

# Meenakshi Academy of Higher Education & Research



**BACHELOR OF ALLIED HEALTH SCIENCES  
B.Sc AHS (ANAESTHESIA TECHNOLOGY)  
REGULATIONS AND SYLLABUS  
(Regulation-2014)  
Effective from the Academic  
Year 2014-2015**

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# **MEENAKSHI ACADEMY OF HIGHER EDUCATION AND RESEARCH**

## **BACHELOR OF ALLIED HEALTH SCIENCES**

### **(B.Sc AHS) ANAESTHESIA TECHNOLOGY**

**REGULATION-2014**

**VISION AND MISSION OF MAHER**

### **Vision**

To be a world-class institution, transforming society through value-based diverse programs and healthcare advancements, leading to the all-around development of human resources, knowledge, innovation, entrepreneurship, and research.

### **Mission**

To become an institute of eminence by developing world-class professionals in the field of healthcare, science, liberal arts, technology and research with a focus on the societal good.

To create an enabling state-of-the-art infrastructure, intellectual capital and provide best-in-class learning experience with a freedom to innovate and invent.

To foster values and ethics so as to develop students and learners into responsible citizens of the Nation and the world.



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**BACHELOR OF ALLIED HEALTH SCIENCES**  
**B.Sc AHS (ANAESTHESIA TECHNOLOGY)**  
**REGULATION-2014**  
**VISION AND MISSION OF FACULTY OF ALLIED HEALTH SCIENCES**

**VISION**

To meet challenges of the present and the future by being adaptive, innovative and a trend setting constantly reviewing ever-growing demands of the medical community in Allied Health Science

**MISSION**

- ✓ To prepare the young professionals who are committed in health care to excellence and innovation in health care.
- ✓ To develop and transmit knowledge of diverse aspects of health, health-care delivery and health research.
- ✓ To prepare the young emerging professionals who understand health from biological, behavioral, and population perspectives.
- ✓ To prepare the young emerging professionals who are committed in health care to excellence and innovation in health care.



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**MEENAKSHI ACADEMY OF HIGHER EDUCATION AND RESEARCH**

**FACULTY OF ALLIED HEALTH SCIENCES**

**PROGRAMME OBJECTIVES**

**Programme Objectives:**

- To impart necessary knowledge and training techniques in under graduate Allied Health Sciences courses and to maintain high standards of Allied Health Sciences education.
- To offer theoretical and practical training in all the important Allied Health Sciences branches of health activity.
- To attain self-sufficiency in under graduate Allied Health Sciences education to meet the States need of Allied Health Sciences personnel.
- Providing knowledge and skill based training to create qualified and competent technical personnel in the discipline of Allied Health Sciences.
- To develop the basic skills in the students that are necessary to monitor patients within a healthcare setting. To create manpower who will bridge gap between staff, Nurses and consultants.
- To train students in all clinical skills using clinical in all clinical demonstration and simulation base training.



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# MEENAKSHI ACADEMY OF HIGHER EDUCATION AND RESEARCH

## FACULTY OF ALLIED HEALTH SCIENCES

### PROGRAMME OUTCOME

#### ANAESTHESIA TECHNOLOGY

**PO1: Academic Education**

Gain proficiency in fundamentals of anaesthesia technology improve our understanding of factors  
Imparting Allied Health Sciences

**PO2 : Knowledge**

Acquire comprehensive basic knowledge of coordinated functions, anatomy of heart and patho  
physiology of diseases and apply them in Cases

**PO3:Design and Development of Solutions**

Improve knowledge to design solutions for complex problems in the associated fields and design  
digital imaging technology products or processes that meet the specified needs with appropriate  
consideration for specific diseases with specific considerations of patient .

**PO4: Investigation**

Analyse complex problems and investigate to develop solutions by using anaesthesia technology  
based knowledge and research methods including digital imaging technology, analysis and  
interpretation of data, and use of diagnostic tools in effective development of clinical solutions

**PO5: Communication**

Improve appropriate language and interpersonal skills in communication of clinical outcomes and  
outputs, develop visual and graphical methods to communicate results effectively

**PO6: Role in Society**

Obtain knowledge in reasoning techniques to assess societal, health, safety, legal and cultural issues  
associated with use of anaesthesia technology of allied health sciences and the consequent  
responsibilities of professionals involved in the use of the same.

**PO7: Ethics**

Acquire knowledge on ethical principles associated with research methods, use of human models,  
patient information, research and literature data collection and use and commit to ensuring  
sustainability of resources

**PO8: Technology Usage**

Understand appropriate diagnostic technology, techniques, modern scientific diagnostic tools to analytically understand, predict and analyze the outcome of use of allied health sciences and develop therapeutic products that improve clinical practices

**PO9: Environment and Sustainability**

Obtain attitude toward products that are safe to the environment, is economically, environmentally and socially sustainable with a commitment to safeguard the future of life in the planet

**PO10: Team Work**

Implement the function effectively individually and in a team under multi-skilled, multi-cultural and multi- disciplinary settings

**PO11: Project Management**


Gain knowledge and understanding the principles and management techniques of anaesthesia technology and apply these to ones own and teams work and also manage team based projects in real life environments, and leading to technological skills

**PO12: Lifelong Learning**

Engage in life long practical learning in the context of technological developments in allied health science and the changes that it brings about in the quality of human life

**PROGRAMME SPECIFIC OUTCOME**

Students have to communicate effectively with patients and function as a professional member of health care teams as shown by passing their clinical courses satisfactorily. Student will have the basic skills necessary to monitor patients for any type of cardiac problems within a healthcare setting.

  
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**MEENAKSHI ACADEMY OF HIGHER EDUCATION AND RESEARCH  
BACHELOR OF ALLIED HEALTH SCIENCES  
(B.Sc AHS) ANAESTHESIA TECHNOLOGY**

**REGULATION-2014**

**1. REGULATIONS OF THE UNIVERSITY**

In exercise of the powers conferred by the Board of management, Meenakshi Academy of Higher Education And Research, Chennai hereby makes the following Regulations:

**2. SHORT TITLE**

These Regulations shall be called ‘‘THE REGULATIONS FOR THE BACHELOR OF SCIENCE IN ALLIED HEALTH SCIENCE DEGREE PROGRAMME OF MEENAKSHI ACADEMY OF HIGHER EDUCATION AND RESEARCH’’.

**3. COMMENCEMENT**

They shall come into force from the academic year 2014-15 onwards. The regulations and the syllabus are subject to modification by the standing academic board from time to time.

**4. TITLE OF THE PROGRAMME**

It shall be called Bachelor of Science in Allied Health Science

**5. ELIGIBILITY FOR ADMISSION**

Candidates should have passed the higher secondary school certificate examination (12 years of study)

Or

Senior school certificate of Indian school certificate examination (12 years of study)

Or

Intermediate examination of an Indian university/Board or other recognized examining body with physics, chemistry, Biology and English.

**6. CRITERIA FOR SELECTION**

Students for B.Sc. Degree Programme (Allied Health Science) shall be admitted based on performance at the competitive Examinations held by this University.



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## 7. AGE LIMIT FOR ADMISSION

Candidate should have completed the age of 17 years at the time of admission or would complete the age of 17 years on or before 31<sup>st</sup> December of the year of admission to the first year B.Sc. Degree programme.

## 8. ELIGIBILITY CERTIFICATE

No candidate shall be admitted to the B.Sc. Degree programme (AHS) unless the candidate has obtained and produced eligibility certificate issued by this university. The candidate has to make an application to the university with the original and photo copies of the following documents along with the prescribed fee:

Higher secondary or equivalent examination mark sheet and  
Transfer certificate

Candidate should obtain eligibility certificate before the last date for admission as notified by the university

## 9. REGISTRATION

A candidate admitted to the B.Sc. Degree programme (AHS) of this university shall register by remitting the prescribed fees along with the application form for registration duly filled in and forwarded to this university through the head of the institution within the stipulated time.

## 10. DURATION OF THE PROGRAMME

The period of certified study for the Programme of Bachelor of Science (Anaesthesia technology) programme shall extend over a period of 3 academic years.

## 11. COMMENCEMENT OF THE PROGRAMME

### ACADEMIC TERMS

First year B.Sc	-	1 <sup>st</sup> August to 31 <sup>st</sup> July
Second Year B.Sc	-	1 <sup>st</sup> September to 31 <sup>st</sup> August
Third Year B.Sc	-	1 <sup>st</sup> September to 31 <sup>st</sup> August

## 12. CUT OFF DATES FOR ADMISSION TO EXAMINATIONS

The candidates admitted from 1<sup>st</sup> August to 30<sup>th</sup> September of the academic year be registered to take up their first year examination on 1<sup>st</sup> August of the next year. There will not be any admission after 30<sup>th</sup> September for the academic year.

## 13. WORKING DAYS IN AN ACADEMIC YEAR

The first academic year shall consist of not less than 240 working days



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#### **14. ATTENDANCE REQUIRED FOR ADMISSION TO EXAMINATION**

a) No candidate shall be permitted to any one of the parts of B.Sc exam unless he/she has attended the programme in the subject for the prescribed and produces the necessary certificates of study and attendance from the institution.

b) A candidate is required to put in minimum of 80% of attendance in both and practical / clinical separately in each subject before admission examination.

c) A candidate, who has not completed the programme in any subject and not submitted the course completion certificate from the head of the department will not be permitted to appear for the particular subject alone. Candidate has got adequate attendance in other subjects he/she permitted to appear for examination in those subjects.

d) Attendance earned by the student should be displayed on the notice board of the department monthly and a copy of the same sent to the university computerization and parents shall be informed regarding the short attendance of their wards through e-mail (if available) or by post by the institution.

#### **15. SUBMISSION OF LABORATORY RECORD NOTE BOOK**

At the time of practical/clinical examination each candidate shall submit to the examiners his/her laboratory note book duly certified by the head of the department as a bonafide record of the work done by the candidate.


The practical record shall be evaluated by the concerned Head of the department (Internal Evaluation) and the practical record marks shall be submitted to the university 15 days prior to the commencement of the theory examinations

In respect of failed candidates the marks awarded for records at previous examination will be carried over to the next examinations. If a candidate desires he/she may be permitted to improve his/her performance by submission of fresh records.

#### **16. CONDONATION OF LACK OF ATTENDANCE**

Condonation of shortage of attendance up to a maximum of 10% in the prescribed eligible attendance for admission to an examination rests with the discretionary power of the Vice-chancellor. A candidate lacking in attendance shall submit an application in the prescribed form and remit the stipulated fee 15 days prior to the commencement of the theory examination.

The head of the department and head of the institution should satisfy themselves on the reasonableness of the candidate request while forwarding the application with their endorsements to the controller of examination who would obtain the Vice-chancellor's approval for admission to the examinations. No application would be reviewed if it is not forwarded through proper channel.



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8 Condonation for lack of attendance shall be taken up for consideration under the following circumstances:

Any illness afflicting the candidate. (The candidate should submit to the head of the institution a medical certificate from registered medical practitioner soon after he/she returns – the institution after treatment.)

Any unforeseen tragedy in the family. (The parent/guardian should give in writing the reason for the ward's absence to the Head of the Institution)

Any other leave the Head of the Institution deems reasonable for condonation 50% of marks in internal assessment is compulsory for condonation of lack of attendance.

### **17. COMMENCEMENT OF EXAMINATIONS**

August 1<sup>st</sup>/February 1<sup>st</sup>. If the date of commencement falls on Saturdays, Sunday declared public holidays, the examination shall begin on the next working day.

