode of spread, types and predisposing factors, investigation and surveillance

IMMUNOLOGY

Immunity – Definitions, terminology, Innate, acquired and herd immunity

- Antigen & Antibody
- Antigen-Antibody Reactions – Precipitation reactions, Agglutination reactions, ELISA, IFA
- Immune response
- Hypersensitivity - Definition and Classification and Type I, II, III, IV types of hypersensitivity
- Immunoprophylaxis – Immunization schedule, vaccines, storage & handling, hazards of immunization

UNIT-III **16 Hrs**

PATHOGENIC BACTERIA– Morphology, pathogenicity, laboratory diagnosis and prophylaxis of the following organisms

- **Gram Positive Cocci:** Staphylococci, Streptococci & Pneumococci
- **Gram Negative Cocci:** Meningococci, Gonococci
- **Gram Positive Bacilli:** Corynebacterium diphtheriae, Clostridium perfringens, Clostridium tetani, Clostridium botulinum, Bacillus anthracis, Bacillus cereus
- **Gram Negative Bacilli:** Escherichia coli, Klebsiella, Proteus, Salmonella, Shigella, Vibrio, Bordetella, Hemophilus
- **Acid Fast bacilli:** Mycobacterium tuberculosis, Mycobacterium leprae
- **Spirochaetes:** Treponema, Borrelia, Leptospira
- Ricketssiae

UNIT-IV **12 Hrs**

GENERAL VIROLOGY

- **General Properties of Viruses** – Structure, viral multiplication, viral cultivation, classification, inclusion bodies, antiviral agents
- Specimen collection and transport of viral disease samples to laboratory

PATHOGENIC VIRUSES – Morphology, Pathogenicity, laboratory diagnosis and prophylaxis of the following organisms

- RNA Viruses – Polio virus, influenza virus, mumps virus, measles virus, rubella virus, rabies virus, dengue virus, chickungunya virus, Japanese encephalitis virus,
- DNA Viruses – Herpes simplex virus, Varicella zoster virus, Epstein Barr virus, Variola, Molluscum contagiosum, Adeno virus, Human Papilloma virus
- Viral Hepatitis – Hepatitis A, B, C, D and E
- Rota Virus
- SARS Virus, Corona virus
- Human Immunodeficiency Virus (HIV)

PATHOGENIC FUNGI – Morphology, pathogenicity, laboratory diagnosis and prophylaxis of the following organisms

- Introduction, classification of fungi and fungal diseases, antifungal agents
- Superficial mycoses, subcutaneous mycoses, systemic mycoses and opportunistic mycoses
- Mycetism and mycotoxicosis

UNIT-V **10 Hrs**

PARASITOLOGY – Mode of infection, pathogenicity, clinical picture, laboratory diagnosis of the following parasites

- **Protozoans:** Entamoeba histolytica, Trichomonas vaginalis, Leishmania donovani, Plasmodium spp., Toxoplasma gondii, Pneumocystis jirovecii, Cryptosporidium parvum
- **Cestodes:** Taeniasolium, Taenia saginata, Diphylobothrium latum
- **Trematodes:** Schistosoma haematobium, Fasciola hepatica, Fasciolposis buskii, Clonrchis sinensis, Paragonimuswestermanii
- **Nematodes:** Ascaris lumbricoides, Ankylostoma duodenale, Enterobius vermicularis, Strongyloidesstercoralis, Wucherariabancrofti

Course Outcomes:

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

- Describe the General Properties and physiological aspects of Bacteria, Culture media, culture methods and identification of Bacteria.

- Explain about immunity, antigen, antibody and various antigen-antibody reactions, immune mechanisms and hypersensitivity reactions along sterilization & disinfections methods and various infection control practices.
- Describe the morphology, pathogenesis, laboratory diagnosis and prophylactic measures of various bacterial infections.
- Describe the General Properties of Viruses and Fungi and morphology, pathogenesis, laboratory diagnosis and prophylactic measures of various viral and fungal infections.
- Classify the parasites and describe the morphological forms, life cycle, pathogenesis, laboratory diagnosis and prophylactic measures of various parasitic infections.

PRACTICALS **Total: 30 Hrs**

Students undergoing the course shall be able to:

- Perform commonly employed bed-side tests for detection of infectious agents such as blood film for malaria, filariasis, gram staining, AFB staining, serology and stool sample for ova and cyst.
- Use the correct method of collection, storage and transport of clinical material for microbiological investigations

The assessment of the students will be done with the help of following exercises:

- Spotters
- Performing Gram stain, Acid-fast staining
- Stool Examination

Textbooks:

1. The Short Textbook of Medical Microbiology (including Parasitology): Satish Gupte
2. Medical Parasitology: C P Baveja & V Baveja
3. Ananthanarayan and Paniker's Textbook of Microbiology for Nurses

Reference Books:

1. Ananthanarayan and Paniker's Text book of Microbiology-12th Edition
2. Apurba Sastry,S; Bhat,S; Essentials of Medical Microbiology –4th Edition
3. Baveja. C.P; Text book of Microbiology – 7th Edition
4. Paniker's Text book of Medical Parasitology – 9th Edition

AHSJ1305 **PATHOLOGY**

L	T	P	C
3	1	2	5

Course Description:

Pathology is a vast expanding and ever-changing subject and it's the key to understanding diseases worldwide. The allied health sciences are an endeavour to present this vast subject understandably to the learners.

The aim of Teaching/learning Pathology at AHS is to provide knowledge/insight into etiology, pathogenesis, and pathophysiology &diseases.

Course Objectives:

- Describe the normal structure of a cell functions& its probable disease version. (cell in health disease)
- Cellular responses to injury& Adaptations, reversible irreversible injuries
- Inflammation & repair sequence of events happening during this.
- Infections, hemodynamic, Immunopathology, neoplasia, nutritional genetic disorder in disease conditions
- Systemic pathology ... Starting from the Heart, blood vessels, hematopathology.
- System-wise diseases discussion respiratory, GIT, hepatobiliary, urinary, MGT, FGT, Breast, Bones & joints, endocrines, Diabetes, skin, CNS & eye.
- Experiencing the practice of Clinical Pathology Starting with anticoagulants, HB estimation, blood, cell counts, hematocrit, PBS, ESR, RC, BM, examination, CSF, Semen analysis, urine &other body fluids.
- make the student understand the overall subject matter.

THEORY **Total: 60 Hrs**

UNIT-I **12 Hrs**

General Pathology -General pathology provides an overview of the basic pathologic mechanisms underlying diseases including cellular adaptations, inflammation, tissue repair, Chronic inflammation, hemodynamic disorders, immunological disorders, neoplasia, genetics and effects of radiation.

UNIT-II **12 Hrs**

Systemic Pathology 1 -Deals with various organ systems like vascular, Cardiac, LN, Respiratory

system, head and neck, GIT, liver & hepatobiliary system.

UNIT-III **12 Hrs**

Systemic Pathology 2- pancreas, Urinary, Male genital system, female genital system, breast, bones, joints, soft tissue tumors, endocrines, Diabetes, Skin, CNS, peripheral nerves &Skeletal system.

UNIT-IV **12 Hrs**

Haemato pathology -Disorders of RBCs, WBCs, Platelets, anaemias, leukaemias, disorders of hemostasis, coagulation disorders, plasma cell disorders& blood

UNIT-V **12 Hrs**

Clinical pathology – deals with anticoagulants, Hb estimation blood cell counts, hematocrit, ESR, Reticulocyte count, BM examination, semen analysis, CSF and other body fluids analysis, urine examination

Course outcome:

At the end of the course, the student can able to expand/ learn

- Define& practice of Pathology
- Haematological consequences of the disease process
- Can able to expand the Pathogenesis, pathophysiology, clinical consequences of disease process, complications

PRACTICALS **Total: 30 Hrs**

(Only theoretical lectures as there is no provision of technicians, or logistics provided for practicals for AHS students).

Hb estimation, RBC count, WBC count, platelet count, PBS, ESR, PCV, fluids, Urine examination.

Assessment of the student will be:

- Assignments
- Midterm examinations
- Workbook

References

1. A well-illustrated textbook is available for AHS students – Text of pathology for AHS students – DR. Ramdas Nayak
2. Robbins &cotran text book of pathology
3. Harsh mohan text book of pathology
4. Anderson's text book of pathology
5. Bancroft text book of histological techniques

AHSJ1306 **PHARMACOLOGY** **L T P C**
3 1 2 5

Course Description:

This course will cover general pharmacology with special emphasis on common drugs used, drug nomenclature, their routes of drug administration, dosage formulations, dose and frequency of administration.

This course also covers side effects, toxicity, management of their toxicity and drug interactions.

Course Objectives:

Students undergoing this course are expected to:

- Describe the general principles of drug action, handling of drugs by the body and drugs acting on ANS & autacoid system.
- Explain the mechanism of action, therapeutic uses and adverse effects of drugs used in common CNS disorders.
- Explain the mechanism of action, therapeutic uses and adverse effects of drugs used in common cardiovascular diseases and haematological disorders.
- Explain the mechanism of action, therapeutic uses and adverse effects drugs used in common endocrine, respiratory and gastrointestinal disorders.
- Enlist drugs used in common infections, cancers and immunological disorders and explain their mechanism of action.

THEORY **Total: 60 Hrs**

UNIT-I **12 Hrs**

General Pharmacology: Introduction, Definitions, Sources of Drugs, Drug nomenclature –Routes of administration & Pharmacokinetics – Pharmacodynamics – Factors modifying drug action – Adverse Drug Effects & Pharmacovigilance.

Drugs Acting on Autonomic Nervous System: Cholinergic Drugs –Anticholinergic Drugs – Adrenergic Drugs – Antiadrenergic Drugs

Autacoids and Related Drugs: Histamine and Anti-histaminics –Prostaglandins, Leukotrienes (Eicosanoids) and Platelet Activating Factor – Nonsteroidal Anti-inflammatory Drugs (Antipyretic-

Analgesics).

UNIT-II **9 Hrs**

Drugs Acting on Central Nervous System: General Anaesthetics –Local anaesthetics– Sedative & Hypnotics – Antiepileptic Drugs – Antiparkinsonian Drugs – Antipsychotic and mood stabilizers – Antidepressant and Antianxiety Drugs – Opioid Analgesics and Antagonists – Skeletal muscle relaxants.

UNIT-III **11 Hrs**

Cardiovascular Drugs: Drugs Affecting Renin-Angiotensin System & CCBs –Diuretics – Cardiac Glycosides and Drugs for Heart Failure – Antianginal Drugs –Antihypertensive Drugs – Antiarrhythmic Drugs – Hypolipidemic Drugs

Drugs Affecting Blood and Blood Formation: Haematinics and Erythropoietin –
Coagulants & Anticoagulants – Antiplatelet drugs & Fibrinolytics – IV fluids, Plasma expanders & Drugs for shock.

UNIT-IV **10 Hrs**

Hormones and Related Drugs: Introduction, Thyroid Hormone and Thyroid Inhibitors –Insulin, Oral Hypoglycaemic Drugs and Glucagon – Corticosteroids– Sex hormones & Hormonal Contraceptives –Drugs Affecting Calcium Balance – Tocolytics & Ecbolics.

Respiratory System Drugs: Drugs for Cough – Drugs for Bronchial Asthma

Gastrointestinal Drugs: Drugs for Peptic Ulcer and Gastroesophageal Reflux Disease – Antiemetic & Prokinetic drugs – Drugs for Constipation and Diarrhoea

UNIT-V **18 Hrs**

Antimicrobial Drugs: Beta-Lactam Antibiotics- Penicillins – Cephalosporins, Monobactams & Carbapenems – Sulfonamides, Cotrimoxazole and Quinolones – Tetracyclines and Macrolides – Aminoglycosides and Misc. Antibacterial Antibiotics – Antitubercular Drugs & Antileprotic Drugs – Antifungal Drugs – Antiviral Drugs (Non- retroviral) – Antiviral Drugs (Anti - retroviral) – Antimalarial Drugs – Antiamoebic and Other Antiprotozoal Drugs – Anthelmintic Drugs

Chemotherapy of Neoplastic Diseases: Anticancer Drugs

Miscellaneous Drugs: Immunosuppressant Drugs – Drugs Acting on Skin and Mucous Membranes – Antiseptics and Disinfectants – Ocular Pharmacology

Course Outcomes:

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

- Apply the pharmacokinetic and pharmacodynamics principles that describe drug actions.
- Explain the rationale for selection of suitable drugs used in various CNS disorders.
- Explain the rationale for selection of suitable drugs used in various cardiovascular and haematological disorders.

- Explain the rationale for selection of suitable drugs used in various endocrine, respiratory and gastrointestinal disorders.

Explain the rationale for selection of suitable drugs used in common infections, cancers and immunological disorders.

PRACTICALS **Total: 30 Hrs**

Course Objective: The course will cover general pharmacology with special emphasis on route of administration, type of formulations, dose and frequency of administration, importance of manufacturing and expiry dates, storage instructions of each drug, calculation of drug doses and general principles in the management of poisoning.

The assessment of the students will be done with the help of following exercises.

