Faculty of Biomedical Science

JSS ACADEMY OF HIGHER EDUCATION & RESEARCH
(DEEMED TO BE UNIVERSITY) MYSURU

JSS Academy of Higher Education & Research
(Deemed to be University)
Re-Accredited "A+" Grade by NAAC
Sri Shivarathreeshwara Nagara Mysuru - 570015, Karnataka

Regulation & Syllabus

BACHELORS OF OCCUPATIONAL THERAPY
2023

BOT

REGULATIONS AND CURRICULUM

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REGULATIONS
Bachelors of Occupational Therapy

Courses offered in Allied Health Sciences:

a) Bachelor of Science in Medical Laboratory Technology [B.Sc. (MLT)]
b) Bachelor of Science in Anesthesia & Operation Theatre Technology [B.Sc.(AOTT)]
c) Bachelor of Science in Renal Dialysis Technology [B.Sc. (RDT)]
d) Bachelor of Science in Respiratory Care Technology [B.Sc. (RCT)]
e) Bachelor of Science in Medical Imaging Technology [B.Sc. (MIT)]
f) Bachelor of Science in Cardiac Care Technology [B.Sc. (CCT)]
g) Bachelor of Science in Perfusion Technology [B.Sc. (PT)]
h) Bachelor of Science in Emergency Medicine Technology [B.Sc. (EMT)]
i) Bachelor of Science in Physician Assistant in CTVS [B.Sc. (PA)]
j) Bachelor of Science in Optometry [B.Sc. (optometry)]
k) Bachelor of Science in Forensic Science [B.Sc. (FS)]
l) Bachelor of Science in Genetics and Genomics [B.Sc. (G&G)]
m) Bachelors of Occupational therapy (BOT)

1. Eligibility for admission

A candidate seeking admission to the Bachelor of Science Degree in Allied HealthSciences [a) to m) above], shall have studied English as one of the principal subjects and shall have passed (except for B.Sc. Imaging Technology):

a) Two year Pre-University examination or equivalent as recognized by JSS AHER, Mysore (JSSAHER) with Physics, Chemistry and Biology as principal subjects of study.

OR

b) Pre-degree course from a recognized University considered as equivalent by JSSAHER, (two years after ten years of schooling) with Physics, Chemistry and Biology as principal subjects of study.

OR

c) Any equivalent examination recognized by the JSSAHER for the above purpose, with Physics, Chemistry and Biology as principal subjects of study.

OR

d) Vocational higher secondary education course conducted by Vocational Higher Secondary Education, Government of Kerala with five subjects including Physics, Chemistry, Biology and English in addition to vocational subjects conducted, considered equivalent to 'plus - two' [10+2] examinations of Government of Karnataka Pre University Course.

OR

e) Two years diploma from a recognized Government Board in a subject for which the candidate desires to enroll in the respective Allied Health Sciences course and shall have passed 'plus two' [10+2] with Physics, Chemistry andBiology, as principal subject

OR

f) Three years diploma from a recognized Government Board in a subject for which the candidate desires to enroll in the respective Allied Health Sciences course, with Physics, Chemistry and Biology as principal subjects during thetenure of the course.

OR

g) Senior secondary course with Physics, Chemistry and Biology as principal subject of study equivalent to class XII, of open school education system ofthe central government and state government approved institutions.

h) In case of B.Sc. Imaging Technology the candidate shall have passed Pre- University or equivalent examination with Physics, Chemistry, Biology and Mathematics, as principal subjects of study.

2. Duration of the course

Duration shall be for a period of eight semesters (four years) followed by 6 months of internship.

3. Medium of instruction

The medium of instruction and examination shall be in English.

4. Attendance

Candidates should have attended at least 75% of the total number of classes conducted in an academic year, from the date of commencement of the term to the last working day, as notified by the University, in each of the subjects prescribed for that year (theory, practicals, and clinical separately) to be eligible to appear for the University examinations. Candidates lacking prescribed percentage of attendance in any subject shall not be eligible to appear for the University examination in that subject.

5. Internal assessment (IA)

There shall be a minimum of two Internal assessment examinations in theory and practical of each core subject spread over evenly in each semester. The average marks of the two IA examinations shall be submitted to the University at least 15 days before the commencement of the University examination. The University shall have access to the records of IA examinations. Candidates have to secure 40% marks in the IA theory and practical separately in each subject to become eligible to appear for the University examination. The marks of the IA examinations must be displayed on the notice board of the respective departments within a fortnight from the date of IA examination. If a candidate is absent for any of the IA examinations due to genuine and satisfactory reasons, such a candidate may be given a re-examination, within a fortnight.

6. Subject and hours of teaching for theory and practical's

The number of hours of teaching theory and practical, course wise in each semester are shown in table I, II, III, IV, V, VI , VII and VIII.

There are three compulsory core subjects in each semester. Language, Allied and Skill enhancement subjects are mandatory for all courses. Candidates shall select one elective subject each in fifth and sixth semester from the list mentioned in the table IX.

Table I: Distribution of teaching hours in first year subjects.

Category	Subjects	Theory hours	Credits	Tutorials hours	Credits	Practical hours	Credits	Total hours	Total credits
Core - 1	Anatomy	45	3	15	1	30	1	90	5
Core - 2	Physiology	45	3	15	1	30	1	90	5
Core - 3	Basic Biochemistry	45	3	15	1	30	1	90	5
Ability Enhancement -1	English	30	2	-	-	-	-	30	2
Ability Enhancement - 2	Kannada	30	2	-	-	-	-	30	2
Value added course 1	Yoga	15	1	-	-	15	-	30	1
Total Credits	20								

Table II: Distribution of teaching hours in Second Semester subjects

Category	Subjects	Theory hours	Credits	Tutorials hours	Credits	Practical hours	Credits	Total hours	Total credits
Core - 4	General Pathology	45	3	15	1	30	1	90	5
Core - 5	General Microbiology	45	3	15	1	30	1	90	5
Core - 6	Pharmacology	45	3	15	1	30	1	90	5
Value added course 2	Crime and Society	30	2	-	-	-	-	30	2
Allied - 1	Psychology	30	2	-	-	-	-	30	2
Skill Enhancement-1	Soft skills	15	1	-	-	-	-	15	1
Total Credits	20								

Table III: Distribution of teaching hours in Third Semester subjects

Category	Subjects	Theory hours	Credits	Tutorials hours	Credits	Modality Posting + Practicals	Credits	Total hours	Total Credits
Core - 7	Basics of Medical disorder	45	3	15	1	90	3	150	7
Core - 8	Basics of occupational therapy – 1	45	3	15	1	90	3	150	7
Core - 9	Hand splinting & Ergonomics	45	3	15	1	90	3	150	7
Skill Enhancement-2	Computer application	30	2	-	-	-	-	30	2
Value added course-3	Environment Science and Health	30	2	-	-	-	-	30	2
Total Credits	25								

Table IV: Distribution of teaching hours in Fourth Semester subjects

Category	Subjects	Theory hours	Credits	Tutorials hours	Credits	Modality Posting + Practicals	Credits	Total hours	Total Credits
Core - 10	Basics of Occupational Ther apy -1	45	3	15	1	90	3	150	7
Core - 11	Basics of Occupational Therapy 2	45	3	15	1	90	3	150	7
Core - 12	Biomechanics	45	3	15	1	90	3	150	7
Skill Enhancement-3	Biostatistics and Research methodology	30	2	-	-	-	-	30	2

Value added course -4	Constitution of India	30	2	-	-	-	-	30	2
Total Credits	25								

Table V: Distribution of teaching hours in Fifth Semester subjects

Category	Subjects	Theory hours	Credits	Tutorials hours	Credits	Modality Posting + Practicals	Credits	Total hours	Total Credits
Core - 13	Occupational Therapy in Medical conditions	45	3	15	1	90	3	150	7
Core - 14	Occupational Therapy in Surgical conditions	45	3	15	1	90	3	150	7
Core - 15	Basics of Pediatrics	45	3	15	1	90	3	150	7
Elective 1	Food andNutrition	30	2	-	-	-	-	30	2
Allied - 2	Medical ethics	30	2	-	-	-	-	30	2
Total Credits	25								

Table VI: Distribution of teaching hours in Sixth Semester subjects

Category	Subjects	Theory hours	Credits	Tutorials hours	Credits	Modality Posting + Practicals	Credits	Total hours	Total Credits
Core - 16	Occupational Therapy in Pediatric conditions	45	3	15	1	90	3	150	7
Core - 17	Basics of Neurology & Neurosurgery	45	3	15	1	90	3	150	7
Core - 18	Basics of Orthopedics	45	3	15	1	90	3	150	7
Elective-2	Aphasia/ Therapeutic Aspects of yoga	30	2	-	-	-	-	30	2
Allied-3	Hospital management	30	2	-	-	-	-	30	2
Total Credits	25								

Table VII: Distribution of teaching hours in Seventh Semester subjects

Category	Subjects	Theory hours	Credits	Tutorials hours	Credits	Modality Posting + Practicals	Credits	Total hours	Total Credits
Core – 19	Occupational therapy in Neurological condition	45	3	15	1	90	3	150	7

Core – 20	Occupational Therapy in Orthopedic Conditions	45	3	15	1	90	3	150	7
Core - 21	Managerial skills	45	3	15	1	90	3	150	7
Allied-4	Psychiatry	30	2	-	-	-	-	30	2
Elective-3	Radiodiagnosis	30	2	-	-	-	-	30	2
Total Credits	25								

Table VIII: Distribution of teaching hours in Eighth Semester subjects

Category	Subjects	Theory hours	Credits	Tutorials hours	Credits	Modality Posting + Practicals	Credits	Total hours	Total Credits
Core - 22	Occupational Therapy in psychiatric conditions	45	3	15	1	90	3	150	7
Core - 23	Recent advances in occupational therapy -theory& practice	45	3	15	1	90	3	150	7
Core - 24	Rehab Science	45	3	15	1	90	3	150	7
Elective-4	Child abuse and sexuality	30	2	-	-	-	-	30	2
Total Credits	23								

Table IX: Elective Subjects

Elective Subjects	Offering Departments
Fifth Semester	
Immunotechniques in diagnosis of diseases	Pathology and Microbiology
Dental Radiography	Radio diagnosis
Pulmonary Function Testing	Pulmonary Medicine
Telemedicine	Dermatology (Dr Kantharaj)
Hands on training in Continuous ambulatory peritoneal dialysis	Nephrology
Echocardiography (Cardiology)	Cardiology
Echocardiography (CTVS)	Cardio Thoracic Vascular Surgery
Difficult airway intubation	Anesthesiology
Accident Investigation	Forensic Medicine
Forensic Psychology	Forensic Medicine
Food and nutrition	Nutrition
Sixth Semester	
Molecular Techniques	Biochemistry
Digital Subtraction Angiography	Radio diagnosis

Polysomnography	**Pulmonary Medicine**
Practice Management	**Health system management studies**
Renal Transplant	**Nephrology**
Coronary angiography	**Cardiology**
Intra Aortic Balloon pump	**Cardio Thoracic Vascular Surgery**
Ventilator management	**Anesthesiology**
DNA Typing	**Forensic Medicine**
Introduction to biometry	**Forensic Medicine**
Aphasia	**Speech and Hearing**
Therapeutic aspects of yoga	**Yoga**
Seventh Semester	
Radiodiagnosis	**Radiology**
Eighth Semester	
Child Abuse and Sexuality	**Psychiatry and Clinical Psychology**

Extension Activity

The following extension activities shall be provided for the ability enhancement of the candidates, to provide better health care services. The certificate shall be provided by the offering departments. The Basic Life Support (BLS) and Advanced Cardiac Life Support (ACLS) shall be as per the American Heart Association guidelines and certification

Extension Activity	Courses	Semester	Offering departments
Phlebotomy	All courses	III	Anaesthesiology
Basic life support *(compulsory on payment basis)	All courses	IV	Emergency medicine
Small Project/data Analysis/Industrial visit	All courses	V	Concerned departmentsof the Course
Advanced cardiac life support *(compulsory on payment basis for said courses)	Respiratory Care Technology, Emergence Medicine Technology, Anaesthesia and OT Technology, Cardiac Care Technology	VI	Emergency medicine

7. End Semester Examination

a) University examinations (UE): The University shall conduct examination forthe core subjects at the end of each semester. The candidates, who satisfy the requirement of attendance and internal assessment, shall be eligible to appear for the University examination. The head of the institution shall verify the same before forwarding the applications to the University within stipulated time along with the prescribed fee.

b) Non-University Examinations (NUE): Examination for Languages, Allied subjects, Skill enhancement, value added courses and Elective subjects shall be conducted by the college and the marks obtained shall be submitted to the University along withthe IA marks of the core subjects at least 15 days before the commencement of the University examination. The marks of non-core subjects shall be incorporated in the marks card issued by the University.

c) The candidate must have passed all the previous subjects (Core/Language/Skill

enhancement/Allied/elective), to appear for the sixth semester University examination.

8. Scheme of Examination:

Distribution of subjects and marks for each semester theory and practical examinations are shown in the Table - X, XI, XII, XIII, XIV, XV, XVI and XVII

Table X: Distribution of Subjects and marks for First Semester theory and practical examination

Category	Subjects	Theory				Practical			
		IA	UE	NUE	Total	IA	UE	NUE	Total
Core - 1	Anatomy	40	60	-	100	15	35	-	50
Core - 2	Physiology	40	60	-	100	15	35	-	50
Core - 3	Basic Biochemistry	40	60	-	100	15	35	-	50
Ability Enhancement -1	English		-	50	50	-	-	-	-
Ability Enhancement - 2	Kannada	-	-	50	50	-	-	-	-
Value added course 1	Yoga	-	-	50	50	-	-	-	-

Table XI: Distribution of Subjects and marks for Second Semester theory and practical examination

Category	Subjects	Theory				Practical			
		IA	UE	NUE	Total	IA	UE	NUE	Total
Core - 4	General Pathology	40	60	-	100	15	35	-	50
Core - 5	General Microbiology	40	60	-	100	15	35	-	50
Core - 6	Pharmacology	40	60	-	100	15	35	-	50
Value added course 2	Crime and Society	-	-	50	50	-	-	-	-
Allied - 1	Psychology	-	-	50	50	-	-	-	-
Skill Enhancement-1	Soft skills			50	50				

Table XII: Distribution of Subjects and marks for Third Semester theory and practical examination

Category	Subjects	Theory				Practical			
Core - 7	Basics of Medical disorder	IA	UE	NUE	Total	IA	UE	NUE	Total
		40	60	-	100	15	35	-	50
Core - 8	Hand splinting & Ergonomics	40	60	-	100	15	35	-	50
Core - 9	Basics of Surgical disorder	40	60	-	100	15	35	-	50
Skill Enhancement-2	Computer application	-	-	50	50	-	-	-	-
Value added course-3	Environment Science and Health	-	-	50	50	-	-	-	-

Table XIII: Distribution of Subjects and marks for Fourth Semester theory andpractical examination

Category	Subjects	Theory				Practical			
Core – 10	Basics of Occupational Therapy -1	IA	UE	NUE	Total	IA	UE	NUE	Total
		40	60	-	100	15	35	-	50
Core – 11	Basics of Occupational Therapy 2	40	60	-	100	15	35	-	50
Core – 12	Biomechanics	40	60	-	100	15	35	-	50
Skill Enhancement-3	Biostatistics and Research methodology	-	-	50	50	-	-	-	-
Value added course -4	Constitution of India	-	-	50	50	-	-	-	-

Table XIV: Distribution of Subjects and marks for Fifth Semester theory andpractical examination

Category	Subjects	Theory				Practical			
Core - 13	Occupational Therapy in Medical Conditions	IA	UE	NUE	Total	IA	UE	NUE	Total
		40	60	-	100	15	35	-	50
Core - 14	Occupational Therapy in Surgical Conditions	40	60	-	100	15	35	-	50
Core - 15	Basics of Pediatrics	40	60	-	100	15	35	-	50
Elective 1	Food & Nutrition	-	-	50	50	-	-	-	-
Allied-2	Medical Ethics	-	-	50	50	-	-	-	-

Table XV: Distribution of Subjects and marks for Sixth Semester theory andpractical examination

Category	Subjects	Theory				Practical			
Core - 16	Occupational Therapy in Pediatric conditions	IA	UE	NUE	Total	IA	UE	NUE	Total
		40	60	-	100	15	35	-	50
Core - 17	Basics of Neurology	40	60	-	100	15	35	-	50
Core - 18	Basics of Orthopedics	40	60	-	100	15	35	-	50
Elective 2	Aphasia/ Therapeutic aspects of Yoga	-	-	50	50	-	-	-	-
Allied-3	Hospital management	-	-	50	50	-	-	-	-

Table XVI: Distribution of Subjects and marks for Seventh Semester theory and practical examination

Category	Subjects	Theory				Practical			
Core – 19	Occupational Therapy in Neurological Conditions	IA	UE	NUE	Total	IA	UE	NUE	Total
		40	60	-	100	15	35	-	50
Core – 20	Occupational Therapy in Orthopedic conditions	40	60	-	100	15	35	-	50
Core - 21	Managerial skills	40	60	-	100	15	35	-	50
Elective 3	Radio-diagnosis	-	-	50	50	-	-	-	-
Allied-4	Psychiatry	-	-	50	50	-	-	-	-

Table XVII: Distribution of Subjects and marks for Eighth Semester theory and practical examination

Category	Subjects	Theory				Practical			
Core – 22	Occupational Therapy in Psychiatric conditions	IA	UE	NUE	Total	IA	UE	NUE	Total
		40	60	-	100	15	35	-	50
Core – 23	Recent Advancesin Occupational Therapy-Theoryand Practice	40	60	-	100	15	35	-	50
Core - 24	Occupational Therapy in Com-munity based Rehabilitation	40	60	-	100	15	35	-	50
Elective 4	Child Abuse and Sexuality	-	-	50	50	-	-	-	-

Question paper pattern for end semester University theory examinations (60 marks) Duration: Two hours

1. Short Essay : 04 questions out of 06 = 04x05=20
2. Short Answer: 10 questions = 10x03=30
3. Very Short Answer: 05 questions = 05x02=10

Total = 60 Marks

Question paper pattern for end semester Non-University theory examinations (50 marks)

MCQs 50 marks/Written theory assessment for 50 marks/Theory & practical assessment for 50 marks

9. Examiners

- Appointment of Examiners
  Examiners shall be appointed by the University to conduct the end semester University examinations, from the panel of examiners approved by the Board ofStudies. For Practical examinations, there shall be two internal/One Internal & one External examiners. Theory paper shall be valued by both the examiners.
- Qualification and Experience of Examiners
  For question paper setting and external examiner: Post graduation in the respective field

with five years of teaching experience.