### **18. REVALUATION OF ANSWER SCRIPTS**

There shall be no revaluation of answers papers of failed candidates in any undergraduate examination. However, Re-totalling of failed subjects will be entertained on payment of the prescribed fee.

### **19. INTERNAL ASSESSMENT**

a) A minimum of four written examinations shall be conducted in each subject during an academic year and the average marks of three best performances shall be taken into consideration for the award of internal assessment of mark

b) A minimum of three practical examinations shall be conducted in each subject during an academic year and an average of two best performances shall be taken into consideration for award of internal assessment marks.

c) A failed candidate in any subject should be provided an opportunity to improve his / her internal Assessment marks by conducting a minimum of two examinations, in theory and practical separately and the average may be considered improvement. If failed candidate do not appear for an improvement in failed subject (s) the internal marks awarded for the previous examination shall be carried over the subsequent appearance (s).

d) The internal assessment marks (both in written and practical's taken together) should be submitted to the University endorsed by the head of the Institution 15 days prior to the commencement of the theory examinations.

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## **20.RE-ADMISSION AFTER BREAK OF STUDY**

- a) The calculation of the break of study of the candidate for readmission shall be calculated from the date of first discontinuance of the course instead of from the date of admission.
- b) Candidates having break of study shall be considered for readmission provided, they are not subjected to any disciplinary action and no charges pending or contemplated against them.
- c) All readmission of candidates are subjected to the approval of the Vice-Chancellor.
- d) A candidate having a break of study more than 2 years and up to 5 years shall apply for the readmission condonation to the Academic officer of this University. The candidate may be readmitted to the beginning of the academic year of the programme. The candidate has to fulfil the attendance requirements of the University and shall be granted exemption in the subjects he has already passed.
- e) Candidates having a break of study of 5 years and above from the date of discontinuance and more than two spells break will not be considered for readmission.

## **21.MIGRATION / TRANSFER OF CANDIDATES**

- a) Migration / Transfer of candidates from one recognized college to another recognized college of this university or from another University shall be granted as per the recommendation of the University regulations.
  - I) Migration may be considered in exceptional cases or Extreme compassionate ground.
  - II) Death of a supporting guardian, illness of the candidate disability, disturbed condition as declared by govt. In the college area.
- b) The combination of attendance shall be granted to a transfer for admission to the examinations of this university or payment of the necessary fee and satisfying the Nursing council of India regulations.
- c) The applicant candidate should have passed first year Examination.
- d) Migration during clinical programme of study shall not be allowed on any ground.
- e) All migrations/transfers are allowed on payment of the prescribed fee.
- f) All migrations/ transfers are subject to the approval of the Vice-chancellor.

## **22.MARKS QUALIFYING FOR A PASS**

A candidate shall be declared to have passed the examination if he/she obtain 50% of all the marks in University Theory examination, 50% of the marks in University Practical examination and 50% aggregate in University Theory, Practical, Oral and Internal Assessment taken together.

  
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### 23. CLASSIFICATION OF SUCCESSFUL CANDIDATES

- a) A successful candidate who secures 75% and above of the marks in his/her first appearance in all the subjects within the prescribed period will be declared to have passed in first class with Distinction.
- b) A successful candidate who secures 75% and above of the marks in his/her first appearance in a subject within the prescribed period will be declared to have passed in first class with Distinction in that particular subject.
- c) A successful candidate who secures 60% and above of the marks in his/her first appearance in all the subjects within the prescribed period will be declared to have passed in First class.
- d) All other successful candidates shall be declared to have passed in Second class.

### 24. CARRY OVER OF FAILED SUBJECTS

- a) A candidate who fails in any subject can carry over the failed subject. However only three attempts are allowed in each subject including the 1<sup>st</sup> attempt.
- b) A Candidate has to pass in theory and practical examination separately in each of the paper
- c) If a candidate fails either in theory and practical examination has to reappear for both (theory and practical).
- d) The candidate has to successfully complete the programme in 6 years (i.e.) doubleduration of the programme from the date of joining.

### 25. BRANCH OF STUDY

Bachelor of Science Allied health sciences (Anesthesia Technology)

  
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## 26.PATTERN OF EXAMINATION AND SUBJECTS OF STUDY

### SCHEME OF EXAMINATION I<sup>ST</sup> YEAR

Section A	2 Essays (any 1)	1 x 6 Marks each	6 Marks	25 Marks	
	4 Short Notes (any 3)	3 x 3 Marks each	9 Marks		
	5 Ultra short notes	5 x2 Marks each	10 Marks		
Section B	2 Essays (any 1)	1 x 6 Marks each	6 Marks	25 Marks	
	4 Short Notes (any 3)	3 x 3 Marks each	9 Marks		
	5 Ultra short notes	5 x2 Marks each	10 Marks		
	Theory Total			50	Marks
	Practical			50	Marks
	Internal Assessment			30	Marks
	Viva – Voice			20	Marks
			Grand Total	150	Marks

### PATTERN OF EXAMINATION II<sup>nd</sup> & III<sup>rd</sup> year

Section A	2 Essays (any 1)	1 x 15 Marks each	15 Marks	50 Marks	
	6 Short Notes (any 5)	5 x 5 Marks each	25 Marks		
	5 Ultra short notes	5 x2 Marks each	10 Marks		
Section B	2 Essays (any 1)	1 x 15 Marks each	15 Marks	50 Marks	
	6 Short Notes (any 5)	5 x 5 Marks each	25 Marks		
	5 Ultra short notes	5 x2 Marks each	10 Marks		
	Theory Total			100	Marks
	Practicals			-	Marks
	Internal Assessment			30	Marks
	Viva – Voice			-	Marks
			Grand Total	130	Marks

Minimum for Passing

50% marks in the University written examination

50% marks in the University practical examination

**50% marks in the aggregate of written, oral, practical and internal assessment**

Compulsory Rotatory Internship

All the candidates must undergo compulsory rotatory internship training for one year

Award of Degree

The B.Sc. degree shall be granted after successful completion of the programme and the compulsory Rotatory Internship



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**I YEAR B.Sc AHS ANAESTHESIA TECHNOLOGY (PROG.CODE-701)  
PROGRAMME STRUCTURE**

Course No	Course name	Lecture Hrs/Week	Tutorial Hrs/ Week	Practical Hrs\Week	Internal Assessment (IA)	Internal Examination	External Assessment (EA) University Examination				Grand Total
							THEORY	Theory	Viva	Practical	
001	Anatomy	02	-	01	30		50	20	50	120	150
002	Physiology	02	-	01	30		50	20	50	120	150
003	Biochemistry	02	-	01	30		50	20	50	120	150
004	Pathology	02	-	01	30		50	20	50	120	150
005	Microbiology	02	-	01	30		50	20	50	120	150
006	Pharmacology	02	-	01	30		50	20	50	120	150
009	Principles of Management	01	-	-	30	100	-	-	-	-	130
010	Basics of Computer	01	-	-	30	100	-	-	-	-	130
011	English	01	-	-	30	100	-	-	-	-	130

**ANESTHESIA TECHNOLOGY (Programme code-701)  
II<sup>ND</sup> year**

### PROGRAMME STRUCTURE

No	Subject Code	Subject	Lecture Hrs/Week	Tutorial Hrs/Year	Practical Hrs\Week	Internal Assessment	Internal Examination	University Exam			Total Marks
							Theory	Theory	Practical (50)	Viva(20)	
	5201	Medical Ethics	05	-	-	30	-	100	-	-	13
	5202	Medical Outlines	05	-	-	30	-	100	-	-	13
	5203	Principles Of Anesthesia –I	05	-	03	30	-	100	50	20	20



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## EXAMINATION SCHEME

### III<sup>rd</sup> year

no	Subject code	Subject	Lecture Hrs/Week	Tutorial Hrs/ Week	Practical Hrs\Week	Internal assessment	Internal Examination	University exam			Total Marks
								Theory	Theory	Practical (50)	
5204		Introduction to surgery and CSSD	05	-	-	30	-	100	-		1
5205		Anesthesia for specialities	05	-	-	30	-	100	50	30	2
5206		Principles Of Anesthesia – II	05	-	03	30	-	100	50	30	2
		<b>ELECTIVE S</b> (select one)									
5207		1. Clinical Psychology	05	-	-	30	-	100	-	-	1
5208		2. Community Medicine	05	-	-	30	-	100	-	-	1



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**PAPER I – ANATOMY**  
**SYLLABUS**  
**Paper I – Anatomy**

**SYLLABUS**

COURS ECODE	Course name	L	T	P	Total hours	IA	Theory	Viva	Practical	EA	Total
5001	ANATOMY	02	-	01	03	30	50	20	50	120	150

**COURSE DESCRIPTION**

The study of anatomy will include identification of all gross anatomical structures. Particular emphasis will be placed on description of bones, joints, muscles, the brain, Cardio-pulmonary and nervous systems, as these are related to the application of physiotherapy in patients.

**COURSE OBJECTIVES**

- The objective of this course is the student will be able to demonstrate knowledge in human anatomy for the study and practice of physiotherapy.
- To describe the various components of upper, lower extremity ,head and neck and thorax.
- In addition, the student will be able to fulfill with 75% accuracy (as measured written and oral internal evaluation) the following objectives of the course.

**COURSE CONTENT:**

1. Introduction to Anatomy
  2. Basic Anatomical Terminology
  3. Osteology -
    - a) Upper Limb - Clavicle, Scapula, Humerus, Radius, Ulna
    - b) Lower Limb – Hip Bone, Femur, Tibia, Fibula
    - c) Vertebral Column – Cervical, Thoracic, Lumbar & Sacral Vertebrae
  4. Thorax – Thoracic Cage, Sternum, Ribs, Intercostal Space.
  5. Respiratory System – Parts, Trachea, Bronchial Tree, Lungs, Pleura
  6. Cardio Vascular System –
    - a) Heart – Surface anatomy, Chambers, Valves, Blood supply of the Heart
- Pericardium. Major  
Vessels of heart.
7. Vessels of Upper limb
    - a) Subclavian Artery – Parts, Branches
    - b) Axillary Artery – Parts, Branches
  - c) Brachial Artery, Radial artery, Ulnar artery
    - d) Basilic vein, Cephalic vein, Median Cubital vein
    - e) Cubital Fossa

8. Vessels of Lower limb

- a) Femoral artery,
- b) Popliteal artery
- c) Dorsalis Pedis Artery,
- d) Saphenous veins, femoral vein

9. Muscular

System Muscles of  
Thorax.

Muscles of upper limb (Arm & Forearm)

Muscles of Lower limb (Thigh & Leg)

10. Excretory System

Kidney, Ureter, Urinary Bladder, Structure of Nephron

11. Digestive System

Parts, Stomach, Liver, Pancreas, Situation, Functions

12. Endocrine System

Pituitary gland, Thyroid gland, Adrenal gland situation, functions

13. Reproductive System

Male Reproductive system – Parts, Situation, Functions Female Reproductive system 0

Parts, Situation, Functions

Central Nervous System Outline of Brain and Spinal cord

Histology

Basic tissues Brief Epithelium Connective tissue Salivary glands Bone

Cartilage Muscle

**B) Practicals :**

Osteology Bones :

Side Identification, Prominent features, Muscle attachment

- I. Organs – Heart, Lungs, Liver, Spleen, Stomach, Kidney.