- Spotters
- Dosage calculations
- Dosage formulations

Textbooks:

1. Textbook of Pharmacology for Dental & Allied Health Sciences – Padmaja Uday Kumar- 5th edition- 2023.
2. Fundamentals of Pharmacology for Allied Health Science- Dr Pradnya Deolekar- 3rd edition- 2019.
3. Textbook of Pharmacology for Allied Sciences- Kamalakannan - 3rd edition- 2019.

Reference Books:

1. Essentials of Medical Pharmacology - K.D. Tripathi- 8th edition Reprint-2023.
2. Basic & Clinical Pharmacology. Katzung BG (Ed), Publisher: Prentice Hall International Ltd., London- 15th Edition-2021.

III SEMESTER

GENERAL MEDICINE/PHARMACOLOGY

PAST2501

L T P C
3 1 0 4

Course Description

This course will help the students understand about diseases affecting different systems of human body, understand about Etiology, pathogenesis, clinical features, investigations and treatment of diseases.

Course Objectives

This course will help students to

1. Understand the terminologies used in day to day practices in hospital.
2. Summarize nervous system and endocrinological disorders
3. Recognize the diseases related to Cardio vascular system, Skin and immune system by their clinical features
4. Understand Gastro intestinal and urinary system related disorders
5. Understand the immunology and its disorders.

THEORY **Total: 60 Hrs**

UNITI **12Hrs**

Introduction to medical terminology- roots, prefixes, and suffixes, vocabulary Problems – genetics, aging, infection, injury

Skeletal system – Bones and ligaments – disorders, diagnosis and treatment

UNIT II **12Hrs**

Muscular system – skeletal, smooth and cardiac muscles – disorders, diagnosis and treatment, Nervous system – brain, spinal cord, peripheral nerves, sense organs – disorders, diagnosis and treatment

UNIT -III **12Hrs**

Endocrinology – Anatomy of Pituitary, thyroid, Adrenal glands, disorders, diagnosis and treatment Diagnostic includes – blood work, X-ray and imaging Treatment includes- medical and surgical

UNIT-IV **12Hrs**

Cardiovascular and Respiratory system –heart, blood and blood vessels – disorders, diagnosis and treatment, Air passages, lungs, diaphragm - disorders, diagnosis and treatment

UNIT- V **12Hrs**

Immune and lymphatic system – disorders, diagnosis and treatment of blood and its imaging, Skin, hair and nails – disorders, diagnosis and treatment, immune system and its disorders diagnosis and treatment.

Course Learning Outcome:

At the end of the course, students should be able.

1. Recall and reproduce the terminologies of Medicine effectively.
2. Understand the disorders related to muscles of internal and external organs
3. Interpret hormones released by organs, its function, and disorders related to it.
4. Understand Normal functioning of heart, lungs, and its disorders.
5. Understand how immune system and inteugumentary system acts, Disorders related to it.

Text Books:

1. Manipal Prep Manual of Medicine ,3rd edition, Manthappa.M
2. Macleod's clinical examination, 14th edition, AnnaR. Rover, J. Alastair Innes, Karen Fairhurst.

Reference books:

1. Harrison Principles of Internal Medicine,21st edition,, J.Larry Jameson,Anthony S.Fauci,Dennis L.Kasper
2. Manipal Prep Manual of Medicine ,3rd edition, Manthappa.M
3. Davidson Principles and Practices of Medicine-24th edition, Ian Penman, Stuart H.Ralston ,Mark Strachan, Elsevier Health Sciences

GENERAL SURGERY

PAST2502

L T P C
3 1 0 4

Course description:
This course provides students a comprehensive overview of surgical principles, techniques, and patient care. Topics include pre-operative evaluation, surgical procedures, post-operative management, wound care, and complications. Students will develop proficiency in assisting surgeons, critical thinking in surgical decision-making, and effective communication within multidisciplinary teams.

Course objective:
Students undergoing this course are expected to:

1. Understand the Basics of general surgery.
2. Understand the surgical disorders in Skin, Head and neck.
3. Understand the surgical disorders in Artery, vein, breast.
4. Understand the surgical disorders in Oesophagus, small and large intestine.
5. Understand the surgical disorders in Biliary tract, Urology, Neurology.

THEORY **Total: 60 Hrs**

UNIT I: **12Hrs**

Basics of general surgery: History of surgery, role of surgeon, importance of team work, stresses arising during operative procedure, surgical terminology, types of incision and their indications, internal & external hemorrhage – signs and symptoms, management .

Tourniquets – use and duration of application and dangers of use. Sutures and surgical instruments

UNIT II **12Hrs**

Skin, Head and neck: Pathogenesis, causes, epidemiology, clinical presentation, investigations and management of diseases of the following systems:-

Skin – ulcers, wounds, burns, skin infections (boil, carbuncle, abscess,

Cysts (epidermoid, dermoid) tumors (basal cell, squamous cell carcinoma and melanoma)

Head and neck region – congenital anomalies (cleft lip, cleft palate, branchial cyst and fistula, thyroglossal cyst), parotid and submandibular glands, oral ulcers, Leukoplakia,

jaw tumors, squamous carcinoma of oral cavity, pharynx and larynx. Thyroid and lymph nodes swelling.

UNIT III **12Hrs**

Artery, vein, breast: Arteries – limb ischemia, non-invasive vascular diagnostic tests, atheromatous disease, aneurysm, Raynaud's syndrome, emboli,

Veins – Varicose veins, deep vein thrombosis and pulmonary embolism

Breast – mastalgia, fibroadenoma, cyst, breast abscess, cancer

UNIT IV **12Hrs**

Esophagus, small and large intestine: Esophagus – dysphagia, reflux, hiatus hernia, benign and malignant tumors Stomach and duodenum – peptic ulcer, carcinoma , pyloric stenosis
Small intestine – small bowel obstruction, intestinal tuberculosis Colon and rectum – amoebic colitis, ulcerative colitis, colorectal cancer Appendix – acute appendicitis, acute abdomen
Anus – Hemorrhoids, pruritis ani, fissure and fistula-in-ano, anorectal abscesses, cancer Peritoneum and intraperitoneal abscesses, liver – trauma, abscess, cancer

UNIT -V **12Hrs**

Biliary tract, Urology, Neurology: Biliary tract – gall stone disease and carcinoma, pancreas – pancreatitis, carcinoma Hernias of abdominal wall- Inguinal, femoral, umbilical and epigastric
Urology- diagnostic studies, urinary calculi, urinary infection, prostatic hyperplasia, tumors
Epididymo- orchitis, hydrocele, carcinoma of testicle and penis
Neurology – diagnosis, treatment and rehabilitation of disorders of entire nervous system Various procedures like microdiscectomy and laminectomy etc.

Course outcomes:

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

1. Acquire the knowledge on basics of surgery like anatomy, sutures used in surgery.
2. Apply the knowledge of clinical features and pathogenesis in skin, head & neck diseases in the clinicals.
3. Apply the knowledge of clinical features and pathogenesis in Artery, Veins & breast diseases in the clinicals.
4. Apply the knowledge of clinical features and pathogenesis in esophagus, small and large intestinal disorders in the clinicals.
5. Apply the knowledge of clinical features and pathogenesis in biliary tract, urology, neurology diseases in the clinicals.

Text book:

1. Manipal Manual of Surgery,6th edition, K Rajgopal Shenoy,Anitha Shenpoy
2. SRB's Manual of Surgery,7th edition, M.Sriram Bhat

Reference books:

1. Bailey and Love's Short practice of medicine,28th edition, P.Ronam O'Conell,Andrew W McCasie,Robert D.Sayers
2. Schwartz principles of Surgery 9th edition, by F. Charles Brunicardi.

PEDIATRICS

PAST2503 **L T P C**

3 1 0 4

Course description:

Through this course students covers the essentials of paediatric medicine, focusing on child development, common paediatric illnesses, and preventive care. Emphasis is placed on the unique aspects of caring for paediatric patients, including communication with children and their families, paediatric assessment, and management of acute and chronic paediatric conditions.

Course objective:

Students undergoing this course are expected to:

1. **Understand the Normal growth and development of new born baby**
2. **Understand the Calculation of APGAR score**
3. **Understand the New born assessment, and management of preterm baby**
4. **Understand the Disorders affecting all the systems**
5. **Understand the Genetic and chromosomal disorders**

THEORY **Total: 60 Hrs**

UNIT I **12Hrs**

Definition, population, morbidity and mortality in children , maternal , perinatal , neonatal , infant and preschool mortality rates, current National Programmeslike ICDS, RCH, Vitamin A prophylaxis, UIP, IMCI, Pulse Polio, AFP . ARI. Diarrhea control programs.

UNIT-II **12Hrs**

Growth and development – anthropometry – Measurement and interpretation of weight, length/height, head circumference, mid-arm circumference. Use of weighing machines, infant meter, interpretation of Growth Charts: Road to health card and percentile growth curves, abnormal growth patterns- failure to thrive, short stature, growth pattern of different organ systems like lymphoid, brain and sex organs, normal pattern of teeth eruption.

UNIT III **12Hrs**

Important milestones in infancy and early childhood in areas of gross motor, fine motor, language and personal – social development, psychological and behavioral problems

Measurement and interpretation of sitting height, US: LS ratio and arm span Age- independent anthropometric measurement – principles and application

UNIT IV **12Hrs**

Nutrition-normal requirements of carbohydrates, protein, fats, minerals and vitamins for newborn, children, pregnant and lactating mother. Common food sources.

Breast feeding – colostrum and composition of breast milk, initiation and technique of feeding, hazards and demerits of pre lacteal feed, top milk and bottle – feeding. Feeding of LBW babies. Infant feeding /weaning foods, methods of weaning. Assessment of nutritional status of child based on history and physical examination.

UNIT V **12Hrs**

Characteristics of transitional and mature milk (foremilk and Hind milk)

Protein energy malnutrition-definition, classification, features, causes and management.

Vitamins –etio-pathogenesis, clinical feature, biochemical and radiological findings, differential diagnosis and management of nutritional disorders.

Course outcome:

At the end of the course students should be able to

1. Interpreting and calculating APGAR Score
2. Apply the knowledge on congenital Diseases and diagnose the cases.
3. Analysing preterm, term, post term new born in hospital.
4. Analysing the anthropometric measurements of the children in the clinics.
5. Apply the knowledge of malnutrition conditions and Diagnose the disease based on clinical feature and treat them.

Text Books

1. Essential Peadiatrics,10th edition, OP Ghai, CBS Publishers & Distributors
2. Marrow Paediatrics book 8th edition by Dr.Singaram

Reference books-

1. Nelson Textbook of paediatrics,21st edition, Robert M.Kliegman & Joseph W. St.Geme III, Elsevier
2. Peadiatrics for Medical Graduates, Arun Babu Thirunavukkarasu,1st edition,Elsevier India

PASL2501 CLINICAL SKILLS-I **L T P C**

0 0 4 8

Course Description:

Through this course students explore the practical component of medicine, surgery, and paediatrics by getting hands-on clinical experiences to reinforce theoretical knowledge. Under supervision, students engage in patient assessment, diagnostic reasoning, and treatment planning across these specialties. Through rotations in diverse clinical settings, students develop essential skills in history-taking, physical examination, and patient management.

Course Objective.

This course will help the students to learn how to diagnose the clinical conditions.

1. Help them to learn the examination of the all the surgical cases, and examination of different systems.
2. Help them to learn about the critical care in ICU's.
3. Students will learn Writing down the case sheets of patients present in the wards.
4. Withdrawing the blood, giving the medication to the patients, checking the blood pressure, doing the ECG.
5. Student will be skill full in Doing the suturing, cleaning, dressing to the patients.

PRACTICAL **Total: 150 Hrs**

UNIT I **30 hrs**

Case sheet writing of Gastro intestinal System, Cardio Vascular System, Central Nervous System, Respiratory system. Examination of GIT, CVS, CNS, Respiratory system.

UNIT II **30 hrs**

Examination of hernia, ulcer, appendicitis, pancreatitis, various veins, DVT. Wound and burns dressing.

UNIT-III **30 hrs**

Withdrawing the blood, giving injection to the patients. How to read the blood reports (CBP)of all the cases

UNIT-IV **30 hrs**

Interpretation of Electro encephalogram- Waves, Intervals and segments, STEMI, NSTEMI.

UNIT-V **30 hrs**

Management protocols of reactions related to blood transfusion. Interpretation of Chest X ray-

Radiological anatomy and its finding.

Course learning outcomes:

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

1.Collection of History, Chief complaints, General and Systemic examination, Writing discharge Sheet.

2. Examination of surgical cases of Hernia, Appendix, Varicose Veins,

3.Diagnosing the clinical conditions based on signs, Symptoms and Investigations.

4.Procedure of suturing, cleaning, dressing to the patients.

5.Drawing the blood, give the injections to the patients.