- For Internal examiners: Post graduation in the respective field with three years of teaching experience.

10. Criteria for pass

Core Subjects: Candidates are declared to have passed in a subject, if they secure 40% of marks in university examination and internal assessment added together. Theory & practical shall be considered as separate subjects. If a candidate passes in practical examination but fails in theory paper, such candidate is exempted from reappearing for practical but shall have to appear in the subsequent examination for the theory paper in which the candidate has failed or vice versa.

The minimum prescribed marks to pass in Language papers, allied papers, skill enhancement value based papers and elective papers shall be 35% of the maximum marks prescribed for a subject.

11. Grading of performances

a. Letter grades and grade points allocations

Based on the performances, each student shall be awarded a final letter grade at the end of the semester for each course. The letter grades and their corresponding grade points are given in Table - XIV.

Table - XIV: Letter grades and grade points equivalent to percentage of marks and performances

Percentage of Marks obtained	Letter Grade	Grade Point	Performance
90.00 – 100	O	10	Outstanding
80.00 - 89.99	A	9	Excellent
70.00 - 79.99	B	8	Good
60.00 - 69.99	C	7	Fair
50.00 - 59.99	D	6	Satisfactory
40.00 - 49.99	E	5	Average
Less than 40	F	0	Fail
Absent	AB	0	Fail

A candidate who remains absent for any end semester examination shall be assigned a letter grade of AB and a corresponding grade point of zero. He/she should reappear for the said evaluation/examination in due course.

b. The Semester Grade Point Average (SGPA)

The performance of a student in a semester is indicated by a number called 'Semester Grade Point Average' (SGPA). The SGPA is the weighted average of the grade points obtained in all the courses by the student during the semester. For example, if a student takes five courses (Theory/Practical) in a semester with credits C_1, C_2, C_3, C_4 and C_5 and the student's grade points in these courses are G_1, G_2, G_3, G_4 and G_5, respectively, and then students' SGPA is equal to:

$$\text{SGPA} = \frac{C_1G_1 + C_2G_2 + C_3G_3 + C_4G_4 + C_5G_5}{C_1 + C_2 + C_3 + C_4 + C_5}$$

The SGPA is calculated to two decimal points. It should be noted that, the SGPA for any semester shall take into consideration the F and ABS grade awarded in that semester. For example, if a

learner has a F or ABS grade in course 4, the SGPA shallthen be computed as:

$$\text{SGPA} = \frac{C_1G_1 + C_2G_2 + C_3G_3 + C_4 * \text{ZERO} + C_5G_5}{C_1 + C_2 + C_3 + C_4 + C_5}$$

C. Cumulative Grade Point Average (CGPA)

The CGPA is calculated with the SGPA of all the VIII semesters to two decimal points and is indicated in final grade report card/final transcript showing the grades of all VIII semesters and their courses. The CGPA shall reflect the failedstatus in case of F grade(s), till the course(s) is/ are passed. When the course(s) is/are passed by obtaining a pass grade on subsequent examination(s) the CGPAshall only reflect the new grade and not the fail grades earned earlier. The CGPA iscalculated as:

$$\text{CGPA} = \frac{C_1S_1 + C_2S_2 + C_3S_3 + C_4S_4 + C_5S_5 + C_6S_6 + C_7S_7 + C_8S_8}{C_1 + C_2 + C_3 + C_4 + C_5 + C_6 + C_7 + C_8}$$

where C_1, C_2, C_3,…. is the total number of credits for semester I,II,III,…. and S_1, S_2,S_3,….is the SGPA of semester I,II,III,…. .

12 .Declaration of class

The class shall be awarded on the basis of CGPA as follows:

First Class with Distinction	= CGPA of. 7.50 and above
First Class	= CGPA of 6.00 to 7.49
Second Class	= CGPA of 5.00 to 5.99
Pass Class	= CGPA of 4.00 to 4.99

13. Carry over

A candidate who fails in core/language/skill enhancement/value based/allied/elective subjects of first semester to Seventh shall be permitted to carryover those subjects upto Seventh semester. However, the candidate must have passed all the previous subjects (core/language/ skill enhancement/value based/ allied/elective) to appear for the Eighth semester University examination.

14. Internship

Six months internship shall be mandatory after successful completion of Eighth semester examination. The 'Internship Completion Certificate' shall be issued by the college and copy of same is submitted to the University.

15. Award of Ranks/Medals

Ranks and Medals shall be awarded on the basis of final CGPA. However, candidates who fail in one or more subject during the course shall not be eligible for award of ranks.

16. Award of degree

A candidate who has passed in all the subjects (core/language/allied/skill enhancement/value based/elective papers) of all the semesters and has successfully completed the internship shall be eligible for award of degree.

17. Revaluation and Re-totaling of answer papers

There is no provision for revaluation of the answer papers in any examination. However, the candidates can apply for re-totaling by paying prescribed fee.

18. Maximum duration for completion of course

A candidate shall complete the course within six years from date of admission, failing, which candidate shall re-register for the course.

Bachelors of Occupational Therapy

Program outcomes

At the end the program the Occupational therapy student should be able to

PO1: Demonstrate the acquisition of comprehensive knowledge and skills related to basic medical sciences.

PO2: Demonstrate the acquisition of comprehensive knowledge about the basics of occupational therapy with its recent advances.

PO 3: Demonstrate the skills to identify and treat the patients with disability to achieve functional independence.

PO4: Familiarization to various rural set ups and demonstrate the acquisition of comprehensive knowledge and skills related to managing and treating the patients in all kind of clinical setups.

PO5: Demonstration of acquisition of comprehensive knowledge and skills related to managing patients in rural health centres and remote areas.

PO6: Capability to educate the people for prevention of disease and disabilities with promotion of good health

PO7: Capability to analyses the problems related to functional performances and use clinical skills in problem solving and develop need-based strategies to address the problems.

PO8: Capable to innovate, design and fabricate the different hand splints and adaptive devices using the knowledge of biomechanics and related principles

PO9: Practice based on international and national code of ethics and follow medical ethics.

I Semester

Core-1 Anatomy

Course Outcome

At the end of the course, students should know

CO1: Demonstrate the acquisition of comprehensive knowledge of basic tissues of the body.

CO2: Demonstrate the acquisition of comprehensive knowledge of gross anatomy of muscles, joints and organ system of human body

CO3: Demonstrate the acquisition of analysing the applied aspects concerned to human body.

CO4: Demonstrate the skill of identification of viscera of organ systems of human body

CO5: Demonstrate the skill of identification of microscopic structure of basic tissues and organs and correlate with their functions

CO6: Demonstrate the acquisition of comprehensive knowledge regarding the general embryology with congenital anomalies

Theory

Unit I **03hrs**

Organization of the human body

Introduction to the human body

Definition and subdivisions of anatomy

Anatomical position and terminology

Cell – Definition of a cell, shapes and sizes of cells Parts of a cell – cell membrane, cytoplasm, cell organelles

Cell division – definition and main events in different stages of mitosis and meiosis

Tissues – Tissues of the body

Characteristics, functions and locations of different types of tissues

Epithelial tissue – definition, classification with examples

Glands – classification with examples

Connective tissue and Nervous tissue

Unit II

Locomotion and Support **06hrs**

Locomotion and support

Cartilage – structure, types with examples

Skeletal system

Classification, structure, functions and ossification

Name, location and features of bones of the body.

Joints – Definition, types of joints with examples

Name, location, type, bones forming, movements possible in the synovial joints of the body.

Muscular system

Muscular tissue – skeletal muscle - gross anatomy and histology

Cardiac and smooth muscle – histology

Muscles of upper limb, lower limb, thorax, abdomen and head and neck

Unit III

Maintenance of the Human Body **12hrs**

1. Cardio-vascular system

Types and structure of blood vessels, capillaries

Heart – location, coverings, external and internal features of heart, Blood supply of heart

Systemic arteries and veins – major arteries and veins of the body

Lymphatic system
Lymphoid organs – structure and functions

2. Respiratory system

Organs of respiration, location, features of nasal cavity, pharynx, larynx, trachea, bronchi, lungs and pleura

3. Digestive system

Organs of digestive system, location, features of oral cavity, Tongue, pharynx, oesophagus, stomach, intestine and accessory organs of digestion – salivary glands, liver and pancreas.

Unit IV

1. Excretory system and reproductive system **12hrs**

Organs of urinary system, location and features of kidneys, ureter, urinary bladder and urethra
Male and female reproductive organs. Location, features of scrotum, testis, epididymis, vas deferens, seminal vesicle, ejaculatory ducts, prostate gland, penis and spermatic cord
Location and features of uterus, its supports, uterine tube, ovary and mammary gland
2. Embryology I - IV week – gametogenesis, structure of sperm, growth of the ovarian follicles, events of 1st, 2nd and 3rd weeks of development, folding of embryo, derivatives of germ layers, placenta

Unit V

Control Systems of the Body **12hrs**

1.Nervous system

Introduction, coverings and blood supply of brain and spinal cord
Spinal cord – location, external features and internal structure of spinal cord
Brain – subdivisions, location, external features and internal structure of medulla oblongata, pons and midbrain, cerebellum and cerebrum.
Thalamus and hypothalamus
Basal ganglia
Ventricles – location, formation and circulation of CSF
Cranial nerves

2.Sense organs
Location and features of olfaction, eye, ear and skin

3.Endocrine system
Name of the endocrine glands, location and features, histology of pituitary gland, thyroid gland, parathyroid, suprarenal gland, pancreas, testis and ovary. Hormones secreted by each gland.

Practical : **30hrs**

1. Demonstration of parts of microscope and its uses
2. Demonstration of skeleton and joint
3. Demonstration of deltoid and gluteus maximus, Cubital fossa
4. Demonstration of heart and its blood supply, demonstration of major arteries ofupper limb and lower limb, histology of cardiac muscle and histology of vessels
5. Demonstration of location and parts of lungs, histology of trachea and lungs
6. Demonstration of location of stomach, small and large intestines. Location andfeatures of pancreas, liver and gall bladder

7. Demonstration of location and features of kidney, ureter, urinary bladder and urethra. Histology of urinary system except urethra
8. Demonstration of location of male and female reproductive organs
9. Demonstration of brain and spinal cord
10. Histology of cornea and retina

Practical Examination: 35 Marks

1. Gross Anatomy- Discussion of any one specimen

   Discussion of specimens of Cardiovascular system, Respiratory System,Gastrointestinal system, Urinary system, Reproductive system
2. Spotters - Cardiovascular system, Respiratory System, Gastrointestinal system, Urinary system, Reproductive system
3. Histology discussion of any one demonstrated slide

Recommended Books Recent Editions:

1. Ross and Wilson: Anatomy and Physiology in Health and illness
2. Understanding Human Anatomy and Physiology, William Davis (p) MC Graw Hill
3. Essentials of Human Embryology. Bhatnagar, Orient Blackswan Pvt. Ltd.
4. Anatomy for B.Sc Nursing by Renu Chauhan. Arichal publishing company 2012
5. Hand book of Anatomy BD Chaurasia
6. Basics in Human Anatomy for B.Sc. Paramedical Courses 1st edition 2008 Jaypee Publishers

Reference books:

1. B D Chaurasia: Regional Anatomy. Vol I, II, III 6th edition

I Semester

Core- 2 Physiology

Course Outcome:

At the end of the course, students should know

CO1: Demonstrate the acquisition of comprehensive knowledge in the basic physiological concepts of general physiology.
CO2: Demonstrate the acquisition of comprehensive knowledge of circulation in human body.
CO3. Demonstrate the acquisition of comprehensive knowledge of all organ system of the body
CO4. Perform and analyse the investigation of blood.

Contents:

Theory Unit -I

General physiology and Blood

General Physiology **(2 Hrs)**

- Homeostasis with body fluid compartments
- Cell membrane, types of transport across cell membrane Membrane potential-RMP & AP

Blood **(07Hrs)**

- Composition and function of blood:Haemopoiesis
- Haemoglobin : types & functions:RBC structure & function ,destruction. Anaemia & Jaundice
- WBC: types & functions. Immunity: definition & classification
- Platelets: structure & function. Haemostasis :steps in brief ,anticoagulant eg
- Blood groups: types, incompatibility, blood transfusion.
- Lymph: composition and functions

Unit -II

Digestive system & Respiratory system

Digestive System **(3Hrs)**

- Organization and functions of digestive system
- Saliva: composition & functions
- Mastication and deglutition
- Functions of stomach
- Gastric juice: composition & functions
- Types of gastric motility
- Liver: functions, bile juices: composition & function, functions of gall bladder
- Pancreatic juice: composition & functions
- Small intestine: succus entericus, types of motilities
- Large intestine: functions

Respiratory system **(4 Hrs)**

- Functions of respiratory system. Mechanism of breathing {inspiration and expiration}
- Surfactant: composition and function. Lung volumes and capacities

- Pulmonary ventilation, alveolar ventilation, dead space
- Transport of oxygen and carbon di oxide {only difference}
- Hypoxia: definition, types, dyspnea, apnea, hyperventilation

Unit -III

Cardiovascular and Endocrine system

Cardiovascular system **(4Hrs)**

- List the properties of cardiac muscle
- Origin spread of cardiac impulse
- ECG: Definition, normal ECG, diagram in lead II
- Cardiac cycle: definition, normal duration, phases
- Heart sounds types, normal characteristics
- Blood pressure: Definition, components, normal values, factors affecting it Name different regional circulation, effect of exercise on CVS (brief)

Endocrine System **(7 Hrs)**

Name the different endocrine glands, hormones secreted by them
HORMONE: Structure, Function, name the disorders involved with that hormone{hypo and hyper secretion}

Unit -IV

Excretory system and Reproductive system

Excretory System **(4Hrs)**

- Types of nephrons and its differences, JG Apparatus
- GFR: definition , normal values , factors affecting
- Tubular functions: absorption and secretion in different segment
- Micturition process
- Skin and body temperature

Reproductive system **(3Hrs)**

- Puberty in male and female
- Spermatogenesis, semen composition& analysis
- Functions of Testosterone
- Functions of Estrogen
- Functions of Progesterone.
- Menstrual cycle: uterine and ovarian cycle (brief only)
- Contraception both in men and women: types

Unit -V

Muscle nerve physiology, Nervous system and Special senses

Muscle nerve physiology **(2Hrs)**

- Classification of neurons and nerve fiber. List of properties of nerve fibers

Neuroglia: types

- Types of muscle, steps of neuromuscular transmission ,E-C coupling ,muscle contraction

Nervous system **(5Hrs)**

- Synapse: types, list properties, list functions
- Receptor: structure, type, sensation carried by it , list the properties
- Reflex: reflex arc, classification, functions
- Ascending tract: list them and its function
- Descending tract: list them and its function
- Cerebral cortex: different lobes and its functions
- functions of basal ganglia, thalamus, hypothalamus
- functions of cerebellum
- CSF: composition and function

Special senses **(4Hrs)**

- Olfaction: tract, types of smell, odorant, receptor, name the applied aspect
- Gustation: pathway, types of tastes, taste buds, name the applied aspect
- Vision: rods, cones, differences, dark & light adaptation, visual pathway & name the applied aspect, errors of refraction & its correction, colour blindness, cataract
- Audition: functions of external ear, middle ear & inner ear, content of middle ear & inner ear, Organ of Corti, hearing pathway, name the applied aspect

Practicals **(30 Hrs)**

1. Haemoglobinometry.
2. Haemocytometry
3. Total leucocyte count.
4. Total Red blood cell count.
5. Determination of blood groups.
6. Differential WBC count.
7. Determination of clotting time, bleeding time.
8. Erythrocyte sedimentation rate (ESR). Determination of packed cell Volume,Calculation of Blood indices: CI, MCH, MCV, MCHC.
9. Blood pressure recording.
10. Spirometery,Artificial Respiration

Practical Examination: 35 Marks

1. Estimation of Hemoglobin.
2. Determination of Blood Groups.
3. Determination of Bleeding and Clotting time.
4. Spotters-Haemocytometer, (Identification of cells) Differential Count,Sphygmomanometer, Spirometer -10 Marks

Recommended Books Recent Editions

1. A.K.Jain, Human Physiology and Biochemistry for Physical Therapy and Occupational Therapy, 1st Ed. Arya Publication.
2. Dr. Venkatesh.D and Dr. Sudhakar H.S. Basic of Medical Physiology, 3rd Ed.,Wolter-Kluwer Publication.
3. Chaudhari (Sujith K) Concise Medical Physiology 6th Ed. New Central Book.

Reference Books

1. A.K.Jain, Text book of Physiology for Medical Students, 8th Ed. AryaPubliction.
2. Guyton (Arthur) Text Book of Physiology.13ed Ed. Prism Publishers.
3. Ganong (William F) Review of Medical Physiology. 27th Ed. Appleton.

I Semester

Core- 3- Basic Biochemistry

Course outcome:

At the end of the course, students should know

CO1: Demonstrate acquisition of comprehensive knowledge of cellular structure with its functions

CO 2: Demonstrate acquisition of comprehensive knowledge and skills related to Biomedical importance of macromolecules and micromolecules.

CO 3: Demonstrate acquisition of comprehensive knowledge of the enzymes

CO 4: Demonstrate acquisition of comprehensive knowledge and skills related to biochemical components of blood, urine and body fluids.

CO 5: Demonstrate acquisition of comprehensive knowledge of biochemical importance of nutrition

CO 6: Demonstrate acquisition of comprehensive knowledge of quality control and biomedical waste management in medical laboratory.

Unit I **12hrs**

Chemistry of Cell & Chemistry of Carbohydrates, Proteins, Lipids &Nucleotides-

Cell- Structure & Function of Cell Membrane, Subcellular Organelles, and their Functions.

Carbohydrates- Definition, Classification & Biological importance of carbohydrates, Derivatives of Monosaccharides.

Proteins- Definition & Classification of amino acids. Definition & Classification of Proteins based composition, conformation, and function. Functions Plasma proteins, Biologically important peptides and their functions, and Immunoglobulins -structure and functions

Lipids- Definition, Classification, Biological importance, and Functions of Lipids. Structure and functions of Cholesterol, types and functions of Lipoproteins. Fatty acids -definition and Classification

Nucleotides- Structure and Functions of DNA & RNA. Biologically important nucleotides and their functions.