Histology

Epithelium – Simple squamous epithelium Simple cuboidal epithelium

Simple columnar epithelium Transitional epithelium Bone

Cartilage

Hyaline cartilage Elastic cartilage White fibro cartilage Salivary glands

Serous salivary gland Mucous salivary gland Mixed salivary gland Muscles

Skeletal Muscle Smooth Muscle Cardiac Muscle

Practical record compulsory for Osteology & Histology

Total Hours : 80

Theory : 60

Practical : 20

Prescribed Text Book

Manipal Manual of Anatomy for Allied Health Science Courses

Author : Sampath Madhyastha

Edition : Third

Edition Publishers : CBS

### COURSE OUTCOME

CO1: Gain knowledge about various organs of the human body and their functions

CO2: Acquire knowledge in structural and functional relationship of Multi organ system

CO3: Proficiency on the investigation in the overall functions of each system

CO4: Understand the competency of various skeletal muscles and identify various bones and their processes in detail based on their presence in the body

CO5: Recall and reason out vital profiles that distinguishes altered functions of organ in human health and disease

CO	PO														
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	1	3	2	3	3	2	2	2	2	3	2	2	3	3
CO2	3	3	3	1	2	3	3	3	2	3	2	2	2	3	2
CO3	3	-	2	2	3	3	1	-	3	3	3	-	3	-	2
CO4	3	3	2	3	-	2	3	3	2	-	3	3	-	3	-
CO5	1	3	1	2	1	3	2	2	2	3	3	3	3	2	3
AVE	2.2	2	2.2	2	1.8	2.8	2.2	2	2.2	2.2	2.8	2	2	2.2	2

  
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## PAPER II – PHYSIOLOGY

COURS E CODE	Course name	L	T	P	Total hours	IA	Theory	Viva	Practical	EA	Total
5002	Physiology	02	-	01	03	30	50	20	50	120	150

### COURSE DESCRIPTION

This course which runs concurrently with the anatomy course helps the student to understand the basis of normal human physiology with special emphasis on the functioning of the cardiovascular, musculoskeletal and nervous system.

### COURSE OBJECTIVES

- To demonstrate an understanding of elementary human physiology.
- To describe the physiological functions of each system of human physiology
- The student will be able to fulfill with 75% accuracy (as measured by written and oral internal evaluation) the following objectives of the course.

### COURSE CONTENT

#### THEORY:-

1. The cell - cell structure and functions of the various organelles, endocytosis, exocytosis and homeostasis, Acid base balance and disturbance of acid base imbalance.
2. Blood - composition of blood, functions of blood, Erythropoiesis, plasma protein, pathological and physiological variations of RBC structure, function and metabolism of hemoglobin, erythrocyte sedimentation rate, WBC, platelets, coagulation, coagulants, bleeding disorders, blood grouping.
3. Cardio vascular system- physiological anatomy of heart, functions of heart, conducting system of heart, cardiac cycle, cardiac output, heart sounds, ECG, Arterial blood pressure and its regulations, Applied physiology like hypertension, cardiac murmur.
4. Respiratory system - physiological anatomy of respiratory tract, non respiratory functions of respiratory system, Mechanism of respiration, lung volumes and capabilities, Artificial ventilation and cpr, regulation of respiration, respiratory movements and transport of respiratory gases or exchange of respiratory gases.
5. Excretory system - physiological anatomy of excretory system, non excretory

functions of excretory system, urine formation, micturition reflex, renal disorders, renal dialysis.

6. Reproductive system - physiological anatomy of male and female reproductive system, process of spermatogenesis and oogenesis, menstruation, hormones of reproductive system.

7. Central nervous system - Functions of CSF, Significance of CSF analysis, blood brain barrier, transport of CSF.

8. Endocrine system - Functions of pituitary, thyroid, parathyroid, adrenal and pancreatic hormones.

9. Digestive system - physiological anatomy of GIT, digestion in the mouth, stomach and intestine, Absorption of food, role of bile in digestion.

### Practical's:

1. Compound microscope
2. Determination of blood group
3. Determination of bleeding time
4. Determination of clotting time
5. Estimation of hemoglobin-sahlis method
6. Measurement of human blood pressure
7. Determination of ESR- Westergren's method
8. Determination of PCV
9. Effect of posture on vital capacity
10. ECG and its clinical importance
11. Functions of saliva, gastric juice and pancreatic juice
12. Dialysis (theory only)

### COURSE OUTCOME

CO1: Recognize functions of various structures in the body

CO2: Understand the physiological functions of major organs and systems

CO3: Acquire knowledge on normal physiological functions of living organisms and their parts

CO4: Gain knowledge on the investigation in the physiological functions of each system

CO5: Recognise disciplines of various structures in microscopic and macroscopic level

CO	PO														
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	2	3	3	3	3	2	3	2	1	2	1	3	3
CO2	-	3	3	2	2	2	3	3	2	3	2	2	3	2	2
CO3	3	3	3	2	3	2	2	1	2	2	3	3	3	3	3
CO4	2	-	-	3	3	3	-	2	-	2	2	3	-	3	3
CO5	1	3	3	2	1	3	2	2	3	3	2	3	3	2	3
AVE	1.8	2.4	2.2	2.4	2.4	2.6	2	2	2	2.4	2	2.6	2	2.6	2.4



### III-BIOCHEMISTRY

COURSE CODE	Course name	L	T	P	Total hours	IA	Theory	Viva	Practical	EA	Total
5003	Biochemistry	02	-	01	03	30	50	20	50	120	150

### COURSE DESCRIPTION

The main goal of the under-graduate education in Biochemistry is to enable Paramedical student understand, envisage and explain life processes as molecular events and apply his basic knowledge and skills.

### COURSE OBJECTIVES:

1. Principles of various conventional and specialized laboratory investigations and instrumentation, analysis and interpretation of a given data; the ability to suggest experiments to support theoretical concepts and clinical diagnosis.
2. At the end of the course, the student should be able to make use of conventional techniques / instruments to perform biochemical analysis relevant to clinical screening and diagnosis
3. Analyze and interpret investigative data
4. Demonstrate the skills of solving clinical problems and decision making.

### COURSE CONTENT

- I. Biomolecules and the cell: Major Complex Biomolecules of cells. Cell and Cell organelles. Prokaryotic and eukaryotic cell.
- II. Carbohydrates: Chemical structure. Function. Classification. Monosaccharides. Disaccharides, Polysaccharides. Homopolysaccharides, Heteropolysaccharides, Glycoproteins, Diabetes mellitus.
- III. Proteins: Amino acids, Classification. Structure. Properties. Structure of proteins, Determination of protein structure, Properties of proteins, Denaturation. Classification of proteins Antigen, Antibody. Types, Plasma proteins, Blood Clotting.
- IV. Lipids: Chemical structure, Functions. Classification, Fatty acids, Triglycerides, Phospholipids, Glycoproteins, Lipoproteins, Steroids, Amphipathic lipids, Bile Salts.

- V. Nucleic acids: Purines and pyrimidines. Structure of DNA. Watson and Crick model of DNA. Structure of RNA. Types of RNA, Gout.
- VI. Enzymes: Definition, Nomenclature, Classification. Factors affecting enzyme activity, Active site. Coenzyme. Enzyme inhibition. Mechanism of enzyme action. Units of enzyme. Isoenzyme. Enzyme pattern in diseases.
- VII. Vitamins & Minerals: Fat soluble vitamins [A, D, E, K] Water soluble vitamins---B--- complex & vitamin C. Principal Elements [Calcium, Phosphorous, Magnesium, Sodium, Potassium, Chloride and Sulphur]. Trace elements, Calorific value of foods. Basal metabolic rate[BMR]. Respiratory quotient [RQ] Specific dynamic action [SDA]. Balanced Diet, Nitrogen Balance, Marasmus kwashiorkor, Dietary Fiber.
- VIII. Hormones: Classification, Mechanism of action. Hypothalamic hormones. Pituitary. Anterior, Posterior, Thyroid, Adrenal Cortex, Adrenal medulla, Gonadal hormones, Menstrual cycle, GI hormones.
- IX. Acids and bases: Definition, pH, Henderson Hassel Balch equation, Buffers. Indicators. Normality. Molarity. Molality
- X. BILE PIGMENTS JAUNDICE

## COURSE OUTCOME

CO1: Gain knowledge in determining various biochemical reactions

CO2: Understand the various metabolic activities and biological process

CO3: Recognize enzymatic activities required for metabolism of various biomolecules.

CO4: Proficiency in concepts of chemical reaction and reaction rate in biological systems

CO5: Acquire knowledge on the geometry and conformations of biomolecules

  
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CO	PO														P
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
CO 1	3	3	2	3	3	3	2	1	3	2	3	2	2	3	
CO2	3	2	3	3	2	3	3	3	2	2	2	2	2	3	
CO3	3	3	2	-	3	3	2	2	3	1	3	2	3	2	
CO4	-	2	3	2	3	-	1	-	2	2	-	2	2	3	
CO5	2	3	3	2	1	3	2	2	2	3	2	3	3	2	
AVE	2.2	2.6	2.6	2	2.4	2.4	2	1.8	2.4	2	2	2.2	2.4	2.6	

*Aswathi*

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## PAPER IV- PATHOLOGY

COURS ECODE	Course name	L	T	P	Total hours	IA	Theory	Viva	Practical	EA	Total
5004	PATHOLOGY	02	-	01	03	30	50	20	50	120	150

### COURSE DESCRIPTION:

The Goal of teaching pathology is to provide undergraduate students comprehensive knowledge of the causes and mechanisms of disease, in order to enable them to achieve complete understanding of the natural history and clinical manifestations of the disease.

### COURSE OBJECTIVES:

1. At the end of one and half years the student shall be able to describes the rationale and principles of technical procedures of diagnostic laboratory tests.
2. Interpret diagnostic laboratory tests and correlate with clinical and morphological features of Diseases.
3. Perform simple bedside tests on blood, urine and other biological fluid samples

### COURSE CONTENT:

**CELL INJURY** – Causes, Mechanism and types of Cell injury; Necrosis; Apoptosis; gangrene; Pathologic calcification; fatty Amyloidosis.

**INFLAMMATION** – Acute inflammation- cellular and vascular events; chemical mediators of inflammation; Chronic inflammation; Systemic effects of inflammation; granulomatous inflammation.

**WOUND HEALING**– Terms repair and regeneration; primary wound healing; secondary wound healing; factors affecting wound healing; complications.

**CIRCULATORY DISTURBANCE**– Thrombosis; embolism; shock; edema.

**INFECTIONS-TB:** Leprosy; syphilis; HIV; typhoid; malaria opportunistic infections. **GENETIC DISORDER-** Karyotyping; Down syndrome; Klinefelter's syndrome; Turner' syndrome.

**CVS DISEASES**– Infective endocarditic; rheumatic heart disesase; aneurysm; Atherosclerosis; angina pectoris; myocardial infarction; congenital heart disease- TOF, ASD, VSD, PDA; coarctation of aorta.

**RESPIRATORY DISEASES**– Asthma; COPD; ARDS; pneumonia; lung abscess; lung cancer; pneumoconiosis.

**RENAL DISEASES**– Glomerulonephritis; nephrotic syndrome; Urinary tract infection; renal stone; renal failure.

**CELLULAR ADAPTATION**– Atrophy, hypertrophy, hyperplasia; metaplasia.

**NEOPLASIA**-definition; difference between benign and malignant; causes of

cancer; metastasis.

**HYPERSENSITIVITY REACTIONS**– type I, II, III, IV

REFERENCES: Harsh Mohan for dental student.

**COURSE OUTCOME:**

CO1: Gain knowledge in the patho physiological changes in a human system

CO2: Analyse and investigate the changes in the human system that can be tagged for acquiring information about normal and abnormal condition.

CO3: Acquire and articulate knowledge and science relevant to pathological processes.

CO4: Establish competency in analysis of disease conditions and their causes.