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

3 0 0 3

Course Description:

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

Course Objectives:

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

UNIT-I **9 Hrs**

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

UNIT-II **9 Hrs**

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

UNIT-III **9 Hrs**

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

UNIT-IV **9 Hrs**

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

- Diabetes
- Hypertension
- Coronary Heart Disease

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

UNIT-V **9 Hrs**

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

Course Outcomes:

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

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

Text Books:

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

Reference Books:

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

TAUT2201 COMMUNITY ENGAGEMENT L T P C

3 0 0 3

Course Description:

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

Course Objectives:

Students undergoing this course are expected to:

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

UNIT-I Social Structure 5 Hrs

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

UNIT-II Social Organisation and Disorganisation 5 Hrs

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

UNIT-III Social Problems and Welfare State 8 Hrs

Social Problems- Poverty, Housing, food supply, illiteracy, Prostitution, dowry, child labour, child abuse, delinquency, crime, substance abuse, HIV/ AIDS, Covid-19; Venerable Group- elderly, handicapped, minority and another marginal group; Fundamental rights of individual, women and children, NITI Aayog, Ministry of Social Justice & Empowerment, Ministry of Rural Development, Ministry of Tribal Affairs, Ministry of Health & Family Welfare, and Role of Local Bodies for transformation; Corporate Social Responsibility; Social Work.

Proposed Field activities: Field visit- Interaction with Local Self Government, Visit of Gram Panchayat & Staff, Socio-Economic Survey *(5 hours/ one day).*

UNIT-IV Communication Strategies and Community Engagement 18 Hrs

Social Behaviour Change Communication (SBCC); Focused Group Discussion; SWOT analysis; Participatory Learning Action.

Proposed Field activities: Meeting, Mobilizing, Transect Walk, Identification of Natural Leaders, Timeline, Mapping, Case Study, Documentation; Outreach- Special Camp Viz., Health Education, Medical Camp, Environment Protection, Sustainability, Technology & Innovation, Nutrition, Swachh Bharat (15 Hours/ 4 days).

UNIT-V Sustainable Development Goals 2023 **9 Hrs**

Millennium Development Goals; Sustainable Development Goals (SDGs) 2030- 17 Goals; SDG Pyramid; Localizing SDGs; Gram Panchayat Development Plan (GPDP).

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

Course Outcomes:

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

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

Text Books:

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

Reference Books:

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

TAUT2202 CLINICAL NUTRITION L T P C

3 0 0 3

Course Description:

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

Course Objectives:

To enable the students to:

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

UNIT-I 9 Hrs

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

UNIT-II 9 Hrs

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

UNIT-III 9 Hrs

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

UNIT-IV **9 Hrs**

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

UNIT-V **9 Hrs**

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

Course Outcomes:

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

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

Text Books:

1. Kathleen ML and Escott S. Krause's Food, Nutrition and Diet Therapy, 9thedn, W.B. Saunders Company Pennsylvania, 2000.

2. Davidson S, Passmore R, Breck JFT. Human Nutrition and Dietetics, The English Language Book Society and Churchill Livingston, 1975.

Reference Books:

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

TAUT2203 EMOTIONAL INTELLIGENCE AND MENTAL HEALTH L T P C

3 0 0 3

Course Description:

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

Course Objectives:

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

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

UNIT-I 9 Hrs

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

UNIT-II 9 Hrs

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

UNIT-III 9 Hrs

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

UNIT-IV **9 Hrs**

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

UNIT-V **9 Hrs**

Emotional Intelligence in the Workplace, Ethics and Emotional Intelligence; Emotional intelligence and job performance, the role of emotional intelligence in leadership, Emotional intelligence training in the workplace, Ethical issues related to emotional intelligence, Professional codes and standards related to emotional intelligence

Final Project Presentations

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

Course Outcomes:

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

Text Books:

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

Reference Books:

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

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

3 0 0 3

Course Description:

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

Course Objectives:

This course is intended to prepare the students to

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

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

a. Evolution of Human Rights

b. Definitions under Indian and International documents

UNIT-II Broad classification of Human Rights and Relevant Constitutional Provisions. - **11 Hrs**

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

UNIT-III Human Rights of Women and Children **11 Hrs**

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

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

a. Human Rights Commission

b. Judiciary

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

a. Violation by State

b. Violation by Individuals

c. nuclear weapons, bio war and terrorism

d. Safeguards.

Course Outcomes:

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

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

Text Books:

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

Reference Books:

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

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

3 0 0 3

Course Description:

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

Course Objectives:

The objective of this course is to make students:

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

UNIT-I **9 Hrs**

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

UNIT-II **9 Hrs**

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

UNIT-III **9 Hrs**

Artificial Intelligence & Machine Learning: Artificial Intelligence: Artificial Intelligence (AI) – What & Why? History of AI- Foundations of AI, the AI Environment, Application Domains and Tools. Machine Learning- Introduction–Definition–Types of Machine Learning–Supervised, Unsupervised, Reinforcement Learning–Algorithms for Machine Learning–Problems solved by Machine Learning-Applications areas of Machine Learning in Health care.

UNIT-IV **9 Hrs**

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

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

UNIT-V **9 Hrs**

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

Course Outcomes:

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

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

Text Books:

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

Reference Books:

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

TAUT2206 **MEDICAL TERMINOLOGY** **L T P C**

3 0 0 3

Course Description:

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

Course Objectives:

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

UNIT-I **9 Hrs**

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

UNIT-II **9 Hrs**

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

UNIT-III **9 Hrs**

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

UNIT-IV **9 Hrs**

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

UNIT-V **9 Hrs**

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

Course Outcomes:

Upon successful completion of the course student would be –

1. Able to Identify and interpret complex medical terms by breaking them into their component word parts in order to decipher their meaning.
2. Able to understand common diseases and disorders of the body systems
3. Able to identify diagnostic tools and techniques for the common diseases and disorders of the human body

4. Able to interpret medical records, lab reports, and other documentation to ensure clear and precise communication within healthcare teams and with patients
5. Able to learn the roots, prefixes, and suffixes that form medical terms, as well as the terminology related to various body systems, diseases, procedures, and treatments. Students will be able to deconstruct complex terms into their component parts to understand their meanings.

Text Books:

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

Reference Books:

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

TAUT2207 SOCIAL NETWORK ANALYSIS L T P C

3 0 0 3

Course Description:

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

Course Objectives:

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

UNIT-I 9 Hrs

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

UNIT-II 9 Hrs

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

UNIT-III 9 Hrs

Degree Centrality: Identifying influential nodes based on their connections. Betweenness Centrality: Understanding nodes that act as bridges in the network. Clustering Coefficients: Analyzing the degree

of interconnectedness within local neighbourhoods. Network Density: Assessing the overall connectivity of a social network.

UNIT-IV **9 Hrs**

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

UNIT-V **9 Hrs**

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

Course Outcomes:

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

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

Text Books:

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

Reference Books:

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

TAUT2208 ANTIBIOTIC RESISTANCE & BIOMEDICAL WASTE MANAGEMENT

L T P C

3 0 0 3

Course Description:

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

Course Objectives:

Students undergoing this course are expected to:

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

UNIT-I **9 Hrs**

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

UNIT-II **9 Hrs**

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

UNIT-III **9 Hrs**

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

UNIT-IV **9 Hrs**

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

UNIT-V **9 Hrs**

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

Course Outcomes:

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

1. Explain antibiotic resistance, its history, and mechanisms.
2. Analyse trends and strategies in drug resistance management.
3. Assess the consequences of antibiotic resistance and implement antimicrobial stewardship.
4. Understand principles and practices of biomedical waste management.
5. Apply modern technologies and PPE for effective biomedical waste handling and infection control.

Text Books:

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

Reference Books:

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

TAUT2209 BEHAVIOR CHANGE COMMUNICATION L T P C

3 0 0 3

Course Description:

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

Course Objectives:

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

UNIT-I 5 Hrs

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

UNIT-II 8 Hrs

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

UNIT-III 12 Hrs

Basic concepts of society, community, and family, Society: features and types, Concept of culture:

characteristics, elements, variability, social institutions: marriage and family. Working with communities, Community: Definition, concept of community participation, Benefits of community participation, Health communication, Communication: Definition, scope and requirements, Types of communication, Components of communication, Communication stages, Common communication approach, Methods of communication, Characteristics of effective communication, Barriers of effective communication.

UNIT-IV **10 Hrs**

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

UNIT-V **10 Hrs**

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

Course Outcomes:

End of the course completion student would be

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

Text Books:

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

Reference Books:

1. Foster and Anderson: Medical Anthropology, Wiley, New York
2. Anderson & Taylor, Sociology: Understanding a Diverse Society.
3. Neubeck and Glasberg, Selected Material from Sociology: Diversity, Conflict, and Change.

TAUT2201A DISABILITY MANAGEMENT L T P C

3 0 0 3

Course Description:

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

Course Objectives:

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

UNIT-I Introduction to Disability Management 9 Hrs

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

UNIT- II Social and Psychological Aspects of Disability 9 Hrs

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

UNIT- III Legal and Ethical Framework 9 Hrs

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

UNIT- IV Workplace Disability Management 9 Hrs

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

UNIT- V Community and Public Health Approach 9 Hrs

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

Course Outcomes:

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

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

Text Books:

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

Reference Books:

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

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

3 0 0 3

Course Description:

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

Course Objectives:

The main objectives of this course are to:

1. To impart knowledge and concepts of disaster, disaster management and disaster risk reduction.
2. To enhance the students understanding on Hazard Vulnerability and Risk Analysis
3. To develop positive attitude towards practical response to different stages of disaster
4. To management by adopting advance technology and sustainable development.
5. To ensure disaster response skills in assessment, analysis, intervention and evaluation in the Practice of reducing disaster risk.

UNIT- I **9 Hrs**

Concepts of Disaster and Vulnerability

- Hazards and disasters - Concepts, vulnerability and risks
- Hazard and disaster type- Natural, Water-related, Pandemic and Human induced hazards and disasters
- Causes and impacts of disasters- Impact on natural eco-system; physical, psychological and social impact
- Disaster and financial resilience
- GIS and Remote Sensing

Disaster vulnerability profile of India - Specific to geographical regions and states (as per regional significance).

UNIT- II **9 Hrs**

Disasters Intervention Practices

- Disaster Management Cycle-Rescue, relief, rehabilitation, reconstruction, prevention, mitigation and preparedness
- Disaster risk reduction (ORR) - community based ORR, Institutions concerned with safety, Disaster mitigation and construction techniques as per Indian Standard

- Early warning systems
- Trauma and Stress management
- First-aid and emergency procedures

Awareness generation strategies for the community on safe practices in disaster (as per regional significance)

UNIT- III **9 Hrs**

Disaster Management

Components of disasters management - Preparedness of rescue & relief, mitigation, rehabilitation & reconstruction

Institutional framework of disaster management in India (NDMA-SDMA-DDMA, NDRF, Civic volunteers, NIDM),

Phases of disasters/risk management and post-disaster responses Compensation and insurance

UNIT- IV **9 Hrs**

Applications of remote sensing & GIS in disaster management

- Capacity building for disaster/damage mitigation (structural and non-structural measures).
- Disaster risk reduction strategies and National Disaster Management Guidelines
- Disaster Management Act-2005
- Regional issues as per regional requirement/ university can take minimum two topics as per High Powered Committee.

UNIT- V **9 Hrs**

Practical exposure requirements: Field work/ community visit and Vulnerability Mapping, Safe community planning and implementation, Mock Drill/ Regional issues as per region/university

Course Outcomes:

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

1. Define and analysis factors contributing to disasters, threats to development, life and nature
2. Demonstrate, and practice disaster risk reduction activities towards sustainable development
3. Formulate, organize and assess disaster risk reduction
4. Plan activities according to the nature of disasters and factors of vulnerabilities
5. Able to mitigate disaster and educate communities

Mode of Evaluation: Continuous Assessment Test, Quizzes, Assignments, Multiple choice questions test, field work report, project report.

Text Books:

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

Reference Books:

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

TAUT2201C HUMAN VALUES & PROFESSIONAL ETHICS L T P C

3 0 0 3

Course Description:

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

Course Objectives:

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

UNIT-I 9 Hrs

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

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

UNIT-II 9 Hrs

Understanding harmony in the human being- Harmony in myself!

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

UNIT-III 9 Hrs

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

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

UNIT-IV 9 Hrs

Understanding Harmony in Nature; Coexistence

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

UNIT-V **9 Hrs**

Implications of the above Holistic understanding of harmony on professional ethics

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

Course Outcomes:

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

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

Text Books:

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

Reference Books:

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

TAUT2201D INFECTION PREVENTION AND CONTROL L T P C

3 0 0 3

Course Description:

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

Course Objectives:

Students undergoing this course are expected to:

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

UNIT-I 9 Hrs

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

UNIT-II 9 Hrs

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

UNIT-III 9 Hrs

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

UNIT-IV 9 Hrs

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

UNIT-V 9 Hrs

Consequences of antibiotic resistance, Antimicrobial Stewardship – Barriers and opportunities, tools and models in hospitals

Course Outcomes:

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

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

Text Books:

1. "Infection Prevention and Control: Theory and Practice for Healthcare Professionals" by Debbie Weston
2. "Antibiotics: Actions, Origins, Resistance" by Christopher Walsh

Reference Books:

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

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

3 0 0 3

Course Description:

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

Course Objectives:

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

UNIT-I **9 Hrs**

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

UNIT-II **9 Hrs**

Meaning type of leader, Qualities, Traits, Role, Importance of a Good Leader Social, psychologic factors affecting the youth.

