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22MB2231 - Microbiology Paper 1 (MBB5)

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Presentation 0

Sr.	Presentation	Doc.	Updated On	Views Rating	Verification Status	Publish	Seq.	Action 
1	Skin & soft tissue infections- Staphylococcus aureus		29-05-2024	10 ☆ 4.00 (1)	Approved	Published		  
2	Leishmaniasis Leishmaniasis		03-04-2024	6 ☆ 4.00 (1)	Approved	Published		  
3	Rickettsial infection Rickettsial Infections		16-03-2024	7 ☆ 4.00 (1)	Approved	Published		  
4	Immunoprophylaxis for HCW		01-03-2024	18 ☆ 4.00 (1)	Approved	Published		  
5	Immunoprophylaxis		01-03-2024	14 ☆ 4.00 (1)	Approved	Published		  
6	Antigen-Antibody Reactions-2		05-02-2024	9 ☆ 4.00 (1)	Approved	Published		  


 Dr. PRASHANT KUMAR M
 Principal & Dean

 Dr. Chandramohan Dayananda Sagar Institute
 of Medical Education & Research (CDSIMER)
 (A Unit of Dayananda Sagar University)
 Kunakapura Road, Harohalli,
 Ramanagar District, Karnataka - 562112



ContentType Wise Summary

Sr.	Type	AverageRating	Views	Published	Unpublished
1	Assignment	0.00	0	0	0
2	E-Note	4.72	397	9	0
3	Lab Manual	4.69	134	3	0
4	Presentation	4.63	1422	19	0
5	Video Lecture	5.00	55	3	0
Total		3.81	2008	34	0

Course Wise Summary

Sr.	Course Name	Assignment	E-Note	Lab Manual	Presentatio n	Video Lecture
1	BSc-H	1	11	4	23	4
Total		1	11	4	23	4

Department Wise Summary

Sr.	Department Name	Assignment	E-Note	Lab Manual	Presentatio n	Video Lecture
0		1	2	1	4	1
1	Basic and Applied Science		9	3	19	3
Total		1	11	4	23	4



ContentType Wise Summary

Sr.	Type	AverageRating	Views	Published	Unpublished
1	Assignment	0.00	0	0	0
2	E-Note	4.33	39	4	0
3	Lab Manual	0.00	0	0	0
4	Presentation	4.69	899	13	0
5	Video Lecture	0.00	0	0	0
Total		1.80	938	17	0

Course Wise Summary

Sr.	Course Name	Assignment	E-Note	Lab Manual	Presentation	Video Lecture
0		0		0		0
1	B.Sc Biological Sciences		4		13	
Total		0	4	0	13	0

Department Wise Summary

Sr.	Department Name	Assignment	E-Note	Lab Manual	Presentation	Video Lecture
0		0		0		0
1	Basic and Applied Science		4		13	
Total		0	4	0	13	0



ContentType Wise Summary

Sr.	Type	AverageRating	Views	Published	Unpublished
1	Assignment	0.00	0	0	0
2	E-Note	4.86	202	33	0
3	Lab Manual	0.00	0	0	0
4	Presentation	4.92	2747	103	0
5	Video Lecture	0.00	0	0	0
Total		1.96	2949	136	0

Course Wise Summary

Sr.	Course Name	Assignment	E-Note	Lab Manual	Presentation	Video Lecture
0		0		0		0
1	MSc Biological Science		33		103	
Total		0	33	0	103	0

Department Wise Summary

Sr.	Department Name	Assignment	E-Note	Lab Manual	Presentation	Video Lecture
0		0		0		0
1	Basic and Applied Science		33		103	
Total		0	33	0	103	0



Classroom >

B.Sc 4th Sem
Genetics Honours



Stream

Classwork

People

Grades



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B.Sc 4th Sem

Genetics Honours

Class code 2pdujvc

Subject Biology

Room Developmental Biology



Announce something to your class



Hitesh Kumar
May 11



Group 4: Challa Mokshith Chowdary, Jinal D, Patil Sania, Varsha S S (18, 42, 68, 107)



Group-4 dev bio as...
PowerPoint



Add class comment...



Suvarna Ghosh



Skip to main content

a, Shreya R S, Suvarna (23, 91, 93, 103)





Classroom >

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Pronama Biswas posted a new material: Thermodynamics of Life
Feb 29



Pronama Biswas posted a new material: RNA world
Feb 29



Pronama Biswas posted a new material: Origin of Biomolecules
Feb 29



Pronama Biswas posted a new material: Haldane and Origin of Life
Feb 29



Pronama Biswas posted a new material: History of developmental biology
Feb 13



2.3.2 ICT Tools

YouTube videos used for classes. (Links provided)

Blog Reading.

History of Science

BLOGS:

<https://www.dnaindia.com/education/report-meet-upendranath-brahmachari-who-found-cure-for-a-deadly-disease-was-denied-nobel-prize-several-times-3074665>

<https://m.economictimes.com/news/international/business/china-introduces-revolutionary-nuclear-battery-that-lasts-50-years-without-charging/articleshow/106880627.cms>

<https://news.mit.edu/2024/turning-science-history-comic-adventure-0111>

VIDEOS: <https://www.youtube.com/watch?v=5aJNN29f8Hk&t=11s> (Modern Times movie)

- <https://www.youtube.com/watch?v=qRKScRgsUaE> (Inside Japan's Nuclear Meltdown (full documentary))
- <https://www.youtube.com/watch?v=iv5JNAuGcIU> (ATOMIC BOMBING OF HIROSHIMA DOCUMENTARY "TEN SECONDS THAT SHOOK THE WORLD")
- Oppenheimer - Destroyer of Worlds Documentary
<https://www.youtube.com/watch?v=0s9fpFPAC94>
- <https://www.youtube.com/watch?v=rb7NddXDdxs> (Deep fakes, destruction and AI)
- <https://www.youtube.com/watch?v=VCCgdRF0AIA> Does AI threaten human identity?
- https://www.youtube.com/watch?v=fP3H75_Xg18 Chaos Theory and the Science behind intelligent Life
- https://www.youtube.com/watch?v=g_1oiJqE3OI (The Future of Science BBC/NatGeo Documentary)
- Albert Einstein Documentary <https://www.youtube.com/watch?v=0zk-NVPYPWk>
- Modern medicine from Ancient India's Ayurveda | Jeffrey Armstrong
https://www.youtube.com/watch?v=KSSPT_Io1x4
- The Vedic Geometry <https://www.youtube.com/watch?v=s723-3hkUjA>
- Jagadish Chandra Bose <https://www.youtube.com/watch?v=4ImqC700oCg>
- Space Mysteries BBC <https://www.youtube.com/watch?v=AVoV0IDivAQ>

IMC

- <https://www.youtube.com/watch?v=p6aF5ma7BiM> (How brands control your mind)
- https://www.youtube.com/watch?v=B_Uh5V4xD4k (Tanmay Bhat on IMC)
- Movie – Salesman of the Year
- <https://www.youtube.com/watch?v=8kCtZhuOLlg&list=PPSV> (Brand Storytelling 1)
- <https://www.youtube.com/watch?v=F-QtiFQVA-M&list=PPSV> (Brand Storytelling 2)
- <https://www.youtube.com/watch?v=F-QtiFQVA-M&list=PPSV> (Brand Storytelling 3)
- <https://www.youtube.com/watch?v=ejMIWP5VnTQ> (Brand Storytelling 4)
- <https://www.youtube.com/watch?v=6mcrcmbx5WtA> (Brand Storytelling 5)

Ad Production

- <https://www.youtube.com/watch?v=bvXgJKqpnSk> How AI is revolutionizing entertainment?
- <https://masterclass.economictimes.indiatimes.com/how-to-make-ad-films> (Advertising Masterclass with Prahalad Kakkar)
- <https://www.youtube.com/watch?v=y1srBfuooE8>
- <https://www.youtube.com/watch?v=x6xz800HacM>
- <https://www.youtube.com/watch?v=M5qbJdfghBc>
- <https://www.youtube.com/watch?v=icwWpAHReWg> (The psychology of advertising)
- <https://www.youtube.com/watch?v=1oMVQkt3il4> (AI and AR on Advertising)
- <https://www.youtube.com/watch?v=XhMVWzVXNNk> (Coke)
- <https://www.youtube.com/watch?v=sVpSr5xJiNw&t=33s> (Neuromarketing)
- <https://www.youtube.com/watch?v=HctZg2aOPMw> (Psychology)

Google Classroom: Dr. Rekha Datta

<https://classroom.google.com/c/NjIwMzg2Mjk5MTE5>–Psychology Minor

<https://classroom.google.com/c/NjIzMjcwMDQwODgx>–English Literature

<https://classroom.google.com/c/NjU4MDQwOTI4OTAw>–Theatre

**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL
EDUCATION AND RESEARCH**

LESSON PLAN

Date: 12/11/2023

Name of the teacher: SYAMLYS

Time allotted: am

Type of class: lecture

Subject: anatomy

Venue: lecture hall I

Duration: 1 hr

Competency Addressed: elbow joint 13.3

Specific Learning Objectives: At the end of the class student should be able to: Identify & describe the type, articular surfaces, capsule, synovial membrane, ligaments, relations, movements, blood and nerve supply of elbow joint

Teaching learning method: Lecture

Set induction: suprachondylar fracture

TCT: <https://youtu.be/313-51j3JZ8?si=4-wn8G0dcCsCOMXj>

Sl no	Content	Time mts	T-L Media used
1	Describe and demonstrate the type of elbow joint	5	PPT
2	Describe and demonstrate the articular surfaces, of elbow joint	10	PPT
3	Describe and demonstrate the capsule, synovial membrane, ligaments, of elbow joint	10	PPT
4	Describe and demonstrate the relations of elbow joint	10	PPT
5	Describe and demonstrate the movements, of elbow joint	10	PPT
6	Describe and demonstrate the blood supply and nerve supply of elbow joint	10	PPT
7	Describe fractures of elbow joint	5	PPT

Pre-evaluation: SLO

Post-evaluation: MCQ, case scenario, SGT, Formative assesment

- Suggested further reading:
- BD Chaurasia's / Dutta's / Vishram Singh's Textbook of Anatomy – all volumes
- Clinically Oriented Anatomy, K L Moore / Clinical Anatomy by Regions, Richard Snell


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(SYAMLYS)

**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL
EDUCATION AND RESEARCH**

LESSON PLAN

NAME OF THE TEACHER: SYAMLY S

Type of class: lecture

Venue: lecture hall I

Date: 05-01-2024

Time allotted: 9-10 am

Subject: anatomy

Duration: 1 hr

Competency Addressed: Thoracic duct, azygous system AN23.2,3,4

Specific Learning Objectives: At the end of the class student should be able to: Describe & demonstrate the extent, relations, tributaries of thoracic duct and enumerate its applied anatomy, Describe & demonstrate origin, course, relations, tributaries and termination of superior venacava, azygos, hemiazygos and accessory hemiazygos veins

Teaching learning method: Lecture

Set induction: elephantiasis

ICT- <https://youtube.com/shorts/Noj-jp6s-ND?si=Ojz1FFFlngG1D684>

Sl no	Content	Time	T-L Media used
1	Describe & demonstrate the origin, course, relations, tributaries and termination of superior venacava	15	PPT
2	Describe and demonstrate extent, relations, tributaries and applied anatomy of thoracic duct	20	PPT
3	Describe and demonstrate the extent, relations and applied anatomy of Right lymphatic duct	5	PPT
4	Describe & demonstrate the origin, course, relations, tributaries and termination of azygos, hemiazygos and accessory hemiazygos veins	20	PPT
5			
6			
7			

Pre-evaluation: SLO

Post-evaluation: MCQ, case scenario, SGT, Formative assessment

[Signature]
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Suggested further reading:

(SYAMLY S) BDehawasia's / Butta's / Vishram Singh's Textbook of all anatomy - all volumes

DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL
EDUCATION AND RESEARCH

LESSON PLAN

Date: 05/1/2024

Name of the teacher: Dr ROOPA RAVINDRANATH Time allotted: 60 minutes

Type of class: Lecture

Subject: Anatomy

Venue: Lecture Hall I

Duration: 60 minutes

Competency Addressed: Oesophagus & trachea.

Specific Learning Objectives: At the end of the class student should be able to learn and understand:

- Oesophagus - external appearance, relations, blood supply, nerve supply, lymphatic drainage and applied anatomy
- Trachea - Extent, length, relations, blood supply, lymphatic drainage and nerve supply

Teaching learning method: Lecture/demonstration

Sl no	Content	Time	T-L media used
1	Oesophagus - external appearance, relations, blood supply, nerve supply, lymphatic drainage and applied anatomy	30 mins	Powerpoint
2	Trachea - Extent, length, relations, blood supply, lymphatic drainage and nerve supply	30 mins	

Pre-evaluation – Learning objectives

Post- evaluation – Questions, MCQS

Suggested further reading - Chaurasia's Human Anatomy – Volume 1, Vishram Singh's textbook of Anatomy – Volume I

<https://youtube.com/shorts/jFWyil8xjy?> – coin in Trachea and oesophagus


(Dr ROOPA RAVINDRANATH)


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DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL
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LESSON PLAN

Date: 04/3/2024

Name of the teacher: DR ROOPA RAVINDRANATH

Time allotted: 60 minutes

Type of class: Lecture

Subject: Anatomy

Venue: Lecture Hall 1

Duration: 60 minutes

Competency Addressed: Urinary bladder

Specific Learning Objectives: At the end of the class student should be able to learn and understand:

- External features & Relations
- Ligaments of the bladder
- Blood supply, nerve supply
- Interior of bladder
- Applied anatomy

Teaching learning method: Lecture/demonstration

Sl no	Content	Time	T-L media used
1	External features & Relations	10 mins	Powerpoint
2	Ligaments of the bladder	20 mins	
3	Blood supply, nerve supply	5 mins	
4	Interior of bladder	15 mins	
5	Applied anatomy	10 mins	


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Pre-evaluation – Learning objectives

Post- evaluation - Questions

Suggested further reading - Chaurasia's Human Anatomy – Volume 3, Vishram Singh's textbook of

Anatomy – Volume 3

<https://youtube.com/R-JxOKIB7JAS?> (Urinary bladder specimen)


(Dr ROOPA RAVINDRANATH)

**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF
MEDICAL EDUCATION AND RESEARCH**

LESSON PLAN

Date: 19/4/24, 12-1 PM

Name of the teacher: Dr. Anisha B

Time allotted: 60 minutes

Type of class: Lecture

Subject: Anatomy

Venue: Lecture Hall 1

Duration: 60 minutes

Competency Addressed: Histology of uterus.

Specific Learning Objectives: At the end of the class student should be able to learn and understand:

- Identify and describe specific microscopic features of proliferative phase of Uterine cycle and explain/ correlate their contribution to normal function
- Identify and describe specific microscopic features of secretory phase of Uterine cycle and explain/ correlate their contribution to normal function

Teaching learning method: Lecture/demonstration

Sl no	Content	Time	T-L media used
1	Identify and describe specific microscopic features of proliferative phase of Uterine cycle and explain/ correlate their contribution to normal function	30 mins	Powerpoint
2	Identify and describe specific microscopic features of secretory phase of Uterine cycle and explain/ correlate their contribution to normal function	30 mins	

Pre-evaluation – Learning objectives

Post- evaluation – Questions, MCQs

Suggested further reading - diFiore's Atlas of Human Histology, Ramalingam's Atlas of Human Histology, Textbook of Human Histology with colour Atlas, Inderbir Singh / Textbook of Histology and Practical Guide

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Dr. Anisha B

DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF
MEDICAL EDUCATION AND RESEARCH

LESSON PLAN

Dr Anisha. B

Time allotted: 60 minutes

Type of class: Lecture

Venue: Lecture Hall 1

date:- 3/5/24

Subject: Anatomy

Duration: 60 minutes

Competency Addressed: Tongue

Specific Learning Objectives: At the end of the class student should be able to learn and understand:

- Describe & demonstrate the morphology of tongue.
- Describe nerve supply of tongue.
- Describe embryological basis of nerve supply, blood supply, and lymphatic drainage of tongue.
- Describe actions of extrinsic and intrinsic muscles of tongue.

Teaching learning method: Lecture/demonstration

Sl no	Content	Time	T-L media used
1	• Describe & demonstrate the morphology of tongue.	10 mins	Powerpoint/ models
2	• Describe nerve supply of tongue.	15 mins	
3	• Describe embryological basis of nerve supply, blood supply, and lymphatic drainage of tongue.	10mins	
4	• Describe actions of extrinsic and intrinsic muscles of tongue.	10 mins	

Pre-evaluation – Learning objectives

Post- evaluation – Viva Questions / short essay

Suggested further reading - Chaurasia's Human Anatomy – Volume 3, Vishram singh textbook of Anatomy volume 3


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Dr. Anisha.

DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL
EDUCATION AND RESEARCH

LESSON PLAN

Date: 4-12-23

Name of the teacher: Dr Geethanjali B.S

Time allotted: 60 minutes

Type of class: Lecture

Subject: Anatomy

Venue: Lecture Hall 1

Duration: 60 minutes

Competency Addressed: Introduction to Abdomen

Specific Learning Objectives: At the end of the class student should be able to learn and understand:

- Planes (transpyloric, transtubercular, subcostal, lateral vertical)
- Regions and quadrants of abdomen
- Anterior abdominal wall – fascia, blood vessels and nerves
- Umbilicus - position, dermatome and applied aspects

Teaching learning method: Lecture/demonstration

Sl no	Content	Time	T-L media used
1	Planes (transpyloric, transtubercular, subcostal, lateral vertical)	15 mins	Powerpoint
2	Regions and quadrants of abdomen	10 mins	
3	Anterior abdominal wall – fascia, blood vessels and nerves	20 mins	
4	Umbilicus - position, dermatome and applied aspects	15 mins	

Pre-evaluation – Learning objectives

Post- evaluation - Questions

Suggested further reading - Chaurasia's Human Anatomy, 7th edition, Volume 1
Anatomy – Volume I


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Dr. Geethanjali B.S
Prof. Anatomy

DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF
MEDICAL EDUCATION AND RESEARCH

LESSON PLAN

Time allotted: 60 minutes

Type of class: Lecture

Venue: Lecture Hall I

Dr Gutthajali

Date - 23-10-23

Subject: Anatomy

Duration: 60 minutes

Competency Addressed: Mammary gland

Specific Learning Objectives: At the end of the class student should be able to learn and understand:

- Breast - Location, extent, deep relations, structure, age changes.
- Blood supply, lymphatic drainage of breast.
- Microanatomy and applied anatomy

Teaching learning method: Lecture/demonstration

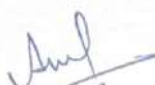
Sl no	Content	Time	T-L media used
1	• Breast - Location, extent, deep relations, structure, age changes.	15 mins	Powerpoint
2	• Blood supply, lymphatic drainage of breast.	20mins	
3	• Microanatomy and applied anatomy	5 mins	
4	• Summary	10 min	

Pre-evaluation – Learning objectives

Post- evaluation – Viva Questions

Suggested further reading - Chaurasia's Human Anatomy – Volume I

Dr Gutthajali BS
Professor
Anatomy


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DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL
EDUCATION AND RESEARCH

LESSON PLAN

Dr Gultharjali RS

Date - 22-11-23

Time allotted: 9-10 am

Type of class: lecture

Subject: anatomy

Venue: lecture 1

Duration: 1 hr

Competency Addressed: Sternoclavicular joint, Acromioclavicular joint, Carpometacarpal joints & Metacarpophalangeal joint of upper limb 13.3,4

Specific Learning Objectives: At the end of the class student should be able to: Describe Sternoclavicular joint, Acromioclavicular joint, Carpometacarpal joints & Metacarpophalangeal joint*

Teaching learning method: lecture
Set induction - arthritis

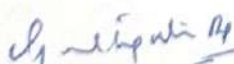
Sl no	Content	Time	T-L Media used
1	Describe the type, articular surfaces, capsule, ligaments relations, movements, blood supply and nerve supply of the sternoclavicular joint,	15	PPT
2	Describe the type, articular surfaces, capsule, ligaments, relations, movements, blood supply and nerve supply Acromioclavicular joint	15	PPT
3	Describe the type, articular surfaces, capsule, ligaments of the relations, movements, blood supply and nerve supply metacarpophalangeal joint	15	PPT
4	Describe and demonstrate the type, articular surfaces, capsule, synovial membrane, ligaments, relations, movements, blood supply and nerve supply of first carpometacarpal joint	15	PPT

Pre-evaluation: SLO

Post-evaluation: MCQ, case scenario, SGT, Formative assesment

- Suggested further reading:
- BD Chaurasia's / Dutta's / Vishram Singh's Textbook of Anatomy – all volumes
- Clinically Oriented Anatomy, K L Moore / Clinical Anatomy by Regions, Richard Snell


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Dr Gultharjali RS Professor

DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF
MEDICAL EDUCATION AND RESEARCH

LESSON PLAN

Time allotted: 60 minutes

Type of class: Lecture

Venue: Lecture Hall 1

Competency Addressed: Prostate

Dr. Gulthanyali AS
Date - 6-3-24

Subject: Anatomy

Duration: 60 minutes

Specific Learning Objectives: At the end of the class student should be able to:

- Describe the lobes of prostate
- Describe the relations of prostate
- Mention the lobes involved in benign prostatic hypertrophy & prostatic cancer

Teaching learning method: Lecture/demonstration

Sl no	Content	Time	T-L media used
1	• Describe the lobes of prostate	10 mins	Powerpoint
2	• Describe the relations of prostate	15 mins	
3	• Mention the lobes involved in benign prostatic hypertrophy & prostatic cancer	10 mins	
4	• Summary	5 min	

Pre-evaluation – Learning objectives

Post- evaluation – Viva Questions/ MCQs

Suggested further reading - Chaurasia's Human Anatomy – Volume 2, Vishram singh textbook of Anatomy volume 2

Dr. Gulthanyali AS
Dr. Gulthanyali AS
Professor Anatomy


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**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL
EDUCATION AND RESEARCH**

LESSON PLAN

I. Name of the teacher: Dr Leelambika C
Class: 1st MBBS
Venue: Lecture Hall 1

Date: Ref. CDSIMER/BIO/30
Time allotted: Ref. CDSIMER/BIO/30
Subject: Biochemistry
Duration: 1 hour

Competency Addressed: BI3.1: Discuss and differentiate monosaccharides, di-saccharides and polysaccharides giving examples of main carbohydrates as energy fuel, structural element and storage in the human body

TL1: Introduction, Definition & Classification of Carbohydrates

Specific Learning Objectives:

- BI 3.1.1 Define carbohydrates correctly
- BI 3.1.2 Enumerate the general functions of carbohydrates correctly
- BI 3.1.3 Classify carbohydrates correctly

Teaching learning method: Lecture

Sl no	Content & Time	T-L Media used
1	Step 1: Set induction by showing a picture & asking questions to students - 10 min. Step 2: Lecture session – 20 min Step 3: Interactive session – 10 min Step 4: Summary of the lesson - 10 min	PPT

Evaluation: MCQs

Suggested further reading: Textbook of Biochemistry for Medical Students by DM Vasudevan, 10th edition.

ICT TOOLS USED - PROJECTOR
COMPUTER
DIGITAL BOARD
PPT


Dept. of Biochemistry
Dr. Chandramma Dayananda Sagar
Institute of Medical Education & Research
-DSU, Harohalli, Ramanagara - 56

III. Name of the teacher: Dr Leelambika C
Class: 1st MBBS
Venue: Lecture Hall 1

Date: Ref. CDSIMER/BIO/30
Time allotted: Ref. CDSIMER/BIO/30
Subject: Biochemistry
Duration: 1 hour

Competency Addressed: BI3.1: Discuss and differentiate monosaccharides, di-saccharides and polysaccharides giving examples of main carbohydrates as energy fuel, structural element and storage in the human body

TL3: Monosaccharides: Properties & derivatives

Specific Learning Objectives:

- BI 3.1.6 Describe the properties of monosaccharides correctly
- BI 3.1.7 Enumerate the functions of sugar derivatives correctly

Teaching learning method: Lecture

Sl no	Content & Time	T-L Media used
1	Step 1: Recap of previous lesson - 05 min. Step 2: Lecture session – 35 min Step 3: Interactive session – 10 min Step 4: Summary of the lesson - 10 min	PPT

Evaluation: MCQs

Suggested further reading: Textbook of Biochemistry for Medical Students by DM Vasudevan, 10th edition.

ICT TOOLS USED :

1. PROJECTOR
2. COMPUTER
3. PPT


 Dept. of Biochemistry
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 Institute of Medical Education & Research
 Dr. B. Hanumanthi-Ramanagara - 562 112

V. Name of the teacher: Dr Leelambika C
Class: 1st MBBS
Venue: Lecture Hall 1

Date: Ref. CDSIMER/BIO/30
Time allotted: Ref. CDSIMER/BIO/30
Subject: Biochemistry
Duration: 1 hour

Competency Addressed: BI3.1: Discuss and differentiate monosaccharides, di-saccharides and polysaccharides giving examples of main carbohydrates as energy fuel, structural element and storage in the human body

TL5: Homopolysaccharides: Structure & functions

Specific Learning Objectives:

BI 3.1.10 Describe the structures of homopolysaccharides correctly

BI 3.1.11 Describe the functions of homopolysaccharides correctly

Teaching learning method: Lecture

Sl no	Content & Time	T-L Media used
1	Step 1: Recap of previous lesson - 05 min. Step 2: Lecture session – 35 min Step 3: Interactive session – 10 min Step 4: Summary of the lesson - 10 min	PPT

Evaluation: MCQs

Suggested further reading: Textbook of Biochemistry for Medical Students by DM Vasudevan, 10th edition.

ICT TOOLS USED

- COMPUTER
- PROJECTOR
- PPT (POWER POINT)
- MICROSOFT WINDOWS


Dept. of Biochemistry
Dr. Chandramma Dayananda Sarin
Institute of Medical Education & Research
DSU, Harohalli, Ramanagara - 562 112

**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL
EDUCATION AND RESEARCH**

LESSON PLAN

Name of the teacher: Ms. Akshitha S
Class: 1st MBBS
Venue: Lecture Hall 1

Date: Ref. CDSIMER/BIO/30
Time allotted: Ref. CDSIMER/BIO/30
Subject: Biochemistry
Duration: 3 hour (ECE)

Competency Addressed: BI 6.5 describe the biochemical role of vitamins in the body and Explain the manifestation of their deficiency.

TL1: Describe sources, RDA, Metabolism, Functions & Deficiency manifestation of Vitamin A & Vitamin D.

Specific Learning Objectives:

- BI 6.5.1 Define the role of vitamins in health and disease.
- BI 6.5.2 Classify the Vitamins and enumerate all vitamins in each class.
- BI 6.5.3 Differentiate the characteristics of water soluble and fat soluble vitamins.
- BI 6.5.4 Discuss the source, chemistry, metabolism, functions, deficiency manifestation of vitamin A and vitamin D.
- BI 6.5.5 Enumerate the therapeutic uses of vitamin A & vitamin D.

Teaching learning method: Lecture

Sl.no	Content & Time	T-L Media used
1	Step 1: Set induction by showing a picture & asking questions to students - 10 min. Step 2: Lecture session – 50 min Step 3: Interactive session – 10 min Step 4: Student spot seminar After the Lecture – 50 min Step 5: Discuss about case on vitamin A and vitamin D – 30 min Step 6: Summary of the lesson - 10 min Step 7: MCQs – 10 min	PPT

Evaluation: MCQs

Suggested further reading: Textbook of Biochemistry for Medical Students by DM Vasudevan, 10th edition.

ICT TOOLS - PROJECTOR
COMPUTER
PPT
DIGITAL BOARD


Dept. of Biochemistry
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Institute of Medical Education & Research
DSU, Harohalli, Ramanagara - 562119

V. Name of the teacher: Ms. Akshitha S
Class: 1st MBBS
Venue: Lecture Hall 1

Date: Ref. CDSIMER/BIO/30
Time allotted: Ref. CDSIMER/BIO/30
Subject: Biochemistry
Duration: 2 hour (ECE)

Competency Addressed: BI 6.5 Describe the biochemical role of vitamins in the body and Explain the manifestations of their deficiency.

TL5: Describe the source, RDA, structure, coenzyme, functions & deficiency manifestation of Vitamin B9 & Vitamin B12.

Specific Learning Objectives:

- BI 6.5.1 Mention the components in structure of Folic acid.
- BI 6.5.2 Illustrate the formation of THF.
- BI 6.5.3 List the sources & RDA of folic acid.
- BI 6.5.4 Discuss the role of folic acid in one carbon metabolism.
- BI 6.5.6 Describe the deficiency manifestation of folic acid.
- BI 6.5.7 Describe the structure, coenzyme, sources, RDA & metabolism of Vitamin B12.
- BI 6.5.8 Describe the functions & deficiency manifestation of Vitamin B12.
- BI 6.5.9 Describe tests to access the Vitamin B9 & Vitamin B12 Deficiency status.

Teaching learning method: Lecture

Sl.no	Content & Time	T-L Media used
1	Step 1: Set induction by showing a picture & asking questions to students - 10 min. Step 2: Lecture session – 50 min Step 3: Interactive session – 10 min Step 4: Discuss about case on vitamin B12 and vitamin B9 – 30 min Step 5: Summary of the lesson - 10 min Step 6: MCQs – 10 min	PPT

Evaluation: MCQs & Quiz

Suggested further reading: Textbook of Biochemistry for Medical Students by DM Vasudevan, 10th edition.

ICT TOOLS USED - COMPUTER
PROJECTOR
DIGITAL BOARD
PPT (MICROSOFT WINDOWS)


Dept. of Biochemistry
Dr. Chandramurthy Dayanand
Institute of Medical Education & Research
JSS V. V. Mohanlal, Ramenagar - 561

**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL
EDUCATION AND RESEARCH**

LESSON PLAN

Date: 27/10/23

Name of the teacher: Dr Vidyashree H M
PM.

Time allotted: 11.15 AM -12.15

Class: 1st MBBS.

Subject: Physiology.

Venue: Lecture hall-1, college building.

Duration: 1hour.

Topic: Erythropoiesis-2.

Competency Addressed: What is erythropoiesis? Name the sites of erythropoiesis in an adult. Describe the process of erythropoiesis. How is it regulated?

Specific Learning Objectives:

1. Enumerate the various factors affecting erythropoiesis
2. Explain the various factors affecting erythropoiesis.
3. Explain the pathophysiology of pernicious anemia?
4. What is the physiological basis of treatment of pernicious anemia?

Teaching learning method: Didactic lecture.

Sl no	Content	Time	T-L Media used
1	Introduction & pre-evaluation.	5 mins	--
2	List of factors, affecting erythropoiesis.	5 mins	PPT
3	Explanation of factors affecting erythropoiesis.	30 mins	PPT
4	Pathophysiology of pernicious anemia and the physiological basis of its treatment.	10 mins	PPT
5	Summary & post evaluation.	10 mins	--

ICT: <https://youtu.be/wb-yytf4PNc?si=xoSB-qvhP4yo2gPc>

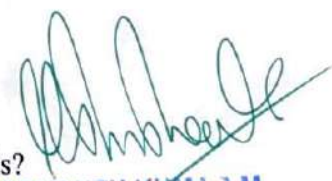
Pre-evaluation:

- a) What is erythropoiesis?
- b) Enumerate the sites, stages and phases of erythropoiesis.
- c) Which nutrients are essential for the RBC production?

Post- evaluation:

- a) Define erythropoiesis?
- b) What are the different sites, phases and stages of erythropoiesis?
- c) Explain the morphological features of each stage.

Suggested further reading:


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Ramanagar District, Karnataka - 562112

**Dr CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL
EDUCATION AND RESEARCH**

LESSON PLAN- Anaemia-II

Name of the teacher: Dr Ranjani Kulkarni

Date & Time allotted: 02/11/23,

9-10A.M

Class: MBBS

Subject: Physiology

Venue: Lecture Hall-1

Duration: 60 minutes

Competency Addressed: PY 2.5: Describe different types of Anaemia and Jaundice.

Specific Learning Objectives: At the end of the class student should be able to:

1. List the Causes and Clinical features of Iron Deficiency Anaemia
2. Describe the Management of Iron Deficiency Anaemia
3. List the Causes and Clinical features of Pernicious Anaemia
4. Describe the Management of Pernicious Anaemia
5. Define and Classify Thalassemia.

Teaching learning method: Lecture, Case based Discussion

Sl no	Content	Time	T-L Media used
1	Pre evaluation	05 mins	PPT
2	Iron Deficiency Anaemia- Causes	05 mins	PPT
3	Clinical features and Management of Iron Deficiency Anaemia	10 mins	PPT
4	Pernicious Anaemia- Causes	10mins	PPT
5	Clinical features and Management of Pernicious Anaemia	10 mins	PPT
6	Define Thalassemia.	05 mins	PPT
7	Types and Clinical features of Thalassemia	10 mins	PPT
8	Post-evaluation	05 mins	PPT

Pre-evaluation:

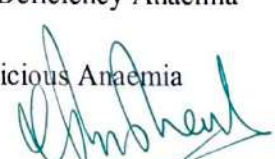
- a) What is Iron Deficiency Anaemia
- b) What is Pernicious Anaemia?

Post- evaluation:

- a) List the Causes of Iron Deficiency Anaemia
- b) Describe the Clinical features and Management of Iron Deficiency Anaemia
- c) List the Causes of Pernicious Anaemia
- d) Describe the Clinical Features and Management of Pernicious Anaemia
- e) Define and Classify Thalassemia

Suggested further reading:

- a) Guyton and Hall- Text Book of Medical Physiology
- b) Indu Khurana- Text Book of Medical Physiology


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**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL
EDUCATION AND RESEARCH**

LESSON PLAN

Date: 19/10/23

Name of the teacher: Dr Vidyashree H M

Time allotted: 9.00 - 10.00 AM.

Class: 1st MBBS.

Subject: Physiology.

Venue: Lecture Hall-1, College Building

Duration: 1hr.

Topic: Transport mechanism-2

Competency Addressed: Describe and discuss transport mechanisms across cell membranes

Specific Learning Objectives: At the end of the class student should be able to:

1. What is Active Transport?
2. What are the types of Active Transport?
3. What is Primary Active Transport? Explain with examples.
4. What is Secondary Active Transport? Explain with examples.
5. What is vesicular transport? Explain with types of vesicular transport.

Teaching learning method: Didactic lecture

Sl no	Content	Time	T-L Media used
1	Introduction & pre-evaluation	10 mins	--
2	Primary active transport with examples	15 mins	PPT
3	Secondary active transport with examples	15 mins	PPT
4	Vesicular transport	10 mins	PPT
5	Applied physiology	5 mins	PPT
6	Summary & post evaluation	5 mins	--

ICT : https://youtu.be/ht-xXz5zCGE?si=k4qAcQ8_ASbqWl9f

Pre-evaluation:

- a) Classification of different types of transport mechanism.
- b) What is diffusion?
- c) What is osmosis?
- d) What is exosmosis?
- e) What is endosmosis?

Post- evaluation:

- a) Give the definitions of different types of active transport mechanisms.
- b) What are the functions of Sodium-Potassium-ATPase pump?

Suggested further reading:

- a) Guyton&Ganong.


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**Dr CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL
EDUCATION AND RESEARCH**

LESSON PLAN- Cardiac Output- I

Name of the teacher: Dr Ranjani Kulkarni **Date & Time allotted:** 28.12.23, 9 to 10am

Class: MBBS

Subject: Physiology

Venue: Lecture Hall-I

Duration: 60 minutes

Competency Addressed: PY5.9: Describe the factors affecting heart rate, regulation of cardiac output & blood pressure

Specific Learning Objectives: At the end of the class student should be able to:

- Define cardiac output and the factors affecting the cardiac output.
- Define cardiac index

Teaching learning method: Lecture, Interactive session

Sl no	Content	Time	T-L Media used
1	Pre evaluation	05 mins	PPT
2	Define Cardiac output	20 mins	PPT
3	Cardiac index	15 mins	PPT
4	Regulation of cardiac output- overview	15 mins	PPT
5	Post-evaluation	05 mins	PPT

IC: <https://youtu.be/vFRkSB46bl8?si=LLgXIVpbwLeJctAg>

Pre-evaluation:

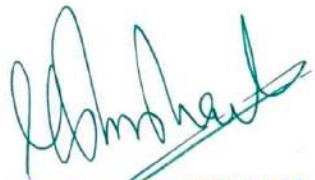
- a) What is stroke volume?
- b) What is cardiac output?

Post- evaluation:

- a) What is Cardiac out? Give normal values.
- b) What is Intra- pleural pressure? Give normal values.
- c) What is trans-pulmonary pressure? What is its significance ?

Suggested further reading:

- a) Guyton and Hall- Text Book of Medical Physiology
- b) Indu Khurana- Text Book of Medical Physiology


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**Dr CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL
EDUCATION AND RESEARCH**

LESSON PLAN- Cardiac Output- II

Name of the teacher: Dr Ranjani kulkarni

Date & Time allotted: 29/12/23

11.15 to 12.15 noon

Class: MBBS

Subject: Physiology

Venue: Lecture Hall-1

Duration: 60 minutes

Competency Addressed: PY5.9: Describe the factors affecting heart rate, regulation of cardiac output & blood pressure

Specific Learning Objectives: At the end of the class student should be able to:

- Describe extrinsic autoregulation of cardiac output
- Describe intrinsic autoregulation of cardiac output

Teaching learning method: Lecture, Interactive session

Sl no	Content	Time	T-L Media used
1	Pre evaluation	05 mins	PPT
2	Extrinsic autoregulation of cardiac output	20 mins	PPT
3	Intrinsic autoregulation of cardiac output- Heterometric regulation	15 mins	PPT
4	Intrinsic autoregulation of cardiac output- Homometric regulation	15 mins	PPT
5	Post-evaluation	05 mins	PPT

ICJ: <https://youtu.be/vFRkSB46bl8?si=LLgXIVpbwLeJctAg>

Pre-evaluation:

- a) What is Frank Starling's Law?

Post- evaluation:

- Describe extrinsic regulation of cardiac output.
- Describe intrinsic regulation of cardiac output.

Suggested further reading:

- a) Guyton and Hall- Text Book of Medical Physiology
b) Indu Khurana- Text Book of Medical Physiology


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**Dr CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL
EDUCATION AND RESEARCH**

LESSON PLAN

Name of the Teacher: Dr Veena C N
Class: 1st year MBBS
Strength: 150
Venue: Lecture Hall 1, CDSIMER

Date: 12.01.2024
Time: 11:15am – 12.15pm.
Subject: Physiology
Duration: 60 minutes

Topic: Hemodynamics - II

Competency addressed: Describe and discuss haemodynamics of circulatory system

Specific Learning objectives: At the end of session, the learner should be able to

Teaching Learning Method: Lecture

Sl no.	Content	Time	T-L Media
1.	Pre evaluation	05 mins	--
2.	General principles governing blood flow	05 mins	Ppt
3.	Velocity vs Blood flow	10mins	Ppt
4.	Bernoulli's Principle	5mins	Ppt
5.	Ohms Law	5mins	Ppt
6.	Poiseuille-Hagen formula	10mins	Ppt
7.	Laplace law	5mins	Ppt
8.	Circulation time	10mins	Ppt
9.	Post evaluation	05 mins	---

ICJ: <https://youtu.be/Bx9Nu2PkPsE>

Pre-evaluation:

1. What is Reynolds's number?
2. What are the functions of circulation?

Post Evaluation:

1. State Laplace law
2. Explain Bernoulli's principle

Suggested further reading:

- a) Text book of Medical Physiology, Guyton & Hall. 14th edition.
- b) Ganong's review of Medical Physiology, Ganong. 26th Edition


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**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL
EDUCATION AND RESEARCH**

LESSON PLAN

Name of the teacher: Dr.Monica J

Time allotted:30/01/2410-11AM

Class: 1stMBBS

Subject: Physiology

Venue: lecture hall-1, College building

Duration:1hr

Competency Addressed: PY 5.9 – Cardiovascular effects on posture, exercise & gravity.

Specific Learning Objectives: At the end of the class student should be able to:

- 1.Effect of rising from supine to upright position.
- 2.Effect of prolonged standing.
- 3.Effect of mild, moderate & severe exercise.
- 4.Effect of gravity on CVS (Acceleration & deceleration)
- 5.Effect of zero gravity on CVS (weightlessness)

Teaching learning method: Didactic lecture

Sl no	Content	Time	T-L Media used
1	Introduction & pre-evaluation	5 min	--
2	Effect of rising from supine to upright position.	10 min	PPT
3	Effect of prolonged standing.	10 min	PPT
4	Effect of mild, moderate & severe exercise.	10 min	PPT
5	Effect of gravity on CVS (Acceleration & deceleration)	10 min	PPT
6	Effect of zero gravity on CVS (weightlessness)	10 min	PPT
7	Summary & post evaluation	5min	--

ICT: <https://www.acsm.org/education-resources/books/guidelines-exercise-testing-prescription>

Suggested further reading:

- a) Guyton and Hall- Text Book of Medical Physiology
- b) Indu Khurana- Text Book of Medical Physiology

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**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL
EDUCATION AND RESEARCH**

LESSON PLAN

Date: 05.02.2024

Name of the Teacher : Dr Kanchana R

Time allotted: 9.00 to 10.00 A.M

Class: Ist MBBS

Subject: Physiology

Venue: Lecture hall-1, College building

Duration: 1 hour

Competency addressed: Describe the diffusion capacity of the lungs

Specific Learning Objectives: At the end of the class student should be able to:

1. Define Pulmonary Diffusion. Mention the factors affecting Pulmonary Diffusion
2. Define diffusion capacity of the lungs. Discuss the factors affecting Diffusion capacity
3. Explain how to measure diffusion capacity of lungs

Teaching learning method: Lecture

Sl no	Content	Time	T-L Media used
1	Pre evaluation	5 mins	--
2	Respiratory membrane	10mins	PPT
3	Factors affecting pulmonary diffusion	15mins	PPT
4	Factors affecting diffusion capacity of the lungs	15mins	PPT
5	Measurement of Diffusion Capacity	10mins	PPT
6	Post-evaluation	5mins	---

ICT: https://www.youtube.com/watch?v=WzrN6sJ1i_g

Pre-evaluation:

- a) What do you mean by Diffusion Capacity?
- b) What forms respiratory membrane?

Post- evaluation:

- a) Mention the different layers of Respiratory Membrane?
- b) Mention the factors affecting diffusion capacity of lungs.

Suggested further reading:

- a) Text book of Medical Physiology, Guyton & Hall. 14th edition.
- b) Ganong's review of Medical Physiology, Ganong. 26th Edition


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**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL
EDUCATION AND RESEARCH**

LESSON PLAN

Date:18/03/2024 9-10am

Name of the teacher: Dr. Chaitra N D

Time allotted:1 hour

Class: 1st MBBS

Subject: Physiology

Venue: Lecture hall 1

Competency Addressed: PY 7.1: Describe structure and function of kidney

PY 7.2: Describe structure and function of juxtaglomerular apparatus

PY 7.3: Explain the role of renin angiotensin system

Specific Learning Objectives: At the end of the class student should be able to understand:

- Introduction
- Gross anatomy of kidneys
- Microscopic structure of kidney
- Juxtaglomerular apparatus

Teaching learning method: Didactic lecture

Sl no	Content	Time(mins)	T-L Media used
1	Pre-evaluation and introduction	5	--
2	Gross anatomy of kidneys	15	Ppt
3	Microscopic structure of kidneys	15	Ppt
4	Juxtaglomerular apparatus	20	Ppt
5	Post-evaluation and summary	5	--

ICJ: <https://www.youtube.com/watch?v=T0uXfPBMIAM>

Pre-evaluation:

1. Knows about physiological anatomy of kidneys
2. Structure of JGA

Post- evaluation:

1. Microscopic structure of kidneys
2. Function of JGA

Suggested further reading: latest editions of

- a) Guyton
- b) Ganong


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Dr. Prashanth Kumar M
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District, Karnataka - 562112

**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL
EDUCATION AND RESEARCH**

LESSON PLAN

Date: 8.4.24

Name of the teacher: Dr.Ravikumar.A.J

Time allotted:9.00 -10.00 AM.

Class: IstMBBS

Subject: Physiology

Venue: lecture hall-1, College building

Duration: 1hr

Competency Addressed: PY 7.9 – Cystometrogram and Micturation.

Specific Learning Objectives: At the end of the class student should be able to:

1. Physiology of micturition.
2. Cystometry and normal cystometrogram.

Teaching learning method: Didactic lecture

Sl no	Content	Time	T-L Media used
1	Introduction & pre-evaluation	5 min	--
2	Physiological anatomy of urinary bladder	10 min	PPT
3	Nerve supply of urinary bladder.	10 min	PPT
4	Postural activity of urinary bladder.	10 min	PPT
5	Micturition reflex.	10 min	PPT
6	Cystometry and normal cystometrogram.	10 min	PPT
7	Summary & post evaluation	5min	--

ICT: <https://www.youtube.com/watch?v=jIB2dZT8zd8>

Suggested further reading:

- a) Guyton and Hall- Text Book of Medical Physiology
- b) Indu Khurana- Text Book of Medical Physiology



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**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL
EDUCATION AND RESEARCH**

LESSON PLAN

Name of the Teacher: Dr Veena C N

Class: 1st MBBS

Subject: Physiology

Venue: Lecture hall-1, College building

Duration: 31/5/24 (11am-12pm)

Competency addressed: Signs of Decerebrate rigidity, Decorticate rigidity & Midbrain animal

Specific Learning Objective

At the end of the class student should know,

- Difference between Decerebrate rigidity, Decorticate rigidity & Mid brain animal
- Difference between Intercollicular decerebration & Ischaemic decerebration
- Various Postural reflexes

Teaching/Learning methods: Lecture

Sl No.	Content	Time	T-L Media used
1	Pre evaluation	5 mins	--
2	Decerebrate rigidity – Types & signs	15 mins	PPT
3	Decorticate rigidity – Signs	15 mins	PPT
4	Mid brain animal – signs	15 mins	PPT
5	Post evaluation	10 mins	--

ICJ: <https://www.youtube.com/watch?v=8xxe2WWWoYI>

Pre evaluation.

- a) Do you know the effect of mid collicular section?
- b) Do you know what is mid brain animal?

Post evaluation.

- a) What is Opisthotonus?
- b) What is Tonic Labyrinthine reflex?
- c) What is Tonic neck reflex?
- d) Name the Righting reflexes.

Suggested further reading:


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LESSON PLAN

Date: 05-01-2024

Name of the teacher: Dr Nirupama M

Time allotted: 4 pm to 5 pm

Class: II MBBS

Subject: Pathology

Venue: Lecture hall 2, G Block, College building.

Duration: 1 hour

Competency Addressed:

Describe and Discuss cell death, its types, mechanisms, necrosis, apoptosis.

Specific Learning Objectives:

1. Define Apoptosis and necrosis (5mins)
2. Discuss types and morphological patterns of necrosis with examples.(10 min).
3. Describe the Physiological & Pathological causes of apoptosis with Examples (15mins)
4. Describe the Morphological and Biochemical changes in apoptosis (10mins)
5. Explain Mechanisms - Intrinsic and extrinsic pathways(10mins)

Teaching learning method - Lecture

ICT- You tube video for apoptosis. <https://youtu.be/-vmtK-bAC5E?feature=shared>.

Pre-evaluation: examples of apoptosis and necrosis were asked.(5 mins).

Post- evaluation: Questions were asked to assess the knowledge acquired after the class practically related to the topic. (5 mins)

Suggested further reading: Text book of Pathology – by Robbins.

[Type text]

Nirupama M	Nirupama M
Signature of faculty	Signature of HOD

LESSON PLAN

Date: 19-01-2024

Name of the teacher: Dr Archana S

Time allotted: 4 pm to 5 pm

Class: II MBBS

Subject: Pathology

Venue: Lecture hall 2, G Block, College building.

Duration: 1 hour

Competency Addressed:

Describe the pathogenesis and pathology of amyloidosis.

Specific Learning Objectives:

1. Define and classify Amyloid. (15mins)
2. Discuss the pathogenetic pathways of amyloid formation (20mins)
3. List morphological changes in most commonly affected organs (5mins)
4. List the special stains used in the diagnosis of amyloid by various methods including polarizing microscopy (10)

Teaching learning method - Lecture

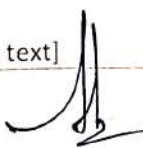
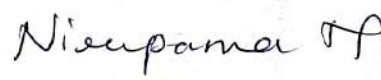
ICT- Kahoot platform

Pre-evaluation: Case scenario of a person with frequent dialysis with renal failure was given and asked for diagnosis. (5 mins).

Post- evaluation: Questions were asked to assess the knowledge acquired after the class practically related to the topic. Same case scenario was discussed. (5 mins)

Suggested further reading: Text book of Pathology – by Robbins.

[Type text]

	
Signature of faculty	Signature of HOD

Dr Archana S

Head Dept. of Pathology
Dr. Chandramma Dayananda Sagar
 Institute of Medical Education & Research
 DSU, Devarakaggalahalli, Harohalli,
 Kanakapura Taluk, Ramanagara District - 562112

LESSON PLAN

Date: 16-3-2022

Name of the teacher: Dr Archana S

Time allotted: 8 am to 9 am

Class: II MBBS

Subject: Pathology

Venue: Lecture hall 2, G Block, College building.

Duration: 1 hour

Competency Addressed: Define and describe general features of acute inflammation including stimuli, vascular and cellular events.

Specific Learning Objectives:

1. Definition of inflammation and its types.(5mins)
2. Sequence of vascular and cellular events in inflammation. (15mins)
3. List the sequelae of acute inflammation. (5mins)
4. List and describe morphologic patterns of acute inflammation(10mins)
5. Define and describe phagocytosis, chemotaxis and opsonisation. (15mins)

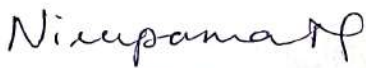
Teaching learning method – Lecture

ICT used- You tube video showing phagocytosis. <https://youtu.be/8844-mPOcGWQ?feature=shared>

Pre-evaluation: Case scenario of a person with increased leucocyte count and pain abdomen was given and asked for diagnosis.(5 mins).

Post- evaluation: Questions were asked to assess the knowledge acquired after the class practically related to the topic. Same case scenario was discussed. (5 mins)

Suggested further reading: Text book of Pathology – by Robbins.

[Type text] 	
Signature of faculty	Signature of HOD

Archana Shetty

Head Dept. of Pathology
Dr.Chandramma Dayananda Sagar
 Institute of Medical Education & Research
 DSU, Devarakaggalahalli, Harohalli,
 Kanakapura Taluk, Ramanagara District - 562112

LESSON PLAN

Date: 04- 04-2024

Name of the teacher: Dr Aparna M

Time allotted: 9 am to 10 am

Class: II MBBS

Subject: Pathology

Venue: Lecture hall 2, G Block, College building.

Duration: 1 hour

Competency Addressed:

1. Describe iron metabolism.
2. Describe the etiology, investigations and differential diagnosis of microcytic hypochromic anemia.

Specific Learning Objectives:

1. Causes of microcytic hypochromic anemia. (5 mins)
2. Describe iron metabolism. (10 mins).
3. Describe investigations in Iron deficiency anemia. (20 mins).
4. Differential diagnosis of iron deficiency anemia. (15 mins).

Teaching learning method -- Lecture

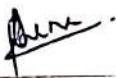
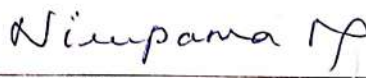
ICT- you tube video showing Iron metabolism. <https://youtu.be/c5hcnLzLwcc?si=nPWXiUvru-PH4H6>

Pre-evaluation: Case scenario of a person was given and asked for diagnosis.(5 mins).

Post- evaluation: Questions were asked to assess the knowledge acquired after the class practically related to the topic. Same case scenario was discussed. (5 mins)

Suggested further reading: Text book of Pathology – by Robbins.

[Type text]

	
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LESSON PLAN

Date: 10-04-2024

Name of the teacher: Dr Aparna M

Time allotted: 4 to 5pm

Class: II MBBS

Subject: Pathology

Venue: Lecture hall 2, G Block, College building.

Duration: 1 hour

Competency Addressed:

1. Describe the metabolism of vitamin b12 and etiology, pathogenesis and lab diagnosis of b12 deficiency.

2. Etiology and distinguishing features of megaloblastic anemia.

Specific Learning Objectives:

1. List the aetiology of megaloblastic anaemia (5 mins)
2. Metabolism of vitamin B12 and folic acid (15 mins)
2. Enumerate the clinical features, lab diagnosis of megaloblastic anaemia (15 mins).
3. Outline the etiology and laboratory diagnosis of pernicious anaemia(10 mins).
4. Distinguishing features of megaloblastic and non megaloblastic macrocytic anemia. (5 mins).

Teaching learning method – Lecture

ICT- you tube video showing Vitamin B12 and folate metabolism.

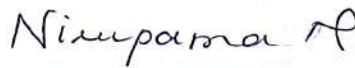
<https://youtu.be/HdIXNo-FQ> no? feature = shared

Pre-evaluation: Case scenario of a person was given and asked for diagnosis.(5 mins).

Post- evaluation: Questions were asked to assess the knowledge acquired after the class practically related to the topic. Same case scenario was discussed. (5 mins)

Suggested further reading: Text book of Pathology – by Robbins.

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LESSON PLAN

Date: 22-5-2024

Name of the teacher: Dr Nirupama M

Time allotted: 4 to 5pm

Class: II MBBS

Subject: Pathology

Venue: Lecture hall 2, G Block, College building.

Duration: 1 hour

Competency Addressed:

Classify and describe the pathogenesis, pathology, classification, differentiating features of hodgkin's and non hodgkin's lymphoma.

Specific Learning Objectives:

1. Classify Lymphoid neoplasms. (5 mins).
2. Describe clinical features & classification of Hodgkin Lymphoma (HL), Reed Sternberg cell and its variants (5mins)
3. Describe morphology of Nodular sclerosis and Mixed cellularity HL.(10mins)
4. Describe the staging of HL.(10mins)
5. Describe the WHO classification of NHL along with clinical features using a table(5mins)
6. Describe the differences between Hodgkin and Non Hodgkin Lymphoma (10mins)
7. Describe the clinical staging of lymphoma (10 mins)

Teaching learning method :Lecture

ICT – Kahoot platform

Pre-evaluation: Case scenario of a person was given and asked for diagnosis.(5 mins).

Post- evaluation: Questions were asked to assess the knowledge acquired after the class practically related to the topic. Same case scenario was discussed. (5 mins)

Suggested further reading: Text book of Pathology – by Robbins.

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Signature of faculty	Signature of HOD

Head Dept. of Pathology
 Dr.Chandramma Dayananda Sagar
 Institute of Medical Education & Research

LESSON PLAN

Date: 22-07-2024

Name of the teacher: Dr Divyashree

Time allotted: 4 to 5pm

Class: II MBBS

Subject: Pathology

Venue: Lecture hall 2, G Block, College building.

Duration: 1 hour

Competency Addressed:

Describe the epidemiology, risk factors, etiology, pathophysiology, pathology, presentations, gross and microscopic features, diagnostic tests and complications of ischemic heart disease.

Specific Learning Objectives:

1. Describe the epidemiology, risk factors and spectrum of IHD (10 mins)
2. Describe pathogenesis and dynamic plaque changes in IHD (10 mins)
3. Describe the clinical presentations of IHD in relation to the plaque changes (5 mins)
4. Describe pathogenesis and response of myocardium to ischemia (10 mins)
5. Describe the gross and microscopy of myocardial infarction (5 mins)
6. Discuss the lab diagnosis and complications of acute coronary syndromes (10 mins)

Teaching learning method – Lecture

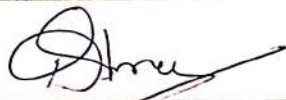
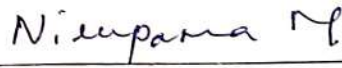
ICT- You tube video <https://youtu.be/9XWcc3CtTMR?feature=shared>

Pre-evaluation: Case scenario of a person with Myocardial Infarction was given and asked for diagnosis. (5 mins)

Post- evaluation: Questions were asked to assess the knowledge acquired after the class practically related to the topic. Same case scenario was discussed. (5 mins)

Suggested further reading: Text book of Pathology – by Robbins.

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 Kanakapura Taluk, Ramenagara District - 562112

LESSON PLAN

Date: 01- 08-2024

Name of the teacher: Dr Nidha Gaffoor

Time allotted: 4 to 5pm

Class: II MBBS

Subject: Pathology

Venue: Lecture hall 2, G Block, College building.

Duration: 1 hour

Competency Addressed:

1. Define and classify describe etiology, pathogenesis, pathology, laboratory, urinary findings distinguishing features and complications of vascular diseases of kidney.
2. Describe etiology, genetics, pathogenesis, pathology, presenting features and progression of thrombotic angiopathies.

Specific Learning Objectives:

1. Classify vascular diseases of kidney(5mins).
2. Explain the pathogenesis of benign and malignant nephrosclerosis (10 mins)
3. Discuss the gross and microscopy of benign and malignant nephrosclerosis (10 mins)
4. Discuss lab findings and complications of nephrosclerosis(10mins)
5. Etiology, genetics of thrombotic angiopathies.(5 mins)
6. Pathogenesis, pathology of thrombotic angiopathies.(5mins)
7. Progression of thrombotic angiopathies.(5mins)

Teaching learning method – Lecture

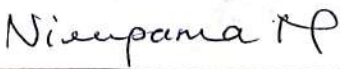
ICT - Slido

Pre-evaluation: Case scenario of a person with hypertension was given and asked for diagnosis.(5 mins)

Post- evaluation: Questions were asked to assess the knowledge acquired after the class practically related to the topic. Same case scenario was discussed. (5 mins)

Suggested further reading: Text book of Pathology – by Robbins.