CO5: Recognize the pathological conditions of major organs and structure

CO	PO												PSO1	PSO2	PSO3
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12			
CO1	2	1	2	3	3	3	2	2	3	2	3	2	2	3	3
CO2	3	3	3	1	2	3	3	3	2	3	2	2	2	3	2
CO3	3	3	2	-	3	3	1	2	3	-	3	1	3	3	2
CO4	-	3	2	3	2	2	3	-	2	2	3	3	3	-	3
CO5	3	3	-	2	1	3	2	2	2	3	2	3	3	2	3
AVE	2.2	2.6	1.8	1.8	2.2	2.8	2.2	1.8	2.4	2	2.6	2.2	2.6	2.2	2.

  
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## PAPER V – MICROBIOLOGY

COURSE CODE	Course name	L	T	P	Total hours	IA	Theory	Viva	Practical	EA	Total
5005	MICROBIOLOGY	02	-	01	03	30	50	20	50	120	150

### COURSE DESCRIPTION

The goal of teaching Microbiology is to provide understanding of the natural history of infection diseases in order to deal with the etiology, pathogenesis, pathogen city, Laboratory diagnosis treatment, control and prevention of these infection and infectious diseases.

### COURSE OBJECTIVES:


1. Plan and interpret laboratory investigations for diagnosis of infectious diseases and correlate the clinical manifestations with the etiological agent.
2. Perform simple laboratory tests, which help to arrive at rapid diagnosis.
3. Understand methods of disinfections and sterilization and their application to control and prevent hospital and community acquired infections including universal bio safety precautions and waste diseases.
4. Recommended laboratory investigations regarding bacteriological examination of food, water, milk and air.



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**COURSE CONTENT:**

<b>UNIT</b>	<b>CHAPTERS</b>
<b>GENERAL MICROBIOLOGY</b>	History of Microbiology, Microscopy, and Staining Techniques, Bacterial Anatomy, Culture medium & Techniques, Sterilization & Disinfection, Infection control Measures, Antimicrobial susceptibility testing & Drug resistance
<b>IMMUNOLOGY</b>	Immunity & types, Immune response, Antigen & Antibody / immunoglobulin, Antigen antibody interactions, Hypersensitivity Autoimmunity & Immune deficiency disorders, tumor & transplantation, Immunology
<b>SYSTEMIC BACTERIOLOGY</b>	Staphylococcus, Streptococcus, Pneumococcus Neisseria, Corynebacterium, Clostridium, Mycobacterium, Enterobacteriaceae, Spirochetes, Nosocomial infections, Zoonoses, Miscellaneous Bacteria
<b>VIROLOGY</b>	Introduction & Classification, Enteroviruses Herpes viruses Orthomyxo & Paramyxo viruses, Adenovirus, Rhabdoviruses Oncogenic Viruses(HPV), Hepatitis viruses, HIV
<b>MYCOLOGY</b>	Introduction, Superficial Mycoses, Subcutaneous Mycoses, Systemic Mycoses, Opportunistic Mycoses
<b>PARASITOLOGY</b>	Amoebiasis, Malaria, Ascariasis
<b>TEXT BOOK</b>	Prescribed Textbook of microbiology by Anandha Narayan & Panicker

  
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## COURSE OUTCOME:

CO1: Obtain better understanding of life cycles of major microorganisms.

CO2: Gain knowledge on the diseases and disorders caused due to infections by those microorganism

CO3: Acquire and articulate knowledge and science relevant to microbiology

CO4: Establish competency in analysis of disease conditions caused by microorganisms

CO5: Attribute in research related to microbiology discipline with clarity.

	PO														
CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PS01	PS02	PS03
CO1	3	3	2	3	3	-	1	3	3	-	2	2	2	3	3
CO2	2	2	3	3	3	3	3	3	2	3	3	-	2	3	2
CO3	3	-	2	2	3	3	2	2	1	1	3	2	3	2	2
CO4	1	2	3	3	-	3	3	1	3	3	1	3	3	3	3
CO5	2	3	1	2	3	2	2	3	3	3	2	3	3	2	2
AVERAGE	2.2	2	2.2	2.6	2.4	2.2	2.2	2.4	2.4	2	2.2	2	2.6	2.6	2.4

  
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## PAPER VI - PHARMACOLOGY

Course Code	Course name	L	T	P	Total hours	IA	Theory	Viva	Practical	EA	Tot
5006	PHARMACOLOGY	02	-	01	03	30	50	20	50	120	150

### COURSE DESCRIPTION

1. Identify Adverse Reactions and Interactions of commonly used drugs
2. Posses basic knowledge about drug guidelines of drug testing louse.

### COURSE OBJECTIVES

1. At the end of the course, the student will be able to the general principles of actions and effects of various drugs and their kinetics.
2. At The end of the course , the student will be able to find different types of biomedical waste, their potential risks and the management of health hazards caused by them

### COURSE CONTENT:

#### **UNIT – I      GENERAL PRINCIPALS OF PHARMACOLOGY**

1. Introduction, Definitions
2. Routes of administration, Newer drug delivery system
3. Pharmacokinetics – Absorbtion, Distribution, Metabolism & Excretion of Drugs
4. Pharmacodynamics – Mechanism of drug action
5. Adverse drug reactions

#### **UNIT – II      DRUGS ACTING ON NERVOUS SYSTEM**

##### ❖ Central Nervous System

1. General considerations
2. General anesthetics
3. Sedatives and Hypnotics
4. Anti-epileptic agents
5. Opioid analgesics
6. Antipsychotics, antianxiety and CNS stimulants.

##### ❖ Autonomic Nervous System

1. General considerations
2. Cholinergics – Alkaloids, esters, Anticholinesterases, anti cholinergics
3. Adrenergics – Nor – adrenaline, Adrenaline, and Dopamine, anti adrenergics –  
a-blockers and 13-blockers

❖ **Peripheral Nervous System**

1. Skeletal muscle relaxants
2. Local anesthetics

**UNIT III            AUTOCOIDS AND RELATED DRUGS**

1. Histamine and Antihistaminics
2. Nonsteroidal Antiinflammatory Drugs and Antipyre – Analgesics
3. Antirheumatoid and antigout drugs

**UNIT – IV            RESPIRATORY SYSTEM**

Drugs used in cough and Bronchial asthma

**GASTROINTESTINAL SYSTEM**

Drugs used in peptic ulcer

Emetics and Antiemetics

Drugs for constipation and Diarrhoea

**UNIT – V            HORMONES AND RELATED DRUGS**

1. Introduction
2. Anterior pituitary hormones
3. Thyroid hormone and thyroid inhibitors
4. Insulin and Oral hypoglycemic agents
5. Corticosteroids, androgens, estrogens, progestins and contraceptives
6. Drugs affecting calcium balance.

**UNIT – VI            CARDIOVASCULAR SYSTEM AND BLOOD**

1. Introduction to cardiac Electrophysiology
2. Drugs affecting Renin – Angiotensin system – ACE – Inhibitors, Angiotensin antagonist
3. Drugs used in Congestive Heart failure-Cardiac glycosides
4. Antiarrhythmic agents
5. Antianginal agents
6. Antihypertensive agents
7. Haematinics- iron, Vit-B12 and Folic acid
8. Coagulants – Vit-k, Local haemostatics
9. Anticoagulants- Heparin, Warfarin sodium
10. Antiplatelet agents, fibrinolytics, Antifibrinolytics
11. Hypolipidaemic agents and plasma expanders.
12. shock-types (Hypovolemic, Cardiogenic, Neurogenic and Septic shock) and its management

## **UNIT – VII                    DRUGS ACTING ON KIDNEY**

Renal Physiology – Urine formation – Diuretics and Anti diuretics

## **UNIT – VIII                    CHEMOTHERAPY**

1. Antimicrobials – General considerations
2. Sulfonamides, Cotrimoxazole and Quinolones
3. Beta – lactam antibiotics (Penicillin and Cephalosporins)
4. Tetracyclines and chloramphenicol
5. Aminoglycosides, Macrolides
6. Antitubercular drugs & Antieprotic drugs
7. Antifungal drugs
8. Antiviral drugs
9. Antimalarial and Antiamoebic drugs
10. Anthelmintic drugs
11. Anti-cancer drugs
12. Urinary antiseptics

## **UNIT – IX                    MISCELLANEOUS**

1. Immunomodulators
2. Chelating agents
3. Gases
4. Vitamins
5. Vaccines and sera
6. Enzymes in therapy
7. Antiseptics and Disinfectant

## **PART – II**

### **CLINICAL TOXICOLOGY**

General Principles in Toxicology - poisons and its treatment

#### **❖ PRESCRIBED BOOK FOR STUDENTS :**

1. Medical Pharmacology – KD Tripathi 71<sup>th</sup> Edition
2. Medical Pharmacology – Padamaja Udayakumar 31<sup>st</sup> Edition
3. Pharmacology & Phan – nacotheapeutics – R.S.Satoskar 23<sup>rd</sup> Edition

#### **❖ REFERENCE TEXT BOOK:**

1. Clinical pharmacology – Bertram, G.Katzung 21<sup>st</sup> Edition

**COURSE OUTCOME:**

CO1: Acquire and articulate knowledge relevant to drug performance and regime plans.

CO2: Establish competency in analysis of drugs' mechanism of action.

CO3: Recognize and relate the importance of drugs in clinical practice.

CO4: Identify the various drug reactions and pharmacokinetics.

CO5: Gain knowledge on the purpose of drugs and their mechanism of actions for various conditions

CO	PO												PSO1	PSO2	PSO3
	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012			
CO 1	3	3	2	3	3	3	2	2	3	2	3	2	2	3	3
CO2	3	3	3	2	2	3	3	3	2	3	2	2	2	3	2
CO3	3	2	1	3	3	1	2	2	3	3	3	1	3	3	2
CO4	-	3	-	3	1	3	-	1	3	2	-	2	3	-	3
CO5	1	3	3	2	1	3	2	2	2	3	2	3	1	3	2
AVE	2	2.8	1.8	2.6	2	2.6	1.8	2	2.6	2.6	2	2	2.2	2.4	2.4

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## PAPER VII- PRINCIPLES OF MANAGEMENT

COURSE CODE	Course name	L	T	P	Total hours	IA	Theory	Viva	Practical	EA	Total
5009	PRINCIPLES OF MANAGEMENT	01	-	-	80	30	100	-	-	-	130

### COURSE DESCRIPTION

This course is designed to enable students to acquire in-depth understanding of management of hospital services, management of services and educational programmes.

### COURSE OBJECTIVES

1. Understand the principles and functions of management
2. Understand the elements and process of management
3. Appreciate the management of nursing services in the hospital and community.