Life Skills-Self-awareness, Empathy, Effective Communication, Decision Making; Role of Music and Art in Youth Development.

UNIT-III **9 Hrs**

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

UNIT-IV **9 Hrs**

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

UNIT-V **9 Hrs**

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

Course Outcomes:

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

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

Text Books:

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

Reference Books:

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

IV SEMESTER

ANESTHESIOLOGY AND GERIATRIC

PAST2504 **L T P C**

3 1 0 4

Course description:

In this course Students are provided by comprehensive understanding of anaesthesia principles and perioperative care. Emphasis is placed on developing skills in pre-operative assessment, intraoperative monitoring, and post-operative management. Understanding the aging process, Physiological changes seen during the process of aging and the importance of geriatric care.

Course Objectives

The course will help the students to

1. Understand the Basics of Anaesthesia, Pre and Post Operative Monitoring of Patient under Anaesthesia
2. Knowledge of Anaesthesia delivering machines, colours of cylinders, Pin Index system
3. Understand Mode of action, Adverse effects of various drugs used in general, Inhalational and local anaesthesia
4. Fundamentals of aging, diet and medical conditions specific to geriatrics.
5. Understand the disorders like osteoporosis, Parkinson's disease, geriatric related cancers, Elderly mistreatment and its prevention.

THEORY **Total: 60 Hrs**

UNIT-I **12Hrs**

Pre and post Operative care of surgical patient

Monitoring of Respiratory, Cardiovascular and Central nervous system under anesthesia

Emergency procedure – endotracheal intubation, tracheotomy, Central line placement, CPR, Basic Life Support.

UNIT-II **12Hrs**

Anesthesia delivery systems

Cylinders- Colors, pressure of cylinders, Pin index System.

Anesthesia machine

Circuits-Open, semi open/semi closed, Closed

UNIT-III **12Hrs**

General Anesthesia-Intravenous, inhalational and Muscle relaxants

Regional Anesthesia-Local anesthesia, Peripheral Nerve Blocks, Epidural and Spinal Anesthesia.

UNIT-IV **12Hrs**

The physiological and psychological changes of aging

Successful aging and systemic interventions.

Diet and Nutrition for aged population.

Age related sleep disorders-Insomnia, Obstructive Sleep Apnoea, Sudden death in sleep.

UNIT-V **12Hrs**

Medical Conditions like-

Infections, Osteoporosis and other degenerative joint diseases, Fractures in elderly Parkinson disease,

Immobility, Pressure ulcers and its prevention,

Cancer in elderly, Elderly mistreatment and methods of prevention

Course Outcome:

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

1. Asses the patient before anaesthesia and after care, and effectively handle complications.
2. Recall all the components of anaesthesia Machine,
3. Identify anaesthetic drugs, its indications, Contraindications and adverse effects.
4. Understand the physiological changes and diseases most commonly seen in elderly. Suggest the diet for geriatric patients
5. Understand the diseases most commonly seen in Elderly, its prophylaxis and prevention.

Text Books

1. Short Textbook of Anaesthesia,6th Edition, Ajay Yadav, Jaypee
2. Textbook of geriatric medicine, Pratap Sanchetee, Paras Medical Publisher

Reference books-

1. Miller's Anaesthesia,9th Edition, Michael A. Gropper, Lars I. Errikson, Lee A Fleisher, Elsevier
2. Morgan & Mikhail's Clinical Anaesthesiology.7th edition, John F Butterworth Graw-Hill Education

CLINICAL MICROBIOLOGY

PAST2505 **L T P C**

3 1 0 4

Course description:

By this course students explore the microbial world and its implications for patient care. Through lectures, labs, and case studies, they learn about microbial structure, pathogenesis, diagnostic techniques, and antimicrobial therapy. Emphasis is placed on infection control, emerging diseases, and global health. By mastering microbiology, PA students become adept clinicians capable of 2diagnosing, treating, and preventing infectious diseases in diverse patient populations.

Course objectives:

Students undergoing this course are expected to:

1. Understand the infections related to blood and blood stream infections and its laboratory investigations.
2. Understand the infections related to Gastro intestinal tract and its laboratory investigations.
3. Understand the infections related to Central nervous system and its laboratory investigations.
4. Understand the infections related to Genito-urinary system and Urinary tract infections and its laboratory investigations.
5. Understand the infections related to Musculo-skeletal system.

THEORY **Total: 60 Hrs**

UNIT-I **12Hrs**

Infections related to blood-Blood stream infections: Viral hemorrhagic fever, Malaria, Leishmaniasis, Toxoplasmosis

Infections of Cardio vascular System-Infective endocarditis, Rheumatic fever, Brucellosis.

Infections related to Respiratory System-Pneumonia, Tuberculosis, Diphtheria, Whooping Cough

UNIT-II **12Hrs**

Infections related Gastro Intestinal System: Food poisoning, Cholera, Peptic Ulcer Disease, Gastro enteritis.

Infections related to Hepato-Biliary System- Type A, B, C, D, E hepatitis, Hepatic hydatid disease.

UNIT-III **12Hrs**

Infections related to Central Nervous System: Meningitis, Encephalitis, Neurotoxin related diseases, Brain Abscess.

UNIT-IV **12Hrs**

Infections related to Genito urinary system-Urinary Tract infection: Ulcerative Disorders of genital System Genital tuberculosis, Vaginitis, Salpingitis, Vulvitis, Pelvic Inflammatory Disease.

Sexually Transmitted Diseases-Genital Herpes, Gonorrhea, Syphilis, Lymphogranuloma venerum, Chancroid.

UNIT-V **12Hrs**

Infections related to Musculoskeletal System: Osteomyelitis, Septic Arthritis, Tenosynovitis, Myositis, Bursitis.

Skin and soft tissues-Erysipelas, Cellulitis, Impetigo, Abscess, Necrotizing Fasciitis

Course outcomes:

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

1. Acquire a thorough knowledge of pathogenesis, clinical features, treatment related to the infections of blood and blood stream.
2. Recognizing the clinical features and treating the patients with GIT infections.
3. Interpreting the patients of central nervous system infection.
4. Analyzing the clinical features of Genito-Urinary system infections and treating the patient.
5. Evaluating the patient with Musculoskeletal system infections.

Text Books:

1. CP Baveja -Text book of Microbiology,7th edition, CP Baveja
2. Text book of Applied Microbiology, 2nd edition, by Anju Dhir.

Reference books:

1. Anantha Naryan and Panikers Text book of Microbiology,12th edition, Anantha Naryan and CK Jayaram Pan

OBSTETRICS AND GYNEACOLOGY

PAST2506 **L T P C**

3 1 0 4

Course description

This is designed to provide students with a comprehensive understanding of the physiological, anatomical, and medical aspects related to women's reproductive health.

Course Objectives:

Students undergoing this course are expected to

1. Understand the physiological changes mother, undergo during pregnancy and disorders that are faced during and after pregnancy.
2. Understand the process of normal delivery and caesarean section, instruments used and complications.
3. Understand Menstruation-its phases and its pathologies.
4. Know about disorders related to uterus, Fallopian tube, Ovary, Cervix, Vagina and Vulva. Cancers affecting female genital organs along with its management.
5. Understand family planning, Termination of pregnancy and various other programs used to ease the life of mothers and children.

THEORY **Total: 60 Hrs**

UNIT-I **12Hrs**

Anatomy of female genital tract, Pelvic bone-types and diameters. Foetal skulls-diameters and important landmarks.

Conception, Abortions, Anemia in pregnancy, Diabetes in pregnancy, Hypertension in Pregnancy, Pre-eclampsia and Eclampsia, Antepartum and postpartum Hemorrhage.

UNIT-II **12Hrs**

Labor-Induction, mechanism, stages and its complications, Puerperium, Malpresentations, Caesarean section, Gestational trophoblastic diseases.

UNIT-III **12Hrs**

Spermatogenesis and Oogenesis, Menstruation, Changes seen during puberty, Primary and Secondary Amenorrhea, Dysmenorrhea, Atypical Uterine bleeding, Infertility and PCOD, Mullerian Malformations.

UNIT-IV **12Hrs**

Fibroids, Adenomyosis, Endometriosis, Urinary incontinence, Genital Prolapse and Genital Fistula, Cancer of cervix, Vulvar Cancer, Endometrial Carcinoma, Ovarian Cancer

UNIT-V **12Hrs**

Family Planning-Fertility Indicators, Pearl index. Couple Protection Rate.

Contraception -Natural methods, Barrier method, IUCDs, Estrogen and progesterone contraceptives, Progesterone Only pill.

Medical Termination of Pregnancy

Mother and Child health care-Antenatal Visits, Antenatal Care, Schemes-Anemia Mukth Bharath, Janani Surakha Yojana, Janani Sishu Suraksha Karyakram, Rastriya Bal Swasth Karyakram.

Course Outcome:

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

1. Uunderstand basic terminologies related to obstetrics, foetal skull diameters, Female pelvic diameters

2. Assist or perform normal delivery and caesarean section, help mothers to overcome difficulties of Puerperium.
3. Acquire knowledge in treatment of Menstrual related disorders, like Congenital disorders of uterus Dysmenorrhoea, Polymenorrhoea, amenorrhoea, Oligomenorrhoea, PCOD.
4. Remember the signs, symptoms, investigations and treatment of diseases related to female Genito urinary tract.
5. Analyze and apply the methods of Family planning and contraceptive that are suited best for the couple, remember aims and objectives implemented under National health programs related to mother and child health.

Text Books

1. DC Dutta book of obstetrics including Perinatology and contraception 10th edition, Hiralal Konar, Jaypee Brothers
2. Shaw book of gynaecology,18th edition, Howkis and Bourne,Elsevier

Reference books-

1.Williams Obstertrics,26th edition**,** Cunningham**,** McGraw Hill Medical

2. Netters Obstetrics and Gynaecology,4th edition, Roger P. Smith.

PASL2502 CLINICAL SKILLS-II L T P C

0 0 20 10

Course Description:

This course helps students to get comprehensive knowledge about principles of patient management before, during, and after anaesthesia procedures**,** Cardiac Pulmonary Life Support, Identification of microorganisms and their role in infectious diseases, Working Process of delivery of foetus, Instruments used in surgeries.

Course Objective:

Students undergoing this course are expected to

1. Understand normal delivery process and compilations that arise. Steps of Caesarean section and knowledge about instruments used in Obstetrical cases,
2. Ability to write case sheet, Clinical knowledge of Pap smear, Identification of Surgical instruments
3. Understand about laryngoscopes, Nasogastric and orogastric tubes, Monitoring under anaesthesia.
4. Demonstrating Cardiac Pulmonary Resuscitation, effectively handle the emergencies.
5. Understand the microscopic and serological laboratory investigations.

PRACTICAL Total: 300 Hrs

UNIT- I 60 hrs

Case sheet writing of Obstetrical cases, Normal delivery- Induction of labour, Stages of Labour, Its complications, Obstetrics and instruments/sterile techniques, Steps of Caesarean section and other minor Obstetrical surgeries.

UNIT-II 60 hrs

Case sheet writing of Gynaecological cases, Importance of PAP smear**,** Gynaecological instruments/ sterile techniques, Steps of gynaecology related surgeries, Contraceptive devices.

UNIT-III 60 hrs

Air Way devices-laryngoscopes- Types, Indications, Contraindications and complications, Guedel's air way, Naso and orogastric tube, Monitoring under anaesthesia, Post op care.

UNIT-IV 60 hrs

Basic Cardiac Life Support, Advanced Cardiac Life Support, Capnography- Normal plotting of graph, and its abnormalities, Management of anaesthesia related emergencies.

UNIT-V 60 hrs

Pleural tapping/ascetic fluid tapping-providing scenario, Investigations related to various systems, Staining

Course Outcomes:

At the end students will be able to:

1) Write Case sheet of Obstetric cases, perform normal delivery with effective management of its complications, identify instruments used its chronological usage in Obstetrical surgeries.
2) Write Case sheet of gynaecology related cases, Pap smear and instruments used in gynaecological surgeries, Assist the surgeon in performing surgeries.
3) Perform Pre-Anaesthetic Check-up, effectively handle post op complications. Effectively use Naso gastric and orogastric tube, Guedel's airway.
4) Perform BCLS, ACLS in emergency situations, Understand the indications, normal plotting of graph and abnormal graphs plotted in Capnography.

5) Withdraw the blood in sterile conditions, and effectively store and transfer the sample, Choose correct method of investigation to get accurate diagnosis, Withdraw fluids in ascites.

V - Semester

ORTHOPAEDICS

PAST4501 **L T P C**

3 1 0 4

Course description:

This course provides students a thorough understanding of musculoskeletal health. Through lectures, workshops, and case studies, students learn about orthopaedic anatomy, pathology, and treatment modalities. Emphasis is placed on both surgical and non-surgical approaches, enabling students to diagnose and manage a wide range of orthopaedic conditions effectively.