Unit II **06 hrs**

Enzymes & Acid base balance

Enzymes- Definition and Classification. Factors affecting enzyme activity. Coenzymes and Cofactors. Enzyme inhibition – types and their importance.

Acids, Bases & Body Buffers -Definition with examples, and regulation of pH in brief.

Unit III **12hrs**

Vitamins & Minerals

Vitamins-Classification, Sources, RDA, Functions (in brief), deficiency manifestations and hypervitaminosis of fat-soluble vitamins A, D, E and K.

Sources, RDA, Functions (in brief), deficiency manifestations of water-soluble vitamins – Thiamine. Riboflavin, Niacin, Pyridoxine, Biotin, Pantothenic acid, Folic acid , cobalamin and Ascorbic acid.

Minerals-Classification.

Calcium, Phosphorus, Iron , copper Iodine, zinc, calcium, phosphorous, sodium, potassium & chloride -Sources, RDA, Functions (in Brief), deficiency manifestations.

Unit IV **05hrs**

Nutrition, Blood chemistry & Urine Chemistry

Nutrition- Nutrients, Calorific value of food, BMR and factors affecting BMR, respiratory quotient and its applications, biological value of proteins, nitrogen balance, Protein energy malnutrition. Blood chemistry- Biochemical components & their reference ranges in normal & diseased states- glucose, urea ,creatinine , electrolytes, total proteins and albumin.

Unit V **10hrs**

Clinical Biochemistry-

Specimen Collection - Blood, Urine and Body fluids. Preanalytical, analytical and postanalytical errors

Clinical Biochemistry- Parameters to diagnose Diabetes & Cardiovascular diseases.

Diagnostic enzymology, Assessment of arterial Blood gas status and electrolyte balance, Point of Care Testing. Renal Function tests(in brief), Liver function tests(in brief), Biomedical Waste Management.

Practicals **30 hrs**

1. General Reactions of Carbohydrates.
2. Identification of carbohydrates
3. Color reactions of Proteins.
4. Reactions of Non-Protein nitrogenous substances.
5. Demonstration of pH meter, Colorimeter, and spectrophotometer.
6. Demonstration of Chromatography and Electrophoresis.

Practical Examination: 35 Marks

1. Identification carbohydrates or NPN substances - 10 Marks
2. Color reactions of Proteins - 15 Marks
3. Spotters - 10 Marks

Recommended books Recent edition.

1. Textbook of Biochemistry - D.M.Vasudevan
2. Biochemistry - Pankaja Naik
3. Clinical Biochemistry - Principles and Practice - Praful. B. Godkar
4. Textbook of Biochemistry - Chatterjea and Shinde
5. Textbook of Clinical Chemistry - Norbert W Teitz

Reference Books Recent Edition

1. Harpers Biochemistry
2. Clinical Biochemistry-Michael L. Bishop
3. Textbook of Biochemistry-Rafi M.D
4. Lippincott's Illustrated review of Biochemistry
5. Practical Clinical Biochemistry-Harold Varley

I Semester

Language-1English

Unit I

Introduction

a) Study Techniques - Reading Comprehension
Exercises on reading passages and answering questions based on the passage.

b) Organization of Effective Note Taking Why good note-taking is important
Effective note-taking is an important practice to master at university. You have a lot of new knowledge and you need to develop reliable mechanisms for recording and retrieving it when necessary. But note-taking is also a learning process in itself, helping you to process and understand the information you receive.

c) Use of the Dictionary

Tips on how to use the dictionary

1. Choose the right dictionary.
2. Read the introduction.
3. Learn the abbreviations.
4. Learn the guide to pronunciation.
5. Looking Up a Word
   - Find the section of the dictionary with first letter of your word.
   - Read the guide words.
   - Scan down the page for your word.
   - Read the definition.
6. Online dictionaries
7. Research various facts.
8. Thesaurus

It is a dictionary of synonyms and antonyms, such as the online Thesaurus.com. Enlargement of Vocabulary
Roots : A to G Effective Diction
Foreign Expressions - meaning and pronunciation

Unit II

Applied Grammar

a) Correct Usage
The Eight Parts of Speech

1. Noun
2. Pronoun
3. Adjective
4. Verb
5. Adverb
6. Preposition
7. Conjunction
8. Interjection

b) The Structure of Sentences
What is a sentence?
What are clauses?
What are phrases?

Types of sentences:

1. Simple sentences
2. Compound sentences
3. Complex sentences

c) The Structure of Paragraphs

1. What is a Paragraph?

Paragraphs are comprised of sentences, but not random sentences. A paragraph is a group of sentences organized around a central topic.

2. The Secrets to Good Paragraph Writing: Four Essential Elements

The four elements essential to good paragraph writing are: unity, order, coherence, and completeness.

3. Paragraph Structure

A paragraph consists of 3 main structures :

1. Claim
2. Evidence
3. Analysis

d) Enlargements of Vocabulary Roots: H to M

Unit III

Written Composition

a) Precise writing and Summarizing

1. Definition of precise:
   A precise or summary is an encapsulation of someone's writing or ideas. Technically it should be one - third the length of the actual passage given.
2. Definition of summary:
   Summaries may not always follow a direct line through what they're summarizing - if you want to summarize someone else's ideas in a few sentences, it might make more sense if you begin with their conclusion, and work back to the arguments they use to develop that conclusion.
   Guidelines to follow while writing a summary are:

1. Divide…and conquer.
2. Read.
3. Reread.
4. One sentence at a time.
5. Write a thesis statement.
6. Check for accuracy.
7. Revise.

b) Writing of a Bibliography

I. What is a bibliography?
   A bibliography is an alphabetical list of all materials consulted in the preparation of your assignment.
II. What is an annotated bibliography?
   An annotated bibliography is an alphabetical list of books or articles for which you have added explanatory or critical notes.
III. Why you must do a bibliography?

a) To acknowledge and give credit to sources of words, ideas, diagrams, illustrations and quotations borrowed, or any materials summarized or paraphrased.
b) To show that you are respectfully borrowing other people's ideas, not stealing them, i.e. to

prove that you are not plagiarizing.

IV. What must be included in a bibliography?

- Author
- Title
- Place of publication
- Publisher
- Date of publication
- Page number(s) (for articles from magazines, journals, periodicals, newspapers, encyclopedias, or in anthologies)

V. Writing a bibliography in MLA style

1. Standard Format for a Book:
   Author. Title: Subtitle. City or Town: Publisher, Year of Publication.
   If a book has no author or editor stated, begin with the title. If the city or town is not commonly known, add the abbreviation for the State or Province.
2. Standard Format for a Magazine, Periodical, Journal, or Newspaper Article: Author. "Title: Subtitle of Article." Title of Magazine, Journal, or Newspaper Day, Month, Year of Publication: Page Number(s).

c) Enlargement of Vocabulary Roots - N to S

Unit IV

Reading and Comprehension

a) Review of selected materials and express oneself in one's words Seminar for students on powerpoint presentation and book review.

b) Enlargement of Vocabulary Roots - T to Z

Unit V

The study of Varioius forms of Composition

a) Paragraph
   Exercises for students on short paragraph topics.

b) Essay
   How to Write an Essay

The writing of an essay has three stages :

1. Essay writing
2. Close reading
3. Research

c) Letter

Mechanics of writing formal and business letters. Exercises on writing letters for students.

d) Summary

Writing reports: project report, magazine article and reporting in newspapers on sporting events.

e) Practice In Writing

Exercises and assignments on report writing for students

Unit VI

Verbal Communication

a) Discussions And Summarization Tips on taking minutes of a meeting Why Meeting Minutes Matter

Meeting minutes are important. They capture the essential information of a meeting - decisions and assigned actions. The following instructions will help you take useful and concise meeting minutes.

Before the Meeting

If you are recording the minutes, make sure you aren't a major participant in the meeting. You can't perform both tasks well.

Create a template for recording your meeting minutes and make sure you leave some blank space to record your notes.

Decide how you want to record your notes. If you aren't comfortable relying on your pen and notepad, try using a tape recorder or, if you're a fast typist, take a laptop to the meeting.

During the Meeting

As people enter the room, check off their names on your attendee list. Ask the meeting lead to introduce you to meeting attendees you aren't familiar with. This will be helpful later when you are recording assigned tasks or decisions.

After the Meeting

Review the notes and add additional comments, or clarify what you didn't understand right after the meeting.

a) Debates

Group Discussions:

1. Do's in a group discussion:

- Be confident. Introduce yourself with warm smile and get into topic soon
- Have eye contact with all group members
- Learn to listen
- Be polite
- Be a good team player. Move with all group members and help them when needed.

2. Don'ts in a group discussion:

- Don't be harsh when you are interrupted
- Don't interrupt the other person
- Don't try to push your ideas on others
- Don't argue. Everyone is free to express their idea

3. Do's in a group discussion:

- Be confident. Introduce yourself with warm smile and get into topic soon
- Have eye contact with all group members
- Learn to listen
- Be polite
- Be a good team player. Move with all group members and help them when needed.

4. Don'ts in a group discussion:

- Don't be harsh when you are interrupted
- Don't interrupt the other person
- Don't try to push your ideas on others
- Don't argue. Everyone is free to express their ideas

c) Oral Reports

An oral report is a presentation, usually done for a student's teacher and classmates, though it can also be done for a larger segment of the school community, for parents, or for a more open group, depending on the circumstances. For example, at a science fair, a student might present a report on his or her project periodically for the class, for other visitors who pass by, and for judges.

d) Use in Teaching Writing of dialogues

Originating from dialogues, the Greek word for conversation, the term dialogue refers to a verbal conversation between two or more people.

When writing dialogues, it is important to adhere to specific grammar rules. The following points need to be remembered while writing dialogues for role play

1. Quotation Marks
2. Periods
3. Question Marks
4. Commas
5. Capitalization and Paragraphs
6. How Dialogue Enhances Writing

Dialogue reveals information about the speaker(s) within a written work. Dialogue also enhances the story line and plot.

a) Exposes Character Traits
   Through indirect characterization, dialogue reveals details about a character by what they say, how they say it, and perhaps what they choose not to say.
b) Unveils Mood/Emotions
   A character's word choice, description of tone, and choice of language reveal the inner state of the character without directly "telling" the audience. Showing instead of telling creates a deeper understanding of the character through the eyes of the reader or audience.
c) Reveals Motivation/Influences
   Dialogue can illuminate a character's internal motivation or desires.
d) Establishes Relationships
   Seeing how a character addresses and responds to other characters shows the type of relationships that they form and where their relationships currently stand. Dialogue can demonstrate how relationships change throughout the course of the story. It can show how a character changes or responds to various situations.

Exercises for students on preparing a dialogue exchange between two people

1. On the street (with a vegetable vendor)
2. At college with a lecturer (regarding admissions)
3. In a bank with the manager (for opening a bank account)
4. Telephone conversation with a hotel receptionist (make room reservations)
5. Telephone conversation (taking an appointment with the dentist/doctor)

I Semester

Language 2- Kannada

ಕನ್ನಡ : ಒಂದು

ಪಠ್ಯಕ್ರಮದ ರೂಪರೇಖೆ

ಸ್ಥಾನ	: ಬಿ.ಎಸ್.ಸಿ. (ಅಲೈಡ್ ಹೆಲ್ತ್ ಸೈನ್ಸ್‌ಕೋರ್ಸ್) ಮೊದಲವರ್ಷ
ಸಮಯ	: 30 ಘಂಟೆಗಳು (ಮೂವತ್ತು ಘಂಟೆಗಳು)
ಪಠ್ಯಕ್ರಮದ ವಿವರಣೆ	: ವಿದ್ಯಾರ್ಥಿ/ ವಿದ್ಯಾರ್ಥಿನಿಯರು ದಿನನಿತ್ಯ ಸಂಪರ್ಕಿಸಬಹುದಾದ ಜನಸಾಮಾನ್ಯರೊಡನೆ ಶುಶ್ರೂಷೆಗೆ ಸಂಬಂಧಿಸಿದಂತೆ ಕನ್ನಡದಲ್ಲಿ ಸಂಭಾಷಣೆ ಮಾಡಲು ಹಾಗೂ ತಿಳುವಳಿಕೆ ನೀಡಲು ಸಹಕಾರವಾಗುವಂತೆ ಪಠ್ಯಕ್ರಮದ ಮಾದರಿಯನ್ನು ಅಳವಡಿಸುವುದು.
ಉದ್ದೇಶ	: ದಿನಬಳಕೆಯ ವ್ಯವಹಾರದಲ್ಲಿ ಶುಶ್ರೂಷಣೆಗೆ ಸಂಬಂಧಪಟ್ಟಂತೆ ಕನ್ನಡ ಭಾಷೆಗೆ ಅಳವಡಿಕೆ. ಕನ್ನಡೇತರರಿಗೆ ಕನ್ನಡ ಭಾಷೆಯ ಪರಿಚಯ ಮಾಡಿಕೊಡುವುದು.

ಪಠ್ಯಕ್ರಮದ ವಿವರಣೆ

ಘಟಕಒಂದು (ಆರು ಘಂಟೆಗಳು)	: ಅಕ್ಷರಮಾಲೆ, ಸ್ವರಗಳು, ವ್ಯಂಜನಗಳು,, ಕಾಗುಣಿತ, ಬರವಣಿಗೆ, ಅಭ್ಯಾಸ.
ಚಟುವಟಿಕೆ	: 1. ಕನ್ನಡ ವರ್ಣಮಾಲೆಯ ಅಕ್ಷರಗಳನ್ನು ಬರೆಯಿರಿ.
ಘಟಕಎರಡು (ಆರು ಘಂಟೆಗಳು)	: ಪದಪರಿಚಯ, ಪದಪುಂಜ, ದಿನಬಳಕೆಯ ಪದಗಳು, ಸಂಬಂಧಗಳು, ನಾಮಪದ, ಸರ್ವನಾಮ, ಅಂಕಿಗಳ ಪರಿಚಯ, ಪ್ರಶ್ನಾರ್ಥಕ ಪದಗಳು.
ಚಟುವಟಿಕೆ	: 1. ನಿಮಗೆ ತಿಳಿದಿರುವ ವಿವಿಧ ರೋಗಗಳ ಹೆಸರುಗಳನ್ನು ಪಟ್ಟಿಮಾಡಿ. 2. ನಿಮಗೆ ತಿಳಿದಿರುವ ತಿಂಡಿ – ತಿನಿಸುಗಳ ಹೆಸರುಗಳನ್ನು ಪಟ್ಟಿಮಾಡಿ.
ಘಟಕಮೂರು (ಆರು ಘಂಟೆಗಳು)	: ಲಿಂಗ, ವಚನ, ಅವ್ಯಯ, ತಿಂಡಿ – ತಿನಿಸುಗಳ ಪರಿಚಯ, ದೇಹದ ಅಂಗಗಳ ಪರಿಚಯ, ವಿವಿಧ ಬಗೆಯ ರೋಗಗಳ ಪರಿಚಯ.
ಚಟುವಟಿಕೆ	: ರೋಗಿಯ ವಿವರ ತಿಳಿಯಲು ಆಸ್ಪತ್ರೆಯಲ್ಲಿ ಬಳಸಲಾಗುವ ನಮೂನೆಯ ಮಾದರಿಯನ್ನು ರಚಿಸಿ.
ಘಟಕ ನಾಲ್ಕು (ಆರು ಘಂಟೆಗಳು)	: ಶುಶ್ರೂಷಣಾ ಪದಗಳು, ಆಸ್ಪತ್ರೆಯಲ್ಲಿ ಬಳಸುವ ವಿವಿಧ ನಮೂನೆಗಳ ಪರಿಚಯ, ನಮೂನೆಗಳ ರಚನೆ.
ಚಟುವಟಿಕೆ	: ಶುಶ್ರೂಕರು ಮತ್ತು ರೋಗಿಯ ನಡುವಿನ ಸಂಭಾಷಣೆಯ ಮಾದರಿಯನ್ನು ತಯಾರಿಸಿ.
ಘಟಕ ಐದು (ಆರು ಘಂಟೆಗಳು)	: ಶುಶ್ರೂಕರ ಹಾಗೂ ರೋಗಿಗಳ ನಡುವೆ ನಡೆಯುವ ಸಂಭಾಷಣೆಗೆ ಬೇಕಾದ ವಾಕ್ಯಗಳ ಪರಿಚಯ.

ಅಧ್ಯಯನಕ್ಕೆ ಶಿಫಾರಸ್ಸು ಮಾಡಲಾಗಿರುವ ಗ್ರಂಥಗಳು

1. ಕನ್ನಡ ವ್ಯಾಕರಣ (8,9 ಮತ್ತು 10ನೇ ತರಗತಿಗಳಿಗೆ ಕರ್ನಾಟಕ ಸರ್ಕಾರ, ಪಠ್ಯಪುಸ್ತಕಗಳ ಇಲಾಖೆ)	
2. ವ್ಯವಹಾರಿಕಕನ್ನಡ	: ಎಚ್ಚೆಸ್ಕೆ
3. ಪತ್ರಲೇಖನ	: ಕನ್ನಡಸಾಹಿತ್ಯಪರಿಷತ್ತು
4. ಲೇಖನಕಲೆ	: ಎನ್‌ಪ್ರಹ್ಲಾದರಾವ್
5. ಆರೋಗ್ಯ ಮತ್ತು ಇತರೆ ಪ್ರಬಂಧಗಳು	: ಡಾ॥ ಪಿ.ಎಸ್ ಶಂಕರ್
6. ವೈದ್ಯ ಪದಗಳ ಹುಟ್ಟುರಚನೆ	: ಡಾ॥ ಡಿ.ಎಸ್.ಶಿವಪ್ಪ

ಕನ್ನಡ: ಎರಡು

ಪಠ್ಯಕ್ರಮದರೂಪರೇಖೆ

ಸ್ಥಾನ	: ಬಿ.ಎಸ್ಸಿ(ಅಲೈಡ್ ಹೆಲ್ತ್ ಸೈನ್ಸ್‌ಕೋರ್ಸ್) ಮೊದಲ ವರ್ಷ
ಸಮಯ	: 30 ಘಂಟೆಗಳು (ಮೂವತ್ತು ಘಂಟೆಗಳು)
ಉದ್ದೇಶ	: ಜನರ ಆರೋಗ್ಯದ ಬಗ್ಗೆ ಸಮುದಾಯಕ್ಕೆ ತಿಳುವಳಿಕೆ ಕೊಡುವುದು.