### COURSE CONTENT

#### A)PRINCIPLES OF MANAGEMENT

Development of management :- Definition of management contribution of F.W Taylor ,Henry Fayol and others

Functions of management : planning = organizing direct controlling  
Planning :- types of planning short – term and long term plans cooperate or strategic planning planning premises policies characteristics and source principles of policy making strategies as different from policies procedure and methods limitations of planning

organizing:- Importance of organization hierarchy scalar chain Organization relationship line and staff relationship Functional relationship committee organization management committees department

Motivation:- Motivation theories Mc Gregors's theory X andY Maslows's and Herzberg's theory porter and Lawler model of complex view of motivation Other theories Diagnostic signs of motivational problems Motivational techniques

Communication:- types of communication barrier of effective communication techniques for improved communication

Directing:- Principles relating to direction process principles and theories of leadership leadership styles Delegation of authority

Controlling:- span of control factor limiting effective span of control Super management, General managers, Middles managers and supervisors planning and corrective measures strategic control points budgetary control types of budget

Co- ordination :- Co- ordination and co-operation Principles of co- ordination  
Techniques of co- ordination Organization charts and records Standard  
procedure instruction

**B) PERSONNEL MANAGEMENT**

I) Objective of personnel management role of personnel manager in  
personnel manager in organization staffing and work distribution  
techniques job analysis description recruitment and selection process orientation and  
train coaching and counseling disciplining complaints and grievance termination of  
employees performance appraisal health and safety employees

II) Consumer protection Act as applicable to health care services

**FINANCIAL MANAGEMENT**

Definition of financial management profit maximization set maximization short term  
financing – intermedi financing long term financing leasing as a source of finance C  
and security management –inventory management divided policy valuation of  
shares financial management in a hospital third party payment on behalf of patients

Insurance:- health scheme and policy

**COURSE OUTCOME:**

- CO1: Obtain knowledge on the functioning of hospital
- CO2: Proficiency in different areas of management
- CO3: Gain knowledge in the latest concepts of management.
- CO4: Acquire knowledge on the various clinical and non-clinical services .
- CO5: Identify and work on ethical and legal aspects of hospital management.

CO	PO												PSO1	PSO2	PSO3
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12			
CO1	2	1	2	3	2	3	3	2	3	2	3	2	2	3	3
CO2	3	1	2	-	2	1	3	1	2	3	2	2	2	3	2
CO3	2	3	2	3	2	3	-	2	3	-	2	2	2	2	3
CO4	3	3	2	3	2	3	2	3	3	3	-	3	2	2	1
CO5	2	-	2	3	2	2	2	2	2	3	2	3	-	3	3
AVE	2.4	1.6	2	2.4	2	2.4	2	2	2.6	2.2	1.8	2.4	1.6	2.6	2.4

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## PAPER VIII- BASICS OF COMPUTER

COURSE CODE	Course name	L	T	P	Total hours	IA	Theory	Viva	Practical	EA	Total
5010	BASICS OF COMPUTER	01	-	-	80	30	100	-	-	-	130

### COURSE DESCRIPTION

This course is designed for students to development basic understanding of uses of computer and its applications.

### COURSE OBJECTIVES

1. Identify & define various concepts used in computer.
2. Identify & describe application of computer in nursing. 3

Describe & use the DOS & Windows

4. Describe & demonstrate skill in the use of MS-office.

### COURSE CONTENT

I) Introduction to computer I/O Device memories – RAM & different kinds of ROM- kilobytes, MB, GB, their conversions computer- medium, micro, mini computers Different corn languages number system binary & decimal conversions Different operating systems- MS- DOS Basics command- MD, MS, DIR, T and COPY CON commands networking – LAN , WAN, MAN(basic ideas)

II) Typing and texting MS-WORD – manipulating text formatting the using different fonts, font sizes , bold, italic bullets and numb picture ,file insertion aligning the text and justify choosing p size, adjusting margins ,header and footer , inserting page no's document printing a file with options using spell check and grammar find and replace mail merge inserting tables in a document. Creating table MX EXCEL- Cell editing using formulas functions manipulating data with excel using sort function to numbers and alphabets. Drawing graphs and charts using data in Auto formatting inserting data from other work sheetsPreparing new slides using MS- POWERPOINT Inserting slides – transition and animation using templates Different text and font slides with sounds inserting clip arts, pictures, tables gr presentations wizards

Introduction to internet using search engine google search explorer the net using internet explorer and net scape navigator, uploading, downloading of files and images email id creation, sending messages, attaching files in email, introduction to “c” language, different variables, declaration usage writing small programme using function sub-functions

PRACTICAL

Typing a text and aligning the text with different formats using MS- WORD  
 Inserting a table with proper alignment using formulas using MS- WORD  
 Creating a mail merge document using MS- WORD to prepare greeting for 10 friends

Preparing a slide show with transition , animation and sound effect using MS- POWERPOINT

Customizing the slide show and inserting pictures and tables in the slides using MS- PWERPIONT

Creating worksheet using MS- EXCEL with data and use of functions.

Using MS- EXCEL prepare a worksheet with text,date,time and data

Preparing a chart and pie diagram using MS- EXCEL

Using internet for searching, uploading files,downloading files,createge-mail Using C language writing programme using function

### **COURSE OUTCOME:**

CO1: Gain knowledge to understand the application of computers in biomedical field

CO2: Communicate, investigate and design solutions and present effectively

CO3: Organize the team research for reliable quick output

CO4: Acquire knowledge on common computer applications in health care sector

CO5: Analyse overall computer based technical skills in hospitals

CO	PO												PSO1	PSO2	PSO3
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12			
CO1	2	1	2	3	2	3	3	2	3	2	3	2	2	3	3
CO2	3	2	2	3	-	3	3	2	2	3	2	2	2	3	2
CO3	-	2	2	3	3	3	2	3	3	3	-	3	3	2	3
CO4	3	3	2	3	2	3	-	2	3	-	2	3	-	3	2
CO5	2	3	-	3	3	3	2	2	3	3	2	3	2	3	3
AVE	2	2.2	1.6	3	2	3	2	2.2	2.8	2.2	1.8	2.6	1.8	2.8	2.6

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## PAPER IX -ENGLISH

COURSE CODE	Course name	L	T	P	Total hours	IA	Theory	Viva	Practical	EA	Total
5011	ENGLISH	01	-	-	80	30	100	-	-	-	130

### COURSE DESCRIPTION

This course is designed to help the students acquire an understanding of the principles and methods of communication and teaching. It helps to develop skill in communicating effectively, maintaining effective interpersonal and human relations, develop basic skills in guidance and counseling, principles of education, teaching individuals and groups in clinical, community and health educational settings.

### COURSE OBJECTIVES

1. Understand the effective communication process using various communication techniques with individuals groups and health team members.
2. Establishes effective interpersonal and human relations with patients, families and health team members.
3. Acquires knowledge on concepts, principles on guidance and counseling and develop basic skills for counseling patients, nursing students and nursing personnel.

### COURSE CONTENT

Communication :- Role of communication definition communication classification of communication purpose communication major difficulties in communication barrier communication Characteristics of successful communication "the seven CS" Communication at the workplace and communication "Mind mapping" informal communication

Comprehension passage:-Reading purposeful Understanding what is read Drawing conclusion finding and analysis

Explaining:- How to explain clearly defining and giving reasons Explaining differences Explaining procedure giving directions

Writing business letters:- how to construct correct Formal language Address salutation Body conclusion

Report Writing:-Reporting an accident reporting when happened at a session Reporting what happened at a meeting

### COURSE OUTCOME:

CO1: Gain knowledge on basics of English Language

CO2: Proficiency skill in speaking and writing English

CO3: Expertise in the phonetics of English Language

CO4: Acquire core skills in grammar and vocabularies

CO5: Emphasize essential skills required for effective written and oral communication and use nuances of presentation effectively

CO	PO												PS01	PS02	PS03
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12			
CO1	2	1	2	3	2	3	3	2	3	2	3	2	2	3	3
CO2	-	1	2	3	3	3	3	3	2	3	3	-	2	3	2
CO3	2	3	2	3	-	3	2	2	3	3	2	3	3	2	3
CO4	3	3	-	3	2	3	2	3	3	3	-	3	2	3	-
CO5	2	3	2	3	3	3	-	2	3	3	2	3	2	3	3
AVE	1.8	2.2	1.6	3	2	3	2	2.4	2.8	2.8	2	2.2	2.2	2.8	2.2

## B.Sc. Anaesthesia Technology – II Year

### Paper – I MEDICAL ETHICS

COURSE CODE	Course name	L hr s/wk	T hrs/wk	P hrs/wk	Total hours	IA	Theory	Viva	Practical	EA	Total
201	MEDICAL ETHICS	05	-	-	05	30	100	-	-	100	130

### COURSE DESCRIPTION

Becoming familiar with ethical principles, laws, regulations and standards in providing services related to anesthesiology.

### COURSE OBJECTIVES:

1. The student will be able to explain the foundational principles of medical ethics through a careful examination of the essential features of the doctor-patient relationship.
2. The student will be able to explain the medical concept of capacity (and related legal concept of competence), and analyze the essential elements involved in the informed consent process, applying this to clinical case scenarios
3. The student will be able to assess the strengths and limitations of the most influential ethical theories, and describe the person-centered ethics model, applying this methodology to clinical case scenarios.

### COURSE CONTENT

- I. Medical ethics: - Definition Goal Scope
- II. Code of conduct: - Introduction Historical perspective
- III. Basic principles of medical ethics: Definition Various aspects Beneficence Non malfeasance Autonomy Justice Confidentiality Veracity
- IV. Malpractice and negligence Confidentiality Rational and irrational drug therapy
- V. Autonomy and informed consent Right of patients
- VI. Care of the terminally ill: - Euthanasia
- VII. Research and human experimentation, alternate medicine
- VIII. Organ transplantation
- IX. Genetics
- X. Genetics - Right to life Assisted reproductive technologies
- XI. Sex pre-selection - Female foeticide

- XII. Euthanasia Quality of life
- XIII. Health policy: Distributive justice in health care and technology
- XIV. Commercialization of medical care
- XV. Medico legal aspects of medical records: - Medicolegal case and type Records and document related to MLC Ownership of medical records Confidentiality Privilege:111 Release of medical information Unauthorized disclosure Retention of medical records Other various aspects
- XVI. Medico legal aspects in Indian context - Indian evidence act Indian penal code Medical practice and consumer protection act

### **COURSE OUTCOME:**

CO1: Professional standards are a way to provide some guidance on ethical problems, but they cannot address every issue, and they may not address troubling nuances, such as reconciling two conflicting values.

CO2: It also involves people skills, such as gathering the facts needed to make a decision and presenting your decision in a way that wins over the confidence of all parties.

CO3: Recognize the skills needed to act professionally after making the right choices.

CO4: Applying the knowledge and skills appropriately in a given situation.

CO5: Comprehend the basis of responsibilities especially relevant ethical principles that will enable you to make the right decisions.

CO	PO												PS01	PS02	PS03
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12			
CO1	2	2	3	3	2	3	3	2	3	2	3	2	-	3	3
CO2	-	1	3	3	2	3	3	3	2	-	2	2	3	3	3
CO3	2	3	2	-	-	3	3	2	-	3	2	-	3	2	2
CO4	3	3	-	3	2	2	3	3	3	3	-	3	2	2	2
CO5	2	3	2	3	3	3	2	2	3	3	2	3	2	3	-
AVE	1.8	2.4	2	2.4	1.8	2.8	2.8	2.4	2.2	2.2	1.8	2	2	2.6	2

  
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## Paper II – Medicine Outlines

COURSE CODE	Course name	Lh rs/ wk	T hrs /wk	P hrs/ wk	Total hours	IA	Theor y	Viva	Practica l	EA	Total
202	Medicine outline	05	-	-	05	30	100	-	-	100	130

### COURSE DESCRIPTION

The Goal of teaching Medicine outline is to focus on diagnosing as well as treating common health problems or disorders

### COURSE OBJECTIVES

1. Demonstrate the ability to perform an admission history and physical examination
2. Demonstrate facility in the application of medical informatics technology and critical appraisal of the medical literature in making diagnostic and management decisions in internal medicine
3. Write admission orders for common inpatient internal medicine problems
4. Demonstrate the ability to construct a hospital progress note

### COURSE CONTENT

- I. Nutritional diseases: - Mal nutrition & obesity Vitamin deficiencies
- II. Oncology & Haematology: - Cancer genetics Cell biology of cancer Neoplasm of lung Breast carcinomas
- III. Disorder of haemopoiesis: Anaemias Iron deficiency anaemia Megaloblastic anaemia Haemolytic anaemia Aplastic anaemia Polyelythaemia Leukaemias Acute chronic
- IV. Infections diseases: - Sepsis and septic shock Fever of unknown origin Infective endocarditis Infective of skin Muscle Soft tissue Infection control in hospital Diseases caused by bacteria Viruses Myobacterm Fungi and protozoa Helminthes Common secondary infection in HIV



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- V. Diseases of CVS: - Congenital RHD Rheumatic fever CAD Peripheral vascular diseases
- VI. Respiratory system: - a Asthma pneumonia
- VII. Kidney and Urinary tract: - Acute renal failure Glomerulonephritis Haemodialysis Transplant Urinary tract infection
- VIII. Gastro intestinal tract: - Peptic ulcer disease ileus Intestinal obstruction
- IX. Liver and biliary tract disease: - Viral hepatitis Alcoholism
- X. Endocrinology and metabolism Diabetes mellitus Hyper and Hypothyroidism
- XI. Neurologic disorders: Cerebro vascular accidents Meningitis Traumatic injuries

### **COURSE OUTCOME:**

CO1: Students should be able to elicit the patient's chief complaint, history of present illness, past medical history, social, family, occupational histories and complete a review of systems.