Course Objective:

Students undergoing this course are expected to:

1. Understand the Basic Anatomy and Physiology of bone and principles of fracture and pathogenesis of fracture healing.
2. Understand the metabolic disorders of the bone in children and adults.
3. Understand and identify the Fractures of the Upper limb.
4. Understand and identify the fractures of the lower limb.
5. Understand the Tumours of bone and the infections of the bone.

THEORY **Total: 60 Hrs**

UNIT-I **12Hrs**

Anatomy and physiology of bone: age determination by bone ossification. Fracture and its healing. Amputations. Peripheral Nerve Injuries

UNIT-II **12Hrs**

Metabolic disorders: Basics of bone metabolism, Paget's, Osteopetrosis, Osteoporosis, Rickets, Osteomalacia, Scurvy, Osteogenesis imperfecta

UNIT-III **12Hrs**

Upper limb fractures: Fracture of Clavicle
Dislocation of Shoulder Joint
Upper limb-Fractures of humerus, Ulna, Radius, carpals, metacarpals and phalanges.

UNIT-IV **12Hrs**

Lower limb fractures: Fracture of Pelvis

Dislocation of Hip joint

Lower limb fractures-Fracture of Femur, Tibia and fibula, Tarsals and meta tarsals.
Dislocation of knee joint
Paediatric disorders.

UNIT-V **12Hrs**

Tumours and Infections: Tumours of bone-Primary and Secondary

Infections of bone, Arthritic disorders.

Course outcomes:

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

1. Acquire knowledge on Anatomy and Physiology of bone, its fractures.
2. Interpreting the clinical features and diagnosing the metabolic disorders.
3. Identifying the clinical features and treating the upper limb fractures.
4. Identifying the clinical features and treating the lower limb fractures.
5. Acquire the thorough knowledge on treatment of tumours and infections of bone.

Text Books-

1. Orthopeadics Quick Review,8th edition, Apurv Mehta, Jayapee Medical
2. Essentials of Orthopeadics,7th edition, Maheswari.**,** Jayapee Brother Medicals.

Reference books-

1. Millers Review of Orthopaedic by Mark D Miller and Stephen R. Thompson.
2. Campbells Operative Orthopaedics by S.Terry Canale and James H. Beaty.

HAEMATOLOGY AND TRANSFUSION MEDICINE

PAST3502 **L T P C**

3 1 0 4

Course description:

This course aids students to cover the study of blood and its disorders, including anemia, leukemia, and clotting disorders. Students learn about blood transfusion therapy, including indications, compatibility testing, and potential complications. The course integrates lectures, case studies, and laboratory experiences to equip students with the skills to diagnose and manage hematologic conditions in clinical practice.

Course Objective:

Students undergoing this course are expected to:

1. Understand the RBC disorders.
2. Understand the WBC disorders.
3. Understand the Hemostasis and Hemostasis disorders.
4. Understand the blood grouping systems and diagnosing blood groups.
5. Understanding the concept of Blood transfusion and its complications.

THEORY **Total: 60 Hrs**

UNIT-I **12Hrs**

RBC Disorders: Erythropoiesis, Polycythemia, Anemia-Classification, Megaloblastic Anemia, iron Deficiency, Sideroblastic Anemia, Anemia of Chronic disease, Hemolytic anemias.

UNIT-II **12Hrs**

WBC Disorders: Hematopoiesis, basics of neutrophils, eosinophils, Basophils, mast cells, Plasma cells.

Leukemias-Acute and Chronic Lymphocytic leukemias, Acute and chronic Myelocytic leukemias.

Lymphomas-Hodgkins and Non-Hodgkins lymphoma.

UNIT-III **12Hrs**

Hemostasis and its disorders: Plasma Cell Disorders

Haemostasias and disorders of Haemostasias-Von Willebrand disease, Bernad soulier syndrome, Glanzman thrombasthenia, Hemophilia, Disseminated intravascular coagulation [DIC].

UNIT-IV **12Hrs**

Blood groupings: Blood groups, serological techniques for blood antigens and antibodies, Rh incompatibility, HLA typing, Pre-transfusion testing.

UNIT-V **12Hrs**

Blood transfusion: Safe blood collection, Blood Components-Whole Blood, Packed Cell volume, Fresh frozen plasma, Platelets, Cryoprecipitate.

Complications of Blood Transfusion- Acute and chronic and its treatment.

Massive transfusion.

Course Outcomes:

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

1. Acquire the thorough knowledge on the clinical features, diagnosis and treatment of RBC Disorders.
2. Acquire the thorough knowledge on the clinical features, diagnosis and treatment of WBC

Disorders.
3. Interpreting the clinical features of hemostatic disorders and treating the condition.
4. Acquire the knowledge of ABO & Rh blood grouping.
5. Explaining the concept of blood transfusion and its reactions and complications.

Text Books

1. Manipal pre manual of Medicine 3rd edition, Manthappaa M.
2. Davidsons Principle and Practice of Medicine 24th edition.

Reference books-

1. Hoffbrand and Williams hematology,10th edition
2. Harrison Principles of Internal Medicine,21st edition,
3. Essentials of Blood banking and transfusion medicine by Ganga S Pili, 2nd edition
4. Practical transfusion medicine by Michael F. Murphy, David J. Roberts, Mark H. Yazer, Nancy M. Dunbar

NEPHROLOGY/DVL

PAST3503 **L T P C**

3 1 0 4

Course description:

This course will help the students understand provide students with a comprehensive understanding of the structure, function, and disorders of the kidneys and skin, as well as the principles and practices of its treatment.

Course objectives

Students undergoing this course are expected to:

1. Understand the anatomy and physiology of Renal system, acid base balance, and tests done to detect the abnormalities of kidney
2. Understand the cancers that affect renal system, and nephritic and nephrotic syndrome.
3. Memorize the etiology, clinical features, management and complications of Acute and chronic kidney injury, and indications and contraindications of renal transplantation.
4. Understand anatomy and physiology of skin, its layers and disorders related to each layer.
5. Understand the infections and carcinomas related to skin and Sexually transmitted diseases.

THEORY **Total: 60 Hrs**

UNIT-I **12Hrs**

Basics of renal system: Development of Genito-urinary tract and Congenital diseases of kidney. Anatomy and physiology of kidney, Renal function tests, Acid base balance.

UNIT-II **12Hrs**

Diseases of renal system-I: Renal Artery stenosis and thrombotic microangiopathy. Nephritic and Nephrotic Syndrome-Primary and secondary disorders. Tumours of kidney and urinary bladder.

UNIT-III **12Hrs**

Diseases of renal system II: Acute and chronic kidney injury, Infections of Urinary bladder. Renal stones, Inherited diseases of kidney, Renal trauma and transplantation.

UNIT-IV **12Hrs**

Integumentary System and its diseases: Investigations in dermatology, Diseases related to skin appendages- Hair, Sweat gland, sebaceous gland and nail, Psoriasis, lichen Planus, Pityriasis rosacea, Eczema, Occupational skin diseases.

UNIT-V **12Hrs Skin infections and carcinomas**: Infections of skin, Skin Carcinomas, Bullous disorders, Drug related reactions of skin, Hypo and Hyper pigmentation disorders, Leprosy, Sexually Transmitted disorders.

Course Outcome:

At the end of the course, students should be able.

1. Memorize the anatomy and physiology of kidney and congenital anomalies, formation of urine and its analysis.

2. Describe the Etiology, Pathogenesis and clinical features, investigations and management of renal diseases
3. Comprehend carcinomas related to kidney and bladder and instruments used in renal transplantation, Renal trauma and its grading.
4. Recall the skin layers, primary and secondary lesions of skin and diseases related to epidermis, dermis and hypodermis of skin
5. Reproduce the concepts related to carcinomas and Etiology and kits used to treat STD and its prevention including bacterial infections viral infections , Parasitic STIs.

Text books

1. Text Book of Nephrology, Anil k Mandal, 3rd edition.
2. Illustration Synopsis of Dermatology and Sexually Transmitted diseases, by Neena Khanna, 7th edition.

Reference books-

1. Oxford textbook of clinical Nephrology,4th edition
2. Andrew's Diseases of skin-Clinical dermatology.13th edition
3. Harrison Principles of Internal Medicine,21st edition,

PROGRAM ELECTIVE -I
OPHTHALMOLOGY

PAST3601a **L T P C**
3 0 0 3

Course description:
This course will provide and comprehensive idea about ophthalmology including anatomy, physiology, pathology and pharmacology, and diseases affecting each part of eye.

Course objectives
This course will help the students to

1. Acquire knowledge on Basics of Ophthalmology, basic ophthalmic investigations, routes of drug administration
2. Understand the diseases like refractive errors, vascular disorders of eye, disorders of eye lid.
3. Understand the diseases related to Conjunctival disorders, Cataract and Glaucoma.
4. Understand the disorders related to Corneal disorders, Neurophthalmology and Orbit diseases.
5. Memorize the investigations to detect the diseases of eye and National Programme for Control of Blindness & Visual Impairment (NPCBVI)

THEORY **Total: 45 Hrs**

UNIT -I **9Hrs**

Anatomy of Eye: Anatomy of Sclera, Conjunctiva, Cornea, Eyelids, Choroid, Retina, Eyelids and Lacrimal apparatus, Physiology of Vision and Accommodation, Ocular Pharmacology, Ocular routes of drug administration.

UNIT-II **9Hrs**

Refractive errors, vascular and eyelid disorders: Myopia, Pathological myopia, Hypermetropia, Astigmatism, Tests for Vision. Vascular disorders of Eye-Diabetic retinopathy, Hypertensive Retinopathy. Disorders related to Eyelids-Chalazion, External and internal hordeolum, Trichiasis, Entropion and Ectropion, Madarosis, ankyloblepharon

UNIT-III **9Hrs**

Conjunctival disorders, Cataract and Glaucoma -Bacterial, Fungal, Viral and Allergic Conjunctivitis, Pterygium, Cataract-Congenital, Traumatic, Metabolic, Senile, Instruments used in Cataract surgery, Ectopia lentis, Intraocular Lens, Aqueous humour-production and Outflow, Glaucoma-Congenital, Open angle, angle closure, Secondary glaucoma.

UNIT-IV **9Hrs**

Corneal disorders, Neurophthalmology and Orbit diseases -Bacterial, Viral and fungal Keratitis, Keratoconus, Pathway of Vision and visual field defects, Optic atrophy, Colour blindness - Classification and Test, Ocular trauma. Disorders of Orbit- Proptosis, Orbital Cellulitis.

UNIT-V **9Hrs**

Community Ophthalmology and investigations -Vision 2020, National Programme for control of Blindness and Visual impairment. Investigations related to Ophthalmology-Refractoscopy, Tonometry, Perimetry, Gonioscopy, Keratometry, Corneal topography,

Course Out Comes-

By the end of this course student will be able to

1. Memorize anatomy of eye along with its blood supply and nerve supply,
2. Apply the physics behind vision and understand refractive errors differentiate between them and appropriate lens used for its treatment. Prevention of diabetic retinopathy
3. Recall Types of conjunctivitis, Corneal ulcer and glaucoma, Cataract and its management and prevention.
4. Memorize visual pathway and its diseases that affects its pathway. Identification of signs observed in Occular trauma and first aid treatment.
5. Interpret the appropriate investigation done to diagnose Occular disorders. Recall the Amis, Structure and Objectives seen under National Programme for Control of Blindness and Visual impairment

Text Books

1. Basic Ophthalmology, Renu jogi, 5th edition
2. Comprehensive Ophthalmology by AK khurhana,9th edition

Reference Books

1. Textbook of Ophthalmology, Sanjeev Kumar Mittal, Raj Kumar Aggarval,
2. Parsons diseases of eye,23rd edition

RADIOLOGY

PAST3601b **L T P C**

3 0 0 3

Course description:

This course provides students a comprehensive understanding of medical imaging techniques and their clinical applications. Topics include interpretation of X-rays, CT scans, MRI, and ultrasound studies, as well as the role of imaging in diagnosing and managing various medical conditions. Through didactic lectures, hands-on training, and case studies, students develop proficiency in utilizing radiological imaging to aid in patient diagnosis and treatment planning.

Course objective:

Students undergoing this course are expected to:

1. Understand the basics of radiology and instruments used in the radiology.
2. Understand the contrasts used in x ray, CT scans, MRI.
3. Understand the radiological findings in Respiratory system and cardiovascular system disorders.
4. Understand the radiological findings in Renal system and gastrointestinal system diseases.
5. Understand the radiological findings in Brain and Liver diseases.

THEORY **Total: 45 Hrs**

UNIT I: **9Hrs**

Basics of Radiology and instruments: X-Ray tube, production of X-Ray, interaction of X-Ray, USG Probe internal structure, doppler effect, CT Basics principles, CT Scan generation, MRI Basic structure, working of MRI.