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LESSON PLAN

Date: 14-08-2024

Name of the teacher: Dr Himasree E

Time allotted: 9 am to 10 am

Class: II MBBS

Subject: Pathology

Venue: Lecture hall 2, G Block, College building.

Duration: 1 hour

Competency Addressed:

Describe the pathogenesis, presenting and distinguishing features, diagnostic test, progression and spread of carcinoma of penis.

Specific Learning Objectives:

1. Describe the pathogenesis. (15 mins)
2. Morphology of carcinoma of penis. (10 mins).
3. Presenting features, progression and spread of carcinoma of penis. (15 mins).
4. Distinguish condyloma acuminatum, bowens disease and carcinoma penis. (10 mins).

Teaching learning method – Lecture

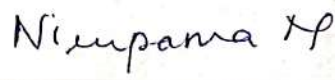
ICT- Slido platform

Pre-evaluation: Case scenario of a person was given and asked for diagnosis. (5 mins).

Post- evaluation: Questions were asked to assess the knowledge acquired after the class practically related to the topic. Same case scenario was discussed. (5 mins)

Suggested further reading: Text book of Pathology – by Robbins.

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LESSON PLAN

Date: 19-08-2024

Name of the teacher: Dr Himasree E

Time allotted: 4 to 5pm

Class: II MBBS

Subject: Pathology

Venue: Lecture hall 2, G Block, College building.

Duration: 1 hour

Competency Addressed:

Describe the epidemiology, pathogenesis, etiology, pathology, screening diagnosis and progression of carcinoma of cervix.

Describe the etiology and morphologic features of cervicitis.

Specific Learning Objectives:

1. Classify Premalignant lesions of the cervix. (10 mins)
2. Discuss the Epidemiology and etiopathogenesis of carcinoma cervix. (10 mins).
3. List the classification of carcinoma cervix. (5 mins).
4. Discuss the morphology of carcinoma cervix. (10 mins)
5. List the staging and clinical features of carcinoma cervix. (5 mins)
6. Screening methods for Carcinoma cervix. (5 mins).
7. Etiology and morphology of cervicitis. (5 mins).

Teaching learning method – Lecture

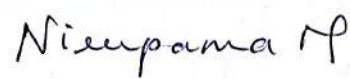
ICT- Mentimeter

Pre-evaluation: Case scenario of a person was given and asked for diagnosis. (5 mins).

Post- evaluation: Questions were asked to assess the knowledge acquired after the class practically related to the topic. Same case scenario was discussed. (5 mins)

Suggested further reading: Text book of Pathology – by Robbins.

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LESSON PLAN (THEORY)

Date: 04-08-2023

Name of the teacher: Dr Ravi D Mala

Class: 2nd MBBS

Subject: Pharmacology

Venue: Lecture hall-2 College building

Duration: 1 hour

Competency Addressed: PH 1.19D Anti-depressants

Specific Learning Objectives:

1. Define Depression. Explain the pathophysiology of Depression.
2. Classify Antidepressant drugs.
3. Describe the mechanism of Antidepressant action.
4. Describe the pharmacological actions of Antidepressants.
5. Describe the adverse effects and drug interactions with Antidepressants.
6. Management of acute poisoning with tricyclic antidepressants.
7. Describe therapeutic uses of Antidepressants including those other than depression.

Teaching learning method:

SI No	Content	Time	T-L Media used
1	Pre - Evaluation	5 min	PPT
2	Definition & Pathophysiology of depression	5 min	PPT
3	Classify Antidepressant drugs.	5 min	PPT
4	Describe the mechanism of Antidepressant action.	10min	PPT
5	Describe the pharmacological actions of Antidepressants.	10 min	PPT
6	Describe the adverse effects and drug interactions with Antidepressants & management of TCAs overdose	15 min	PPT
7	Describe therapeutic uses of Antidepressants	5min	PPT
8	Post -evaluation	5 min	PPT

Pre-evaluation:

1. What are TCAs and SSRIs?

Post- evaluation :

1. Typical & Atypical anti-depressants ?

Suggested further reading: Essentials of medical pharmacology K D Tripathi 8 th edition

Handwritten signature and stamp:
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	Describe the mechanism of action of drugs used in the treatment of infertility	5	
	Describe the therapeutic uses of drugs used in the treatment of infertility	5	
	Describe the precautions and contraindications of drugs used in the treatment of infertility	5	
	Describe the adverse effects of drugs used in the treatment of infertility	5	
	Describe the drug interactions of drugs used in the treatment of infertility	5	
	Describe the causes of erectile dysfunction	5	
	Enumerate drugs used in erectile dysfunction	5	
	Describe the mechanism of action of drugs used in erectile dysfunction	5	
	Describe the therapeutic uses of drugs used in erectile dysfunction	5	

Pre-evaluation: <https://docs.google.com/forms/d/14cEHgzY463U-9dHdg6hFJRgNJJvh6sOWPPTddixYYiY/edit#responses>

Post- evaluation:

https://docs.google.com/forms/d/1On_hSpQHhV5tB0f1UhjkT19zMZ9kigPSUXkkIHKcqII/edit

Suggested further reading:

Pharmacology by KD Tripathi

Pharmacology by Padmaja

Pharmacology by Srivasthava

P. Chivara

DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL EDUCATION AND RESEARCH
LESSON PLAN (PRACTICAL)

Date: 05 & 08-08-2023

Name of the teacher: Dr.Ravi D Mala

Time allotted: 2-4 pm

Class: MBBS Phase 2

Subject: Pharmacology

Venue: Demo-room

Duration: 2 hour

Competency Addressed: PH 3.7: Prepare a list of essential medicines for a health care facility .

Specific Learning Objectives:

1. Describe the concept of Essential Medicines List for the nation/state/ health care facility
2. Describe the factors that determine the choice of drugs in an Essential Medicines List
3. Prepare a list of essential medicines for a healthcare facility

Teaching learning method: SGD

Sl no	Content	Time	T-L Media used
1.	Pre-test	5 min	
2.	Discuss concept of essential medicine	10 mins	PPT
3.	Discuss selection criteria for essential medicine	10 mins	PPT
4.	Discuss national list of essential medicine	10 mins	PPT
5.	Discuss criteria for selection of essential medicine	10mins	PPT
6.	Case study 1 : Prepare essential medicine list	5 mins	PPT
7.	Case Study 2: Prepare essential medicine list	5mins	PPT
6.	Post test	5 mins	

R. Chivallu

Case Study: 1. A 50yr old male diagnosed with primary syphilis, was given Inj Benzathine penicillin 2.4million units IM. 30 minutes post administration, patient felt his throat beginning to swell, developed a rash, and felt dizzy and weak. Prepare a list of essential medicines for the given case scenario

Medicine	Healthcare	Dosage & strength
Adrenaline	P,S,T	Injection 1 mg/ml
Chlorpheniramine	P,S,T	Tablet 4 mg Oral liquid 2 mg/5 ml
Dexamethasone	P,S,T	Tablet 0.5 mg Injection 4 mg/ml
CETIRIZINE	P,S,T	Tablet 10mg Oral liquid 5 mg/5 ml
Hydrocortisone	P,S,T	Powder for Injection 100 mg
Pheniramine	P,S,T	Injection 22.75 mg/ml
Prednisolone	P,S,T	Tablet 5 mg Tablet 10 mg Tablet 20 mg Oral liquid 5 mg/5 ml Oral liquid 15 mg/5 ml

Ans:

2. Malli, a 45 year old female from chennagiri presented to emergency with high grade fever, with chills & rigor, fatigue and nausea asince 3 days . She had shown at a GPs clinic and was treated with some antipyretics and antibiotics for 3 days. On examination, peripheral smear showed rosette forms of P. malariae, oval shaped RBCs making a diagnosis of malaria. Prepare an essential medicine list for your facility for malaria.

Pre-evaluation:

1. Define essential medicines?
2. What are the components of essential medicine list in a hospital?

Post- evaluation:

1. Name the essential medicine list for your hospital setting
2. What are National essential medicine list?

Suggested further reading: 1. Text book of Pharmacology, K D Tripathi

2. Textbook of Pharmacology, Srivastava

K. Divya

**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL EDUCATION
AND RESEARCH**

LESSON PLAN

Date: 9-8-2023 & 11-8-2023

Name of the teacher: Dr Raghavendra B

Time allotted: 2-4 pm

Class: 2nd MBBS

Subject: Pharmacology

Venue: Demo room Pharmacology

Duration: 2 hour

Competency Addressed: PH 5.1: Communicate with the patient with empathy and ethics on all aspects of drug use

Specific Learning Objectives:

17. Describe what information should be given to patients to allow them to make informed decisions
18. Communicate treatment plan and instructions to patient, at a suitable level of information
19. Engage in shared decision making where appropriate

Teaching learning method: SGD

SI No	Content	Time	T-L Media used
1	Pre - Evaluation	10 min	Discussion
2	Introduction and concepts	10 min	PPT
3	Outcomes of professional empathy towards patients	10 min	PPT
4	Principles and steps of effective communication	10 min	PPT
5	Informed decision making-type , amount of information to be shared and its importance	10 min	PPT
6	Ethical principles of health care	20 min	PPT
7	Role play based on a clinical scenario	30 min	Discussion
8	Post -evaluation	20 min	Discussion

Pre-evaluation: What is empathy and what is sympathy?

Post- evaluation. What are the outcomes of professional empathy?

What are the ethical principles of patient care?

Suggested further reading: AETCOM book by MCI

Clinical cases from online sources

N. Shivakumar

3. Suggested further reading: Essentials of medical pharmacology K D Tripathi 8th edition DAYANANDA SAGAR INSTITUTE OF MEDICAL EDUCATION AND RESEARCH

LESSON PLAN

Date: 01/9/2023

Name of the teacher: Dr.Padmaja Shetty K

Time allotted: 9-10AM

Class: MBBS, Phase 2

Subject: Pharmacology

Venue: Lecture Hall 2, College Building Duration: 1 hour

Competency : PH 1.24(B) :Describe the mechanism/ s of action, types, doses, side effects, indications and contraindications of the drugs affecting renal systems including diuretics, antidiuretic s- vasopressin and analogues

Specific Learning Objectives: At the end of the session the student should be able to:

1. Briefly describe the carbonic anhydrase inhibitors and their current uses of diuretics
2. Doses ,routes of administration and preparations of hydrochlorthiazide,furosemide,amiloride, eplerenone, triamterene
3. Classify the vasopressin receptors.
4. Describe the physiological actions of Vasopressin
5. Classify anti-diuretic drugs.
6. Enumerate the vasopressin analogues
7. Describe the adverse effects of Vasopressin.
8. Describe the therapeutic uses of Vasopressin and its analogues explaining the rationale behind their use.

Teaching learning method: Didactic lecture

Sl no	Content	Time	T-L Media used
1.	Introduction to diuretics	10mins	Animation & PPT
2.	Classify diuretics, their mechanism of action , pharmacological actions	20mins	PPT

Dr. Shiva

**Dr. CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL EDUCATION
AND RESEARCH**

LESSON PLAN

Name of the teacher: Dr. Sagar Puli
Class: 2nd MBBS
Venue: Lecture Hall

Date: 07-02-2024
Time allotted: 04-05 PM
Subject: Pharmacology
Duration: 1 hour

Competency Addressed Module: Competency: PH 1.13D: Describe mechanism of action, types, doses, side effects, indications, and contraindications of adrenergic and anti-adrenergic drugs

Specific Learning Objectives: At the end of the session, student should be able to

1. Classify sympatholytics based on site of action
2. Classify alpha-adrenergic receptor antagonists and compare and contrast them with selective agents
3. Describe the pharmacological effects and applied pharmacokinetics, ADRs, precautions and therapeutic uses of prazosin
4. State the advantages of other selective alpha1 antagonists over prazosin, co-relating the same with their therapeutic use

Teaching learning method:

No	Pre - Evaluation	Content	Time	T-L Media used
1			5 min	PPT
2		Classify sympatholytics based on site of action	5 min	PPT
3		Classification of alpha-adrenergic receptor antagonists and compare and contrast them with selective agents	10 min	PPT
4		Pharmacological effects and applied pharmacokinetics, ADRs, precautions and therapeutic uses of prazosin	20	PPT
		Advantages of other selective alpha1 antagonists over prazosin, co-relating the same with their therapeutic use	15	PPT
6	Post-evaluation		5 min	PPT

Pre-evaluation: Enumerate the types and location of adrenergic receptors

Post-evaluation.

1. Describe the management of pheochromocytoma, BPH, essential hypertension, Scorpion sting bite
2. Describe the possible adverse effects of alpha-adrenergic antagonists
3. Suggested further reading:
 1. Essentials of medical pharmacology, K D Tripathi 8th edition Pharmacology
 2. Manual of practical pharmacology for MBBS, Dr. Mukta Chowta, 1st edition

V. Anuska

DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL EDUCATION
AND RESEARCH

LESSON PLAN

Date: 11-03-2024

Name of the teacher: Dr Anusha SJ

Time allotted: 2-4 pm

Class: 2nd MBBS

Subject: Pharmacology

Venue: Demo room Pharmacology

Duration: 2 hour

Competency Addressed Module: PH 3.3: Perform a critical evaluation of the drug promotional literature

Specific Learning Objectives: At the end of the session, student should be able to
Describe the importance of critical evaluation of drug promotional literature
Critically evaluate the given drug promotional literature based on WHO criteria
Appropriateness of illustration
Relevance of references cited
Content of scientific information

Teaching learning method:

Sl No	Content	Time	T-L Media used
1	Pre - Evaluation	5 min	PPT
2	Drug promotional literature	90 min	PPT
3	Post -evaluation	25 min	PPT

Pre-evaluation:

1. Define Drug promotional literature?

Post- evaluation.

16. Evaluation of checklist for Drug promotional literature?

Suggested further reading:

Essentials of medical pharmacology K D Tripathi 8 th edition
Pharmacology Manual of Practical pharmacology- SK Srivastava

Dr. Anusha SJ

DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL EDUCATION
AND RESEARCH

LESSON PLAN

Date: 1-4-2024

Name of the teacher: Dr Anusha SJ

Time allotted: 9-10 am

Class: 2nd MBBS

Subject: Pharmacology

Venue: Lecture hall-2 College building

Duration: 1 hour

Competency Addressed: Competency :PH 1.16(F): Describe mechanism/ s of action, types, doses, side effects, indications and contraindications of the drugs which act by modulating autacoids, including: anti- histaminic, NSAIDs, drugs for gout, anti-rheumatic drugs

Specific Learning Objectives:

4. Explain the pathophysiology of Gout.
5. Classify drugs used for Gout.
6. Describe mechanism of action and pharmacological actions of drugs used for Gout.
7. Describe the therapeutic uses of drugs used for Gout and enumerate the doses of commonly used drugs for Gout.
8. Discuss the adverse effects, precautions and contraindications of drugs used for Gout.
9. Explain the management of Gout.

Teaching learning method:

SI No	Content	Time	T-L Media used
1	Pre - Evaluation	5 min	PPT
2	Gout and its pathophysiology	15min	PPT and video https://www.youtube.com/watch?v=cojfrtAqI1c
3	Gout - clinical presentation	10 min	PPT
4	Classification of drugs used in gout and its action , uses and adverse effect	20 min	PPT
6	Post-evaluation	10 min	PPT

Pre-evaluation:

1. Define gouty arthritis

Post- evaluation. Classification of drugs used in gout?

2. Describe the management of acute and chronic gouty arthritis?

Shiva

**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL EDUCATION
AND RESEARCH**

LESSON PLAN

Name of the teacher:	Dr. Shiva Murthy N	Time allotted:	9-10 am
Class:	Theory	Date:	5-8-2024
	Subject:	Pharmacology	
Venue:	1st floor lecture hall	Duration:	1 hour
Competency Addressed:	Competency :PH 1-40A: Describe mechanism of action, types, doses, side effects, indications and contraindications of 3. Drugs used in the treatment of infertility, and 4. Drugs used in erectile dysfunction		
Specific Learning Objectives:	5. Describe the causes of infertility 6. Enumerate drugs used in the treatment of infertility 7. Describe the mechanism of action of drugs used in the treatment of infertility 8. Describe the therapeutic uses of drugs used in the treatment of infertility 9. Describe the precautions and contraindications of drugs used in the treatment of infertility 10. Describe the adverse effects of drugs used in the treatment of infertility 11. Describe the drug interactions of drugs used in the treatment of infertility 12. Describe the causes of erectile dysfunction 13. Enumerate drugs used in erectile dysfunction 14. Describe the mechanism of action of drugs used in erectile dysfunction 15. Describe the therapeutic uses of drugs used in erectile dysfunction1		

Teaching learning method:

Sl no	Content	Time	T-L Media used
	Describe the causes of infertility	5	PTV
	Enumerate drugs used in the treatment of infertility	5	

Dr. Shiva Murthy N

DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL EDUCATION
AND RESEARCH

LESSON PLAN

Date: 8-9-2023

Name of the teacher: Dr Raghavendra B

Time allotted: 1 Hour

Class: 2nd MBBS

Subject: Pharmacology

Venue: Lecture hall-2 College building

Duration: 1 hour

Competency Addressed: PH 1.25(B) :Describe the mechanism/ s of action, types, doses, side effects, indications and contraindications of the drugs acting on blood, like anticoagulants, antiplatelets, fibrinolytics, plasma expanders

Specific Learning Objectives:

4. Define fibrinolysis and its mechanisms
5. Enumerate fibrinolytics
6. Describe the actions, adverse effects and advantages of alteplase over streptokinase
7. Describe the therapeutic uses of fibrinolytics
8. Describe the contra-indications to fibrinolytics
9. Describe antifibrinolysis and its application
10. explain the mechanism of action, indications and therapeutic uses of Tranexamic acid
11. Define the functions of platelets in cardiovascular diseases
12. Classify anti-platelet drugs based on their mechanisms of action with examples
13. Compare aspirin, dipyradamole and clopidogrel as anti-platelet agents
14. Describe the therapeutic uses of anti-platelet agents with the rationale for their use in the conditions mentioned
15. Describe the indications for the use of newer antiplatelet agents

Teaching learning method: Didactic lecture

SI No	Content	Time	T-L Media used
1	Pre - Evaluation	2 min	
2	Physiology of fibrinolytic system and role of platelets in bleeding cessation	5 min	PPT
3	Mechanisms of platelet physiological action	3 min	PPT
4	Antiplatelets-mechanism of action of different drugs and therapeutic indications	10 min	
5	Adverse effects and contraindications of antiplatelets	10 min	PPT
6	Fibrinolytics-examples, mechanism of	10 min	PPT

Dr. Raghavendra B



DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF
MEDICAL EDUCATION AND RESEARCH

LESSON PLAN

Name of the faculty: Dr. Divya Udaykumar

Date: 22.08.2023

Time: 8am to 9am

Class: Phase 3 MBBS [2020-21 batch]

Subject: Community Medicine

Venue: Lecture hall

Competency Addressed: CM 13.1 - Define and describe the concept of disaster management.

Specific Learning Objectives:

By the end of the class student should be able to:

- Define disaster & hazard
- Describe disaster management
- Explain triage and color coding system in triage

Teaching learning method: Lecture

Sl no	Content	Time	T-L Media used
1	Introduction	5 mins	Power Point presentation
2	Definition of disaster and hazard	5 mins	
3	Natural and man-made disasters	10 mins	
4	Management of disasters	10 mins	
5	Color coding in triage	10 mins	
5	Summary	5 mins	
6	Evaluation	5 mins	
	Attendance	10 mins	

ICT link: <https://youtube.com/shorts/7mu5Lf4ZV88?si=Bh5zVoDdX-yXB-UX>

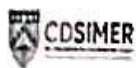
Pre-evaluation: Question & answer

Post- evaluation: Question & answer

Suggested further reading:

1. Park textbook 27th edition
2. Essentials of Community Medicine (Rajiv Bhalwar) 5th edition

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DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF
MEDICAL EDUCATION AND RESEARCH

LESSON PLAN

Name of the faculty: Dr Pratiksha Nayan

Date: 17.09.2023

Time: 12 noon to 1pm

Class: Phase 1 MBBS [2023-24 batch]

Subject: Community Medicine

Venue: Lecture hall

Competency Addressed: CM 2.5 - Describe poverty and social security measures and its
relationship to health and disease.

Specific Learning Objectives:

By the end of the class student should be able to:

- Define social security
- Describe criteria for BPL
- Differentiate social security and social assistance

Teaching learning method: Lecture

Sl no	Content	Time	T-L Media used
1	Introduction	5 mins	Power Point presentation
2	Classify social security programs	5 mins	
3	Food Security programs	5 mins	
4	Wage Employment programs	10 mins	
5	Disablement, Pension benefit programs	15 mins	
5	Summary	5 mins	
6	Evaluation	5 mins	
	Attendance	10 mins	

ICT link: https://youtu.be/c7gDBVmgIRA?si=VHJ9dcW342T_q1cj

Pre-evaluation: Question & answer

Post-evaluation: Question & answer

Suggested further reading:

1. Park textbook 27th edition



DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF
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LESSON PLAN

Name of the faculty: Dr. Sushma J

Date: 05.12.2023

Time: 10am to 1pm

Class: Phase 3 MBBS [2020–21 batch]

Subject: Community Medicine

Venue: Lecture hall

Competency Addressed: Pandemic 2.4: Vaccination strategies & development

Specific Learning Objectives:

By the end of the class student should be able to:

- Describe the characteristics of an idea indicator
- Enumerate important health indicators
- Describe various health indicators with examples

Teaching learning method: SGD, DOAP

Sl no	Content	Time	T-L Media used
1	Introduction	5 mins	Power Point presentation
2	Division of students into 6 groups	5 mins	
3	Division of topics for 6 groups Group 1- process of vaccine development Group 2- Role of vaccines in disease control & eradication Group 3- steps to prepare micro-plan for vaccination activity at PHC Group 4- Importance of routine vaccination during pandemic Group 5- Role of communities in vaccination program Group 6- Cold chain for vaccine storage & delivery	5 mins	
4	Discussion among each groups on the topic	10 mins	
5	Topic presentation by each group	15 mins	
6	Summary	5 mins	
7	Evaluation	5 mins	
	Attendance	10 mins	

ICT Link: <https://youtu.be/MiUIIYaRTDi0?si=-UgzdYxjQXP3pIpy>

Pre-evaluation: Question & answer

Post- evaluation: Question & answer

Suggested further reading:

1. Park textbook 27th edition
2. Essentials of Community Medicine (Rajiv Bhalwar) 5th edition

Sushma J



**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF
MEDICAL EDUCATION AND RESEARCH**

LESSON PLAN

**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL EDUCATION
AND RESEARCH**

Name of the teacher: Dr Anand D Meundi
Class: 3rd year
Venue: Phase 3 MBBS

Date: 11.12.2023
Time allotted: 1
Subject: Community medicine
Duration: 1 hour

Competency Addressed: CM 11.1

Specific Learning Objectives:

At the end of this lecture-discussion the student must be able to:

1. Mention the classification of occupational diseases based on the cause and give one example each.
2. Define respirable dust.
3. Mention the common pneumoconioses.
4. Mention sources of lead leading to lead poisoning.
5. Mention the clinical features, diagnostic tests, Preventive measures and management of lead poisoning.

Teaching learning method:

Sl no	Content	Time (minutes)	T-L Media used
1.	Set Induction	3	Microphone
2	Mention the classification of occupational diseases based on the cause and give one example each.	5	LCD and Mic
3	Define respirable dust.	2	LCD and Mic
4	Mention the common pneumoconioses.	3	LCD and Mic
5	Mention sources of lead leading to lead poisoning.	3	LCD and Mic
6	Mention the clinical features, diagnostic tests, Preventive measures and management of lead poisoning.	20	LCD and Mic
8	Evaluation	5	Microphone

ICT link: https://youtu.be/n_Hr2FpQKuU?si=5GDu8aJeRn3Gi47L

Pre-evaluation: What is pneumoconioses ?

Post- evaluation: What is respirable dust ?/ What are the preventive measures for lead poisoning?

Suggested further reading: Park's TB of PSM

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22/11/24
Head Dept. of Community Medicine
Dr. Chandramma Dayananda Sagar
Institute of Medical Education & Research
B-11 Devarajanna Hall
Kalyan



**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF
MEDICAL EDUCATION AND RESEARCH**

LESSON PLAN

Name of teacher: Dr. Priyadarisini NJ

Target group: MBBS students

Term: 3rd year MBBS

Number of students: 150

Duration: 1 hr

Date: 24.02.2024

Topic: Leprosy

Set Induction: Projecting the photograph and asking them to identify the disease – 5 mins

Sl No	Specific learning Objective	Content	TL Method	Media	Duration
1.	To understand the epidemiology of leprosy	1. Agent factors 2. Host factors 3. Environmental factors	Interactive lecture	Powerpoint	10 mins
2.	To understand the clinical features of leprosy	1. Hypo pigmented patch 2. Partial or total loss of sensation over the patch 3. Thickened nerves	Interactive lecture	Powerpoint chalk and board	10 mins
3.	To understand the diagnosis of leprosy	1. Different diagnostic modalities	Interactive lecture	Powerpoint chalk and board	10 mins
4.	To understand the prevention and control of leprosy	1. Treatment 2. Control measures	Interactive lecture	Powerpoint chalk and board	15 mins

ICT LINK: https://www.youtube.com/watch?v=GB6L2IOMnGE&t=65s&ab_channel=MedicalCentric

Teacher/ Student activity: Interactive class

Assignment for this class: At the end of the class, students will be asked questions one by one for 10 mins

1. Explain about the Agent factors of leprosy
2. Explain the host factors of leprosy
3. Explain the environmental factors of leprosy


22/01/24
Asst. Dept. of Community Medicine
Dr. Chandramma Dayananda Sagar
Institute of Medical Education & Research
DST Devaranahalli Hospital & Research Hub
Kannur, Kerala



DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF
MEDICAL EDUCATION AND RESEARCH

LESSON PLAN

Name of the faculty: Dr. Keerthana N Gowda

Date: 16.03.2024

Time: 9am to 10am

Class: Phase I MBBS [2023-24 batch]

Subject: Community Medicine

Venue: Lecture hall

Competency Addressed: CM 1.8: Discuss demographic profile of India and discuss its
impact on health

Specific Learning Objectives:

By the end of the class student should be able to:

- Write the demographic profile of india
- Assess population pyramids

Teaching learning method: Lecture

Sl no	Content	Time	T-L Media used
1	Introduction	5 mins	Power Point presentation
2	Demographic profile of India, Karnataka	15 mins	
3	Impact of overpopulation on health, Assessment of a population pyramid	15 mins	
4	Summary	10 mins	
5	Evaluation	5 mins	
	Attendance	10 mins	

ICT Link; <https://www.bbc.com/news/world-asia-india-65380148>

Pre-evaluation: Question & answer

Post- evaluation: Question & answer

Suggested further reading:

1. Park textbook 27th edition
2. Essentials of Community Medicine (Rajiv Bhalwar) 5th edition

Keerthana



DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF
MEDICAL EDUCATION AND RESEARCH

LESSON PLAN

Name of the faculty: Dr. Brunda NK

Date: 06.04.2024

Time: 4 pm to 5 pm

Class: Phase 3 MBBS [2020-21 batch]

Subject: Community Medicine

Venue: Lecture hall

Competency Addressed: Thematic learning

Theme: World health day 2023 theme

Specific Learning Objectives:

By the end of the class student should be able to:

- Describe and discuss the importance of universal health coverage

Teaching learning method: Lecture

Sl no	Content	Time	T-L Media used
1	Introduction to world health day, current theme	15 mins	Power point presentation
2	Description of the linker case	15 mins	
3	Discussion of linker case	10 mins	
4	Assessing barriers to health coverage	10 mins	
5	Evaluation	5 mins	
	Attendance	5 mins	

ICT Link: <https://youtu.be/pZHIGFLN8Y?si=e6rMLoA8e4En4CST>

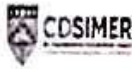
Pre-evaluation: Question & answer

Post-evaluation: Question & answer

Suggested further reading:

1. World Health Organization website : <https://www.who.org>
2. Recent advances in community medicine – AH Suryakantha, 8th edition

Dr. B. N. K.



DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF
MEDICAL EDUCATION AND RESEARCH

LESSON PLAN

Name of the faculty: Dr. Santosh Achappa

Date: 04.05.2024

Time: 8 am to 9am

Class: Phase 3 MBBS [2021-22 batch]

Subject: Community Medicine

Venue: Lecture hall

Competency Addressed: CM 8.1 - Describe and discuss epidemiological and control measures including use of essential laboratory tests at the primary care level for Ebola.

Specific Learning Objectives:

By the end of the class student should be able to:

- Describe the epidemiology of Ebola.
- List the laboratory tests done at primary health care level.
- Describe the prevention and control measures.

Teaching learning method: Lecture

Sl no	Content	Time	T-L Media used
1	Introduction	5 mins	Power Point presentation
2	Epidemiology of Ebola	10 mins	
3	Mode of transmission & Lab diagnosis	10 mins	
4	Prevention and control	15 mins	
5	Summary	5 mins	
6	Evaluation	5 mins	
	Attendance	10 mins	

ICT Link: https://youtu.be/XCrOde-JYs0?si=5YA_piGp5aFzVGY

Pre-evaluation: Question & answer

Post-evaluation: Question & answer

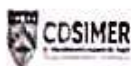
Suggested further reading:

1. Park textbook 27th edition
2. Essentials of Community Medicine (Rajiv Bhalwar) 5th edition

for SA

5/22/24

Dr. Chandramma Dayananda Sagar
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DST Devarakoppa, 100 ft. Road, Kerehalli Hobli
Kannur, Kerala



**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF
MEDICAL EDUCATION AND RESEARCH**

LESSON PLAN

Name of teacher: Dr. M Sundar

Target group: MBBS students

Term: III year

Number of students: 150

Duration: 1 hr

Date: 06/07/2024

Topic: Prevention of Occupational Diseases

Set Induction: Identify picture related to occupational hazard– 5 mins

S No	Specific learning Objective	Content	TL Method	Media	Duration
1.	Define the terms related to occupational diseases	1. Ergonomics 2. Occupational health	Interactive lecture	Powerpoint	5mins
2.	Explain preventive measures for occupational diseases	1. Levels of prevention 2. Medical Measures 3. Engineering measures 4. Legislation	Interactive lecture	Powerpoint	35 mins

ICT Link: https://www.youtube.com/watch?v=u0cF66C0j6g&ab_channel=KineoCourses

https://www.youtube.com/watch?v=whK44_54SDg&ab_channel=PeterRosenblatt

Teacher/ Student activity: Interactive class

Attendance: 10 mins

Assignment for this class: At the end of the class, students will be asked questions one by one for 5 mins

1. List the medical measures of prevention
2. List the engineering measures
3. Describe about pre- placement examination
4. Describe the importance of personal protective equipment's.

References:

1. Park. Park's textbook of preventive and social medicine. M/s Banarsidas Bhanot publishers. 27th edition

22/11/24

Visiting Asst. Prof. & Lect. in Preventive Medicine
Dr. Chandramma Dayananda Sagar
Institute of Medical Education & Research
DSIR Devanahalli Medical College, Devanahalli Hobli
Kannur, 562102

**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL
EDUCATION AND RESEARCH
LESSON PLAN**

3/2/23

Topic: Medico legal autopsy

Term: III rd Term/ Year II

Time: 1 hour

Setting: Class room

General Objective: To know objectives, types of autopsy

Specific Learning Objectives:

2.11.1: Describe the types of autopsy.

2.11.2: Enumerate the objectives of medicolegal autopsy.

2.11.3: Enumerate the objectives of foetal autopsy.

2.11.4: Enumerate the objectives of skeletal remains examination

Sl no.	Content	TL Methods	TL Media	Time
1	Definition Types of autopsy	Lecture	PPT presentation Black Board	5 Minutes
2	Objectives	Lecture	PPT presentation Black Board	5 Minutes
3	Objectives of foetal autopsy	Lecture	PPT presentation Black Board	5 Minutes
5	Objectives of skeletal remains examination	Lecture	PPT presentation Black Board	10 Minutes
6	Internal examination & dissection techniques	Lecture	PPT presentation Black Board	10 Minutes
7	Collection of samples, second autopsy, exhumation	Lecture	PPT presentation Black Board	15 Minutes

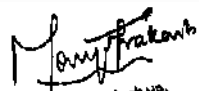
ICT- Link- <https://www.sciencedirect.com/topics/medicine-and-dentistry/forensic-autopsy>

Evaluation: Mention the changes after death which helps to determine postmortem interval.

Further Reading / References:

1. K.S. NARAYANA REDDY – Essentials Text Book 33rd edition
2. Principles of Forensic Medicine – Apurba Nandy 2nd edition
3. Forensic Medicine and Toxicology – C.J. Parikh 4th edition

Prepared by	Reviewed by
Dr.Jayanth SH	
3/2/22	


Dr. Manju Prakash MB,
Prof. & Head, Forensic Medicine,
CDSMER- DSJ
Hosur, Bangalore - 562 112.

Signature of the HOD

**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL
EDUCATION AND RESEARCH
LESSON PLAN**

Date: 6/3/22

Topic: Spinal Poisons

Term: III Term/ Year II

Time: 8 am to 9 am

Setting: Theory classroom

General Objective: To teach them about the spinal poisons

Specific Learning Objectives: At the end of the class students should know the ill effects and MLI of spinal poisons

Sl no.	Content	TL Methods	TL Media	Time
1	Strychnous Nux vomica	Lecture	Black Board Power Point	10 Minutes
2	Seeds ,action	Lecture	Specimen of Nux vomica Seed	10 Minutes
3	S/Symptoms	Lecture	Black Board Power Point	10 Minutes
4	Fatal dose, fatal period	Lecture	Black Board Power Point	5 Minutes
5	Treatment	Lecture	Black Board Power Point	5 Minutes
6	P.M. Appearance, MLI	Lecture	Black Board Power Point	10 Minutes
7	Hemlock	Lecture	Black Board Power Point	5 Minutes

ICT – link-

<https://gmch.gov.in/sites/default/files/documents/spinal%20curaracardiac%20poisons.pdf>

Evaluation: Differences between tetanus and spinal poisons

Further Reading / References:

1. K.S. NARAYANA REDDY – Essentials Text Book 33rd edition
2. Principles of Forensic Medicine – Apurba Nandy 2nd edition
1. Forensic Medicine and Toxicology – C.J. Parikh 4th edition

Prepared by	Reviewed by
Dr Jayanth SH	
6/3/22	


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Prof. & Head, Forensic Medicine,
CDSMER- DSU
Hercules, Ramnagara- 562 112.

Signature of the HOD

**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL
EDUCATION AND RESEARCH
LESSON PLAN**

3/2/23

Topic: Medico legal autopsy

Term: III rd Term/ Year II

Time: 1 hour

Setting: Class room

General Objective: To know objectives, types of autopsy

Specific Learning Objectives:

2.11.1: Describe the types of autopsy.

2.11.2: Enumerate the objectives of medicolegal autopsy.

2.11.3: Enumerate the objectives of foetal autopsy.

2.11.4: Enumerate the objectives of skeletal remains examination

Sl no.	Content	TL Methods	TL Media	Time
1	Definition Types of autopsy	Lecture	PPT presentation Black Board	5 Minutes
2	Objectives	Lecture	PPT presentation Black Board	5 Minutes
3	Objectives of foetal autopsy	Lecture	PPT presentation Black Board	5 Minutes
5	Objectives of skeletal remains examination	Lecture	PPT presentation Black Board	10 Minutes
6	Internal examination & dissection techniques	Lecture	PPT presentation Black Board	10 Minutes
7	Collection of samples, second autopsy, exhumation	Lecture	PPT presentation Black Board	15 Minutes

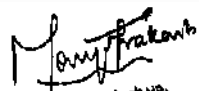
ICT- Link- <https://www.sciencedirect.com/topics/medicine-and-dentistry/forensic-autopsy>

Evaluation: Mention the changes after death which helps to determine postmortem interval.

Further Reading / References:

1. K.S. NARAYANA REDDY – Essentials Text Book 33rd edition
2. Principles of Forensic Medicine – Apurba Nandy 2nd edition
3. Forensic Medicine and Toxicology – C.J. Parikh 4th edition

Prepared by	Reviewed by
Dr.Jayanth SH	
3/2/22	


Dr. Manju Prakash MB,
Prof. & Head, Forensic Medicine,
CDSIMER- DSJ
Hosurpet, Ramnagara- 562 112.

Signature of the HOD

LESSON PLAN
Name of the teacher: Dr Karthik D

Target group: MBBS

Term: III year

Number of students: 150

Duration: 1 hour

Date: 09/08/2024

Topic: Scaphoid Fractures

Set induction: Identify picture relayed to scaphoid fractures 5 mins.

Sl no	Specific learning objective	Content	T-L Method	Media	Duration
1.	Introduction	Describe and classify scaphoid Fractures	Interactive lecture	Powerpoint	10 min
2.	Clinical features investigations	Case based Blood investigations. Imaging- Xrays,CT,MRI	Interactive lecture	Powerpoint	15 min
3.	Principles of management	Non operative operative treatment,Complications of fracture	Interactive lecture	Powerpoint	10 min
4.	Conclusion	Summary	Interactive lecture	Powerpoint	5 min

ICT Link: - <https://youtu.be/Ga-qCmE8t6Y?si=KUsMOETchoLhL50>
Teacher student activity: Interactive lecture

Attendance: 10 mins

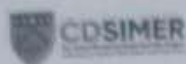
Assignment for this class: At the end of the class, students will be asked questions one by one for 5 mins.

References:

1. Clinical relevance of ORTHOPEDIC LAWS, TUREK'S ORTHOPEDICS
2. Recent advances in basic sciences of orthopedics in Essential Orthopedics: Principles and Practices. Manish Kumar Varshney

Ka .D
Dr. Karthik D

DR. RAMESH L. J.
 KMC Roy No. 91672
 Professor & HOD Orthopaedics
 CDSIMER



DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF

MEDICAL EDUCATION AND RESEARCH

LESSON PLAN

Name of the teacher: Dr Karthik D

Target group: MBBS

Term: IV year

Number of students: 150

Duration: 1 hour

Date: 25/07/2024

Topic: Benign bone tumors

Set induction: Identify picture related to bone tumors 5 mins.

Sl no	Specific learning objective	Content	T-L Method	Media	Duration
1.	Introduction	Describe and classify Bone tumors	Interactive lecture	Powerpoint	10 min
2.	Clinical features investigations	Case based Blood investigations. Xrays, MRI,	Interactive lecture	Powerpoint	15 min
3.	Principles of management	Non operative operative treatment	Interactive lecture	Powerpoint	10 min
4.	Conclusion	Summary	Interactive lecture	Powerpoint	5 min

ICT Link: - <https://youtu.be/Lm3kgVjm/2c?si=o7w3;EmnosIddAeq>

Teacher student activity: Interactive lecture

Attendance: 10 mins

Assignment for this class: At the end of the class, students will be asked questions one by one for 5 mins.

References:

1. Clinical relevance of ORTHOPEDIC LAWS, TUREK'S ORTHOPEDICS
2. Recent advances in basic sciences of orthopedics in Essential Orthopedics: Principles and Practices. Manish Kumar Varshney

Ka
Dr. Karthik D

Dr. BAMESH L. J.
KMC Reg No. 23110 ID No. 91672
Professor & HOD, Orthopaedics
CDSIMER

LESSON PLAN
Name of the teacher: Dr Karthik D

Target group: MBBS

Term: III year

Number of students: 150

Duration: 1 hour

Date: 15/10/2024

Topic: Hip Dislocation

Set induction: Identify picture related to Hip dislocation 5 mins.

Sl no	Specific learning objective	Content	T-L Method	Media	Duration
1.	Introduction	Describe and classify hip dislocation	Interactive lecture	Powerpoint	10 min
2.	Clinical features investigations	Case based Blood investigations. Imaging- Xrays,CT,MRI	Interactive lecture	Powerpoint	15 min
3.	Principles of management	Non operative operative treatment, Complications of dislocation	Interactive lecture	Powerpoint	10 min
4.	Conclusion	Summary	Interactive lecture	Powerpoint	5 min

ICT Link: - <https://youtube.com/watch?v=52u7qAc2si&list=PLAAd5gDx6oCG6o>
Teacher student activity: Interactive lecture

Attendance: 10 mins

Assignment for this class: At the end of the class, students will be asked questions one by one for 5 mins.

References:

1. Clinical relevance of ORTHOPEDIC LAWS, TUREK'S ORTHOPEDICS
2. Recent advances in basic sciences of orthopedics in Essential Orthopedics: Principles and Practices. Manish Kumar Varshney

Karthik D
Dr. Karthik D

Dr. RAMESH J.
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 Professor & HOD, Orthopaedics
 CDSIMER



DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF

MEDICAL EDUCATION AND RESEARCH

LESSON PLAN

Name of the teacher: Dr Sunil L K

Target group: MBBS

Term: III year/Part 1

Number of students: 150

Duration: 1 hour

Date: 13/06/2024

Topic: FRACTURES OF NECESSITY, FRACTURE OF SHAFTS OF RADIUS AND ULNA (MONTEGGIA AND GALEAZZI FRACTURE)

Set induction: Identify pictures/ x rays related to forearm fractures 5 mins.

Sl no	Specific learning objective	Content	T-L Method	Media	Duration
1.	Introduction	Define Monteggia and Galeazzi fracture Pathoanatomy	Interactive lecture	Powerpoint	10 min
2.	Clinical features investigations	Case based scenarios Xrays	Interactive lecture	Powerpoint	15 min
3.	Principles of management	Non operative Operative treatment	Interactive lecture	Powerpoint	10 min
4.	Conclusion	Summary – adult and pediatric patient	Interactive lecture	Powerpoint	5 min

ICT Link: - <https://youtu.be/4jN2C9EFiFW?si=M5Hkgja0xvYUFzqF>

Teacher student activity: Interactive lecture

Attendance: 10 mins

Assignment for this class: At the end of the class, students will be asked questions one by one for 5 mins.

References:

1. Clinical relevance of ORTHOPEDIC LAWS, TUREK'S ORTHOPEDICS
2. Recent advances in basic sciences of orthopedics in Essential Orthopedics: Principles and Practices. Manish Kumar Varshney

Dr. SUNIL L. K.

Dr. RAMESH L. J.
KMC Reg. No. 25310, ID No. 91672
Professor & HOD, Orthopaedics
CDSIMER



DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF

MEDICAL EDUCATION AND RESEARCH

LESSON PLAN

Name of the teacher: Dr Sunil L K

Target group: MBBS

Term: III year/Part1

Number of students: 150

Duration: 1 hour

Date: 28-6-24

Topic: SHOULDER DISLOCATION: ACUTE / RECURRENT SHOULDER DISLOCATION

Set induction: Identify pictures/ X rays related to dislocation of shoulder 5 mins.

Sl no	Specific learning objective	Content	T-L Method	Media	Duration
1.	Introduction	Define dislocation Discuss Pathoanatomy and etiology	Small group discussion	Powerpoint	10 min
2.	Clinical features investigations	Classification Case based scenarios Xrays, MRI	Small group discussion	Powerpoint	15 min
3.	Principles of management	Essentials lesion of anterior dislocation Method to reduce dislocation Treatment	Small group discussion	Simulation Video technique	10 min
4.	Conclusion	Summary	Small group discussion	Powerpoint	5 min

ICT Link: https://youtu.be/_5y70Yi8Ez0?si=d68w83en-B_9DEyU

Teacher student activity: Small group discussion

Attendance: 10 mins

Assignment for this class: At the end of the class, students will be asked questions one by one for 5 mins.

References:

1. Clinical relevance of ORTHOPEDIC LAWS, TUREK'S ORTHOPEDICS
2. Recent advances in basic sciences of orthopedics in Essential Orthopedics: Principles and Practices. Manish Kumar Varshney

Dr. SUNIL L. K.

Dr. RAMESH L. J.
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Professor & HOD, Orthopaedics
CDSIMER



DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF

MEDICAL EDUCATION AND RESEARCH

LESSON PLAN

Name of the teacher: Dr Sunil L K

Target group: MBBS

Term: III year/Part 1

Number of students: 150

Duration: 1 hour

Date: 08/10/2024

Topic: PROXIMAL FEMUR FRACTURES, FRACTURE IT FRACTURE & SUBTROCANTERIC FRACTURE

Set induction: Identify pictures/ x rays related to proximal femur fractures 5 mins.

Sl no	Specific learning objective	Content	T-L Method	Media	Duration
1.	Introduction	Pathoanatomy of proximal femur fractures Classification	Small group discussion	Powerpoint	10 min
2.	Clinical features investigations	Case based scenarios Xrays	Small group discussion	Powerpoint Group interactions	15 min
3.	Principles of management	Non operative Operative treatment	Small group discussion	Powerpoint	10 min
4.	Conclusion	Summary – adult and pediatric patient	Small group discussion	Powerpoint	5 min

ICT Link: - <https://youtu.be/c2qDK34N-DC?si=PEW01y-Jfy73ECds>

Teacher student activity: Small group discussion

Attendance: 10 mins

Assignment for this class: At the end of the class, students will be asked questions one by one for 5 mins.

References:

1. Clinical relevance of ORTHOPEDIC LAWS, TUREK'S ORTHOPEDICS
2. Recent advances in basic sciences of orthopedics in Essential Orthopedics: Principles and Practices. Manish Kumar Varshney


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DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF

MEDICAL EDUCATION AND RESEARCH

LESSON PLAN

Name of the teacher: Dr Sunil L K

Target group: MBBS

Term: III year/Part 1

Number of students: 150

Duration: 1 hour

Date: 22/10/2024

Topic: KNEE LIGAMENT INJURIES

Set induction: Identify pictures/ x rays related to knee ligament injuries 5 mins.

Sl no	Specific learning objective	Content	T-L Method	Media	Duration
1.	Introduction	Pathoanatomy of knee ligament injuries Classification	Small group discussion	Powerpoint	10 min
2.	Clinical features investigations	Case based scenarios Xrays, MRI	Small group discussion	Powerpoint Group interactions	15 min
3.	Principles of management	Braces Non operative Operative treatment	Small group discussion	Powerpoint	10 min
4.	Conclusion	Summary – adult and pediatric patient	Small group discussion	Powerpoint	5 min

ICT Link: - https://youtu.be/FaE80CnYKk1c?si=Azh-3HPLhoE_zow

Teacher student activity: Small group discussion

Attendance: 10 mins

Assignment for this class: At the end of the class, students will be asked questions one by one for 5 mins.

References:

1. Clinical relevance of ORTHOPEDIC LAWS, TUREK'S ORTHOPEDICS
2. Recent advances in basic sciences of orthopedics in Essential Orthopedics: Principles and Practices. Manish Kumar Varshney

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DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF

MEDICAL EDUCATION AND RESEARCH

LESSON PLAN

Name of the teacher: Dr Sunil L K

Target group: MBBS

Term: III year/ part2

Number of students: 150

Duration: 1 hour

Date: 02/05/2024

Topic: SERO NEGATIVE ARTHROPATHY

Set induction: Identify picture related to spine deformities 5 mins.

Sl no	Specific learning objective	Content	T-L Method	Media	Duration
1.	Introduction	Describe Seronegative Aetiopathogenesis	Interactive lecture	Powerpoint	10 min
2.	Clinical features investigations	Case based Blood investigations. Xrays, MRI,	Interactive lecture	Powerpoint	15 min
3.	Principles of management	Analgesic ladder Non operative operative treatment	Interactive lecture	Powerpoint	10 min
4.	Conclusion	Summary	Interactive lecture	Powerpoint	5 min

ICT Link: - <https://youtu.be/7qFFj6aKGD1?si=X1kdobh7ccrRMt4H>.

Teacher student activity: Interactive lecture

Attendance: 10 mins

Assignment for this class: At the end of the class, students will be asked questions one by one for 5 mins.

References:

1. Clinical relevance of ORTHOPEDIC LAWS, TUREK'S ORTHOPEDICS
2. Recent advances in basic sciences of orthopedics in Essential Orthopedics: Principles and Practices. Manish Kumar Varshney

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DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF

MEDICAL EDUCATION AND RESEARCH

LESSON PLAN

24

Name of the teacher: Dr Deepak CD

Target group: MBBS

Term: III year

Number of students: 150

Duration: 1hour

Date: 21.05.2024

Topic: FAT EMBOLISM

Set induction:

Sl no	Specific learning objective	Content	T-L Method	Media	Duration
1.	Introduction	Describe Etiopathogenesis	Interactive lecture	Powerpoint	10 min
2.	Clinical features Investigations	Case based Blood investigations X ray, MRI	Interactive lecture	Powerpoint	20min
3.	Principles of management	Analgesics Operative and Non operative treatment	Interactive lecture	Powerpoint	15 min
4.	Conclusion	Summary	Interactive lecture	Powerpoint	15min

ICT Link: <https://youtu.be/xmhhMULTPJS?si=hQj91JwN9xJH9FP9>

Teacher student activity: Interactive lecture

Attendance: 10MIN

Assignment for this class: At the end of this class students will be asked questions one by one for 5min

Dr Deepak.C.D
Professor
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KMC, Reg.No 67903

Dr. P. V. L. J.
KMC Reg. No. 91672
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DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF

MEDICAL EDUCATION AND RESEARCH

LESSON PLAN

Name of the teacher: Dr Deepak CD

Target group: MBBS

Term: 4TH year

Number of students: 150

Duration: 1 hour

Date: 18.07.2024

Topic: BONE TUMOURS GENERAL CYSTIC LESION OF BONE

Set induction:

Sl no	Specific learning objective	Content	T-L Method	Media	Duration
1.	Introduction	Describe Etiopathogenesis	Interactive lecture	Powerpoint	10 min
2.	Clinical features Investigations	Case based Blood investigations X ray, MRI	Interactive lecture	Powerpoint	20min
3.	Principles of management	Analgesics Operative and Non operative treatment	Interactive lecture	Powerpoint	15 min
4.	Conclusion	Summary	Interactive lecture	Powerpoint	15min

ICT Link: https://www.youtube.com/watch?v=dw6UvdF58_M&si=R_PwKz8Za-Rxt2Q2Z

Teacher student activity: Interactive lecture

Attendance: 10MIN

Assignment for this class: At the end of this class students will be asked questions one by one for 5min

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Dr. PAVESHI L. J.
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LESSON PLAN
Name of the teacher: Dr Sachin Patel L.

Target group: MBBS

Term: IV year

Number of students: 150

Duration: 2 hours

Date: 18/10/2024

Topic: Reactive Arthritis, Septic Arthritis and Adult onset Still Disease

Set induction: Describe the clinical picture related to Septic Arthritis 5 mins.

Sl no	Specific learning objective	Content	T-L Method	Media	Duration
1.	Introduction	Describe Reactive Arthritis, Septic Arthritis and Adult onset Still Disease	Seminar Integrated Teaching	Powerpoint	15 min
2.	Reactive Arthritis, Septic Arthritis and Adult onset Still Disease	1. Definition 2. Etiology 3. Epidemiology	Seminar Integrated Teaching	Powerpoint	15 min
3.	Clinical Features, Classification and Investigations	1. Symptoms 2. Signs 3. Classification 4. X-rays	Seminar Integrated Teaching	Powerpoint	25 min
4.	Principles of Management	1. Assessment 2. Management 3. Special note recent advances in the management	Seminar Integrated Teaching	Powerpoint	30 min
5.	Conclusion	Summary	Seminar Integrated Teaching	Powerpoint	10 min

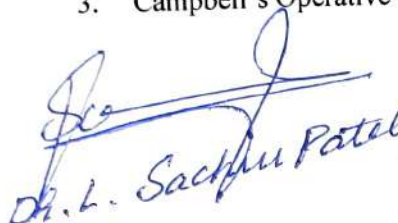
ICT Link: <https://youtu.be/8ouRZf2IJMk?si=nI3IYeq5JK1U44NG>
<https://youtu.be/MRG0V5UTJDQ?si=bkxm1C86eWu685gs>
Teacher student activity: Seminar Integrated Teaching

Attendance: 10 mins

Assignment for this class: At the end of the class, students will be asked questions one by one for 10 mins.

References:

1. Rockwood and Greens Fractures in Adults, TUREK'S ORTHOPEDICS
2. Recent advances in basic sciences of orthopedics in Essential Orthopedics: Principals and Practices. Manish Kumar Varshney
3. Campbell's Operative Orthopaedics


Dr. L. Sachin Patel


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LESSON PLAN

Name of the teacher: Dr Sachin Patel L.

Target group: MBBS

Term: IV year

Number of students: 150

Duration: 2 hours

Date: 17/10/2024

Topic: Psoriatic Arthritis, SLE, Juvenile Idiopathic Arthritis and Ankylosing Spondylitis

Set induction: Describe the X-ray related to Psoriatic Arthritis 5 mins.

Sl no	Specific learning objective	Content	T-L Method	Media	Durati on
1.	Introduction	Describe Psoriatic Arthritis, SLE, Juvenile Idiopathic Arthritis and Ankylosing Spondylitis	Seminar Integrated Teaching	Powerpoint	15 min
2.	Psoriatic Arthritis, SLE, Juvenile Idiopathic Arthritis and Ankylosing Spondylitis	1.Definition 2.Etiology 3.Epidemiology	Seminar Integrated Teaching	Powerpoint	15 min
3.	Clinical Features, Classification and Investigations	1.Symptoms 2.Signs 3.Classification 4.X-rays	Seminar Integrated Teaching	Powerpoint	25 min
4.	Principles of Management	1. Assessment 2. Management 3. Special note recent advances in the management	Seminar Integrated Teaching	Powerpoint	30 min
5.	Conclusion	Summary	Seminar Integrated Teaching	Powerpoint	10 min

ICT Link: <https://youtu.be/fQCU7nQbovk?si=QYTJvcfd7IG6HR72>

Teacher student activity: Seminar Integrated Teaching

Attendance: 10 mins

Assignment for this class: At the end of the class, students will be asked questions one by one for 10 mins.

References:

1. Rockwood and Greens Fractures in Adults, TUREK'S ORTHOPEDICS
2. Recent advances in basic sciences of orthopedics in Essential Orthopedics: Principals and Practices. Manish Kumar Varshney
3. Campbell's Operative Orthopaedics


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LESSON PLAN
Name of the teacher: Dr Sachin Patel L.

Target group: MBBS

Term: IV year

Number of students: 150

Duration: 2 hours

Date: 16/10/2024

Topic: Rheumatoid Arthritis and Gouty Arthritis

Set induction: Describe the X-ray related to Rheumatoid Arthritis 5 mins.

Sl no	Specific learning objective	Content	T-L Method	Media	Durati on
1.	Introduction	Describe Rheumatoid Arthritis and Gouty Arthritis	Seminar Integrated Teaching	Powerpoint	15 min
2.	Rheumatoid Arthritis And Gouty Arthritis	1. Definition 2. Etiology 3. Epidemiology	Seminar Integrated Teaching	Powerpoint	15 min
3.	Clinical Features, Classification and Investigations	1. Symptoms 2. Signs 3. Classification 4. X-rays	Seminar Integrated Teaching	Powerpoint	25 min
4.	Principles of Management	1. Assessment 2. Management 3. Special note on recent advances in the management	Seminar Integrated Teaching	Powerpoint	30 min
5.	Conclusion	Summary	Seminar Integrated Teaching	Powerpoint	10 min

ICT Link: https://youtu.be/Id8PhyAHov8?si=Kh0sy32qXS_Ht_vR
Teacher student activity: Seminar Integrated Teaching

Attendance: 10 mins

Assignment for this class: At the end of the class, students will be asked questions one by one for 10 mins.

References:

1. Rockwood and Greens Fractures in Adults, TUREK'S ORTHOPEDICS
2. Recent advances in basic sciences of orthopedics in Essential Orthopedics: Principals and Practices. Manish Kumar Varshney
3. Campbell's Operative Orthopaedics


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LESSON PLAN
Name of the teacher: Dr Sachin Patel L.

Target group: MBBS

Term: IV year

Number of students: 150

Duration: 2 hours

Date: 15/10/2024

Topic: Osteoarthritis

Set induction: Describe the X-ray related to osteoarthritis 5 mins.

Sl no	Specific learning objective	Content	T-L Method	Media	Durati on
1.	Introduction	Describe Osteoarthritis	Seminar Integrated Teaching	Powerpoint	15 min
2.	Osteoarthritis	1.Definition 2.Etiology 3.Epidemiology	Seminar Integrated Teaching	Powerpoint	15 min
3.	Clinical Features, Classification and Investigations	1.Symptoms 2.Signs 3.Classification 4.X-rays	Seminar Integrated Teaching	Powerpoint	25 min
4.	Principles of Management	1. Assessment 2. Management 3. Special note on recent advances in the management	Seminar Integrated Teaching	Powerpoint	30 min
5.	Conclusion	Summary	Seminar Integrated Teaching	Powerpoint	10 min

ICT Link: <https://youtu.be/1-1Hc2gaemU?si=T62HRvz6lfvMS5tc>
Teacher student activity: Seminar Integrated Teaching

Attendance: 10 mins

Assignment for this class: At the end of the class, students will be asked questions one by one for 10 mins.

References:

1. Rockwood and Greens Fractures in Adults, TUREK'S ORTHOPEDICS
2. Recent advances in basic sciences of orthopedics in Essential Orthopedics: Principals and Practices. Manish Kumar Varshney
3. Campbell's Operative Orthopaedics


Dr. L. Sachin Patel


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DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF

MEDICAL EDUCATION AND RESEARCH

LESSON PLAN

Name of the teacher: Dr Sachin Patel L.

Target group: MBBS

Term: IV year

Number of students: 150

Duration: 2 hours

Date: 14/10/2024

Topic: Arthritis

Set induction: Describe the X-ray related to arthritis 5 mins.