Value Added Course

Yoga

Learning Objectives

1. To define Yoga and understand the history of yoga
2. To understand general concept and practice of yoga.

Syllabus

Yoga theory- 15 hours

Unit I: History & Origin of Yoga: **(2 hours)**

1.1 Introduction to Yoga
1.2 Introduction to Yoga education & its importance.
1.3 Evolution of Yoga- Concept about yoga origin, Pre-vedic & Vedic period
1.4 Modern view about yoga.

Unit: II General Perspective of Yoga **(3 hours)**

1.1 Definitions of Yoga, Objectives of Yoga, Importance of yoga and Misconceptions about Yoga,
1.2 Principles of Yoga,
1.3 Brief Introduction of schools of Yoga.
1.4 Yogic Lifestyle.

Unit: III Introduction to Yoga practises **(10 hours)**

3.1 Standing & Sitting Series of Asanas
3.2 Supine & Prone Series of Asanas.
3.3 Relaxation technique & its importance.
3.3 Pranayama & its importance

REFERENCE:

1. Lal Basant Kumar: Contemporary Indian Philosophy, Motilal Banarsidas Publishers Pvt. Ltd, Delhi, 2013
2. Dasgupta S. N: History of Indian Philosophy, Motilal Banarsidas, Delhi, 2012
3. Singh S. P: History of Yoga, PHISPC, Centre for Studies in Civilization Ist, 2010
4. Singh S. P & Yogi Mukesh: Foundation of Yoga, Standard Publication, New Delhi, 2010
5. G.C Pande, Histroy of science, philosophy, and culture of Indian Civilization Vol.VII part 10 Centre for Studies in Civilisations.
6. Asana, Pranayama, Bandha, Mudra by Swami Satyananda Saraswati Bihar School of Yoga.

Yoga practical- 15 hours

All Yogic sessions will be started with brief theory of technique of yogic practices, name of the practice, precautionary measures to be taken before, during and after practice of yoga & its benefits. This will enhance the students to learn different techniques of yoga.

Unit I: Breathing Practices & Sukshma Vyayama (Loosening exercise)

1.1 Hands stretch breathing , Hand In & out breathing.

1.2 Sukshma Vyayama*: All Joints Rotation*: Fingers, Wrist, Elbows, Shoulder rotation, Neck Flexion/ Extension, Neck rotation, knee movements & ankle joint movements

1.3 Hip rotation, extension and all possible movements.

1.4 Stretching: Forward, Backward & Sideward bending & Situps.

Unit II: Asanas, Pranayama & Relaxation technique.

1.1 Suryanamaskara (12 Series of asansa)

1.2 Standing Series: Ardha Chakräsana , Ardhakati Chakräsana, Trikonasana, Vrikshansana, Tadasana;

1.3 Sitting Series: Vajräsana, paschimotasnasana Ustrasana, Vakrāsana,; Prone Series: Bhujangasana, Shalabasana ;Supine series: Uttitapadasana & setubhandasana,

1.4 Pranayama & Relaxation technique: Suryabedana, Chandrabedana, Anuloma Viloma; Relaxation technique- Quick relaxation technique.

Reference:

1. Asana by Swami Kuvalyananda Kaivalyadhama, Lonavla.
2. Asana, Pranayama, Bandha, Mudra by Swami Satyananda Saraswati Bihar School of Yoga.
3. Light on Yoga, by B.K.S Iyengar,Harper Collins Publishers.
4. Surya Namaskar by Saraswati, Swami Satyananda, Bihar School of Yoga.

II Semester

Core 4-General Pathology

Course outcome:

At the end of the course student should be able to

CO1: Demonstrate the acquisition of comprehensive knowledge of cell pathology and repair
CO2: Demonstrate the acquisition of comprehensive knowledge of pathogenesis, morphology and complications of hematological diseases of the body.
CO3: Perform and analyse basic hematology techniques.
CO4: Acquisition of Knowledge of workflow and to perform basic investigations in Transfusion medicine and clinical pathology.
CO5: Demonstrate the acquisition of comprehensive knowledge of handling, storage and quality assurance of cytology lab.

Unit I **10 hrs**

General pathology-Introduction- & scope of pathology

1. Cell injury and Cellular adaptations- Normal cell, Cell injury- types, etiology, morphology, Cell death-autolysis, necrosis, apoptosis, Cellular adaptations- atrophy, hypertrophy, hyperplasia, metaplasia.
2. Inflammation-Introduction, acute inflammation-vascular events, cellular events, chemical mediators, chronic inflammation- general features, granulomatous inflammation, tuberculosis.
3. Healing and repair- Definition, different phases of healing, factors influencing wound healing, fracture healing.
4. Haemodynamic disorders- Edema, hyperemia, congestion, hemorrhage, embolism, thrombosis, infarction.
5. Neoplasia- defintion, nomenclature, features of benign and malignant tumors, spread of tumors, dysplasia, carcinoma in situ, precancerous lesions.
6. Environmental and nutritional pathology-smoking, obesity and vitamin deficiencies.

Unit- II **10 hrs**

Hematological Disorders **5 hrs**

1. Introduction and hematopoiesis
2. Anemia-introduction and classification (morphological and etiological). Iron deficiency anemia: distribution of body iron, iron absorption, causes of iron deficiency, lab findings, megaloblastic anemia: causes, lab findings.
3. Hemolytic anemias: definition. Causes, classification, and lab findings.
4. WBC disorders- quantitative disorders, leukemia-introduction, Pancytopenia.
5. Bleeding disorders- Introduction, Classification, causes of inherited and acquired bleeding disorders, thrombocytopenia, DIC, laboratory findings.

Basic Hematological Techniques **5 hrs**

1. Characteristics of good technician, Blood collection- methods (capillary blood, venipuncture, arterial puncture) complications, patient after care.
2. Anticoagulants, transport of the specimen, preservation, effects of storage, separation of serum and plasma, universal precautions.
3. Complete hemogram- CBC, peripheral smear, BT, CT, PT, APTT, ESR, PCV

4. Automation in hematology-principles of autoanalyzer -3 part, 5 part and six part analysers and coagulometer-interpretation of autoanalyzer results.
5. Disposal of the waste in the laboratory.

Unit- III **5 hrs**

Transfusion Medicine

1. Selection of donor, blood grouping, Rh typing, cross matching, and storage.
2. Transfusion transmitted diseases, transfusion reactions, components- types, indications.

Clinical Pathology

1. Examination of cerebrospinal fluid-physical examination, chemical examination, microscopic examination.
2. Examination of body fluids (pleural, pericardial and peritoneal), physical examination, chemical examination, microscopic examination.
3. Sputum examination.

Unit- IV **10 hrs**

1. Blood collection- methods (capillary blood, venipuncture, arterial puncture) complications, patient after care.
2. Handling and storage of samples in hematology
3. Interpretation of autoanalyzer results- complete blood count and erythrocyte Indices- MCV, MCH, MCHC.
4. Reticulocyte staining and counting.
5. Staining of peripheral smear and Differential leucocyte count
6. Quality assurance in hematology.
7. Introduction and basics of histopathology –Handling, storage, and processing of specimens.

Unit- V **10 hrs**

1. Introduction to clinical pathology and Urinalysis- collection. Preservatives, physical, chemical examination and microscopy
2. Physical examination; volume, color, odor, appearance, specific gravity and ph,
3. Chemical examination; strip method- protein- heat and acetic acid test, sulfosalicylic acid method, reducing sugar- benedicts test, ketone bodies- rotheras test, bile pigments- fouchet method, bile salt- hays method, blood- benzidine test, urobilinogen and porphobilinogen- ehrlich aldehyde and schwartz test, bence jones protein, microscopy.
4. Handling and storage of samples in cytology and clinical pathology.
5. Quality assurance in cytology and clinical pathology

Practicals **30 hrs**

1. Laboratory organization- Reception of specimen, dispatch of reports, records keeping. Laboratory safety guidelines.
2. SI units and conventional units in hospital laboratory.
3. Basic requirements for hematology laboratory, glasswares for hematology, pipettes and equipments for haematology lab and anticoagulant vials.
4. Blood collection- methods (capillary blood, venipuncture, arterial puncture) complications, patient after care.
5. Determination of haemoglobin.

6. Determination of ESR and PCV.
7. RBC count and TLC by hemocytometer.
8. Differential leukocyte count and Absolute eosinophil count
9. Interpretation of autoanalyser results- complete blood count and erythrocyte Indices- MCV, MCH, MCHC.
10. Reticulocyte staining and count.
11. Introduction to clinical pathology and Urinalysis- collection. Preservatives, physical, chemical examination and microscopy- semiautomated and automated methods Physical examination; volume, color, odor, appearance, specific gravity and pH, Chemical examination; strip method- protein- heat and acetic acid test, sulfosalicylic acid method, reducing sugar- benedicts test, ketone bodies- Rothera's test, bile pigments- fouchet method, bile salt- hays method, blood- benzidine test, urobilinogen and porphobilinogen- Ehrlich aldehyde and Schwartz test, Bence jones protein, microscopy.
12. Charts.

Practical Examination: 35 marks.

1. Spotters
2. Hemoglobin estimation and blood grouping
3. Charts
4. Urinalysis

Recommended Books Recent Editions.

1. Basic Pathology Robbins Saunders, an imprint of Elsevier Inc., Philadelphia, USA.
2. Text book of Pathology Harsha Mmohan Jaypee Brothers, New Delhi.
3. Practical Pathology P. Chakraborthy, Gargi Chakarborty New Central book agency, Kolkata.
4. Text book of Haematology Dr Tejinder Singh Arya Publications, Sirmour (H P)
5. Text book of Medical Laboratory Technology Praful Godkar Bhalani Publications house, Mumbai.
6. Textbook of Medical Laboratory Technology Ramanik Sood.
7. Practical Haematology Sir John Dacie Churchill Livingstone, London.
8. Todd and Sanford, Clinical Diagnosis and Management by Laboratory Methods John Bernard Henry, All India Traveller Bookseller.
9. Histopathology Techniques, Culling.
10. Histopathology Techniques Bancroft.
11. Diagnostic Cytopathology Koss.
12. Diagnostic Cytopathology Winfred Grey.
13. Hand book of Medical Laboratory Technology, CMC Vellore.
14. Basic Haematological Techniques Manipal.

II Semester

Core 5- General Microbiology

Theory

Course outcome:

At the end of the course student should be able to

CO1: Demonstrate the acquisition of knowledge of morphology of bacteria, viruses, parasites and fungal pathogens causing human infections

CO2: Demonstrate capability to practice appropriate staining techniques, sterilization and disinfection techniques used in microbiology

CO3: Demonstrate the acquisition of knowledge of immunity, immunization schedule and role of Immunoprophylaxis.

CO4: Demonstrate the acquisition of knowledge about infection control and practices in laboratory.

CO5: Demonstrate capability to explain the concepts and principles of compound microscope and its applications

Unit - I **09 hours**

General Microbiology

- Introduction to Medical microbiology and Classification of microorganisms
- Morphology and Physiology of bacteria
- Sterilization and Disinfection practices followed in a tertiary care centre including CSSD and recent advances.
- Culture methods
- Infection
- Specimen collection and laboratory diagnosis of infectious diseases

Immunology

- Antigen
- Antibodies
- Immunity
- Vaccines and immunization schedule, Immunoprophylaxis

Unit – II **09 hours**

Systemic bacteriology

- Staphylococcus, *Streptococcus pyogenes* and Pneumococcus
- Overview of Clostridia and *C. tetani*
- *M. tuberculosis*
- Enterobacteriaceae - Klebsiella, *E. coli,* Proteus
- Non-fermenters - Pseudomonas and Acinetobacter

Unit – III **09 hours**

Parasitology

- Introduction to parasitology and lab diagnosis of parasitic infections
- Protozoa - *Entamoeba histolytica*, Giardia, trichomonas, Malaria, Hook worm and Round worm

Unit – IV **09 hours**

Mycology

- Introduction to mycology and lab diagnosis of fungal infections
- Yeasts - Candida and Cryptococcus
- Moulds – Aspergillus, Zygomycetes

Virology

- General properties of viruses and laboratory diagnosis of viral infections
- Blood borne viral infections - Hepatitis B and C viruses, HIV

Unit – V **09 hours**

Applied microbiology

- Hospital acquired infections - Causative agents, transmission methods, investigation, prevention and control of hospital Acquired infections.
- SSI, VAP, CAUTI, CLABSI
- Overview of opportunistic infections – Definition, predisposing factors and etiological agents
- Standard and universal precautions
- Biomedical waste management

Practicals **30 hours**

- Compound microscope and demonstration of the parts.
- Demonstration of sterilization equipment's - hot air oven, autoclave- principle, mechanism of action, preparation of the materials and quality control
- Disinfection practices in a tertiary care centre - Disinfection of OT, Wards, OPD, dialysis units and laboratories
- Testing of water, air and environmental surveillance
- Demonstration of commonly used culture media with and without growth- Nutrient agar, blood agar, chocolate agar, Mac Conkey medium, Lowenstein-Jensen media, AST plate and Robertson cooked meat broth
- Classification of Stains and Procedure and interpretation of Grams staining

Practical examination : 35 marks

Spotters, Culture media, Equipments, Slides
Discussion:
1.Gram stain
2.Ziehl- Neelsen stain

Reference Books

1. Ananthanarayan & Panikar's Textbook of Microbiology – Latest Edition University Press.
2. Parasitology (protozoology and helminthology Parasitology) by K D Chatterjee
3. Textbook of Practical Microbiology for MLT by C P Baveja, Arya publications
4. Textbook for laboratory technicians by RamnikSood. Jaypee publishers
5. Textbook of parasitology by Paniker. 7th edition

II Semester

Core - 6 - Pharmacology

Course outcome:

At the end of the course student should be able to
CO1: Demonstrate the acquisition of comprehensive knowledge of basics of pharmacology
CO2: Demonstrate the acquisition of comprehensive knowledge about the pharmacokinetics and pharmacodynamics of drugs
CO3: Demonstrate the capability of enlisting the drugs used on various organ system of the body including hormones and chemotherapy
CO4: Demonstrate the capability of enlisting the drugs used on emergency conditions
CO5: Demonstrate the capability of enlisting the uses of various devices and instruments used in hospital setting.
C06: Demonstrate the skills of identifying the devices, instruments, drugs and dosage forms

Content

UNIT I- General Pharmacology, ANS, PNS. **9 Hrs**

Sources of Drugs
Route of drug administration
Pharmacokinetics (Absorption, Metabolism, Distribution, Excretion)
Pharmacodynamics (Mechanisms of action)
Adverse drug reactions
ANS : Adrenergic drugs -Adrenaline,
Anti adrenergic-alpha and beta blockers
Cholinergic drugs-Acetyl choline
Anti cholinergic agents-Atropine

Unit II- PNS, CVS, Renal system **9 hrs**

Skeletal muscle relaxants-
Local anaesthetics-lignocaine, LA + vasoconstrictor
CVS-ionotropic agents -Digoxin,
Antianginal drugs-GTN,
Antihypertensives-
Management of different types of shock and Plasma expanders
Renal system-Diuretics Antidiuretics-Vasopressin

Unit III- CNS, Blood **9 hrs**

CNS-general Anaesthetics
Sedative hypnotics-
Antiepileptics
Opioid analgesics-
NSAIDS-
Respiratory system-treatment of cough And Bronchial asthma
Blood-Hematinics, Anticoagulants -Warfarin, Heparin
Thrombolytics & Antiplatelet drugs-streptokinase,/ aspirin,

Unit IV- GIT, Chemotherapy **9 hrs**

GIT-drugs used in peptic ulcer-
Antiemetics -Metoclopramide, Domperidone, Ondansetron
Purgatives & Laxatives
Drugs used in Diarrhea- ORS, Super ORS, Antimotility drugs (loperamide, diphenoxylate)
Chemotherapy-general considerations MOA, Resistance, Prophylaxis

Unit V- Chemotherapy, Hormones **9 hrs**

Anti-bacterial, anti-fungal, anti-viral, anti-protozoal, anti-helminthic
Cancer chemotherapy (names, common Adverse effects, general principles in the treatment of cancer)
Hormones-Thyroid and antithyroid drugs, Insulin, glucagon, antidiabetic drugs, corticosteroids, oestrogen, progesterone, oxytocin

Practicals **30 hrs**

Dosage forms
Solid Dosage forms
Liquid Dosage forms
Gaseous Dosage forms
Oral route
Parenteral routes
Novel routes
Fixed dose combination- Amoxycillin+ clavulanic acid-cotrimoxazole, Lignocaine+ Adrenaline
Drug stations-Adrenaline, dopamine, Dobutamine)
Drug stations-Corticosteroids (hydrocortisone, prednisolone, inhalational steroids) Drug stations-common antibiotics (Amoxycillin, Ciprofloxacin, Azithromycin, Metronidazole, Cephalosporins)
Drug stations-Insulin preparations
Instrument & devices (Nasogastric tube, laryngoscope, Different Catheters, Nebulizers, Inhalers, Rota halers)

Practical examination: 35 marks

1. Dosage Form: Capsules, Tablets, Syrup, IV, IM, SC, IA , Intra Articular - Advantages (1 Mark), Disadvantages (1 Mark) Examples (1 Mark)
2. Mention the name of the Device/Instruments and uses: Inhalers, Rota halers, Space halers, Drip sets, Vasofix, Ryle's tube, Urinary catheter, Endotracheal tube, Hand gloves
3. 10 Spotters

Recommended Books

1. K.D. Tripathi, Essentials of Medical Pharmacology, V. Edition, M/s. Jaypee Brothers, Post Box, 7193, G-16, Emca House, 23/23, Bansari Road, Daryaganj, New Delhi.
2. Padmaja Udaykumar -Pharmacology for Allied Sciences
3. R. S. Satoskar, S.D. Bhandarkar, S. S. Ainapure, Pharmacology and Pharmacotherapeutics, 18th Edition, Single Volume, M/s Popular Prakashan, 350, Madan Mohan Marg, Tardeo, Bombay - 400 034.

II Semester

Allied - 1 Health Care

Learning Objectives

1. To define Health and understand various concepts of Health
2. To understand concept of disease and its causation.
3. To know the health care delivery system in India
4. To understand epidemiology of common infectious diseases of India.
5. To know various National Health Programs of India
6. To have overview of First Aid and Bio-Medical Waste management Principles and guidelines

Content:

Unit I

1a. Concepts of Health

Definition of health; evolution in concepts of public health; public health events-sanitary awakening, germ theory of disease, rise of public health in various countries, changing concepts of health- biomedical concept, ecological concept, psycho-social concept and holistic concept.