UNIT II : **9Hrs**

Contrasts used in Radiology: Contrast used in X RAY, Barium swallow, ultrasound contrast agents, MRI contrast agents, various tissues and their appearance on USG, USG interpretation protocol, pre vs post contrast CT Images, body CT interpretation protocol, chest x ray basic projection, standard techniques of chest x ray, normal chest x ray interpretation.

UNIT III: **9Hrs**

Radiological findings in Respiratory system and cardiovascular system disorders:

Radiological findings of pleural effusion, radiological findings of pneumothorax, silhouette sign, silhouette sign based on lobar anatomy, air bronchogram sign, Tuberculosis radiological findings, Radiological findings of COVID 19.

Radiology of congenital heart diseases, radiological findings of acquired heart diseases, Mitral stenosis, congestive heart failure, images of pericardial effusion

UNIT IV: 9Hrs

Radiological findings in Renal system and gastrointestinal system diseases: intravenous urography, horseshoe kidney, duplex pelvicalyceal system, micturating cysto-urethrography, vesico-ureteric reflex, retrograde urethrography, urolithiasis, pyelonephritis, complex renal cyst, renal cell carcinoma.

barium contrast studies, dysphagia, gastric ulcer, pneumoperitoneum, bowel obstruction, congenital diaphragmatic hernia, acute appendicitis.

UNIT V: 9Hrs

Radiological findings in Brain and Liver diseases: CT in acute stroke, subacute-chronic stroke, hemorrhagic stroke, head trauma imaging, skull fracture.

Hydatid cyst imaging findings, focal liver lesions, hepatocellular carcinoma, HIDA scan.

Course outcomes:

By the end of this course student will be able to

1. Retrieving the knowledge on basics of x ray, USG, MRI and CT.
2. Recognizing the contrasts used in x ray, USG, CT and MRI and identifying the disease.
3. Analysing the X ray, USG, CT and MRI of Respiratory and cardiovascular system disorders.
4. Analysing the X ray, USG, CT and MRI of Renal and Gastrointestinal system disorders.
5. Analysing the X ray, USG, CT and MRI of Brain and Liver disorders.

Text books:

1. Text book of radiology for X ray, CT, MRI, BSc, BRIT and MSc Technicians, 2nd edition, Sachin Khanduri.
2. Basics Radiological Physics 2nd edition by Kuppusamy Thayalan.

Reference Books:

1. Text books of radiology and imaging by Sutton,2 volume set,8th edition.
2. Clark's Positioning in Radiology,13th edition

FORENSIC MEDICINE

PAST3601c **L T P C**
3 0 0 3

Course Description:
Forensic Medicine introduces B.Sc. Physician Assistant students to the medico-legal aspects of healthcare practice. The course covers topics such as postmortem changes, injury analysis, toxicology, sexual offenses, and legal responsibilities of medical professionals. It emphasizes the importance of accurate documentation, evidence preservation, and ethical conduct in clinical settings. Students will gain foundational knowledge to assist in legal investigations and understand their role in medico-legal cases.

Course Objectives:
The course should enable the students to:

1. To familiarize students with the Indian legal system, medical ethics, and the principles of consent and medical negligence.
2. To help students identify various types of injuries and understand their medico-legal significance.
3. To provide knowledge of autopsy procedures and postmortem changes relevant to determining time and cause of death.
4. To educate students about medico-legal aspects of sexual offenses, reproductive issues, and child abuse.
5. To introduce students to toxicology, including common poisons and the duties of a doctor in poisoning cases.

THEORY **Total: 45 Hrs**

UNIT I **9 Hrs**
Medical Jurisprudence: Indian legal system, Medical law and Ethics, Medical Negligence, Consent in Medical Practise.

UNIT II **9 Hrs**
Forensic Traumatology: Mechanical Injuries, Regional Injuries, Thermal Injuries, Electrical Injuries, Explosion Injuries, Transportation Injuries.

UNIT III: **9 Hrs**
Forensic Pathology: Autopsy Procedures, Early Postmortem changes, Late postmortem changes, Asphyxia Deaths, Human Identification.

UNIT IV: **9 Hrs**
Sexual Jurisprudence: Impotence, Virginity, Delivery and Abortion, Infant Deaths and Child Abuse, Sexual Offences.

UNIT V: **9 Hrs**
Toxicology: General Toxicology, Duties pof a doctor in case of poisoning, Corrosive poisons,

Metallic and Non metallic irritants, Animal and Plant irritants, neurotoxic Poisons, Agricultural Poisons.

Course outcomes:

By the end of this course student will be able to

1. Students will be able to apply legal and ethical principles in clinical practice, including informed consent and medico-legal documentation.
2. Students will be able to recognize and classify injuries, relating them to possible causes and legal contexts.
3. Students will demonstrate understanding of postmortem changes and assist in determining the cause and timing of death.
4. Students will be able to handle cases involving sexual offenses and child abuse with proper medico-legal protocol.
5. Students will be able to identify signs of poisoning and respond appropriately, including legal reporting and initial management.

Text books:

1. The Essentials of Forensic Medicine and Toxicology" by Dr. K.S. Narayan Reddy
2. Textbook of Forensic Medicine and Toxicology" by Dr. Anil Aggrawal

Reference Books:

1.Simpson's Forensic Medicine" by Jason Payne-James, Richard Jones, Steven B. Karch, and John Manlove

2.Parikh's Textbook of Medical Jurisprudence, Forensic Medicine and Toxicology" by C.K. Parikh

CLINICAL SKILLS-III

PASL3501 **L T P C**
0 0 4 8

Course description:

This course aids in focusing on fundamental clinical skills such as history taking, general and systemic examination, vital signs assessment, maintain the case sheets and writing discharge summary of Orthopaedic, Haematology, Renal system, DVL.

Course objective:

This course will help the students to

1. Understand the case sheet writing, and urine analysis.
2. Interpret dermatological spotters, Wound and burn dressing.
3. Identify the fractures through imaging and carry out method of appropriate reduction techniques.
4. Understand the blood grouping and have knowledge about the drugs used to treat leukaemia's
5. Comprehend protocols of blood transfusion, and calculation of indices

PRACTICAL **Total: 240 Hrs**

UNIT-I **48 hrs**

Diagnosis and case sheet writing of diseases of kidney**,** Complete analysis of Urine-Urine dipstick test, Urine casts, Colour, PH, Specific gravity.

UNIT- II **48 hrs**

Spotters of dermatological lesions and its treatment, Interpretation of Woods lamp, Tznack Smear, and stains used, Wound and burn dressing.

UNIT-III **48 hrs**

Interpretation of various fractures in X-Ray, Methods of reduction of fracture, Diagnosis and case sheet writing of anemia

UNIT-IV **48 hrs**

Blood Grouping- ABO and Rh, Erythrocyte Sedimentation rate, Chemotherapeutic drugs used in Leukemia- Bleomycin, Paclitaxel,

UNIT-V **48 hrs**

Calculate the indices and interpret the relative significance, Management protocols of reactions related to blood transfusion.

Course Learning Outcome:

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

1) Effectively write case sheet of renal diseases, understand abnormalities detected by urine analysis.
2) Detect disorders by Woods lamp, Diagnose Cutaneous infections, Immuno-bullous disorders, Cutaneous tumours by Tznack smear,
3) Ability to read an X ray and able to diagnose the type of fracture and give first aid to stabilize the fracture.
4) Ability to read blood report and diagnose diseases related to it, Knowledge on the use of chemotherapeutic drugs used in Leukaemia
5) Understand the aseptic precautions taken during blood and sample collection, identify immediate, late adverse reaction to blood transfusion and effectively manage it.

VI - Semester

CARDIOLOGY/PULMONOLOGY

PAST3504 **L T P C**

3 1 0 4

Course Description:

Students delves into the intricacies of cardiovascular and pulmonary anatomy, physiology, and pathology. Through clinical experiences, students learn to diagnose and manage a wide array of cardiac and respiratory conditions, including heart failure, asthma, and COPD. Emphasis is placed on developing proficiency in interpreting diagnostic tests, formulating treatment plans, and collaborating with interdisciplinary teams for comprehensive patient care.

Course Objective:

Students undergoing this course are expected to:

1. Understand the basic Anatomy and Physiology of Heart.
2. Understand the concept of Congenital disorders of Heart.
3. Understand the concepts of Heart failures and its disorders.
4. Understand the basic Anatomy and Physiology of Lungs.
5. Understand the concepts of Lung disorders.

THEORY **Total: 60 Hrs**

UNIT-I **12Hrs**

Basic Anatomy and Physiology of Heart: Embryology of heart, Anatomy and Physiology of heart, Investigations in Cardiology-ECG, ECHO, angiography, Chest X-Ray, Cardiac MRI[CMRI], Blood pressure, Cardiac Catheterization, Holter monitoring, Cardiac enzymes and troponins.

UNIT-II **12Hrs**

Congenital diseases of heart: cyanotic and acyanotic, Valvular Disorders-Stenosis and regurgitation of mitral, tricuspid and semilunar valves,

UNIT-III **12Hrs**

Heart diseases: Ischemic heart disease, Atherosclerosis, Heart block, Heart failure, Acute coronary syndrome, Arrhythmias, Cardiomyopathies, Pericardial diseases.

UNIT-IV **12Hrs**

Basic Anatomy and Physiology of lung: Development of lungs, Anatomy and physiology of lungs, Pulmonary function tests, Hypoxia and hypercapnia, Asthma, Chronic Obstructive Pulmonary disorder [COPD], Pneumonia,

UNIT-V **12Hrs**

Lung disorders: Carcinomas of lung, pulmonary embolism, Pulmonary hypertension, Interstitial

lung diseases, Pleural disorders, Occupational lung diseases, Tuberculosis and other infections related to lungs.

Course Outcomes:

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

1. Develop a comprehensive understanding of the embryology, anatomy, and physiology of the heart, along with the diagnostic tools and investigations used in cardiology for accurate diagnosis and management.

2. Apply the knowledge of Basics of heart in diagnosing the Congenital Heart disorders

3.Understand the etiology, pathophysiology, clinical features, and management of ischemic heart disease, heart failure, acute coronary syndrome, arrhythmias, cardiomyopathies, and pericardial diseases.

4.In depth understanding of lung development, anatomy, physiology, and related diagnostic tests, along with the pathophysiology and management of asthma, COPD, and pneumonia.

5. Analyze the clinical presentation, diagnosis, and treatment of advanced lung disorders, including lung carcinomas, pleural disorders, and infections such as tuberculosis.

Text books:

1. Manipal prep manual of medicine, 3rd edition, Manthappa M
2. Davidsons Principle and Practice of Medicine 24th edition.

Reference books-

1. Manual of Cardiovascular medicine by Topol and Griffin, 5th edition
2. A comprehensive Review by James T. Neiman, Murray and Nadel's textbook of respiratory medicine, 7th edition.
3. Harrison Principles of Internal Medicine,21st edition,

NEUROLOGY

PAST3505 **L T P C**
3 1 0 4

Course Description:
Students explores the complexities of the nervous system, including its anatomy, physiology, and common pathologies. Through lectures, case studies, and clinical rotations, students learn to assess, diagnose, and manage neurological disorders such as stroke, epilepsy, and neurodegenerative diseases. Emphasis is placed on developing proficiency in conducting neurological examinations, interpreting diagnostic tests, and collaborating with specialists to provide holistic patient care.

Course Objective:
Students undergoing this course are expected to:
1. Understand the basic Anatomy and Physiology of brain and spinal cord.
2. Understand the concepts of Cranial nerve lesions, Congenital disorders and movement disorders of CNS.
3. Understand the concept of Seizures and its types.
4. Understand the concept of stroke and its types.
5. Understand the speech disorders and tumors of brain.

THEORY **Total: 60 Hrs**

UNIT-I **12Hrs**

Anatomy and physiology of brain: Development of Brain and Spinal cord.

CSF production and drainage, Sensory receptors, membrane potentials. Ascending and descending pathways, Neurotransmitters.

UNIT-II **12Hrs**

Congenital disorders of central nervous system, Cranial nerves lesions, Movement disorders:

Parkinsons and Huntington disease, Cerebral Palsy, Brain herniation syndromes, Infections-Meningitis, Encephalitis.

UNIT-III **12Hrs**

Seizures: Headaches-Primary and secondary, Seizures and epilepsy-Tonic, Clonic, Atonic, Myoclonic, Simple and complex partial seizures, Absence, Vertigo, Neuro-ophthalmology, Hydrocephalus.

UNIT-IV **12Hrs**

Stroke: Ischemic and haemorrhagic, Transient ischemic attacks, Neurodegenerative disorders-Alzheimer disease, Pick disease, Fronto-temporal lobar degeneration, Progressive Supra nuclear palsy.

UNIT-V **12Hrs**

Speech disorders & Tumours of brain: Glioblastoma, Astrocytoma, Ependymoma, Schwannoma, Medulloblastoma, Oligodendroglioma, Craniopharyngioma, Pineal gland tumour,

Brain stem lesions, Spinal cord lesions-Spinal Muscular atrophy, Amyotrophic lateral Sclerosis,

Tabes dorsalis, Brown Sequard Syndrome, Sub acute combined degeneration [SACD].