Sl no	Specific learning objective	Content	T-L Method	Media	Duration
1.	Introduction	Definition and terminologies	Seminar Integrated Teaching	Powerpoint	10 min
2.	Anatomy	Types of joints, Synovial joints, Normal anatomy, Pathoanatomy	Seminar Integrated Teaching	Powerpoint	30 min
3.	Physiology	Normal physiology, Pathophysiology and Etiopathogenesis	Seminar Integrated Teaching	Powerpoint	30 min
4.	Basic Approach	Clinical assessment of arthritis patients	Seminar Integrated Teaching	Powerpoint	15 min
5.	Conclusion	Summary	Seminar Integrated Teaching	Powerpoint	10 min

ICT Link: <https://youtu.be/IJIN6yStmUIw?si=zvhXiAeECdg9fsfY>

Teacher student activity: Seminar Integrated Teaching

Attendance: 10 mins

Assignment for this class: At the end of the class, students will be asked questions one by one for 10 mins.

References:

1. Rockwood and Greens Fractures in Adults, TUREK'S ORTHOPEDICS
2. Recent advances in basic sciences of orthopedics in Essential Orthopedics: Principals and Practices. Manish Kumar Varshney
3. Campbell's Operative Orthopaedics


Dr. L. Salim Patel


Dr. RAMESH L. J.
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CDSMER

LESSON PLAN**Name of the teacher:** Dr Sachin Patel L.**Target group:** MBBS**Term:** IV year**Number of students:** 150**Duration:** 2 hours**Date:** 07/11/2024**Topic:** Lumbar Spondylosis, Spodylolysis, Spondylolisthesis**Set induction:** Describe the X-ray related to Spine 5 mins.

Sl no	Specific learning objective	Content	T-L Method	Media	Durati on
1.	Definition of terminologies related to degenerative spine diseases	1. Lumbar Spondylosis 2. Sponylolysis and 3. Spondylolisthesis	Small Group Discussion	Powerpoint	15 min
2.	Introduction	Anatomy Etiopathogenesis	Small Group Discussion	Powerpoint	20 min
3.	Clinical features, classification, investigations	Specific clinical features, classifications and X rays, CT scans and MRI	Small Group Discussion	Powerpoint	25 min
4.	Principles of Management	1. Assessment of the condition 2. Management of each condition 3. Non-surgical and Surgical management	Small Group Discussion	Powerpoint	25 min
5.	Conclusion	Summary	Small Group Discussion	Powerpoint	10 min

ICT Link: <https://youtube/viYVGzRqE2I?si=Mq5hLP3y4WvMR60P>**Teacher student activity:** Small Group Discussion**Attendance:** 10 mins

Assignment for this class: At the end of the class, students will be asked questions one by one for 10 mins.

References:

1. Rockwood and Greens Fractures in Adults, TUREK'S ORTHOPEDICS
2. Recent advances in basic sciences of orthopedics in Essential Orthopedics: Principals and Practices. Manish Kumar Varshney
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Dr. L. S. Patel


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LESSON PLAN**Name of the teacher:** Dr Sachin Patel L.**Target group:** MBBS**Term:** IV year**Number of students:** 150**Duration:** 2 hours**Date:** 23/09/2024**Topic:** Triage, Shock – Types, Assessment and Management – Special note on fluid management**Set induction:** Describe the picture related to mass casualty 5 mins.

Sl no	Specific learning objective	Content	T-L Method	Media	Duration
1.	Introduction	Triage – 1. History and 2. Definition	Small Group Discussion	Powerpoint	15 min
2.	Triage - Categories	System of priority based grouping of patients	Small Group Discussion	Powerpoint	25 min
3.	Shock	1. Definition and 2. Types	Small Group Discussion	Powerpoint	15 min
4.	Principles of Management	1. Assessment of Shock 2. Management of Shock 3. Special note on fluid management	Small Group Discussion	Powerpoint	30 min
5.	Conclusion	Summary	Small Group Discussion	Powerpoint	10 min

ICT Link: <https://youtu.be/gotDtw5HXIc?si=gNLbyOCWGQGK3AUy>**Teacher student activity:** Small Group Discussion**Attendance:** 10 mins**Assignment for this class:** At the end of the class, students will be asked questions one by one for 10 mins.

References:

1. Rockwood and Greens Fractures in Adults, TUREK'S ORTHOPEDICS
2. Recent advances in basic sciences of orthopedics in Essential Orthopedics: Principals and Practices. Manish Kumar Varshney
3. Campbell's Operative Orthopaedics

Dr. L. S. Sachin Patel

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Lesson Plan 1

Name of the teacher: Dr. M.N. Kumar

Designation: Professor; Department: Orthopaedics, CDSIMER

Target group: MBBS Term: III year

No of students: 150

Topic: Triage (Polytrauma)

Date: 02/04/24

Set induction: Pre-test using 5 MCQs

Sl. No	Specific learning objective	Content	T-L method	Media	Duration
1	Introduction	Definition and types of triage	Interactive lecture	Power point	5 min
2	Clinical features and physical examination	Technique of allotting patients into different triage categories, clinical profiles of each category	Interactive lecture	Power point	15 min
3	Diagnostic modalities	Colour coding of triage categories	Interactive lecture	Power point	10 min
4	Principles of management	Priorities of treatment in different triage categories, team formation and supervision	Interactive lecture	Power point	10 min
5	Complications	Change in category following admission – recognition and management	Interactive lecture	Power point	10 min

ICT link –

https://www.google.com/search?sca_esv=c91cfc2e5a25810a&rlz=1C15QJL_enIN931IN931&q=triage&udm=7&fbs=AEQNm0Aa4sjWe7Rqy32pFwRj0Ukwd8nbOJfsBGGb5IQQO6L3J603JUKR9Y5suk8yuy50qOYMMWTNCTu57IKPsZpPcfqPexCYqzaQ__ojypAcPYJYvMVjAAXE16Djw6T7JWJtBxN2jQ3KhaWfxcgQ9N6yyclgK8ucpyxRMpRPdP-PTU6ckb3RMH9wrsa9yV3qa0ddwZ6kKjzE1tO8LiRsaHjPUa-ICVbSA&sa=X&ved=2ahUKEwiA0p7tvPmJAXYVfEDHWfFOoQQtKgLegQIEhAB&biw=1280&bih=593&dpr=1.5#fpstate=ive&vld=cid:47882f1b,vid:v8I3-W5_XFc,st:0

Teacher student activity: Interactive lecture

Attendance: 10 min

Assignment for the class: Post lecture MCQ test with 15 questions

References:

- 1) Turek's Orthopaedics
- 2) Manish Kumar Varshney: Essential Orthopaedics: Principles and Practice
- 3) Rockwood and Green – Trauma, Volume 2

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26/11/24

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Dr. Chandra Mohan Dasgupta
Department of Orthopaedics
Rajabai Medical Education & Research
Trust, Barabanki, Ramnagar - 221 002

Lesson Plan 2

Name of the teacher: Dr. M.N. Kumar

Designation: Professor; Department: Orthopaedics, CDSIMER

Target group: MBBS

Term: III year

No of students: 150

Topic: Tuberculosis of spine

Date: 09/05/24

Sl. No	Specific learning objective	Content	T-L method	Media	Duration
1	Introduction	Incidence of skeletal tuberculosis and disease burden in India	Interactive lecture	Power point	5 min
2	Clinical features and physical examination	Classification and grading of paraplegia	Interactive lecture	Power point	10 min
3	Diagnostic modalities	X ray, MRI, CT guided biopsy, Microscopy and culture, PCR and RT-PCR	Interactive lecture	Power point	10 min
4	Principles of management	Anti-tubercular chemotherapy, indications for surgery and procedures involved (in brief)	Interactive lecture	Power point	15 min
5	Complications	Classification of paraplegia, grades of paraplegia and management	Interactive lecture	Power point	10 min

Set induction: Power point slides showing pictures of tubercular spine and para spinal abscess

Teacher student activity:

ICT link –

https://www.google.com/search?q=Tuberculosis+spine&sca_esv=c91cfc2e5a25810a&rlz=1C1SQJL_enIN931IN931&udm=7&biw=1280&bih=593&ei=wnhFZ9uGNZGPxc8PnZW2yQo&ved=0ahUKEWjb

Attendance: 10 min

Assignment for the class: MCQs involving 10 questions

References:

- 1) Turek's Orthopaedics
- 2) Manish Kumar Varshney: Essential Orthopaedics: Principles and Practice
- 3) Tuli S: Tuberculosis of bones and joints

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26/11/24

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Dr. M.N. Kumar
Professor, Orthopaedics
Institute of Medical Education & Research
DSU, Harohalli, Ramanagara - 562112

Lesson Plan 3

Name of the teacher: Dr. M.N. Kumar

Designation: Professor; Department: Orthopaedics, CDSIMER

Target group: MBBS

Term: III year

No of students: 150

Topic: Cerebral palsy

Date: 11/07/24

Set induction: Quiz involving 5 questions on the prevalence and types of cerebral palsy in neonates

Sl. No	Specific learning objective	Content	T-L method	Media	Duration
1	Introduction	Incidence of cerebral palsy and trends over time; contributory factors	Interactive lecture	Power point	5 min
2	Clinical features and physical examination	Classification of cerebral palsy, grading of spasticity, special tests	Interactive lecture	Power point	15 min
3	Diagnostic modalities	MRI, X rays	Interactive lecture	Power point	5 min
4	Principles of management	GMFCS grading to guide management, modalities of treatment in each category	Interactive lecture	Power point	15 min
5	Complications	Systemic and local complications, life expectancy and life style	Interactive lecture	Power point	10 min

ICT link –

https://www.google.com/search?q=cerebral+palsy&sca_esv=c91cfc2e5a25810a&rlz=1C1SQJL_enIN931IN931&udm=7&biw=1280&bih=593&ei=anpFZ7aHDtyNxc8Psqn6yAI&ved=0ahUKEwi25J25vvmJAxXcRvEDHbKUHikQ4dUDCA8&uact=5&oq=cerebral+palsy&gs_lp=EhZnd3Mtd2l6LW1vZGVsZXNzLXZpZGVvlg5jZXJlYnJhbCBwYWxzeUiiSFDVBFi8PXACeACQAQCYAQcQAQCqAQC4AQPIAQD4AQGYAgGgAgioAgDCAggQABiABBiiBJgDAogGAZIhATGgBwA&scient=gws-wiz-modeless-video#fpstate=ive&vld=cid:e1b82f17,vid:3l-W_M09UHU,st:0

Teacher student activity: Interactive lecture

Attendance: 10 min

Assignment for the class: 5 Short answer questions

References:

- 1) Turek's Orthopaedics
- 2) Manish Kumar Varshney: Essential Orthopaedics: Principles and Practice
- 3) Winter and Lovell: Paediatric Orthopaedics

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LESSON PLAN
Name of the teacher: Dr KIRAN KUMAR Y

Target group: MBBS **Term:** PHASE 3 PART 1 **Number of students:** 150

Duration: 1 hour

Date: 30.08.2024

Topic: FRACTURES OF HAND -BENNETS FRACTURES, BOXER'S FRACTURE, MALLET FINGER.

Set induction:

Sl no	Specific learning objective	Content	T-L Method	Media	Duration
1.	Introduction	Anatomy, Describe Etiopathogenesis	Interactive lecture	Powerpoint	10 min
2.	Clinical features Investigations	Case based, classification, Blood investigations X ray, MRI	Interactive lecture	Powerpoint	20min
3.	Principles of management	Emergency care Operative and Non operative treatment	Interactive lecture	Powerpoint	15 min
4.	Conclusion	Summary	Interactive lecture	Powerpoint	15min

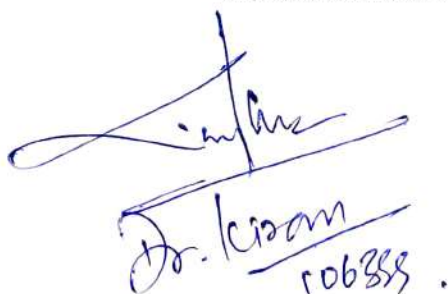
ICT Link: <https://youtu.be/NdcSNRS7PRU?si=sIvciNBASmqszLiU>
Teacher student activity: Interactive lecture

Attendance: 10MIN

Assignment for this class: At the end of this class students will be asked questions one by one for 5min

References:

1. Clinical relevance of ORTHOPEDIC LAWS, TUREK'S ORTHOPEDICS
2. Recent advances in basic sciences of orthopedics in Essential Orthopedics: Principals and Practices. Manish Kumar Varshney



Dr. Kiran Kumar Y
106338

Dr. RAMBESH L. J.
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CDSIMER

LESSON PLAN
Name of the teacher: Dr KIRAN KUMAR Y

Target group: MBBS **Term:** PHASE 3 PART 2

Number of students: 150

Duration: 2 hours

Date: 30.10.2024

Topic: PERIPHERAL NERVE INJURIES- RADIAL NERVE

Set induction:

Sl no	Specific learning objective	Content	T-L Method	Media	Duration
1.	Introduction	Describe Etiopathogenesis	Interactive lecture	Powerpoint	10 min
2.	Clinical features Investigations	Case based examination, tests Blood investigations X ray, MRI, NCS	Interactive lecture	Powerpoint	20min
3.	Principles of management	Analgesics Operative and Non operative treatment	Interactive lecture	Powerpoint	15 min
4.	Conclusion	Summary	Interactive lecture	Powerpoint	15min

ICT Link: <https://youtu.be/GOUjD24Davo?si=-P9a7U52cBBVrRYp>
Teacher student activity: Interactive lecture

Attendance: 10MIN

Assignment for this class: At the end of this class students will be asked questions one by one for 5min

References:

1. Clinical relevance of ORTHOPEDIC LAWS, TUREK'S ORTHOPEDICS
2. Recent advances in basic sciences of orthopedics in Essential Orthopedics: Principals and Practices. Manish Kumar Varshney


Dr. Kiran Kumar Y
 10635X

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 Professor of Orthopaedics



LESSON PLAN
Name of the teacher: Dr KIRAN KUMAR Y

Target group: MBBS

Term: PHASE 3 PART 1

Number of students: 150

Duration: 1hour

Date: 26.09.2024

Topic: PELVIC FRACTURE(FOCUS ON DCO AND HEMODYNAMICS)

Set induction:

Sl no	Specific learning objective	Content	T-L Method	Media	Duration
1.	Introduction	Describe Etiopathogenesis	Interactive lecture	Powerpoint	10 min
2.	Clinical features Investigations	Case based,classification , Blood investigations X ray, MRI	Interactive lecture	Powerpoint	20min
3.	Principles of management	Emergency care Operative and Non operative treatment	Interactive lecture	Powerpoint	15 min
4.	Conclusion	Summary	Interactive lecture	Powerpoint	15min

ICT Link: https://youtu.be/eCa1LxddRak?si=II_4nk5rWNkjWfD6
Teacher student activity: Interactive lecture

Attendance: 10MIN

Assignment for this class: At the end of this class students will be asked questions one by one for 5min

References:

1. Clinical relevance of ORTHOPEDIC LAWS, TUREK'S ORTHOPEDICS
2. Recent advances in basic sciences of orthopedics in Essential Orthopedics: Principals and Practices. Manish Kumar Varshney


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LESSON PLAN
Name of the teacher: Dr KIRAN KUMAR Y

Target group: MBBS

Term: PHASE 3 PART 2

Number of students: 150

Duration: 1 hour

Date: 08.08.2024

Topic: PERIPHERAL NERVE INJURY- ANATOMY, CLINICAL FEATURES, INVESTIGATIONS, NERVE REPAIR

Set induction:

Sl no	Specific learning objective	Content	T-L Method	Media	Duration
1.	Introduction	Describe Etiopathogenesis	Interactive lecture	Powerpoint	10 min
2.	Clinical features Investigations	Case based, sedons classification, Blood investigations X ray, MRI, NCS	Interactive lecture	Powerpoint	20min
3.	Principles of management	Emergency care Operative and Non operative treatment	Interactive lecture	Powerpoint	15 min
4.	Conclusion	Summary	Interactive lecture	Powerpoint	15min

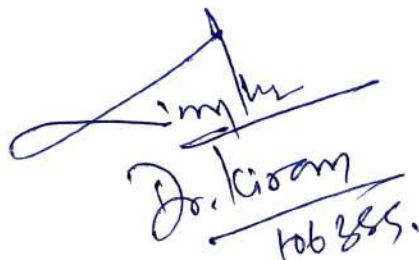
ICT Link: <https://youtu.be/GOUjD24Davo?si=-P9a7U52cBBVrRYp>
Teacher student activity: Interactive lecture

Attendance: 10MIN

Assignment for this class: At the end of this class students will be asked questions one by one for 5min

References:

1. Clinical relevance of ORTHOPEDIC LAWS, TUREK'S ORTHOPEDICS
2. Recent advances in basic sciences of orthopedics in Essential Orthopedics: Principals and Practices. Manish Kumar Varshney



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LESSON PLAN
Name of the teacher: Dr GOUTHAM.D.V

Target group: MBBS

Term: IV year

Number of students: 150

Duration: 1 hour

Date: 01/08/2024

Topic: Malignant Bone tumours

Set induction: Identify Xray picture related to Bone tumour - 5 mins.

Sl no	Specific learning objective	Content	T-L Method	Media	Duration
1.	Introduction	Differentiate between malignant & benign tumour on xray	Interactive lecture	Powerpoint	10 min
2.	Classification & Site of predilection	Describe classification & sites of predisposition for tumours	Interactive lecture	Powerpoint	10 min
3.	Clinical features & Discussion of Individual bone tumours	Clinical features & Discussion on individual bone tumours	Interactive lecture	Powerpoint	10 min
4.	Principles of management	Investigations & treatment	Interactive lecture	Powerpoint	10 min
5	Conclusion	Summary	Interactive lecture	Powerpoint	5 min

ICT Link: - <https://youtu.be/pC7IacIvRo?si=-0t-2ExINX26guG2>
Teacher student activity: Interactive lecture

Attendance: 5 mins

Assignment for this class: At the end of the class, students will be asked questions one by one for 5 mins.

References:

1. Essential Orthopaedics J Maheswari

Goutham D.V.
Dr. Goutham D.V.

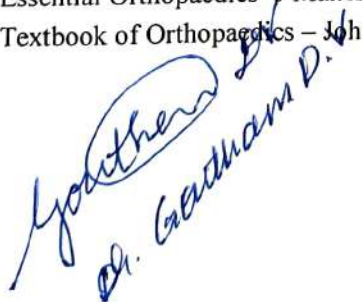
Ramesh L.J.
Dr. RAMESH L. J.
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MEDICAL EDUCATION AND RESEARCH**LESSON PLAN****Name of the teacher:** Dr GOUTHAM.D.V**Target group:** MBBS**Term:** III year**Number of students:** 150**Duration:** 1 hour**Date:** 30/05/2024**Topic:** FRACTURE CLASSIFICATION & FRACTURE HEALING**Set induction:** Identify Xray picture related to Fracture - 5 mins.

Sl no	Specific learning objective	Content	T-L Method	Media	Duration
1.	Introduction	Definition of fracture	Interactive lecture	Powerpoint	05 min
2.	Classification of fractures	Classification of fractures based on type , universal AO classification	Interactive lecture	Powerpoint	15 min
3.	Fracture Healing	Stages of fracture Healing , Types of fracture Healing	Interactive lecture	Powerpoint	15 min
4	Factors affecting fracture healing	Factors affecting fracture healing	Interactive lecture	Powerpoint	5 min
5	Conclusion	Summary	Interactive lecture	Powerpoint	5 min

ICT Link: - <https://youtu.be/0vbqx5Uwmic?si=Wqp-emETBY6QLX11>**Teacher student activity:** Interactive lecture**Attendance:** 5 mins**Assignment for this class:** At the end of the class, students will be asked questions one by one for 5 mins.**References:**

1. Essential Orthopaedics- J Maheswari
2. Textbook of Orthopaedics – John Ebnezar


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DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF

MEDICAL EDUCATION AND RESEARCH

LESSON PLAN

Name of the teacher: Dr GOUTHAM.D.V

Target group: MBBS

Term: III year

Number of students: 150

Duration: 1hour

Date: 17/10/2024

Topic: KNEE DISLOCATION

Set induction: Identify Xray picture related to Knee dislocation/subluxation - 5 mins.

Sl no	Specific learning objective	Content	T-L Method	Media	Duration
1.	Introduction	Describe Anatomy of Knee	Interactive lecture	Powerpoint	10 min
2.	Mechanism of injury & classification	Describe mechanism of Injury, risk factors & classification	Interactive lecture	Powerpoint	5 min
3.	Clinical features	Clinical features	Interactive lecture	Powerpoint	5 min
4.	Principles of management	Investigations, Non operative & Operative treatment	Interactive lecture	Powerpoint	10 min
4	Complications of Knee dislocation	Management	Interactive lecture	Powerpoint	10 min
5	Conclusion	Summary	Interactive lecture	Powerpoint	5 min

ICT Link: - <https://youtu.be/G4MPgxiZnoc?si=AdOt-on3Td3X3KSa>

Teacher student activity: Interactive lecture

Attendance: 5 mins

Assignment for this class: At the end of the class, students will be asked questions one by one for 5 mins.

References:

1. Essential Orthopaedics- J Maheswari
2. Textbook of Orthopaedics - John Ebenezar

Goutham D.V.
Dr. Goutham D.V.

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LESSON PLAN
Name of the teacher: Dr GOUTHAM.D.V

Target group: MBBS

Term: III year

Number of students: 150

Duration: 1 hour

Date: 04/06/2024

Topic: FRACTURES OF Clavicle , FOOSH injuries

Set induction: Identify Xray picture related to Fracture around the shoulder - 5 mins.

Sl no	Specific learning objective	Content	T-L Method	Media	Duration
1.	Introduction – FOOSH injuries	Describe Anatomy & salient features of clavicle bone	Interactive lecture	Powerpoint	10 min
2.	Mechanism of injury & classification of clavicle fractures	Describe mechanism of Injury & classification	Interactive lecture	Powerpoint	10 min
3.	Clinical features	Clinical features of clavicle fractures	Interactive lecture	Powerpoint	05 min
4.	Principles of management	Investigations, Non operative & Operative treatment	Interactive lecture	Powerpoint	10 min
4	Complications of clavicle fracture	Management	Interactive lecture	Powerpoint	5 min
5	Conclusion	Summary	Interactive lecture	Powerpoint	5 min

ICT Link: - <https://youtu.be/x1vIbAiPxOU?si=X1bMZwKFWKBcHE1W>
Teacher student activity: Interactive lecture

Attendance: 5 mins

Assignment for this class: At the end of the class, students will be asked questions one by one for 5 mins.

References:

1. Essential Orthopaedics- J Maheswari
2. Textbook of Orthopaedics – John Ebnezar

Goutham DV
Dr. Goutham DV

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MEDICAL EDUCATION AND RESEARCH
LESSON PLAN
Name of the teacher: Dr GOUTHAM.D.V

Target group: MBBS

Term: III year

Number of students: 150

Duration: 1 hour

Date: 04/04/2024

Topic: OSTEOMYELITIS (ACUTE & SUBACUTE)

Set induction: Identify picture related to irregular periosteal thickening - 5 mins.

Sl no	Specific learning objective	Content	T-L Method	Media	Duration
1.	Introduction	Describe Osteomyelitis Aetiopathogenesis	Interactive lecture	Powerpoint	5 min
2.	Clinical features	Clinical features	Interactive lecture	Powerpoint	10 min
3.	Principles of management	Investigations Pharmacological & Operative treatment	Interactive lecture	Powerpoint	15 min
4	Subacute Osteomyelitis	Clinical features & management	Interactive lecture	Powerpoint	10 min
5	Conclusion	Summary	Interactive lecture	Powerpoint	5 min

ICT Link: - <https://youtu.be/qvP6v6zC-bE?si=YGP2Xj6d0ueGca16>
Teacher student activity: Interactive lecture

Attendance: 10 mins

Assignment for this class: At the end of the class, students will be asked questions one by one for 5 mins.

References:

1. Clinical relevance of ORTHOPEDIC LAWS, TUREK'S ORTHOPEDICS
2. Essential Orthopaedics- J Maheswari

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DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF

MEDICAL EDUCATION AND RESEARCH

LESSON PLAN

Name of the teacher: Dr GOUTHAM.D.V

Target group: MBBS

Term: III year

Number of students: 150

Duration: 1hour

Date: 13/09/2024

Topic: SPINE FRACTURES - 2

Set induction: Identify Xray picture related to Fracture around the shoulder - 5 mins.

Sl no	Specific learning objective	Content	T-L Method	Media	Duration
1.	Introduction – Dorsolumbar spine	Describe Anatomy of Dorsolumbar spine	Interactive lecture	Powerpoint	10 min
2.	Mechanism of injury & classification of DL spine fractures	Describe mechanism of Injury & classification of DL spine fractures	Interactive lecture	Powerpoint	10 min
3.	Clinical features	Clinical features & Neurological examination	Interactive lecture	Powerpoint	05 min
4.	Principles of management	Investigations, Non operative & Operative treatment	Interactive lecture	Powerpoint	10 min
4	Complications of spine fractures	Management	Interactive lecture	Powerpoint	5 min
5	Conclusion	Summary	Interactive lecture	Powerpoint	5 min

ICT Link: - <https://youtu.be/jam-OPxAxGk4?si=W8wq212KkCoFyJFu>

Teacher student activity: Interactive lecture

Attendance: 5 mins

Assignment for this class: At the end of the class, students will be asked questions one by one for 5 mins.

References:

1. Essential Orthopaedics J MMaheswari

Goutham D.V.
Dr. Goutham D.V.

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CDSIMER

LESSON PLAN**Name of the teacher:** Dr GOUTHAM.D.V**Target group:** MBBS**Term:** III year**Number of students:** 150**Duration:** 1 hour**Date:** 16/03/2023**Topic:** FRACTURE CLASSIFICATION & FRACTURE HEALING**Set induction:** Identify Xray picture related to Fracture - 5 mins.

Sl no	Specific learning objective	Content	T-L Method	Media	Duration
1.	Introduction	Definition of fracture	Interactive lecture	Powerpoint	05 min
2.	Classification of fractures	Classification of fractures based on type , universal AO classification	Interactive lecture	Powerpoint	15 min
3.	Fracture Healing	Stages of fracture Healing , Types of fracture Healing	Interactive lecture	Powerpoint	15 min
4	Factors affecting fracture healing	Factors affecting fracture healing	Interactive lecture	Powerpoint	5 min
5	Conclusion	Summary	Interactive lecture	Powerpoint	5 min

ICT Link: - <https://youtube.com/watch?v=5Uwmmic?si=WqP-emETB16QLX11>**Teacher student activity:** Interactive lecture**Attendance:** 5 mins**Assignment for this class:** At the end of the class, students will be asked questions one by one for 5 mins.**References:**

1. Essential Orthopaedics- J Maheshwari
2. Textbook of Orthopaedics – John Eleazar

Goutham D.V.
Dr. Goutham D.V.

Ramesh L.J.
Dr. RAMESH L. J.
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MEDICAL EDUCATION AND RESEARCH
LESSON PLAN
Name of the teacher: Dr GOUTHAM.D.V

Target group: MBBS

Term: III year

Number of students: 150

Duration: 1 hour

Date: 18/05/2023

Topic: Humerus shaft fractures including Radial nerve palsy

Set induction: Identify Xray picture related to Fracture of humerus - 5 mins.

Sl no	Specific learning objective	Content	T-L Method	Media	Duration
1.	Introduction	Describe Anatomy of Humerus & course of radial nerve	Interactive lecture	Powerpoint	05 min
2.	Mechanism of injury & classification of humerus fractures	Describe mechanism of Injury & classification of humerus fractures	Interactive lecture	Powerpoint	10 min
3.	Clinical features	Clinical features & Neurological examination to rule out radial nerve palsy	Interactive lecture	Powerpoint	05 min
4.	Principles of management	Investigations, Non operative & Operative treatment	Interactive lecture	Powerpoint	10 min
4	Complications of humerus fractures	Management of Radial nerve palsy following humerus fractures	Interactive lecture	Powerpoint	10 min
5	Conclusion	Summary	Interactive lecture	Powerpoint	5 min

ICT Link: - <https://youtu.be/6tE9RETBgHs?si=Id634f-vm4qdg6x15>
Teacher student activity: Interactive lecture

Attendance: 5 mins

Assignment for this class: At the end of the class, students will be asked questions one by one for 5 mins.

References: Essential Orthopaedics- J MMaheswari

Operative Orthopaedics - Campbell

Gautham D.V.
 Dr. Gautham D.V.

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LESSON PLAN
Name of the teacher: Dr GOUTHAM.D.V

Target group: MBBS

Term: IV year

Number of students: 150

Duration: 1 hour

Date: 01/08/2024

Topic: Malignant Bone tumours

Set induction: Identify Xray picture related to Bone tumour - 5 mins.

Sl no	Specific learning objective	Content	T-L Method	Media	Duration
1.	Introduction	Differentiate between malignant & benign tumour on xray	Interactive lecture	Powerpoint	10 min
2.	Classification & Site of predilection	Describe classification & sites of predisposition for tumours	Interactive lecture	Powerpoint	10 min
3.	Clinical features & Discussion of Individual bone tumours	Clinical features & Discussion on individual bone tumours	Interactive lecture	Powerpoint	10 min
4.	Principles of management	Investigations & treatment	Interactive lecture	Powerpoint	10 min
5	Conclusion	Summary	Interactive lecture	Powerpoint	5 min

ICT Link: - https://youtube/vPc71ac1vRo?si=-Ot_2ExINX26guG2
Teacher student activity: Interactive lecture

Attendance: 5 mins

Assignment for this class: At the end of the class, students will be asked questions one by one for 5 mins.

References:

1. Essential Orthopaedics - J. Maheswari

Gautham D.V.
Dr. Gautham D.V.

Ramesh L. J.
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**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL
EDUCATION & RESEARCH.**

LESSON PLAN.

NAME OF THE TEACHER: DR PAWAN KUMAR K M.

TARGET GROUP: MBBS STUDENTS. **TERM:** III YEAR. **NUMBER OF STUDENTS:** 150

DURATION: 1 HOUR. **DATE:** 14-05-2024

SUBJECT: ORTHOPAEDICS.

TOPIC: PRINCIPLES OF FRACTURE MANAGEMENT. **COMPETENCY ADDRESSED:** OR 1.4

SET INDUCTION: IDENTIFY IMAGES RELATED FRACTURE MANAGEMENT - 5MINS.

SL NO	SPECIFIC LEARNING OBJECTIVE	CONTENT	TL METHOD	MEDIA	DURATION
1	Introduction.	1. Definition 2. Important terms used.	INTERACTIVE LECTURE	POWER POINT	5min
2	Principles of initial management of trauma cases- TRAIGE & Damage control Orthopaedics.	1. Principles of TRIAGE. 2. Classification 3. Flowchart of damage control orthopaedics in various clinical scenarios.	INTERACTIVE LECTURE	POWER POINT	10min
3	Principles of management of closed fractures.	Flow chart for management of closed fractures in various clinical scenarios	INTERACTIVE LECTURE	POWER POINT	10min
4	Principles of Management of open fractures	Flow chart for management of open fractures in various clinical scenarios	INTERACTIVE LECTURE	POWER POINT	10min
5	Conclusion & Recap.	Summary	INTERACTIVE LECTURE	POWER POINT	5min

ICT link: <https://youtube.com/watch?v=13eHkAg?bi=yeJgDh18pSux1tMJ>

Teacher/Student activity: Interactive classes.

Attendance: 10 mins.

Assignment for the class: At the end of the class, students will be asked questions one by one for 5 mins.

REFERENCES;

1. Essential Orthopaedics- J Maheshwari.
2. Textbook of Orthopaedics - John Ebenezar.

Dr. RAMESH L. J.
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KMC Reg No: 79469

**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL
EDUCATION & RESEARCH.**

LESSON PLAN.

NAME OF THE TEACHER: DR PAWAN KUMAR K M.

TARGET GROUP: MBBS STUDENTS. **TERM:** III YEAR. **NUMBER OF STUDENTS:** 150

DURATION: 1 HOUR. **DATE:** 06-09-2024

SUBJECT: ORTHOPAEDICS.

TOPIC: CERVICAL SPINE INJURIES

COMPETENCY ADDRESSED: OR 2.8

SET INDUCTION: IDENTIFY IMAGES RELATED TO CERVICAL SPINE INJURIES - 5 MINS.

SL NO.	SPECIFIC LEARNING OBJECTIVE CONTENT	CONTENT	TL METHOD	MEDIA	DURATION
1	Introduction.	1. Definition 2. Important terms used.	INTERACTIVE LECTURE	POWER POINT	5min
2	Basics on cervical Spine.	1. Salient anatomical features of cervical spine. 2. Basic biomechanics of cervical spine.	INTERACTIVE LECTURE	POWER POINT	10min
3	Mechanism of injury and classification of cervical spine injuries.	1. Flow chart of mechanism of injuries of various cervical spine injuries. 2. Flow chart of classification of major cervical spine injuries.	INTERACTIVE LECTURE	POWER POINT	10min
4	Principles of Management of Cervical spine injuries.	1. Clinical findings in different cervical spine injuries. 2. Flow chart of various modalities of treatment of cervical spine injuries.	INTERACTIVE LECTURE	POWER POINT	10min
5	Conclusion & Recap.	Summary	INTERACTIVE LECTURE	POWER POINT	5min

ICT link: <https://youtu.be/BLUMFTRONG?si=Cv1wXQh1218Fgeyf>

Teacher/Student activity: Interactive classes.

Attendance: 10 mins.

Assignment for the class: At the end of the class, students will be asked questions one by one for 5 mins.

REFERENCES;

1. Essential Orthopaedics- J Maheshwari.
2. Textbook of Orthopaedics - John Ebnezar.

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**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL
EDUCATION & RESEARCH.**

LESSON PLAN.

NAME OF THE TEACHER: DR PAWAN KUMAR K M.

TARGET GROUP: MBBS STUDENTS. **TERM:** IV YEAR. **NUMBER OF STUDENTS:** 150

DURATION: 1 HOUR. **DATE:** 05-09-2024

SUBJECT: ORTHOPAEDICS.

TOPIC: POLIOMYELITIS. **COMPETENCY ADDRESSED:** OR 8.1

SET INDUCTION: IDENTIFY IMAGES RELATED POLIOMYELITIS - 5 MINS.

SL NO.	SPECIFIC LEARNING OBJECTIVE CONTENT	CONTENT	TL METHOD	MEDIA	DURATION
1	Introduction.	1. Definition 2. Important terms used.	INTERACTIVE LECTURE	POWER POINT	5min
2	Etiology and Pathogenesis of Polio.	1. Classification of etiology of disease 2. Pathogenesis	INTERACTIVE LECTURE	POWER POINT	10min
3	Orthopedics relevance of Polio.	1. Clinical findings in different deformities of polio. 2. Pathoanatomy of deformities of polio.	INTERACTIVE LECTURE	POWER POINT	10min
4	Orthopedic Management and prevention of Polio	1. Flow chart of various treatment modalities. 2. Flow chart of prevention of polio in different age groups and stages of polio.	INTERACTIVE LECTURE	POWER POINT	10min
5	Conclusion & Recap.	Summary	INTERACTIVE LECTURE	POWER POINT	5min

ICT link: https://youtu.be/nvZ2tZ5xdi0?si=8hLHB10FeT_p626q

Teacher/Student activity: Interactive classes.

Attendance: 10 mins.

Assignment for the class: At the end of the class, students will be asked questions one by one for 5 mins.

REFERENCES;

1. Essential Orthopaedics- J Maheshwari.
2. Textbook of Orthopaedics - John Ebnezar.

Dr. RAMESH L. J.
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CDSIMER, DSU.
KMC Reg No: 79469

LESSON PLAN.

NAME OF THE TEACHER: DR PAWAN KUMAR K M.

TARGET GROUP: MBBS STUDENTS. **TERM:** IV YEAR. **NUMBER OF STUDENTS:** 150

DURATION: 1 HOUR. **DATE:** 18-04-2024

SUBJECT: ORTHOPAEDICS.

TOPIC: CHRONIC OSTEOMYELITIS.

COMPETENCY ADDRESSED: OR 3.1

SET INDUCTION: IDENTIFY IMAGES RELATED OSTEOMYELITIS - 5 MINS.

SL NO.	SPECIFIC LEARNING OBJECTIVE	CONTENT	TL METHOD	MEDIA	DURATION
1	Introduction.	1. Definition 2. Important terms used.	INTERACTIVE LECTURE	POWER POINT	5min.
2	Aetiopathogenesis of Chronic osteomyelitis.	1. Classification of etiology of disease 2. Pathogenesis	INTERACTIVE LECTURE	POWER POINT	10min.
3	Clinical features & Investigations.	1. Clinical findings in different conditions. 2. Salient investigations & their interpretation.	INTERACTIVE LECTURE	POWER POINT	10min.
4	Principles of Management.	1. Different modalities of treatment. 2. Complications	INTERACTIVE LECTURE	POWER POINT	10min.
5	Conclusion & Recap.	Summary	INTERACTIVE LECTURE	POWER POINT	5min.

ICT link: <https://youtu.be/dH0e3nylJ7c?si=ZZV6AaNsUgppJeuTd>.

Teacher/Student activity: Interactive classes.

Attendance: 10 mins.

Assignment for the class: At the end of the class, students will be asked questions one by one for 5 mins.

REFERENCES;

1. Essential Orthopaedics- J Maheshwari.
2. Textbook of Orthopaedics - John Ebnezar.

Ramesh

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KMC Reg No. 79469

**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL EDUCATION
AND RESEARCH**

LESSON PLAN

Date: 12/06/2024

Name of the teacher: DR DHATHRI K

Time allotted: 3pm – 4pm

Class: MBBS PHASE III

Subject: OPHTHALMOLOGY

Venue: LECTURE HALL 2

Duration: 1 hour

• **Competency Addressed:**

Enumerate the indications and describe the methods of tarsorrhaphy

Specific Learning Objectives:

At the end of class student should be able to KNOW:

1. What is tarsorrhaphy?
2. Different types of tarsorrhaphy.
3. Indications of tarsorrhaphy

Teaching learning method: LECTURE CLASS

Sl no	Content	Time	T-L Media used
1	Pre-evaluation	5 mins	PPT
2	Types of Tarsorrhaphy	20 mins	PPT
3	Indications of tarsorrhaphy	15 mins	PPT



4	Surgical procedures of tarsorrhaphy	15 mins	PPT/VIDEO
5	Post evaluation	5 mins	PPT

ICT TOOL: YOUTUBE LINK: https://youtu.be/l_mJ7S5zIwQ?si=p6dX1CnK5OPJJhsv

Pre-evaluation: What is tarsorrhaphy?

Post evaluation: What are the indications of tarsorrhaphy?

Suggested reading:

Parsons Diseases of the eye, Comprehensive ophthalmology by AK KHURANA

Done

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**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL EDUCATION
AND RESEARCH**

LESSON PLAN

Date: 01.05.2024

Name of the teacher: DR DHATHRI K

Time allotted: 3 pm-4 pm

Class: MBBS PHASE III

Subject: OPHTHALMOLOGY

Venue: LECTURE HALL 3

Duration: 1 hour

● **Competency Addressed:**

Describe the aetiology, pathophysiology, ocular features, differential diagnosis, complications and management of pterygium

Specific Learning Objectives:

At the end of class student should be able to:

1. Define pterygium.
2. Describe the etiopathogenesis, clinical features (including the parts and types) of pinguecula and pterygium.
3. Mention the complications of pterygium.
4. Differentiate pterygium from pseudopterygium
5. Describe the management of pterygium.

Teaching learning method: SGD

Sl no	Content	Time	T-L Media used
1	Pre-evaluation	5 mins	PPT
2	Etiology, pathology and clinical features of pinguecula	10 mins	PPT
3	Etiology, pathology and clinical features of pterygium	15 mins	PPT
4	Differences between pterygium and pseudopterygium	5 mins	PPT
5	Management and complications of pterygium	20 mins	PPT/VIDEO



5	Post evaluation	10 mins	PPT
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ICT LINK : <https://youtu.be/80XKDeQGfi4?si=Bgzd608gB3FruQ4L>

Pre-evaluation:

What is pterygium?

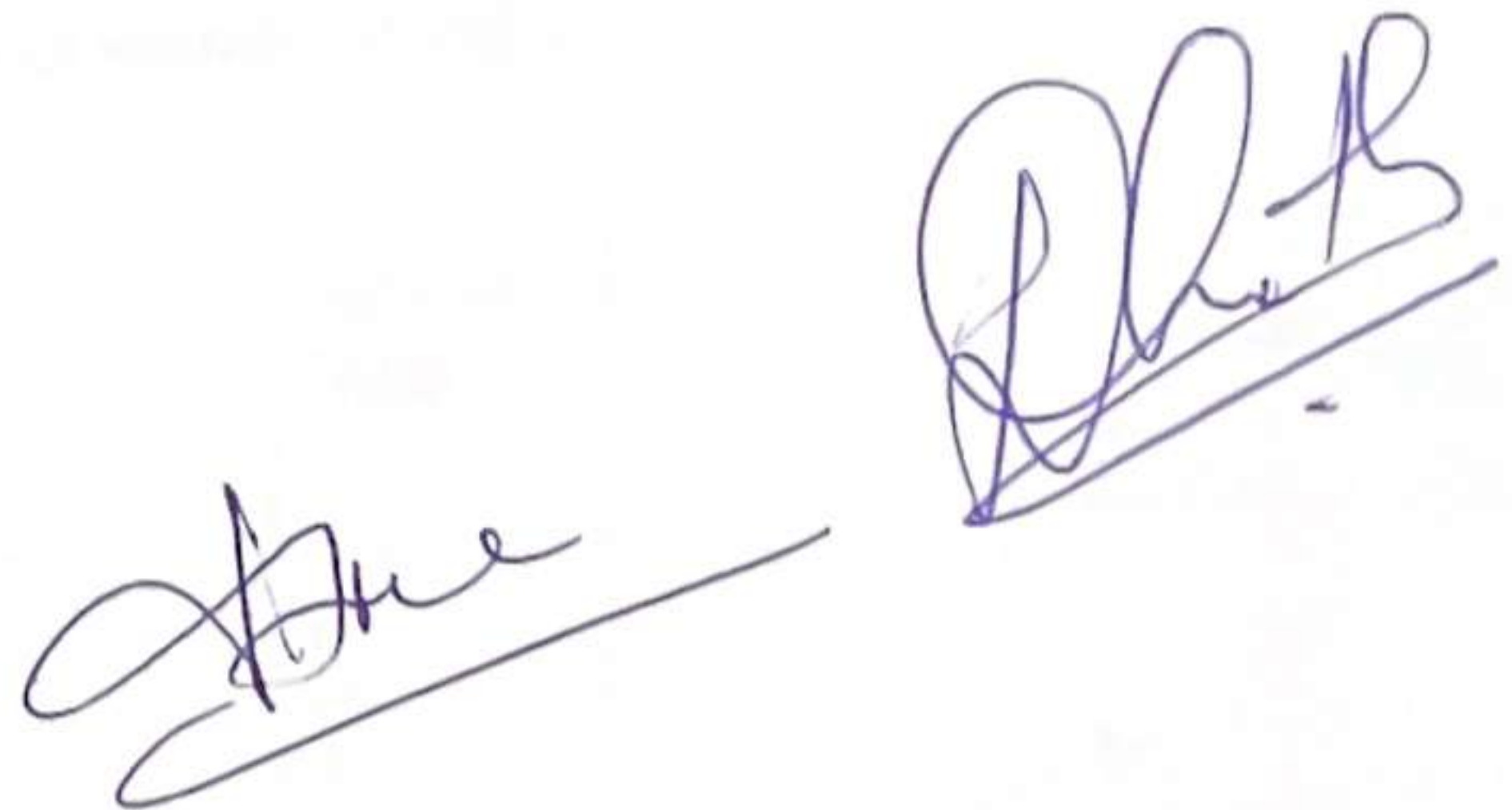
Post evaluation:

1. Discuss the management of pterygium
2. Recent advances in the management of pterygium.

Suggested reading:

Parsons Diseases of the eye

Comprehensive ophthalmology by AK KHURANA.



DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL EDUCATION
AND RESEARCH

Date – 24/4/2024

Lesson plan

Time allotted-2-3 pm

Name of teacher -Dr Preethi B

Class - Vernal keratoconjunctivitis (VKC)

Subject :Ophthalmology

Duration: 1 hour

Venue : lecture hall , college building

Competency addressed: Describe aetiology, pathophysiology, ocular features, differential diagnosis, complications and management of vernal catarrh(OP 3.5)

TL method -Lecture

Specific learning objectives: At the end of class the student should be able to :

- 1.Enumerate types of allergic conjunctivitis
- 2.Describe aetiology ,clinical features and management of vernal catarrh

Sl no	Content	Time	T-L media used
	Pre-evaluation	5	-
1			
	Types of allergic conjunctivitis	5	Ppt
2			
	Epidemiology and aetiopathogenesis	15	Ppt
3			
	Types, Symptoms and signs	20	Ppt
4			
	Differential diagnosis	10	Ppt
5			
	Post evaluation	5	-
6			

ICT LINK: https://youtu.be/3ge_zpFnDqo?si=TSY0Utlr12NrPn1

Pre evaluation: Mention types of allergic conjunctivitis

Preethi B
P. Jeyaraj

Post evaluation:

1. Describe vernal catarrh in brief

Suggested further reading: Khurana comprehensive ophthalmology

Parsons diseases of the eye

Free
PAV

**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL EDUCATION
AND RESEARCH**

Lesson plan

Date – 30/05/2024

Name of teacher -Dr Preethi B

Time allotted 2-3 pm

Class -Indications and types of keratoplasty

Subject :Ophthalmology

Venue : lecture hall , college building

Duration: 1 hour

Competency addressed: Enumerate Indications and types of keratoplasty(OP 4.6)

TL method -lecture

Specific learning objectives: A the end of class the student should be able to :

1. Define keratoplasty
2. Enumerate types of keratoplasty
3. Mention indication of keratoplasty
4. Describe complications of keratoplasty

Sl no	Content	Time	T-L media used
1	Pre-evaluation	5	-
2	Surgical anatomy and types of keratoplasty	15	Ppt
3	Indications of keratoplasty	20	Ppt
4	Surgical video of penetrating keratoplasty	5	Ppt
5	Complications of keratoplasty	10	Ppt
6	Post evaluation	5	-

ICT TOOL : <https://youtu.be/vIYN0EEFmTE?si=uzPRSQ0PXbkLF8wv>

Pre-evaluation: Define keratoplasty and types

Post evaluation:

1. Types and indications for keratoplasty
2. Complications of keratoplasty


P. B. B.

Suggested further reading: Khurana comprehensive ophthalmology

Parsons diseases of the eye

Done
P. JLB

**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL EDUCATION
AND RESEARCH**

LESSON PLAN

Date: 24.04.2024

Name of the teacher: DR SHWETHA NC

Time allotted: 3pm-4pm

Class: MBBS PHASE III

Subject: OPHTHALMOLOGY

Venue: LECTURE HALL 3

Duration: 1 hour

Competency Addressed:

Describe the aetiology, pathophysiology, ocular features, differential diagnosis, complications, and management of trachoma

- **Specific Learning Objectives:**

At the end of class student should be able to:

1. Enumerate the various ocular infections caused by Chlamydia.
2. Describe the etiology, predisposing factors and mode of infection of trachoma.
3. Describe the clinical features of trachoma.
4. Describe McCallan's classification and WHO classification of trachoma.
5. Describe the complications and sequelae of trachoma.

Describe the management and prophylaxis of trachoma

Teaching learning method: Lecture class

Sl no	Content	Time	T-L Media used
1	Pre-evaluation	5 mins	PPT
2	infections caused by Chlamydia	5 mins	PPT
3	Etiology, predisposing factors and mode of infection of trachoma	10 mins	PPT/VIDEO
4	clinical features of trachoma	10 mins	PPT

5	McCallan's classification and WHO classification of trachoma	5 mins	PPT
6	management and prophylaxis of trachoma	10 mins	PPT
7	complications and sequelae of trachoma	10 mins	PPT
8	Post evaluation	5 mins	PPT

ICT LINK: <https://youtu.be/9WRnogDZ-Ms?si=ZDMw6PsvOBIJcIoc>

Pre-evaluation:

What is trachoma and the burden of trachoma in the world?

Post- evaluation:

1. Describe the clinical features and management of trachoma

2. What is SAFE STRATEGY?

Suggested further reading:

Parsons Diseases of the eye

Comprehensive ophthalmology by AK KHURANA.

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**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL EDUCATION
AND RESEARCH**

LESSON PLAN

Date: 15.05.2024

Name of the teacher: DR SHWETHA NC

Time allotted: 3pm- 4pm

Class: MBBS PHASE III

Subject: OPHTHALMOLOGY

Venue: LECTURE HALL 2

Duration: 1 hour

- **Competency Addressed:**

Describe the anatomy and physiology of the cornea

Specific Learning Objectives:

At the end of class student should be able to:

1. Describe the anatomy of cornea.
2. Describe the factors responsible for maintaining the transparency of cornea.

Teaching learning method: LECTURE CLASS

Sl no	Content	Time	T-L Media used
1	Pre-evaluation	5 mins	PPT
2	Layers of the cornea	15 mins	PPT
3	Anatomy and physiology of the cornea	15 mins	PPT
4	Factors responsible for the transparency of the cornea	20 mins	PPT
5	Post evaluation	5 mins	PPT

ICT LINK : <https://youtu.be/zeWfYKNIXxI?si=VtjqioWrrc8DODSw>



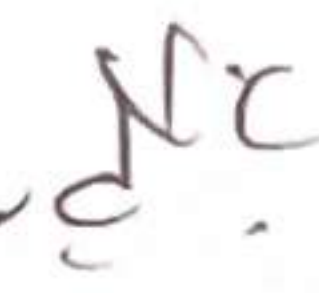
Pre-evaluation: What are the layers of the cornea?

Post evaluation: Factors responsible for maintaining the transparency of cornea?

Suggested reading:

Parsons Diseases of the eye

Comprehensive ophthalmology by AK KHURANA.

Done  

**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL EDUCATION
AND RESEARCH**

LESSON PLAN

Date: 09-05-2024

Name of the teacher: Dr SUDEEP N S

Time allotted: 1 Hr

Class: Phase 3 Part 1

Subject: Ophthalmology

Venue: Lecture hall 2

Duration: 1 hour

Competency Addressed:

OP3.4- DD's for Limbal Swelling

Specific Learning Objectives:

1. Know the DD's of growth near Limbus
2. Able to Identify any swellings in the conjunctiva

Teaching learning method: SDL

Sl no	Content	Time	T-L Media used
1	All swellings near limbus name them with pneumatic	10min	ppt
2	Learn to differentiate all swellings with photos	25min	ppt



3	Activity – Draw all swellings around the swelling	10 min	
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ICT TOOL : <https://youtu.be/zlZ9NN0L--s?si=gDtnNk3ctFxJaQoX>

Pre-evaluation: Uses of lens in day to day practice

Post- evaluation: Written, viva voce

Suggested further reading: Comprehensive text book of Ophthalmology by A K Khurana, 9 th Edition

Free

[Signature]

**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL EDUCATION
AND RESEARCH**

LESSON PLAN

Date: 12/06/2024

Name of the teacher: DR DHATHRI K

Time allotted: 3pm – 4pm

Class: MBBS PHASE III

Subject: OPHTHALMOLOGY

Venue: LECTURE HALL 2

Duration: 1 hour

• **Competency Addressed:**

Enumerate the indications and describe the methods of tarsorrhaphy

Specific Learning Objectives:

At the end of class student should be able to KNOW:

1. What is tarsorrhaphy?
2. Different types of tarsorrhaphy.
3. Indications of tarsorrhaphy

Teaching learning method: LECTURE CLASS

Sl no	Content	Time	T-L Media used
1	Pre-evaluation	5 mins	PPT
2	Types of Tarsorrhaphy	20 mins	PPT
3	Indications of tarsorrhaphy	15 mins	PPT



4	Surgical procedures of tarsorrhaphy	15 mins	PPT/VIDEO
5	Post evaluation	5 mins	PPT

ICT TOOL: YOUTUBE LINK: https://youtu.be/l_mJ7S5zIwQ?si=p6dX1CnK5OPJJhsv

Pre-evaluation: What is tarsorrhaphy?

Post evaluation: What are the indications of tarsorrhaphy?

Suggested reading:

Parsons Diseases of the eye, Comprehensive ophthalmology by AK KHURANA

Done

[Signature]

**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL EDUCATION
AND RESEARCH**

LESSON PLAN

Date: 01.05.2024

Name of the teacher: DR DHATHRI K

Time allotted: 3 pm-4 pm

Class: MBBS PHASE III

Subject: OPHTHALMOLOGY

Venue: LECTURE HALL 3

Duration: 1 hour

● **Competency Addressed:**

Describe the aetiology, pathophysiology, ocular features, differential diagnosis, complications and management of pterygium

Specific Learning Objectives:

At the end of class student should be able to:

1. Define pterygium.
2. Describe the etiopathogenesis, clinical features (including the parts and types) of pinguecula and pterygium.
3. Mention the complications of pterygium.
4. Differentiate pterygium from pseudopterygium
5. Describe the management of pterygium.

Teaching learning method: SGD

Sl no	Content	Time	T-L Media used
1	Pre-evaluation	5 mins	PPT
2	Etiology, pathology and clinical features of pinguecula	10 mins	PPT
3	Etiology, pathology and clinical features of pterygium	15 mins	PPT
4	Differences between pterygium and pseudopterygium	5 mins	PPT
5	Management and complications of pterygium	20 mins	PPT/VIDEO



5	Post evaluation	10 mins	PPT
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ICT LINK : <https://youtu.be/80XKDeQGfi4?si=Bgzd608gB3FruQ4L>

Pre-evaluation:

What is pterygium?

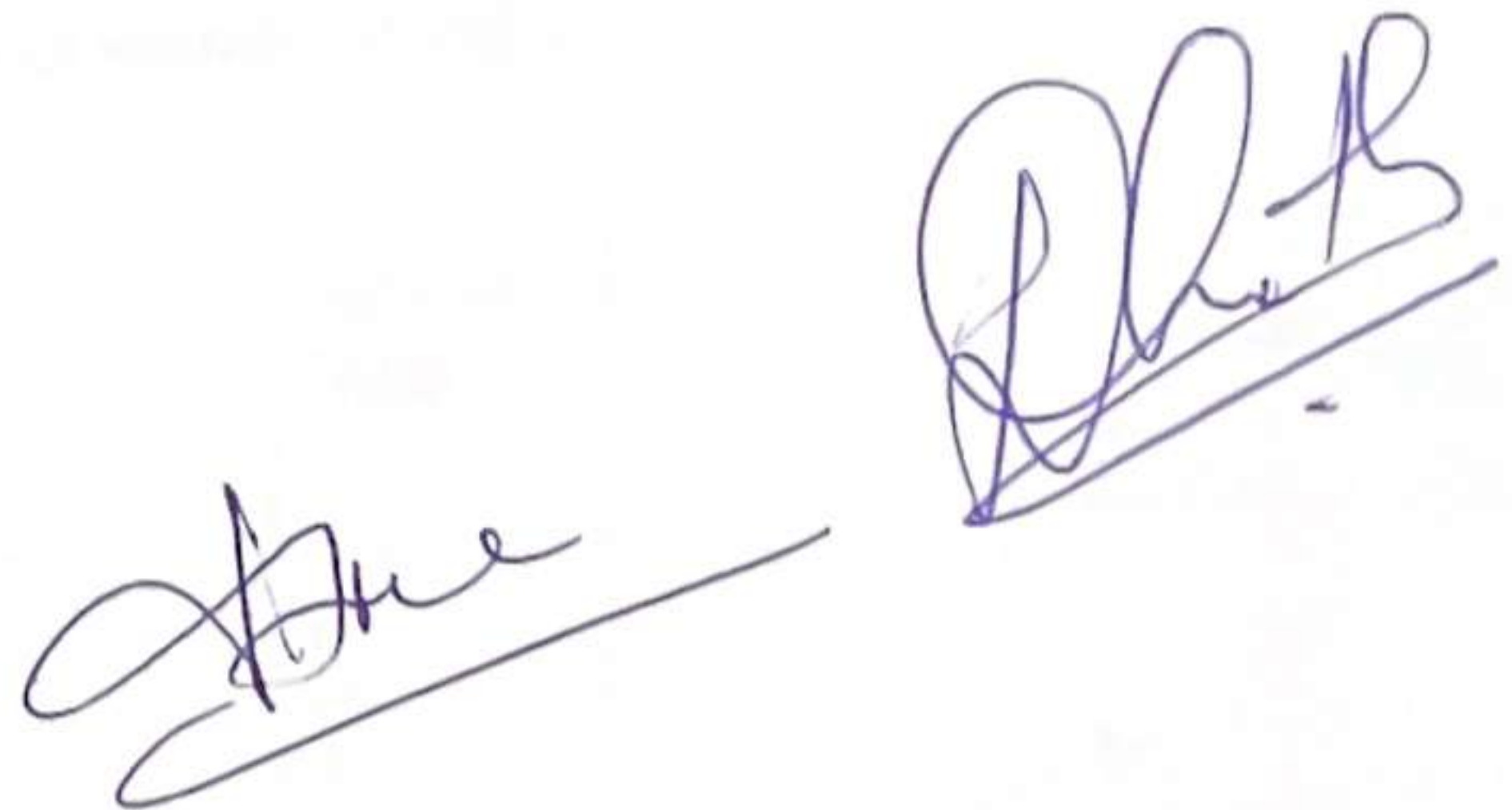
Post evaluation:

1. Discuss the management of pterygium
2. Recent advances in the management of pterygium.

Suggested reading:

Parsons Diseases of the eye

Comprehensive ophthalmology by AK KHURANA.



DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL EDUCATION
AND RESEARCH

Date – 24/4/2024

Lesson plan

Time allotted-2-3 pm

Name of teacher -Dr Preethi B

Class - Vernal keratoconjunctivitis (VKC)

Subject :Ophthalmology

Duration: 1 hour

Venue : lecture hall , college building

Competency addressed: Describe aetiology, pathophysiology, ocular features, differential diagnosis, complications and management of vernal catarrh(OP 3.5)

TL method -Lecture

Specific learning objectives: At the end of class the student should be able to :

1. Enumerate types of allergic conjunctivitis
2. Describe aetiology ,clinical features and management of vernal catarrh

Sl no	Content	Time	T-L media used
	Pre-evaluation	5	-
1			
	Types of allergic conjunctivitis	5	Ppt
2			
	Epidemiology and aetiopathogenesis	15	Ppt
3			
	Types, Symptoms and signs	20	Ppt
4			
	Differential diagnosis	10	Ppt
5			
	Post evaluation	5	-
6			

ICT LINK: https://youtu.be/3ge_zpFnDqo?si=TSY0Utlr12NrPn1

Pre evaluation: Mention types of allergic conjunctivitis

Preethi B
P. J. Reddy

Post evaluation:

1. Describe vernal catarrh in brief

Suggested further reading: Khurana comprehensive ophthalmology

Parsons diseases of the eye

Free
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**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL EDUCATION
AND RESEARCH**

Lesson plan

Date – 30/05/2024

Name of teacher -Dr Preethi B

Time allotted 2-3 pm

Class -Indications and types of keratoplasty

Subject :Ophthalmology

Venue : lecture hall , college building

Duration: 1 hour

Competency addressed: Enumerate Indications and types of keratoplasty(OP 4.6)

TL method -lecture

Specific learning objectives: A the end of class the student should be able to :

1. Define keratoplasty
2. Enumerate types of keratoplasty
3. Mention indication of keratoplasty
4. Describe complications of keratoplasty

Sl no	Content	Time	T-L media used
1	Pre-evaluation	5	-
2	Surgical anatomy and types of keratoplasty	15	Ppt
3	Indications of keratoplasty	20	Ppt
4	Surgical video of penetrating keratoplasty	5	Ppt
5	Complications of keratoplasty	10	Ppt
6	Post evaluation	5	-

ICT TOOL : <https://youtu.be/vIYN0EEFmTE?si=uzPRSQ0PXbkLF8wv>

Pre-evaluation: Define keratoplasty and types

Post evaluation:

1. Types and indications for keratoplasty
2. Complications of keratoplasty


P. B. B.

Suggested further reading: Khurana comprehensive ophthalmology

Parsons diseases of the eye

Done
P. JLB

**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL EDUCATION
AND RESEARCH**

LESSON PLAN

Date: 24.04.2024

Name of the teacher: DR SHWETHA NC

Time allotted: 3pm-4pm

Class: MBBS PHASE III

Subject: OPHTHALMOLOGY

Venue: LECTURE HALL 3

Duration: 1 hour

Competency Addressed:

Describe the aetiology, pathophysiology, ocular features, differential diagnosis, complications, and management of trachoma

- **Specific Learning Objectives:**

At the end of class student should be able to:

1. Enumerate the various ocular infections caused by Chlamydia.
2. Describe the etiology, predisposing factors and mode of infection of trachoma.
3. Describe the clinical features of trachoma.
4. Describe McCallan's classification and WHO classification of trachoma.
5. Describe the complications and sequelae of trachoma.

Describe the management and prophylaxis of trachoma

Teaching learning method: Lecture class

Sl no	Content	Time	T-L Media used
1	Pre-evaluation	5 mins	PPT
2	infections caused by Chlamydia	5 mins	PPT
3	Etiology, predisposing factors and mode of infection of trachoma	10 mins	PPT/VIDEO
4	clinical features of trachoma	10 mins	PPT

5	McCallan's classification and WHO classification of trachoma	5 mins	PPT
6	management and prophylaxis of trachoma	10 mins	PPT
7	complications and sequelae of trachoma	10 mins	PPT
8	Post evaluation	5 mins	PPT

ICT LINK: <https://youtu.be/9WRnogDZ-Ms?si=ZDMw6PsvOBIJcIoc>

Pre-evaluation:

What is trachoma and the burden of trachoma in the world?

Post- evaluation:

1. Describe the clinical features and management of trachoma

2. What is SAFE STRATEGY?

Suggested further reading:

Parsons Diseases of the eye

Comprehensive ophthalmology by AK KHURANA.

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**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL EDUCATION
AND RESEARCH**

LESSON PLAN

Date: 15.05.2024

Name of the teacher: DR SHWETHA NC

Time allotted: 3pm- 4pm

Class: MBBS PHASE III

Subject: OPHTHALMOLOGY

Venue: LECTURE HALL 2

Duration: 1 hour

• **Competency Addressed:**

Describe the anatomy and physiology of the cornea

Specific Learning Objectives:

At the end of class student should be able to:

1. Describe the anatomy of cornea.
2. Describe the factors responsible for maintaining the transparency of cornea.

Teaching learning method: LECTURE CLASS

Sl no	Content	Time	T-L Media used
1	Pre-evaluation	5 mins	PPT
2	Layers of the cornea	15 mins	PPT
3	Anatomy and physiology of the cornea	15 mins	PPT
4	Factors responsible for the transparency of the cornea	20 mins	PPT
5	Post evaluation	5 mins	PPT

ICT LINK : <https://youtu.be/zeWfYKNIXxI?si=VtjqioWrrc8DODSw>



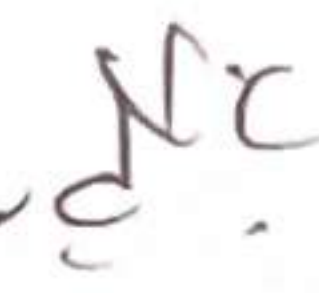
Pre-evaluation: What are the layers of the cornea?

Post evaluation: Factors responsible for maintaining the transparency of cornea?

Suggested reading:

Parsons Diseases of the eye

Comprehensive ophthalmology by AK KHURANA.

Done  

**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL EDUCATION
AND RESEARCH**

LESSON PLAN

Date: 09-05-2024

Name of the teacher: Dr SUDEEP N S

Time allotted: 1 Hr

Class: Phase 3 Part 1

Subject: Ophthalmology

Venue: Lecture hall 2

Duration: 1 hour

Competency Addressed:

OP3.4- DD's for Limbal Swelling

Specific Learning Objectives:

1. Know the DD's of growth near Limbus
2. Able to Identify any swellings in the conjunctiva

Teaching learning method: SDL

Sl no	Content	Time	T-L Media used
1	All swellings near limbus name them with pneumatic	10min	ppt
2	Learn to differentiate all swellings with photos	25min	ppt



3	Activity – Draw all swellings around the swelling	10 min	
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ICT TOOL : <https://youtu.be/zlZ9NN0L--s?si=gDtnNk3ctFxJaQoX>

Pre-evaluation: Uses of lens in day to day practice

Post- evaluation: Written, viva voce

Suggested further reading: Comprehensive text book of Ophthalmology by A K Khurana, 9 th Edition

A handwritten signature in blue ink, appearing to read 'Sue'.A handwritten signature in blue ink, appearing to read 'Dr. Khurana'.

Pre-evaluation:

Importance of ET tube in middle ear function

Post- evaluation: Written, viva voce

Suggested further reading:


Dr. Chandramohan S. Sagar Institute
of Medical Education & Research (CDSIMER)
(A Unit of Dayananda Sagar University)
Kanakapura Road, Harohalli,
Ramanagar District, Karnataka - 562112

**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL
EDUCATION AND RESEARCH**

LESSON PLAN

Date: 23-01-2024

Name of the teacher: Dr Niveditha

Time allotted: 1 Hr

Class: Phase 3 Part 1

Subject: ENT

Venue: Lecture hall 2

Duration: 1 hour

Competency Addressed:

EN4.21

Describe the clinical features, investigations and principles of management of Tinnitus

EN1.2

Describe the pathophysiology of common diseases in ENT

Specific Learning Objectives:

1. Describe the clinical features of patient presenting with Tinnitus
2. Describe the principles of management of Tinnitus
3. Describe the pathophysiology of common diseases of the ear (eustachian tube)

Teaching learning method: Seminar/SGD

Sl no	Content	Time	T-L Media used
1	Videos of physiology of eustachian tube	10min	video
2	<u>pathophysiology of common diseases of the ear (eustachian tube)</u>	15min	ppt
3	Tinnitus and clinical features	10 min	ppt
4	Seminar by students	15 min	ppt

ICT Link: <https://youtu.be/VC-dD5tJeGQ?si=ThsepY-RTTRhRfyt>

**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL
EDUCATION AND RESEARCH**

LESSON PLAN

Date: 22-01-2024

Name of the teacher: Dr Maradesha

Time allotted: 1 Hr

Class: Phase 3 Part 1

Subject: ENT

Venue: Lecture hall 2

Duration: 1 hour

Competency Addressed:

EN4.12

Elicit document and present a correct history demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of Hearing loss

Specific Learning Objectives:

1. List the causes of hearing loss in children
2. Describe the principles of management and rehabilitation of Deaf child

Teaching learning method: Lecture/Video demonstration

Sl no	Content	Time	T-L Media used
1.	Video of Hearing loss in children and cochlear implant	5mins	video
2.	Etiology of hearing loss in children	10mins	ppt
3.	Management of hearing loss in children	20mins	ppt
4.	Cochlear implant surgery	5mins	video

ICT LINKS-

<https://youtu.be/6auWiQ2t2fM?si=XmChJGXp7MtpgGJN>

https://youtu.be/QBi1Bij39H8?si=L9cS0_MnHcO9RLNU

Pre-evaluation: Nil

Post- evaluation: Written, viva voce

Suggested further reading:


Head Dept. of ENT
Dr. Chandramma Dayananda Sagar Institute
of Medical Education & Research (CDSIMER)
(A Unit of Dayananda Sagar University)
Kanakapura Road, Harohalli,
Ramanagar District, Karnataka - 562112

**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL
EDUCATION AND RESEARCH**

LESSON PLAN

Date: 24-01-2024

Name of the teacher: Dr Aishwarya

Time allotted: 1 Hr

Class: Phase 3 Part 1

Subject: ENT

Venue: Lecture hall 2

Duration: 1 hour

Competency Addressed:

EN4.18

Describe the clinical features, investigations and principles of management of Facial Nerve palsy

Specific Learning Objectives:

1. Describe the clinical features of Facial Nerve palsy
2. Describe the principles of management of Facial Nerve palsy

Teaching learning method: Lecture/ Demonstration

Sl no	Content	Time	T-L Media used
1.	Anatomy of the Facial nerve and its course	15 min	Powerpoint/ Images
2.	Signs of Facial nerve palsy	10 min	Powerpoint
3.	Topodiagnostic tests of facial palsy	10min	Powerpoint
4.	Management of facial palsy	10 min	Powerpoint

Pre-evaluation: Viva regarding Anatomy of facial nerve and its course

Post- evaluation: Written, viva voce


Head Dept. of ENT
Dr. Chandramma Dayananda Sagar Institute
of Medical Education & Research (COSIMER)
(A Unit of Dayananda Sagar University)
Kanakapura Road, Marohalli,
Ramanagar District, Karnataka - 562112

7.	Match the indication and surgery	5mins	ppt
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ICT Link: <https://youtu.be/uqbzOIOnlYM?si=Pogx0bQE5u0aNdlr>

<https://youtu.be/MX0Exxipeqk?si=7ePdbyPdwRMDr2wX>

https://youtu.be/0KZImIYs_Xw?si=anM9n0FWiH0VL-8V

<https://youtu.be/utCLvLh4lxw?si=Q1kQteTc04YpxiSf>

Pre-evaluation: Nil

Post- evaluation: Written, viva voce

Suggested further reading:

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Head Dept. of ENT
Dr. Chandrashekhara Sagar Institute
of Medical Education & Research (CDSIMER)
(A Unit of Dayananda Sagar University)
Kanakapura Road, Harohalli,
Ramanagar District, Karnataka - 562112

**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL
EDUCATION AND RESEARCH**

LESSON PLAN

Date: 19-01-2024

Name of the teacher: Dr Maradesha

Time allotted: 1 Hr

Class: Phase 3 Part 1

Subject: ENT

Venue: Lecture hall 2

Duration: 1 hour

Competency Addressed:

EN4.10

Observe and describe the indications for and steps involved in myringotomy and myringoplasty

EN4.11

Enumerate the indications describe the steps and observe a Mastoidectomy

Specific Learning Objectives:

1. Enumerate the indications for myringotomy
2. Describe the steps of myringotomy
3. Enumerate the indications for myringoplasty
4. Describe the steps of myringoplasty
5. Enumerate the indications for Mastoidectomy
6. Describe the steps of Mastoidectomy

Teaching learning method: Lecture/Video demonstration

Sl no	Content	Time	T-L Media used
1.	Indications for myringotomy	5mins	ppt
2.	Steps of myringotomy	10mins	video
3.	Indications for myringoplasty	5mins	ppt
4.	Steps of myringoplasty	10mins	Video
5.	Indications for mastoidectomy	5mins	ppt
6.	Steps of mastoidectomy	10mins	Video

ICT LINKS

<https://youtu.be/vo3GYc4YeHc?si=ux-XC47MoslET7NE>

<https://youtu.be/hvHhAfb8P0E?si=q7YfB3Gm63C4VROZ>

Pre-evaluation:

Post- evaluation: Written, viva voce

Suggested further reading:


Head Dept. of ENT
Dr. Chandrashekhra Dayananda Sagar Institute
of Medical Sciences & Research (CDSIMER)
(A Unit of Dayananda Sagar University)
Kanakapura Road, Hanumanthi,
Ramachandra District, Karnataka - 562112

**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL
EDUCATION AND RESEARCH**

LESSON PLAN

Date: 18-01-2024

Name of the teacher: Dr Pooja

Time allotted: 1 Hr

Class: Phase 3 Part 1

Subject: ENT

Venue: Lecture hall 2

Duration: 1 hour

Competency Addressed:

EN4.13

Describe the clinical features, investigations and principles of management of Otosclerosis

Specific Learning Objectives:

1. Describe the clinical features of Otosclerosis
2. Describe the investigations required for patient with Otosclerosis
3. Describe the principles of management of Otosclerosis

Teaching learning method: Lecture/Demonstration

Sl no	Content	Time	T-L Media used
1	Etiopathogenesis of otosclerosis	10	ppt
2	Pathophysiology of otosclerosis	10	video
3	Clinical features of otosclerosis	5	ppt
4	Investigations of otosclerosis	10	Ppt
5	Management of otosclerosis	10	Video
6	Mcq related to otosclerosis	5	ppt

**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL
EDUCATION AND RESEARCH**

LESSON PLAN

Date: 17-01-2024

Name of the teacher: Dr Maradesha

Time allotted: 1 Hr

Class: Phase 3 Part 1

Subject: ENT

Venue: Lecture hall 2

Duration: 1 hour

Competency Addressed:

EN4.12

Elicit document and present a correct history demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of Hearing loss

Specific Learning Objectives:

1. List the causes of Hearing loss
2. Describe the clinical features in a patient presenting with Hearing loss
3. Choose the correct investigations in a patient presenting with Hearing loss
4. Describe the principles of management of Hearing loss

Teaching learning method: Seminar/SGD

Sl no	Content	Time	T-L Media used
1.	Introduction and types of hearing loss – Conductive and Sensori-neural hearing loss	10mins	Ppt, flow chart
2.	Presenting Symptoms and identifying the disease on clinical examination.	10 mins	Ppt, photos
3.	Investigating a patient with hearing loss, evaluation of a deaf child, Pure tone Audiometry	15 mins	Flow chart, ppt, photos
4.	Specific management, Hearing Aid, rehabilitation of deaf child. Occupational noise exposure	15 mins	Photos, ppt

per
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Kanakapura Road, Harohalli,
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**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL
EDUCATION AND RESEARCH**

LESSON PLAN

Date: 16-01-2024

Name of the teacher: Dr Amreen

Time allotted: 1 Hr

Class: Phase 3 Part 1

Subject: ENT

Venue: Lecture hall 2

Duration: 1 hour

Competency Addressed:

EN4.7

Elicit document and present a correct history demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of mucosal type of CSOM

EN4.8

Elicit document and present a correct history, demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of squamosal type of CSOM

Specific Learning Objectives:

1. Describe the clinical features in a patient presenting with complications of CSOM
2. Describe the principles of management of a patient presenting with complications of CSOM

Teaching learning method: Seminar/ SGD

Sl no	Content	Time	T-L Media used
1.	Introduction to CSOM	5 mins	photos
2.	Classification of complications of CSOM	10 mins	Flow chart
3.	Intracranial complications with management	15 mins	ppt
4.	Extracranial complications and management	15 mins	ppt

Pre-evaluation: NIL


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Warakoppa Road, Homballi,
Bangalore 560075
2112

Sl no	Content	Time	T-L Media used
1	Definition of csom	5	ppt
2	Classification of csom	10	Flow chart
3	Theories of csom	10	video
4	Mucosal type of csom	10	Ppt
5	Squamosal type of csom	10	Ppt
6	Mcqs of csom	5	ppt

ICT Link: <https://youtu.be/qMtdIYGtAuc?si=1ly9qoMxEet25Vg9>

Pre-evaluation: Nil

Post- evaluation: Written, viva voce

Suggested further reading:

Handwritten signature
Head Dept. of ENT
Dr. Chandramma Dasananda Sagar Institute
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 Kerehalapura Road, Harahalli,
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**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL
EDUCATION AND RESEARCH**

LESSON PLAN

Date: 15-01-2024

Name of the teacher: Dr Pooja

Time allotted: 1 Hr

Class: Phase 3 Part 1

Subject: ENT

Venue: Lecture hall 2

Duration: 1 hour

Competency Addressed:

EN4.6

Elicit document and present a correct history, demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of Discharging ear

EN4.7

Elicit document and present a correct history demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of mucosal type of CSOM

EN4.8

Elicit document and present a correct history, demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of squamosal type of CSOM

Specific Learning Objectives:

1. Describe the clinical features in a patient presenting with discharging ear
2. Describe the principles of management of discharging ear
3. Describe the clinical features in a patient presenting with Mucosal CSOM
4. Describe the principles of management of Mucosal CSOM
5. Describe the clinical features in a patient presenting with Squamous CSOM
6. Describe the principles of management of Squamous CSOM

Teaching learning method: Lecture/ Demonstration

**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL
EDUCATION AND RESEARCH**

LESSON PLAN

Date: 12-01-2024

Name of the teacher: Dr Yogeshwar C

Time allotted: 1 Hr

Class: Phase 3 Part 1

Subject: ENT

Venue: Lecture hall 2

Duration: 1 hour

Competency Addressed:

EN4.3 Elicit document and present a correct history, demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of ASOM

EN4.5 Elicit document and present a correct history, demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of OME

Specific Learning Objectives:

1. Describe the clinical features in a patient presenting with ASOM
2. Describe the principles of management of ASOM
3. Describe the clinical features in a patient presenting with OME
4. Describe the principles of management of OME

Teaching learning method: Seminar/SGD

Sl no	Content	Time	T-L Media used
1	Discuss ASOM case scenario	5mins	ppt
2	Clinical features and management of ASOM	15mins	ppt
3	Discuss OME case scenario	5mins	ppt
4	Clinical features and management of OME	15mins	ppt
5	MCQ	5mins	ppt

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**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL
EDUCATION AND RESEARCH**

LESSON PLAN

Date: 11-01-2024

Name of the teacher: Dr Aishwarya

Time allotted: 1 Hr

Class: Phase 3 Part 1

Subject: ENT

Venue: Lecture hall 2

Duration: 1 hour

Competency Addressed:

EN4.1

Elicit, document and present a correct history, demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of Otolgia

EN4.2

Elicit document and present a correct history, demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of diseases of the external Ear

Specific Learning Objectives:

1. List the causes of Otolgia
2. Describe the clinical features in a patient presenting with Otolgia
3. Describe the principles of management of Otolgia
4. List the diseases of external ear
5. Describe the clinical features in a patient presenting with diseases of the external Ear
6. Describe the principles of management of diseases of the external Ear

Teaching learning method: Seminar/SGD

Sl no	Content	Time	T-L Media used
1.	Anatomy of the External Ear	5min	Powerpoint/ Images
2.	Diseases of the External Ear	20 min	Powerpoint
3.	Causes of Otolgia	10min	Powerpoint
4.	Causes of Referred Otolgia	10 min	Powerpoint

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2022

**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL
EDUCATION AND RESEARCH**

LESSON PLAN

Date: 10-01-2024

Name of the teacher: Dr Aishwarya

Time allotted: 1 Hr

Class: Phase 3 Part 1

Subject: ENT

Venue: Lecture hall 2

Duration: 1 hour

Competency Addressed:

EN2.8

Demonstrate the correct technique to perform and interpret pure tone audiogram & impedance audiogram

Specific Learning Objectives:

1. Elaborate on Audiology & Acoustics

Teaching learning method: Lecture/Demonstration

Sl no	Content	Time	T-L Media used
1.	Physiology of hearing and physics of sound	5 min	Powerpoint/ Video
2.	Tuning fork tests	5 min	Powerpoint
3.	Pure Tone Audiometry	10 min	Powerpoint
4.	Impedance Audiometry	10 min	Powerpoint
5.	OAE and ABR	10min	Powerpoint

ICT LINK - <https://youtu.be/cChx6oZGJpk?si=l4z8zB8zF7VQdjaz>

Pre-evaluation: Viva on physiology of hearing

Post- evaluation: Viva voce


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**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL
EDUCATION AND RESEARCH**

LESSON PLAN

Date: 09-01-2024

Name of the teacher: Dr Maradesha

Time allotted: 1 Hr

Class: Phase 3 Part 1

Subject: ENT

Venue: Lecture hall 2

Duration: 1 hour

Competency Addressed:

EN1.1

Describe the Anatomy & physiology of ear, nose, throat, head & neck

Specific Learning Objectives:

1. Describe the Physiology of ear

Teaching learning method: Lecture/Demonstration

Sl no	Content	Time	T-L Media used
1	Videos of hearing	10 mins	video
2	Details of hearing mechanism and theories of hearing	20 min	ppt
3	Videos of balance	10 min	ppt
4	Physiology of balance	10 min	ppt

ICT LINK- <https://youtu.be/zxu-UAXnlP0?si=gUtQzDzADHFji2cG>

Pre-evaluation: importance of physiology of hearing, in hearing loss [presbycusis, csom]

Importance of inner ear balance, as it is one of the major balance system in our body.

Post- evaluation: Written, viva voce

Suggested further reading:


Head Dept. of ENT
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Kannur Road, Bangalore
Bangalore - 562112

**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL
EDUCATION AND RESEARCH**

LESSON PLAN

Date: 08-01-2024

Name of the teacher: Dr Maradesha

Time allotted: 1 Hr

Class: Phase 3 Part 1

Subject: ENT

Venue: Lecture hall 2

Duration: 1 hour

Competency Addressed:

EN1.1

Describe the Anatomy & physiology of ear, nose, throat, head & neck

Specific Learning Objectives:

1. Describe the Anatomy of ear

Teaching learning method: Lecture/Demonstration

Sl no	Content	Time	T-L Media used
1	Images of external ,middle and inner ear	10 min	ppt
2	Detailed anatomy of parts of the ear	20min	ppt
3	Videos of inner ear	10 min	video
4	Questions regarding the topic	10min	ppt

ICT Link: <https://youtu.be/XPHuiYInOsg?si=Bip9nAEKT0-GnCTT>

Pre-evaluation: Importance of temporal bone anatomy

Application of applied anatomy to clinical practice

Post- evaluation: Written, viva voce

Suggested further reading:


Head of ENT
Dr. Chandramma Dayananda Sagar Institute
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DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL
EDUCATION AND RESEARCH

LESSON PLAN

Name of the teacher: Dr. Anusha K S
Class: LECTURE
Venue: lecture hall 2

Date: 15-02-24
Time allotted: 9-10 AM
Subject: OBG
Duration: 1 hour

Competency Addressed: 4.1

Specific Learning Objectives: Anatomy and physiology of placenta & fetal
membranes, Amniotic fluid

Teaching learning method: LECTURE

Sl no	Content	Time	T-L Media used
1	Introduction to Anatomy and Physiology of the Placenta	10 minutes	
2	Describing the structure and function of the placenta in fetal development.	10 minutes	Pictures Video
3	Explaining the role of the placenta in nutrient and gas exchange, waste removal, and hormone	10 minutes	pictures
4	Discussing placental circulation and its significance in fetal oxygenation	15 minutes	pictures
5	Amniotic fluid production and absorption	15 minutes	pictures

https://youtu.be/bped-RVWsLk?si=NUIMAHl--yFHJ_3g

Pre-evaluation: questions asked in group

Post- evaluation: MCQ

Suggested further reading: D C Dutta, Williams

FACULTY NAME:

Anusha K S
Dr. Anusha K S

HOD SIGNATURE

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DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL
EDUCATION AND RESEARCH

LESSON PLAN

Name of the teacher: Dr K S Rashmi

Class: Phase 3-part 2

Subject: OBG

Venue: Lecture hall 4

Date: 24/05/24

Time allotted: 9-10AM

Duration: 1 hour

Competency Addressed: PROLAPSE UTERUS –OG 31.1

Specific Learning Objectives: Definition of pelvic organ prolapse, supports of uterus, etiology, classification, clinical features, diagnosis, investigations

Teaching learning method: Lecture

Sl no	Content	Time	T-L Media used
1	Definition of pelvic organ prolapse, supports of uterus	10min	PPT Images, videos
2	Etiology and Risk Factors	10min	
3	Describe the different types and stages of uterine prolapse according to recognized classification systems (e.g., Pelvic Organ Prolapse Quantification system)	20min	
4	Clinical Features and Diagnosis	10min	
5	Investigations	10min	

<https://youtu.be/Fbm4UVqZdNM?si=deX2ZTJVjI1xxv5s>

Pre-evaluation: MCQ

Post- evaluation: MCQ, case studies

Suggested further reading:

Shaw's Textbook of Gynecology

JEFFCOATE'S PRINCIPLES OF GYNAECOLOGY

FACULTY NAME:

Dr K S Rashmi



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DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL
EDUCATION AND RESEARCH

LESSON PLAN

Name of the teacher: Dr Anusha K S

Class: LECTURE

Venue: lecture hall 3

Date: 14/05/2024

Time allotted: 9-10 AM

Subject: OBG

Duration: 1 hour

Competency Addressed: 15.1

Enumerate and describe the indication and steps of common obstetrics procedure, techniques and complications of VACUUM ASSISTED EXTRACTION and FORCEPS DELIVERY

Specific Learning Objectives:

To enumerate and describe the indications, steps, techniques, and complications of common obstetric procedures including vacuum extraction, low forceps.

Teaching learning method: LECTURE

Sl no	Content	Time	T-L Media used
1	Introduction to Obstetric Procedures	10 minutes	
2	Pre requisites of instrumental deliveries	10 minutes	Pictures
3	Enumerate the indications for vacuum extraction and low forceps delivery, including fetal distress or maternal exhaustion	15 minutes	pictures and video
4	Describe the technique of vacuum extraction and low forceps delivery, including patient positioning, application of the vacuum or forceps, and traction.	10 minutes	Pictures and video
5	- Discuss potential complications of vacuum extraction and low forceps delivery, such as fetal scalp injury, maternal perineal trauma, and operative vaginal delivery-related morbidity.	15 minutes	

<https://youtube.com/shorts/9IPpXPb7YO8?si=xsEysntseITXprut>

<https://youtu.be/fucD6IKtw3M?si=nLZxPLIU3hhMtTFI>

Pre-evaluation: questions asked in group

Post- evaluation: MCQ

Suggested further reading: D C Dutta, Williams

FACULTY NAME:

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DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL
EDUCATION AND RESEARCH

LESSON PLAN

Name of the teacher: Dr Anusha K S
Class: LECTURE

Venue: lecture hall 5

Date: 7/08/2024
Time allotted: 4-5 PM
Subject: OBG
Duration: 1 hour

Competency Addressed: 34.4: Hysteroscopy – instruments, distending media, anaesthesia, procedures, indications, contraindications, complications

Specific Learning Objectives:

Teaching learning method: LECTURE

Sl no	Content	Time	T-L Media used
1	Hysteroscopy : Introduction	10 minutes	
2	Instruments	10 minutes	Pictures
3	Distending media	10 minutes	
4	Anaesthesia	10 minutes	
5	Procedures, indications	10 minutes	videos
6	Contraindications, complications	10 minutes	pictures

https://youtu.be/AS5Yx7b4jlc?si=A02Sil_UisJeah4n

Pre-evaluation: questions asked in group

Post- evaluation: MCQ

Suggested further reading: D C Dutta, Novacks, Williams gynaec

FACULTY NAME:

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DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL
EDUCATION AND RESEARCH

LESSON PLAN

Name of the teacher: Dr Anusha K S
Class: LECTURE
Venue: lecture hall 3

Date: -7/06/2024
Time allotted: 4-5 PM
Subject: OBG
Duration: 1 hour

Competency Addressed: 10.1

Define, classify and describe the etiology, pathogenesis, clinical features, ultrasonography, differential diagnosis and management of antepartum haemorrhage **ABRUPTIO – PLACENTAE**

Specific Learning Objectives: To describe and discuss the classification, diagnosis, and management of abnormal labor

Teaching learning method: LECTURE

Sl no	Content	Time	T-L Media used
1	Introduction	10 minutes	
2	Definition and Classification	10 minutes	Pictures
3	Aetiology and pathogenesis	15 minutes	pictures
4	Clinical features and diagnosis	10 minutes	
5	Complications	10 minutes	Photos and videos
6	Management	10 minutes	

<https://youtu.be/Z9dBS1xLQMc?si=SRrWMgR2pRplqeAi0>

Pre-evaluation: questions asked in group

Post- evaluation: MCQ

Suggested further reading: D C Dutta, Williams

FACULTY NAME:

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DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL EDUCATION AND RESEARCH

LESSON PLAN

Name of the teacher: Dr Pranathi M

Class: phase 4

Venue :4 floor lecture hall

Date: 3/5/24

Time allotted:1 hr

Subject: OBG

Duration: 1 hour

Competency Addressed : IUCD/ PPIUCD

Specific Learning Objectives:

Teaching learning method: LECTURE

Sl no	Content	Time	T-L Media used
	Indications, mechanism of action, efficacy, advantages, and disadvantages of each method. - Techniques for insertion/removal of IUDs and contraceptive implants. - Discuss side effects, contraindications, and failure rates associated with iucd	10 min	Ppt You tube videos
	PPIUCD as a contraceptive method. - Mechanism of action, insertion technique, and types of intrauterine devices suitable for postpartum insertion. - Discuss the advantages and benefits of PPIUCD for women and healthcare systems	10 min	
	Discuss the benefits of PPIUCD in promoting birth spacing, preventing unintended pregnancies, and reducing maternal and infant mortality. - impact of PPIUCD on maternal health outcomes, such as reducing the risk of unintended pregnancy and unsafe abortion. - Highlight the potential cost-effectiveness and sustainability of integrating PPIUCD services into routine postpartum care.	15 min	
	Identify common challenges and barriers to PPIUCD program implementation, such as provider training, access to services, and client acceptance. - Discuss strategies for overcoming these challenges, including quality improvement initiatives, community engagement, and policy advocacy.	15 min	
	Summarize key points covered in the lecture, including the importance of the PPIUCD program in promoting postpartum contraception and improving maternal and child health outcomes.	10 min	

<https://youtu.be/aVZoH0Pda-4?si=7ghX8iYwP4MgYQW2>

Pre-evaluation: 5 mcq

Post- evaluation:5 mcq

Suggested further reading: J B SHARMA, DAWNS

FACULTY NAME:

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**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL EDUCATION
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LESSON PLAN

Name of the teacher: Dr Satish Rao B S

Target group : MBBS students

Term: II year

Number of students: 150

Duration: 1 hour

Date:10/01/2024

Topic: BASIC CONCEPTS OF HOMEOSTASIS, METABOLIC CHANGES IN INJURY AND THEIR MEDIATORS

Self induction : Greet students and introduce the topic of homeostasis and metabolic changes in injury.

- Provide an overview of the lecture objectives – 10 mins

Sl no	Specific learning objective	Content	TL Method	Media	Duration
1.	Basic Concepts of Homeostasis	Define homeostasis and emphasize its importance.	Interactive lecture	Power point	15 minutes
2.	Metabolic Changes in Injury.	Explain the concept of feedback mechanisms using examples.	Interactive lecture	Power point	20 minutes
3.	Mediators of Metabolic Changes in Injury	a) Introduce key mediators involved in metabolic changes during injury b) Discuss the role of cytokines, stress hormones, and growth factors.	Interactive lecture	Power point	10 minutes
4.	Summary and Conclusion	Emphasize the importance of understanding homeostasis and metabolic changes in injury for healthcare professionals.	Interactive lecture	Power point	5 minutes

ICT Link: <https://youtu.be/hDSL8qrHJl?si=KNOci70iJS2lbpVN>

<https://youtu.be/XS30Rnpka8M?si=ecmjETL Js1BATA2>

https://youtu.be/dbzzwVEaBdg?si=7MtOeeaY_dnqdeo

Teacher/Student activity: Interactive class

Assignment/Assessment for this class:

-To assess understanding, assign a short quiz or reflective writing task on the key factors influencing the metabolic response to injury.

- Encourage students to participate in class discussions and ask questions throughout the session.

References: Metabolic Response to Injury, Chapter 1, Part 1 Bailey and Love 28th Edition

**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL EDUCATION
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LESSON PLAN

Name of the teacher: Dr Praveen

Target group : MBBS students

Term: II year

Number of students: 150

Duration: 1 hour

Date:17/01/2024

Topic: FACTORS AFFECTING METABOLIC RESPONSE TO INJURY

Sl no	Specific learning objective	Content	TL Method	Media	Duration
1.	Define the metabolic response to injury	-Introduction to Metabolic Response to Injury -Definition of metabolic response to injury	Interactive lecture	Power point	5 minutes
2.	. Identify and describe the various factors that influence the metabolic response to injury	-Physiological Factors Affecting Metabolic Response - Environmental Factors - Pharmacological and Nutritional Factors	Interactive lecture	Power point	35 minutes
3.	Understand the role of these factors in shaping the body's physiological response to trauma or stress.	-Severity and Type of Injury	Interactive lecture	Power point	15 minutes
4.	Summary and Conclusion	- Recap of key points covered in the lecture - Importance of considering various factors in managing metabolic response to injury	Interactive lecture	Power point	5 minutes

ICT Link: <https://youtu.be/XS30Rnpka8M?si=ecmjETL Js1BATA2>

https://youtu.be/9bvMv5dQ7RU?si=-TH_cYsLj388mNn

Teacher/Student activity: Interactive class

Assignment for this class:

- To assess understanding, assign a short quiz or reflective writing task on the key factors influencing the metabolic response to injury.
- Encourage students to participate in class discussions and ask questions throughout the session.

References: Bailey and Love 28th Edition

**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL EDUCATION
AND RESEARCH**

LESSON PLAN

Name of the teacher: Dr Anil kumar

Target group : MBBS students

Term: II year

Number of students: 150

Duration: 1 hour

Date:24/01/2024

Topic: PERI-OPERATIVE CARE

Sl no	Specifuc learning objective	Content	TL Method	Media	Duration
1.	Introduction to Perioperative Care	- Definition of perioperative care - Importance of perioperative care in the surgical process - Overview of the three phases	Interactive lecture	Power point	10 minutes
2.	Preoperative Phase	- Definition and objectives of the preoperative phase - Assessment and preparation of the patient - Patient education and informed consent - - Preoperative fasting guidelines - - Medication management - Risk assessment and optimization	Interactive lecture	Power point	20 minutes
3.	Intraoperative Phase	- Definition and objectives of the intraoperative phase - Role of the perioperative nurse during surgery - Surgical asepsis and infection control measures - Patient positioning and safety - Monitoring and documentation - Communication and teamwork in the operating room	Interactive lecture	Power point	20 minutes
4.	Postoperative Phase	- Definition and objectives of the postoperative phase - Immediate postoperative care in the recovery room - Pain management strategies	Interactive lecture	Power point	10 minutes

		- Assessment of complications and early detection - Patient and family education for discharge			
5.	Summary and Conclusion	- Recap of key points covered in the lecture - Importance of perioperative care in promoting positive surgical outcomes	Interactive lecture	Power point	5 minutes

ICT Link: <https://youtu.be/HMPn1wflNPg?si=4gDSyq-oDjIGbqvn>

<https://youtu.be/R-TI82L3jMM?si=3BqafHc0tVqXSdty>

Teacher/Student activity: Interactive class

Assignment for this class: To assess understanding, assign a short quiz or reflective writing task on the key factors influencing the metabolic response to injury.

- Encourage students to participate in class discussions and ask questions throughout the session.

References: Bailey and Love 28th Edition

**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL EDUCATION
AND RESEARCH**

LESSON PLAN

Name of the teacher: Dr Sharath chandra tejas

Target group : MBBS students

Term: II year

Number of students: 150

Duration: 1 hour

Date:31/01/2024

Topic: SHOCK (PATHOPHYSIOLOGY OF SHOCK, TYPES OF SHOCK, PRINCIPLES OF RESUSCITATION)

Sl no	Specific learning objective	Content	TL Method	Media	Duration
1.	Introduction to Shock	- Definition of shock - Importance of understanding shock in clinical practice - Overview of the pathophysiology of shock	Interactive lecture	Power point	10 minutes
2.	Types of Shock - Hypovolemic shock - Cardiogenic shock - Distributive shock (including septic, neurogenic, and anaphylactic shock) - Obstructive shock - Characteristics, causes, and mechanisms of each type	- Hypovolemic shock - Cardiogenic shock - Distributive shock (including septic,neurogenic, and anaphylactic shock) - Obstructive shock - Characteristics, causes, and mechanisms of each type of shock	Interactive lecture	Power point	20 minutes
3.	Principles of Resuscitation	- Initial assessment and recognition of shock - ABCDE approach (Airway, Breathing, Circulation, Disability, Exposure) - Fluid resuscitation: types of fluids, volume replacement, and rate of administration	Interactive lecture	Power point	20 minutes

		- Vasopressor therapy - Monitoring parameters (e.g., vital signs, central venous pressure, lactate levels)			
4.	Case Studies and Clinical Scenarios	- Presentation of case studies or clinical scenarios related to shock - Application of resuscitation principles to patient ma	Interactive lecture	Power point	5 minutes
5.	Summary and Conclusion	- Recap of key points covered in the lecture - Importance of early recognition and appropriate management of shock	Interactive lecture	Power point	5 minutes

ICT Link: <https://youtu.be/NqkdqJtxlfs?si=-F2eLzXB5jUAc5AQ>

<https://youtu.be/sJWR93G4Upl?si=GDmFEaa1JzqfCiDh>

https://youtu.be/gQM1_Ok9U2o?si=es68hK7lsIrcOtuk

Teacher/Student activity: Interactive class

Assignment for this class: To assess understanding, assign a short quiz or reflective writing task on the key factors influencing the metabolic response to injury.

- Encourage students to participate in class discussions and ask questions throughout the session.

References: Bailey and Love 28th Edition

**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL EDUCATION
AND RESEARCH**

LESSON PLAN

Name of the teacher: Dr Sharath chandra tejas

Target group : MBBS students

Term: II year

Number of students: 150

Duration: 1 hour

Date:07/02/2024

Topic: SHOCK (Describe the clinical features of shock and its appropriate treatment)

Sl no	Specifuc learning objective	Content	TL Method	Media	Duration
1.	Introduction to Shock	- Definition of shock - Importance of recognizing and managing shock promptly - Overview of the clinical features of shock	Interactive lecture	Power point	10 minutes
2.	Clinical Features of Shock	- Hypovolemic shock: signs and symptoms of fluid loss - Cardiogenic shock: signs and symptoms of cardiac dysfunction - Distributive shock: signs and symptoms of vasodilation and impaired tissue perfusion - Obstructive shock: signs and symptoms of impaired cardiac output due to mechanical obstruction - Diagnostic criteria and assessment tools for identifying shock	Interactive lecture	Power point	25 minutes
3.	Treatment of Shock	- General principles of shock management - Specific treatment strategies for different types of shock: - Hypovolemic shock: fluid resuscitation, blood transfusion - Cardiogenic shock: inotropic agents, vasopressors, revascularization - Distributive shock: vasopressors, fluid resuscitation, source control	Interactive lecture	Power point	20 minutes

		- Obstructive shock: relieving mechanical obstruction, supportive measures - Importance of early intervention and multidisciplinary team approach			
4.	Case Studies and Clinical Scenarios	- Presentation of case studies or clinical scenarios related to shock - Application of treatment principles to patient management	Interactive lecture	Power point	5 minutes
5.	Summary and Conclusion	- Recap of key points covered in the lecture - Emphasis on the importance of timely recognition and appropriate treatment of shock	Interactive lecture	Power point	5 minutes

ICT Link: <https://youtu.be/NqkdqJtxlfs?si=-F2eLzXB5jUAc5AQ>

<https://youtu.be/sJWR93G4Upl?si=GDmFEaa1JzqfCiDh>

https://youtu.be/gQM1_Ok9U2o?si=es68hK7lsIrcOtuk

Teacher/Student activity: Interactive class

Assignment for this class: To assess understanding, assign a short quiz or reflective writing task on the key factors influencing the metabolic response to injury.

- Encourage students to participate in class discussions and ask questions throughout the session.

References: Bailey and Love 28th Edition

**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL EDUCATION
AND RESEARCH**

LESSON PLAN

Name of the teacher: Dr Srinivas gowda

Target group : MBBS students

Term: II year

Number of students: 150

Duration: 1 hour

Date:10/04/2024

Topic: BLOOD AND BLOOD PRODUCTS AND COMPLICATIONS OF BLOOD TRANSFUSION

Sl no	Specifuc learning objective	Content	TL Method	Media	Duration
1.	Introduction to Blood Transfusion	- Definition of blood transfusion - Importance of understanding indications, appropriate use, and complications of blood transfusion	Interactive lecture	Power point	10 minutes
2.	Indications for Blood Transfusion	- Define anemia and discuss its clinical significance. - Present common indications for blood transfusion, including acute blood loss, anemia, hemorrhagic shock, and coagulopathy. - Discuss transfusion thresholds and guidelines for different clinical scenarios. - Use visuals and case studies to illustrate the indications for blood transfusion	Interactive lecture	Power point	20 minutes
3.	Appropriate Use of Blood and Blood Products	- Types of blood products (e.g., packed red blood cells, fresh frozen plasma, platelets) - Compatibility testing and blood matching - Rational use of blood transfusion based on clinical evidence and guidelines - Alternative therapies and adjunctive treatments to reduce reliance on blood transfusion	Interactive lecture	Power point	20 minutes

4.	Complications of Blood Transfusion	- Immunological complications (e.g., hemolytic transfusion reactions, febrile non-hemolytic reactions, transfusion-related acute lung injury) - Infectious complications (e.g., transmission of bloodborne pathogens such as HIV, hepatitis B and C) - Non-immunological complications (e.g., transfusion-associated circulatory overload, transfusion-related infections) - Strategies for prevention, early recognition, and management of transfusion complications	Interactive lecture	Power point	10 minutes
5.	Case Studies and Clinical Scenarios	- Present case studies or clinical scenarios related to blood transfusion. - Encourage students to apply their knowledge about indications, appropriate use, and complications of blood transfusion to develop management plans for each case.	Interactive lecture	Power point	5 minutes
6.	Summary and Conclusion	- Summarize the main points covered in the lecture, including indications for blood transfusion, appropriate use of blood products, and complications of transfusion. - Emphasize the importance of safe and judicious use of blood transfusion to optimize patient outcomes.	Interactive lecture	Power point	5 minutes

ICT Link: <https://youtu.be/0f2U3DDo8Xs?si=j40Me0blAosEQQXW>

Teacher/Student activity: Interactive class

Assignment for this class: To assess understanding, assign a short quiz or reflective writing task on the key factors influencing the metabolic response to injury.

- Encourage students to participate in class discussions and ask questions throughout the session.

References: Bailey and Love 28th Edition

**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL EDUCATION
AND RESEARCH**

LESSON PLAN

Name of the teacher: Dr Ramya deepthi

Target group : MBBS students

Term: II year

Number of students: 150

Duration: 1 hour

Date:14/02/2024

Topic: BURNS

Elicit document and present history in a case of Burns and perform physical examination. Describe Pathophysiology of Burns.

Sl no	Specifuc learning objective	Content	TL Method	Media	Duration
1.	Introduction to Burns Assessment	-Importance of history elicitation, documentation, and physical examination in burn cases - Overview of the lecture objectives	Interactive lecture	Power point	10 minutes
2.	Eliciting and Documenting History in Burn Cases	- Key components of the burn history: mechanism of injury, time of injury, location and extent of burns, associated injuries, past medical history, medications, allergies, social history - Techniques for eliciting a detailed and accurate history from burn patients and witnesses - Importance of thorough documentation for patient care an	Interactive lecture	Power point	20 minutes
3.	Pathophysiology of Burns	- Definition of burns and classification based on depth and extent - Understanding the pathophysiological changes in burns: thermal injury, inflammation, tissue damage, fluid loss, and systemic response - Implications of burn pathophysiology for patient assessment, management, and prognosis	Interactive lecture	Power point	15 minutes

4.	Performing Physical Examination in Burn Patients	- Systematic approach to physical examination in burn patients: inspection, palpation, assessment of burn depth, and assessment of associated injuries - Documentation of physical findings and measurement of burn severity using standardized tools (e.g., Lund and Browder chart, rule of nines) - Importance of ongoing assessment and reassessment in burn patients	Interactive lecture	Power point	15 minutes
5.	Case Studies and Clinical Scenarios	- Presentation of case studies or clinical scenarios related to burn assessment - Application of knowledge about history elicitation, documentation, and physical examination to patient management	Interactive lecture	Power point	5 minutes
6.	Summary and Conclusion	- Recap of key points covered in the lecture - Emphasis on the importance of systematic assessment and documentation in burn cases	Interactive lecture	Power point	5 minutes

ICT Link: <https://youtu.be/kkPXV3l4-M?si=sQK5t7iB960n5waS>

<https://youtu.be/UaCn15ei5Lo?si=KcQdTgSa3OVIXnCR>

<https://youtu.be/z1zyfWm10bE?si=XnTSYl4hblhvsQR0>

Teacher/Student activity: Interactive class

Assignment for this class: To assess understanding, assign a short quiz or reflective writing task on the key factors influencing the metabolic response to injury.

- Encourage students to participate in class discussions and ask questions throughout the session.

References: Bailey and Love 28th Edition

**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL EDUCATION
AND RESEARCH**

LESSON PLAN

Name of the teacher: Dr Pradeep Raj S

Target group : MBBS students

Term: II year

Number of students: 150

Duration: 1 hour

Date:21/02/2024

Topic: BURNS

Describe Clinical features, Diagnose type and extent of burns and plan appropriate treatment.

Sl no	Specifuc learning objective	Content	TL Method	Media	Duration
1.	Introduction to Burns Assessment	- Importance of understanding clinical features, diagnosis, and treatment planning for burns - Overview of the lecture	Interactive lecture	Power point	10 minutes
2.	Clinical Features of Burns	Definition of burns and classification based on depth and extent - Description of the clinical presentation of burns: redness, blistering, charring, pain, edema, loss of function - Identification of complications associated with burns, such as infection, compartment syndrome, and inhalation injury	Interactive lecture	Power point	20 minutes
3.	Diagnosis of Burns	- Systematic approach to diagnosing burns: history taking, physical examination, and assessment of burn depth and extent - Use of standardized tools and charts (e.g., rule of nines, Lund and Browder chart) for estimating burn size and severity	Interactive lecture	Power point	15 minutes

		- Importance of early diagnosis and assessment of burns to guide treatment decisions			
4.	Planning Appropriate Treatment for Burns	General principles of burn management: wound care, pain management, infection prevention, and fluid resuscitation - Specific treatment strategies for different types and extents of burns: - Superficial burns: supportive care, pain management, wound dressing - Partial thickness burns: debridement, topical agents, and dressing - Full thickness burns: surgical intervention, skin grafting, rehabilitation - Considerations for special populations (e.g., pediatric, elderly) and high-risk patients (e.g., those with comorbidities)	Interactive lecture	Power point	15 minutes
5.	Case Studies and Clinical Scenarios	- Presentation of case studies or clinical scenarios related to burns assessment and treatment planning - Application of knowledge about clinical features, diagnosis, and treatment strategies to patient management	Interactive lecture	Power point	5 minutes
6.	Summary and Conclusion	- Recap of key points covered in the lecture - Emphasis on the importance of timely and appropriate treatment planning in burn management	Interactive lecture	Power point	5 minutes

ICT Link: <https://youtu.be/kkPXV3l4-M?si=sQK5t7iB960n5waS>

<https://youtu.be/UaCn15ei5Lo?si=KcQdTgSa3OVIXnCR>

<https://youtu.be/z1zyfWm10bE?si=XnTSYl4hblhvsQR0>

Teacher/Student activity: Interactive class

Assignment for this class: To assess understanding, assign a short quiz or reflective writing task on the key factors influencing the metabolic response to injury.

- Encourage students to participate in class discussions and ask questions throughout the session.

References: Bailey and Love 28th Edition

**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL EDUCATION
AND RESEARCH**

LESSON PLAN

Name of the teacher: Dr Vishnuvardhan Introduction to Burns Assessment (10 minutes)

Target group : MBBS students

Term: II year

Number of students: 150

Duration: 1 hour

Date: 28/02/2024

Topic: BURNS

Discuss the Medicolegal aspects in burn injuries.

Sl no	Specific learning objective	Content	TL Method	Media	Duration
1.	Introduction to Medicolegal Aspects in Burn Injuries	- Definition of medicolegal aspects in healthcare - Overview of the le	Interactive lecture	Power point	10 minutes
2.	Legal Framework and Responsibilities	- Overview of the legal framework governing burn injury cases - Identification of legal responsibilities of healthcare professionals in burn injury cases - Discussion of relevant laws, regulations, and standards pertaining to burn injuries (e.g., duty of care, informed consent, documentation)	Interactive lecture	Power point	15 minutes
3.	Documentation and Record Keeping	- Importance of accurate and comprehensive documentation in burn injury cases - Discussion of key documentation requirements and best practices for record keeping - Review of common documentation pitfalls and strategies for avoiding medicolegal issues	Interactive lecture	Power point	15 minutes

4.	Forensic Considerations	- Introduction to forensic aspects of burn injuries, including evidence collection and preservation - Discussion of the role of healthcare professionals in forensic investigations related to burn cases - Overview of common forensic findings and their implications for legal proceedings	Interactive lecture	Power point	15 minutes
5.	Case Studies and Clinical Scenarios	- Presentation of case studies or clinical scenarios illustrating medicolegal aspects in burn injuries - Application of knowledge about legal responsibilities and documentation to analyze each case	Interactive lecture	Power point	5 minutes
6.	Summary and Conclusion	- Recap of key points covered in the lecture - Emphasis on the importance of understanding and addressing medicolegal aspects in burn injury cases	Interactive lecture	Power point	5 minutes

ICT Link: <https://youtu.be/kkPXV3l4-M?si=sQK5t7iB960n5waS>

<https://youtu.be/UaCn15ei5Lo?si=KcQdTgSa3OVIXnCR>

<https://youtu.be/z1zyfWm10bE?si=XnTSYl4hblhvsQR0>

Teacher/Student activity: Interactive class

Assignment for this class: To assess understanding, assign a short quiz or reflective writing task on the key factors influencing the metabolic response to injury.

- Encourage students to participate in class discussions and ask questions throughout the session.

References: Bailey and Love 28th Edition

**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL EDUCATION
AND RESEARCH**

LESSON PLAN

Name of the teacher: Dr Sharath mahadev

Target group : MBBS students

Term: II year

Number of students: 150

Duration: 1 hour

Date: 06/03/2024

Topic: WOUND AND WOUND HEALING

Describe normal wound healing and factors affecting healing.

Sl no	Specific learning objective	Content	TL Method	Media	Duration
1.	Introduction to Wound Healing	- Definition of wound healing - Importance of understanding normal wound healing processes - Overview of the lecture object	Interactive lecture	Power point	10 minutes
2.	Phases of Normal Wound Healing	- Overview of the three main phases of wound healing: inflammation, proliferation, and remodeling - Detailed description of each phase, including cellular and biochemical events - Illustration of wound healing process thro	Interactive lecture	Power point	20 minutes
3.	Factors Affecting Wound Healing	- Identification of intrinsic and extrinsic factors that can influence wound healing - Discussion of common factors affecting wound healing, such as age, nutrition, comorbidities, medications, and infection - Explanation of how these factors impact each phase of wound healing	Interactive lecture	Power point	20 minutes

4.	Clinical Implications and Management Considerations	- Application of knowledge about wound healing phases and influencing factors to clinical practice - Discussion of strategies to optimize wound healing, including patient education and wound care interventions - Emphasis on the importance of interdisciplinary collaboration in wound management	Interactive lecture	Power point	5 minutes
5.	Case Studies and Clinical Scenarios	- Presentation of case studies or clinical scenarios related to wound healing and factors affecting healing - Application of knowledge about wound healing processes and influencing factors to analyze each case	Interactive lecture	Power point	5 minutes
6.	Summary and Conclusion	- Recap of key points covered in the lecture - Emphasis on the importance of understanding normal wound healing and factors influencing healing in patient care	Interactive lecture	Power point	5 minutes

ICT Link: <https://youtu.be/F9IAw3zrzMw?si=MjAK8apSZkJEwrH>

https://youtu.be/YRtPJXRKwHM?si=K-J_4Q7Me_IWLCB0

Teacher/Student activity: Interactive class

Assignment for this class: To assess understanding, assign a short quiz or reflective writing task on the key factors influencing the metabolic response to injury.

- Encourage students to participate in class discussions and ask questions throughout the session.

References: Bailey and Love 28th Edition

**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL EDUCATION
AND RESEARCH**

LESSON PLAN

Name of the teacher: Dr Jeevan Kumar D V

Target group : MBBS students

Term: II year

Number of students: 150

Duration: 1 hour

Date:17/04/2024

Topic: SURGICAL INFECTIONS

Define and describe the aetiology and pathogenesis of surgical Infections

Sl no	Specifuc learning objective	Content	TL Method	Media	Duration
1.	Introduction to Surgical Infections	- Definition of surgical infections - Importance of understanding surgical infections in healthcare - Overview of the lecture objectives	Interactive lecture	Power point	10 minutes
2.	Aetiology of Surgical Infections	- Identification of the main sources of pathogens causing surgical infections - Discussion of risk factors contributing to the development of surgical infections, such as surgical site contamination, patient factors, and environmental factors - Explanation of how surgical techniques, instrumentation, and healthcare practices can influence the risk of surgical infections	Interactive lecture	Power point	20 minutes
3.	Pathogenesis of Surgical Infections	- Overview of the pathophysiological processes involved in the development of surgical infections - Explanation of the steps in the pathogenesis of surgical infections, including colonization, invasion, and host response	Interactive lecture	Power point	20 minutes

		- Discussion of the role of microbial virulence factors and host immune response in determining the outcome of surgical infections			
4.	Case Studies and Clinical Scenarios	- Presentation of case studies or clinical scenarios illustrating the aetiology and pathogenesis of surgical infections - Application of knowledge about risk factors and pathophysiological processes to analyze each case	Interactive lecture	Power point	5 minutes
5.	Summary and Conclusion	- Recap of key points covered in the lecture - Emphasis on the importance of understanding aetiology and pathogenesis in the prevention and management of surgical infections	Interactive lecture	Power point	5 minutes

ICT Link: <https://youtu.be/YDUVjz2nVUo?si=sLGUadJj3M-Vya1o>

<https://youtu.be/zDiEeDxvP7g?si=YWi8679CGkt-TuDQ>

Teacher/Student activity: Interactive class

Assignment for this class: To assess understanding, assign a short quiz or reflective writing task on the key factors influencing the metabolic response to injury.

- Encourage students to participate in class discussions and ask questions throughout the session.

References: Bailey and Love 28th Edition

**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL EDUCATION
AND RESEARCH**

LESSON PLAN

Name of the teacher: Dr Varsha R K

Target group : MBBS students

Term: II year

Number of students: 150

Duration: 1 hour

Date: 27/03/2024

Topic: SURGICAL AUDIT AND CLINICAL RESEARCH

Describe the Planning and conduct of Surgical audit

Sl no	Specific learning objective	Content	TL Method	Media	Duration
1.	Introduction to Surgical Audits	- Definition of surgical audit - Importance of surgical audits in healthcare quality improvement - Overview of the lecture objective	Interactive lecture	Power point	10 minutes
2.	Planning a Surgical	- Explanation of the importance of defining audit objectives and scope - Discussion of key components of audit planning, including defining audit criteria, selecting audit tools, and establishing audit timelines - Illustration of the audit planning process through case examples	Interactive lecture	Power point	20 minutes
3.	Conducting a Surgical Audit	Description of data collection methods and sources for surgical audits - Explanation of data analysis techniques and interpretation of audit findings - Discussion of strategies for addressing identified areas for improvement and implementing changes - Overview of the role of audit feedback and reporting in surgical quality improvement	Interactive lecture	Power point	20 minutes

4.	Case Studies and Clinical Scenarios	- Presentation of case studies or clinical scenarios illustrating the planning and conduct of surgical audits - Application of knowledge about audit planning and conduct to analyze each case	Interactive lecture	Power point	5 minutes
5.	Summary and Conclusion	- Recap of key points covered in the lecture - Emphasis on the importance of surgical audits in enhancing surgical quality and patient safety	Interactive lecture	Power point	5 minutes

ICT Link: https://youtu.be/amfi8dpaysU?si=43IA1f_f8uyahVpj

<https://youtu.be/9tVZhW1DF6I?si=T0tnoulZqmJGwHZm>

Teacher/Student activity: Interactive class

Assignment for this class: To assess understanding, assign a short quiz or reflective writing task on the key factors influencing the metabolic response to injury.