1b. Dimensions of Health

Physical dimension, mental dimension, Social dimension etc;

1c. Determinants of Health

The factors which determine human health like social, economic, cultural, nutritional factors, etc. will be discussed. Common health problems in India - Communicable diseases, Non communicable diseases, MCH problems, Nutritional problems, Environmental sanitation, Glance over National Health profile.

Unit II

2a. Concept of disease and causation.

Germ theory of disease, Epidemiological triad, Natural History of disease, concept of prevention. Definition of Epidemiology.

2b. Epidemiology of common infectious diseases

Brief epidemiology of Tuberculosis, Malaria, Dengue, HIV, Leprosy

Unit III

3a.Evolution of health care delivery systems

History of health care delivery services; Genesis of primary health care; National health policy; SDGs.

3b. Levels of health care

Primary health care, secondary health care, tertiary health care.
Primary health care-principles of primary health care, elements of primary health care.

Unit IV

4a. Primary health care: Delivery of services

Introduction; Structure of health care delivery system; Delivery of primary health care services at village level; Village health guide, ASHA, ICDS: Subcentre: Primary health centre.
Primary Health care- current status in India- Status of health care infrastructure; Health team concept.

4b. Secondary and tertiary health care: Delivery of services
Community Health centre; First referral unit; District hospital.

Unit V
5a. National Health Programmes- Communicable diseases
Introduction; National Vector Borne Disease Control Programme; National Leprosy Eradication Programme; National Tuberculosis Elimination
Programme; National AIDS Control Programme; Universal Immunization Programme; National Rural Heath Mission.

5b. National Health Programmes- Non-communicable diseases
National Programme for Control of Blindness; National Programme for control of Diabetes, Cardiovascular diseases, Cancer and Stroke (NPCDCS); National Mental Health Programme. Nutritional programmes.

5c. National Health Programmes – Maternal and Child Health
Reproductive and Child Health Programme; Integrated Management of Neonatal and Childhood Illnesses; National Nutritional Anemia Prophylaxis Programme

Unit VI
6a. First aid
Basic terminologies; general guidelines; first aid in specific situations; Wound, bleeding, fracture, choking, burns, epistaxis, strains and sprain, animal bites (classification, causes and first aid), Cardio-pulmonary resuscitation

6b. Biomedical Waste (BMW) Management
Sources of Bio-medical waste, principles of bio-medical waste management, step in management of BMW**.**

Recommended Books Recent Editions.

1. Park K. Park's Textbook of Preventive and Social Medicine. 26th ed. Jabalpur: Banarsidas Bhanot Publishers, 2015. p.135-141
2. Suryakantha. Textbook of Community Medicine with recent advances. 6th edition
3. Bhalwar R editor. Textbook of Public Health and Community Medicine. 2nd Pune, Department of Community medicine AFMC; 2012
4. Essentials of Community Medicine for Allied Health Sciences, JSS University Publications, 2015

II Semester

Allied -2- Psychology

DESCRIPTION: This course is designed to enable the students to develop understanding about basic concepts of psychology and its application in personal and professional life. It further provides students opportunity to recognize the significance and application of counselling skills.

Objectives : On completion of the course, the students will be able to
1. Identify the importance of psychology in individual and professional life.
2. Understand biological basis of human behaviour
3. Understand mental health and hygiene
4. Understand personality and gain experience in personality assessment
5. Understand stress and learn coping strategies
6. Learn suicide prevention and counselling skills

Unit -I

Meaning of Psychology
Scope of Psychology- Scope, branches and methods of psychology
Relationship with other subjects
Applied psychology to solve everyday issues

Unit -II

Personality Introduction: Meaning, definition, Classification, measurement and evaluation of personality

Unit -III

Biological basis of behavior –Introduction

- Body mind relationship
- Genetics and behaviour
- Inheritance of behaviour
- Brain and behaviour.
- Psychology and sensation – sensory process normal and abnormal.

Unit-IV

Mental health and mental hygiene

- Concept of mental health and mental hygiene
- Characteristic of mentally healthy person
- Warning signs of poor mental health
- Promotive and preventive mental health strategies and services
- Defense mechanism and its implication
- Frustration and conflict – types of conflicts and measurements to overcome

Unit-V

- **Intelligence** – Meaning of intelligence – Effect of heredity and environment in intelligence, classification, Introduction to measurement of intelligence tests – Mental deficiencies
- **Learning –** Definition of learning, types of learning, Factors influencing learning – Learning process, Habit formation

- **Memory**-meaning and nature of memory, factors influencing memory, methods to improve memory, forgetting

Unit VI:

Stress

- Hans Selye Model of stress. Lazarus and Folkman model of stress.
- Sources of stress. Stress, disease and health.
- Coping strategies and styles- emotion focused and problem focused
- Relaxation techniques

Unit VII:

Counselling

- Counselling-meaning and definition.
- Micro skills of counselling
- Psychotherapy- meaning and definition.
- Relaxation-types.
- Suicide and suicide prevention

Recommended Books Recent Editions.

1. C.P. Khokhar (2003) Text book of Stress Coping and Management Shalab Publishing House.
2. S.M.Kosslyn and R.S.Rosenberg (2006) Psychology in Context. Pearson Education Inc.
3. C.R. Carson, J.N. Bitcher, S.Mineka and J.M. Hooley (2007), Abnormal Psychology13th, Pearson Education, Inc.
4. D.A. Barlow and V.M. Durand (2004) Abnormal Psychology Wadsworth, Thompson Learning, 3rd edition USA.
5. R.J . Gerrig & P.G. Zimbardo (2006) Psychology and life, Pearson Education, Inc.
6. Pestonjee, D.M. (1999). Stress & Coping, The Indian Experience 2nd edn. New Delhi, Sage India Publications.

Skill Enhancement Course

Soft Skills

Learning objectives

- To give each student a realistic perspective of work and work expectations
- To help formulate problem solving skills, to guide students in making appropriate and responsible decisions
- To create a desire to fulfill individual goals, and to educate students about unproductive thinking, self-defeating emotional impulses, and self- defeating behaviors

Unit I

Definition of soft skills, Soft skills and Hard Skills, Advantage of Soft Skills,
Real life scenarios, Measurement of soft skills.
Self Discovery, Definition of Self, Identification of Strengths and weakness of self, Setting goals, Personal beliefs, values and ethics.

Unit II

Mindsets: Types of Mindsets, Developing a learning and Growth mindset, Developing a positive outlook towards life, Increasing emotional and Spiritual intelligence.
People skills, Types of people - passive, assertive and aggressive people, Developing assertive personality, dealing with aggressive and submissive people.

Unit III

Communication Skills: Definition of Communication, Verbal and Nonverbal communication, Telephone and internet communication, Common mistakes in communication.
Interpersonal skills: Listening skills, Understanding body language, polite communication and people friendly attitude.

Unit IV

Time management: Importance of punctuality, Efficient time handling, Avoiding leakage of time and procrastination
Stress Management: Definition of Stress, Positive and negative stress. Handling major projects through effective delegation.

Unit V

Organizational behavior: Definition of an organization, Understanding the rules and regulations of an organization, Creating an ideal working Environment.
Professional attitude-Definition and developing an effective professional attitude.
Leadership Skills: Developing a positive attitude, Presentation and public speaking skills, effective handling of the team and sub ordinates. Recognizing and encouraging talents in Sub ordinates.

Recommended books

1. Barun Mitra (2016), Personality Development and Soft Skills, 2nd edition, Oxford University Press
2. Alex K (2014), Soft Skills Paperback, S Chand & Company
3. Peggy Klaus (2008) The Hard Truth About Soft Skills: Workplace Lessons Smart People Wish They'd Learned Sooner 1st edition, HarperBusiness.
4. Sanjay Kumar, Pushp Lata (2018) Communication Skills Paperback 1st edition, Oxford University Press
5. John Hayes (1994), Interpersonal Skills: Goal Directed Behavior at Work, Routledge.
6. Gurdeep Singh Gujral (2013) Leadership Qualities for Effective Leaders, VIJ Books (India) Pty Ltd

Bachelors of Occupational Therapy

III Semester

Core-7- Basics of Medical Disorders

Course outcome:

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

CO1: Demonstrate the acquisition of comprehensive knowledge about common medical disorders

CO2: Demonstrate the acquisition of comprehensive knowledge about therapeutic options of common medical disorders

CO3: Demonstrate the capability of analysing the basic investigations

CO4: Demonstrate the capability of effective communication in eliciting the history.

Theory:

Unit I

Cardiac and Respiratory diseases **10 hours**

1. Cardiovascular diseases
    - Hypertension, Ischemic heart diseases, Myocardial Infarction, arrhythmias
    - Heart failure, shock - types, causes
2. Respiratory diseases
    - Pneumonia, tuberculosis,
    - Chronic obstructive pulmonary disease, asthma
    - Pleural effusion, pneumothorax
    - Interstitial lung disease

Unit II

Neurological, Renal, GI and infectious diseases **10 hours**

3. Neurological diseases
    - Polio myelitis, Gullian Barre Syndrome, Myasthenia Gravis, epilepsy / seizure disorder, cerebro vascular accident / stroke
4. Renal Diseases
    - Acute kidney injury
    - Chronic Kidney Disease
5. Gastro intestinal and Liver Diseases
    - Gastritis / APD, peptic ulcer
    - Acute gastroenteritis
    - Hepatitis, Hepatic failure, alcoholic liver disease
6. Infectious diseases: Dengue, malaria, leptospirosis

Unit III

Blood, fluid, electrolyte and acid base abnormalities **10 hours**

7. Blood loss and Anemia, thrombocytopenia
8. Fluid Electrolyte imbalance and corrective methods
9. Acid Base abnormalities and corrective methods

Unit IV

Pulmonary Oedema, Sepsis and MODS **hours05**

10. Pulmonary Oedema, Acute Lung Injury and Acute Respiratory Distress Syndrome
11. Sepsis, multi-organ failure, Multi-organ dysfunction syndrome

Unit V

Health problems in Specific conditions and Toxicology **10 hours**

1. Health problems in specific conditions
    a. Pregnancy - antenatal care, disorders in pregnancy
    b. Children and new born
    c. Obesity
    d. Diabetes mellitus
    e. HIV infections and AIDS
    f. Elderly subjects and disability
    g. Brief mention about endocrine disorders
2. Poisoning and drug over dosing
    a. Classification of poisons
    b. Principles of treatment of poisoning and Primary care
    c. Poisons and drug over dosing requiring ventilation
3. Miscellaneous
    a. Drowning
    b. Hanging

Practical:

1. History Taking and clinical examination, monitoring of patient.
2. Therapeutic options for various diseases and conditions

Practical Examination **35 marks**

1. Spotters Drugs, Instruments and devices
2. X rays, Basic Blood investigation reports
3. Case Discussion
4. Demonstration of Procedures

Reference Books:

1. Davidson’s Principles and Practice of Medicine - Elsevier Publications
2. Harrison’s Principle of Internal Medicine

III Semester

Core-8- Hand splinting & ergonomics

Course outcome:

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

CO1: Demonstrate the acquisition of comprehensive knowledge of hand functions, evaluation and splinting.

CO2: Demonstrate the acquisition of comprehensive knowledge of tissue remodeling and biomechanics related to splinting.

CO3: Demonstrate the acquisition of comprehensive knowledge and skills related to principles of splinting with designing and fabricating the different hand splints.

Theory

Hand splinting

- Hand function & hand evaluation methods:
    1. Functional anatomy of hand
    2. Prehension & grasp patterns
    3. Grip & pinch strength
    4. Functional evaluation of hand
    5. Oedema assessment
- History of Splinting
- Tissue remodeling
- Classification & Nomenclature of splints & splint components
- Principles of splinting
- Tools used in splinting
- Design and fabrication of splints

Ergonomics

- Definition & areas of ergonomics
- Anthropometry
- Environmental physiology – types of environments, effects of environment al factors such as temperature, humidity, noise vibration, visual environment, pollution, on human body.
- Architectural barriers- Definition, types of disabilities, mobility devices, controls, construction and maintenance standards, building, site planning (home, auditorium, parks, restaurant, railway station)
- Man-machine system
- Design of workspace and work equipment
- Safety factors – accidents and their prevention
- Cognitive workload and organization of mental space
- Work-site job analysis and design considerations
- Scope of ergonomics in modern industrial society
- Application of ergonomics in O.T.

Practical:
Paper pattern cutting, Design & Fabrication of the splints

Practical Examination **(35 marks)**

1. Splint paper pattern cutting & Steps of fabrication **(15 marks)**
2. Hand evaluation (10 marks)
3. Viva- voce (10 Marks)

Recommended books:

1. Occupational Therapy: Practice skills for Physical Dysfunction by – L.V. Pedretti.
2. Occupational Therapy for Physical Dysfunction by – C.A. Trombly
3. Introduction to splinting by – Brenda. Coppard
4. Hand and Upper extremity Splinting – Fess, Gettle, Philips, Janson.
5. Mural K.F. - Ergonomics: man in his working environment
6. Mundel M.E. Motion & time study: principles & practices
7. Karen Jacobs: Ergonomics for therapists

III Semester

Core -9- Basics of Surgical Disorders

Course Outcome:

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

CO 1: Demonstrate the acquisition of comprehensive knowledge about wounds, its healing process and management,

CO 2: Demonstrate the acquisition of comprehensive knowledge and skills related to hand surgeries including reconstructive surgeries

CO 3: Demonstrate the acquisition of comprehensive knowledge related to common ophthalmic and otolaryngeal diseases

CO 4: Demonstrate the acquisition of comprehensive knowledge related to pregnancy and surgical intervention in cardio-respiratory diseases.

Theory

UNIT I: GENERAL SURGERY

Wounds classification, healing process and principles of treatment.

1. Haemorrhage, shock water & Electrolyte imbalance, effect of anaesthesia & surgical trauma
2. Infections: acute and chronic, signs, symptoms, and complications
    - Cellulitis
    - Abscess
    - Gas gangrene
    - Carbuncle
    - Ludwig angina
    - Leprosy
    - HIV
    - Surgical site infection
3. Amputations: indications, site of selection, management
4. Head and neck alimentary System
    - Thoracic outlet syndrome
    - Brachial system fistula
    - Zenkers's diverticula
    - Carotid body tumour
    - Torticollis
    - Tuberculous lymphadenitis
    - Sternomastoid Tumor

UNIT II: PLASTIC SURGERY

Types of hand injuries and their Surgical management with emphasis on reconstructive surgery in trauma & leprosy

1. Principles of tendon transfers
2. Burns: causes, classification & management.
3. Skin grafts & flaps, indications for management of cosmetic surgery, keloid, and scar management

UNIT III: EAR, NOSE & THROAT

1. Common problems of ear, nose & throat & their management

UNIT IV: OPTHALMOLOGY

1. Common Ophthalmological conditions and their management
2. Cranial nerve related eye movements & vision
3. Low vision
4. Total blindness
5. Squint

UNIT V: OBSTETRICS & GYNAECOLOGY

Pregnancy - stages of pregnancy

1. Labour- stages of labour & delivery
2. Common gynaecological problems

UNIT VI: **CARDIOVASCULAR & THORACIC SURGERY**

Pathology, clinical features, and criteria for surgical intervention of cardio-respiratory disorders.
Post operative complications and management in:

1. Thoracotomy
2. Thoracoplasty
3. Lobectomy
4. Pneumonectomy
5. Decortications
6. CABG
7. Valvular surgery
8. Congenital heart disease surgeries
9. Surgery for peripheral vascular disease

Practical

(To be conducted by general surgery. Clinical placement will be in the dept. of General surgery)

- History Taking and clinical examination, monitoring of the patient
- Therapeutic options for various diseases and conditions

Practical Examination Pattern (35 marks)

1. Spotters (Drugs, Instruments, and devices, X-rays)- 15 marks
2. Case Discussion (10 marks)
3. Demonstration of Procedures (10 marks)

Recommended Books:

1. Nan: Undergraduate Surgery
2. Bailey & Love's Short practice of surgery

III Semester

Skill Enhancement-1 Computer Application

Learning Objectives

1. To know various aspects of basic components of computer
2. To learn the modes of application of basic utility of the computer

Content

Introduction to Computer & Operating System: **Introduction to computers** – Definition, Characteristics, Generation, Applications, Classifications, Hardware, Software, Computer Arithmetic & Number System, Decimal, Binary, Octal & Hexadecimal System.

Arithmetic Operations on Binary Numbers. ASCII, EBCDIC, BCD codes, Fixed point & floating point representation of numbers.

Computer Organization & Architecture – Memory hierarchy, Primary Memory - memory unit, SRAM, DRAM, SDRAM, RDRAM, Flash memory. Secondary storage devices include Magnetic Disk, Floppy Disks, Optical Disks, Magnetic Drum

Input Devices, Output Devices.

Softwares – Introductory ideas of System Software, Application Software, Operating Systems, Translators, Interpreters, Compilers, Assemblers, and Generation of Languages.

Operating System : Definition, Introductory ideas of single user and multi-uer operating system, Time sharing, multitasking, multiprogramming, Batch Processing, on-line processing, spooling.

Introduction to Windows – Windows basics, Windows Accessories, Miscellaneous Windows features, Web Features & Browsers.

Networks: Different types of networks and their application

Internet and Intranet: Similarities in Internet and Intranet, Differences in Internet and Intranet, Effective Internet use.