Course Outcome:

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

1. Acquire the knowledge on development of brain and spinal cord, CSF functions, cranial nerves present in brain and spinal cord.
2. Interpret the clinical features of Parkinson's, cerebral palsy and infections of brain.
3. Analyse the patient with seizures and treat according to the type of seizure.
4. Apply the knowledge of blood supply of brain to the strock of the brain.
5. Acquire the knowledge on brain stem lesions and spinal cord lesions.

Text book:

1. Manipal prep manual of medicine, 3rd edition, Manthappa M
2. Inderbir text book of human Neuroanatomy 10th edition.

Reference books-

1.Harrison Principles of Internal Medicine,21st edition, J.Larry Jameson,Anthony S.Fauci,Dennis L.Kasper
2.Davidson Principles and Practices of Medicine-24th edition, Ian Penman, Stuart H.Ralston ,Mark Strachan.

GASTROENTEROLOGY

PAST3506 **L T P C**

3 1 0 4

Course description:

students focus on the anatomy, physiology, and pathology of the gastrointestinal system. Students learn about common gastrointestinal disorders, diagnostic procedures such as endoscopy and imaging studies, and treatment modalities including medications and surgical interventions. Through didactic lectures, clinical case discussions, and hands-on experiences, students develop the skills necessary to assess, diagnose, and manage gastrointestinal conditions in diverse patient populations.

Course objective:

Students undergoing this course are expected to:

1. Understand the Anatomy, Congenital anomalies and diseases occurring in esophagus.
2. Understand the Anatomy, Congenital anomalies and diseases occurring in the Stomach.
3. Understand the Anatomy, Congenital anomalies and diseases occurring in Pancreas and Spleen.
4. Understand the Anatomy, Congenital anomalies and diseases occurring in Liver and Gall bladder.
5. Understand the Anatomy, Congenital anomalies and diseases occurring in Small and Large intestine.

THEORY **Total: 60 Hrs**

UNIT-I **12Hrs**

Anatomy and oesophageal disorders: Surgical anatomy of oesophagus

Congenital disorders of Oesophagus- Tracheoesophageal Fistula-Types, diagnosis, and its treatment. Investigations-Barium swallow, manometry, Wireless PH monitoring, endoscopy.

Gastro oesophageal Reflux disease, Oesophageal diverticula, Oesophageal carcinoma, Achalasia cardia.

UNIT-II **12Hrs**

Anatomy and stomach disorders: Surgical anatomy of Stomach, Types of cells lining stomach and its secretions.

Idiopathic hypertrophic pyloric stenosis, Peptic ulcer disease-Gastric and duodenal, Gastric carcinomas, Gastric outlet obstruction syndrome, Gastritis, bleeding varices, Basics of bariatric surgeries, Upper Gastroesophageal bleeding.

UNIT-III **12Hrs**

Anatomy and pancreases & spleen disorders: Development of pancreas and congenital anomalies, investigations related to pancreas, Pancreatitis-Acute and chronic, Pathophysiology of Diabetes mellitus, Pancreatic Carcinoma.

Anatomy and functions of Spleen, Splenomegaly, Splenic trauma.

UNIT-IV **12Hrs**

Anatomy and liver & gall bladder disorders: Development of Liver and gall bladder and congenital disorders, Liver function tests, Gall stones, Cholangitis, Jaundice, Biliary Disorders-Primary biliary cirrhosis/Primary sclerosing Cholangitis, Metabolic diseases of liver, Ascites, Fatty Liver-Alcoholic and Non-Alcoholic, Portal Hypertension, Liver tumours, Acute liver failure, Liver Transplantation.

UNIT-V 12Hrs

Anatomy and small and large intestinal disorders: Development of Small and large intestine and congenital disorders, Intestinal obstruction, Hernias, Malabsorption syndromes, Inflammatory bowel disease, Diarrhoea, Parasitic infections, constipation, Carcinomas of rectum and Anal

canal, Haemorrhoids, Diverticular diseases of colon.

Course outcome:

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

1. Acquire the knowledge on Transoesopgeal fistula, Barium swallow, GERD and apply the knowledge in the clinical.
2. Interpreting the Lining of stomach and its secretions, ulcers GIT, GOO syndromes, GI bleeding and apply the knowledge in the clinical.
3. Understand the developmental anatomy, congenital anomalies, and pathological conditions of the pancreas and spleen, along with their diagnostic approaches and treatment.
4. Acquire knowledge of liver and gall bladder anatomy, function, and diseases, focusing on their pathophysiology, investigations, and management, including transplantation and metabolic disorders.
5. Analysing the patient with small and large intestinal diseases and managing the patient according to the guidelines

Text book:

1. Manipal prep manual of medicine, 3rd edition, Manthappa M.
2. Clinical Gastroenterology 4th edition by Rajiv Mehta.

Reference books-

1. Harrison Principles of Internal Medicine,21st edition, J.Larry Jameson,Anthony S.Fauci,Dennis L.Kasper
2. Yamada textbook of gastroenterology,7th edition

PROGRAM ELECTIVE-II
GENETICS

PAST3602a **L T P C**
3 0 0 3

Course description:
Students provides an overview of fundamental principles in human genetics, including inheritance patterns, genetic disorders, and molecular genetics. Students learn to interpret family pedigrees, recognize genetic risk factors, and counsel patients on genetic testing and implications. Through case studies and laboratory exercises, students gain the knowledge and skills necessary to integrate genetic considerations into patient care across various medical specialties.

Course objective:
Students undergoing this course are expected to:

- Understand the Basics of genetics
- Understand the Metabolism of nucleotides
- Understand the Genetic disorders.
- Understand the chromosomal disorders
- Understand the Screening tests used to identify genetic conditions, importance of counselling of pregnant people.

THEORY **Total: 45 Hrs**

UNIT I: **9Hrs**
Basics of genetics: Chemistry of nucleic acids, purine basics, nucleoside formation, nucleotide formation, DNS vs RNA, purine metabolism, salvage pathway, purine catabolism, disorders associated with purine metabolism, pyrimidine metabolism, Orotic aciduria.

UNIT II: **9Hrs**
Metabolism of nucleotides: Structure and organization of DNA, different types of DNA, denaturation of DNA, DNA synthesis, transcription, translation, DNA methylation, histone modification, hybridization technique, southern blot, northern blot, western blot.

UNIT III: **9Hrs**
Genetic disorders: Recombinant DNA, Restriction endonuclease, vectors, steps of RDNA, PCR, DNA sequencing, mutations.
Classification of genetic disorders, x linked recessive, x linked dominant, autosomal recessive, autosomal dominant.

UNIT IV: **9Hrs**
Chromosomal disorders: Mendel's law, hardy Weinberg law, genetic and preventive health, genetic epidemiology, Marfan syndrome, neurofibromatosis 1&2, lysosomal storage disorders. Chromosomal disorders, down's syndrome, Edward syndrome, sex chromosomal disorders, Klinefelter's syndrome, turner's syndrome.

UNIT V: **9Hrs**
Screening tests in pregnancy: Karyotyping, antennal screening tests for genetic abnormalities,

prenatal genetic diagnostic tests, aneuploidy screening, chorionic villi sampling vs amniocentesis, preimplantation genetic testing, genomic imprinting disorders, Patau syndrome, Noonan syndrome, William syndrome.

Course outcomes:

By the end of this course student will be able to

1. Apply the knowledge of DNA & RNA structure
2. Interpretation of Metabolism of purine, enzyme that effect its metabolism and its management
3. Analysing the genetic disorders(X linked and autosomal disorders).
4. Analysing the chromosomal disorders(X linked and autosomal disorders)
5. Apply the knowledge of screening tests for detection of genetic & chromosomal disorders and give genetic counselling to parents and their family members for prevention of genetically abnormal births.

Text books:

1. Medical genetics, G.P. Pal
2. Fundamentals of genetics, Dr. R.P. Meyyam.

Reference books:

1. Emery's elements of medical genetics, 16th edition.
2. Concepts of genetics,12th edition

OTORHINOLARYNGOLOGY

PAST3602b **L T P C**

3 0 0 3

Course Description:

This course helps students in understanding of the diagnosis, treatment, and management of conditions related to the ear, nose, and throat (ENT).

Course Objective:

This course will help the students to

1. Understand the basic clinical anatomy of external, middle and internal ear, Vestibular apparatus.
2. Understand the disorders related to external, middle and internal ear, Vestibular apparatus.
3. Memorize the anatomy of Para Nasal air sinuses and diseases affecting it.
4. Understand the anatomy and disorders affecting Tongue, Salivary glands, Larynx, pharynx.
5. Interpret the tests done to detect hearing loss, access Vestibular apparatus related disorders and instruments related to perform Otorhinolaryngological surgeries

THEORY **Total: 45 Hrs**

UNIT-I **9Hrs**

Basics of Ear and Physiology of Hearing: Anatomy of Base of Skull External, Middle and Internal Ear, Physiology of hearing and balance, Presbycusis, Noise Trauma, Ototoxicity. Diseases of Pinna-Congenital, Cauliflower ear, Perichondritis and Sebaceous cyst.

UNIT-II **9Hrs**

Diseases of External, Middle and Internal Ear -Earwax, Otitis externa, Keratotis Obturans. Tympanic membrane- Perforation, Bullous myringitis, Importance of Eustachian tube. Middle Ear Disorders-Acute and Chronic Otitis Media with and without Cholesteatoma and its Complications-Mastoiditis, Petrositis, Intracranial complications, Serous Otitis Media, Otosclerosis, Tuberculosis of Ear.

UNIT-III **9Hrs**

Anatomy of Nose and Para Nasal Sinuses and its diseases:: Clinical anatomy and Physiology of Nose, Deviated Nasal Septum, Perforation of Septum, Rhinitis, Epistaxis, Rhinosporidiosis, CSF rhinorrhoea. Anatomy of Sinuses, Sinusitis, Nasal Polyps. Facial nerve paralysis, Glomus tumour, Vertigo, Acoustic Neuroma

UNIT-IV **9Hrs**

Anatomy of tongue, Pharynx and Larynx and its diseases: Adenoid Hypertrophy, Angiofibroma, Nasopharyngeal carcinoma, Tonsillitis, Disorders related to larynx-Congenital anomalies, Stridor,

Epiglottitis, Laryngeal carcinoma,

UNIT-V **9Hrs**

Investigations and instruments related to ENT: Tunning fork test, Tympanometry, Audiometry Vestibular function tests, Caloric test and fistula test, Fibreoptic Endoscopic Evaluation of Swallowing. Instruments related to ENT

Course outcomes:

By the end of this course student will be able

1. Recall the structures forming external, middle and internal ear, pathway of hearing, Distinguish between conductive and sensory neural hearing loss
2. Understand Etiology, Pathophysiology, Clinical features and Management of external, middle and internal ear, Vestibular apparatus related disorders.
3. Recall the anatomy and disorders of Para Nasal Air Sinuses. List out the disorders related to it along with its Etiology, Clinical features and effective management.
4. Memorize the disorders and carcinomas related to Tongue, Pharynx and Larynx along with its effective management.
5. Screen patients for hearing loss, know the drugs that cause hearing loss. Assist the surgeries and handle Emergencies related to Otorhinolaryngology

Text Books

1. Diseases of Ear, Nose and Throat and Head and Neck Surgery by P L Dhingra,8th edition
2. ENT notes edition 8 by Dr. Manisha Sinha Budhiraja

Reference Books

1. Textbook of ENT and Head and Neck surgery by P Hazarika,5th edition
2. Textbook of Otorhinolaryngology- Head and Neck surgery by Suresh Pilli, Kailesh Pujary

PSYCHIATRY

PAST3602c **L T P C**

3 0 0 3

Course Description:

Psychiatry introduces B.Sc. Physician Assistant students to the diagnosis and basic management of common mental health conditions. The course covers mood disorders, anxiety, psychosis, substance use, and personality disorders, with an emphasis on compassionate communication and the biopsychosocial approach. Students will learn to recognize psychiatric symptoms and assistin providing holistic care under physician supervision. This foundational knowledge equips them to support mental health care within multidisciplinary teams.

Course Objectives:

This course will help the students to

1. To introduce students to the fundamental concepts of psychiatry and help them differentiate between types of mental illnesses and conduct a mental state examination.
2. To provide an understanding of psychotic disorders, including schizophrenia and delusional disorders, and their underlying mechanisms.
3. To familiarize students with depressive disorders, their clinical features, and the biopsychosocial approach to diagnosis and treatment.
4. To educate students on bipolar disorder, its phases, and challenges in diagnosis and management, especially in special populations like pregnant women.
5. To explain the classification, features, and management strategies of various anxiety disorders

THEORY **Total: 45 Hrs**

UNIT I: **9 Hrs**

Basics of Psychiatry: Neurotic Vs Psychotic Illness, Functional Vs Organic Illness, Common Vs Severe Illness, Importance of mental health, Mental State Examination, Thought Disorders.

UNIT II: **9 Hrs**

Psychotic Disorders: Components and types Of Psychotic Disorders, Schizophrenia, Stress Diathesis Model, Agranulocytosis, Delusional Disorders,

UNIT III: **9 Hrs**

Depressive Disorders: Objective signs of depression, atypical Depression, Biopsychosomal Model, Drugs causing depression, Management of Depression.