CO2: Demonstrate the ability to construct an assessment and plan for an individual patient organized by problem, discussing the likely diagnosis and plan of treatment.

CO3: Counsel patients about how to take their medications and what to expect when they take their medications, including beneficial outcomes and potential adverse effects.

CO4: Describe the results of the above tests in terms of the related pathophysiology

  
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CO	PO												PSO1	PSO2	PSO3
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12			
CO 1	3	1	2	3	3	3	2	2	3	2	3	2	2	3	3
CO2	3	3	3	1	2	3	3	3	2	3	2	2	2	3	2
CO3	3	0	2	2	3	3	0	2	3	3	3	2	3	3	2
CO4	1	3	2	3	2	2	3	3	2	2	3	3	3	3	3
CO5	3	3	3	2	1	3	2	2	2	3	2	3	3	2	3
AVE	2.6	2	2.4	2.2	2.2	2.8	2	2.4	2.4	2.6	2.6	2.4	2.6	2.8	2.6



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**PAPER III**  
**PRINCIPLES OF ANAESTHESIA — I**

<b>COURSE CODE</b>	<b>Course name</b>	<b>Lhrs/wk</b>	<b>T hrs/wk</b>	<b>Phrs/wk</b>	<b>Total hours</b>	<b>IA</b>	<b>Theory</b>	<b>Viva</b>	<b>Practical</b>	<b>EA</b>	<b>Total</b>
203	PRINCIPLES OF ANAESTHESIA — I	05	-	03	08	30	100	20	50	170	200

**COURSE DESCRIPTION**

Develop your skills in the field of anaesthesia with our Principles and Practices of Anaesthesia module. It's designed for post-registration nurses to cover the basic principles of anaesthesia and relevant pharmacology and forms part of your continuing professional development.

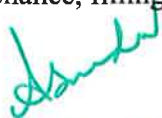
**COURSE OBJECTIVES**

1. In this course, students become familiar with the principles of general and local anesthesia, and equipment, tools and instruments related to anesthesiology.
2. They also learn about patients' admission to the operating room and their transfer to the recovery room, the way to manage patients' airways, the way to prepare patients, and monitoring principles of various body systems.

**C) COURSE CONTENT**

**PRINCIPLES OF ANAESTHESIA**

- I. Medical gas supply: - Compressed gas cylinders Colour coding Cylinder valves, pin index Gas piping system Recommendations for piping system Alarms and safety devices
- II. Anaesthesia machine: - Hanger and yoke system Cylinder pressure gauge Pressure regulator Flow meter assembly Vapourizers — types, hazards, maintenance, filling and draining, etc



- III. Breathing system: - General considerations: humidity and heat Common components — connectors, adaptors, reservoir bags Capnography, etco<sub>2</sub> Pulse oximetry Methods of humidification Classification of breathing system Mapleson system — abcdef Jackson rees system, Bain circuit.' Non rebreathing valves — ambu valves The circle system Components- Soda lime, indicators
- IV. Face masks and airway laryngoscopes: - Types, sizes Endotrachea tubes — types, sizes Cuff system Fixing, removing and inflating cuff, checking tube position complications
- V. Anaesthesia ventilator and working principles
- VI. Monitoring: - ECG Spo<sub>2</sub> Temperature IBP CVP PA pressure LA pressure
- VII. IABP

## **COURSE CONTENT — HISTORY OF ANAESTHESIA**

### **Part — A**

- I. First successful clinical demonstration:
- II. Pre-historic (ether) era
- III. Inhalation anaesthetic era
- IV. Regional anaesthetic era
- V. Intravenous anaesthetic era
- VI. Modern anaesthetic era
- VII. Minimum standard of anaesthesia
- VIII. Who should give anaesthesia
- IX. Ten golden rules of anaesthesia
- X. Assess and prepare, starve, check the drugs and equipment suction, keep the airway clear, be ready to control ventilation have a vein open, monitor pulse and BP, have someone in the room to apply cricoid pressure — if needed

### **Part — B**

#### Pre-operative preparation

- I. Pre anaesthetic assessment, history — hpmi, past history — disease / surgery / anaesth, personal history — smoking / alcohol
- II. General physical assessment, systemic examination — CVS, RS, CNS, PA, Local examination

## **COURSE CONTENT — INVESTIGATIONS**

- I. Routine: -Haematological — their significance Urine ECG Chest X-ray



- II. Special: - Endocrine, hormonal assays Echocardiography Angiography Liver function test Renal function test Others
- III. Case acceptance: - Asa grading — I, II, III, IV



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## E) COURSE CONTENT — PRE-ANAESTHETIC ORDERS

- I. Patient: - Informed consent Npo  
Premedication — advantages, drugs used Special instructions — if any
- II. Machine: - Checking the machine O<sub>2</sub>, N<sub>2</sub>O, suction apparatus Laryngoscopes, et tubes,  
airways Things for IV accessibility Otly monitoring systems

Drugs: - Emergency drugs Anaesthetic drugs

## F) COURSE CONTENT — INTRA-OPERATIVE MANAGEMENT

- I. Confirm the identification of the patient
- II. Monitoring — minimum (Harvard medical school standards)
- III. Non-invasive and invasive monitoring
- IV. Introduction — drugs used
- V. Endotracheal intubation
- VI. Maintenance of anaesthesia
- VII. Positioning of the patient
- VIII. Blood / fluid and electrolyte balance
- IX. Reversal from anaesthesia — drugs used
- X. Transferring the patient
- III. Recovery room: - Set up Things needed Problems

  
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## COURSE OUTCOME:

CO1: Suggesting a simple anesthetic plan commonly used anesthesia noninvasive .Student will have knowledge of mechanism of action and side effects of drugs which are used in clinical practice

CO2: Monitoring in the Operation Theatre. Students will be able to monitor effect as well as side effects of the drugs.

CO3: Students understand the Basic anaesthetic equipment the working principle of the AT equipment

CO4: Able to Monitor the physiological parameters. Students will be able to give the medicine through proper route of administration. □

CO5: Student learns the rational use selection of regional anaesthesia techniques and the choice of local anaesthesia

	PO														
PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
PO1	2	2	3	3	2	3	3	2	3	2	3	2	-	3	3
PO2	-	1	3	3	2	3	3	3	2	-	2	2	3	3	3
PO3	2	3	2	-	-	3	3	2	-	3	2	-	3	2	3
PO4	3	3	-	3	2	2	3	3	3	3	-	3	2	3	2
PO5	2	3	2	3	3	3	2	2	3	3	2	3	2	3	-
AVERAGE	1.8	2.4	2	2.4	1.8	2.8	2.8	2.4	2.2	2.2	1.8	2	2	2.8	2.2

  
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**III YEAR**  
**PAPER I — INTRODUCTION TO SURGERY & CSSD**

Course Code	Course name	L hrs / wk	T hrs /wk	P hrs/ wk	Total hours	IA	Theor y	Viva	Practica l	EA	Total
5204	INTRODUCTION TO SURGERY & CSSD	05	-	-	05	30	100	-	-	100	130

**COURSE DESCRIPTION**

Becoming familiar with specific techniques of anesthesia in specialty and subspecialty surgeries and with other diagnostic-therapeutic measures, and attaining the necessary ability to take good care of patients.

**COURSE OBJECTIVES**

1. Students become familiar with patient preparation and patient care methods for general or local anesthesia, with the use of different methods to make patients unconscious and bring them back to consciousness in specialty and subspecialty surgeries, and with other diagnostic-therapeutic measures.
2. They also gain the ability needed for taking good care of patients.

**COURSE CONTENT**

- I. History of surgery
- II. Role of the surgeon
- III. Importance of team work and anticipating the needs of surgeons
- IV. Stresses that may arise during operative procedure
- V. Surgical terminology
- VI. Types of incision and indications for the use of particular incision
- VII. Haemorrhage signs and symptoms of internal and external
- VIII. Classification and management
- IX. Identification of types of tourniquets — reasons for use and duration of application, dangers of use

- X. Wounds — types, process of healing, treatment and complications
- XI. Inflammation
- XII. Wound infections — causes and treatment
- XIII. Incision and drainage of abscesses
- XIV. Importance of personal cleanliness and aseptic techniques
- XV. Pre-operative and post-operative care of the surgical patient
- XVI. Emergency procedures
- XVII. Endotracheal intubation
- XVIII. Tracheostomy
- XIX. Major symptoms of presentation in adults
- XX. Equipments used in wards
- XXI. Common terms used in cardiology
- XXII. Commonly used drugs and their action
- XXIII. Checking vitals — pulse, BP, respiratory rate
- XXIV. Establishing an IV line and venepuncture
- XXV. Sterile techniques and surgical aspects: - Preparation of neckline sets, ail down sets, etc. Knowledge of surgical asepsis, skin preparation for invasive procedures.

### **CSSD PROCEDURES**

#### **COURSE CONTENT**

- I. The development of CSSD
- II. The growth of CSSD
- III. Aim and objectives of CSSD
- IV. CSSD work practice, return of equipment and initial processing: - Waste disposal collection of used items from user area, reception protective. clothing and disinfections safe guards, use of disinfectants sorting an classification of equipment for cleaning purposes, sharps, blunt lighted, etc contaminated high risk baby care Delicate instruments or hot care instruments, cleaning process Use of detergents Mechanical cleaning apparatus, cleaning instruments, cleaning jars, receivers bowls, etc, trays, basins and similar hand ware utensils Cleaning of catheters and tubings, cleaning glass ware, cleaning syringes and needles Drying inspection o instruments and needles instruments lubrication
- V. Assembly and packaging: - Materials used for wrapping and packing assembling pack contents Types of packs prepared Inclusion of trays and galliparts in packs Method of wrapping and making use of indications to show that a pack of container has been through a sterilization process date stamping
- VI. Sterilization process: - General observations principles of sterilization Moist heat sterilization Dry heat sterilization E0 gas sterilization H2o2 gas plasma vapo sterilization
  - Moist heal sterlization mechanism of biocardial action. Loading of sterilizer. Sterilization process unloading of sterilizer. Tests for efficiency of sterilization.

Tests for pre vacuum porous load sterilizers.