Computer Viruses: Types of computer viruses, Use of Antivirus software

Application of Computer: General and Health industry

Software: Different types based on applications. Download open-source softwares. Convert one file format into another (Pdf to Word, Word to pdf, etc.). Ways to protect the documents

MS Office: (Theory & Practical)

Word Processing:

- Introduction to Microsoft Word
- Font options in Microsoft Word
- Paragraph Formatting in Microsoft Word
- Heading Styles in Microsoft Word
- Editing Options in the Home Tab
- Clipboard & Format Painter Options in Microsoft Word
- Page Insert Options in Microsoft Word
- Inserting Tables in Microsoft Word
- Insert Pictures in Microsoft Word
- Shapes, Icons & 3d Models in Microsoft Word
- SmartArt Options in Microsoft Word

- Inserting Charts in Microsoft Word
- Text Box & Drop Cap Options in Microsoft Word
- Hyperlink in Microsoft Word
- Header, Footer & Page Number Options in Microsoft Word
- Equations & Symbols in Microsoft Word
- Water Mark, Page Color & Page Border Options in Microsoft Word
- Page Setup Options in Microsoft Word -
- Table of Contents & Table of Figures in Microsoft Word
- Endnote & Footnote Options in Microsoft Word
- Mailings Tab Options in Microsoft Word

Microsoft PowerPoint

- Introduction to Microsoft PowerPoint Interface
- Font & Slide Options in Microsoft PowerPoint
- Paragraph Formatting in Microsoft PowerPoint
- Drawing Tools in Microsoft PowerPoint
- Editing Options in the Home Tab
- Inserting Tables in Microsoft PowerPoint -
- Inserting Pictures in Microsoft PowerPoint
- Screenshot Option in Microsoft PowerPoint
- Inserting Photo Albums in Microsoft PowerPoint
- Inserting Icons in Microsoft PowerPoint
- Inserting 3D Models in Microsoft PowerPoint
- Inserting Smart Arts in Microsoft PowerPoint
- Inserting Charts in Microsoft PowerPoint
- Inserting Videos in Microsoft PowerPoint
- Design Tab Options in Microsoft PowerPoint
- Transitions Tab Options in Microsoft PowerPoint
- Animations Tab Options in Microsoft PowerPoint
- Slide Show Tab Options in Microsoft PowerPoint
- View Tab Options in Microsoft PowerPoint
- Built-in Presentation Templates in Microsoft PowerPoint

Microsoft Excel

- Introduction to Microsoft Excel Interface
- Basic Math Functions
- AutoSum Functions
- Sum IF Function & Remove Duplicates Option
- Sum IF & Sum IFs, Count IF & Count IFs Functions
- Sub Total Function
- Arrays & Sum Product Functions
- Other Math Functions
- Absolute & Relative References

- Formatting Techniques in Excel
- Excel Data Types
- Go to & Replace Options
- Auto Fill Options
- Copy, Paste & Paste Special Options
- Conditional Formatting
- Sort & Filter
- Excel Operators
- Equations Solving in Excel
- Errors in Excel Sheet
- Logical Function IF
- Logical Function IF Error
- Logical Function (IF, Nested IF, OR)
- Logical Function AND
- VLOOKUP Function
- VLOOKUP with Data Validation
- Nested VLOOKUP
- HLOOKUP Function
- Selecting the Chart
- Charts in Excel
- Tables in Excel
- Inserting Comments
- Inserting Hyperlink
- Text Functions
- Date, Time & Reference Functions
- Text to Columns Tool
- Data Consolidation
- Goal Seek Option
- Data Table Optio

III Semester

Allied-3- Environment Science and Health

Learning Objectives

1. To know various Environmental factors which affect Health
2. To learn the modes of disease transmission and various control measures

Unit I

1. a. Introduction to Environment and Health and Water

Ecological definition of Health, Population perspective of relations, Health & environment perspective of relations, Environmental factors, Environmental Sanitation, Need to study environmental health, Predominant reasons for ill-health in India

1.b. Water

Safe and wholesome water, requirements, uses, sources; sanitary well; Hand pump; water Pollution; Purification of water; large scale & small scale; slow sand filters; rapid sand filters; Purification of Water on a small scale; Household purification, Disinfection of wells; water quality criteria & standards.

Unit II

Air, Light, Noise, Radiation

2 a. Air

Composition, Indices of Thermal Comfort, Air pollutants, Air Pollution - Health Effects, Environmental Effects, Green-house effect, Social & Economic Effects, Monitoring, Prevention & Control.

2. b. Light, Noise, Radiation

Natural and Artificial light; Properties, sources, noise pollution and its control, types, sources, biological effects and protection.

Unit III

Waste and Excreta Disposal

3 a. Disposal of Wastes

Solid Wastes, Health hazards, Methods of Disposal; Dumping, Controlled tipping/ sanitary landfill, Incineration, Composting.

3 b. Excreta Disposal

Public health importance, Health hazards, sanitation barrier, Methods of excreta disposal, unsewered areas and sewered areas, sewage, Modern Sewage Treatment.

Unit IV

Housing and Health and Medical Entomology

4 a. Housing and Health

Human Settlement, Social goals of housing, Criteria for Healthful Housing by Expert Committee of the WHO, Housing standards- Environmental Hygiene Committee, Rural Housing Standards, Overcrowding, Indicators of Housing.

4 b. Medical Entomology

Classification of Arthropods, Routes of Disease transmission, Control measures.

Unit V
Insecticides and Rodents
5 a. Insecticides

Types, mechanism of action, dosage and application for control of insects.

5 b. Rodents

Rodents and its importance in disease, along with anti-rodent measures.

Reference Books (latest edition)

1. Park K. Park's Textbook of Preventive and Social Medicine. 26th ed. Jabalpur: Banarsidas Bhanot Publishers; 2015. p.135-141
2. Suryakantha. Textbook of Community Medicine with recent advances. 4th edition.
3. Bhalwar R. Textbook of Public Health and Community Medicine. 2nd edition. Pune: Department of Community Medicine AFMC, 2012
4. Essentials of Community Medicine for Allied Health Sciences, JSS University Publications, 2015.

IV Semester

Core -10-Basics of Occupational Therapy 1

Course outcome:

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

CO1: Demonstrate the acquisition of comprehensive knowledge about scope, development of occupational therapy with Rehabilitation philosophy.

CO2: Demonstrate the acquisition of comprehensive knowledge about theories of occupation and its application to occupational therapy

CO3: Demonstrate the acquisition of comprehensive knowledge about principles of therapeutic exercises.

CO4: Demonstrate the acquisition of comprehensive knowledge and skills related to motor function including the joint motility.

Theory

CONTENTS

UNIT- I:

1. Definition and scope of Occupational Therapy
2. History & development of O.T.
3. Rehabilitation philosophy, rehabilitation team, need of rehabilitation, Principles of physical medicine.
4. Theory of Occupation: Forms of occupation, occupation as evolutionary trait, biological dimensions, social dimensions, psychological dimensions of occupation, Application of theory to Occupational Therapy.

UNIT- II:

5. Occupational Performance model with respect to physical dysfunction

UNIT- III:

6. Principles of Therapeutic Exercise:

- Generalized & specific principles
- Types of Movements, Muscle contraction used in exercise
- Exercise classification & application to activity
- Objective to develop:
    - Power
    - Endurance
    - Coordination
    - Joint Range of motion
- Progressive resistive exercise (PRE)
- Regressive resistive exercise (RRE)
- Brief resisted isometric exercises (BRIME)

UNIT- IV:

7. Principles and methods of assessment

- Joint Range of Motion
- Manual Muscle Testing

8. Definition, classification, variation in testing methods of following

- Muscle tone
- Sensation
- Perception
- Cognition
- Cranial nerve evaluation
- Coordination & balance

Practicals:

1. Assessment of joint range of motion of U.E. & L.E.
2. Assessment of muscle strength U.E. & L.E.
3. Assessment of muscle tone, co-ordination &balance, sensation, perception, cognition & cranial nerve
4. Practical record

Practical Examination Pattern (35 marks)

1. Assessment of Joint Range of Motion & Manual muscle strength of UE & LE-15 marks
2. Skill test for assessment – 10Marks
3. Viva- voce – 10 Marks

RECOMMENDED BOOKS:

1. Occupational Therapy for Physical Dysfunction by C.A. Trombly
2. Measurement of joint motion: a guide to goniometry by C.C. Norkin
3. Willard & Spackman's Occupational Therapy
4. O.T. Practice skills for Physical Dysfunction by L.V. Pedretti
5. Principle of Exercise Therapy by Dena Gardiner
6. Daniel's & Worthingham's Muscle testing.

IV Semester

Core 11: Basics of Occupational Therapy- 2

Course Outcome:

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

CO 1: Demonstrate the acquisition of comprehensive knowledge about the concepts of human development and theory of spatiotemporal adaptation.

CO 2: Demonstrate the acquisition of comprehensive knowledge and skills related to different activities of daily living.

CO 3: Demonstrate the capability to evaluate the prevocational capacity and return to work

CO 4: Demonstrate the capability to identify the different adaptive devices, their parts, therapeutic use and fabrication.

CO5: Demonstrate the capability for job activity analysis.

CONTENTS

Theory:

UNIT- I:

1. **Human development**

a. Importance of knowledge base, Definitions
b. Aspects of human development – physical, motor, sensory, cognitive, emotional, cultural, social
c. Factors influencing human growth & development- biological, environment, inherited
d. General principles of human development
e. Principles of maturation:
    - Cephalocaudal patterns of development
    - Proximal distal patterns of development
    - Medial lateral patterns of development
    - Mass to specific patterns of development
    - Gross motor to fine motor patterns of development
f. Theoretical foundation of Human development:

Learning Theory, Behavioral Theory, Social learning theory, Cognitive Theory of Jean Piaget, Ethologic theory, Psychoanalytic theory of Sigmund Freud, Erik Erikson, Social-emotional theory, Motivational theory, Humanistic theory, Maturational theory

2. Theory of spatiotemporal adaptation: Posture and movements, Sensory-motor-sensory Integration, Reflex and reaction maturation, Stability & mobility development

UNIT- II:

2. **Activities of daily living**

a. Definition & Classification
b. Evaluation of ADL
c. Various scales used in ADL (Barthel, Katz, Kenny's, Klein-Bell, AMP's Indices, FIM, FAM)
d. Principles & specific techniques in ADL training for:

- Weakness
- Low endurance
- Limited ROM
- In co-ordination
- Loss of use of one side of body

- Limited vision
- Decreased sensation

e. Adaptive devices
f. Achieving access to home, community & workplace.
g. Cultural & socio-economical deviations in ADL

UNIT- III:

3. Occupational Therapy as diagnostic & prognostic procedure
a. Definition of evaluation
b. Types of evaluation
c. Steps involved in evaluation

UNIT- IV:

4. Preparing for return to work
a. Prevocational capacity evaluation

- Work capacity evaluation
- Physical capacity evaluation
- Functional capacity evaluation

5. Therapeutic Modalities: Purposeful activity & characteristics
6. Activity Analysis:
a. Principles of activity analysis
b. Biomechanical & sensory motor
c. Adaptation & gradation of activity
d. Selection of activity

Practicals:

1. Identifying Adaptive devices, their parts, therapeutic uses & fabrication
2. Job analysis: Tailoring, Data entry on computers, Writing, Envelop Making
3. Activity analysis
4. Practical records

Practical Examination Pattern (35 marks)

1. Activity analysis (10 marks)
2. Job analysis (10 marks)
3. Adaptive devices as spotters (10 marks)
4. Viva- voce (5Marks)

RECOMMENDED BOOKS:

1. Willard & Spackman's Occupational Therapy.
2. Introduction to Occupational Therapy by Ann Turner.
3. Occupational Therapy: Practice skills for Physical Dysfunction by – L.V.Pedretti.
4. Occupational Therapy for Physical Dysfunction by – C.A. Trombly.
5. An Approach to Occupational Therapy by – Mary Jones.

IV Semester

Core-12- Biomechanics

Course Outcomes:

At the end of the course student should be able to

CO 1: Demonstrate the acquisition of comprehensive knowledge and skills related to kinetic and kinematic concepts related to human body

CO 2: Demonstrate the acquisition of comprehensive knowledge about biomechanics of upper extremity, lower extremity and vertebral column.

CO 3: Demonstrate the acquisition of comprehensive knowledge about biomechanics of gait and posture.

Contents

Theory

UNIT- I:

1. Kinematic concepts
    a. Types of displacement and their implications in human body
    b. Osteo-kinematics
    c. Arthro-kinematics
2. Kinetic concepts
    d. Forces
    e. Force of gravity, CoM, LoG & stability
    f. Static & Dynamic equilibrium
    g. Newton's laws
    h. Additional linear forces- Tensile force, joint distraction force, shear & friction forces
    i. Force system - Linear, parallel, concurrent, general, composition and resolution of forces with examples.
    j. Types of forces -internal & external muscle forces
    k. Torque/moment of force & force couple
    l. Levers – Classification, physiological significance of mechanical advantage
    m. Anatomic pulley

UNIT- II: Biomechanics of upper extremity Shoulder, Elbow, Forearm, Wrist & hand

UNIT-III: Biomechanics of lower extremity joints: Hip, Knee, Ankle, Foot

UNIT- IV: Biomechanics of Vertebral column

UNIT V: GAIT & POSTURE

a. Posture: Anatomical aspects of posture, factors affecting posture. Assessment of posture, postural deviations
b. Gait: Gait cycle, parameters of gait, kinetics & kinematics, determinants of gait, common gait deviations in various orthopedic & neurological conditions

Practicals:

- Assessment of Posture
- Assessment of Gait pattern
- Assessment of Spinal abnormalities

Practical Examination Pattern: (35 Marks)

1. Spotting of Bones 15 marks
2. Posture & gait analysis 15 marks
3. Viva-Voce 5 marks

Recommended books

1. Human anatomy, B D Chaurasia Volume 1 & 2
2. Kinesiology of the musculoskeletal system, Donald A. Neumann
3. Joint structure & function, Cynthia C. Norkin

IV Semester

Skill Enhancement-2

Biostatistics and Research Methodology

Learning Objectives

1. To have a basic knowledge of Biostatistics and its applications in medicine
2. To know various types of data presentation and data summarization in Medical field
3. To have overview of data analysis and sampling techniques
4. To understand various study designs in Medical field
5. To know applications of various study designs in Medical Research

Biostatistics

Unit I

Introduction and Presentation of data

Meaning, Branches of Statistics, Uses of statistics in medicine, Basic concepts, Scales of measurement, Collection of data, Presentation of data; Tabulation, Frequency Distribution, Diagrammatic and Graphical Representation of Data.

Unit II

Measures of central tendency and Measures of variation

Arithmetic Mean (Mean), Median, Mode, Partition values, Range, Interquartile range , Mean Deviation, Standard Deviation, Coefficient of Variation.

Unit III

Probability and standard distributions

Definition of some terms commonly encountered in probability, Probability distributions, Binomial distribution, Normal distribution, Divergence from normality; Skewness and kurtosis

Unit IV

Census and Sampling Methods

Census and sample survey, Common terms used in sampling theory, Non-probability (Non random) Sampling Methods; Convenience sampling, Quota sampling, Snowball sampling, Judgmental sampling or Purposive sampling, Volunteer sampling, Probability (Random) Sampling methods; Simple random sampling, Systematic Sampling, Stratified Sampling, Cluster sampling, Multi-stage sampling, Sampling error, Non-sampling error.

Unit V

Inferential Statistics

Parameter and statistic, Estimation of parameters; Point estimation, Interval Estimation, Testing of hypothesis; Null and alternative hypotheses, Type-I and Type-II Errors.

Research Methodology

Unit I

Introduction to research methodology

Types of research; Quantitative vs. Qualitative, Conceptual vs. Empirical

Unit II

Study Designs-Observational Studies

Epidemiological study designs; Uses of Epidemiology, Observational studies, Descriptive studies; Case reports, Case series, Analytical studies; Case control studies, Cohort studies, Cross sectional

Unit III

Experimental Studies

Experimental studies (Interventional studies); Randomized control Trials (Clinical trials), Field trials, Community trials and Randomized Trials, Application of study Designs in Medical Research

Recommended Books Recent Editions

1. K.R.Sundaram, S.N.Dwivedi and V Sreenivas (2010), Medical Statistics, Principles and Methods, BI Publications Pvt Ltd, New Delhi
2. NSN Rao and NS Murthy (2008), Applied Statistics in Health Sciences, Second Edition, Jaypee Brothers Medical Publishers (P) Ltd.
3. J.V.Dixit and L.B.Suryavanshi (1996), Principles and practice of Biostatistics, First Edition, M/S Banarsidas Bhanot Publishers.
4. Getu Degu and Fasil Tessema (2005), Biostatistics, Ethiopia Public Health Training Initiative.
5. Essentials of Community Medicine for Allied Health Sciences, JSS University Publications, 20.
6. Park K. Park's Textbook of Preventive and Social Medicine. 26th ed. Jabalpur: Banarsidas Bhanot Publishers, 2015. p.135-141.
7. Suryakantha. Textbook of Community Medicine with recent Advances. 4th edition.
8. Bhalwar R. Textbook of Public Health and Community Medicine. 2nd Edition. Pune, Department of Community Medicine AFMC, 2012.
9. Leon Gordis. Epidemiology 4th Edition - Elsevier Saunders Publication.

Semester

Allied-4

Constitution of India

Unit - I

Meaning of the term 'Constitution'. Making of the Indian Constitution 1946- 1950.

Unit - II

The democratic institutions created by the constitution, Bicameral system of Legislature at the Centre and in the States.

Unit - III

Fundamental rights and duties their content and significance.

Unit - IV

Directive principles of States, policies the need to balance fundamental rights with directive principles.

Unit - V:

Special rights created in the Constitution for dalits, backwards, women and children and the religious and linguistic minorities.

Unit - VI

Doctrine of Separation of Powers, legislative, executive and judicial and their functioning in India.

Unit - VII

The Election Commission and State Public Service commissions.

Unit - VIII

Method of amending the Constitution.

Unit - IX

Enforcing rights through writs.

Unit - X

Constitution and sustainable development in India.

Recommended Books Recent Editions.

1. J.C. Johari. The Constitution of India. A Politico-Legal Study. Sterling Publication, Pvt. Ltd. New Delhi.
2. J.N . Pandey. Constitution Law of India, Allahbad, Central Law Agency, 1998.
3. Granville Austin. The Indian Constitution. Corner Stone of a Nation-Oxford, New Delhi, 20

V Semester
Core-13- Occupational Therapy in Medical Conditions

Course Outcomes

At the end of the course student should be able to

CO 1: Demonstrate the capability to comprehend and evaluate medical conditions in relation to occupational therapy.

CO 2: Demonstrate the capability of presentation of cases related to medical disorders with emphasis on evaluation, goal planning and management.

CO 3: Demonstrate the capability to comprehend the role of occupational therapy in rheumatoid arthritis, leprosy, gerontology, hemophilia and cranial nerve dysfunction.