- Encourage students to participate in class discussions and ask questions throughout the session.

References: Bailey and Love 28th Edition

**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL EDUCATION
AND RESEARCH**

LESSON PLAN

Name of the teacher: Dr Varsha R K

Target group : MBBS students

Term: II year

Number of students: 150

Duration: 1 hour

Date: 03/04/2024

Topic: ETHICS IN SURGERY, PROFESSIONALISM AND EMPATHY TO PATIENTS

Describe the principles of Ethics as it pertains to General Surgery

Sl no	Specific learning objective	Content	TL Method	Media	Duration
1.	Introduction to Ethics in General Surgery	- Definition of ethics in healthcare - Importance of ethical considerations in general surgery - Overview of the lecture objectives	Interactive lecture	Power point	10 minutes
2.	Fundamental Ethical Principles	- Discussion of key ethical principles relevant to general surgery: - Autonomy: Respect for patient's rights and choices - Beneficence: Acting in the best interest of the patient - Nonmaleficence: Avoiding harm to the patient - Justice: Fair and equitable distribution of healthcare resources - Illustration of principles through case examples	Interactive lecture	Power point	20 minutes
3.	. Ethical Issues in Surgical Practice	- Exploration of ethical dilemmas encountered in various aspects of surgical practice, including: - Informed consent and shared decision -making - Conflict of interest and disclosure	Interactive lecture	Power point	20 minutes

		- End-of-life care and palliative surgery - Organ transplantation and allocation - Discussion of ethical frameworks and guidelines for addressing th			
4.	Introduction to Professionalism and Empathy in General Surgery	- Definition of professionalism and empathy in healthcare - Importance of professionalism and empathy in the surgical context - Overview of the lecture objectives	Interactive lecture	Power point	10 minutes
5.	Attributes of Professionalism in General Surgery	- Discussion of key attributes of professionalism in general surgery, including: - Integrity and honesty - Accountability and responsibility - - Respect for patient autonomy and dignity - Effective communication and collaboration with colleagues - Illustration of attributes through case examples and role-playing exercises	Interactive lecture	Power point	20 minutes
6.	Cultivating Empathy in Surgical Care	- Exploration of strategies for cultivating empathy in surgical practice, including: - Active listening and validation of patient concerns - Demonstrating empathy through non-verbal cues and body language - Understanding cultural and social factors influencing patient experiences - Providing emotional support and reassurance to patients and families - Role-playing exercises and scenario-based learning to practice empathetic communication skills	Interactive lecture	Power point	20 minutes
7.	Summary and Conclusion	- Recap of key points covered in the lecture - Emphasis on the importance of professionalism and empathy in enhancing patient experience and outcomes in general surgery	Interactive lecture	Power point	5 minutes

ICT Link: https://youtu.be/cDDWvj_q-o8?si=yk8zWljvsttxEC_Y

Teacher/Student activity: Interactive class

Assignment for this class: To assess understanding, assign a short quiz or reflective writing task on the key factors influencing the metabolic response to injury.

- Encourage students to participate in class discussions and ask questions throughout the session.

References: Bailey and Love 28th Edition

**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL
EDUCATION AND RESEARCH**

LESSON PLAN

Date: 19-08-2024

Name of the teacher: Dr Chaitra

Time allotted: 1 Hr

Class: Phase 3 Part 1

Subject: Anesthesiology

Venue: Lecture hall 2

Duration: 1 hour

Competency Addressed:

Anesthesia AS 5.1-5.3 Spinal anesthesia

Specific Learning Objectives:

Describe the anatomy of the spinal canal and Spinal anesthesia

Teaching learning method: Lecture/ Demonstration

Sl no	Content	Time	T-L Media used
1	Anatomy of the spinal canal	10 mins	video
2	The anatomy of the spinal canal and Spinal anesthesia procedure	50mins	ppt

ICT LINK- <https://youtu.be/xXWsQrl1N7s?si=v9AoKC3n-s0gQoQT>

Pre-evaluation: the importance of the anatomy of the spinal canal and Spinal anesthesia procedure

Post- evaluation: Written, viva voce

Suggested further reading:

**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL
EDUCATION AND RESEARCH**

LESSON PLAN

Date: 08-01-2024

Name of the teacher: Dr Maradesha

Time allotted: 1 Hr

Class: Phase 3 Part 1

Subject: ENT

Venue: Lecture hall 2

Duration: 1 hour

Competency Addressed:

EN1.1

Describe the Anatomy & physiology of ear, nose, throat, head & neck

Specific Learning Objectives:

1. Describe the Anatomy of ear

Teaching learning method: Lecture/Demonstration

Sl no	Content	Time	T-L Media used
1	Images of external ,middle and inner ear	10 min	ppt
2	Detailed anatomy of parts of the ear	20min	ppt
3	Videos of inner ear	10 min	video
4	Questions regarding the topic	10min	ppt

ICT Link: <https://youtu.be/XPHuiYInOsg?si=Bip9nAEKT0-GnCTT>

Pre-evaluation: Importance of temporal bone anatomy

Application of applied anatomy to clinical practice

Post- evaluation: Written, viva voce

Suggested further reading:


Head of ENT
Dr. Chandramma Dayananda Sagar Institute
of Medical Education & Research (CDSIMER)
(A Unit of Dayananda Sagar University)
Kanakapura Road, Harohalli,
Ramanagar District, Karnataka - 562112

**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL
EDUCATION AND RESEARCH**

LESSON PLAN

Date: 09-01-2024

Name of the teacher: Dr Maradesha

Time allotted: 1 Hr

Class: Phase 3 Part 1

Subject: ENT

Venue: Lecture hall 2

Duration: 1 hour

Competency Addressed:

EN1.1

Describe the Anatomy & physiology of ear, nose, throat, head & neck

Specific Learning Objectives:

1. Describe the Physiology of ear

Teaching learning method: Lecture/Demonstration

Sl no	Content	Time	T-L Media used
1	Videos of hearing	10 mins	video
2	Details of hearing mechanism and theories of hearing	20 min	ppt
3	Videos of balance	10 min	ppt
4	Physiology of balance	10 min	ppt

ICT LINK- <https://youtu.be/zxu-UAXnlP0?si=gUtQzDzADHFji2cG>

Pre-evaluation: importance of physiology of hearing, in hearing loss [presbycusis, csom]

Importance of inner ear balance, as it is one of the major balance system in our body.

Post- evaluation: Written, viva voce

Suggested further reading:


Head Dept. of ENT
Dr. Chandramma Dayananda Sagar Institute
of Medical Education & Research (CDSIMER)
(A Unit of Dayananda Sagar University)
Kannur Road, 4th, Harbhall,
Bangalore-560075, Karnataka - 560075

**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL
EDUCATION AND RESEARCH**

LESSON PLAN

Date: 10-01-2024

Name of the teacher: Dr Aishwarya

Time allotted: 1 Hr

Class: Phase 3 Part 1

Subject: ENT

Venue: Lecture hall 2

Duration: 1 hour

Competency Addressed:

EN2.8

Demonstrate the correct technique to perform and interpret pure tone audiogram & impedance audiogram

Specific Learning Objectives:

1. Elaborate on Audiology & Acoustics

Teaching learning method: Lecture/Demonstration

Sl no	Content	Time	T-L Media used
1.	Physiology of hearing and physics of sound	5 min	Powerpoint/ Video
2.	Tuning fork tests	5 min	Powerpoint
3.	Pure Tone Audiometry	10 min	Powerpoint
4.	Impedance Audiometry	10 min	Powerpoint
5.	OAE and ABR	10min	Powerpoint

ICT LINK - <https://youtu.be/cChx6oZGJpk?si=l4z8zB8zF7VQdjaz>

Pre-evaluation: Viva on physiology of hearing

Post- evaluation: Viva voce


Head Dept. of ENT
Dr. Chandramma Dayananda Sagar Institute
of Medical Education & Research (CDSIMER)
(A Unit of Dayananda Sagar University)
Korakapura Road, Harohalli,
Ramnagar District, Karnataka - 562112

**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL
EDUCATION AND RESEARCH**

LESSON PLAN

Date: 11-01-2024

Name of the teacher: Dr Aishwarya

Time allotted: 1 Hr

Class: Phase 3 Part 1

Subject: ENT

Venue: Lecture hall 2

Duration: 1 hour

Competency Addressed:

EN4.1

Elicit, document and present a correct history, demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of Otolgia

EN4.2

Elicit document and present a correct history, demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of diseases of the external Ear

Specific Learning Objectives:

1. List the causes of Otolgia
2. Describe the clinical features in a patient presenting with Otolgia
3. Describe the principles of management of Otolgia
4. List the diseases of external ear
5. Describe the clinical features in a patient presenting with diseases of the external Ear
6. Describe the principles of management of diseases of the external Ear

Teaching learning method: Seminar/SGD

Sl no	Content	Time	T-L Media used
1.	Anatomy of the External Ear	5min	Powerpoint/ Images
2.	Diseases of the External Ear	20 min	Powerpoint
3.	Causes of Otolgia	10min	Powerpoint
4.	Causes of Referred Otolgia	10 min	Powerpoint

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2022

**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL
EDUCATION AND RESEARCH**

LESSON PLAN

Date: 12-01-2024

Name of the teacher: Dr Yogeshwar C

Time allotted: 1 Hr

Class: Phase 3 Part 1

Subject: ENT

Venue: Lecture hall 2

Duration: 1 hour

Competency Addressed:

EN4.3 Elicit document and present a correct history, demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of ASOM

EN4.5 Elicit document and present a correct history, demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of OME

Specific Learning Objectives:

1. Describe the clinical features in a patient presenting with ASOM
2. Describe the principles of management of ASOM
3. Describe the clinical features in a patient presenting with OME
4. Describe the principles of management of OME

Teaching learning method: Seminar/SGD

Sl no	Content	Time	T-L Media used
1	Discuss ASOM case scenario	5mins	ppt
2	Clinical features and management of ASOM	15mins	ppt
3	Discuss OME case scenario	5mins	ppt
4	Clinical features and management of OME	15mins	ppt
5	MCQ	5mins	ppt

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Ramanagar District, Karnataka - 562112

**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL
EDUCATION AND RESEARCH**

LESSON PLAN

Date: 15-01-2024

Name of the teacher: Dr Pooja

Time allotted: 1 Hr

Class: Phase 3 Part 1

Subject: ENT

Venue: Lecture hall 2

Duration: 1 hour

Competency Addressed:

EN4.6

Elicit document and present a correct history, demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of Discharging ear

EN4.7

Elicit document and present a correct history demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of mucosal type of CSOM

EN4.8

Elicit document and present a correct history, demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of squamosal type of CSOM

Specific Learning Objectives:

1. Describe the clinical features in a patient presenting with discharging ear
2. Describe the principles of management of discharging ear
3. Describe the clinical features in a patient presenting with Mucosal CSOM
4. Describe the principles of management of Mucosal CSOM
5. Describe the clinical features in a patient presenting with Squamous CSOM
6. Describe the principles of management of Squamous CSOM

Teaching learning method: Lecture/ Demonstration

Sl no	Content	Time	T-L Media used
1	Definition of csom	5	ppt
2	Classification of csom	10	Flow chart
3	Theories of csom	10	video
4	Mucosal type of csom	10	Ppt
5	Squamosal type of csom	10	Ppt
6	Mcqs of csom	5	ppt

ICT Link: <https://youtu.be/qMtdIYGtAuc?si=1ly9qoMxEet25Vg9>

Pre-evaluation: Nil

Post- evaluation: Written, viva voce

Suggested further reading:

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**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL
EDUCATION AND RESEARCH**

LESSON PLAN

Date: 16-01-2024

Name of the teacher: Dr Amreen

Time allotted: 1 Hr

Class: Phase 3 Part 1

Subject: ENT

Venue: Lecture hall 2

Duration: 1 hour

Competency Addressed:

EN4.7

Elicit document and present a correct history demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of mucosal type of CSOM

EN4.8

Elicit document and present a correct history, demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of squamosal type of CSOM

Specific Learning Objectives:

1. Describe the clinical features in a patient presenting with complications of CSOM
2. Describe the principles of management of a patient presenting with complications of CSOM

Teaching learning method: Seminar/ SGD

Sl no	Content	Time	T-L Media used
1.	Introduction to CSOM	5 mins	photos
2.	Classification of complications of CSOM	10 mins	Flow chart
3.	Intracranial complications with management	15 mins	ppt
4.	Extracranial complications and management	15 mins	ppt

Pre-evaluation: NIL


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Warakoppa Road, Homballi,
Bengaluru 560021

**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL
EDUCATION AND RESEARCH**

LESSON PLAN

Date: 17-01-2024

Name of the teacher: Dr Maradesha

Time allotted: 1 Hr

Class: Phase 3 Part 1

Subject: ENT

Venue: Lecture hall 2

Duration: 1 hour

Competency Addressed:

EN4.12

Elicit document and present a correct history demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of Hearing loss

Specific Learning Objectives:

1. List the causes of Hearing loss
2. Describe the clinical features in a patient presenting with Hearing loss
3. Choose the correct investigations in a patient presenting with Hearing loss
4. Describe the principles of management of Hearing loss

Teaching learning method: Seminar/SGD

Sl no	Content	Time	T-L Media used
1.	Introduction and types of hearing loss – Conductive and Sensori-neural hearing loss	10mins	Ppt, flow chart
2.	Presenting Symptoms and identifying the disease on clinical examination.	10 mins	Ppt, photos
3.	Investigating a patient with hearing loss, evaluation of a deaf child, Pure tone Audiometry	15 mins	Flow chart, ppt, photos
4.	Specific management, Hearing Aid, rehabilitation of deaf child. Occupational noise exposure	15 mins	Photos, ppt

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**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL
EDUCATION AND RESEARCH**

LESSON PLAN

Date: 18-01-2024

Name of the teacher: Dr Pooja

Time allotted: 1 Hr

Class: Phase 3 Part 1

Subject: ENT

Venue: Lecture hall 2

Duration: 1 hour

Competency Addressed:

EN4.13

Describe the clinical features, investigations and principles of management of Otosclerosis

Specific Learning Objectives:

1. Describe the clinical features of Otosclerosis
2. Describe the investigations required for patient with Otosclerosis
3. Describe the principles of management of Otosclerosis

Teaching learning method: Lecture/Demonstration

Sl no	Content	Time	T-L Media used
1	Etiopathogenesis of otosclerosis	10	ppt
2	Pathophysiology of otosclerosis	10	video
3	Clinical features of otosclerosis	5	ppt
4	Investigations of otosclerosis	10	Ppt
5	Management of otosclerosis	10	Video
6	Mcq related to otosclerosis	5	ppt

ICT LINKS

<https://youtu.be/vo3GYc4YeHc?si=ux-XC47MoslET7NE>

<https://youtu.be/hvHhAfb8P0E?si=q7YfB3Gm63C4VROZ>

Pre-evaluation:

Post- evaluation: Written, viva voce

Suggested further reading:


Head Dept. of ENT
Dr. Chandrashekhra Dayananda Sagar Institute
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Kanakapura Road, Hanthalli,
Ramanagara District, Karnataka - 562112

**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL
EDUCATION AND RESEARCH**

LESSON PLAN

Date: 19-01-2024

Name of the teacher: Dr Maradesha

Time allotted: 1 Hr

Class: Phase 3 Part 1

Subject: ENT

Venue: Lecture hall 2

Duration: 1 hour

Competency Addressed:

EN4.10

Observe and describe the indications for and steps involved in myringotomy and myringoplasty

EN4.11

Enumerate the indications describe the steps and observe a Mastoidectomy

Specific Learning Objectives:

1. Enumerate the indications for myringotomy
2. Describe the steps of myringotomy
3. Enumerate the indications for myringoplasty
4. Describe the steps of myringoplasty
5. Enumerate the indications for Mastoidectomy
6. Describe the steps of Mastoidectomy

Teaching learning method: Lecture/Video demonstration

Sl no	Content	Time	T-L Media used
1.	Indications for myringotomy	5mins	ppt
2.	Steps of myringotomy	10mins	video
3.	Indications for myringoplasty	5mins	ppt
4.	Steps of myringoplasty	10mins	Video
5.	Indications for mastoidectomy	5mins	ppt
6.	Steps of mastoidectomy	10mins	Video

7.	Match the indication and surgery	5mins	ppt
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ICT Link: <https://youtu.be/uqbzOIOnlYM?si=Pogx0bQE5u0aNdlr>

<https://youtu.be/MX0Exxipeqk?si=7ePdbyPdwRMDr2wX>

https://youtu.be/0KZImIYs_Xw?si=anM9n0FWiH0VL-8V

<https://youtu.be/utCLvLh4lxw?si=Q1kQteTc04YpxiSf>

Pre-evaluation: Nil

Post- evaluation: Written, viva voce

Suggested further reading:

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**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL
EDUCATION AND RESEARCH**

LESSON PLAN

Date: 24-01-2024

Name of the teacher: Dr Aishwarya

Time allotted: 1 Hr

Class: Phase 3 Part 1

Subject: ENT

Venue: Lecture hall 2

Duration: 1 hour

Competency Addressed:

EN4.18

Describe the clinical features, investigations and principles of management of Facial Nerve palsy

Specific Learning Objectives:

1. Describe the clinical features of Facial Nerve palsy
2. Describe the principles of management of Facial Nerve palsy

Teaching learning method: Lecture/ Demonstration

Sl no	Content	Time	T-L Media used
1.	Anatomy of the Facial nerve and its course	15 min	Powerpoint/ Images
2.	Signs of Facial nerve palsy	10 min	Powerpoint
3.	Topodiagnostic tests of facial palsy	10min	Powerpoint
4.	Management of facial palsy	10 min	Powerpoint

Pre-evaluation: Viva regarding Anatomy of facial nerve and its course

Post- evaluation: Written, viva voce


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**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL
EDUCATION AND RESEARCH**

LESSON PLAN

Date: 22-01-2024

Name of the teacher: Dr Maradesha

Time allotted: 1 Hr

Class: Phase 3 Part 1

Subject: ENT

Venue: Lecture hall 2

Duration: 1 hour

Competency Addressed:

EN4.12

Elicit document and present a correct history demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of Hearing loss

Specific Learning Objectives:

1. List the causes of hearing loss in children
2. Describe the principles of management and rehabilitation of Deaf child

Teaching learning method: Lecture/Video demonstration

Sl no	Content	Time	T-L Media used
1.	Video of Hearing loss in children and cochlear implant	5mins	video
2.	Etiology of hearing loss in children	10mins	ppt
3.	Management of hearing loss in children	20mins	ppt
4.	Cochlear implant surgery	5mins	video

ICT LINKS-

<https://youtu.be/6auWiQ2t2fM?si=XmChJGXp7MtpgGJN>

https://youtu.be/QBi1Bij39H8?si=L9cS0_MnHcO9RLNU

Pre-evaluation: Nil

Post- evaluation: Written, viva voce

Suggested further reading:


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**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL
EDUCATION AND RESEARCH**

LESSON PLAN

Date: 23-01-2024

Name of the teacher: Dr Niveditha

Time allotted: 1 Hr

Class: Phase 3 Part 1

Subject: ENT

Venue: Lecture hall 2

Duration: 1 hour

Competency Addressed:

EN4.21

Describe the clinical features, investigations and principles of management of Tinnitus

EN1.2

Describe the pathophysiology of common diseases in ENT

Specific Learning Objectives:

1. Describe the clinical features of patient presenting with Tinnitus
2. Describe the principles of management of Tinnitus
3. Describe the pathophysiology of common diseases of the ear (eustachian tube)

Teaching learning method: Seminar/SGD

Sl no	Content	Time	T-L Media used
1	Videos of physiology of eusthacian tube	10min	video
2	<u>pathophysiology of common diseases of the ear (eustachian tube)</u>	15min	ppt
3	Tinnitus and clinical features	10 min	ppt
4	Seminar by students	15 min	ppt

ICT Link: <https://youtu.be/VC-dD5tJeGQ?si=ThsepY-RTTRhRfyt>

Pre-evaluation:

Importance of ET tube in middle ear function

Post- evaluation: Written, viva voce

Suggested further reading:


Dr. Chandramohan S. Sagar Institute
of Medical Education & Research (CDSIMER)
(A Unit of Dayananda Sagar University)
Kanakapura Road, Harohalli,
Ramanagar District, Karnataka - 562112

**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL EDUCATION
AND RESEARCH**

LESSON PLAN

Name of the teacher: Dr Satish Rao B S

Target group : MBBS students

Term: II year

Number of students: 150

Duration: 1 hour

Date:10/01/2024

Topic: BASIC CONCEPTS OF HOMEOSTASIS, METABOLIC CHANGES IN INJURY AND THEIR MEDIATORS

Self induction : Greet students and introduce the topic of homeostasis and metabolic changes in injury.

- Provide an overview of the lecture objectives – 10 mins

Sl no	Specific learning objective	Content	TL Method	Media	Duration
1.	Basic Concepts of Homeostasis	Define homeostasis and emphasize its importance.	Interactive lecture	Power point	15 minutes
2.	Metabolic Changes in Injury.	Explain the concept of feedback mechanisms using examples.	Interactive lecture	Power point	20 minutes
3.	Mediators of Metabolic Changes in Injury	a) Introduce key mediators involved in metabolic changes during injury b) Discuss the role of cytokines, stress hormones, and growth factors.	Interactive lecture	Power point	10 minutes
4.	Summary and Conclusion	Emphasize the importance of understanding homeostasis and metabolic changes in injury for healthcare professionals.	Interactive lecture	Power point	5 minutes

ICT Link: <https://youtu.be/hDSLY8qrHjl?si=KNOCi70iJS2lbpVN>

<https://youtu.be/XS30Rnpka8M?si=ecmjETL Js1BATA2>

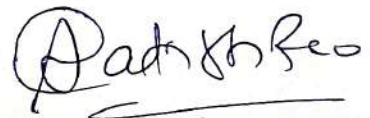
<https://youtu.be/dbzzwVEaBdg?si=7MtOeeaY dngdeo>

Teacher/Student activity: Interactive class

Assignment/Assessment for this class:

- To assess understanding, assign a short quiz or reflective writing task on the key factors influencing the metabolic response to injury.
- Encourage students to participate in class discussions and ask questions throughout the session.

References: Metabolic Response to Injury, Chapter 1, Part 1 Bailey and Love 28th Edition



HOD

DEPT OF GENERAL SURGERY

Dr. Satish Rao B.S.
MS (Gen. Surgery), MRCSEd
KMC No. 36821
Professor & HOD, CDSIMER
Harohalli, Ramanagar Dist, Karnataka

**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL EDUCATION
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LESSON PLAN

Name of the teacher: Dr Praveen

Target group : MBBS students

Term: II year

Number of students: 150

Duration: 1 hour

Date:17/01/2024

Topic: FACTORS AFFECTING METABOLIC RESPONSE TO INJURY

Sl no	Specific learning objective	Content	TL Method	Media	Duration
1.	Define the metabolic response to injury	-Introduction to Metabolic Response to Injury -Definition of metabolic response to injury	Interactive lecture	Power point	5 minutes
2.	. Identify and describe the various factors that influence the metabolic response to injury	-Physiological Factors Affecting Metabolic Response - Environmental Factors - Pharmacological and Nutritional Factors	Interactive lecture	Power point	35 minutes
3.	Understand the role of these factors in shaping the body's physiological response to trauma or stress.	-Severity and Type of Injury	Interactive lecture	Power point	15 minutes
4.	Summary and Conclusion	- Recap of key points covered in the lecture - Importance of considering various factors in managing metabolic response to injury	Interactive lecture	Power point	5 minutes

ICT Link: <https://youtu.be/XS30Rnpka8M?si=ecmjETL Js1BATA2>

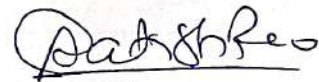
<https://youtu.be/9bvMv5dQ7RU?si=-TH cYsLj388mNn>

Teacher/Student activity: Interactive class

Assignment for this class:

- To assess understanding, assign a short quiz or reflective writing task on the key factors influencing the metabolic response to injury.
- Encourage students to participate in class discussions and ask questions throughout the session.

References: Bailey and Love 28th Edition



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**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL EDUCATION
AND RESEARCH**

LESSON PLAN

Name of the teacher: Dr Anil kumar

Target group : MBBS students

Term: II year

Number of students: 150

Duration: 1 hour

Date:24/01/2024

Topic: PERI-OPERATIVE CARE

Sl no	Specific learning objective	Content	TL Method	Media	Duration
1.	Introduction to Perioperative Care	- Definition of perioperative care - Importance of perioperative care in the surgical process - Overview of the three phases	Interactive lecture	Power point	10 minutes
2.	Preoperative Phase	- Definition and objectives of the preoperative phase - Assessment and preparation of the patient - Patient education and informed consent - - Preoperative fasting guidelines - - Medication management - Risk assessment and optimization	Interactive lecture	Power point	20 minutes
3.	Intraoperative Phase	- Definition and objectives of the intraoperative phase - Role of the perioperative nurse during surgery - Surgical asepsis and infection control measures - Patient positioning and safety - Monitoring and documentation - Communication and teamwork in the operating room	Interactive lecture	Power point	20 minutes
4.	Postoperative Phase	- Definition and objectives of the postoperative phase - Immediate postoperative care in the recovery room - Pain management strategies	Interactive lecture	Power point	10 minutes

		- Assessment of complications and early detection - Patient and family education for discharge			
5.	Summary and Conclusion	- Recap of key points covered in the lecture - Importance of perioperative care in promoting positive surgical outcomes	Interactive lecture	Power point	5 m

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ICT Link: <https://youtu.be/HMPn1wflNPG?si=4gDSyq-oDjIGbqvn>

<https://youtu.be/R-TI82L3jMM?si=3BqafHc0tVqXSdty>

Teacher/Student activity: Interactive class

Assignment for this class: To assess understanding, assign a short quiz or reflective writing task on the key factors influencing the metabolic response to injury.

- Encourage students to participate in class discussions and ask questions throughout the session.

References: Bailey and Love 28th Edition

Satish Rao

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DEPT OF GENERAL SURGERY

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Professor & HOD, CDSIMER

Harohalli, Ramanagar Dist, Karnataka

**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL EDUCATION
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LESSON PLAN

Name of the teacher: Dr Sharath chandra tejas

Target group : MBBS students

Term: II year

Number of students: 150

Duration: 1 hour

Date: 31/01/2024

Topic: SHOCK (PATHOPHYSIOLOGY OF SHOCK, TYPES OF SHOCK, PRINCIPLES OF RESUSCITATION)

Sl no	Specific learning objective	Content	TL Method	Media	Duration
1.	Introduction to Shock	- Definition of shock - Importance of understanding shock in clinical practice - Overview of the pathophysiology of shock	Interactive lecture	Power point	10 minutes
2.	Types of Shock - Hypovolemic shock - Cardiogenic shock - Distributive shock (including septic, neurogenic, and anaphylactic shock) - Obstructive shock - Characteristics, causes, and mechanisms of each type	- Hypovolemic shock - Cardiogenic shock - Distributive shock (including septic, neurogenic, and anaphylactic shock) - Obstructive shock - Characteristics, causes, and mechanisms of each type of shock	Interactive lecture	Power point	20 minutes
3.	Principles of Resuscitation	- Initial assessment and recognition of shock - ABCDE approach (Airway, Breathing, Circulation, Disability, Exposure) - Fluid resuscitation: types of fluids, volume replacement, and rate of administration	Interactive lecture	Power point	20 minutes

		- Vasopressor therapy - Monitoring parameters (e.g., vital signs, central venous pressure, lactate levels)			
4.	Case Studies and Clinical Scenarios	- Presentation of case studies or clinical scenarios related to shock - Application of resuscitation principles to patient ma	Interactive lecture	Power point	5 minutes
5.	Summary and Conclusion	- Recap of key points covered in the lecture - Importance of early recognition and appropriate management of shock	Interactive lecture	Power point	5 minutes

ICT Link: <https://youtu.be/NqkdqJtxlfs?si=-F2eLzXB5jUA5AQ>

<https://youtu.be/sJWR93G4Upl?si=GDmFEaa1JzqfCiDh>

https://youtu.be/gQM1_Ok9U2o?si=es68hK7lslrcOtuk

Teacher/Student activity: Interactive class

Assignment for this class: To assess understanding, assign a short quiz or reflective writing task on the key factors influencing the metabolic response to injury.

- Encourage students to participate in class discussions and ask questions throughout the session.

References: Bailey and Love 28th Edition

Dr. Satish Rao

HOD

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Harohalli, Ramanagar Dist, Karnataka

**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL EDUCATION
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LESSON PLAN

Name of the teacher: Dr Sharath chandra tejas

Target group : MBBS students

Term: II year

Number of students: 150

Duration: 1 hour

Date:07/02/2024

Topic: SHOCK (Describe the clinical features of shock and its appropriate treatment)

Sl no	Specific learning objective	Content	TL Method	Media	Duration
1.	Introduction to Shock	- Definition of shock - Importance of recognizing and managing shock promptly - Overview of the clinical features of shock	Interactive lecture	Power point	10 minutes
2.	Clinical Features of Shock	- Hypovolemic shock: signs and symptoms of fluid loss - Cardiogenic shock: signs and symptoms of cardiac dysfunction - Distributive shock: signs and symptoms of vasodilation and impaired tissue perfusion - Obstructive shock: signs and symptoms of impaired cardiac output due to mechanical obstruction - Diagnostic criteria and assessment tools for identifying shock	Interactive lecture	Power point	25 minutes
3.	Treatment of Shock	- General principles of shock management - Specific treatment strategies for different types of shock: - Hypovolemic shock: fluid resuscitation, blood transfusion - Cardiogenic shock: inotropic agents, vasopressors, revascularization - Distributive shock: vasopressors, fluid resuscitation, source control	Interactive lecture	Power point	20 minutes

		- Obstructive shock: relieving mechanical obstruction, supportive measures - Importance of early intervention and multidisciplinary team approach			
4.	Case Studies and Clinical Scenarios	- Presentation of case studies or clinical scenarios related to shock - Application of treatment principles to patient management	Interactive lecture	Power point	5 minutes
5.	Summary and Conclusion	- Recap of key points covered in the lecture - Emphasis on the importance of timely recognition and appropriate treatment of shock	Interactive lecture	Power point	5 minutes

ICT Link: <https://youtu.be/NqkdqJtxlfs?si=-F2eLzXB5jUAc5AQ>

<https://youtu.be/sJWR93G4Upl?si=GDmFEaa1JzqfCiDh>

https://youtu.be/gQM1_Ok9U2o?si=es68hK7lsIrcOtuk

Teacher/Student activity: Interactive class

Assignment for this class: To assess understanding, assign a short quiz or reflective writing task on the key factors influencing the metabolic response to injury.

- Encourage students to participate in class discussions and ask questions throughout the session.

References: Bailey and Love 28th Edition



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DEPT OF GENERAL SURGERY

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**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL EDUCATION
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LESSON PLAN

Name of the teacher: Dr Srinivas gowda

Target group : MBBS students

Term: II year

Number of students: 150

Duration: 1 hour

Date: 10/04/2024

Topic: BLOOD AND BLOOD PRODUCTS AND COMPLICATIONS OF BLOOD TRANSFUSION

Sl no	Specific learning objective	Content	TL Method	Media	Duration
1.	Introduction to Blood Transfusion	- Definition of blood transfusion - Importance of understanding indications, appropriate use, and complications of blood transfusion	Interactive lecture	Power point	10 minutes
2.	Indications for Blood Transfusion	- Define anemia and discuss its clinical significance. - Present common indications for blood transfusion, including acute blood loss, anemia, hemorrhagic shock, and coagulopathy. - Discuss transfusion thresholds and guidelines for different clinical scenarios. - Use visuals and case studies to illustrate the indications for blood transfusion	Interactive lecture	Power point	20 minutes
3.	Appropriate Use of Blood and Blood Products	- Types of blood products (e.g., packed red blood cells, fresh frozen plasma, platelets) - Compatibility testing and blood matching - Rational use of blood transfusion based on clinical evidence and guidelines - Alternative therapies and adjunctive treatments to reduce reliance on blood transfusion	Interactive lecture	Power point	20 minutes

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4.	Complications of Blood Transfusion	- Immunological complications (e.g., hemolytic transfusion reactions, febrile non-hemolytic reactions, transfusion-related acute lung injury) - Infectious complications (e.g., transmission of bloodborne pathogens such as HIV, hepatitis B and C) - Non-immunological complications (e.g., transfusion-associated circulatory overload, transfusion-related infections) - Strategies for prevention, early recognition, and management of transfusion complications	Interactive lecture	Power point	minutes
5.	Case Studies and Clinical Scenarios	- Present case studies or clinical scenarios related to blood transfusion. - Encourage students to apply their knowledge about indications, appropriate use, and complications of blood transfusion to develop management plans for each case.	Interactive lecture	Power point	5 minutes
6.	Summary and Conclusion	- Summarize the main points covered in the lecture, including indications for blood transfusion, appropriate use of blood products, and complications of transfusion. - Emphasize the importance of safe and judicious use of blood transfusion to optimize patient outcomes.	Interactive lecture	Power point	5 minutes

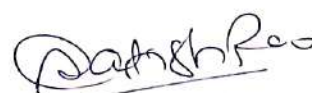
ICT Link: <https://youtu.be/0f2U3DDo8Xs?si=j40Me0blAosEQQXW>

Teacher/Student activity: Interactive class

Assignment for this class: To assess understanding, assign a short quiz or reflective writing task on the key factors influencing the metabolic response to injury.

- Encourage students to participate in class discussions and ask questions throughout the session.

References: Bailey and Love 28th Edition



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DEPT OF GENERAL SURGERY

Dr. Satish Rao B.S.
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**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL EDUCATION
AND RESEARCH**

LESSON PLAN

Name of the teacher: Dr Ramya deepthi

Target group : MBBS students

Term: II year

Number of students: 150

Duration: 1 hour

Date:14/02/2024

Topic: BURNS

Elicit document and present history in a case of Burns and perform physical examination. Describe Pathophysiology of Burns.

Sl no	Specific learning objective	Content	TL Method	Media	Duration
1.	Introduction to Burns Assessment	-Importance of history elicitation, documentation, and physical examination in burn cases - Overview of the lecture objectives	Interactive lecture	Power point	10 minutes
2.	Eliciting and Documenting History in Burn Cases	- Key components of the burn history: mechanism of injury, time of injury, location and extent of burns, associated injuries, past medical history, medications, allergies, social history - Techniques for eliciting a detailed and accurate history from burn patients and witnesses - Importance of thorough documentation for patient care an	Interactive lecture	Power point	20 minutes
3.	Pathophysiology of Burns	- Definition of burns and classification based on depth and extent - Understanding the pathophysiological changes in burns: thermal injury, inflammation, tissue damage, fluid loss, and systemic response - Implications of burn pathophysiology for patient assessment, management, and prognosis	Interactive lecture	Power point	15 minutes

4.	Performing Physical Examination in Burn Patients	- Systematic approach to physical examination in burn patients: inspection, palpation, assessment of burn depth, and assessment of associated injuries - Documentation of physical findings and measurement of burn severity using standardized tools (e.g., Lund and Browder chart, rule of nines) - Importance of ongoing assessment and reassessment in burn patients	Interactive lecture	Power point	
5.	Case Studies and Clinical Scenarios	- Presentation of case studies or clinical scenarios related to burn assessment - Application of knowledge about history elicitation, documentation, and physical examination to patient management	Interactive lecture	Power point	5 minutes
6.	Summary and Conclusion	- Recap of key points covered in the lecture - Emphasis on the importance of systematic assessment and documentation in burn cases	Interactive lecture	Power point	5 minutes

ICT Link: <https://youtu.be/kkPXV3I4-M?si=sQK5t7iB960n5waS>

<https://youtu.be/UaCn15ei5Lo?si=KcQdTgSa3OVIXnCR>

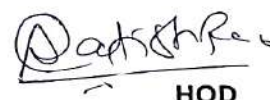
<https://youtu.be/z1zyfWm10bE?si=XnTSYI4hblhvsQR0>

Teacher/Student activity: Interactive class

Assignment for this class: To assess understanding, assign a short quiz or reflective writing task on the key factors influencing the metabolic response to injury.

- Encourage students to participate in class discussions and ask questions throughout the session.

References: Bailey and Love 28th Edition



HOD

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DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL EDUCATION
AND RESEARCH

LESSON PLAN

Name of the teacher: Dr Pradeep Raj S

Target group : MBBS students

Term: II year

Number of students: 150

Duration: 1 hour

Date: 21/02/2024

Topic: BURNS

Describe Clinical features, Diagnose type and extent of burns and plan appropriate treatment.

Sl no	Specific learning objective	Content	TL Method	Media	Duration
1.	Introduction to Burns Assessment	- Importance of understanding clinical features, diagnosis, and treatment planning for burns - Overview of the lecture	Interactive lecture	Power point	10 minutes
2.	Clinical Features of Burns	Definition of burns and classification based on depth and extent - Description of the clinical presentation of burns: redness, blistering, charring, pain, edema, loss of function - Identification of complications associated with burns, such as infection, compartment syndrome, and inhalation injury	Interactive lecture	Power point	20 minutes
3.	Diagnosis of Burns	- Systematic approach to diagnosing burns: history taking, physical examination, and assessment of burn depth and extent - Use of standardized tools and charts (e.g., rule of nines, Lund and Browder chart) for estimating burn size and severity - Importance of early diagnosis and assessment of burns to guide treatment decisions	Interactive lecture	Power point	15 minutes

4.	Planning Appropriate Treatment for Burns	General principles of burn management: wound care, pain management, infection prevention, and fluid resuscitation - Specific treatment strategies for different types and extents of burns: - Superficial burns: supportive care, pain management, wound dressing - Partial thickness burns: debridement, topical agents, and dressing - Full thickness burns: surgical intervention, skin grafting, rehabilitation - Considerations for special populations (e.g., pediatric, elderly) and high-risk patients (e.g., those with comorbidities)	Interactive lecture	Power point	
5.	Case Studies and Clinical Scenarios	- Presentation of case studies or clinical scenarios related to burns assessment and treatment planning - Application of knowledge about clinical features, diagnosis, and treatment strategies to patient management	Interactive lecture	Power point	5 minutes
6.	Summary and Conclusion	- Recap of key points covered in the lecture - Emphasis on the importance of timely and appropriate treatment planning in burn management	Interactive lecture	Power point	5 minutes

ICT Link: <https://youtu.be/kkPXV3I4-M?si=sQK5t7iB960n5waS>
<https://youtu.be/UaCn15ei5Lo?si=KcQdTgSa3OVIXnCR>
<https://youtu.be/z1zyfWm10bE?si=XnTSYI4hblhvsQR0>

Teacher/Student activity: Interactive class

Assignment for this class: To assess understanding, assign a short quiz or reflective writing task on the key factors influencing the metabolic response to injury.

- Encourage students to participate in class discussions and ask questions throughout the session.

References: Bailey and Love 28th Edition

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**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL EDUCATION
AND RESEARCH**

LESSON PLAN

Name of the teacher: Dr Vishnuvardhan Introduction to Burns Assessment (10 minutes)

Target group : MBBS students

Term: II year

Number of students: 150

Duration: 1 hour

Date: 28/02/2024

Topic: BURNS

Discuss the Medicolegal aspects in burn injuries.

Sl no	Specific learning objective	Content	TL Method	Media	Duration
1.	Introduction to Medicolegal Aspects in Burn Injuries	- Definition of medicolegal aspects in healthcare - Overview of the le	Interactive lecture	Power point	10 minutes
2.	Legal Framework and Responsibilities	- Overview of the legal framework governing burn injury cases - Identification of legal responsibilities of healthcare professionals in burn injury cases - Discussion of relevant laws, regulations, and standards pertaining to burn injuries (e.g., duty of care, informed consent, documentation)	Interactive lecture	Power point	15 minutes
3.	Documentation and Record Keeping	- Importance of accurate and comprehensive documentation in burn injury cases - Discussion of key documentation requirements and best practices for record keeping - Review of common documentation pitfalls and strategies for avoiding medicolegal issues	Interactive lecture	Power point	15 minutes

4.	Forensic Considerations	- Introduction to forensic aspects of burn injuries, including evidence collection and preservation - Discussion of the role of healthcare professionals in forensic investigations related to burn cases - Overview of common forensic findings and their implications for legal proceedings	Interactive lecture	Power point	
5.	Case Studies and Clinical Scenarios	- Presentation of case studies or clinical scenarios illustrating medicolegal aspects in burn injuries - Application of knowledge about legal responsibilities and documentation to analyze each case	Interactive lecture	Power point	5 minutes
6.	Summary and Conclusion	- Recap of key points covered in the lecture - Emphasis on the importance of understanding and addressing medicolegal aspects in burn injury cases	Interactive lecture	Power point	5 minutes

ICT Link: <https://youtu.be/kkPXV3I4-M?si=sQK5t7iB960n5waS>

<https://youtu.be/UaCn15ei5Lo?si=KcQdTgSa3QVIXnCR>

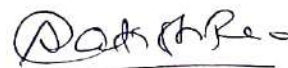
<https://youtu.be/z1zyfWm10bE?si=XnTSYI4hblhvsQR0>

Teacher/Student activity: Interactive class

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References: Bailey and Love 28th Edition



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**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL EDUCATION
AND RESEARCH**

LESSON PLAN

Name of the teacher: Dr Sharath mahadev

Target group : MBBS students

Term: II year

Number of students: 150

Duration: 1 hour

Date: 06/03/2024

Topic: WOUND AND WOUND HEALING

Describe normal wound healing and factors affecting healing.

Sl no	Specific learning objective	Content	TL Method	Media	Duration
1.	Introduction to Wound Healing	- Definition of wound healing - Importance of understanding normal wound healing processes - Overview of the lecture object	Interactive lecture	Power point	10 minutes
2.	Phases of Normal Wound Healing	- Overview of the three main phases of wound healing: inflammation, proliferation, and remodeling - Detailed description of each phase, including cellular and biochemical events - Illustration of wound healing process thro	Interactive lecture	Power point	20 minutes
3.	Factors Affecting Wound Healing	- Identification of intrinsic and extrinsic factors that can influence wound healing - Discussion of common factors affecting wound healing, such as age, nutrition, comorbidities, medications, and infection - Explanation of how these factors impact each phase of wound healing	Interactive lecture	Power point	20 minutes

4.	Clinical Implications and Management Considerations	- Application of knowledge about wound healing phases and influencing factors to clinical practice - Discussion of strategies to optimize wound healing, including patient education and wound care interventions - Emphasis on the importance of interdisciplinary collaboration in wound management	Interactive lecture	Power point	5 m
5.	Case Studies and Clinical Scenarios	- Presentation of case studies or clinical scenarios related to wound healing and factors affecting healing - Application of knowledge about wound healing processes and influencing factors to analyze each case	Interactive lecture	Power point	5 minutes
6.	Summary and Conclusion	- Recap of key points covered in the lecture - Emphasis on the importance of understanding normal wound healing and factors influencing healing in patient care	Interactive lecture	Power point	5 minutes

ICT Link: <https://youtu.be/F9IAw3zrzMw?si=MjAK8apSZkJEwrH>

<https://youtu.be/YRtPJXRKwHM?si=K-J 4Q7Me IWLCB0>

Teacher/Student activity: Interactive class

Assignment for this class: To assess understanding, assign a short quiz or reflective writing task on the key factors influencing the metabolic response to injury.

- Encourage students to participate in class discussions and ask questions throughout the session.

References: Bailey and Love 28th Edition



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**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL EDUCATION
AND RESEARCH**

LESSON PLAN

Name of the teacher: Dr Jeevan Kumar D V

Target group : MBBS students

Term: II year

Number of students: 150

Duration: 1 hour

Date:17/04/2024

Topic: SURGICAL INFECTIONS

Define and describe the aetiology and pathogenesis of surgical Infections

Sl no	Specific learning objective	Content	TL Method	Media	Duration
1.	Introduction to Surgical Infections	- Definition of surgical infections - Importance of understanding surgical infections in healthcare - Overview of the lecture objectives	Interactive lecture	Power point	10 minutes
2.	Aetiology of Surgical Infections	- Identification of the main sources of pathogens causing surgical infections - Discussion of risk factors contributing to the development of surgical infections, such as surgical site contamination, patient factors, and environmental factors - Explanation of how surgical techniques, instrumentation, and healthcare practices can influence the risk of surgical infections	Interactive lecture	Power point	20 minutes
3.	Pathogenesis of Surgical Infections	- Overview of the pathophysiological processes involved in the development of surgical infections - Explanation of the steps in the pathogenesis of surgical infections, including colonization, invasion, and host response	Interactive lecture	Power point	20 minutes

		- Discussion of the role of microbial virulence factors and host immune response in determining the outcome of surgical infections			DR
4.	Case Studies and Clinical Scenarios	- Presentation of case studies or clinical scenarios illustrating the aetiology and pathogenesis of surgical infections - Application of knowledge about risk factors and pathophysiological processes to analyze each case	Interactive lecture	Power point	5 minutes
5.	Summary and Conclusion	- Recap of key points covered in the lecture - Emphasis on the importance of understanding aetiology and pathogenesis in the prevention and management of surgical infections	Interactive lecture	Power point	5 minutes

ICT Link: <https://youtu.be/YDUVjz2nVUo?si=sLGUadJj3M-Vya1o>

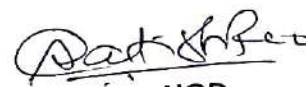
<https://youtu.be/zDiEeDxvP7g?si=YWi8679CGkt-TuDQ>

Teacher/Student activity: Interactive class

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References: Bailey and Love 28th Edition



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**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL EDUCATION
AND RESEARCH**

LESSON PLAN

Name of the teacher: Dr Varsha R K

Target group : MBBS students

Term: II year

Number of students: 150

Duration: 1 hour

Date: 27/03/2024

Topic: SURGICAL AUDIT AND CLINICAL RESEARCH

Describe the Planning and conduct of Surgical audit

Sl no	Specific learning objective	Content	TL Method	Media	Duration
1.	Introduction to Surgical Audits	- Definition of surgical audit - Importance of surgical audits in healthcare quality improvement - Overview of the lecture objectives	Interactive lecture	Power point	10 minutes
2.	Planning a Surgical	- Explanation of the importance of defining audit objectives and scope - - Discussion of key components of audit planning, including defining audit criteria, selecting audit tools, and establishing audit timelines - - Illustration of the audit planning process through case examples	Interactive lecture	Power point	20 minutes
3.	Conducting a Surgical Audit	- Description of data collection methods and sources for surgical audits - Explanation of data analysis techniques and interpretation of audit findings - Discussion of strategies for addressing identified areas for improvement and implementing changes - Overview of the role of audit feedback and reporting in surgical quality improvement	Interactive lecture	Power point	20 minutes

4.	Case Studies and Clinical Scenarios	- Presentation of case studies or clinical scenarios illustrating the planning and conduct of surgical audits - Application of knowledge about audit planning and conduct to analyze each case	Interactive lecture	Power point	5 minutes
5.	Summary and Conclusion	- Recap of key points covered in the lecture - Emphasis on the importance of surgical audits in enhancing surgical quality and patient safety	Interactive lecture	Power point	5 minutes

ICT Link: https://youtu.be/amfi8dpaysU?si=43IA1f_f8uyahVpj

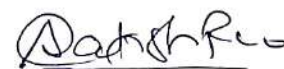
<https://youtu.be/9tVZhW1DF6I?si=T0tnoulZqmJGwHZm>

Teacher/Student activity: Interactive class

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References: Bailey and Love 28th Edition



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**DR CHANDRAMMA DAYANANDA SAGAR INSTITUTE OF MEDICAL EDUCATION
AND RESEARCH**

LESSON PLAN

Name of the teacher: Dr Varsha R K

Target group : MBBS students

Term: II year

Number of students: 150

Duration: 1 hour

Date: 03/04/2024

Topic: ETHICS IN SURGERY, PROFESSIONALISM AND EMPATHY TO PATIENTS

Describe the principles of Ethics as it pertains to General Surgery

Sl no	Specific learning objective	Content	TL Method	Media	Duration
1.	Introduction to Ethics in General Surgery	- Definition of ethics in healthcare - Importance of ethical considerations in general surgery - Overview of the lecture objectives	Interactive lecture	Power point	10 minutes
2.	Fundamental Ethical Principles	- Discussion of key ethical principles relevant to general surgery: - Autonomy: Respect for patient's rights and choices - Beneficence: Acting in the best interest of the patient - Nonmaleficence: Avoiding harm to the patient - Justice: Fair and equitable distribution of healthcare resources - Illustration of principles through case examples	Interactive lecture	Power point	20 minutes
3.	Ethical Issues in Surgical Practice	- Exploration of ethical dilemmas encountered in various aspects of surgical practice, including: - Informed consent and shared decision making - Conflict of interest and disclosure	Interactive lecture	Power point	20 minutes

		- End-of-life care and palliative surgery - Organ transplantation and allocation - Discussion of ethical frameworks and guidelines for addressing th			
4.	Introduction to Professionalism and Empathy in General Surgery	- Definition of professionalism and empathy in healthcare - Importance of professionalism and empathy in the surgical context - Overview of the lecture objectives	Interactive lecture	Power point	10 minutes
5.	Attributes of Professionalism in General Surgery	- Discussion of key attributes of professionalism in general surgery, including: - Integrity and honesty - Accountability and responsibility - Respect for patient autonomy and dignity - Effective communication and collaboration with colleagues - Illustration of attributes through case examples and role-playing exercises	Interactive lecture	Power point	20 minutes
6.	Cultivating Empathy in Surgical Care	- Exploration of strategies for cultivating empathy in surgical practice, including: - Active listening and validation of patient concerns - Demonstrating empathy through non-verbal cues and body language - Understanding cultural and social factors influencing patient experiences - Providing emotional support and reassurance to patients and families - Role-playing exercises and scenario-based learning to practice empathetic communication skills	Interactive lecture	Power point	20 minutes
7.	Summary and Conclusion	- Recap of key points covered in the lecture - Emphasis on the importance of professionalism and empathy in enhancing patient experience and outcomes in general surgery	Interactive lecture	Power point	5 minutes

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key factors in

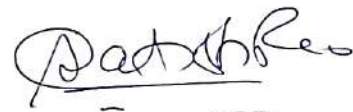
ICT Link: https://youtu.be/cDDWvj_q-o8?si=yk8zWljvsttxEC_Y

Teacher/Student activity: Interactive class

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- Encourage students to participate in class discussions and ask questions throughout the session.

References: Bailey and Love 28th Edition



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Department of Microbiology Lesson Planning Document

Teacher Name: All faculty as per monthly time table

Date: As per monthly time table

Time: 8.00-10AM

No. of students: As per batch allotment

Domain: Cognitive

Class: Depend upon the batch

Venue: As per allotment of lecture hall

Competency Addressed: MI 8.4, L.1

Topic: Emerging & Re-emerging infections & Microbial agents of bioterrorism

Specific learning objectives:

1. Definition & list of emerging infections
2. Definition & list of re-emerging infections
3. Bioterrorism- Definition & history
4. Bioterrorism- Agents used

Teaching Learning Method: Lecture

Sl. No.	Content	TL Methods	TL Media	Evaluation	Time (Mins)
1	Definition & list of emerging infections	Lecture	PPT format	MCQs	10
2	Definition & list of re-emerging infections	Lecture	PPT format	MCQs	10
3	Bioterrorism- Definition & history	Lecture	PPT format	Q & A	15
4	Bioterrorism- Agents used	Lecture	PPT format	Q & A	15

Pre evaluation: Revising objectives

Post evaluation: short Essays / Answers & Multiple choice questions

References:

1. Ananthanarayan and Jayaram Paniker's Textbook of Microbiology, 11th edition
2. Apurba Sastry and Sandhya Bhat; Essentials of Medical Microbiology, 3rd Edition, 2022
3. Textbook of Microbiology (Prof. C.P. Baveja) (Latest Edition)

Further Reading:

1. Mendell (Donerglas Aan Benett), Principles and Practice of Infectious diseases, Churchill Livingstone
2. Green wood, Medical Microbiology, Ed-15 Churchill Livingstone.
3. ICT: Lecturio website: <https://app.lecturio.com/#/welcome?fv=1>

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 (Dr. Shaladadevi Manur. T.)