- Dry heat sterilization. Open system and closed system of dry heat sterilization. Packing and loading of sterilizer, sterilization process. Sterilization by gaseous chemicals. Physical and chemical properties of EO and H<sub>2</sub>O<sub>2</sub> plasma vapour absorption by natural and synthetic materials, toxicity, mechanism of biocidal action. Sterilization by 100% Ethylene oxide gas testing efficiency of sterilization.
- Sterilization by Ionizing radiation units or terms. Mechanism of Biocidal action. Sterilization does installation of cobalt 60. Controls of safety precaution. Product sterility test. Product release. Application of radiation sterilization of medical equipment, pharmaceuticals and biological products, Industrial materials.
- Aseptic filtration of liquids and air liquids: Types of filters depth of filters, membrane of filters, testing efficiency of filtration. Integrating test application of membrane filtration. Pressure and vacuum filtration. Integrity test application of membrane filters. Pharmaceutical biological materials microbiological culture media. Sterility test. Aseptic filtration of air, fibrous depth filters. Mechanism of filtration. Granular carbon filtration fibrous (Paper) sheet filtration. Efficiency of HEPA filtration, Disinfection of used filters.
- Chemical disinfection. Alcohols aldehydes, chlorapexidine, chlorine compounds, iodophers phenols, strong oxidizing agents. Chlorine dioxide. Peracetic acid. Peroxygen biocide hydrogen peroxide

VII. Principles of chemical disinfection: - Mechanism of microbiocidal action Factors affecting in use effectiveness Number of organisms present Conditions of growth Concentration of disinfectant temperature, Temperature contact time presence of organic matter, surface of contact Cellolous and synthetic materials Contaminated disinfectants in the test Evaluation of disinfectants, expression of disinfectant concentration Bactericidate test Test organisms Policy for disinfection in hospitals Disinfection of hospital equipment Disinfection of hospital environment, Disinfection of skin and mucous membrane Administration of disinfection policy selection of disinfectants Types of products

VII. Issue and collection techniques: - Responsibilities of user department Responsibility of CSSD equipment used for collection and issue Techniques of collection and issu

IX. Infection control: - Infection, cross infection control Hospital policy manual regarding decontamination of articles, rooms, etc Fumigation procedures

**COURSE OUTCOME:**

CO1: To understand basic technical skills in managing the process for surgical instrumentation sterilization, inventory control and supply chain management, and information technology as it relates to the sterile processing environment.

CO2: To understand the work independently in a team of central sterile processing technicians who are collaborating to maintain sterilization and storage.

CO3: To acquire critical thinking skills as a basis for clinical judgment and anticipatory decision making when managing all tasks related to sterile processing.

CO4: To understand, classify and learn the procedures, practices and measures in general surgeries in OT.

CO5: To understand and evaluate the best practices in CSSD, Stores and inventory management



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CO	PO												PSO1	PSO2	PSO3
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12			
CO1	2	2	2	3	2	3	3	2	3	2	3	2	3	3	3
CO2	2	1	-	3	-	2	3	2	2	3	2	2	3	2	2
CO3	-	3	3	-	3	3	2	2	3	-	3	2	-	3	3
CO4	3	3	2	3	3	3	-	3	-	3	2	-	3	3	3
CO5	3	3	3	3	2	3	2	2	3	3	2	3	2	3	3
AVE	2	2.4	2	2.4	2	2.8	2	2.2	2.2	2.2	2.4	1.8	2.2	2.8	2.8



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## PAPER II — ANAESTHESIA FOR SPECIALITIES

COURSE CODE	Course name	Lhrs/wk	Thrs/wk	Phrs/wk	Total hours	IA	Theory	Viva	Practical	EA	Total
5205	ANAESTHESIA FOR SPECIALITIES	05	-	03	08	30	100	20	50	170	200

### COURSE DESCRIPTION

Learning the general issues of pharmacology and becoming familiar with some of the different drugs affecting different body systems such as nervous, respiratory, and circulatory system

### COURSE OBJECTIVES

1. Students master the general principles of pharmacology, become familiar with medications affecting different body systems including autonomic nervous system, central nervous system, respiratory and circulatory systems, and main drugs' action mechanism, side effects, contraindications, clinical applications, dosage and drug laws.
2. Learning about certain coexisting diseases, necessary preparations in the event of possible complications, anesthesia techniques in children, pregnant women and the elderly, and gaining the required skills and ability to take care of the patients in different stages of general and local anesthesia.

### COURSE CONTENT

- I. Introduction
- II. Importance of speciality anaesthesia
- III. Cardiac anaesthesia: - NYHA classification Arrhythmias Angina Dyspnoea Special investigations — echo cardiography, angiography Premedication Setting up of monitoring system Monitoring — invasive and non invasive Getting ready for the case Induction of cardiac patient, precautions to be taken Cardiopulmonary bypass Weaning of CPB Transferring the patient to ICU Care to be taken ICU management
- IV. Neuro anaesthesia: - Glasgow coma scale Premedication Special investigation — CT, Angiography, MRI Checklist Induction of a patient armoured ETT Positioning in neuro

surgery ICP Air embolism Reversal of the patient Transferring to ICU / ward

- V. Obstetric anaesthesia: - Differences between a pregnant and a normal lady Risks for anaesthesia Precautions to be taken Checklist Regional vs. general anaesthesia Induction / maintenance Resuscitation of the new born, apgar score Reversal and extubation Emergencies — Manual removal of placenta, APH, PPH, Ruptures uterus, Ectopic pregnanc
- VI. Paediatric anaesthesia: - Theatre setting Checklist Premedication —modes Induction Intubation — securing the MT Reversal and extubation — problems Transferring / ICU management Pain management
- VII. Regional anaesthesia: - History Introduction Contra- indication Check. list Procedure Complications Subarachnoid block Epidural block Nerve block
- VIII. Day care anaesthesia: - Special features Set up Advantages Dis-advantages Complications Future
- IX. Geriatric anaesthesia: - Physiological changes Diseases of aging Nervous system Geriatric pharmacodynamics / pharmacokinetics Post operative nervous system dysfunction
- X. Anaesthesia for trauma and shock: - Resuscitation Pre-operative, investigation / assessment Circulatory management Management of anaesthesia Rapid sequence induction Other problems
- XI. Anaesthesia for trauma and shock: - Resuscitation Pre-operative, investigation / assessment Circulatory management Management of anaesthesia Rapid sequence induction Other problems
- XII. Thoracic anaesthesia: - Pulmonary function test — bed side, vitallograph Pre-operative preparation Premedication Check list Induction, intubation Double lumen tubes Lop monitoring Pain management Extubation ICU management Chest tube management
- XIII. Anaesthesia outside the OR: - Situations Cath lab Radiology Natural calamities ECT Features Short comings Complications Sterile techniques and surgical asepsis: - Preparation of neckline sets, cut down sets, etc Knowledge of surgical asepsis, skin preparation for invasive procedures

## **COURSE OUTCOME:**

CO1: Student learns the rational use selection of regional anaesthesia techniques and the choice of local anaesthesia.

CO2: Incorporates Basic understanding of immediate in preoperative patient management.

CO3: Performs skills for Management of patients in post-anesthesia recovery room


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CO4: Able to help the anaesthesiologist in administering anaesthesia, assist in various procedures and also help in continuous monitoring of patients during surgery.

CO5: Students will knowledge of mechanism of action, route of administration, half-life and side effects of medicine used to give anaesthesia.

CO	PO												PSO1	PSO2	PSO3
	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012			
CO1	3	1	3	3	3	3	2	2	3	3	3	2	2	3	3
CO2	3	-	2	3	-	2	3	3	2	-	2	2	2	3	2
CO3	-	3	3	3	2	3	-	3	3	3	-	-	3	2	-
CO4	3	3	2	-	3	-	2	2	3	3	2	3	2	-	2
CO5	2	2	-	3	3	3	3	2	3	2	2	3	3	3	3
AVE	2.2	1.8	2	2.4	2.2	2.2	2	2.4	2.8	2.2	1.8	2	2.4	2.2	2



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### PAPER III – PRINCIPLES OF ANAESTHESIA – II

COURSE CODE	Course name	L hrs / wk	T hrs /wk	P hrs/ wk	Total hours	IA	Theory	Viva	Practical	EA	Total
5206	PRINCIPLES OF ANAESTHESIA – II	05	-	03	08	30	100	20	50	170	200

#### COURSE DESCRIPTION

This course will cover techniques in general anaesthesia including pre-operative preparation, intra-operative management, complications in anaesthesia due to co-existing diseases and their management

#### COURSE OBJECTIVES

1. students become familiar with the organization, standards, rules, and management method of an ICU.
2. They also learn about the use and maintenance of equipment and instruments, methods of diagnosis and treatment, rehabilitation and respiratory care, infection control,
3. The way to take care of critically ill patients suffering from the disorders of different body systems and needing special attention.

#### COURSE CONTENT

##### Part – I

##### Complications in Anaesthesia

- I. Ischemic Heart Disease: - Risk factors: Medications Acute MI Anaesthesia for IHD cases Post OP management
- II. Valvular Heart Disease: - - Mitral stenosis – Anaesthetic problems Mitral regurgitation – Aortic stenosis, Aortic regurgitation
- III. Congenital Heart Disease: — ASD VSD Tetralogy of fallot PDA
- IV. Hypertension Drugs: - Anaesthesia for hypertensives Hypertensive crises

## Complications

- V. Pericardial disease: - Pericardial effusion Cardiac tamponade
- VI. Aneurysm of aorta: - Types Treatment
- VII. Chronic obstructive pulmonary disease: - Bronchiectasis
- VIII. Acute respiratory failure
- IX. Diseases of CNS – Cerebral Oedema and its Management: - Ocular trauma
- X. Diseases of liver and biliary tract: - Liver functions Liver function tests, hepatitis Jaundice, types – cirrhosis, hepatorenal syndrome
  
- XI. Diseases of GIT: - Peptic ulcer – GI bleeding Oesophageal varices
  
- XII. Renal disease: - Functions of kidney Kidney function tests Renal failure Anaesthesia for renal failure patients
  
- XIII. Water electrolyte and acid base disturbances: - Distribution of body water, dehydration Hyperkalemia, hypokalemia, sodium, calcium Acid base disturbances– types and treatment
  
- XIV. Endocrine disease: - Diabetes mellitus Thyroid dysfunction thyrotoxicosis, hypothyroidism Adrenal gland dysfunction Diabetes. insipidus
  
- XV. Obesity, anaemia
  
- XVI. Complications in anaesthesia: - (a) Minor sequelae: - Nausea & vomiting Sore throat Laryngeal granuloma Neurological complications Awareness Vascular complications Trauma to teeth Headache Back ache Ocular complications - Auditory complications (b) Major catastrophes: - Mortality Causes of death Cerebral damage Prevention

## Part II – Complications in Intensive Care

- I. Monitoring and diagnostic procedures in ICU: - Central venous access ECG monitoring Invasive hemodynamic monitoring

- II. General care of patient in ICU: - Eye, GI tract Bladder skin Case of mechanically ventilated patient Tracheostomy, humidification Vascular lines – arterial, venous line Radiography Physiotherapy – chest physiotherapy
- III. Fluid balance and parenteral nutrition
- IV. IV. Infectious disease in ICU: - Antibiotics in ICU Oxygen therapy Mechanical ventilation V. Acid base disorders
- V. Cardiovascular failure: — Phase of management Inotropic support Vaso dilator drugs
- VI. Renal failure and liver failure
- VII. Head injury
- VIII. Principles of transfusion therapy: - Whole blood, erythrocyte products Plasma components - Platelets concentrate Massive transfusion, acute transfusion reactions

**COURSE OUTCOME:**

CO1: Develop a comprehensive anesthesia plan of care with the anesthesia provider for the complex surgical patient.