CONTENTS

THEORY

1. Brief review of methods of evaluation & therapeutic principles of Occupational Therapy in Medical Disorders.
2. Objective and role of occupational therapy in:

a. Rheumatoid Arthritis
b. Leprosy
c. Hemophilia
d. Gerontology
e. Pulmonary conditions
f. Cardiac conditions
g. HIV & AIDS
h. Diabetes mellitus and its complications
i. Cranial nerve dysfunction

PRACTICAL

Presentation of short and long cases related to above conditions with emphasis on evaluation, goal planning & management

Practical Examination Pattern (35 marks)

1. Long Case Presentation 20 marks
2. Short Case Presentation 10 marks
3. Viva-voce 05 marks

Recommended Books:

1. Occupational Therapy – Willard & Spackman's
2. O.T. Practice Skills for Physical Dysfunction – Pedretti
3. O.T. in physical Dysfunction – Trombly & Scott
4. Physical rehabilitation, assessment, treatment – O' Sullivan.
5. Conditions in occupational therapy- Ben J. Atchison

V Semester

Core-14- Occupational Therapy in Surgical Condition

Course Outcomes:

At the end of the course student should be able to

CO1: Demonstrate the capability to evaluate and therapeutic principles of occupational therapy in amputation and different hand injuries including skin and soft tissue conditions.

CO 2: Demonstrate the capability to evaluate and therapeutic principles of occupational therapy in burns and oncological rehabilitation including both pre and post operative management.

CO 3: Demonstrate the capability to present cases of surgical disorders with emphasis on evaluation, goal planning and management.

Contents

THEORY

UNIT I: BURNS

a. Classification of Burns
b. Stages of burns
c. Pre-graft & post-graft treatment
d. Role of O. T. in burns

UNIT II: AMPUTATION

a. Etiology
b. Levels of amputation
c. Surgical complications & management
d. Accessories & component part of prosthesis
e. Role of O.T in amputation

UNIT III: HAND INJURY& ROLE OF OCCUPATIONAL THERAPY

a. Review of hand evaluation
b. Nerve injuries - Classification, repair process, management of ulnar, median and radial nerve injuries
c. Tendon injuries - repair process & post operative management of flexor tendon & extensor tendon injuries
d. Soft tissue injuries
e. Crush injury with emphasis on hand rehabilitation
f. Volkmann's ischemic contracture
g. Complex Regional Pain Syndrome
h. Pre & post operative OT management of tendon transfer & nerve injuries

UNIT IV: ONCOLOGY & ROLE OF OCCUPATIONAL THERAPY

a. Oncological rehabilitation with emphasis on pre-operative and post-operative management
b. Role of O.T in peripheral nerve injury & sensory re-education

UNIT V: SKIN AND SOFT TISSUE CONDITIONS

- Dupuytren's disease
- Carpal tunnel disease

PRACTICAL

- Long case & Short case presentation related to surgical conditions

Practical Examination: (35 marks)

- Long Case Presentation 20 marks
- Short Case Presentation 10 marks
- Viva-voce 05 marks

Recommended Books

1. Occupational Therapy – Willard & Spackman
2. Occupational Therapy practice skills for physical dysfunction–L. Pedretti
3. Therapeutic Exercise – J. Basmajian
4. Rehabilitation of Hand – Wynn & Parry
5. Hand – Hunter
6. Hand splinting – Fees
7. Therapeutic exercise – Foundations and Techniques – Kisner
8. Physical rehabilitation, assessment & treatment – Suzan O' Sullivan.
9. Rehabilitation of the Hand by Wynn parry, C B Published by Butterworths

V Semester
Core-15- Basics of Pediatric Conditions

Course Outcomes

At the end of the course student should be able to

CO 1: Demonstrate the acquisition of comprehensive knowledge of growth and development of child.

CO 2: Demonstrate the acquisition of comprehensive knowledge and skills related to developmental and genetical anomaly in a child.

CO 3: Demonstrate the acquisition of comprehensive knowledge about the neurological and orthopedic conditions in a child

CO 4: Demonstrate the capability to present cases of paediatric medical conditions with emphasis on clinical presentation and management of the same

Contents

Theory

UNIT I:

1. Describe growth and development of a child from birth to 12 years including physical, social & adaptive development.
2. Examination and assessment of pediatric patients according to the age.

UNIT II:

1. List of maternal and neonatal factors contributing to high-risk pregnancy.
2. The neonate: inherited diseases, maternal infections, maternal diseases incidental to pregnancy.
3. Evaluation of the neonates according to APGAR score evaluation, DENVER-II, Bayley scale
4. Medical management of neonates in NICU under these followings

a. Hypoxic Ischemic Encephalopathy
b. Respiratory Distress Syndrome
c. Low birth weight
d. Preterm neonates

UNIT III:

Define and briefly outline, etiology, clinical manifestation, and principle of management

a. Developmental delay
b. Cerebral Palsy
c. Seizure disorders
d. Hydrocephalus
e. Spina bifida
f. Encephalitis & meningitis
g. Mental retardation
h. Common Genetic Disorders
i. Down's syndrome
j. fragile x- syndrome
k. Spinal muscular atrophy
l. Muscular Dystrophy

UNIT IV:

Orthopaedics and neurological conditions in pediatrics

a. Obstetric brachial plexus palsy
b. Arthrogryposis Multiplex congenita
c. Osteogenesis imperfecta
d. Congenital dysplasia of hip
e. Juvenile RA
f. Congenital anomalies

UNIT V:

a. Nutritional & vitamin deficiencies
b. Etiogenesis, clinical manifestation & principles of management

Practical

Presentation of short and long cases related to pediatric conditions with emphasis on evaluation and therapy goals planning.

Practical examination: (35 marks)

1. Long case presentation 20 marks
2. Short case presentation 10 marks
3. Viva voce 05 marks

Recommended Books

1. Essential pediatrics by OP GHAI
2. The development of infant & young child by Illingworth's
3. Review of pediatrics & neonatology by Taruna Mehra
4. Nelson textbook of pediatrics
5. Clinical pediatrics by Aruchamy Lakshmanaswany

V Semester

Elective 1 Food and Nutrition

Learning objective:

1. Able to define nutrition and diet with therapeutic effect of nutrition
2. Able to plan diet in work and exercise performance.

Content-

Definition of Food, Nutrition, Nutrient & Diet
Food groups, Nutritive value, Requirement, their therapeutic effect & indications.
Body composition: Influence of nutrition, Physical activity, Growth & aging.
Clinical & Functional nutritional assessment for children, Adults & elderly.
Diet in work & exercise performance.
Oxidative stress & Antioxidants.
Traditional Naturopathy & Ayurveda diet

V Semester

Allied - 5 - Medical Ethics

Learning Objectives:

1. To know about the basics and importance of ethics in the profession

Content:

General Considerations of Medical Ethics

1. Medical Ethics - Introduction
2. Three Cor Contents in Medical Ethics - Best Interest, Autonomy Unrights
3. Doctors, Patient & Profession

Special Considerations of Medical Ethics

1. Consent
2. Confidentiality
3. Genetics
4. Reproductive Medicine
5. Mental Health
6. End of life and Organ Transporentation
7. Research & Clinical Trials

Recommended Books Recent Editions.

1. Medical Ethics & Law, The Cor Curriculum
2. Author - Tony Hope Atla
3. Reference book No. 16715 Center Library

VI Semester
Core 16 - Occupational Therapy in Pediatric Conditions

Course Outcomes

At the end of the course student should be able to

CO 1: Demonstrate the capability to comprehend and evaluate the neurophysiological basis of sensory motor approaches

CO 2: Demonstrate the capability to comprehend and evaluate different developmental disabilities and genetic disorders.

CO 3: Demonstrate the capability to comprehend and evaluate pediatric orthopedic conditions and occupational therapy in play therapy.

CO4: Demonstrate the capability to present a detailed case related to pediatric disorders with emphasis on evaluation, goal planning and management.

Contents

Theory

UNIT I: A. Detailed review of methods of evaluation of:

1. Reflexes
2. Milestone development
3. Hand function development
4. Activities Of Daily living

B. Sensory motor approaches to treatment

5. Neurophysiological basis to sensory motor approach
6. Rood's approach
7. Brunnstrom approach
8. NDT approach
9. PNF approach
10. Sensory integration approach

UNIT II: Occupational therapy in Developmental Disabilities

- Developmental delay
- Neonatology
- Cerebral palsy
- Seizure disorders
- Hydrocephalus
- Spina bifida
- Attention Deficit Hyperactivity Disorder
- Pervasive Developmental Disorder
- Learning Disability
- Mental Retardation

UNIT III: Common genetic disorders

- Muscular Dystrophy
- Spinal Muscular Atrophy
- Down's syndrome
- Fragile x- syndrome

UNIT IV: Occupational Therapy in pediatric orthopedic conditions

- Osteogenesis imperfecta
- Obstetric brachial plexus injury
- Congenital dysplasia of hip
- Arthrogryposis multiplex congenita
- Congenital talipes equinovarus
- Juvenile Rheumatoid Arthritis
- Congenital anomalies
- Torticollis

UNIT V: Play therapy

- Development of play
- Theories of play
- Functions of Play
- Play assessment
- Play as an OT intervention

Practical

Presentation of short and long cases related to pediatric conditions with emphasis on evaluation, goal planning and interventions according to frames of references & approaches.

Practical Examination: (35 marks)

1. Long Case presentation 20 marks
2. Short case presentation 10 marks
3. Viva voce 05 marks

Recommended Books

1. Occupational Therapy practice skills for physical dysfunction by L. Pedretti, B. Zoltan
2. Occupational Therapy and Physical Dysfunction: Principles, Skills and Prac tice by A. Turner
3. Willard and Spackman's Occupational Therapy
4. Occupational therapy for children: J. Case- Smith & A Pratt
5. Neurological Rehabilitation- A. U. Darcy

VI Semester

Core -17- Basics of Neurology & Neurosurgery

Course Outcomes:

At the end of the course student should be able to

CO 1: Demonstrate the acquisition of comprehensive knowledge about evaluation and therapeutic principles of occupational therapy in various neurological disorders

CO 2: Demonstrate the acquisition of comprehensive knowledge about evaluation and therapeutic principles of occupational therapy in cranial and spinal trauma cases.

CO3: Demonstrate the capability of presenting cases related to the neurological disorders with emphasis on evaluation.

Contents

THEORY

Neurology

UNIT I:

a. Basics of neuroanatomy
b. Structures & functions of brain and spinal cord.
c. Clinical aspect of the brain structures, including basics of neuropathology (UMN, LMN, extrapyramidal and pyramidal pathologies)
d. Evaluation of the neurological patients

UNIT II:

Discuss the following in brief including pathology, clinical features, investigations, and brief medical management of:

a. Cerebrovascular accident
b. Disorders of cerebellar functions
c. Infections of CNS (encephalitis, meningitis, Poliomyelitis, etc.)
d. Demyelinating diseases
e. Diseases of the cranial nerves
f. Muscle Dystrophies, myasthenia gravis
g. Movement Disorders (Parkinson's, Chorea, dystonia, etc.)
h. Seizure disorder/ Epilepsy
i. Alzheimer's' disease/ Dementia
j. Multiple sclerosis
k. Motor neuron disease
l. Intracranial tumors

NEUROSURGERY

a. Neurosurgical intensive care study- evaluation of traumatic patients
b. Classification, signs & symptoms & management of cranial & spinal trauma

- Traumatic brain injury
- Spinal cord injury
- Spinal tumors
- Degenerative disease of the spine

PRACTICAL

1. History Taking and clinical examination, monitoring of patient.
2. Therapeutic options for various diseases and conditions
3. Investigation reports related to the neurological conditions-CT scan, MRI, X-ray

Practical examination: (35 marks)

1. Case presentation (20 marks)
2. Spotters- X-rays, CT scan, MRI (10 marks)
3. Viva Voce (05 marks)

Recommended Books

1. Neurology & neurosurgery illustrated, Kenneth W Lindsay
2. Textbook of Neurology, Navneet Kumar
3. Bickerstaff's Neurological Examination Clinical Practice, Kameshwar Prasad

VI Semester

Core-18 – Basics of Orthopedics

Course Outcomes:

At the end of the course student should be able to

CO 1: Demonstrate the acquisition of comprehensive knowledge about evaluation and therapeutic principles of occupational therapy in various orthopedic disorders

CO 2: Demonstrate the acquisition of comprehensive knowledge about principles of operative management in various orthopedic disorders.

CO3: Demonstrate the capability of presenting cases related to the orthopedic disorders including fractures, dislocations and tumors.

Contents

Theory

UNIT I: Introduction to orthopedic terminology, common investigations x-ray, MRI etc.

Brief outline of principles of operative management of:

- Arthrodesis
- Arthroplasty
- Arthroscopy
- Osteotomy
- Bone grafting
- Hip Replacement
- Knee Replacement
- Internal and external Fixation

UNIT II: Fracture & dislocations including soft tissue injuries

- Types of fracture
- Mechanism of injury
- Prevention & management of complications
- Fracture healing process

Discuss in brief patho-anatomy, clinical features, investigations, complications, and brief surgical management of the fracture of following bones & joints

a. Shoulder girdle
   - Gleno-humeral joint
   - Acromion-clavicular
   - Humerus
   - Clavicle
   - Scapula
b. Elbow joint
   - Distal end of humerus
   - Proximal end of radius & ulna
c. Forearm & Wrist joint:
   - Monteggia, Galeazzi, Colle's', Smith's, Barton's, Scaphoid
d. Hand injuries:
   - Bennett's, Rolando's, metacarpals, phalanges
e. Hip joint
f. Knee joint

g. Ankle and foot
h. Spinal fractures & deformity

UNIT III: Discuss in brief pathoanatomy, clinical features, investigations, complications and brief surgical management of the following

a. Peripheral nerve injury
b. Frozen shoulder
c. Tennis elbow
d. Golfer's Elbow
e. Dupuytren's contracture
f. Carpal tunnel syndrome
g. Arthritic conditions
h. Ankylosing spondylitis
i. PIVD
j. Spondylitis, spondylolisthesis
k. TB hip, Knee, spine
l. Perthe's disease
m. Congenital malformation
n. Bone Tumors
o. Neck & Back pain
p. Sport injuries
q. Metabolic bone disease
r. Reconstructive surgeries in poliomyelitis & cerebral palsy

PRACTICAL

Brief Idea on CT scan, MRI Scan, Drugs, and lab investigation, instruments
History taking, clinical exams (include special tests), brief idea on monitoring of the patients.

Practical Examination: (35 marks)

1. Case presentation (20 marks)
2. Spotters- Surgical instruments, X-rays, Orthosis (10 marks)
3. Viva voce (05 marks)

Recommended Books:

1. Outline of orthopaedics by Adams
2. Orthopaedics by Dr. Maheshwari
3. Orthopaedics by Dr. L.N. Vora
4. Outline of fractures by Adams.

VI Semester
Elective 2-Aphasia

Learning Outcomes: After studying this paper the students will know

1. Basics of speech and aphasia
2. Assessment of aphasia with counselling

Introduction and management of Aphasia

Content:

1. Introduction to speech and hearing department
2. Brief introduction to aphasia and its types
3. Exposure to assessment and differential diagnosis of adult language disorder
4. Team approach in assessment and management
5. Role of clinical counseling
6. Clinical observation of assessment and treatment

SEMESTER-VI

Allied - 6 - Hospital Management

Learning objective:

1. To know about the various quality concepts
2. To learn about the Hospital information system, inventory control, equipment operations management and biomedical waste management.

Content:

1. Quality Concepts: Definition of Quality, Dimensions of Quality, Basic concepts of Total Quality Management, Quality Awards. Accreditations for hospitals: Understanding the process of getting started on the road to accreditation, National and International Accreditation bodies, overview of standards- ISO (9000 & 14000 environmental standards), NABH, NABL, JCI, JACHO.
2. Hospital Information System: Hospital Information System Management and software applications in registration, billing, investigations, reporting, ward management and bed distribution, medical records management, materials management and inventory control, pharmacy management, dietary services, management, information processing. Security and ethical challenges.
3. Inventory Control: Concept, various costs of inventory, Inventory techniques-ABC, SDE / VED Analysis, EOQ models. Storage: Importance and functions of storage. Location and layout of stores. Management of receipts and issue of materials from stores, Warehousing costs, Stock verification.
4. Equipment Operations management: Hospital equipment repair and maintenance, types of maintenance, job orders, equipment maintenance log books, AMCS, outsourcing of maintenance services, quality and reliability, concept of failure, equipment history and documents, replacement policy, calibration tests, spare parts stocking techniques and polices
5. Biomedical Waste Management: Meaning, Categories of Biomedical Wastes, Colour code practices, Segregation, Treatment of biomedical waste - Incineration and its importance. Standards for waste autoclaving, Microwaving. Packaging, Transportation & Disposal of Biomedical wastes.

SEMESTER-VII

Core 19 Occupational Therapy in Neurological Conditions

Course Outcomes:

At the end of the course student should be able to

CO 1: Demonstrate the acquisition of comprehensive knowledge about evaluation and therapeutic principles of occupational therapy in various neurological conditions.

CO 2: Demonstrate the acquisition of comprehensive knowledge about evaluation and therapeutic principles of occupational therapy in cognito motor perceptual skills and dysphagia

CO3: Demonstrate the capability of presenting cases related to the neurological disorders with therapeutic principles of Occupational therapy.

Contents:

THEORY

UNIT I

Brief review of methods of evaluation, current neurophysiological theories, frames of references, and their application in O.T. in the various neurological problems in adults including defects and injuries to the brain and spinal cord

UNIT II

Objective and role of Occupational Therapy in:

Cardiovascular Accident
Space-occupying lesion
Encephalitis
Meningitis
Transverse myelitis
Myopathy
Motor neuron diseases
Parkinsons disease
Alzheimer's disease
Cerebellar lesions
Syringomyelia
Multiple sclerosis
Epilepsy
Neuropathy
Tabes Dorsalis
Athetosis and chorea
Myasthenia gravis

UNIT III

Cognito motor perceptual skills: Evaluation, Standardized Scales used, training and models of cognitive rehabilitation.

UNIT IV

Dysphagia: Normal physiology of swallowing, guidelines for assessment & treatment of patients with dysphagia.

Practical

Presentation of short and long cases related to neurological conditions with emphasis on evaluation, goal planning, & therapeutic interventions.

Practical Examination pattern (35 marks)

1. Long Case presentation (20 marks)
2. Short Case Presentation (10 marks)
3. Viva voce (05 marks)

Recommended Books:

1. Occupational Therapy practice skills for physical dysfunction by L. Pedretti,
2. Occupational Therapy for Physical Dysfunction by C.A. Trombly
3. Occupational Therapy and Physical Dysfunction: Principles, Skills and Prac tice by A. Turner
4. Willard and Spackman's Occupational Therapy
5. Neurological Rehabilitation- A. U. Darcy.