UNIT IV: **9 Hrs**

Bipolar Disorder: Euthymia, Features of mania, Bipolar Disorder, Depression Vs Bipolar Disorder, Management of Bipolar Disorder, Bipolar Disorder In pregnancy.

UNIT V: **9 Hrs**

Anxiety Disorders: Yerkes- Dodson curve, Generalized Anxiety Disorder, Panic Disorder,

Management of Panic Disorder, Phobia, Separation Anxiety.

Course Outcomes:

By the end of this course student will be able

1. Students will be able to distinguish between neurotic and psychotic illnesses, conduct basic mental state examinations, and understand the relevance of mental health in general healthcare.
2. Students will be able to identify types and features of psychotic disorders, describe the stress-diathesis model, and understand complications like agranulocytosis.
3. Students will recognize signs of depressive disorders, understand potential contributing factors, and assist in implementing management plans.
4. Students will differentiate between depression and bipolar disorder, describe manic symptoms, and support the clinical management of bipolar patients, including during pregnancy.
5. Students will classify anxiety disorders, explain their physiological basis (e.g., Yerkes-Dodson curve), and contribute to basic management under supervision.

Text Books:

1.Essentials of Psychiatry" by Dr. A.K. Chaturvedi
2.Psychiatry: A Clinical Handbook" by Dr. David G. McGuffin

Reference Books

1.Kaplan and Sadock's Synopsis of Psychiatry: Behavioral Sciences/Clinical Psychiatry" by Benjamin J. Sadock and Virginia A. Sadock
2.Oxford Handbook of Psychiatry" by David Semple and Roger Smyth

CLINICAL SKILLS-IV

PASL3502 **L T P C**

0 0 4 8

Course description:

This course helps students in Practical sessions include pulmonary function testing and clinical observation. hands-on sessions in ECG interpretation, EEG interpretation, Case sheet writing of diseases related to Gastroenterology, Pulmonology, Cardiology and neurology.

Course Objectives

This course will help the students to

1. Interpret X ray, MRI and CT of Gastroenterology, Pulmonology, Cardiology and neurology.
2. Memorize case sheets and management algorithm of gut related disorders,
3. Interpretation of Electrocardiogram- Normal and abnormal waves, Intervals, Segments.
4. Understand the principles and interpretation of spirometry.
5. Interpretation of Electroencephalogram-normal and abnormal waves.

PRACTICAL **Total: 240 Hrs**

UNIT -I **48 hrs**

Clinical case discussion-long and short cases related to Gastroenterology. Interpretation of X-Ray, CT, MRI of Gastroenteric, Neurological, Pulmonary and cardiological disorders.

UNIT-II **48 hrs**

Diagnosis and treatment algorithm of acute gastroenteric cases. Clinical case discussion-long and short cases related to cardiology and pulmonology.

UNIT-III **48 hrs**

Interpretation of various ECG-PR intervals and segments, Heart block, STEMI, Electrolyte abnormalities (hypokalaemia, hyperkalaemia, Hypercalcemia and Hypocalcaemia) chest X-Ray.

UNIT-IV **48 hrs**

Spirometry- Procedure, Interpretation and clinical applications. Case sheet writing-long and short cases of Neurology

UNIT-V **48 hrs**

Eliciting reflexes, Electroencephalogram- Alpha, Beta, Delta and Teta Waves, its frequency and interpretation.

Course Learning Outcome:

At the end of the course, students should be able

1. Select the appropriate investigation suitable to get accurate diagnosis. And know about the indications and contraindications of MRI, CT, X-Ray of systems
2. Effectively write case sheets of Cardiovascular, Respiratory and disorders.
3. Place chest and limb leads of ECG in correct anatomical location and read the ECG accurately.
4. Detect abnormalities seen in spirometry and case sheet writing of Neurological cases.
5. Recall disorders where normal and abnormal election of reflexes are seen and interpretation of EEG.

VII & VIII SEMESTER SYLLABUS

Internship Guidelines
Effective from 2021 Admitted Batch

DESCRIPTION:

The internship for B.Sc Physician Assistant Program spans one year, providing students with extensive clinical exposure in various departments of the hospital. The internship enables students to apply theoretical knowledge in real clinical settings under the supervision of physicians and healthcare professionals. This training enhances diagnostic reasoning, clinical skills, patient management abilities, and professional competence required for effective healthcare delivery.

OBJECTIVES

1. **Clinical Skill Development:** Develop competency in patient history taking, physical examination, assisting in diagnosis, and performing basic clinical procedures under physician supervision.
2. **Observational Learning:** Observe and understand advanced diagnostic and therapeutic procedures performed in different clinical departments.
3. **Clinical Practice**: Apply theoretical knowledge gained during the academic program in real clinical Practice to assist physicians in patient care and management.
4. **Patient Care and Management:** Gain experience in patient assessment, documentation, treatment planning, and follow-up care in various clinical specialities.
5. **Logbook Maintenance**: Maintain a detailed logbook documenting daily clinical activities, procedures observed or assisted, and competencies achieved during the internship, duly verified by supervising physicians.

GENERAL GUIDELINES

1. Every candidate, after passing the final semester exams (should not have any back papers), is required to undergo a compulsory rotatory internship for a period of 12 months (365 calendar days) to be eligible for the award of the degree.
2. Internship is in partial fulfilment of the requirements of the course, and no candidate shall be declared to have completed the course otherwise.
3. All parts of the internship shall be done in the teaching hospital under a National Medical Commission (NMC)/National Accreditation Board for Hospital and Healthcare Providers (NABH).
4. The interns should conduct themselves in a manner befitting the profession and should dress appropriately in their respective work areas.
5. Interns should complete postings in all specialties as decided by the department.
6. Students are eligible to commence internship from next month of completion of their end semester examination (6^{th} semester).
7. Each intern should maintain a logbook wherever he/she is posted. The intern has to get a signature from the supervising staff at the end of each posting.
8. Project work/ duties during the internship must be duly undertaken and performed.
9. A review meeting to assess the progress of the project and logbook will be conducted on the first Saturday of every third month. A detailed report on the progress must be submitted following each meeting.
10. The intern is allowed to take his internship from other than the parent institution, provided there is a NOC obtained from both the parent institution and the institution offering the internship. Dean has to permit the student for internship after verifying the NOC.

GUIDELINES FOR COMPLETION, LEAVE & REPETITION
COMPLETION

The internship shall be completed within months of passing the final semester examination whenever in force but not limited to.

LEAVE

Normal Leave: Intern shall be permitted a maximum of 12 days leave with prior permission during the entire period of internship.

The entire period of 12 days cannot be availed during any one-week / two week postings applicable to a single department.

Medical Leave: Medical leave shall be included within the 12 days of normal leave. Any medical

leave beyond this period shall be recommended only by a duly constituted committee at the college level, which consists of the Dean, HOD, Supervisor and medical practitioner. The internship shall be extended if the leave of absence extends beyond this period.

S. No	Department	Duration	Roles of PAT Student
1	General Medicine	1 Month	Assist in patient history taking, physical examination, monitoring vitals, case documentation and assisting physicians during ward rounds.
2	General Surgery	1 Month	Assist in pre-operative and post-operative care, wound dressing, patient preparation for surgery and observing surgical procedures.
3	Pediatrics	1 Month	Monitor pediatric vitals, assist in examination of children, support vaccination procedures and pediatric emergency care.
4	Obstetrics & Gynecology (OBG)	1 Month	Assist in antenatal and postnatal care, monitor maternal and fetal vitals, observe labor and delivery procedures.
5	Cardiology	1 Month	Assist in ECG recording, monitor cardiac patients, observe cardiac investigations and assist in patient management.
6	Oncology	1 Month	Assist in patient assessment, monitor patients receiving chemotherapy, observe oncology procedures and supportive care.
7	Medical Gastroenterology (MGE)	15 Days	Assist in history taking of GI disorders, observe endoscopy procedures and monitor patients during investigations.
8	Orthopedics	15 Days	Assist in fracture assessment, splinting and plaster application, observe orthopedic procedures and trauma management.
9	Neurology	15 Days	Assist in neurological examination, monitor patients with neurological disorders and observe diagnostic procedures.
10	Pulmonology	15 Days	Assist in respiratory examination, monitor oxygen therapy, observe pulmonary function tests and respiratory care.
11	Nephrology	15 Days	Assist in monitoring renal patients, observe dialysis procedures and support patient care in renal disorders.
12	ENT (Otorhinolaryngology)	15 Days	Assist in examination of ear, nose and throat conditions and observe minor ENT procedures.
13	Dermatology	15 Days	Assist in examination of skin disorders, observe dermatological procedures and patient counseling.
14	Ophthalmology	15 Days	Assist in vision assessment, eye examination procedures and observe ophthalmic investigations.
15	Radiology	15 Days	Assist in patient preparation for imaging procedures such as X-ray, CT and ultrasound and observe radiological investigations.
16	Emergency Medicine	15 Days	Assist in triage, monitor vitals, support emergency procedures and assist in basic life support and stabilization.
17	Anesthesiology	15 Days	Assist in patient preparation for anesthesia, monitor vitals during procedures and observe airway management techniques.
18	Wards / General Ward Care	15 Days	Assist in routine patient care, monitoring vitals, maintaining patient records and supporting physicians during ward rounds.

COMPETENCIES TO BE ACQUIRED DURING INTERNSHIP

Upon completion of their internship, students in the B.Sc Physician Assistant (PAT) program should demonstrate the following competencies:

1. **Patient Assessment and Clinical Examination** – Ability to obtain patient history and assist in physical examination and clinical evaluation.
2. **Clinical Communication and Teamwork** – Communicate effectively with patients and work collaboratively with the healthcare team.
3. **Specimen Collection and Diagnostic Assistance** – Assist in specimen collection and basic diagnostic procedures.
4. **Use of Medical Equipment** – Operate common medical equipment such as ECG, patient monitors, and pulse oximeters.
5. **Clinical Documentation** – Maintain accurate patient records, case sheets, and clinical reports.
6. **Clinical Procedures and Patient Care** – Assist in procedures such as venipuncture, IV cannulation, wound care, and basic life support.
7. **Adherence to Safety Protocols** – Follow infection control, hospital protocols, and patient safety guidelines.
8. **Professional Ethics and Continuous Learning** – Demonstrate ethical practice, professionalism, and commitment to lifelong learning.

Academic Project/Dissertation

A Student wants to complete the project work in addition to an Internship.

Course Code : PASI4501
Course Name : Internship-I

S. No.	Component of Assessment	Marks Allotted	Type of Assessment	Scheme of Evaluation
1	**Internship**	80	Continuous Evaluation	• Twenty (20) marks for review assessment. • Each review assessment will carry 20 marks. • A total of three review assessment will be held over 12 months, scheduled on the first Saturday of every third month. • The 20 marks for each review assessment will be distributed as follows: 5 marks for the logbook, 5 marks for the report, 5 marks for the presentation, and 5 marks for the viva. • 20 Marks for final Internship report submission.
2	**Final Assessment**	20	End Assessment	Twenty (20) marks • Final Presentation (10marks) • Viva-voce (10 marks)
	Total	**100**		

Course Code : PASI4502
Course Name : Internship-II

S. No.	Component of Assessment	Marks Allotted	Type of Assessment	Scheme of Evaluation
1	**Internship**	80	Continuous Evaluation	• Twenty (20) marks for review assessment. • Each review assessment will carry 20 marks. • A total of three review assessment will be held over 12 months, scheduled on the first Saturday of every third month. • The 20 marks for each review assessment will be distributed as follows: 5 marks for the logbook, 5 marks for the report, 5 marks for the presentation, and 5 marks for the viva. • 20 Marks for final Internship report submission.
2	**Final Assessment**	20	End Assessment	Twenty (20) marks • Final Presentation (10marks) • Viva-voce (10 marks)
	Total	**100**		

Course Code : PASP4501
Course Name : Project Work

S. No.	Component of Assessment	Marks Allotted	Type of Assessment	Scheme of Evaluation
1	**Project Work**	80	Continuous Evaluation	Continuous Assessment -80mark Project Planning and Proposal approval - 20 mark Project Execution - 20 mark Log Book- 20 mark Project Report - 20 mark
2	**Project Work/Dissertation**	20	Final Assessment	Twenty (20) marks • Final Presentation (10marks) • Viva-voce (10 marks)
	Total	**100**		

SEMESTER VII INTERNSHIP

Course Outcome:

1. To became a competent Allied Health science professional Engaged in Patient care
2. To learn the routine functioning of the health Care System
3. To gain practical and clinical skills
4. To learn various Difficulties in the field through valuable experience
5. To explore the broad field opportunities and engage in Specialization

SEMESTER VIII INTERNSHIP & PROJECT WORK

Course Outcome:

1. To conduct High quality Scientific research
2. Ability to apply the excellent theoretical knowledge gained in the Academic career
3. Pursue academic excellence through relevant research
4. To identify existing research gaps

5. Ability to engage in furtherance of the medical field