Professor & HOD
Dept. of Microbiology
Jr. Chandramma Dayananda Sagar
Institute of Medical Education & Research
 DSII, Devarakaggalahalli, Harohalli,

Department of Microbiology Lesson Planning Document

Teacher Names: All faculty as per monthly time table

Date: As per monthly time table

Time: 8-9/9-10AM

No. of students: As per batch allotment

Domain: Cognitive

Class: Depend upon the batch

Venue: As per allotment of lecture hall

Competency Addressed: MI 5.1, 5.2

Topic: Free- living amoeba infections

Specific learning objectives:

1. Introduction & list of free living amoeba causing human infections.
2. Infection caused by Naegleria fowleri
3. Acanthamoeba infection
4. Balamuthia mandrillaris infection

Teaching Learning Method: Lecture

Sl. No.	Content	TL Methods	TL Media	Evaluation	Time (Mins)
1	Introduction & list of free living amoeba causing human infections.	Lecture	PPT format	MCQs	10
2	Infection caused by Naegleria fowleri	Lecture	PPT format	Q & A	15
3	Acanthamoeba infection	Lecture	PPT format	Q & A	15
4	Balamuthia mandrillaris infection	Lecture	PPT format	MCQs	10

Pre evaluation: Revising objectives

Post evaluation: Short Essays / Answers & Multiple choice questions

References:

1. Ananthanarayan and Jayaram Paniker's Textbook of Microbiology, 11th edition
2. Apurba Sastry and Sandhya Bhat; Essentials of Medical Microbiology, 3rd Edition, 2022
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2. Green wood, Medical Microbiology. Ed-15 Churchill Livingstone.
3. ICT: Lecturio website: <https://app.lecturio.com/#/welcome?fv=1>

Department of Microbiology

Lesson Planning Document

Teacher Name: All faculty as per monthly time table

Domain: Cognitive

Date: As per monthly time table

Class: Depend upon the batch

Time: 8-9/9-10AM

Venue: As per allotment of lecture hall

No. of students: As per batch allotment

Competency Addressed: MI 5.2.2

Topic: Viral Meningitis and Viral Myelitis-Poliomyelitis

Specific learning objectives:

1. Introduction
2. List of viruses causing meningitis & myelitis
3. Poliomyelitis-Morphology of polio virus & its epidemiology
4. Pathogenesis & clinical features
5. Laboratory diagnosis
6. Immunoprophylaxis

Teaching Learning Method: Lecture

Sl. No.	Content	TL Methods	TL Media	Evaluation	Time (mins)
1	Introduction & list of viruses causing meningitis and myelitis	Lecture	PPT format	MCQs	10
2	Poliomyelitis-Morphology of polio virus & its epidemiology	Lecture	PPT format	Q & A	10
3	Pathogenesis & clinical features	Lecture	PPT format	Q & A	10
4	Laboratory diagnosis	Lecture	PPT format	Q & A	10
5	Immunoprophylaxis	Lecture	PPT format	Q & A	10

Pre evaluation: Revising objectives

Post evaluation: Short Essays / Answers & Multiple choice questions

References:

1. Anant Narayan and Jayaram Paniker's Textbook of Microbiology, 11th edition
2. Anurag Sastry and Sanjhya Bhat: Essentials of Medical Microbiology, 3rd Edition, 2022
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2. Greenwood, Medical Microbiology. Ed-15 Churchill Livingstone.
3. ICT: Lecturio website: <https://app.lecturio.com/#/welcome?fv=1>


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Department of Microbiology Lesson Planning Document

Teacher Name: All faculty as per monthly time table

Date: As per monthly time table

Time: 8:00-9:10AM

No. of students: As per batch allotment

Domain: Cognitive

Class: Depend upon the batch

Venue: As per allotment of lecture hall

Competency Addressed: MI 8.1

Topic: Transfusion-transmitted Infections (TTIs)

Specific learning objectives:

1. Definition & sources of TTIs
2. Organisms causing TTIs
3. Strategies to reduce TTIs

Teaching Learning Method: Lecture

Sl. No.	Content	TL Methods	TL Media	Evaluation	Time (Mins)
1	Definition & sources of TTIs	Lecture	PPT format	Q & A	15
2	Organisms causing TTIs	Lecture	PPT format	MCQs	15
3	Strategies to reduce TTIs	Lecture	PPT format	Q & A	20

Pre evaluation: Revising objectives

Post evaluation: short Essays / Answers & Multiple choice questions

References:

1. Ananthanarayan and Jayaram Paniker's Textbook of Microbiology, 11th edition
2. Apurba Sastri and Sandhya Bhat, Essentials of Medical Microbiology, 3rd Edition, 2022
3. Textbook of Microbiology (Prof. C.P Baveja) (Latest Edition)

Further Reading:

1. Mandell, Douglas A and Bennett, Principles and Practice of Infectious diseases, Churchill Livingstone
2. Greenwood, Medical Microbiology, Ed-15 Churchill Livingstone.
3. ICT Lectures website: <https://app.lecture.com/#welcome?tv=1>

Department of Microbiology Lesson Planning Document

Teacher Name: All faculty as per monthly time table

Domain: Cognitive

Date: As per monthly time table

Class: Depend upon the batch

Time: 8:00-10:00 AM

Venue: As per allotment of lecture hall

No. of students: As per batch allotment

Competency Addressed: MI 4.2

Osteomyelitis - The microorganisms causing infections of bone & joint (infectious arthritis, osteomyelitis and orthopedic implant associated infections)

Specific learning objectives:

1. Osteomyelitis & arthritis- Introduction
2. Microorganisms causing bone & joint infections
3. Clinical manifestations
4. Lab diagnosis including sample collection
5. Implant associated infections

Teaching Learning Method: Lecture

Sl. No.	Content	TL Methods	TL Media	Evaluation	Time (Mins)
1	Osteomyelitis & arthritis- Introduction	Lecture	PPT format	MCQs	10
2	Microorganisms causing bone & joint infections	Lecture	PPT format	MCQs	10
3	Clinical manifestations	Lecture	PPT format	Q & A	5
4	Lab diagnosis	Lecture	PPT format	Q & A	15
5	Implant associated infections	Lecture	PPT format	Q & A	10

Pre evaluation: Revising objectives

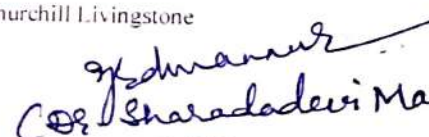
Post evaluation: short Essays / Answers & Multiple choice questions

References:

1. Ananthanarayan and Jayaram Paniker's Textbook of Microbiology, 11th edition
2. Apurba sastry and Sandhya Bhat: Essentials of Medical Microbiology, 3rd Edition, 2022
3. Textbook of Microbiology (Prof. C.P. Baveja) (Latest Edition)

Further Reading:

1. Mendel (Donerglas Ann Benett). Principles and Practice of Infectious diseases, Churchill Livingstone
2. Greenwood, Medical Microbiology, Ed-15 Churchill Livingstone.
3. ICT- Lecturio website: <https://app.lecturio.com/#/welcome?iv=1>


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 DSU, Devarakaggalahalli, Harohalli,
 Channarayana Taluk, Ramanagara District - 562100

**Department of Microbiology
Lesson Planning Document****Teacher Name:** All faculty as per monthly time table**Date:** As per monthly time table**Time:** 8:00-10AM**No. of students:** As per batch allotment**Domain:** Cognitive**Class:** Depend upon the batch**Venue:** As per allotment of lecture hall**Competency Addressed:** MI 4.3**Topic: Superficial fungal infections -- Dermatophytes, Piedra, tinea nigra,
Subcutaneous fungal infections—Maduramycosis****Specific learning objectives:**

1. Introduction to superficial & subcutaneous fungal infections
2. Tinea & piedra
3. Dermatophytes infections- Types, clinical features & lab diagnosis
4. Maduramycosis

Teaching Learning Method: Lecture

Sl. No.	Content	TL Methods	TL Media	Evaluation	Time (Mins)
1	Introduction to superficial & subcutaneous fungal infections	Lecture	PPT format	MCQs	10
2	Tinea & piedra	Lecture	PPT format	MCQs	10
3	Dermatophytes infections- Types, clinical features & lab diagnosis	Lecture	PPT format	Q & A	20
4	Maduramycosis	Lecture	PPT format	Q & A	10

Pre evaluation: Revising objectives**Post evaluation:** short Essays / Answers & Multiple choice questions**References:**

1. Ananthanarayan and Jayaram Paniker's Textbook of Microbiology, 11th edition
2. Apurba Sastry and Sandhya Bhat: Essentials of Medical Microbiology, 3rd Edition, 2022
3. Textbook of Microbiology (Prof. C.P. Baveja) (Latest Edition)

Further Reading:

1. Mendel (Donerglas Aan Benett), Principles and Practice of Infectious diseases, Churchill Livingstone
2. Greenwood, Medical Microbiology, Ed-15 Churchill Livingstone.
3. ICT: Lecturio website: <https://app.lecturio.com/#/welcome?fv=1>

Department of Microbiology

Lesson Planning Document

Teacher Name: All faculty as per monthly time table

Domain: Cognitive

Date: As per monthly time table

Class: Depend upon the batch

Time: 8-9/9-10AM

Venue: As per allotment of lecture hall

No. of students: As per batch allotment

Competency Addressed: MI 1.1

Topic: Laboratory Acquired Infections

Specific learning objectives:

1. Introduction
2. Modes of transmission
3. Etiological agents
4. Preventive measures
5. Lab safety

Teaching Learning Method: Lecture

Sl. No.	Content	TL Methods	TL Media	Evaluation	Time (Mins)
1	Introduction	Lecture	PPT format	MCQs	5
2	Modes of transmission	Lecture	PPT format	MCQs	10
3	Etiological agents	Lecture	PPT format	Q & A	10
4	Preventive measures	Lecture	PPT format	Q & A	10
5	Lab safety	Lecture	PPT format	Q & A	15

Pre evaluation: Revising objectives

Post evaluation: short Essays / Answers & Multiple choice questions

References:

1. Ananthanarayan and Jayaram Paniker's Textbook of Microbiology, 11th edition
2. Apurba Sastry and Sandhya Bhat: Essentials of Medical Microbiology, 3rd Edition, 2022
3. Textbook of Microbiology (Prof. C.P. Baveja) (Latest Edition)

Further Reading:

1. Mendel (Dennis) and Benett, Principles and Practice of Infectious diseases, Churchill Livingstone
2. Green wood, Medical Microbiology, Ed-15 Churchill Livingstone.
3. ICT: Lecturio website: <https://app.lecturio.com/#/welcome?fv=1>

Shaladevi Nanner-7.

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 DSU, Devarakaggalahalli, Harohalli,
 Kanakapura Taluk, Ramnagara District - 562112

Department of Microbiology Lesson Planning Document

Teacher Name: All faculty as per monthly time table

Date: As per monthly time table

Time: 8-9/9-10AM

No. of students: As per batch allotment

Domain: Cognitive

Class: Depend upon the batch

Venue: As per allotment of lecture hall

Competency Addressed: MI 5.1, 5.2

Topic: Cryptococcal meningitis & Candida

Specific learning objectives:

1. Introduction and list of fungi causing meningitis/ CNS infections
2. Cryptococcal meningitis- Introduction & morphology of Cryptococcus
3. Pathogenesis & laboratory diagnosis of Cryptococcal meningitis
4. Treatment of Cryptococcal meningitis
5. Lab diagnosis & treatment of meningitis caused by Candida

Teaching Learning Method: Lecture

Sl. No.	Content	TL Methods	TL Media	Evaluation	Time (Mins)
1	Introduction and list of fungi causing meningitis/ CNS infections	Lecture	PPT format	MCQs	5
2	Cryptococcal meningitis- Introduction & morphology of Cryptococcus	Lecture	PPT format	MCQs	10
3	Pathogenesis & laboratory diagnosis of Cryptococcal meningitis	Lecture	PPT format	Q & A	15
4	Treatment of Cryptococcal meningitis	Lecture	PPT format	Q & A	5
5	Lab diagnosis & treatment of meningitis caused by Candida	Lecture	PPT format	MCQs	15

Pre evaluation: Revising objectives

Post evaluation: short Essays / Answers & Multiple choice questions

References:

1. Ananthanarayan and Jayaram Paniker's Textbook of Microbiology, 11th edition
2. Apurba Sastry and Sandhya Bhat: Essentials of Medical Microbiology, 3rd Edition, 2022
3. Textbook of Microbiology (Prof. C.P.Baveja) (Latest Edition)

Further Reading:

1. Mendell (Donerglas Aan Benett). Principles and Practice of Infectious diseases, Churchill Livingstone
2. Green wood, Medical Microbiology, Ed-15 Churchill Livingstone.
3. ICT: Lecturio website: <https://app.lecturio.com/#/welcome?fv=1>

Department of Microbiology Lesson Planning Document

Teacher Name: All faculty as per monthly time table

Date: As per monthly time table

Time: 8.00-10AM

No. of students: As per batch allotment

Domain: Cognitive

Class: Depend upon the batch

Venue: As per allotment of lecture hall

Competency Addressed: MI 5.1

Topic: Bacterial Meningitis

Specific learning objectives:

1. Introduction
2. List of bacteria causing bacterial meningitis
3. Pathogenesis
4. Clinical features
5. Laboratory diagnosis
6. Treatment

Teaching Learning Method: Lecture

Sl. No.	Content	TL Methods	TL Media	Evaluation	Time (mins)
1	Introduction & list of bacteria causing bacterial meningitis	Lecture	PPT format	MCQs	10
2	Pathogenesis & clinical features	Lecture	PPT format	MCQs	10
3	Laboratory diagnosis	Lecture	PPT format	Q&As	20
4	Treatment	Lecture	PPT format	MCQs	10

Pre evaluation: Revising objectives

Post evaluation: Short Essays / Answers & Multiple choice questions

References:

1. Ananthanarayan and Jayaram Paniker's Textbook of Microbiology, 11th edition
2. Apurba Sastry and Sandhya Bhat; Essentials of Medical Microbiology, 3rd Edition, 2022
3. Textbook of Microbiology (Prof. C.P. Baveja) (Latest Edition)

Further Reading:

1. Mendell (Donerglas Aan Benett), Principles and Practice of Infectious diseases, Churchill Livingstone
2. Green wood, Medical Microbiology, Ed-15 Churchill Livingstone.
3. ICT: Lecturio website: <https://app.lecturio.com/#/welcome?fv=1>


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Kanakapura Taluk, Ramanaagara District - 582112

Department of Microbiology

Lesson Planning Document

Teacher Name: All faculty as per monthly time table

Date: As per monthly time table

Time: 8.00-10AM

No. of students: As per batch allotment

Domain: Cognitive

Class: Depend upon the batch

Venue: As per allotment of lecture hall

Competency Addressed: MI 5.2.2

Topic: Viral Meningitis and Viral Myelitis-Poliomyelitis

Specific learning objectives:

1. Introduction
2. List of viruses causing meningitis & myelitis
3. Poliomyelitis-Morphology of polio virus & its epidemiology
4. Pathogenesis & clinical features
5. Laboratory diagnosis
6. Immunoprophylaxis

Teaching Learning Method: Lecture

Sl. No.	Content	TL Methods	TL Media	Evaluation	Time (mins)
1	Introduction & list of viruses causing meningitis and myelitis	Lecture	PPT format	MCQs	10
2	Poliomyelitis-Morphology of polio virus & its epidemiology	Lecture	PPT format	Q & A	10
3	Pathogenesis & clinical features	Lecture	PPT format	Q & A	10
4	Laboratory diagnosis	Lecture	PPT format	Q & A	10
5	Immunoprophylaxis	Lecture	PPT format	Q & A	10

Pre evaluation: Revising objectives

Post evaluation: Short Essays / Answers & Multiple choice questions

References:

1. Ananthanarayan and Jayaram Paniker's Textbook of Microbiology, 11th edition
2. Apurba Sastry and Sandhya Bhat; Essentials of Medical Microbiology, 3rd Edition, 2022
3. Textbook of Microbiology (Prof. C.P.Baveja) (Latest Edition)

Further Reading:

1. Mendell (Donerglas Aan Benett), Principles and Practice of Infectious diseases, Churchill Livingstone
2. Green wood, Medical Microbiology, Ed-15 Churchill Livingstone.
3. ICT: Lecturio website: <https://app.lecturio.com/#/welcome?fv=1>



Department of Microbiology Lesson Planning Document

Teacher Name: All faculty as per monthly time table

Date: As per monthly time table

Time: 8-9/9-10AM

No. of students: As per batch allotment

Domain: Cognitive

Class: Depend upon the batch

Venue: As per allotment of lecture hall

Competency Addressed: MI 5.1

Topic: Viral Encephalitis and Encephalopathy-Rabies, HSV Encephalitis

Specific learning objectives:

1. Introduction & list of viruses causing encephalitis
2. Morphology, pathogenesis & clinical features of rabies virus
3. Laboratory diagnosis & prophylaxis of rabies virus
4. Pathogenesis & and clinical features of herpes simplex virus encephalitis
5. Laboratory diagnosis of herpes simplex virus encephalitis

Teaching Learning Method: Lecture

Sl. No.	Content	TL Methods	TL Media	Evaluation	Time
1	Introduction & list of viruses causing encephalitis	Lecture	PPT format	MCQs	5
2	Morphology, pathogenesis & clinical features of rabies virus	Lecture	PPT format	Q & A	10
3	Laboratory diagnosis & prophylaxis of rabies virus	Lecture	PPT format	Q & A	15
4	Pathogenesis & and clinical features of herpes simplex virus encephalitis	Lecture	PPT format	Q & A	10
5	Laboratory diagnosis of herpes simplex virus encephalitis	Lecture	PPT format	Q & A	10

Pre evaluation: Revising objectives

Post evaluation: Short Essays / Answers & Multiple choice questions

References:

1. Ananthanarayan and Jayaram Paniker's Textbook of Microbiology, 11th edition
2. Apurba Sastry and Sandhya Bhat; Essentials of Medical Microbiology, 3rd Edition, 2022
3. Textbook of Microbiology (Prof. C.P.Baveja) (Latest Edition)

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2. Green wood, Medical Microbiology, Ed-15 Churchill Livingstone.
3. ICT: Lecturio website: <https://app.lecturio.com/#/welcome?fv=1>

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Kanakapura Taluk, Ramanaagara District, 562102

Department of Microbiology Lesson Planning Document

Teacher Name: All faculty as per monthly time table

Date: As per monthly time table

Time: 8-9/9-10AM

No. of students: As per batch allotment

Domain: Cognitive

Class: Depend upon the batch

Venue: As per allotment of lecture hall

Competency Addressed: MI 5.1

Topic: Bacterial Meningitis

Specific learning objectives:

1. Introduction
2. List of bacteria causing bacterial meningitis
3. Pathogenesis
4. Clinical features
5. Laboratory diagnosis
6. Treatment

Teaching Learning Method: Lecture

Sl. No.	Content	TL Methods	TL Media	Evaluation	Time (mins)
1	Introduction & list of bacteria causing bacterial meningitis	Lecture	PPT format	MCQs	10
2	Pathogenesis & clinical features	Lecture	PPT format	MCQs	10
3	Laboratory diagnosis	Lecture	PPT format	Q&As	20
4	Treatment	Lecture	PPT format	MCQs	10

Pre evaluation: Revising objectives

Post evaluation: Short Essays / Answers & Multiple choice questions

References:

1. Ananthanarayan and Jayaram Paniker's Textbook of Microbiology, 11th edition
2. Apurba Sastry and Sandhya Bhat: Essentials of Medical Microbiology, 3rd Edition, 2022
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DAYANANDA SAGAR UNIVERSITY
SCHOOL OF HEALTH SCIENCES - COLLEGE OF NURSING SCIENCES
Shavige Malleshwara Hills, Kumaraswamy Layout, Bengaluru-560078.

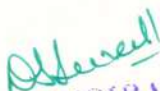
2.3.2 TEACHERS USE ICT ENABLED TOOLS INCLUDING ONLINE RESOURCES FOR EFFECTIVE TEACHING LEARNING PROCESSES

ICT enabled teaching methodologies and advanced technology are being used by the faculty members in class rooms. General ICT tools being used by faculties are Digi board, Desktop and laptops, Projector, Digital cameras, Printer, tablets, Pen Drive, Scanners, Microphones, White board, DVDs and CDs. The faculty members effectively utilize Audio Visual aids to demonstrate the concepts to the students using the resources to enhance the learning experience. Online classes are conducted through Zoom cloud meeting. Online tests are conducted and e-assignments are given through Google Classroom. Digital Library is available. Sufficient number of books, Journals, e-journals and e-books are available in the library. All the departments conduct seminars, workshops and guest lectures on the new developments in the core subjects for effective teaching and learning. Seminar hall is equipped with multimedia facilities using ICT tools. Invited talks and webinars are conducted in seminar hall using ICT facilities.

Academic Management System: “ERP”

The college has developed an integrated Academic Management System and comprehensive tool for faculty, students and administrators to overcome the challenges in the process of college admissions and post admission. The tool is an online-platform that is meant to manage registration of course, registration of the faculty, allocation of courses to the faculty, student attendance, internal assessment etc.

Link: www.dsu.edu.in


PRINCIPAL
College Of Nursing Sciences
DAYANANDA SAGAR UNIVERSITY
Harohalli, Karnataka-562112



ContentType Wise Summary

Sr.	Type	AverageRating	Views	Published	Unpublished
1	Assignment	0.00	0	0	0
2	E-Note	4.14	14	2	0
3	Lab Manual	0.00	0	0	0
4	Presentation	4.93	80	27	1
5	Video Lecture	0.00	0	0	0
Total		1.81	94	29	1

Course Wise Summary

Sr.	Course Name	Assignment	E-Note	Lab Manual	Presentation	Video Lecture
0		0		0		0
1	Nursing Sciences (Y)		2		28	
Total		0	2	0	28	0

Department Wise Summary

Sr.	Department Name	Assignment	E-Note	Lab Manual	Presentation	Video Lecture
0		0		0		0
1	Nursing		2		28	
Total		0	2	0	28	0

Atul
PRINCIPAL

College Of Nursing Sciences
DAYANANDA SAGAR UNIVERSITY
Harohalli, Karnataka-562112



ContentType Wise Summary

Sr.	Type	AverageRating	Views	Published	Unpublished
1	Assignment	0.00	0	0	0
2	E-Note	5.00	65	7	0
3	Lab Manual	0.00	0	0	0
4	Presentation	4.82	422	70	0
5	Video Lecture	4.78	10	8	0
Total		2.92	497	85	0

Course Wise Summary

Sr.	Course Name	Assignment	E-Note	Lab Manual	Presentation	Video Lecture
0		0		0		
1	B.Sc Nursing (S)		7		70	8
Total		0	7	0	70	8

Department Wise Summary

Sr.	Department Name	Assignment	E-Note	Lab Manual	Presentation	Video Lecture
0		0		0		
1	Nursing		7		70	8
Total		0	7	0	70	8


PRINCIPAL
College Of Nursing Sciences
DAYANANDA SAGAR UNIVERSITY
Bareilly, Karnataka-562112



ContentType Wise Summary

Sr.	Type	AverageRating	Views	Published	Unpublished
1	Assignment	0.00	0	0	0
2	E-Note	4.08	534	34	0
3	Lab Manual	0.00	0	0	0
4	Presentation	4.33	820	79	3
5	Video Lecture	0.00	8	3	0
Total		1.68	1362	116	3

Course Wise Summary

Sr.	Course Name	Assignment	E-Note	Lab Manual	Presentation	Video Lecture
0		0		0		
1	B.Sc Nursing (S)		34		83	3
Total		0	34	0	83	3

Department Wise Summary

Sr.	Department Name	Assignment	E-Note	Lab Manual	Presentation	Video Lecture
0		0		0	1	
1	Nursing		34		82	3
Total		0	34	0	83	3


PRINCIPAL
College Of Nursing Sciences
DAYANANDA SAGAR UNIVERSITY
Harohalli, Karnataka-562112



DAYANANDA SAGAR UNIVERSITY
SCHOOL OF HEALTH SCIENCES - COLLEGE OF NURSING SCIENCES
Shavige Malleshwara Hills, Kumaraswamy Layout, Bengaluru-560078.

2.3.3 RATIO OF STUDENTS TO MENTOR FOR ACADEMIC AND OTHER RELATED ISSUES

(Data for the latest completed academic year 2023-24)

2.3.3. Number of Mentors: 17

Number of Mentees: 217

Number of students assigned to each mentor: 12 to 13

Formula:

Mentor: Mentee

1:13


PRINCIPAL
College Of Nursing Sciences
DAYANANDA SAGAR UNIVERSITY
Harebilla, Kumaraswamy-562112



**COLLEGE OF
PHARMACEUTICAL SCIENCES**

DAYANANDA SAGAR UNIVERSITY

School of Health Sciences
Kumaraswamy Layout, Bengaluru - 560111, Karnataka, India

ICT Tools for B.Pharm, M.Pharm, and Pharm.D

Description

ICT Tools for B.Pharm, M.Pharm, and Pharm.D enhance teaching and learning through interactive and accessible platforms. Assignments and lab records are managed via learning management systems (LMS) to streamline submission and evaluation. E-notes and presentations are shared digitally, enabling easy access to study material and fostering interactive learning. Video lectures, like those hosted on platforms such as YouTube, provide visual and auditory aids for better concept retention. Software tools like Micromedex support Pharm.D students with clinical decision-making. These tools collectively improve collaboration, engagement, and practical understanding, ensuring a dynamic and technology-integrated educational experience for pharmacy students.


PRINCIPAL
College of Pharmaceutical Sciences
Dayananda Sagar University
Kumaraswamy Layout,
Bengaluru - 560 078.



COLLEGE OF
PHARMACEUTICAL SCIENCES

DAYANANDA SAGAR UNIVERSITY

School of Health Sciences
Kumarswamy Layout, Bengaluru -560111, Karnataka, India

Assignments

B.Pharm

COPS 11:04:07 AM 14. MA. REXHA S

17BP501 - MEDICINAL CHEMISTRY II (B.Pharm)

Introduction Content **Assignment** Test Announcement

Q1 ASSIGNMENT

Sr.	Title	Created Date	Due Date	Marks Out of	Views Rating	Published	Allocated	S NS C NC R	Action
1	Assignment -4	07-12-2023	09-12-2023 04:00 PM	5	155 4.100 (3)	Published	34 Students	11 21 0 1 0	Operations
2	Assignment -2	27-04-2023	03-10-2023 04:30 PM	10	309 4.100 (4)	Published	90 Students	21 53 0 2 0	Operations

M.Pharm

COPS

17MP501 - MEDICINAL CHEMISTRY II (M.Pharm)

Introduction Content Assignment Test Announcement

Q1 ASSIGNMENT

Sr.	Title	Created Date	Due Date	Marks Out of	Views Rating	Published	Allocated	S NS C NC R	Action
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Pharm.D

COPS 12:36:25 pm H. Dr. ANJU JOSE

17PD501 - MEDICINAL CHEMISTRY II (Pharm.D)

Introduction Content **Assignment** Test Announcement

Q1 ASSIGNMENT

Sr.	Title	Created Date	Due Date	Marks Out of	Views Rating	Published	Allocated	S NS C NC R	Action
1	Patient Counselling points for Accutane, Rotahaler and Turbuhaler	13-02-2024	20-02-2024 09:00 PM	5	82 5.00 (3)	Published	34 Students	11 21 0 1 0	Operations
2	FDA approved new drugs for Type 2 Diabetes Mellitus and Hypertension	26-11-2023	11-12-2023 05:00 PM	20	93 5.00 (3)	Published	34 Students	27 7 0 1 0	Operations



Presentations

B.Pharm

COPS								
11:27:56 AM H. Ma. REDDIA S								
Academic Regular								
Academics								
Accreditation								
Admission								
Common								
Document								
Exam								
Feedback								
Grievance Redressal								
HR Payroll								
Internal Assessment								

CONTENT TYPE WISE CONTENT LIST								
Add New Content								
E-Note Presentation Video Lecture								
Sr.	Presentation	Doc.	Updated On	Views Rating	Publish	Seq.	Action	
1	Thyroid and erectile dysfunction	1	05-12-2023	16 5.0 (0)	PUBLISH			
2	Adrenocorticoids	1	05-12-2023	5 5.0 (0)	PUBLISH			
3	Steroids: Introduction	1	05-12-2023	16 5.0 (0)	PUBLISH			
4	Molecular basis of cancer-2	1	05-12-2023	6 5.0 (0)	PUBLISH			
5	Molecular basis of cancer-1	1	05-12-2023	8 5.0 (0)	PUBLISH			
6	Plant products-2	1	05-12-2023	4 5.0 (0)	PUBLISH			
7	Plant products-1	1	05-12-2023	7 5.0 (0)	PUBLISH			
8	Antimetabolites	1	05-12-2023	5 5.0 (0)	PUBLISH			

M.Pharm

COPS								
12:01:04 - DR. PHARMACEUTICS AND PHARMACOKINETICS								
Introduction Assignment Test Announcement								
CONTENT TYPE WISE CONTENT LIST								
E-Note Presentation								
Sr.	Presentation	Doc.	Updated On	Views Rating	Publish	Seq.	Action	
1	Unit 1: Introduction to Pharmacokinetics	1	15-07-2024	23 5.0 (0)	PUBLISH			
2	Unit 2: One-compartment pharmacokinetics	1	15-07-2024	28 5.0 (0)	PUBLISH			
3	Unit 3: Two-compartment pharmacokinetics	1	15-07-2024	27 5.0 (0)	PUBLISH			
4	Unit 4: Pharmacokinetics of drugs	1	15-07-2024	13 5.0 (0)	PUBLISH			
5	Unit 5: Pharmacokinetics of drugs	1	15-07-2024	21 5.0 (0)	PUBLISH			
6	Unit 6: Pharmacokinetics of drugs	1	15-07-2024	21 5.0 (0)	PUBLISH			
7	Unit 7: Pharmacokinetics of drugs	1	15-07-2024	21 5.0 (0)	PUBLISH			
8	Unit 8: Pharmacokinetics of drugs	1	15-07-2024	21 5.0 (0)	PUBLISH			
9	Unit 9: Pharmacokinetics of drugs	1	15-07-2024	21 5.0 (0)	PUBLISH			
10	Unit 10: Pharmacokinetics of drugs	1	15-07-2024	21 5.0 (0)	PUBLISH			

Pharm.D

COPS								
12:32:27 pm H. Dr. ANJUL K								
Academic Regular								
Academics								
Accreditation								
Admission								
Common								
Document								
Exam								
Feedback								
Grievance Redressal								
HR Payroll								
Internal Assessment								
LMS								

CONTENT TYPE WISE CONTENT LIST								
Add New Content								
E-Note Presentation								
Sr.	Presentation	Doc.	Updated On	Views Rating	Publish	Seq.	Action	
1	Arrhythmia	1	22-07-2024	37 5.0 (0)	PUBLISH			
2	Pediatric Prescribing Guidelines	1	13-04-2024	135 5.0 (0)	PUBLISH			
3	Pregnancy & Breast Feeding	1	13-04-2024	95 5.0 (0)	PUBLISH			
4	Rational Drug Use	1	13-04-2024	103 5.0 (0)	PUBLISH			
5	Geriatric Prescribing Guidelines	1	13-04-2024	166 5.0 (0)	PUBLISH			
6	Hypertension	1	02-04-2024	160 5.0 (0)	PUBLISH			
7	Thyroid Disorders	1	12-03-2024	110 5.0 (0)	PUBLISH			
8	Osteoporosis	1	12-03-2024	193 5.0 (0)	PUBLISH			
9	COPD	1	06-02-2024	150 5.0 (0)	PUBLISH			
10	Asthma	1	05-02-2024	154 5.0 (0)	PUBLISH			



E- Note

B.Pharm

COPS

17BP501 - MEDICINAL CHEMISTRY II (B.Pharm)

Introduction **Content** Assignment Test Announcement

CONTENT TYPE WISE CONTENT LIST

E-Note Presentation Video Lecture

Sr.	E-Note	Doc.	Updated On	Views Rating	Publish	Seq.	Action
1	Steroids		07-12-2023	14 0.4.00 (2)	Publish		
2	Anticancer notes		03-10-2023	19 0.4.75 (1)	Publish		
3	Anticancer Plant products		13-09-2023	21 0.4.50 (0)	Publish		
4	Anticancer agents (Key: 1024242)		13-09-2023	218 0.4.29 (7)	Publish		

M.pharm

COPS

17BP504 - BIOPHARMACEUTICS AND PHARMACOKINETICS (M.Pharm)

Introduction **Content** Assignment Test Announcement

CONTENT TYPE WISE CONTENT LIST

E-Note Presentation Video Lecture

Sr.	E-Note	Doc.	Updated On	Views Rating	Publish	Seq.	Action
1	Unit 1: Drug Absorption and Distribution		11-08-2024	22 0.0.0.0			
2	Pharmacokinetics		04-04-2024	17 0.0.0.0			
3	Anticancer Chemotherapy		22-02-2024	17 0.0.0.0			
4	Pharmacokinetics		22-02-2024	22 0.0.0.0			

Pharm.D

COPS

15PD206 - PHARMACOTHERAPEUTICS - I (Pharm.D)

Introduction **Content** Assignment Test Announcement

CONTENT TYPE WISE CONTENT LIST

E-Note Presentation Video Lecture

Sr.	E-Note	Doc.	Updated On	Views Rating	Publish	Seq.	Action
1	WHO Rational Drug Use		22-07-2024	30 0.0.0.0 (0)	Publish		
2	Arrhythmia		22-07-2024	26 0.0.0.0 (0)	Publish		

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Lab Record

B.Pharm



Dayananda Sagar
University Bengaluru

School of Health Sciences
College of Pharmaceutical Sciences
Kumaraswamy Layout, Bengaluru - 560111, Karnataka, India

Pharmacology II

Prepared by

Name of the Faculty: Ms. Jincy Thomas
Department Name: Pharmacology II

Name	
Program	B.Pharmacy
Semester/Year	V Semester
USN No:	

Dept. of Pharmacology

Pharmacology II

Page 1 of 18

Video Lecture

B.Pharm

Link: <https://www.youtube.com/watch?v=Igc7rFJkm84?autoplay=1>

Usage of Software

Pharm.D

Software name: Micromedex

Drug Reference	
Enter Drug Name	
Drug Name	Drug Class
12 Hour Cold Maximum Strength (Doxylamine Hydrochloride)	✓
140 Grea/Gm Acid	✓
140 Gm	✓
4 Day Vaginal Cream (Clotrimazole)	✓
4 Way Lens Lubric (Oxymetazoline Hydrochloride)	✓
4-Way Vaginal Lubricating Gel (Medium Ethanol)	✓
6-Stop (Dabigatran)	✓
6-14 Protein (Dapagliflozin)	✓
6-Hydrocort (Hydrocortisone Sodium Succinate)	✓
6-Methopred (Methylprednisolone Sodium Succinate)	✓
6-Spas 6/1 (Hydroxyzine Hydrochloride)	✓
6/1/5 (Pyriminyl)	✓
6/100 Lax Control (Dexamethasone)	✓
6/100 Maximum Strength (Dexamethasone)	✓
6/100 Lax Control (Dexamethasone)	✓
6/100 Lax Control (Dexamethasone)	✓

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Content Type Wise Summary					
Sr.	Type	Average Rating	Views	Published	Unpublished
1	Assignment	4.57	899	18	7
2	E-Note	4.71	930	51	0
3	Google Class Room	0.00	0	0	0
4	Lab Manual	0.00	0	0	0
5	Online Meeting	0.00	0	0	0
6	Presentation	4.64	3180	89	0
7	Video Lecture	0.00	10	18	0
Total		1.99	5019	176	7

Course Wise Summary						
Sr.	Course Name	Assignment	E-Note	Google Class Room	Lab Manual	Online Meeting
0				0	0	0
1	Bachelor of Pharmacy	25	51			89
Total		25	51	0	0	89

Video Lecture
18
18

Department Wise Summary						
Sr.	Department Name	Assignment	E-Note	Google Class Room	Lab Manual	Online Meeting
0				0	0	0
1	Pharmacy	25	51			89
Total		25	51	0	0	89

Video Lecture
18
18

Content Type Wise Summary					
Sr.	Type	Average Rating	Views	Published	Unpublished
1	Assignment	4.83	994	18	1
2	E-Note	4.77	3540	105	0
3	Google Class Room	0.00	0	0	0
4	Lab Manual	4.75	41	1	2
5	Online Meeting	0.00	0	0	0
6	Presentation	4.80	5123	99	3
7	Video Lecture	4.94	39	14	0
Total		3.45	10137	237	6

Course Wise Summary						
Sr.	Course Name	Assignment	E-Note	Google Class Room	Lab Manual	Online Meeting
0				0		0
1	Bachelor of Pharmacy	19	105		3	102
Total		19	105	0	3	102

Video Lecture
14
14

Department Wise Summary						
Sr.	Department Name	Assignment	E-Note	Google Class Room	Lab Manual	Online Meeting
0				0		0
1	Pharmacy	19	105		3	102
Total		19	105	0	3	102

Video Lecture
14
14

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Content Type Wise Summary

Sr.	Type	Average Rating	Views	Published	Unpublished
1	Assignment	0.00	0	0	2
2	E-Note	5.00	1	1	0
3	Google Class Room	0.00	0	0	0
4	Lab Manual	0.00	0	0	0
5	Online Meeting	0.00	0	0	0
6	Presentation	0.00	0	1	0
7	Video Lecture	0.00	0	0	0
Total		0.71	1	1	2

Course Wise Summary

Sr.	Course Name	Assignment	E-Note	Google Class Room	Lab Manual	Online Meeting	Presentation
0				0	0	0	
1	M Pharm	2	3				1
Total		2	3	0	0	0	1

Video Lecture
0
0

Department Wise Summary

Sr.	Department Name	Assignment	E-Note	Google Class Room	Lab Manual	Online Meeting	Presentation
0				0	0	0	
1	Pharmacy	2	3				1
Total		2	3	0	0	0	1

Video Lecture
0
0

Content Type Wise Summary

Sr.	Type	Average Rating	Views	Published	Unpublished
1	Assignment	4.61	606	24	8
2	E-Note	4.98	674	66	1
3	Google Class Room	0.00	0	0	0
4	Lab Manual	5.00	31	1	0
5	Online Meeting	0.00	0	0	0
6	Presentation	4.88	3715	226	4
7	Video Lecture	0.00	9	27	0
Total		2.78	5035	344	13

Course Wise Summary

Sr.	Course Name	Assignment	E-Note	Google Class Room	Lab Manual	Online Meeting	Presentation
0				0		0	
1	Pharm D	32	67		1		230
Total		32	67	0	1	0	230

Video Lecture
27
27

Department Wise Summary

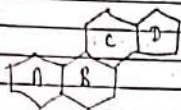
Sr.	Department Name	Assignment	E-Note	Google Class Room	Lab Manual	Online Meeting	Presentation
0				0		0	
1	Pharmacy	32	67		1		230
Total		32	67	0	1	0	230

Video Lecture
27
27

Drugs Acting on Endocrine System

Steroids are unique class of chemical compounds found widely in animal and plant kingdom.

They are characterised by the presence of 1,2 cyclopropane perhydrophenanthrene nucleus in their structure.

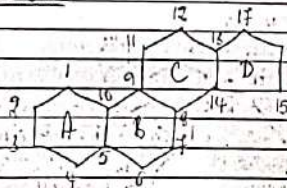


Perhydrophenanthrene (Ring A, B and C) is completely saturated derivative of phenanthrene.

Ring D is five membered cyclopentenone ring.

Steroids occur in both natural and synthetic substances such as Vitamin D, bile acids, Adrenal cortical hormone, sex hormones and Cardiac glycosides.

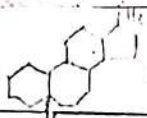
Nomenclature:



1) Steroids are large class of tetracyclic terpenes having 17 carbon atoms.

2) Additionally they have angular CH₃ group attached to C₁₀ and C₁₃, and chain at C₁₇.

3)



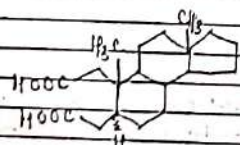
4) If any unsaturation is present in the steroid and ending is replaced by 'ene'.

2 double bonds present - diene

3 double bonds present - triene.

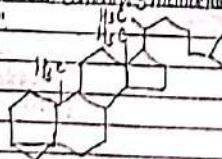
5) If any enlargement of steroid ring system indicated by the prefix 'fused' and preceded by a small capital letter indicating the ring affected.

6) If there is a ring fusion or breaking occurs, indicated by the prefix 'fused' preceded by a number of position of bond broken.



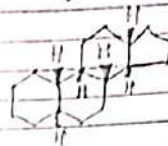
5/6 fused 5/6 - androstane - 5/6 - diol acid.

7) If steroid nucleus contains 3 membered ring, indicated by prefix 'cyclo'.



3/4 - 5/6 cyclocholestane.

3) Solid line denotes group above the plane (β-configuration)
Broken line denotes group below the plane (α-configuration)



4) Systemic name for steroids are based upon the stem name.
Hydrocarbon system

Cholestane - Steroids 27 carbon atom

Pregnane - Steroids 21 carbon atom

Androstane - Steroids 19 carbon atom

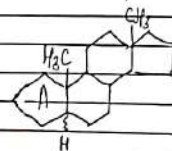
Estane - 18 carbon atom

Gonane - 17 carbon atom

5) a) If side chain doesn't contain methylene group, this is indicated by the prefix 'nor', preceded by the number of carbon atoms disappeared.

b) If the steroid nucleus doesn't contain angular methyl group this is indicated by the prefix 'nor' preceded by the number of carbon atoms in the methyl group.

c) If ring contraction occurs in the steroid nucleus, this is again indicated by the prefix preceded by a capital letter indicating ring affected. A - nor 5/13 androstane.



A - nor 5/13 androstane.

Stereochemistry:

1) Ring A, B and C six membered, Ring D five membered.

2) Any substituent shown in solid line (β, above the plane)
dotted line (α, below the plane).

3) Axial bonds are perpendicular to the plane (α)
Equatorial bonds are horizontal to the plane (β).

4) Cis and Trans used occasionally to indicate the stereochemistry of double bonds.

Eg: 5α steroid - A/B Trans

5β steroid - A/B cis

Ring A/B fusion - Cis/Trans

B/C fusion - Trans, occurs in natural steroids.

C/D fusion - Always Trans - Bile acids.

5) Six asymmetric centres are present.

C₅, C₈, C₉, C₁₀, C₁₃, C₁₄

Thus 2⁶ = 64 isomeric forms are possible.

Metabolism:

1) Metabolised by Cytochrome P-450 enzyme - CYP3A4
- P-450 introduces oxygen into the steroid ring.

2) Cholesterol CYP3A4 - Bile acids
- These bile acids can be easily eliminated.

2) Steroidal Hormones - Oxidised at 17 position
Conjugated sulfate or glucuronic acid excreted in the urine.

Sex Hormones

Sex Hormones are studied under the following headings

- 1) Androgens (Male sex hormones)
- 2) Estrogens (Female sex hormones)
- 3) Gestagens (Corpus luteum hormones)

Androgens and Anabolic Steroids

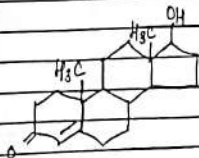
Male sex hormone produced mainly by the testes.
possess potent anabolic and androgenic properties.
Testosterone is 10 times more potent than Androstosterone.

Classification: Androgens are classified as follows.

- 1) Natural Androgens - Testosterone, Dihydrotestosterone.
- 2) Synthetic Androgens - Methyl testosterone.
- 3) Anabolic agents - Danazol, Nandrolone.

Testosterone

Required to maintain sexual function, muscle strength, bone density and fertility (Spermatogenesis).

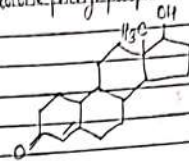


Uses: Male hypogonadism (reduction or absence of hormone secretion).

Breast Cancer, Anabolic Steroid

Nandrolone

Also known as 19-nortestosterone, it is an androgen and anabolic steroid (muscle building).
Used in the form of esters such as Nandrolone decanoate and Nandrolone phenyl propionate.



Uses: Treatment of Anaemia (↑ production of RBCs cells)
Osteoporosis (responsible for bone density)
Injection formulation (ophthalmic medication)
Breast cancer.

Female Sex Hormones

Estrogen and Progesterone are hormones produced mainly in the ovary. Estrogen are produced by developing follicle. Progesterone are produced by the corpus luteum.

Estrogens

is the primary female sex hormone. It is responsible for the development and regulation of the female reproductive system and secondary sex characteristics.

are three major naturally occurring forms of estrogen in females.

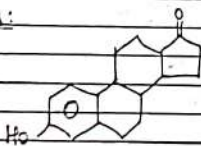
Estroene (E1), Estradiol (E2) and Estrin (E3) and another type of estrogen called Estetrol (E4) is produced only during pregnancy.

Estrogens are mainly produced in the ovary. Small amount are produced by the placenta, adrenals and testes.

Classification

- 1) Natural estrogens - Estroene, Estradiol, Estrin
- 2) Semi-synthetic estrogens - Ethinyl estradiol.
- 3) Synthetic estrogens - Stilbestrol, Dienebestrol.

Estroene



It is a steroid, a weak estrogen and minor female sex hormone. It controls uterine cycle.

It helps in the development of secondary sex characteristics by which they become different from male.

Uses: To control menopausal symptoms.

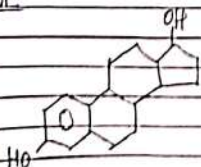
Amenorrhoea (Absence of menstrual cycle)

Dysmenorrhoea (Painful periods)

Delayed onset of puberty

Prostate cancer

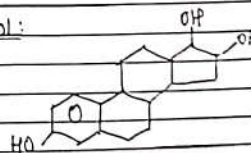
Estradiol



Primary sex hormone. Responsible for the development and regulation of female reproductive system and secondary sex characteristics.
Given generally by way of low bioavailability.

Uses: Oral contraceptive, Hormone replacement therapy.

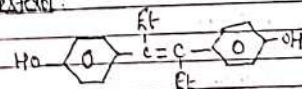
Ethinyl estradiol



Uses: Oral contraceptives

Hormonal replacement therapy in postmenopausal women.

Diethylstilbestrol



Synthetic estrogen having estrogenic activity but not having steroid nucleus.

Administered orally

It is 10 times more active than estrogen.

Uses: To treat recurrent miscarriage - pregnancy

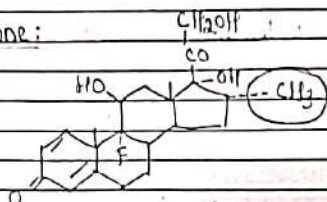
Menopausal hormone therapy

Hormone therapy for hypogonadism

Breast cancer in postmenopausal women

Prostate cancer

Dexamethasone:



Uses: Many conditions including rheumatic problem, liver allergies, asthma, COPD along with antibiotics in tuberculosis.

Thyroid and Antithyroid Drugs

Thyroid glands is situated on the thyroid cartilage in the centre of neck and in front of the trachea.

The thyroid gland secretes 3 hormones

- 1) T_4 (Thyroxine)
- 2) T_3 (Triiodo-thyroxine)
- 3) Calcitonin

The first 2 are produced by thyroid follicles, have similar biological activity and the term thyroid hormone is restricted to these only.

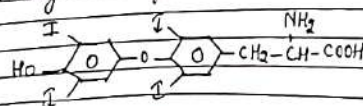
Calcitonin produced by interfollicular 'C' cells is chemically and biologically entirely different.

Uses: Replacement Therapy

Thyroid Dysfunction

- 1) Hypothyroidism in Adults - Myxedema
- 2) Hypothyroidism in children - Cretinism
- 3) Thyroiditis - Inflammation of thyroid gland.
- 4) Hyperthyroidism
- 5) Graves Disease (Goitre)

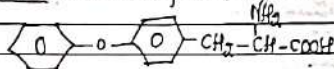
L-Thyroxine: Synthetic derivative of T_4



L-thyroxine available in form of sodium salt. obtained by thyroid gland of domesticated animals. prepared synthetically also.

Uses: Replacement Therapy
Hypothyroidism

L-Thyroxine: diiodinated form of tyrosine



Formulated as L-Thyroxine sodium.
More active than L-Thyroxine

Uses: Treatment of Metabolic insufficiency
Male infertility
Certain gynaecological disorders

Anti-Thyroid Drugs

Anti-thyroid drugs are those which are used in the treatment of hyperthyroidism.

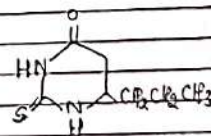
Hyperthyroidism is excessive production of thyroid hormone usually requires surgery, but before surgery the patient must be prepared by preliminary ablation of the hyperthyroidism through the use of anti-thyroid drugs.

Classification:

- 1) Thiouracil derivatives - Propylthiouracil, Methimazole
- 2) Iodic inhibitors - potassium thiocyanate, potassium perchlorate
- 3) Iodides - NaI, KI
- 4) Radioactive Iodine - ^{131}I

Thiouracil Derivatives:

Propylthiouracil:

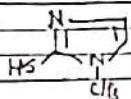


Rapid onset of action (2-3 hours) - After oral administration crosses placental barrier

Uses:

Treatment of Hyperthyroidism
In the preparation of patient for thyroid surgery

Methimazole: More potent than propylthiouracil



Uses: Treatment of Hypertension

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1) What are Anti-neoplastic agents? Classify them with Examples. Give the mechanism of action and Synthesis of Methotrexate.

Ans:- Neoplasm, cancer or tumor is defined as the growth of mass of abnormal tissue formed due to excessive autonomous and uncoordinated cell proliferation.

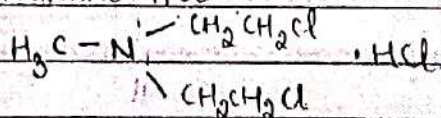
→ Anti-neoplastic agents are the drugs which are used in the treatment of cancer or neoplasm.

• CLASSIFICATION:

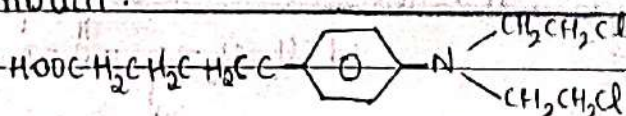
1. Alkylating agents.

a. Nitrogen mustards:-

e.g. ① Meclorothamine HCl (Mustine HCl)

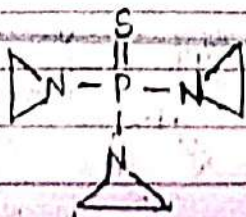


② Chlorambucil.

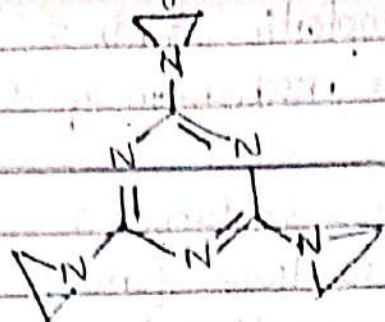


b. Ethyleneimines:-

e.g. ① Thiotepa.

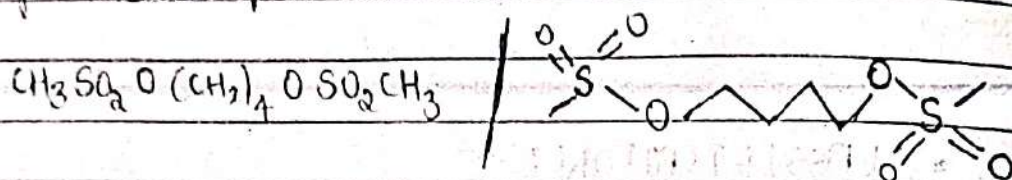


② TEM (Triethylene Melamine)



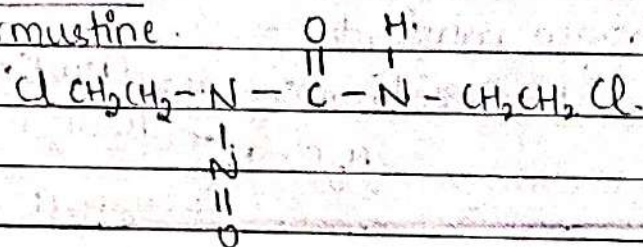
✓ Alkyl Sulfonates :-

e.g. - Busulfan :-

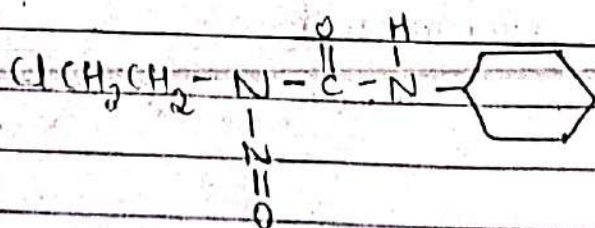


✓ Nitrosoureas :-

e.g. - ① Carmustine

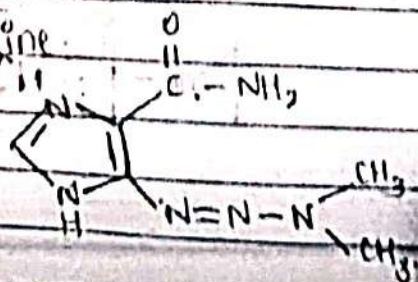


② Lomustine



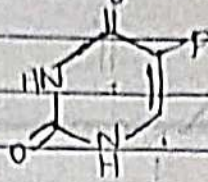
✓ Triazines :-

e.g. - ① Dacarbazine

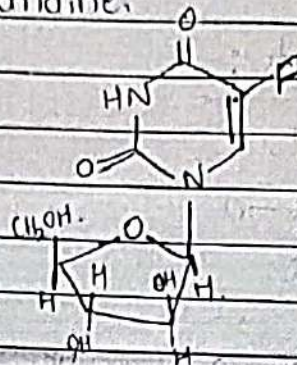


b) pyrimidine Analogs

e.g. ① 5-Fluorouracil.

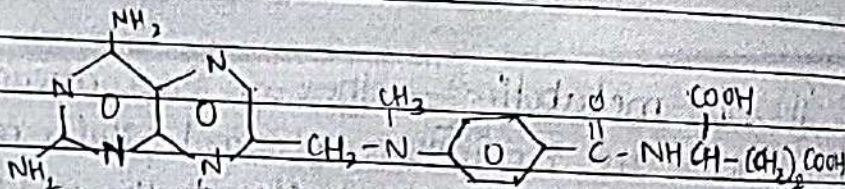


② Floxuridine.

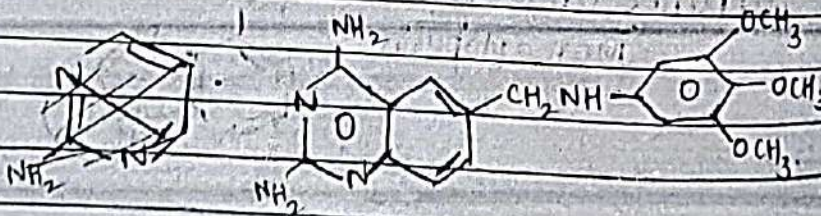


c) folic acid analogues:

e.g. ① Methotrexate.



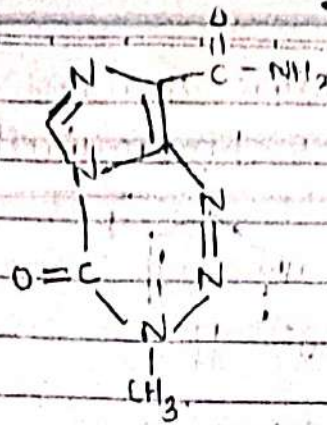
② trimethexate.





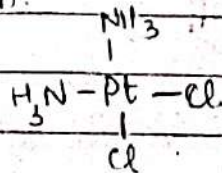
Date: _____
Page No: _____

② Temozolomide

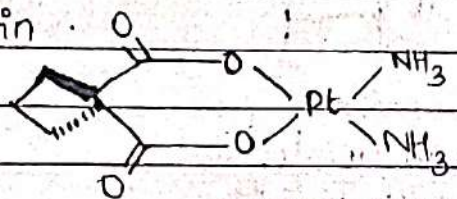


1.) platinum compounds :-

e.g. - ① cisplatin.



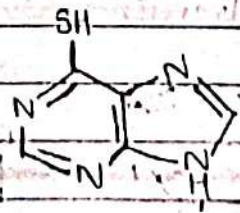
② Carboplatin



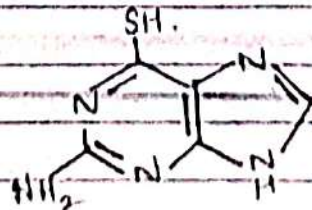
① Anti-metabolites :- These are the compounds which inhibit the biosynthesis of normal cellular metabolites. They are structurally similar to the metabolites.

a) purine analogs :-

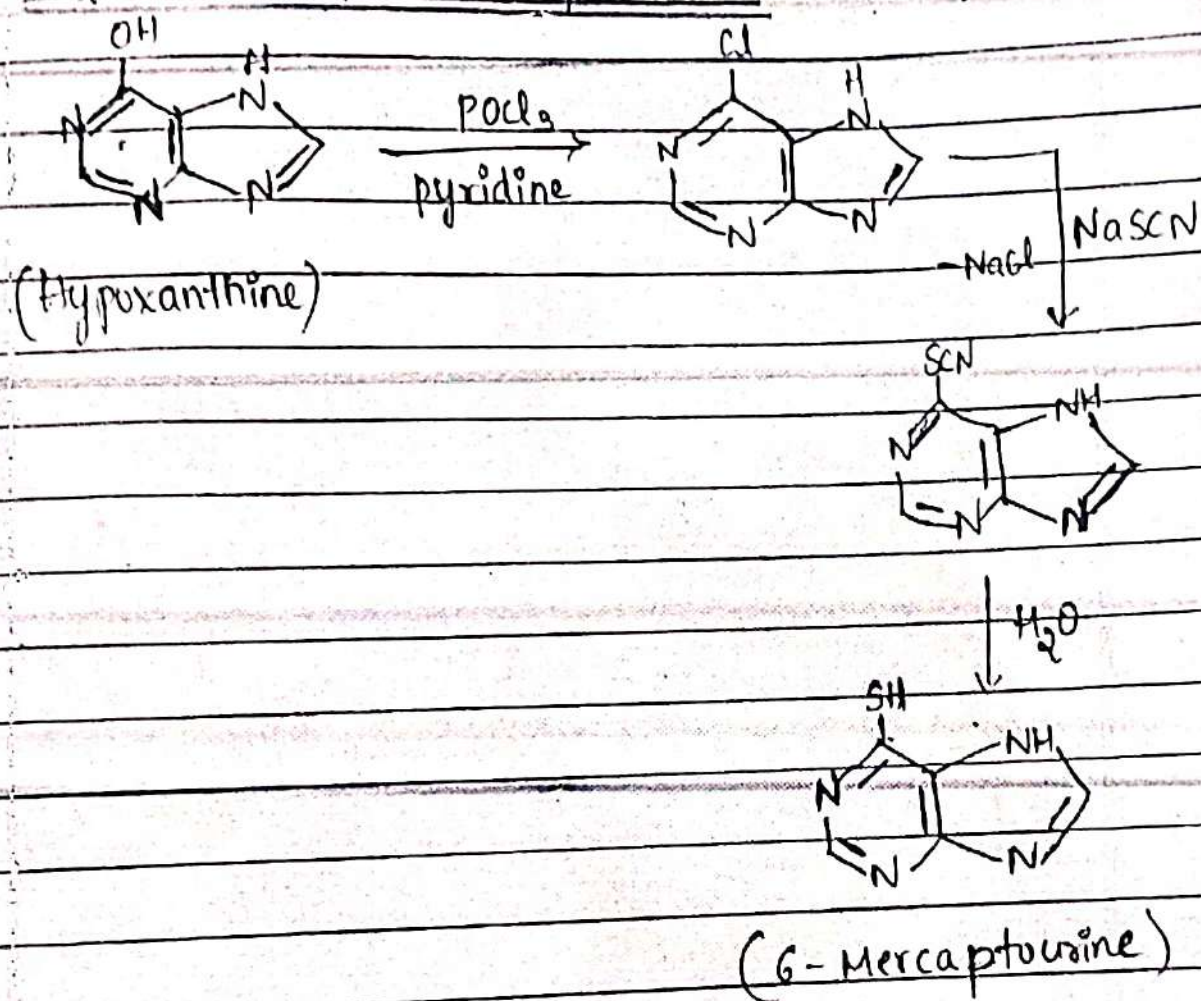
e.g. - 1) Mercaptopurine



② 6-Thioguanine



Synthesis of Mercaptourine



<i>Route</i>	<i>Absorption Mechanism(s)</i>	<i>Drugs Delivered</i>
Buccal / Sublingual	Passive diffusion, carrier-mediated transport	Nitrites and nitrates antianginals, nifedipine, morphine, fenoterol, etc.
Rectal	Passive diffusion	Aspirin, paracetamol, theophylline, few barbiturates, etc.
Transdermal	Passive diffusion	Nitroglycerine, lidocaine, scopolamine, testosterone, betamethasone, etc.
Intramuscular	Passive diffusion, endocytosis, pore transport	Phenytoin, digoxin, several steroids and antibiotics and many other drugs
Subcutaneous	Passive diffusion	Insulin, heparin, C.R. implants.
Inhalation	Passive diffusion, pore transport	salbutamol, cromolyn, beclomethasone
Intranasal	Passive diffusion, pore transport	phenylpropanolamine, antihistamines
Intraocular	Passive diffusion	Atropine, pilocarpine, adrenaline, antibiotics, etc.
Vaginal	Passive diffusion	Steroidal drugs and contraceptives, metronidazole, etc.


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PHARMACOTHERAPEUTICS ASSIGNMENT

by SRINIDHI SLJ

Submission date: 06-Dec-2023 05:35PM (UTC+0530)

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DAYANANDA SAGAR
UNIVERSITY
COLLEGE OF HEALTH SCIENCE

‘PHARMACOTHERAPEUTICS’

TOPIC: FDA APPROVED DRUGS FOR
DM AND HTN.

NAME: SRINIDHI.S.L. J

COURSE: PHARM-D

YEAR : 2ND YEAR

USN : HSC22PD0034

FDA APPROVED DRUGS FOR DIABETES
MELLITUS

1) Soliqua 100/33

CATEGORY: GLP-1 (glucagon like peptide 1)

USE: helps to increase in blood sugar levels
with TYPE II NIDDM .

MOA: insulin glargine, basal insulin analog, and
lixisenatide , GLP-1 receptor agonist are
combined .