CO2: Demonstrate effective communication skills when interacting with the anesthesia care provider in preparation for a complex surgical procedure.

CO3: Manage an anesthesia care environment to ensure proper function of various anesthesia equipment used in complex surgical procedures.

CO4: Demonstrate mastery and independence in the role of an Anesthesia Technologist at the advanced level for all types of surgical cases.

CO5: Demonstrate the characteristics of an effective leader in communicating with other anesthesia providers in the care of complex surgical procedure

CO	PO												PSO1	PSO2	PSO3
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12			
CO1	2	1	2	3	3	3	2	2	3	2	3	2	2	1	3
CO2	3	3	3	1	2	3	3	3	2	3	2	2	2	3	2
CO3	3	3	2	3	3	1	2	2	3	-	3	1	3	3	3
CO4	3	3	3	3	3	2	3	3	3	3	1	2	3	-	3
CO5	3	3	-	2	1	3	2	2	2	3	2	3	1	2	3
AVE	2.8	2.6	2	2.4	2.4	2.4	2.4	2.4	2.6	2.2	2.2	2	2.2	1.8	2.8

## ELECTIVES (SELECT ONE) COMMUNITY MEDICINE

### COURSE DESCRIPTION

The course deals with population or groups rather than individual patients. It is concerned with identification &

COURS ECODE	Course name	L hr s/ w k	T hrs/ wk	P hrs /w k	Total hours	IA	Theory	Viva	Practical	EA	T
5207	COMMUNITY MEDICINE	05	-	-	05	30	100	-	-	100	13

assessment of health needs of the people, health problems affecting them and to devise appropriate measures

### COURSE OBJECTIVES:

To demonstrate an understanding of the influence of social and environmental factors on the health of the individual and society.

To demonstrate an understanding of the principles of first aid and demonstrates skill in giving first aid treatment in emergencies that may be met in the community and in their practice as therapists.

### COURSE CONTENT:

Outline the natural history of diseases and the influence of social, economic and cultural aspects of health a diseases.

Outline the various measures of prevention and methods of intervention especially for diseases with disability.

Outline the national care delivery system and the public health administration system and the central and state level, local trends and resource.

Outline selected national health programmes including current programmes (Eg. SSA Sarva Siksha Abhiyan)

Define occupational health and list methods of prevention of occupational diseases and hazards.

Outline the Employees State Insurance scheme and its various benefits.

Describe the social security measures for protection from occupational hazards, accidents, diseases, and the workman's compensation act.

Outline the objectives and strategies of the national Family Welfare Programme

Define community based and institution based rehabilitation. Describe the advantage and disadvantages of institution and community based rehabilitation.

Describe the following communicable diseases with reference to reservoir, mode of transmission, route of entry and levels of prevention. a.

92 Polio myelitis, b. Meningitis, c. Encephalitis, d. Tuberculosis, e. Filariasis, f. Leprosy, g. Tetanus & h. Measles.

Describe the epidemiology of rheumatic heart disease, cancer, Chronicdegenerative disease and cerebrovascular accidents.  
 Outline the influence of nutritional factors such as protein Energy Malnutrition, Anaemia, Vitamin deficiency and minerals on disability.  
 List the principles of health education, methods of communication and roleof health education in rehabilitation services.  
 Define the role of community leaders and health professionals in health education.  
 Outline the role of international health agencies in rehabilitationof the disabled.  
 Identify and give first aid in burns, fire accidents, road accidents, poisoning, drowning, insect bites and trauma due to a foreign body.  
 Identify various fractures and practice bandaging and splinting in care offractures.  
 Describe the types of wounds, haemorrhages, shock and respiratoryemergencies.

**Reference Books:**

First Aid Manual: St John Ambulance

**COURSE OUTCOME:**

- CO1 provide comprehensive health care to the people
- CO2 deliver primary health care and essential services package
- CO3 conduct epidemiological studies on common health problems
- CO4 provide health care with appropriate attitudes
- CO5 work as a member of health team, co-ordinate with national and international health organizations and national health programmes

CO	PO												PS01	PS02
	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012		
CO 1	3	3	2	3	3	3	2	2	3	2	3	2	2	3
CO2	3	3	3	2	2	3	3	3	2	3	2	2	2	3
CO3	3	2	1	3	3	1	2	2	3	3	3	1	3	3
CO4	-	3	-	3	1	3	-	1	3	2	-	2	3	-
CO5	1	3	3	2	1	3	2	2	2	3	2	3	1	3
AVE	2	2.8	1.8	2.6	2	2.6	1.8	2	2.6	2.6	2	2	2.2	2.4



## CLINICAL PSYCHOLOGY

COURS ECODE	Course name	L hr s/ w k	T hrs/ wk	P hrs / w k	Total hours	IA	Theory	Viva	Practical	EA	T
5208	CLINICAL PHYSIOLOGY	05	-	-	05	30	100	-	-	100	13

### COURSE DESCRIPTION

The course aims to provide students with the bases in clinical physiology and associated methodology required to perform parts in placement training and at clinical physiological laboratories.

### COURSE OBJECTIVES

To develop in depth knowledge on specific psychological factors and effects in physical illness and thus help them to have a holistic approach in dealing with patients during admission, treatment, rehabilitation, and discharge. To develop exhaustive ideology of various Identify ego defense mechanisms and learn counseling techniques to help those in need. And help them to understand the reasons of non-compliance in patients and improve compliance behavior.

### COURSE CONTENT

#### **DEFINITION OF PSYCHOLOGY**

Basic information in relation to following schools methods and branches.

Schools: Structuralism, functionalism, behaviorism, psychoanalysis, gestalt psychology, Methods, Branch heredity and environment c. developmental theories and growth behaviour at Infancy, Early childhood, Middle childhood, Puberty (physiological and psychological changes), adulthood, middle age, and old age intelligence, motivation Social motives, emotions Definition.

personality: Definition, concepts, creativity, steps in creative thinking; problem solving, decision making, the traits of creative people, delusions, frustration - Definition sources, solution, conflict; Approach - approach, avoidance-avoidance, and approach - avoidance, solution

#### **DEFINITION OF CLINICAL PSYCHOLOGY:**

General and historical introduction to Abnormal Psychology, Psychology in relation to medicine, different schools Methods of Clinical Psychology: Case History method, Interview Techniques, Clinical observation, Situational tests, Questionnaires. Concepts of normality and abnormality: Causes of abnormality, Criteria for abnormality. Broad classification of Current model of abnormal behavior - Medical model, Psychodynamic model, Behavioristic model Humanistic model, and Cognitive model Functional units of mind: Id, ego and super ego - their functions and interactions. Role of Defense mechanisms in normal and abnormal behavior. Evaluation of attention and concentration, perception, memory, thinking etc. Intelligence and Mental Retardation: Intelligence test - Measureme

of intelligence - children & adults (demonstrations) Mental Retardation and it's psychosocial management. Personal Assessment: Questionnaires, inventories, projective techniques Behavior techniques in Therapy -application of learning principles to modify behavior Counselling: Definition, Aim, Difference between counselling and guidance, principles in counselling, personality qualities of counselor's Psychotherapy: Basic Principles

### HEALTH PSYCHOLOGY

Psychological reactions of a patient: reaction to loss, communications ,compliance ,emotional need geriatric psycholo specific psychological reactions and needs of geriatric patients c. pediatric psychology - specific psychological reactions and needs of pediatric patients, . substance abuse -psychological aspects of substance abuse: smoking, alcoholism, and drug addiction. compliance -nature, factors contributing to non-compliance, methods of improving compliance. f. emotional needs g. geriatric psychology -specific psychological reactions and needs of geriatric patie h. paediatric psychology - specific psychological reactions and needs of paediatric patients. k. substance abuse - psychological aspects of substance abuse: smoking, alcoholism, and drug addiction. l. personality styles -different personality styles of patients

Recommended Book(s) for Reference include:  
 1. Introduction to Psychology by Morgan and King  
 2 Psychology for Physiotherapists by Thangamani Ramalingam and Dibyendunarayan Bid

### COURSE OUTCOME:

- CO1. The student is expected on completion of the course independently be able to carry out a diagnostic ECG and a sim spirometry.
- CO2. show active participation in work tests
- CO3. with reasonable safety interpret the most common ECG and spirometry findings.
- CO4. be able to apply safety and hygiene procedures at clinical physiological and nuclear medical work.
- CO5. be able to orally and in writing present compiled results of completed studies.

CO	PO												PSO1	PSO2	PSO3
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12			
CO1	3	1	3	3	3	3	2	2	3	3	3	2	2	3	3
CO2	3	-	2	3	-	2	3	3	2	-	2	2	2	3	2
CO3	-	3	3	3	2	3	-	3	3	3	-	-	3	2	-
CO4	3	3	2	-	3	-	2	2	3	3	2	3	2	-	2
CO5	2	2	-	3	3	3	3	2	3	2	2	3	3	3	3
AVE	2.2	1.8	2	2.4	2.2	2.2	2	2.4	2.8	2.2	1.8	2	2.4	2.2	2

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**COPO MAPPING FOR B.Sc AHS ANARSTHESIA TECHNOLOGY (PROG.CODE-701)**

COURSE CODE	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
5001	2.2	2	2.2	2	1.8	2.8	2.2	2	2.2	2.2	2.8	2	2	2.2	2
5002	1.8	2.4	2.2	2.4	2.4	2.6	2	2	2	2.4	2	2.6	2	2.6	2.8
5003	2.2	2.6	2.6	2	2.4	2.4	2	1.8	2.4	2	2	2.2	2.4	2.6	2.2
5004	2.2	2.6	1.8	1.8	2.2	2.8	2.2	1.8	2.4	2	2.6	2.2	2.6	2.2	2.6
5005	2.2	2	2.2	2.6	2.4	2.2	2.2	2.4	2.4	2	2.2	2	2.6	2.6	2.4
5006	2	2.8	1.8	2.6	2	2.6	1.8	2	2.6	2.6	2	2	2.2	2.4	2.4
5009	2.4	1.6	2	2.4	2	2.4	2	2	2.6	2.2	1.8	2.4	1.6	2.6	2.4
5010	2	2.2	1.6	3	2	3	2	2.2	2.8	2.2	1.8	2.6	1.8	2.8	2.6
5011	1.8	2.2	1.6	3	2	3	2	2.4	2.8	2.8	2	2.2	2.2	2.8	2.2
5201	1.8	2.4	2	2.4	1.8	2.8	2.8	2.4	2.2	2.2	1.8	2	2	2.6	2
5202	2.6	2	2.4	2.2	2.2	2.8	2	2.4	2.4	2.6	2.6	2.4	2.6	2.8	2.6
5203	1.8	2.4	2	2.4	1.8	2.8	2.8	2.4	2.2	2.2	1.8	2	2	2.8	2.2
5204	2	2.4	2	2.4	2	2.8	2	2.2	2.2	2.2	2.4	1.8	2.2	2.8	2.8
5205	2.2	1.8	2	2.4	2.2	2.2	2	2.4	2.8	2.2	1.8	2	2.4	2.2	2
5206	2.8	2.6	2	2.4	2.4	2.4	2.4	2.4	2.6	2.2	2.2	2	2.2	1.8	2.8
5207	2	2.8	1.8	2.6	2	2.6	1.8	2	2.6	2.6	2	2	2.2	2.4	2.4
5208	2.2	1.8	2	2.4	2.2	2.2	2	2.4	2.8	2.2	1.8	2	2.4	2.2	2



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