SEMESTER-VII

Core 20 Occupational Therapy in Orthopedic Conditions

Course Outcomes:

At the end of the course student should be able to

CO 1: Demonstrate the capability to review methods of orthopedic clinical evaluation and interventions according to the frames of references in occupational therapy.
CO2: Demonstrate the acquisition of comprehensive knowledge about evaluation and therapeutic principles of occupational therapy in various orthopedic disorders including fractures, dislocation and soft tissue injuries.
CO 3: Demonstrate the acquisition of comprehensive knowledge about evaluation and therapeutic principles of occupational therapy in various orthopedic disorders including reconstructive surgeries and limb lengthening.
CO4: Capability to evaluate hand functions using various standardized tests.
CO5: Demonstrate the capability of presenting cases related to the orthopedic disorders with emphasis on evaluation, goal planning and management.

Contents
THEORY

UNIT I:
Brief review of methods of orthopedic clinical evaluation and interventions according to frames of references in Occupational Therapy

UNIT II:
Occupational Therapy Management of fracture & dislocations including soft tissue injuries

1. Shoulder girdle
2. Elbow joint
3. Forearm & Wrist joint
4. Hand injuries
5. Hip joint
6. Knee joint
7. Ankle and foot
8. Spine

UNIT III: Role of Occupational Therapy in the following:

1. Peripheral nerve injury
2. Congenital malformation
3. Infections & tumors of musculoskeletal
4. Neck & Back pain
5. Degenerative disease of the spine
6. Sport injuries
7. Arthritis
8. Metabolic bone disease
9. Reconstructive surgeries and limb lengthening

UNIT IV: Role of occupational therapy in the following:

1. Osteoporosis
2. Osteomyelitis
3. Rickets
4. Arthritis
5. Ankylosing spondylitis
6. Tenosynovitis synovitis
7. Low back pain
8. Sciatica
9. Cumulative trauma disorder
10. Perthes disease

UNIT V: Standardized Tests for Hand Function

1. Jebson's Taylor
2. Purdue peg board test
3. Minnesota manual dexterity test (MMDT)

Practical

Presentation of short and long cases related to orthopedic conditions with emphasis on evaluation & therapy goals planning according to frames of references

Practical Examination (35 marks)

1. Long Case presentation (20 marks)
2. Short Case Presentation (10 marks)
3. Viva Voce (05 marks)

Recommended Books:

1. Occupational Therapy practice skills for physical dysfunction – L. Pedretti, B Zoltan.
2. Occupational Therapy for Physical Dysfunctions – C. Trombly,
3. Occupational Therapy and Physical Dysfunctions – Ann Turner
4. Willard and Spackman's Occupational Therapy
5. Treatment and Rehabilitation of Fractures- S. Hoppen field adv. Murthy
6. Rehabilitation of the Hand by Wynn parry CB Published by Butterworths
7. Orthopedic Physical Assessment – David Magee Published by WB Saunders

SEMESTER-VII

Core 21 Managerial Skills

Course Outcomes:

At the end of the course student should be able to

CO1: Demonstrate the acquisition of comprehensive knowledge and skills related to leadership and its management

CO 2: Demonstrate the acquisition of comprehensive knowledge about administration hierarchy and management styles.

CO3: Demonstrate the acquisition of comprehensive knowledge and ability to maintain the documentation and charting accounts.

CO4: Demonstrate the acquisition of comprehensive knowledge about marketing plan and its implications in occupational therapy.

CO5: Demonstrate the acquisition of comprehensive knowledge about concepts of quality assurance with its monitoring.

Contents

THEORY

UNIT I. Leadership (08 Hours)

i. Real-life Management
ii. Management versus Leadership
iii. What is Leadership?
iv. Leadership Theories
v. Gender and Leadership

UNIT II. Management Functions and Strategies (10 Hours)

i. Definition of administration
ii. Management styles
iii. Management by Objectives
iv. Hierarchy in Organization
v. Organisational Pattern
vi. Job description
vii. Job Specification
viii. Policies and procedures
ix. Productivity

UNIT III. Documentation (08 Hours)

i. Guidelines for documentation
ii. Relevant, Understandable, Measurable, Behavioural Assessment (RUMBA)
iii. Problem Oriented Medical Record (POMR)
iv. Subjective Objective Assessment and Planning (SOAP)
v. SMART
vi. Goal Attainment Scale (GAS)
vii. Computerised documentation

UNIT IV. Marketing. (08 Hours)

i. Marketing plan
ii. Types – Traditional and Digital marketing
iii. Consumer research
iv. Marketing implications in Occupational Therapy

UNIT V. Fiscal Management. (08 Hours)

i. Budgeting
ii. Type of Budgeting, Process and methods
iii. Balance sheet
iv. Direct versus indirect costs
v. Chart of accounts
vi. Reimbursements

UNIT VI. Quality Assurance. (03 Hours)

i. What is Quality Assurance
ii. Quality Assurance History
iii. Utilisation Review
iv. Program Evaluation
v. Quality Assurance Monitoring

Practicals

1. Documentation procedure
2. Problem based learning

Practical Examination : (35 marks)

1. Documentation procedure
2. Problem based Assessment
3. Quality assurance

Recommended Books:

1. Managerial skills
2. Methods of documentation
3. Balance sheet

Semester VII

Elective- Radio-diagnosis

Learning objective:

At the end of the elective the student should be able to

1. Basic knowledge of radiology with various techniques
2. Identify the deformities with the structures.

Content

Day 1 and 2: Introduction to Radiology & Reading Routine X-rays 14hrs

1. Different types of Radio-diagnostic methods: X-rays, CT Scan, Ultrasound and MRI.
2. Outline the basic views used in radiography: Chest, Spine and Extremities.
3. Demonstrate with examples: Normal Vs Abnormal X-rays (Congenital and Acquired Spinal, Chest, Limb abnormalities relevant to an occupational therapist)
4. Outline the guidelines for interpretation.
5. Basics of Principle of ALARA & Radiation Protection.

Expected Outcome: Be able to identify,

1. Fractures and dislocations of extremities.
2. Spine: Fractures and dislocation, kyphoscoliosis,
3. Others: Common disorders of bones namely, infection, metabolic and tumours.

Day 3 and 4: Introduction to CT & Essential Radiology of CT brain: 8hrs.

1. Role of C.T Scan of Brain: Congenital, Acquired and Special reference to Trauma.
2. Role of CT in evaluation of Spinal Column and Cord: Congenital, Acquired and Special reference to Trauma.
3. Outline the guideline for interpretation with examples.

Expected Outcome: Be able to identify,

1. Basic brain anatomy: Gray and white matter, Cerebral hemispheres, Ventricles and brain lobes.
2. Intracranial bleed (Subdural, Extradural and Intraparenchymal bleed), Infarcts, hydrocephalous & few common congenital abnormalities and identify the presence of a space occupying lesion.

Day 5: Introduction to MRI & Essential Radiology of MRI brain. 8hrs

1. Role of MRI of Brain: Congenital, Acquired and Special reference to Trauma.
2. Role of MRI in evaluation of Spinal Cord: Congenital, Acquired and Special reference to Trauma.
3. Outline the guideline for interpretation with examples.

Expected Outcome: Be able to identify,

1. Basic brain anatomy: Gray and white matter, Cerebral hemispheres, Ventricles and brain lobes.
2. Acute or Chronic Infarct, Hydrocephalous & few common congenital abnormalities and identify the presence of a space occupying lesion.

Day 6: Assessment Day: 30marks

1. Multiple Choice Questions: 10marks.
2. Short Answers: 10marks.
3. Spotters: 10marks.

Reference Books:

- Radiology for residents and Technicians: Satish Bhargava
- Radiological patient care by Jensen Chesney

ALLIED-7 PSYCHIATRY

Learning Objective

At the end of the allied paper the student should be able to

1. Basic knowledge of psychiatry and clinical psychology in all age groups
2. Ability to identify the psychological disorders in all age groups with basic knowledge of the management of the same.

THEORY

UNIT I: Introduction to psychiatry and clinical psychology

1. Scope and differences in discipline
2. History taking and mental status examination

UNIT II: Basics in child and adolescent disorders

Common etiological factors, signs, symptoms & brief management of the following:

a. Intellectual disability
b. Autism
c. Attention Deficit Hyperactive Disorder
d. Conduct disorders
e. Mental retardation

UNIT III: Basics of adult psychiatry

Common etiological factors, signs, symptoms & brief management of the following:

a. Schizophrenic disorders
b. Mood disorder
c. Generalized Anxiety Disorders
d. Panic disorder
e. Phobic disorders
f. Obsessive compulsive disorders
g. Somatoform disorders
h. Post-traumatic stress disorder
i. Substance related disorders
j. Sexual dysfunction
k. Pain disorders
l. Suicide
m. Personality disorders
n. Eating disorders
o. Sleep disorders
p. Conversion and dissociative reaction

UNIT IV: Basics of psychological management

a. Pharmacotherapy
b. Behaviour therapy
c. Cognitive behaviour therapy
d. Stress management
e. Group Therapy
f. Counselling
g. Pain management

Recommended Books

1. Ahuja N. – A short textbook of psychiatry (latest edn.) Jaypee brothers
2. Kaplan & Sadock's Comprehensive Text Book of Psychiatry

SEMESTER VIII

Core 22 Occupational Therapy in Psychiatric Conditions

Course Outcomes:

At the end of the course student should be able to

CO1: Demonstrate the acquisition of comprehensive knowledge about psychiatric occupational therapy with methods of evaluation.
CO 2: Demonstrate the acquisition of comprehensive knowledge about therapeutic media and groups used in psychiatric occupational therapy.
CO3: Demonstrate the acquisition of comprehensive knowledge about long term and short term occupational therapy intervention in various psychiatric disorders.
CO4: Demonstrate the acquisition of comprehensive knowledge about other modalities of therapy in psychiatric disorders
CO5: Demonstrate the capability to present cases related to psychiatric disorders with emphasis on evaluation, goal planning and management.

Contents

THEORY

UNIT I: Theoretic basis of Occupational Therapy

1. History & development of Psychiatric O.T.
2. Aims, Principles and Frames of references used in psychiatric occupational Therapy:
    a. Behavioural
    b. Cognitive behaviour
    c. Psychoanalytical
    d. Cognitive Disability
    e. Model of human occupation (MOHO)

UNIT II:

1. General and Specific objectives and prescription of psychiatric occupational therapy.
2. Methods of evaluation of psychiatric in occupational Therapy

UNIT III:

Types of therapeutic media and groups used in psychiatric occupational therapy

a. Behaviour therapy
b. Recreational therapy
c. Group therapy
d. Milieu therapy
e. Music therapy
f. Projective techniques
g. Industrial activities
h. Arts and creative activities
i. Social skills training

UNIT IV: Long term and short-term occupational therapy intervention based on current practices:

a. Schizophrenic disorders
b. Mood disorder
c. Generalized Anxiety Disorders
d. Panic disorder
e. Phobic disorders
f. Obsessive compulsive disorders

g. Somatoform disorders
h. Post-traumatic stress disorder
i. Substance related disorders
j. Pain disorders
k. Suicide
l. Sleep disorders
m. Conversion and dissociative reaction

UNIT V: Occupational therapy as an adjunct to:
a. Chemotherapy
b. Electro-convulsive therapy
c. Psychotherapy

Practical
Short and long case presentation related to psychiatric conditions

Practical Examination: (35 marks)
1. Long Case presentation (20 marks)
2.Short Case Presentation (10 marks)
3. Viva Voce (05 marks)

Recommended Books:

1. Willard and Spackman's Occupational Therapy
2. Occupational Therapy in Short Term Psychiatry by M. Wilson
3. Occupational Therapy in Long Term Psychiatry by M. Wilson.
4. Occupational Therapy a communication process by G.S. Fidler and J.W. Fidler
5. Quick reference to Occupational Therapy by K. Reed.
6. Occupational therapy and Mental Health by J. Creek
7. Mental Health concepts and techniques for occupational therapy assistant by M. B. Early
8. Methods of evaluation of psychiatric patient in occupational therapy

SEMESTER VIII

Core 23 Recent Advances in Occupational Therapy

Course Outcomes:

At the end of the course student should be able to

CO1: Demonstrate the acquisition of comprehensive knowledge about ethics in occupational therapy.
CO 2: Demonstrate the acquisition of comprehensive knowledge about computer application, industrial rehabilitation and hospice care
CO3: Demonstrate the acquisition of comprehensive knowledge and skills about private practice management with home care, wellness programs, preventive and adjunctive therapy.
CO4: Demonstrate the acquisition of comprehensive knowledge about stress management, sports medicine and disability management in relation to human sexuality.
CO5: Demonstrate the capability to present cases related to any condition with in scope of occupational therapy with emphasis on Assessment, goal planning and management.

Contents

THEORY

UNIT I:

1. Ethics in Occupational Therapy -
- Implication of confirmation to the rules of professional conduct
- National and international professional bodies
- Role of international health agencies such as WHO

2. The human and non-human environments and the occupational therapy process- Definition of environment, components of human & non-human environments, science of environmental psychology & application to practice of occupational therapy.

UNIT II:

1. Industrial Rehabilitation potential sources & product lines of referral for an industrial rehabilitation program, classification of work levels, industrial rehabilitation service, vocational evaluation & rehabilitation.
2. Hospice care

UNIT III:

1. Home Care and Private practice- Home care delivery model, its implementation, parameters of home care, delivery service, skills required for effective practice, constraints, influence of various issues that shape home care practice, role of practitioner in private practice.
2. Wellness programs & Preventive Therapy- Definition of health, health promotion, wellness; role of occupational therapist.

UNIT IV:

1. Technology: assistive and computer technology application in occupational therapy-Use of computers as a tool in clinical implementation, soft-ware selection-criteria and method, strategies and methods of clinical implementation in motor, sensory, cognitive, ADL, affective domain.
2. Stress management- stress factors, stress response, techniques in stress management.
3. Introduction to sports medicine - common sports injuries, assistive, adaptive equipment, splints & adaptation methods, and role of occupational therapist in return to sports & athletic activities

UNIT V:

1. Introduction to human sexuality in relation to disability management in O.T.- Definition of sexuality, sexuality developmental milestones & response cycle, role of nervous system in sexual functions, effect of nervous, cardiac & pulmonary dysfunctions on sexual functioning, levels & formats provided to patients regarding sexual counseling appropriate to occupational therapy.
2. Adjunctive therapies:
    - Biofeedback
    - Physical Agent Modalities
    - Yoga

Practical

Short and long case presentation- any case within the scope of Occupational Therapy practice can be given and emphasis will be on assessment, goal setting and therapy planning

Practical Examination pattern (35 marks)

1. Long Case presentation (20 marks)
2.Short Case Presentation (10 marks)
3. Viva Voce (05 marks)

Recommended Books:

1. Occupational Therapy practice Skills for Physical Dysfunction – L. Pedretti, Barbara Zoltan,
2. Occupational Therapy for Physical Dysfunctions – C.A. Trombly
3. Willard and Spackman's Occupational Therapy
4. Biofeedback by J. Basmajian

SEMESTER VIII

Core 24 Rehab Science

Course Outcomes:

At the end of the course student should be able to

CO1: Demonstrate the acquisition of comprehensive knowledge about rehabilitation including community and institution based rehabilitation.
CO 2: Demonstrate the acquisition of comprehensive knowledge about disability with role of occupational therapy in modifications related to different disabilities
CO3: Demonstrate the acquisition of comprehensive knowledge and skills related to spinal orthoses, mobility aids and upper extremity prosthesis.
CO4: Demonstrate the acquisition of comprehensive knowledge about occupational health and epidemiology of disabled workers.
CO5: Demonstrate the acquisition of comprehensive knowledge about child survival and motherhood programs and role of occupational therapy in various orthopedic and neurological conditions in newborn.
CO5: Demonstrate the capability to present cases related to any condition related to occupational therapy with emphasis on evaluation, goal planning and management.

Contents
THEORY

UNIT I:

a. Define the term Rehabilitation. Explain its aims and principles, scope of rehabilitation.
b. Rehabilitation- Team work, members, their duties, and responsibilities
c. Community Based Rehabilitation & Institution based Rehabilitation

UNIT II:

a. Disability Prevention, limitation, and rehabilitation.
b. Disability evaluation: outline the principle of disability evaluation and discuss its use.
c. International Classification of functioning, Disability & Health
d. Persons with Disability Act (1995) National Trust Act 1999, RCI Act 1992 India
e. Prevention & detection of disability & role of O.T. in it.

UNIT III:

a. Spinal orthosis: Cervical, Thoraco-lumbo-sacral orthosis, ASH, Milwaukee, LS corset
b. Mobility aids
c. Upper extremity prosthesis & functional use of prosthesis

UNIT IV:

1. Social factors and health - concepts in epidemiology, sociology & cultural factors in health & disease, social problems of disabled workers.
2. Occupational health- definition of occupational health, role of OT in occupational disorders like occupational lung disease. Medical and engineering measures in prevention of occupational diseases.

UNIT V:

1. Child survival and safe motherhood program- role of CSSM as a national program. Role of O.T. in orthopedic & neurological conditions in new born such as CDH, CTEV, CP, spina bifida and AMC in community setting
2. Architectural barriers possible modifications in relation to different disability

Practical

- Long and short case presentation- any case within the scope of Occupational Therapy practice can be given and emphasis will be on assessment, goal setting and therapy planning

Practical Examination pattern (35 marks)

1. Long Case presentation (20 marks)
2.Short Case Presentation (10 marks)
3. Viva Voce (05 marks)

Recommended Books:

1. Textbook of social and preventive medicine by Park
2. Disabled village children by David Werner
3. Occupational Therapy for Physical Dysfunctions by C.A. Trombly
4. Willard and Spackman's Occupational Therapy by H. Hopkins & H. Smiths.
5. WHO's ICF 2001
6. Guidelines for evaluation of various disabilities and procedure for certification by Ministry of social justice and empowerment notification 2001

Semester VIII

Elective 4- Child Abuse And Sexuality

Learning objective: At the end of the elective the student should be able to

1. Basic knowledge on various methods of child maltreatment
2. Basic knowledge of preventive measures taken in child maltreatment

CONTENT:

1. Child maltreatment (neglect and abuse)
2. Suicide
3. Laws (POSCO, Labour law)
4. Normal Sexuality
5. Cognitive development
6. Attachment theories
7. Psychological management