It is specially for in diet and exercise for
improving the glycemic control type II

ADVERSE EFFECTS:

- Hypoglycemia
- Allergy
- Nausea
- Nasopharyngitis
- Respiratory tract infection

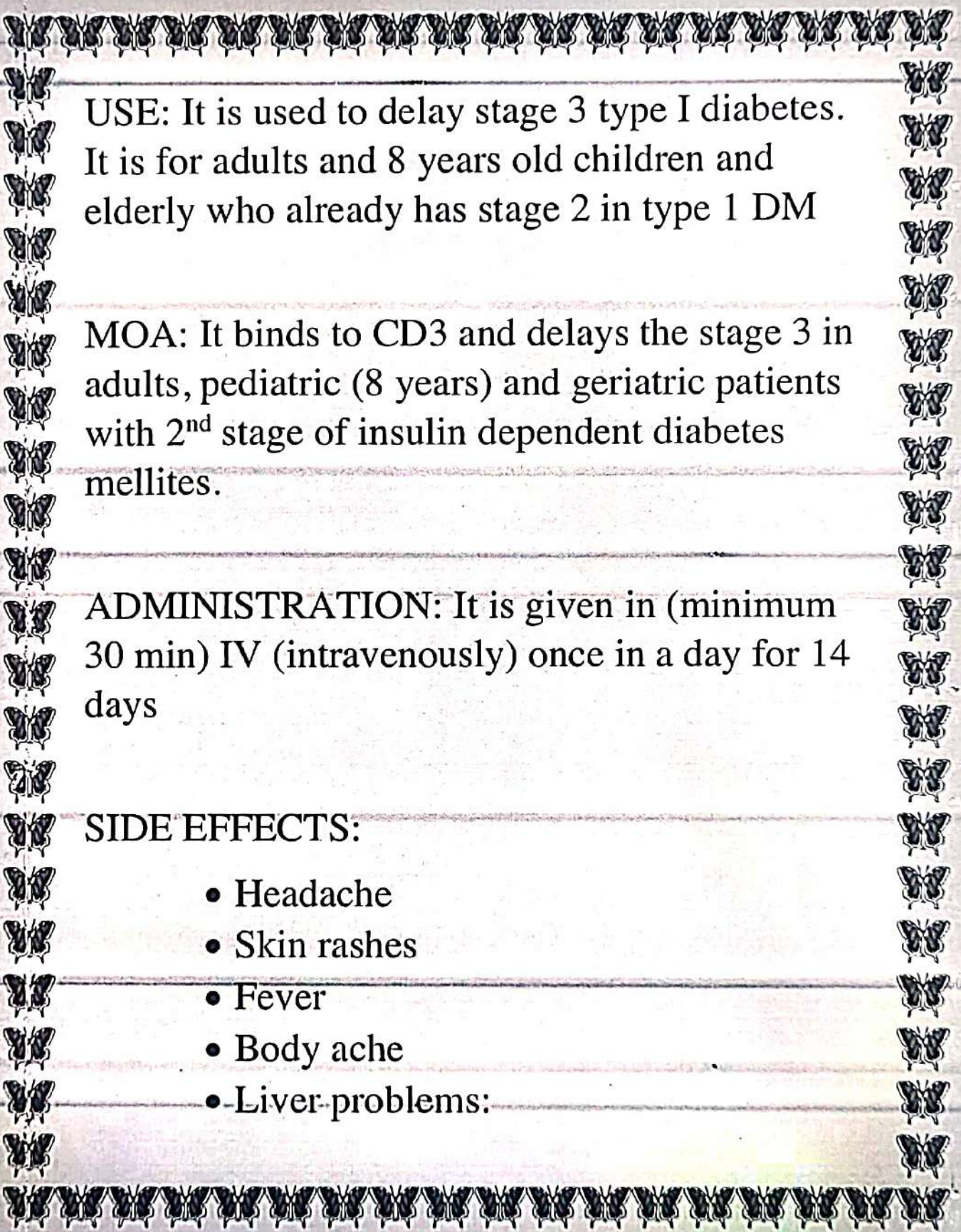
ADMINISTRATION:

By subcutaneous injection in the upper arm, abdomen or thigh.

2)Tzield (teplizumab-mzwv)

CATEGORY: monoclonal antibiotics





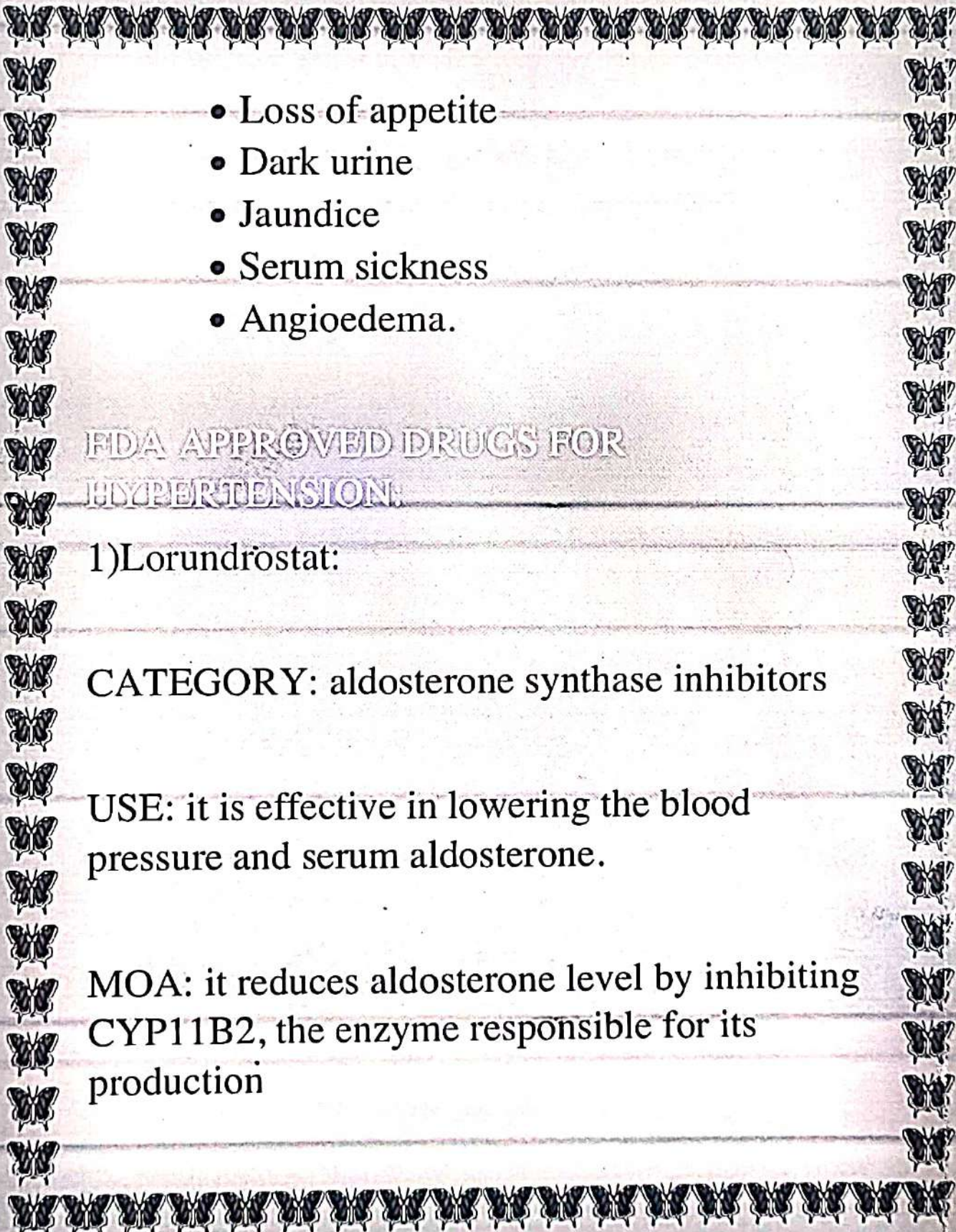
USE: It is used to delay stage 3 type I diabetes. It is for adults and 8 years old children and elderly who already has stage 2 in type 1 DM

MOA: It binds to CD3 and delays the stage 3 in adults, pediatric (8 years) and geriatric patients with 2nd stage of insulin dependent diabetes mellites.

ADMINISTRATION: It is given in (minimum 30 min) IV (intravenously) once in a day for 14 days

SIDE EFFECTS:

- Headache
- Skin rashes
- Fever
- Body ache
- Liver problems:

- 
- Loss of appetite
 - Dark urine
 - Jaundice
 - Serum sickness
 - Angioedema.

FDA APPROVED DRUGS FOR HYPERTENSION:

1) Lorundrostat:

CATEGORY: aldosterone synthase inhibitors

USE: it is effective in lowering the blood pressure and serum aldosterone.

MOA: it reduces aldosterone level by inhibiting CYP11B2, the enzyme responsible for its production

SIDE EFFECTS:

- Rise in serum potassium
- Decreased glomerular filtration rate
- Urinary tract infection

2) Cleviprex:

CATEGORY: CCBs (calcium channel blockers)

ADMINISTRATION: intravenous of 1 to 2 mg/hour.

USE: In treatment of high bp in patients who are not conscious

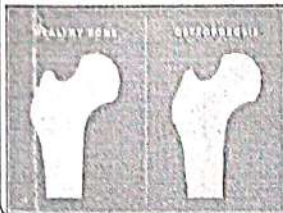


MOA: it is done by dilating the arterial smooth muscle by calcium channel blockade and it reduces systemic vascular resistance without affecting preload(diastolic).

SIDE EFFECTS:

- Nausea
- Headache
- Vomiting.

OSTEOPOROSIS



Dr. Anju Jose
Assistant Professor
Dept Of Pharmacy Practice
COPS, DSU

INTRODUCTION

- Osteoporosis is a bone disorder characterized by low bone density, impaired bone architecture & compromised bone strength predisposing to fracture.
- **Bone Mineral Density (BMD)** - A measure of the amount of minerals (mostly calcium and phosphorous) contained in a certain volume of bone. Bone mineral density measurements are used to diagnose osteoporosis (a condition marked by decreased bone mass), to see how well osteoporosis treatments are working, and to predict how likely the bones are to break.
- Osteoporosis causes bones to become weak and brittle — so brittle that a fall or even mild stresses such as bending over or coughing can cause a fracture. Osteoporosis-related fractures most commonly occur in the hip, wrist or spine.
- Osteoporosis affects men and women of all races. But white and Asian women — especially older women who are post menopause are at highest risk

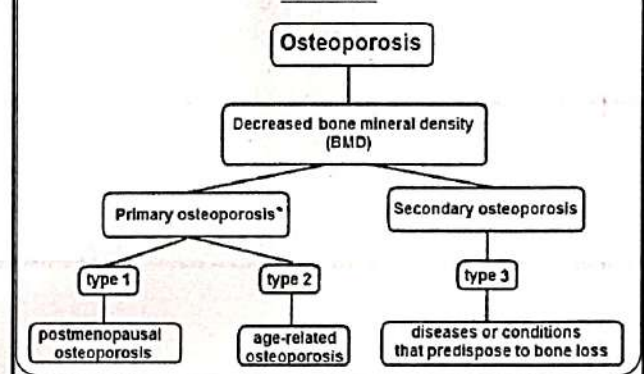
➤ Bone is a highly specialized support tissue which is characterized by its rigidity and hardness.

➤ The major functions of bone are: to provide structural support for the body, to provide protection of vital organs, to provide an environment for marrow (both blood forming and fat storage), to act as a mineral reservoir for calcium homeostasis in the body

✓ Bone is composed of:

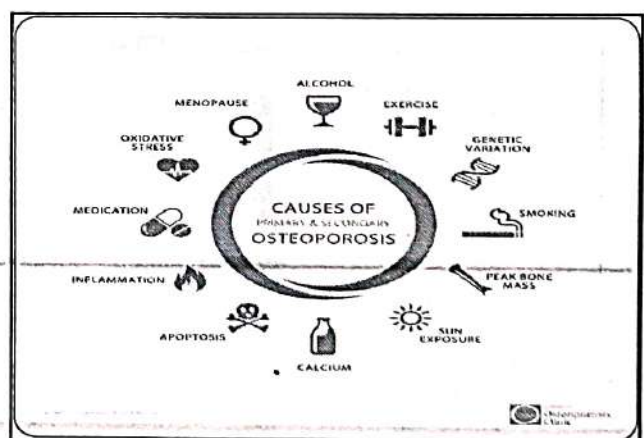
- Support cells (osteoblasts and osteocytes)
- Remodeling cells (osteoclasts)
- Non-mineral matrix of collagen and non-collagenous proteins (osteoid)
- Inorganic mineral salts deposited within the matrix.

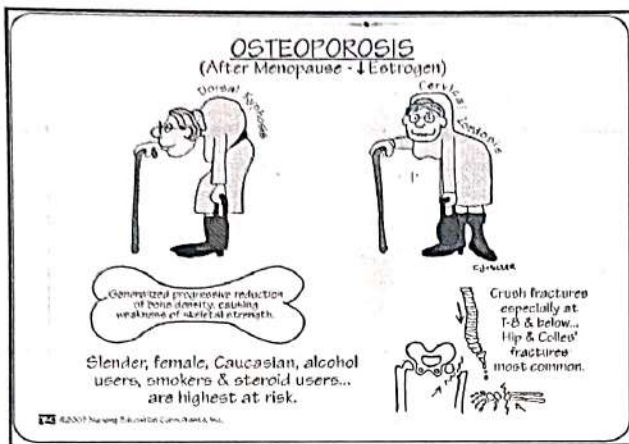
TYPES



Causes of Osteoporosis

- **Low calcium diet**
- **Lack of physical activity**
- **Family History:** If someone in your family has or had osteoporosis, you're more at risk
- **Gender:** Women are simply more likely to develop osteoporosis
- **Ethnicity:** White and Asian people are more likely to be affected by osteoporosis

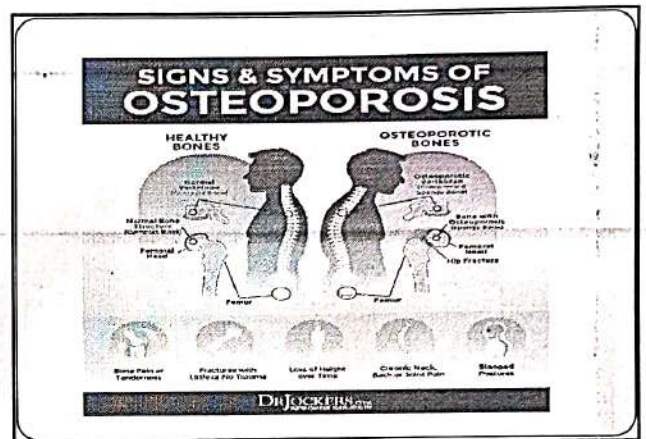
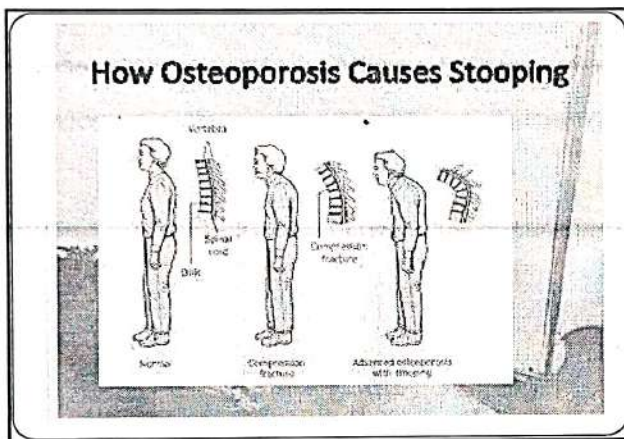




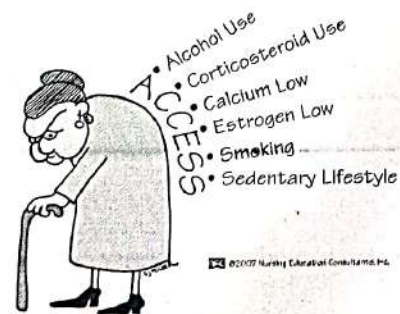
CLINICAL PRESENTATION

There typically are no symptoms in the early stages of bone loss. But once your bones have been weakened by osteoporosis, you might have signs and symptoms that include:

- Back pain, caused by a fractured or collapsed vertebra
- Loss of height over time
- A stooped posture
- A bone that breaks much more easily than expected



OSTEOPOROSIS RISK FACTORS



"Access" (leads to) Osteoporosis

BONE PHYSIOLOGY

➤ CELLS

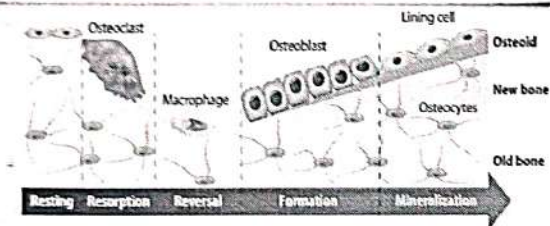
1. **OSTEOCYTES**- Are mononuclear cells in mineralized matrix
 - Under influence of PTH, participate in bone resorption and calcium ion transport.
2. **OSTEOBLASTS**- (Bone Formation Cells) Mesenchymal cells derived from marrow stromal cells.
 - Responsible for mineralization of bone matrix.
 - Responsible for secretion of type 1 collagen and large number of non collagenous bone proteins
3. **OSTEOCLASTS** - EXCLUSIVELY BONE RESORBING CELLS.
 - Appear at sites of high bone turnover.

PHASE	PHASE EVENTS
ACTIVATION	1. Pre-osteoclasts are attracted to the remodeling sites. 2. Pre-osteoclasts fuse to form multinucleated osteoclasts.
RESORPTION	3. Osteoclasts dig out a cavity, called a resorption pit, in spongy bone or burrow, a tunnel in compact bone. 4. Calcium can be released into the blood for use in various body functions. 5. Osteoclasts disappear.
REVERSAL	6. Mesenchymal stem cells, precursors to osteoblasts, appear along the burrow or pit where they 7. proliferate (increase in numbers) and differentiate (change) into pre-osteoblasts, then ...
FORMATION	8. mature into osteoblasts at the surface of the burrow or pit and ... 9. release osteoid at the site, forming a new soft nonmineralized matrix. 10. The new matrix is mineralized with calcium and phosphorus.
QUIESCENCE	11. Site, with resting lining cells, remains dormant until the next cycle.

BONE REMODELLING

- **MODELLING**- during growth, skeleton increases in size by apposition of new bone tissue on outer surface of cortex.
- **REMODELLING**- It is a cellular process of bone activity by which both cortical and cancellous bone are maintained.
- The skeleton undergoes constant remodeling throughout life. Peak bone mass is achieved by age 20 to 30 years. Involves teams of osteoclasts and osteoblasts, termed basic multicellular units (BMUs).
- Phases in remodeling are:
 1. Resorption (3 to 4 weeks)
 2. Reversal
 3. Formation (3 to 4 months)
 4. Quiescence

The bone remodelling process



PATHOPHYSIOLOGY

- Bone loss due to normal age related changes in bone remodelling as well as extrinsic and intrinsic factors that exaggerate this process.
- Bone remodelling has two primary functions: a) To repair micro damage within the skeleton to maintain skeletal strength.
b) To supply calcium from the skeleton to maintain serum calcium.
- After age 30 to 45, the resorption and formation processes become imbalanced, and resorption exceeds formation.
- Excessive bone loss can be due to an increase in osteoclastic activity.

Other reasons include: 1) Calcium deficiency

- Peak bone mass may be impaired by inadequate calcium intake, leading to increased risk of osteoporosis.
- It induce **secondary hyperparathyroidism** and an increase in the rate of remodelling to maintain normal serum calcium levels.
- 2. **Estrogens deficiency** cause bone loss by a) Activation of new bone remodelling site b) Exaggeration of the imbalance b/w bone formation and resorption
- 3) **Drug induced:** a. Glucocorticoid are the most common cause of medication induced osteoporosis b. Other medication include anticonvulsant and immunosuppressant

Pathophysiology...

Three main mechanisms :

Inadequate peak bone mass (the skeleton develops insufficient mass and strength during growth)

Excessive bone resorption

Inadequate formation of new bone during remodeling

Lack of estrogen (menopause in female) increases bone resorption

Decreasing the deposition of new bone in weight-bearing bones

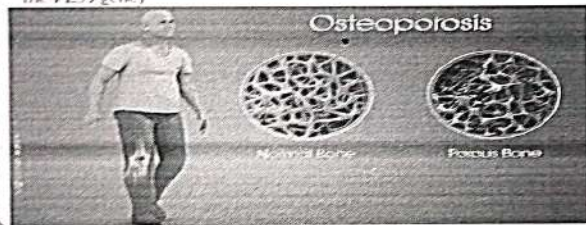
PATHOPHYSIOLOGY POSTMENOPAUSAL OSTEOPOROSIS:

- The accelerated bone loss during pre-menopause and post menopause results from enhanced resorption mainly as a result of the loss in ovarian hormone production, Estrogen.
- Estrogen deficiency increases proliferation, differentiation, and activation of new osteoclasts and prolongs survival of mature osteoclasts.
- The number of remodeling sites increases and resorption pits are deeper and inadequately filled by normal osteoblastic function.
- Trabecular bone is most susceptible leading to vertebral and wrist fractures

PATHOPHYSIOLOGY MALE OSTEOPOROSIS:

- Men are at a lower risk for developing osteoporosis and osteoporotic fractures because of larger bone size, greater peak bone mass, and fewer falls.
- Men also do not undergo a period of accelerated bone resorption similar to menopause. However, men have a higher mortality rate after fractures.
- The etiology of male osteoporosis tends to be multifactorial with secondary causes and aging being the most common contributing factors. Other factors include smoking, low body weight, long term glucocorticoid use and low testosterone concentrations.

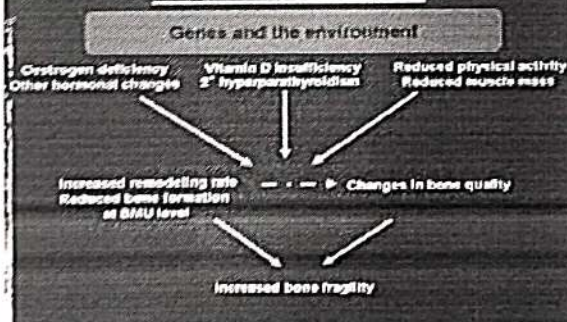
- In young and middle-age men, a secondary cause for bone loss is usually identified, with hypogonadism being the most common.
- Idiopathic osteoporosis (no known cause) can occur and is probably a result of genetic factors that have yet to be determined (mutations in the PLS3 gene)



Age-related osteoporosis: occurs mainly because of hormone, calcium, and vitamin D deficiencies leading to accelerated bone turnover and reduced osteoblast formation.

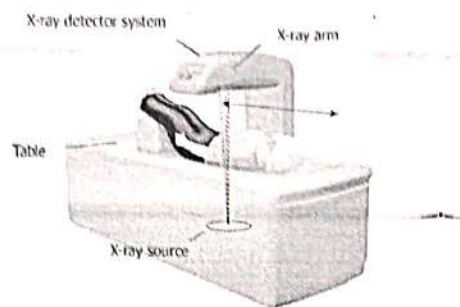
- Hip fracture risk rises dramatically in geriatrics as a consequence of the cumulative loss of cortical and trabecular bone and an increased risk for falls
- Drug-induced osteoporosis may result from systemic corticosteroids (prednisone doses greater than 7.5 mg/day), thyroid hormone replacement, some antiepileptic drugs (e.g., phenytoin, phenobarbital), and other agents.

Pathogenesis of Osteoporosis



DIAGNOSIS

- ☐ Measurement of bone mineral content
 - Dual X-ray absorptiometry (DXA)
 - Ultrasonic measurement of bone
 - CT scan
 - Radiography
- ☐ Physical examination: for osteoporosis
 - Height loss
 - Body weight
 - Kyphosis (abnormally curved spine)
 - Humped back



- Tooth loss
- Skin fold thickness
- Grip strength
- Laboratory testing: complete blood count, creatinine, blood urea nitrogen, calcium, phosphorus, alkaline phosphatase, albumin, thyroid-stimulating hormone, free testosterone, 25-hydroxyvitamin D, & 24-hour urine concentrations of calcium and phosphorus.

Table 1 WHO criteria for the diagnosis of osteoporosis using dual-energy X-ray absorptiometry

Diagnosis	T-score
Normal	T-score ≥ -1.0 SD
Low bone density	-2.5 SD < T-score < -1.0 SD
Osteoporosis	T-score ≤ -2.5 SD
Severe osteoporosis	T-score ≤ -2.5 SD with an insufficiency fracture

T-score = (measured bone mineral density - peak bone mineral density of normal Chinese young adult)/Standard deviation of peak bone mineral density of normal Chinese young adult (SD).

BMD T Score	Diagnosis
T-Score ≥ -1	Normal
T-Score -1 to -2.5	Low bone mass (Osteopenia)
T-Score ≤ -2.5	Osteoporosis

Fracture Risk Assessment tool (FRAX)

In 2008, the World Health Organization released a Fracture Risk Assessment tool (FRAX). This is available at www.shef.ac.uk/FRAX and incorporates clinical risk factors and femoral neck BMD in determining fracture risk. It estimates the 10-year probability for hip fractures and major osteoporotic fractures for an untreated person.

Non pharmacologic treatment

- Diet changes : For all individuals, a well-balanced diet with adequate calcium and vitamin D is essential for healthy bones.
- Calcium contributors - Dairy products like milk, yogurt, cheese, ice cream, cottage cheese, and fortified orange juice or soy products.
- Most vitamin D comes from sun induced skin conversion
- Vitamin D contributors - fatty fish, .
- Fruits and vegetable containing Mg is essential for healthy bone.
- Vitamin C influences collagen production, and increases osteoblast formation and survival

- Moderate protein intake is recommended.
- Caffeine and Hypophosphatemia decreases the BMD
- Social habit changes: Smoking causes bone loss and increases hip fracture risk.
- Excessive alcohol use has been associated with low BMD and subsequent fracture in some, but not all, studies.
- Malnutrition associated with alcoholism could also play a role. Alcohol use also may increase the risk of falls.
- Exercise : Long-term exercise during youth increases peak BMD
- Prevention of fall : Ambulation-assistive devices (canes and walkers) and Assistance

Osteoporosis Treatments

INITIAL STEP: Lifestyle adjustments that include a healthy diet, exercise, and good habits.



TWO LEVELS OF TREATMENT



Alternative Medicine

- Vitamin supplements
- Phytoestrogenic supplements
- Hormone-regulating supplements



Pharmaceutical Medicine

- Hormone treatments
- Bone-strengthening medications
- Intravenous medications

SheCares

TABLE 1-1 Medications Used to Prevent and Treat Osteoporosis

Drug	Brand Name	Dose	Comments
Antiresorptive Medications—Nutritional Supplements			
Calcium	None	Algebra daily dose 1.0-1.5 g (10-1500 mg/day)	Recommended total for women > 50 years: 1200 mg/day (from diet and supplements). For men > 50 years: 1500 mg/day. Supplement with vitamin D (400-800 IU/day). Avoid high-dose calcium supplements (> 1500 mg/day) as they may increase the risk of kidney stones and other adverse effects. Do not take calcium supplements with iron supplements.
Vitamin D	None	Algebra daily dose 400-800 IU (10-2000 IU/day)	Recommended total for women > 50 years: 600 IU/day. For men > 50 years: 800 IU/day. Supplement with calcium. Do not take vitamin D supplements with iron supplements.
Phytoestrogens	None	None	Phytoestrogens are plant compounds that may have estrogen-like effects. They may help reduce the risk of osteoporosis. Do not take phytoestrogens with hormone therapy.

Antiresorptive Prescription Medications

Drug	Brand Name	Dose	Comments
Calcium	None	Algebra daily dose 1.0-1.5 g (10-1500 mg/day)	Recommended total for women > 50 years: 1200 mg/day (from diet and supplements). For men > 50 years: 1500 mg/day. Supplement with vitamin D (400-800 IU/day). Avoid high-dose calcium supplements (> 1500 mg/day) as they may increase the risk of kidney stones and other adverse effects. Do not take calcium supplements with iron supplements.
Vitamin D	None	Algebra daily dose 400-800 IU (10-2000 IU/day)	Recommended total for women > 50 years: 600 IU/day. For men > 50 years: 800 IU/day. Supplement with calcium. Do not take vitamin D supplements with iron supplements.
Phytoestrogens	None	None	Phytoestrogens are plant compounds that may have estrogen-like effects. They may help reduce the risk of osteoporosis. Do not take phytoestrogens with hormone therapy.

TABLE 1-2 Medications Used to Prevent and Treat Osteoporosis (Continued)

Drug	Brand Name	Dose	Comments
BANK Ligand Inhibitors			
Denosumab	None	Injection of 120 mg subcutaneous every 6 months	Approved for the treatment of postmenopausal women with osteoporosis. Do not take denosumab with hormone therapy.
Estrogen Agonists/Antagonists and Tissue Selective Estrogen Complexes			
Raloxifene	None	60 mg orally	Approved for the treatment of postmenopausal women with osteoporosis. Do not take raloxifene with hormone therapy.
Evacumab	None	Injection of 120 mg subcutaneous every 6 months	Approved for the treatment of postmenopausal women with osteoporosis. Do not take evacumab with hormone therapy.
Teriparatide	None	Injection of 20 µg subcutaneous daily	Approved for the treatment of postmenopausal women with osteoporosis. Do not take teriparatide with hormone therapy.
Teriparatide Medications			
Teriparatide	None	Injection of 20 µg subcutaneous daily	Approved for the treatment of postmenopausal women with osteoporosis. Do not take teriparatide with hormone therapy.

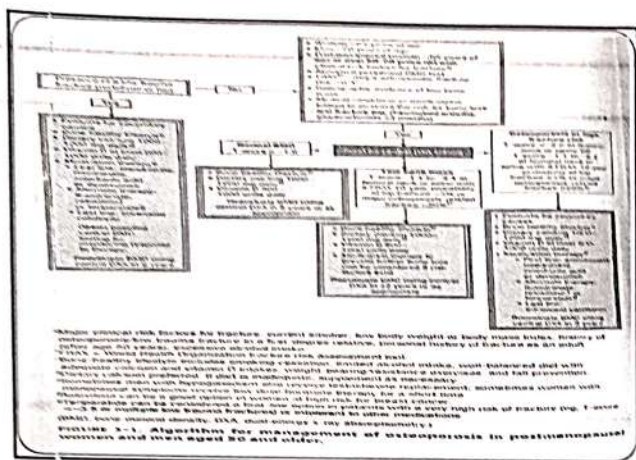
TREATMENT

ANTIRESORPTIVE THERAPY:

1. Calcium Supplementation

- Should be ingested in adequate amounts to prevent secondary hyperparathyroidism and bone destruction. Although calcium increases BMD (bone mineral density), fracture prevention is minimal. It should be combined with vitamin D and osteoporosis medications when needed.
- Calcium carbonate is the salt of choice because it contains the highest concentration of elemental calcium (40%) and is the least expensive. It should be ingested with meals to enhance absorption from increased acid secretion.
- Calcium citrate absorption is acid independent & need not be taken with meals. It may have fewer GI side effects (eg, flatulence) than calcium carbonate.

- Tricalcium phosphate contains 38% calcium, but calcium-phosphate complexes could limit overall calcium absorption. It might be helpful in patients with hypophosphatemia that cannot be resolved with increased dietary intake.
- Constipation is the most common adverse reaction; treat with increased water intake, dietary fiber (given separately from calcium), and exercise. Calcium carbonate can sometimes cause flatulence or upset stomach.
- Calcium can decrease the oral absorption of some drugs including iron, tetracyclines, quinolones, bisphosphonates & thyroid supplements.



Vitamin D Supplementation:

- Vitamin D supplementation maximizes intestinal calcium absorption and BMD; it may also reduce fractures and falls.
- Supplementation is usually provided with daily nonprescription cholecalciferol (vitamin D3) products. Higher-dose prescription ergocalciferol (vitamin D2) regimens given weekly, monthly, or quarterly may be used for replacement and maintenance therapy.
- The recommended dietary allowances should be achieved through food and supplementation with a goal to maintain the 25 (OH) vitamin D concentration at 30 ng/mL (75 nmol/L) or higher.
- Because the half-life of vitamin D is about 1 month, recheck the vitamin D concentration after about 3 months of therapy.

DAILY CALCIUM & VITAMIN D RECOMMENDED

GROUP/AGE	ELEMENTAL CALCIUM (mg)	VITAMIN D (UNITS)
Infants		
Birth to 6 months	200	400
6-12 months	260	400
Children		
1-3 years	700	600
4-8 years	1000	600
9-13 years	1300	600
Adults		
19-50 yrs	1000	600
51-70 years (men)	1000	600
51-70 yr (women)	1200	600
>70 years	1200	800

Bisphosphonates

- Bisphosphonates mimic pyrophosphate, an endogenous bone resorption inhibitor. There is a decrease in osteoclast maturation, number, and life span.
- Of the antiresorptive agents available, bisphosphonates provide some of the higher BMD increases and fracture risk reductions.
- BMD increases are dose dependent and greatest in the first 12 months of therapy. After discontinuation, the increased BMD is sustained for a prolonged period that varies per bisphosphonate.
- Alendronate, risedronate, and IV zoledronic acid are Food and Drug Administration (FDA)-indicated for postmenopausal, male, and glucocorticoid-induced osteoporosis.

- IV and oral ibandronate are indicated only for postmenopausal osteoporosis.
- Bisphosphonates must be administered carefully to optimize clinical benefit and minimize adverse GI effects. Each oral tablet should be taken in the morning with at least 6 oz of plain water (not coffee, juice, or milk) at least 30 minutes (60 minutes for oral ibandronate) before consuming any food, supplement, or medication.
- An exception is delayed-release risedronate, which is administered immediately after breakfast with at least 4 oz of plain water.
- The patient should remain upright (sitting or standing) for at least 30

minutes after Alendronate and Risedronate & 1 hour after Ibandronate administration to prevent esophageal irritation and ulceration.

- If a patient misses a weekly dose, it can be taken the next day. If more than 1 day has elapsed, that dose is skipped until the next scheduled ingestion. Never take 2 tablets on the same day.
- ADR: nausea, abdominal pain, and dyspepsia. Esophageal, gastric, or duodenal irritation, perforation, ulceration, or bleeding. Adverse effects of IV bisphosphonates include fever, flu-like symptoms, and local injection-site reactions.
- Rare adverse effects: Osteonecrosis of the jaw occurs (ONJ) & subtrochanteric femoral (atypical) fractures. ONJ occurs more commonly in patients with cancer, chemotherapy, radiation, and glucocorticoid therapy receiving higher-dose IV bisphosphonate therapy.

Denosumab (RANK ligand inhibitor)

- Denosumab is a fully human monoclonal antibody that binds to RANKL, blocking its ability to bind to its RANK receptor and inhibit osteoclast formation & increase osteoclast apoptosis.
- It is indicated for women & men at high risk of fracture.
- It is also approved to increase bone mass in men receiving androgen deprivation therapy for non-metastatic prostate cancer and in women receiving adjuvant aromatase inhibitor therapy for breast cancer who are at high risk for fracture.
- Administered as 120mg subcutaneous injection in upper arm, upper thigh or abdomen once every 6 months.
- Adverse reactions: back pain, arthralgia, eczema, cellulitis & infection. Osteonecrosis of jaw occur rarely.

Mixed Estrogen Agonists/Antagonists

- Raloxifene is an estrogen agonist on bone but an antagonist on the breast and uterus. It is approved for prevention and treatment of postmenopausal osteoporosis.
- MOA: Binding to estrogen receptors. This binding results in activation of estrogenic pathways (agonistic effects).
- Bazedoxifene is an estrogen agonist/antagonist that is combined with conjugated equine estrogens (CEE), making it a tissue-selective estrogen complex. It is approved for prevention of postmenopausal osteoporosis & vasomotor menstrual symptoms.
- Raloxifene & Bazedoxifene decrease vertebral but not hip fractures.
- Hot flushes, endometrial thickening & bleeding with Raloxifene. Leg cramps & muscle spasms are common in Bazedoxifene.

Calcitonin

- Calcitonin is an endogenous hormone released from the thyroid gland when serum calcium is elevated. Salmon calcitonin is used clinically because it is more potent and longer lasting than the mammalian form.
- Calcitonin binds to osteoclasts and inhibits bone resorption.
- Calcitonin is indicated for osteoporosis treatment for women at least 5 years post menopause. It is reserved as a last-line treatment because efficacy is less robust than with other antiresorptive therapies.
- Calcitonin may provide some pain relief in patients with acute vertebral fractures. If the nasal product is used for this purpose, it should be prescribed for short-term treatment (4 weeks) & should not be used in place of other more effective and less expensive analgesics.

Testosterone

- Subcutaneous administration of 100 units daily is available but rarely used because of adverse effects and cost.
- Testosterone is not FDA approved for the prevention or treatment of osteoporosis.
- No fracture data are available, but some data support minor bone loss prevention for testosterone use in men & women.

Hormone therapies

- Hormone therapies are not recommended solely for osteoporosis but have positive bone effects when used for the indication.
- Estrogens are FDA-indicated for prevention of osteoporosis in women at significant risk & for whom other osteoporosis medications cannot be used.
- Estrogens are an option for women in early menopause when positive bone effects are needed in addition to vasomotor symptom reduction.
- Estrogen with or without a progestogen significantly decrease fracture risk & bone loss in women.
- Effect on BMD is dose dependent, with some benefit seen with lower estrogen doses. When estrogen therapy is discontinued, bone loss accelerates & fracture protection is lost.

❖ ANABOLIC THERAPY

Teriparatide

- Teriparatide is a recombinant product representing the first 34 amino acids in human parathyroid hormone. Teriparatide increases bone formation, the bone remodeling rate, and osteoblast number and activity.
- Teriparatide is indicated for postmenopausal women at high risk for fracture, men with idiopathic or hypogonadal osteoporosis at high fracture risk, for men or women intolerant to other osteoporosis medications, and for patients with glucocorticoid-induced osteoporosis.

- The drug reduces fracture risk in postmenopausal women, but no fracture data are available in men or for patients taking corticosteroids.
- Discontinuation of therapy results in decreased BMD. **Due to concern over osteosarcoma, teriparatide is approved for use for only up to 2 years.**
- The teriparatide dose is 20 mcg subcutaneously once daily in the thigh or abdomen for up to 2 years.
- Each prefilled 3-mL pen device delivers a 20-mcg dose each day for up to 28 days; keep the pen device refrigerated.
- Transient hypercalcemia rarely occurs. **Teriparatide is contraindicated in patients at increased risk for osteosarcoma**

GLUCOCORTICOID-INDUCED OSTEOPOROSIS

- **Glucocorticoids decrease bone formation** through decreased proliferation and differentiation, and enhanced apoptosis of osteoblasts. **They also increase bone resorption**, decrease calcium absorption, increase renal calcium excretion.
- Bone losses are rapid, with up to 12%- 15% loss over the 1st yr, the greater decrease occurs in the 1st 6 months of therapy. Bone loss is about 2%- 3% per year after the 1st year.
- Measure baseline BMD, using central DXA for all patients starting on prednisone 5 mg or more daily (or equivalent) for at least 6 months.

- All patients starting or receiving long-term systemic glucocorticoid therapy should receive at least 1200 to 1,500 mg elemental calcium and 800 to 1,200 units of vitamin D daily and practice a bone-healthy lifestyle.
- **Alendronate, Risedronate, Zoledronic acid & Teriparatide** are FDA approved for glucocorticoid-induced osteoporosis.
- Standard osteoporosis therapy doses are used. **Raloxifene & denosumab do not have FDA indications** but have some clinical data documenting decreased bone loss.

EVALUATION OF THERAPEUTIC OUTCOMES

- To evaluate efficacy, obtain a central DXA BMD measurement 2 years after initiating medication therapy. Central DXAs are repeated every 2 years until BMD is stable, at which time the reassessment interval can be expanded. More frequent monitoring may be warranted in patients with conditions associated with high rates of bone loss (eg, glucocorticoid use).
- Assess medication adherence and tolerance at each visit.
- Ask patients about possible fracture symptoms (eg, bone pain or disability) at each visit. Assessment of fracture, back pain, and height loss can help identify worsening osteoporosis.



Dayananda Sagar
University Bangalore

Methods to enhance the dissolution rates and bioavailability of Poorly water-soluble drugs.

Dr. Arfa Nasrine, M.Pharm, Ph.D.
Assistant Professor, COFS, Dayananda Sagar University

Bioavailability

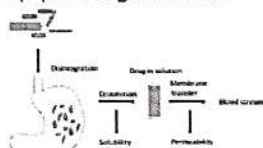
- It is defined as the rate and extent amount of absorption of unchanged drug from dosage form.

Bioavailability



Enhancement of Bioavailability

- As far as the bioavailability is concerned, a drug with poor bioavailability is the one with:
- Poor aqueous solubility or slow dissolution rate in biological fluid.
- Poor permeability through the bio membrane owing to inadequate partition coefficient or lipophilicity or large molecular size such as that of protein or peptide drug like Insulin.



Biopharmaceutics classification system (BCS)

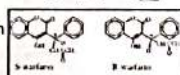
Class	Solubility	Permeability	Absorption Potential	Examples
1	High	High	Well absorbed	Diltiazem, Propranolol, Metoprolol
2	Low	High	Variable	Nifedipine, Carbamazepine, Naproxen
3	High	Low	Variable	Insulin, Metformin, Cimetidine
4	Low	Low	Poorly absorbed	Taxol, Chlorothalidate, Furosemide

Approaches used in overcoming Bioavailability Problems:

- The pharmaceutical Approach



- The pharmacokinetic Approach



- The biological Approach



Methods of enhancing bioavailability (The Pharmaceutical Approach)

- Enhancement of drug solubility or dissolution rate
- Enhancement of drug permeability
- Enhancement of drug stability
- Enhancement of gastrointestinal retentions.



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Enhancement of Drug stability or dissolution rate

1. Micronization
2. Nano suspension
3. Supercritical fluid process
4. Spray freezing into liquid (SFL)
5. Evaporative precipitation into aqueous solution (EPAS)
6. Use of surfactant
7. Use of salt forms
8. Use of precipitation inhibitors
9. Alteration of pH of drug microenvironment
10. Use of amorphs, anhydrides, solvates & metastable polymorphs
11. Solvent deposition
12. Precipitation
13. Selective absorption on insoluble carriers
14. Solid solutions
15. Eutectic mixture
16. Solid dispersions
17. Molecular encapsulation with cyclodextrins



1) MICRONIZATION

- Reduce the size of solid drug particle to 1-10 microns. It is also called as micro milling
- Particle size is reduced by Spray drying or by use of air attrition methods (fluid energy or jet mill). Ex: Gersonden and several steroidal and sulpho drugs



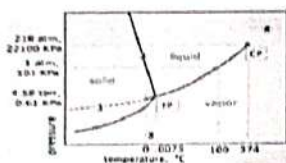
2) NANONIZATION

- The drug powder is converted to nano crystals of sizes 200-650nm. E.g. amphotericin B (Dispersion of drug nano crystals in a liquid (water) called as nano suspension)
- There are 3 technologies used to prepare nano particles:
 - 1) Pearl milling
 - 2) Homogenization in water (wet milling as in a solid mill)
 - 3) Homogenization in non aqueous media or in water with water miscible liquids



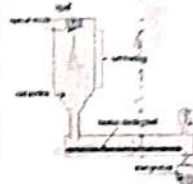
3) SUPERCRITICAL FLUID RECRYSTALLIZATION :

- Supercritical fluids are fluids whose temperature & pressure are greater than its critical temperature (T_c) & critical pressure (P_c), allowing it to assume the properties of both a liquid and gas
- At near critical temperatures, SCFs are highly compressible, allowing moderate changes in pressure to greatly alter the density & mass transport characteristics of a fluid that largely determine its solvent power
- Once the drug particles are solubilized within SCF, they may be recrystallized at greatly reduced particle sizes



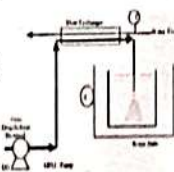
4) SPRAY FREEZING INTO LIQUID (SFL) :

- This technique involves atomizing an aqueous, organic, aqueous-organic cosolvent solution, aqueous-organic emulsion or suspension containing a drug & pharmaceutical excipients directly into a compressed gas (CO₂, helium, propane, ethane) or the cryogenic liquids (nitrogen, argon or hydrofluoroethers)
- The frozen particles are then lyophilized to obtain dry and free flowing micronized powders. Use of acetone/nitrate as the solvent increases drug loading & decreases the drying time for lyophilization.
- The dissolution rate is remarkably enhanced from the SFL powder containing amorphous nanostructured aggregates with high surface area & excellent wettability.



5) EVAPORATIVE PRECIPITATION INTO AQUEOUS SOLUTION (EPAS):

- The EPAS process utilizes rapid phase separation to nucleate & grow nanoparticles & microparticles of lipophilic drugs
- The drug is first dissolved in a low boiling point organic solvent
- This solution is pumped through a tube where it is heated under pressure to a temperature above the solvent's boiling point & then sprayed through a fine atomizing nozzle into a heated aqueous solution.
- Surfactants are added to the organic solution & the aqueous solution to optimize particle formation & stabilization
- In EPAS, the surfactant migrates to the drug-water interface during particle formation and the hydrophilic segment is oriented towards the aqueous continuous phase
- The hydrophilic stabilizer on the surface inhibits crystallization of the growing particles & therefore facilitates dissolution rate



1) USE OF SURFACTANT :

- Surfactants are very useful as absorption enhancers and enhance both dissolution rate & permeability of drug
- They enhance dissolution rate primarily by promoting wetting & penetration of dissolution fluid into the solid drug particles
- They are generally used in concentration below their critical micelle concentration (CMC) values since above CMC, the drug entrapped in the micelle structure fails to partition in the dissolution fluid
- Nonionic surfactants like polysorbates, Bile salts like span, lecithins



2) USE OF SALT FORMS:

- Salts have improved solubility & dissolution characteristics in comparison to the original drug
- It is generally accepted that a minimum difference of 3 units between the pKa value of the group & that of its counter ion is required to form stable salts. E.g. alkali metal salts of acidic drugs like penicillins & strong acid salts of basic drugs like atropine



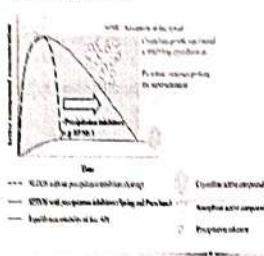
8) USE OF PRECIPITATION INHIBITORS:

➤ A significant increase in free drug concentration above equilibrium solubility results in supersaturation, which can lead to drug precipitation or crystallization.

➤ This can be prevented by use of inert polymers such as HPMC, PVP, PVA, PEG, etc. Which act by one or more mechanisms in the crystallization rate of drugs. Provide a steric barrier to drug molecules & inhibit crystallization through specific intermolecular interactions on growing crystal surfaces.

➤ Adsorb onto faces of host crystals, reduce the crystal growth rate of the host and produce smaller crystals. Increase the viscosity of crystallization medium here by reducing

Spring 2020 - 2021

**9) ALTERATION OF pH OF DRUG MICROENVIRONMENT:**

➤ Insitu salt formation

➤ Addition of buffers to the formulation

E.g. Buffered aspirin tablets.

**10) USE OF AMORPHS, ANHYDRATES, SOLVATES AND METASTABLE POLYMORPHS:**

➤ Depending upon the internal structure of the solid drug, selection of proper form of drug with greater solubility is important.

➤ In general, amorphs are more soluble than metastable polymorphs, anhydrides are more soluble than hydrates & solvates are more soluble than non-solvates.

Amorphs >	Metastable polymorphs
Anhydrides >	Hydrates
Solvates >	Non-solvates

12) F RECIPITATION:

➤ The poorly aqueous soluble drugs such as cyclosporine is dissolved in a suitable organic solvent followed by its rapid mixing with a non-solvent to effect precipitation of drug in nanosize particles.

➤ The product so prepared is also called as hydrosol.

PRECIPITATION - Hydrosol mechanism**13) SELECTIVE ADSORPTION ON INSOLUBLE CARRIERS:**

A highly active adsorbent such as the inorganic clays like bentonite can enhance the dissolution rate of poorly water soluble drugs like griseofulvin, indomethacin & prednisone by maintaining the concentration gradient at its maximum.

The two reasons suggested for the rapid release of drugs from the surface of clays are:

1. The weak physical bonding between the adsorbate & the adsorbent
2. The hydration & swelling of clay in the aqueous media

**14) SOLID SOLUTIONS OR MELTS by fusion method**

➤ A solid solute molecularly dispersed in a solid solvent

➤ Since the two components crystallize together in a homogeneous one phase system, solid solutions are also called as molecular dispersions or mixed crystals.

➤ Because of reduction in particle size to the molecular level, solid solutions show greater aqueous solubility and faster dissolution than eutectics and solid dispersion. They are generally prepared by fusion method where by a physical mixture of solute and solvent are melted together followed by rapid solidification.

➤ Such systems, prepared by fusion, are often called as Melts.

e.g. - griseofulvin + succinic acid.

**15) EUTECTIC MIXTURES:**

➤ These systems are also prepared by fusion method.

➤ A phase diagram of two-component system is shown in diagram.

➤ When the eutectic mixture is exposed to water, the soluble carrier dissolves leaving the drug in a microcrystalline state which solubilizes rapidly.

Examples of eutectics include paracetamol-urea, griseofulvin-urea, griseofulvin-succinic acid, etc.

16) SOLID DISPERSION:

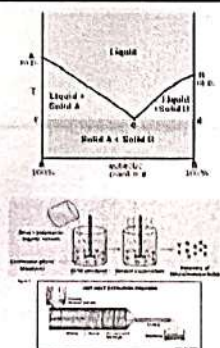
➤ The term "solid dispersions" refers to the dispersion of one or more active ingredients in an inert carrier in a solid state, frequently prepared by the

1. Hot melt method

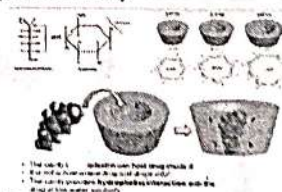
2. Solvent evaporation method

3. Hot melt extrusion method

These are generally prepared by solvent or co-precipitation method where by both the guest solute & the solid carrier solvent are dissolved in a common volatile liquid solvent such as alcohol

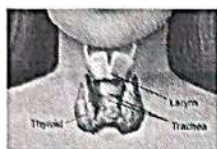
**17) MOLECULAR ENCAPSULATION WITH CYCLODEXTRINS:**

The beta- and gamma-cyclodextrins and several of their derivatives are unique in having the ability to form molecular inclusion complexes with hydrophobic drugs having poor aqueous solubility.



Thank You

Thyroid hormones & Steroids

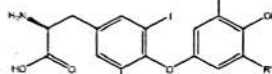


Thyroid

- The thyroid gland is an endocrine gland in the neck, consisting of two lobes connected by an isthmus. It is found at the front of the neck, below the Adam's apple.
- The thyroid gland secretes three hormones, namely the two thyroid hormones (thyroxine/T4 and triiodothyronine/T3) and calcitonin.
- The thyroid hormones primarily influence the metabolic rate and protein synthesis, but they also have many other effects, including effects on development. Calcitonin plays a role in calcium homeostasis.

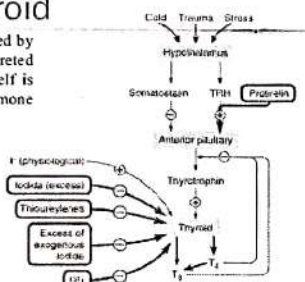
Thyroid

- Hormonal output from the thyroid is regulated by thyroid-stimulating hormone (TSH) secreted from the anterior pituitary gland, which itself is regulated by thyrotropin-releasing hormone (TRH) produced by the hypothalamus.
- T4 is converted to T3, the active form.



• S-Triiodothyronine (T3) (triiodo-L-tyrosine R: H, R' I)

• S-Thyroxine (T4) (R, R' I)



© Elsevier Ltd. Rang et al: Pharmacology SE www.studentconsult.co.uk

The main effects of T3 and T4

- Stimulating of metabolism (which results in a raised basal metabolic rate).
- Promotion of normal growth and maturation, particularly of the CNS, and skeleton.
- Sensitization to the effects of catecholamines (DA, NA, Adrenaline).

Hypothyroidism



- Lack of energy
- Weight gain
- Feeling cold
- Dry skin and hair
- Constipation
- Heavy menstrual periods

Hyperthyroidism



- Fatigue, weight loss
- Feeling hot
- Palpitations, irritability
- More bowel movements
- Shorter or lighter menstrual periods

Hypothyroidism

Hypothyroidism caused by Hashimoto's disease, an auto-immune disorder in which the thyroid is destroyed by antibodies. Hypothyroidism leads to Goiter, intellectual disability, lethargy and weight gain.



cretinism



simple goiter

Treatment of Hypothyroidism

- Hormone replacement therapy
- Administered orally with a bioavailability ranging from 48%-80%.
 - Levothyroxine—Synthetic T4
 - Liothyronine—Synthetic T3
 - Liotrix—Combination of synthetic T4 and T3
 - Natural Thyroid Hormones—Thyroid hormones derived from pigs, contains T4 and T3

Hyperthyroidism

Hyperthyroidism caused by Grave's disease, an autoimmune disorder in which antibodies serve as agonists to the TSH receptors on the thyroid's surface, causing thyroid growth and activation of hormone synthesis and secretion. Symptoms include fatigue, weight loss, rapid heart beat, anxiety, swollen eyes, and sensitivity to hot temperatures.



Grave's disease, toxic diffuse goiter, exophthalmos, emotional

Treatment of Hyperthyroidism

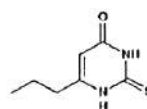
- Iodine
- Anti-thyroid drugs—Inhibits thyroid hormone synthesis by irreversibly binding to TPO inhibiting its ability to break down iodine ($I_2 \rightarrow I^-$) and covalently attach it to the tyrosine residue of thyroglobulin.
 - Propylthiouracil
 - Methimazole
 - Carbamazepine—Degraded to methimazole in the body.
- Radioactive Iodine
- Thyroidectomy
- β -Blockers used in the treatment of thyroiditis to treat symptoms.

Propylthiouracil

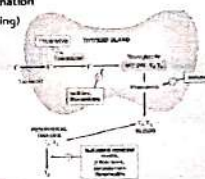
Propylthiouracil (PTU): mechanism

It inhibits PTU:

- Peroxidase/Peripheral deiodination
- Tyrosine iodination
- Union (coupling)



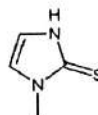
6-propyl-2-sulfanylpuridin-4-one



Propylthiouracil

- PTU inhibits the enzyme thyroperoxidase, which normally acts in thyroid hormone synthesis by oxidizing the anion iodide (I^-) to iodine (I_0), facilitating iodine's addition to tyrosine residues on the hormone precursor thyroglobulin. This is one of the essential steps in the formation of thyroxine (T_4).
- Used to treat hyperthyroidism due to Graves' disease and toxic multinodular goiter.
- In a thyrotoxic crisis (severe hyperthyroidism) it is generally more effective than methimazole.
- Common side effects include itchiness, hair loss, swelling, vomiting, muscle pains, numbness, and headache

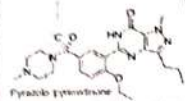
Methimazole (Thiamazole)



1-Methyl-3H-imidazole-2-thione

- MOA: Similar to propylthiouracil
- Used to treat hyperthyroidism such as in Grave's disease.
- Severe side effect: agranulocytosis (leukopenia) and liver inflammation, skin rash, itching.

Drugs for erectile dysfunction



**Sildenafil
Viagra**

Pyrazolo pyrimidine
to treat erectile dysfunction and pulmonary arterial hypertension

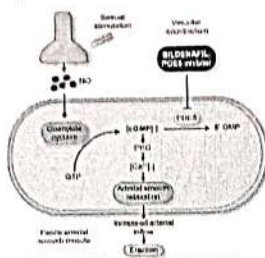
Sildenafil acts by blocking phosphodiesterase 5 (PDE5), an enzyme that promotes breakdown of cGMP, which regulates blood flow in the corpus cavernosum of the penis. Nitric oxide (NO) in the corpus cavernosum of the penis binds to guanylate cyclase receptors, which results in increased levels of cGMP, leading to smooth muscle relaxation (vasodilation) of the arterial cushions of the helicine arteries. This smooth muscle relaxation leads to vasodilation and increased inflow of blood into the spongy tissue of the penis, causing an erection.

Side effects

Headaches, heartburn, and flushed skin

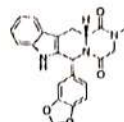
Contraindications

Concomitant use of organic nitrates and nitroglycerin



Effect originally discovered via vasodilation in 1992 while looking for a treatment for angina.

Drugs for erectile dysfunction



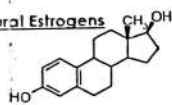
**Tadalafil
Cialis**

1,2,3,4-tetrahydro- β -carboline

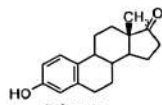
Although sildenafil, vardenafil, and tadalafil all work by inhibiting PDE5, tadalafil's pharmacologic distinction is its longer half-life (17.5 hours), compared to sildenafil and vardenafil, which are both 4–5 hours.

Female Sex Hormonal Steroids

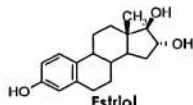
Natural Estrogens



(estr-1,3,5-triene-3,17 β -diol)

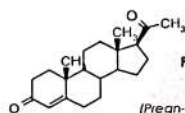


(3-hydroxy-estr-1,3,5-triene-17-one)



(estr-1,3,5-triene-3,16,17 β -triol)

Natural Progestin



Progesterone

(Pregn-4-ene-3,20-dione)

Female Sex Hormonal Steroids

Physiological Activity of Natural Estrogens

- Hormones of growth and sexual development
- Role in ovulation and pregnancy
- Role in bone density modulation (male + female)
- Role in mineral, carbohydrate, protein and lipid metabolism

Physiological Activity of Natural Progesterone

- Maintenance of Pregnancy
- Inhibition of follicular maturation and ovulation
- Prevention of spontaneous uterine contractions
- Nervous system health, and mood (feel-good hormone)

Female Sex Hormonal Steroids

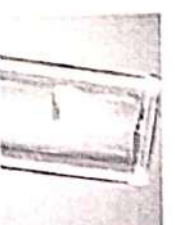
Therapeutic Uses:

- Combination oral contraceptives (block ovulation)
- Menopausal Hormone Therapy (MHT) (secondary effects of decreased hormones ... hot flashes, bone loss ...)
- Osteoporosis
- Estrogen/Progestin – dependent cancers (Prostate, breast, endometrial cancer by antagonism of ER and PR)
- Dysmenorrhea
- Infertility
- Abortifacients (induction of uterine contractions)
- Acne, hirsutism

Estrogen side effects:

- Nausea & vomiting
- Headache, migrainous headache
- Dizziness, weight gain
- Salt & water retention $\rightarrow$ $\uparrow$ BP
- $\uparrow$ risk of thromboembolism and endometrial cancer
- Teratogenic effect

DISSOLUTION



Dr. Vanaia K,
Department of Pharmaceutics,
COPS,DSU

DIFFUSION LAYER MODEL / FILM THEORY

This is the simplest and most common theory of dissolution. Here, the process of dissolution of solid particles in a liquid, in the absence of reactive or chemical forces consist of 2 consecutive steps :-

1. Solution of a solid to form thin film or layer at the solid/liquid interface called as the stagnant film or diffusion layer which is saturated with drug. This step is usually rapid.
2. Diffusion of soluble solute from the stagnant layer to the bulk of the solution. This step is slower and thus the rate determining step in drug dissolution.

According to the IUPAC, the term "dissolution" is defined as "The mixing of two phases(Solute and Solvent) with the formation of one new homogeneous phase (i.e. the solution)." (IUPAC, 1997)

- Dissolution is the process where a solute in a gaseous, liquid, or solid phase dissolves in a solvent to form a solution. (NCBI)

Several theories have been proposed to explain the drug dissolution and the important ones are :-

1. Diffusion layer model / film theory
2. Danckwerts model / penetration or surface renewal theory
3. Interfacial barrier model / double barrier or limited salvation theory

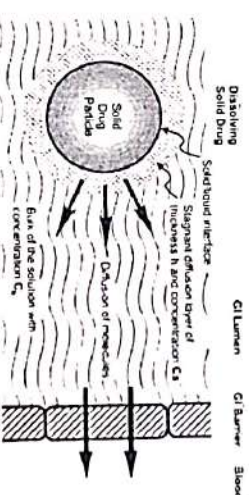


Fig. 2.16. Diffusion layer model for drug dissolution

The equation for it is given by Noyes and Whitney and it is as follows :-

$$dc/dt = k(C_s - C_b)$$

WHERE, dc/dt – dissolution rate of the drug

k = dissolution rate constant (first order)

C_s = concentration of drug in stagnant layer

C_b = concentration of drug in bulk of the solution at time t

- Danckwert did not approve of the existence of a stagnant layer instead took into account.
- Eddies or packets that are present in the agitated fluid which reach the solid liquid interface.
- Absorb the solute by diffusion and carry it into bulk of solution.
- These packets are continuously replaced by new ones and expose to new solid surface each time thus the theory is called as Surface renewal theory.

5

INTERFACIAL BARRIER MODEL

According to this barrier model, an intermediate concentration can exist at the interface as a result of solvation mechanism and is a function of solubility rather than diffusion. Such concept is given by the equation :

$$G = K_i (C_s - C_b)$$

WHERE ,

G = dissolution rate per unit area

K_i = effective interfacial transport constant

The interfacial barrier model can be extended to both diffusion layer model and the

Danckwerts model.

7

- Since the solvent packets are exposed to new solid surface each time, the theory is called as surface renewal theory.

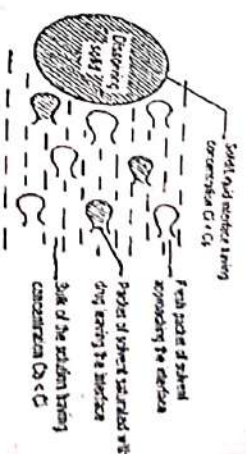
The Danckwert's model is expressed by equation :

$$V \frac{dC}{dt} = \frac{dm}{dt} = A(C_s - C_b) \sqrt{\gamma D}$$

Where,

M = mass of solid dissolved.

γ = rate of surface renewal.



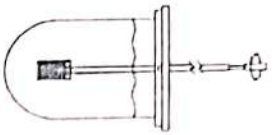
6

Compendial Dissolution Apparatus Types and Their Applications

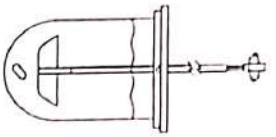
Apparatus	Name	Drug Formulation Tested
Apparatus 1	Rotating basket	Conventional tablets, chewable tablets, controlled-release
Apparatus 2	Rotating paddle	Tablets, orally disintegrating tablets, capsules, controlled release products, suspensions
Apparatus 3	Reciprocating cylinder	Controlled-release formulation chewable tablets
Apparatus 4	Flow-through cell	Formulations containing poorly soluble drugs, powders and granules, microparticles, implants
Apparatus 5	Paddle over disc	Transdermal formulation

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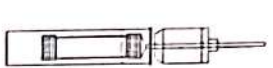
Compendial Dissolution Apparatus Types



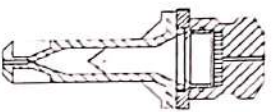
Basket
Ph. Eur. 2.9.3
USP App. 1.7.11.



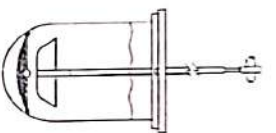
Paddle
Ph. Eur. 2.9.3
USP App. 2.7.11.



Reciprocating Cylinder
Ph. Eur. 2.9.3
USP App. 3.7.11.



Flow-Through Cell
Ph. Eur. 2.9.3
USP App. 4.7.11.



Paddle Over Disk
Ph. Eur. 2.9.4
USP App. 5.7.24.

Promoting rational use of medicines: core components

September 2002
World Health Organization
Geneva

Definition of rational use of medicines

Patients receive medications appropriate to their clinical needs, in doses that meet their own individual requirements, for an adequate period of time, and at the lowest cost to them and their community." (WHO, 1985).

The problem of irrational use

Irrational or non-rational use is the use of medicines in a way that is not compliant with rational use as defined above. Worldwide more than 50% of all medicines are prescribed, dispensed, or sold inappropriately, while 50% of patients fail to take them correctly. Moreover, about one-third of the world's population lacks access to essential medicines. Common types of irrational medicine use are:

- the use of too many medicines per patient (poly-pharmacy);
- inappropriate use of antimicrobials, often in inadequate dosage, for non-bacterial infections;
- over-use of injections when oral formulations would be more appropriate;
- failure to prescribe in accordance with clinical guidelines;
- inappropriate self-medication, often of prescription-only medicines.

Lack of access to medicines and inappropriate doses result in serious morbidity and mortality, particularly for childhood infections and chronic diseases, such as hypertension, diabetes, epilepsy and mental disorders. Inappropriate use and over-use of medicines waste resources – often out-of-pocket payments by patients – and result in significant patient harm in terms of poor patient outcomes and adverse drug reactions. Furthermore, over-use of antimicrobials is leading to increased antimicrobial resistance and non-sterile injections to the transmission of hepatitis, HIV/AIDS and other blood-borne diseases. Finally, irrational over-use of medicines can stimulate inappropriate patient demand, and lead to reduced access and often, once rates due to medicine stock-outs and loss of patient confidence in the health system.

Assessing the problem of irrational use

To address irrational use of medicines, prescribing, dispensing and patient use should be regularly monitored in terms of:

- the types of irrational use, so that strategies can be targeted towards changing specific problems;
- the amount of irrational use, so that the size of the problem is known and the impact of the strategies can be monitored;
- the reasons why medicines are used irrationally, so that appropriate, effective and feasible strategies can be chosen. People often have very rational reasons for using medicines irrationally. Causes of irrational use include lack of knowledge, skills or independent information, unrestricted availability of medicines, overwork of health personnel, inappropriate promotion of medicines and profit motives from selling medicines.

There are several well-established methods to measure the type and degree of irrational use. Aggregate medicine (drug) consumption data can be used to identify expensive medicines of lower efficacy or to compare actual consumption versus expected consumption (from morbidity data). Anatomical Therapeutic Classification (ATC)/Defined Daily Dose (DDD) methodology can be used to compare drug consumption among institutions, regions and countries. WHO drug use indicators (Box 1) can be used to identify general prescribing and quality of care problems of primary health care facilities.

Focused drug use evaluation (drug utilization review) can be done to identify problems concerning the use of specific medicines or the treatment of specific diseases, particularly in hospitals. The qualitative methods employed in social science, (e.g. focus group discussion, in-depth interviews, structured observation and structured questionnaires), can be used to investigate the motives underlying irrational use. The data collected can then be used to design appropriate interventions and to measure the impact of those interventions on medicine use.

WHO, with partners, runs several international courses on how to measure medicine use and



Box 1 Selected WHO/INRUD* drug use indicators for primary health care facilities (WHO, 1993)

- Prescribing indicators:**
- Average number of medicines prescribed per patient encounter
 - % medicines prescribed by generic name
 - % encounters with an antibiotic prescribed
 - % encounters with an injection prescribed
 - % medicines prescribed from essential medicines list or formulary
- Patient Care indicators:**
- Average consultation time
 - Average dispensing time
 - % medicines actually dispensed
 - % medicines adequately labelled
 - % patients with knowledge of correct doses
- Facility Indicators:**
- Availability of essential medicines list or formulary to practitioners
 - Availability of clinical guidelines
 - % key medicines available
- Complementary Drug Use Indicators:**
- Average medicine cost per encounter
 - % prescriptions in accordance with clinical guidelines
- * International Network for the Rational Use of Drugs

Implement interventions to promote more rational use of medicines (Box 2).

Working towards rational use of medicines

A major step towards rational use of medicines was taken in 1977, when WHO established the 1st Model List of Essential Medicines to assist countries in formulating their own national lists. The present definition of rational use was agreed at an international conference in Kenya in 1985. In 1989, the International Network for the Rational Use of Drugs (INRUD) was formed to conduct multi-disciplinary intervention research projects to promote more rational use of medicines (email: inrud@msh.org website: <http://www.msh.org/inrud>). Following this, the WHO/INRUD indicators to investigate drug use in primary health care facilities were developed and many intervention studies conducted. A review of all the published intervention studies with adequate study design was presented at the 1st International Conference for Improving the Use of Medicines (CIUM) in Thailand in 1997. Box 3 shows a summary of the magnitude of prescribing improvement by type of intervention. The effect varied with intervention type, printed materials alone having little impact compared to the greater effects associated with supervision, audit, group process and community care management. Furthermore, the effects

Box 2 Training courses related to the rational use of medicines

For further details email: medpolicy@who.int or visit the WHO medicines website <http://www.who.int/meds-res/>

- Promoting the rational use of drugs (medicines), in collaboration with the International Network for the Rational Use of Drugs (INRUD) coordinated by Management Sciences for Health, USA. This course teaches the investigation of medicine use in the community, and how to promote rational use of medicines by consumers.
- Promoting rational drug (medicine) use in the community, in collaboration with the University of Amsterdam, The Netherlands. This course teaches the investigation of medicine use in the community, and how to promote rational use of medicines by consumers.
- Drugs and therapeutics committees, in collaboration with the Rational Pharmaceutical Programme coordinated by Management Sciences for Health, USA. This course teaches methods for evaluating medicine utilization and how to promote rational use of medicines in hospitals and districts.
- Problem-based pharmacotherapy teaching, in collaboration with Groningen University, The Netherlands, the University of Cape Town, South Africa, the University of La Plata, Argentina (in Spanish) and the National Centre for Pharmacovigilance, Ministry of Health, Algiers, Algeria (in French). This course teaches a problem-based approach to rational prescribing based on WHO's Guide to Good Prescribing.
- Pharmacoeconomics, in collaboration with the University of Newcastle, Australia. This course teaches how to do economic evaluation in medicine selection.
- Drug (medicine) policy issues for developing countries, in collaboration with Boston University, USA. This course teaches about general medicine policy including aspects relating to promoting more rational use of medicines.
- ATC/DDD methodology for medicine consumption, in collaboration with the WHO Collaborating Centre for Drug Statistics Methodology. This course provides an introduction to the application of ATC/DDD methodology in measuring medicine consumption.

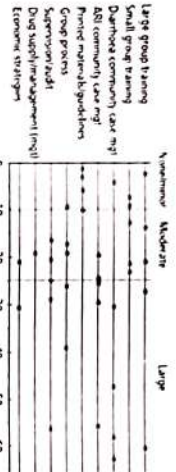
of training were variable and often unsustained, possibly due to differences in training quality and the presence or absence of follow-up and supervision.

Core policies to promote more rational use of medicines

Although many gaps remain in our knowledge, a summary of what is known concerning core policies, strategies and interventions to promote more rational use of medicines is presented in the following sections and summarized in Box 4.



Box 3 Review of 30 studies in developing countries site of drug use improvements with different interventions



Adapted from: Essamy, Drug Monitor, 1997. Allsource Reporting System

Box 4 Twelve core interventions to promote more rational use of medicines

1. A mandated multi-disciplinary national body to coordinate medicine use policies
2. Clinical guidelines
3. Essential medicines list based on treatments of choice
4. Drugs and therapeutics committees in districts and hospitals
5. Problem-based pharmacotherapy training in undergraduate curricula
6. Continuing in-service medical education as a licensure requirement
7. Supervision, audit and feedback
8. Independent information on medicines
9. Public education about medicines
10. Avoidance of perverse financial incentives
11. Appropriate and enforced regulation
12. Sufficient government expenditure to ensure availability of medicines and staff

1. A mandated multi-disciplinary national body to coordinate medicine use policies

Many societal and health system factors, as well as professionals and many others, contribute to how medicines are used. Therefore, a multi-disciplinary approach is needed to develop, implement and evaluate interventions to promote more rational use of medicines. A national regulatory authority (RA) is the agency that develops and implements most of the legislation and regulation on pharmaceuticals. Ensuring rational use will require many additional activities which will need coordination with many stakeholders. Thus a national body is needed to coordinate policy and strategies at national level, in both the public and private sectors. The term this body takes may vary with the country, but in all cases it should involve government (ministry of health), the health professions, academia, the RA, pharmaceutical industry, consumer groups and non-governmental organizations involved in health care. The impact

on medicine use is better if many interventions are implemented together in a coordinated way, single interventions often having little impact.

2. Clinical guidelines

Clinical guidelines (standard treatment guidelines, prescribing policies) consist of systematically developed statements to help prescribers make decisions about appropriate treatments for specific clinical conditions. Evidence-based clinical guidelines are critical to promoting rational use of medicines. Firstly, they provide a benchmark of satisfactory diagnosis and treatment against which comparison of actual treatments can be made. Secondly, they are a proven way to promote more rational use of medicines provided they are: (1) developed in a participatory way involving end-users; (2) easy to read; (3) introduced with an official launch, training and wide dissemination; and (4) reinforced by prescription audit and feedback. Guidelines should be developed for each level of care (ranging from paramedical staff in primary health care clinics to specialist doctors in tertiary referral hospitals), based on prevalent clinical conditions and the skills of available prescribers. Evidence-based treatment recommendations and regular updating help to ensure credibility and acceptance of the guidelines by practitioners. Sufficient resources are needed to reimburse all those who contribute to the guidelines, and to cover the costs of printing, dissemination and training.

3. Essential Medicines List based on treatments of choice

Essential medicines are those that satisfy the priority health care needs of the population.

Using an essential medicines list (EML) makes medicine management easier in all respects: procurement, storage and distribution are easier with fewer items, and prescribing and dispensing are easier for prescribers if they have to know about fewer items. A national EML should be based upon national clinical guidelines. Medicine selection should be done by a central committee with an agreed membership and using explicit, previously agreed criteria, based on efficacy, safety, quality, cost (which will vary locally) and cost-effectiveness. EMLs should be regularly updated and their production accompanied by an official launch, training and dissemination. Public sector procurement and distribution of medicines should be limited primarily to those medicines on the EML, and it must be ensured that only those health workers approved to use certain medicines are actually supplied with them. Government activities in the pharmaceutical sector (e.g. quality assurance, insurance reimbursement policies and training), should focus on the EML. The WHO Model List of Essential Medicines can provide a starting point for countries to develop their own national EML.

4. Drugs and therapeutics committees in districts and hospitals

A drugs and therapeutics committee (DTC), also called a pharmacy and therapeutics committee, is a committee designated to ensure the safe and effective use of medicines in the facility or area under its jurisdiction. Such committees are well-established in industrial countries as a successful way of promoting more rational, cost-effective use of medicines in hospitals (Box 5). Governments may encourage hospitals to have DTCs by making an accreditation requirement to various professional societies. DTC members should represent all the major specialties and the admitting rotation; they should also be independent and decide any conflict of interest. A senior doctor would usually be the chairperson and the chief pharmacist, the secretary.

Factors critical to success include: clear objectives, a firm mandate, support by the senior hospital management; transparency; wide representation; technical competence; a multidisciplinary approach, and sufficient resources to implement the DTC's decisions.

Box 5 Responsibilities of a drugs and therapeutics committee

- developing, adapting, or adopting clinical guidelines for the health institution or district;
- selecting cost-effective and safe medicines (hospital/district drug formulary);
- implementing and evaluating strategies to improve medicine use (including drug use evaluation, and liaison with antibiotic and infection control committees);
- providing on-going staff education (training and printed materials);
- controlling access to staff by the pharmaceutical industry with its promotional activities;
- monitoring and taking action to prevent adverse drug reactions and medication errors;
- providing advice about other drug management issues, such as quality and expenditure.

5. Problem-based training in pharmacotherapy in undergraduate curricula

The quality of basic training in pharmacotherapy for undergraduate medical and paramedical students can significantly influence future prescribing. Rational pharmacotherapy training, linked to clinical guidelines and essential medicines lists, can help to establish good prescribing habits. Training is more successful if it is problem-based, concentrates on common clinical conditions, takes into account students' knowledge, attitudes and skills, and is targeted to the students' future prescribing requirements. The Guide to Good Prescribing describes the problem-based approach, which has been adopted in a number of medical schools.

6. Continuing in-service medical education as a licensure requirement

Continuing in-service medical education (CME) is a requirement for licensure of health professionals in many industrialized countries. In many developing countries opportunities for CME are limited and there is also no incentive since it is not required for continued licensure. CME is likely to be more effective if it is problem-based, targeted, involves professional societies, universities and the ministry of health, and is face-to-face. Participatory methods of education, encouraged by face-to-face interventions, have been found to be ineffective in changing prescribing behaviour. CME need not be limited only to professional medical or paramedical personnel but may also include people in the informal sector such as medicine retailers. Often CME activities are heavily dependent on the support of pharmaceutical companies, as public funds are insufficient. This type of CME may not be unbiased. Governments should therefore support efforts by university departments and national professional associations to give independent CME.

7. Supervision, audit and feedback

Supervision is essential to ensure good quality of care. Supervision that is supportive, educational and face-to-face, will be more effective and better accepted by prescribers than simple inspection and punishment. Effective forms of supervision include prescription audit and feedback, peer review and group processes. Prescription audit and feedback consists of analysing prescription appropriateness and then giving feedback. Prescribers may be told how their prescribing compares with accepted guidelines or with that of their peers, involving peers in audit and feedback (peer review) is particularly effective in hospitals. Such audit and feedback is known as drug use evaluation. Group process approaches amongst prescribers consist of health professionals themselves identifying a medicine use problem and developing, implementing and evaluating a strategy to correct the problem. This process needs facilitation by a moderator or supervisor. Community case management is a special type of supervised group process involving community members in treating patients.

8. Independent medicine information

Often, the only information about medicines that practitioners receive is provided by the pharmaceutical industry and may be biased. Provision of independent (unbiased) information is therefore essential. Drug information centres (DICs) and drug bulletins are two useful ways to disseminate such information. Both may be run by government or a university teaching hospital or a non-governmental organization, under the supervision of a trained health professional. Whoever runs the DIC or bulletin must (1) be independent of outside

influences and disclose any financial or other conflict of interest; and (2) use evidence-based medicine and transparent deduction for all recommendations made. The WHO Model Formulary provides independent information on all medicines in the WHO Model List of Essential Medicines.

9. Public education about medicines

Without sufficient knowledge about the risks and benefits of using medicines and when and how to use them, people will often not get the expected clinical outcomes and may suffer adverse effects. This is true for prescribed medicines as well as medicines used without the advice of health professionals. Governments have a responsibility to ensure both the quality of medicines and the quality of the information about medicines available to consumers. This will require:

- Ensuring that over-the-counter medicines are sold with adequate labelling and instructions that are accurate, legible, and easily understood by laypersons. The information should include the medicine name, indications, contra-indications, dosages, drug interactions, and warnings concerning unsafe use or storage.
- Monitoring and regulating advertising, which may adversely influence consumers as well as prescribers, and which may occur through television, radio, newspapers and the internet.
- Running targeted public education campaigns, which take into account cultural beliefs and the influence of social factors. Education about the use of medicines may be introduced into the health education component of school curricula or into adult education programmes, such as literacy courses.

10. Avoidance of perverse financial incentives

Financial incentives may strongly promote rational or irrational use. Examples include:

- Prescribers who earn money from the sale of medicines (e.g. dispensing doctors), prescribe more medicines, and more expensive medicines, than prescribers who do not; therefore the health system should be organized so that prescribers do not dispense or sell medicines.
- Flat prescription fees, covering all medicines in whatever quantities within one prescription, lead to overprescription, therefore user charges should be made per medicine, not per prescription.
- Dispensing fees, calculated as a percentage of the cost of the medicines, encourage the sale of more expensive medicines; therefore a flat dispensing fee irrespective of the price of the medicine is preferable. Although it may lead to price increases for cheaper medicines, it lowers the price of higher cost medicines.

- Patients prefer medicines that are free or reimbursed. If only essential medicines are provided free by government or reimbursed through insurance, patients will pressure prescribers to prescribe only essential medicines. If medicines are only reimbursed when the prescription conforms to clinical guidelines, there may be an even stronger pressure on prescribers to prescribe rationally.

11. Appropriate and enforced regulation

Regulation of the activities of all actors involved in the use of medicines is critical to ensuring rational use (Box 6). If regulations are to have any effect, they must be enforced, and the regulatory authority must be sufficiently funded and backed up by the judiciary.

Box 6 Regulatory measures to support rational use

- registration of medicines to ensure that only safe, efficacious medicines of good quality are available in the market and that unsafe non-efficacious medicines are banned;
- limiting prescription of medicines by level of prescriber; this includes limiting certain medicines to being available only with a prescription and not available over-the-counter;
- setting educational standards for health professionals and developing and enforcing codes of conduct; this requires the cooperation of the professional societies and universities;
- licensing of health professionals – doctors, nurses, paramedics – to ensure that all practitioners have the necessary competence with regard to diagnosis, prescribing and dispensing;
- licensing of medicine outlets – retail shops, wholesalers – to ensure that all supply outlets maintain the necessary stocking and dispensing standards;
- monitoring and regulating medicine promotion to ensure that it is ethical and unbiased. All promotional claims should be reliable, accurate, truthful, informative, balanced, up-to-date, capable of substantiation and in good taste. WHO's ethical guidelines (1988) may be used as a basis for developing control measures.

12. Sufficient government expenditure to ensure availability of medicines and staff

Lack of essential medicines leads to the use of non-essential medicines, and lack of appropriately trained personnel leads to irrational prescribing by untrained personnel. Furthermore, without sufficient competent personnel and finances, it is impossible to carry out any of the core components of a national programme to promote rational use of medicines. Poor clinical outcome, needless suffering and economic waste are sufficient reasons for large government investment.



Governments are responsible for investing the necessary funds to ensure that all public health facilities have sufficient, appropriately trained health professionals and enough essential medicines of affordable prices for all the population, with specific provisions for the poor and disadvantaged. Achieving this will require limiting government procurement and supply to essential medicines only and investing in adequate training, supervision and health staff salaries.

Monitoring medicine use and using the collected information to develop, implement and evaluate strategies to change inappropriate medicine use behaviour are fundamental to any national programme to promote rational use of medicines. A mandated multi-disciplinary national body to coordinate all activities and sufficient government funding are critical to success.

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Practical Continuous Evaluation

Academic Year: 2023-2024				Program: B.Pharm				
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Name of the Candidate:				USN No:				
Expt. No.	Date	Name of Experiment	Page No.	Atten (2)	Viva (2)	Record (1)	Total (5)	Date of Submission & Signature
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Exp No.1

Date:

INTRODUCTION TO IN-VITRO PHARMACOLOGY AND PHYSIOLOGICAL SALT SOLUTIONS

AIM: Introduction to in-vitro Pharmacology and physiological salt solutions.

Introduction to in-vitro Pharmacology [1]:

Pharmacology is the study of biological effects of drugs. In vitro pharmacology studies the biological effects of a drug in an isolated environment, such as cell lines or tissues. This set up conveniently eliminates whole organism physiological influences allowing for a detailed analysis of a compound. In vivo pharmacology is the study of biological effects of a drug in a complex living organism, and is used to observe the complex physiological effects of a drug [2].

In vitro studies are conducted using components of an organism that have been isolated from their usual biological surroundings, such as microorganisms, cells or biological molecules [3]. For example, microorganism or cells can be studied in artificial culture media and proteins can be examined in solutions. colloquially called 'test tube experiments', these studies in biology, medicine and their sub disciplines are traditionally done in test tubes, flasks, petri dishes. In contrast, studies conducted in living beings (microorganisms, animals, humans or whole plants) are called in vivo [4].

Results obtained from in vitro experiments cannot usually be transposed, as is, to predict the reaction of entire organism in vivo [5]. Building a consistent and reliable extrapolation procedure from in vitro results to in vivo, therefore it is very important[5].



Solutions include [6]:

- Increasing the complexity of in vitro systems to reproduce tissues and interactions between them
- Using mathematical modeling to numerically stimulate the behavior of complex system, where in vitro data provide model parameter values.

These two approaches are not incompatible, better in vitro systems provide better data to mathematical models. However, increasingly sophisticated in vitro experiments collect increasingly numerous, complex and challenging data to integrate.

Physiological Salt solutions [1,2]:

- The physiological salt solution is used to keep isolated tissue or organ preparations surviving as long as the experiment is over.
- It is important to choose the particular type of solution in which tissue is known to survive.
- These physiological salt solutions are prepared carefully using analytical grade reagents and distilled water.
- The precautions to be taken are adjusting the proper pH of the final solution and aeration with oxygen, mixture of oxygen and carbon dioxide (95% + 5%) or even bubbling with air. The physiological solution thus prepared should be clear, and if turbid, it is advised to prepare fresh solutions before the start of the experiment.
- The various physiological solutions and their compositions have been summarized in observation column.

Commonly Used Physiological Solutions are:

(1) Ringer's Solution [1]:

This is mainly used in frog's isolated tissue, frog's heart and rectal muscles. The composition of this is sodium chloride (9g), potassium chloride (0.4 g), calcium chloride (0.24g), sodium bicarbonate (0.5 g), glucose (1g) and distilled water upto 1litre.



(2) Tyrode Solution [2]:

It is used in guinea pig preparations and rabbit duodenum.

(3) De-Jalon Solution [2]:

This is used for rat uterus.

The Role of Each Constituents in Physiological Solutions are as Follows [1]:

(A) Sodium Ions:

The isotonicity of the fluid is mainly maintained by sodium ions. Sodium ions can be substituted by lithium. In addition, sodium ions affect the contractility of the muscle indirectly by influencing the uptake of calcium which in turn throwing the cardiac muscle to step in systole because of excessive calcium.

(B) Calcium Ions:

It plays an important role in maintaining the excitability properties of the membrane because it is also responsible for regulating selective permeability of the cell membrane to other ions. It is concerned with coupling process through which excitation of the membrane leads to contractions. So, it can be said that it also concerned with the contraction process. The first effect of calcium deficiency in the solution is that the membrane of the muscle becomes unstable and repulsive action potentials are discharged. The lack of calcium ions has a stabilizing effect on the muscles and nerves and gradually the membrane becomes inexcitable to stimulus because of failure of conduction of impulse.

The effect of excess calcium ions facilitates coupling and contractility but as it is stabilizing the membrane it raises the critical value of polarization at which sodium ions permeability is increased and therefore, reduce excitability.

During this condition strong stimulus are required to excite the muscle of nerves.

(C) Potassium Ions [2]:

Like sodium ions, potassium ions also increase the production of action potential and lack of it increases the uptake of calcium ions. However, excess potassium ions has a depolarizing action which in turn lowers threshold stimulus in exciting tissue.



OBSERVATION [I]:

Composition of some physiological salt solution:

Compounds	Frog ringer	Ringer or Ringer (locke)	De-Jalon	Tyrode	Kreb's-Hensleit (Krebs)
Sodium Chloride (58.45) *	110(6.0)**	154(9.0)	154(9.0)	137(8.0)	118(6.9)
Potassium Chloride (74.56)	1.9(0.14)	5.6(0.42)	5.6 (0.42)	2.7 (0.2)	4.7 (0.35)
Calcium Chloride (110.99)	1.1(0.12)	2.2(0.24)	0.55(0.06)	1.8 (0.2)	2.5 (0.28)
Magnesium Chloride (95.23)	-	-	-	0.1-1.0 (0.01-0.10)	-
Magnesium Sulphate 7 H ₂ O	-	-	-	-	1.2 (1.28)
Sodium Bi Carbonate	2.4 (0.2)	6.0(0.5)	6.0 (0.5)	11.9 (1.0)	25.0(2.1)
Sodium Dihydrogen Phosphate (119.97)	-	-	-	0.4 (0.05)	-
Potassium Dihydrogen Phosphate (136.08)	-	-	-	-	1.2 (0.16)
Glucose (180.16)	11.1 (2.0)	5.55(1.0)	2.78 (0.5)	5.55(1.0) OR 11.1 (2.0)	5.55(1.0) OR 11.1(2.0)

*values in parenthesis as against salts indicates molecular weight.

** values are in mM(g/l).



(D) Magnesium Ions [1]:

Not all physiological solutions have this ion.

Example: Ringer's Solution, Tyrode solution and other solutions have incorporated this ion for use in certain mammalian tissue like guinea pig and rabbit intestine experiment. Calcium and Magnesium ions are antagonistic in nature in their action or transmitted release in nerve muscle. Secondly the magnesium ions relax the tissue when the tone of contractility is raised or stimulated by a drug.

(E) Glucose [2]:

It serves as a source of energy for isolated tissue.

(F) Chloride Ions [2]:

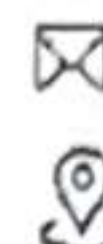
It is used in conjugation with sodium, calcium, potassium, magnesium as an action. It plays a part in maintaining the osmosis and osmotic pressure.

(G) Aeration of Solution [7]:

Isolated tissue preparation is needed to be supplied with oxygen to maintain their function with oxygen is not very soluble in water, the usual practice is to bubble it. Continuously, so that energy yields oxidative metabolism process. However prolonged use of oxygen renders the reduction alkaline and may increase the pH from 7.2-8 in those solutions which have a low sodium carbonate content and it can be expected that the pH may still go further for those solutions, which incorporate high content of bicarbonate ions. Example: 2g in calcium and potassium of Krebs's solution definitely has such as higher pH (8 or 7.8) that the blood is toxic to the organism and more over in isolated solutions performance may decrease with time[8].

Report:

Physiological salt solution used in experimental pharmacology have been studied.

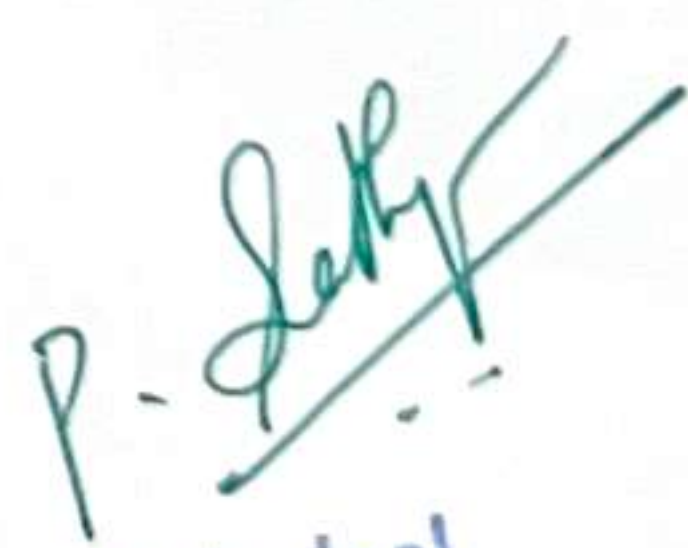


2.3.2. Teachers use ICT enabled tools including online resources for effective teaching-learning process.

Today, it is essential for the students to learn and master the latest technologies in order to be ready for developing world in health sector. ICT tools empower both teachers and learners. They transform the teaching and learning processes from being highly teacher-dominated to becoming student-centric and this transformation results in increased learning gains for students, creating and allowing for opportunities for learners. As a consequence, teachers are combining technology with traditional mode of instruction to engage students in long term learning. College uses Information and Communication Technology (ICT) in education to support, enhance, and optimize the delivery of education. The following tools are used by the college:

College of Physiotherapy has included practical, project works, Hospital and industry training programs as a part of the curriculum to enhance the learning experiences of the students enrolled.

- Desktop and Laptops- Arranged at Computer Lab and Faculty cabins all over the campus.
- Seminar Rooms & class room – one seminar halls and 4 class rooms are equipped with all digital facilities
- Auditorium- It is digitally equipped with mike, projector, cameras and computer system
- Online Classes through Zoom, Google Meet, Microsoft Team, Google Classroom)
- MOOC Platform (NPTEL, Coursera, SAP, Udemy, Edx etc)
- Important teaching materials and instructional material are uploaded by faculty members on LMS/ERP system. Periodic e-assignments are given through LMS.


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COPT

22PT204 - EXERCISE THERAPY (BPT)

Introduction Content Assignment Test Announcement

CONTENT TYPE WISE CONTENT LIST

E-Note Lab Manual Presentation

Sr.	E-Note	Doc.	Updated On	Views Rating	Publish	Seq.	Action
1	stretching		01-08-2024	22 5.00 (0)	Published		
2	aerobic exercises		22-06-2024	42 5.00 (0)	Published		
3	passive movements		22-06-2024	29 5.00 (0)	Published		
4	hydrotherapy		22-06-2024	30 5.00 (0)	Published		
5	coordination exercises		22-06-2024	41 5.00 (0)	Published		
6	WHO guidelines on physical activity		17-04-2024	14 5.00 (0)	Published		
7	aerobics exercises		17-04-2024	75 5.00 (0)	Published		
8	aerobic exs		17-04-2024	46 5.00 (0)	Published		
9	AEROBIC EXERCISE'S BENEFITS		28-03-2024	48 5.00 (0)	Published		
10	Muscle physiology		21-03-2024	30 5.00 (1)	Published		
11	Manual Muscle Testing		21-03-2024	35 5.00 (1)	Published		
12	Breathing Exercise		21-03-2024	65 5.00 (1)	Published		
13	Stretching		21-03-2024	82 4.00 (1)	Published		

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COPT

Introduction Content Assignment Test Announcement

CONTENT TYPE WISE CONTENT LIST

1. Note 2. LMS Manual 3. Presentation 15

Sr.	Presentation	Doc.	Updated On	Views Rating	Publish	Seq.	Action
1	OSTEOARTHRITIS	Dr.	12-07-2024	11 0.00 (0)	Unpublish		View Edit Delete
2	METABOLIC BONE DISEASE	Dr.	12-07-2024	4 0.00 (0)	Unpublish		View Edit Delete
3	SEPTIC ARTHRITIS	Dr.	04-06-2024	4 0.00 (0)	Unpublish		View Edit Delete
4	TB OF SPINE AND HIP	Dr.	04-06-2024	9 0.00 (0)	Unpublish		View Edit Delete
5	CLINICAL ORTHO	Dr.	21-03-2024	47 4.73 (11)	Unpublish		View Edit Delete
6	CLINICAL ORTHO	Dr.	21-03-2024	33 4.90 (10)	Unpublish		View Edit Delete
7	CLINICAL ORTHO	Dr.	21-03-2024	31 4.78 (8)	Unpublish		View Edit Delete
8	OSTEOMYELITIS	Dr.	21-03-2024	32 4.28 (8)	Unpublish		View Edit Delete
9	ankle Injuries	Dr.	20-03-2024	33 4.91 (11)	Unpublish		View Edit Delete
10	Knee Injuries	Dr.	20-03-2024	26 4.90 (10)	Unpublish		View Edit Delete
11	Hip dislocation	Dr.	20-03-2024	35 4.75 (12)	Unpublish		View Edit Delete
12	Femur fracture	Dr.	20-03-2024	29 4.50 (10)	Unpublish		View Edit Delete
13	upper limb injury	Dr.	20-03-2024	27 4.97 (11)	Unpublish		View Edit Delete
14	Elbow fracture	Dr.	20-03-2024	25 4.91 (11)	Unpublish		View Edit Delete
15	Fracture healing	Dr.	20-03-2024	30 4.50 (10)	Unpublish		View Edit Delete
16	Patellar fracture Patellar fracture	Dr.	20-03-2024	21 4.82 (12)	Unpublish		View Edit Delete

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COPT

17PT304 - ORTHOPEDICS & SPORTS PHYSIOTHERAPY (BPT)

Introduction Content Assignment Test Announcement

CONTENT TYPE WISE CONTENT LIST

Lab Manual Presentation E-Note

Sr	Presentation	Doc	Updated On	Views Rating	Publish	Setp	Action
1	tennis elbow and Golfers elbow		04-06-2024	0 0.00 (0)	Published		
2	Leprosy		04-06-2024	0 0.00 (0)	Published		
3	Poliomyelitis		04-06-2024	0 0.00 (0)	Published		
4	CDM		21-03-2024	11 4.00 (1)	Published		
5	PES CAVUS		21-03-2024	12 4.00 (1)	Published		
6	CTEV		21-03-2024	11 4.00 (1)	Published		
7	ankylosing spondylitis		21-03-2024	58 4.42 (13)	Published		
8	ankle fracture ankle fracture		20-03-2024	52 4.88 (16)	Published		
9	Lower limb dislocation PT Orthopedics Theory- Unit I Lower limb dislocation		20-03-2024	37 4.94 (16)	Published		
10	Dislocation-Hand-and-Wrist PT Orthopedics Theory- Unit I Dislocation-Hand-and-Wrist		20-03-2024	44 4.94 (16)	Published		

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COPT

17PT403 - NEURO - PHYSIOTHERAPY

CONTEXT WISE CONTENT LIST

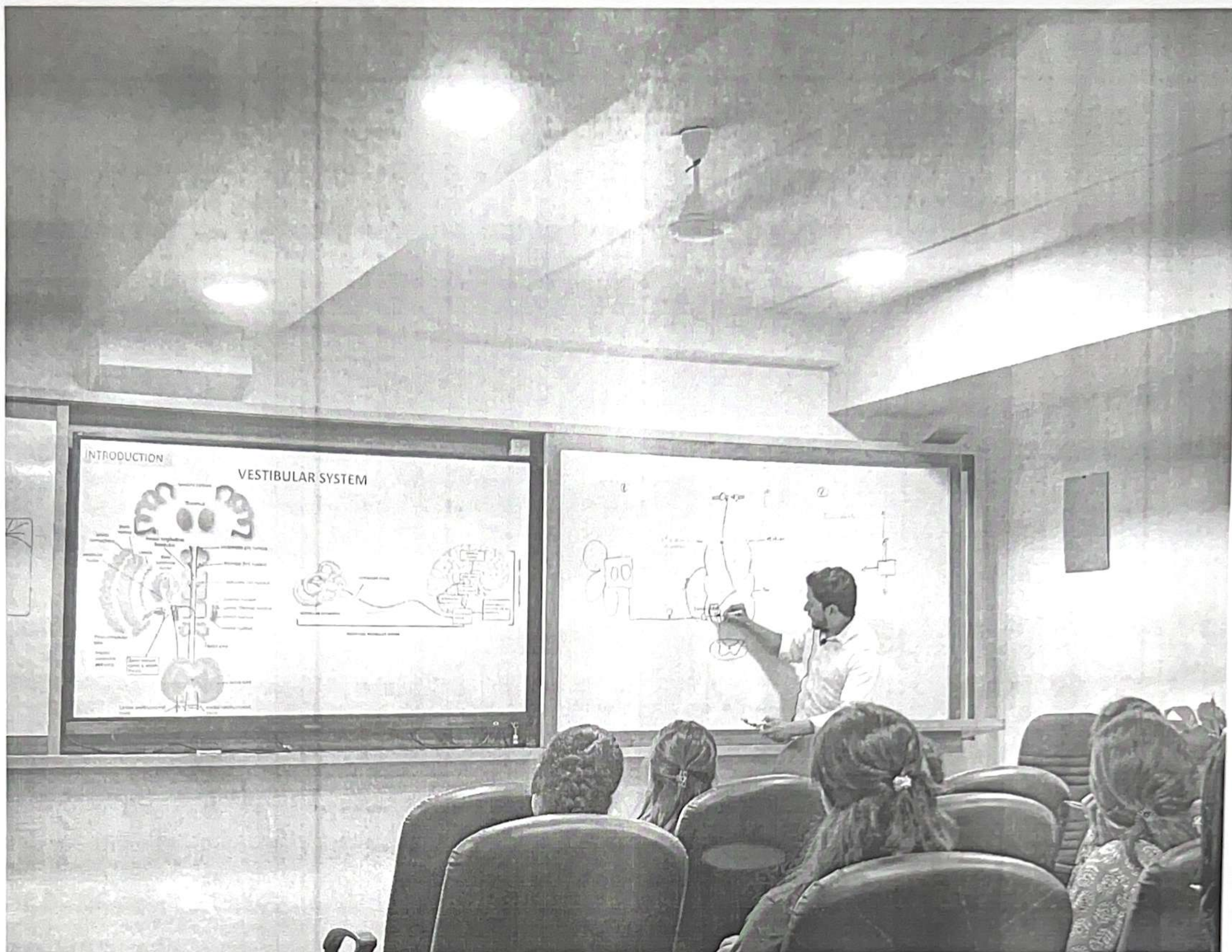
Sr	Topic/Chapter	Unit	Updated On	Views / Rating	Position	Seq	Access
1	BOT	1	12-08-2024	12 / 0.0 (0)	1	1	0
2	SAR	2	12-08-2024	12 / 0.0 (0)	2	1	0
3	CTH	3	08-08-2024	11 / 0.0 (0)	3	1	0
4	SAR (Continued) - Bone Density	4	08-08-2024	11 / 0.0 (0)	4	1	0
5	CTH	5	08-08-2024	11 / 0.0 (0)	5	1	0
6	Neurophysiology - Introduction	6	08-08-2024	11 / 0.0 (0)	6	1	0
7	Neurophysiology - Central Nervous System	7	08-08-2024	11 / 0.0 (0)	7	1	0
8	Neurophysiology - Peripheral Nervous System	8	08-08-2024	11 / 0.0 (0)	8	1	0
9	Neurophysiology - Sensory System	9	08-08-2024	11 / 0.0 (0)	9	1	0
10	Neurophysiology - Motor System	10	08-08-2024	11 / 0.0 (0)	10	1	0
11	Neurophysiology - Clinical Application	11	08-08-2024	11 / 0.0 (0)	11	1	0
12	Neurophysiology - Summary	12	08-08-2024	11 / 0.0 (0)	12	1	0
13	Neurophysiology - References	13	08-08-2024	11 / 0.0 (0)	13	1	0
14	Neurophysiology - Assignment	14	27-08-2024	11 / 0.0 (0)	14	1	0
15	Neurophysiology - Quiz	15	08-08-2024	11 / 0.0 (0)	15	1	0
16	Neurophysiology - Test	16	27-08-2024	11 / 0.0 (0)	16	1	0
17	Neurophysiology - Project	17	20-08-2024	11 / 0.0 (0)	17	1	0
18	Neurophysiology - Final Exam	18	20-08-2024	11 / 0.0 (0)	18	1	0
19	Neurophysiology - Summary	19	20-08-2024	11 / 0.0 (0)	19	1	0
20	Neurophysiology - References	20	20-08-2024	11 / 0.0 (0)	20	1	0
21	Neurophysiology - Assignment	21	20-08-2024	11 / 0.0 (0)	21	1	0
22	Neurophysiology - Quiz	22	20-08-2024	11 / 0.0 (0)	22	1	0
23	Neurophysiology - Test	23	20-08-2024	11 / 0.0 (0)	23	1	0
24	Neurophysiology - Project	24	20-08-2024	11 / 0.0 (0)	24	1	0

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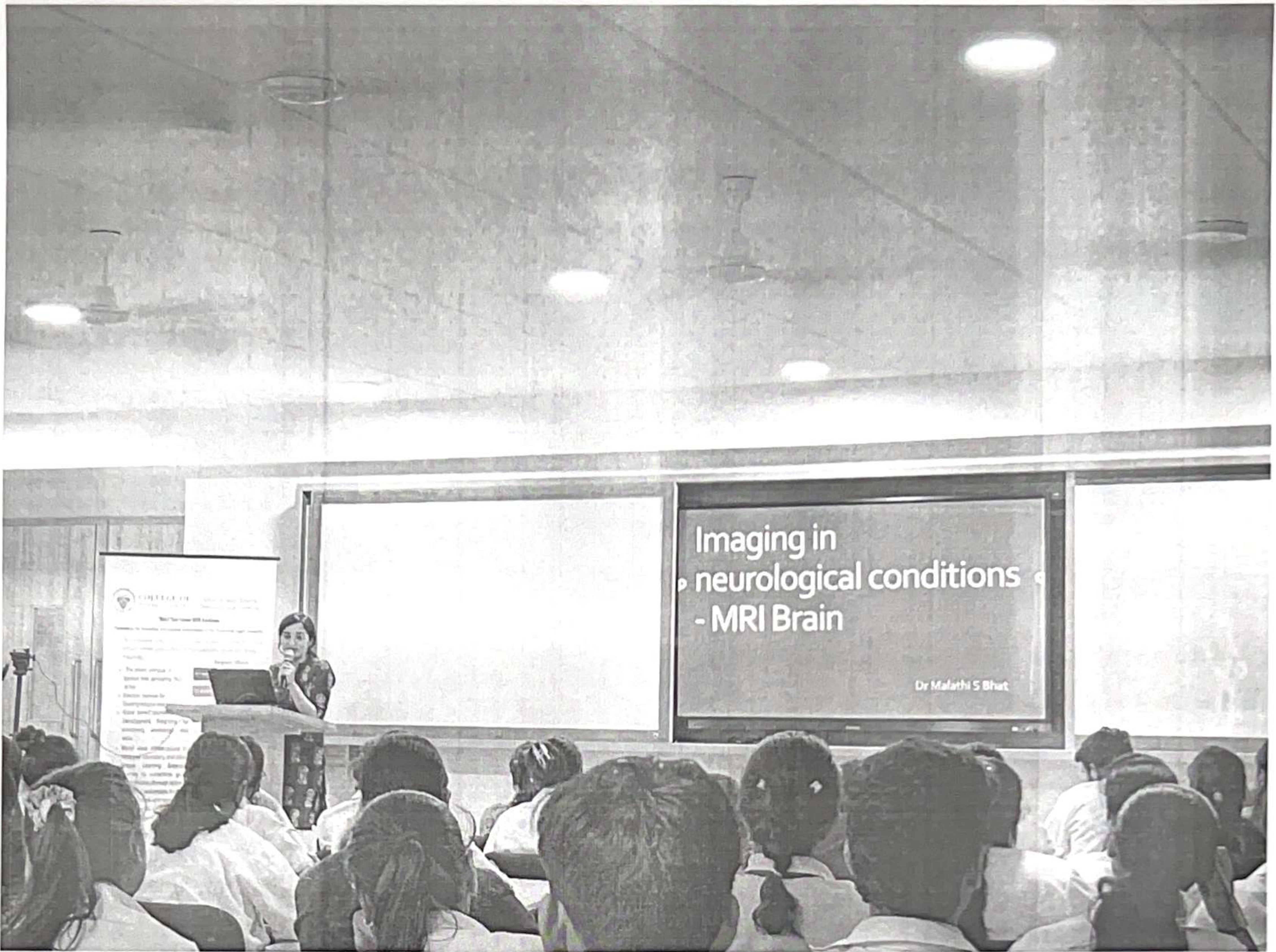
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5

2.3.1 Teachers use ICT- enabled tools including online resources for effective teaching & learning processes

5



Dayananda Sagar University
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
(Artificial Intelligence & Machine Learning)

LESSON PLAN

Course Name: Deep Learning And Computer Vision

Course Code: 21AM3603

Faculty Name: Dr. Vinutha N and Dr. Monika Goyal

Course Objectives:

This Course will enable students to:

1. To understand the major architectures of Deep Networks.
2. To implement optimize and Evaluate used CNN model.
3. To apply the techniques of Computer Vision on Image and Video data.
4. For a stereo system with multiple cameras, solve the correspondence and 3D reconstruction problem by applying epipolar geometry concept.
5. To learn to use deep learning tools and framework for solving real-life problems related to images and signals.

Lecture	Topics Covered	Innovative Teaching Methods	Text & Reference	CO
MODULE – I				
1	Introduction to Neural Networks: Single layer and Multilayer NN	• Power point presentation • Demonstration	T1, T2,T3	CO1
2	Training neural networks	• Power point presentation • Demonstration	T1, T2,T3	CO1
3	Activation functions, loss functions	• Problem Solving • Power point presentation	T1, T2,T3	CO1
4	Model Selection	• Power point presentation	T1, T2,T3	CO1
5	Introduction to Deep Learning, Principles of Deep Networks	• Power point presentation • Demonstration	T1, T2,T3	CO1
6	Building blocks of deep networks	• Power point presentation	T1, T2,T3	CO1
7	Building blocks of deep networks	• Power point presentation	T1, T2,T3	CO1



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8	Backpropagation in neural network	• Flipped learning • Problem Solving	T1, T2,T3	CO1
MODULE – II				
9	Data Manipulation and Data Preprocessing	• Power point presentation	T1, T2,T3	CO2
10	Deep neural network	• Power point presentation	T1, T2,T3	CO2
11	Optimization for Training Deep Models	• Power point presentation • Demonstration	T1, T2,T3	CO2
12	Convolutional Neural Networks (CNNs) - Biological inspiration, Mapping of Human Visual System and CNN	• Board Teaching • Problem Solving	T1, T2,T3	CO2
13	Convolution operation, Convolutional Layers	• Power point presentation • Demonstration	T1, T2,T3	CO2
14	Padding and Stride	• Power point presentation • Demonstration	T1, T2,T3	CO2
15	Batch normalization and layers	• Power point presentation	T1, T2,T3	CO2
16	Subsampling, Pooling	• Power point presentation	T1, T2,T3	CO2
17	Demonstration of Convolutional Neural Networks	• Power point presentation	T1, T2,T3	CO2
MODULE – III				
21	Introduction to Computer Vision	Power point presentation	T4, T5	CO3



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(Artificial Intelligence & Machine Learning)

22	Camera Models and Calibration: Camera Projection Models – Orthographic, Affine, Perspective	Power point presentation	T4	CO3
23	Projective models. Projective Geometry, Camera Internal and External Parameters	Power point presentation,	T4, T5	CO3
24	Lens Distortion Models- Local Feature Detector sand Descriptors	Power point presentation,	T1, R1	CO3
25	Hessian corner detector	Power point presentation	T1, R1	CO3
26	Harris Corner Detector	Power point presentation	T1, R1	CO3
27	LOG detector	Power point presentation	T1, R1	CO3
28	DOG detector	Power point presentation	T1, R1	CO3
MODULE – IV				
31	Pose Estimation	Power point presentation	T4, R5	CO4
32	Stereo vision	Power point presentation	T4, R5	CO4
33	Epipolar Geometry	Power point presentation	T4, R5	CO4
34	Rectification and Issues related to Stereo	Power point presentation	T4, R5	CO4
35	SIFT	Power point presentation	T4, R5	CO4
36	PCA-SIFT	Power point presentation	T4, R5	CO4
37	SURF	Power point presentation	T4, R5	CO4
38	HOG	Power point presentation	T4, R5	CO4
39	Image segmentation	Power point presentation	T4, R5	CO4
MODULE – V				
40	Unsupervised Pretrained Networks (UPNs)- Autoencoders	Power point presentation,	T1, T2,R2	
41	Unsupervised Pretrained Networks (UPNs)- Deep Belief Networks (DBNs),	Power point presentation,	T2,R2,R3	
42	Introduction to RNN	Power point presentation, Demonstration	T2,R2,R3	



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43	LSTM	Power point presentation, Demonstration	T1, T2,T3	
44	GAN	Power point presentation, Demonstration	T1, T2,T3	
45	Introduction to Transfer Learning	Power point presentation, Demonstration	T1, T2,T3	
46	Deep Learning Applications in computer vision: object recognition, object detection, video analytics, action recognition.	Power point presentation,	T1, T2,T3,T4	

Course Outcomes and CO-PO/PSO Mapping:

CO No.	Statement	Bloom's Cognitive Level
1	Implement and analyse the single, multi-layer neural network frameworks, Forward and Backpropagation Models.	Apply
2	Design and implement CNN building blocks, Optimize and Evaluate the models on real data sets with Hyperparameter Tuning.	Evaluate
3	Apply Camera models, Projective models, Lens Distortion models and different types of Edge Detection and Corner Detection Techniques on the given image and video data.	Apply
4	For a stereo system with multiple cameras, solve the correspondence and 3D reconstruction problem applying epipolar geometry concept. Build Computer Vision model for extracting different feature descriptors and also to perform image segmentation from a given image.	Apply
5	Compare and contrast Supervised Trained Networks and UPNs and evaluate their performances.	Analyze

Strength of CO Mapping to PO/PSOs with Justification:

CO's	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2	1	-	-	2	-	-	-	2	2	-	-	3	3



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CO2	3	2	-	-	2	-	-	-	2	2	-	-	3	3
CO3	3	1	-	-	2	-	-	-	2	2	-	-	3	3
CO4	3	2	-	-	2	-	-	-	2	2	-	-	3	3
CO5	3	2	-	-	2	-	-	-	2	2	-	-	3	3
	2.8	1.6	-	-	2	-	-	-	2	2	-	-	3	3

CO-PO-PSO	JUSTIFICATION
CO1 □ PO1(2)	While learning to explain and implement the building blocks of Neural Networks, a student has to apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
CO1 □ PO2(3)	Analyze the building blocks of Neural Networks to solve the complex engineering problems.
CO1 □ PO5(2)	While learning some state-of-the-art techniques, students learn to select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities.
CO2 □ PO1(3)	While learning to explain and implement the building blocks of Convolutional Neural Networks, a student has to apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
CO2 □ PO2(2)	Analyze the building blocks of Convolutional Neural Networks to solve the complex engineering problems.
CO2 □ PO5(2)	While learning some state-of-the-art techniques, students learn to select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities.
CO3 □ PO5(2)	Different digital image processing methods and computer vision strategies enhances the knowledge of mathematics, physics, and engineering fundamentals.
CO3 □ PO2(2)	Students learn to identify, formulate, review research literature, and analyze complex engineering problems using first principles of mathematics, natural sciences, and engineering sciences while they explore the basics of computer vision and several state-of-the-art applications.
CO3 □ PO5(2)	While learning some state-of-the-art techniques, students learn to select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities.
CO4 □ PO1(2)	Learning about the transformation of 2D and 3D images, students learn to apply several mathematical and fundamental science techniques related to matrix manipulation.
CO4 □ PO2(2)	Learning about the transformation of 2D and 3D images, students learn to apply several mathematical and fundamental science techniques related to matrix manipulation.
CO4 □ PO5(2)	While learning different transformation algorithms, students learn to select, and apply appropriate techniques, resources, and modern engineering and IT tools.
CO1 □ PO1(2)	While learning to explain and implement the Unsupervised and Supervised Neural Networks, a student has to apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.



CO1 □ PO2(3)	Analyze the given problem and solve the complex engineering problems for the given Image data.
CO1 □ PO5(2)	While learning some state-of-the-art techniques, students learn to select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities.
CO1, CO2, CO3, CO4, CO5 □ PSO1(3) PSO2(3)	Strongly mapped as students will apply principles of Data Engineering, Artificial Intelligence, Machine Learning on Image, Video Data.
	Strongly mapped as students will be able to apply technical and research skills to solve the problems.

LIST OF ACTIVITIES:

- Virtual Lab
- Reflection Notes

LIST OF INNOVATIVE TEACHING METHODS:

- Board Teaching
- Power point presentations
- Active Learning method: Think-Share-Pair

ASSESSMENT PROCESSES:

- Provision for Two Internal assessments of 40 marks each of descriptive questions and reducing it to 40 marks.
- Virtual Lab Report 10 marks.
- Reflection Notes 10marks.

ASSESSMENT PLAN:

Course Outcomes	Internal Test-I addresses (Cognitive Level)	Internal Test-II addresses (Cognitive Level)	AAT (Quiz, Assignment, etc)
21AM3603.1	Applying		Applying
21AM3603.2	Applying	--	Applying
21AM3603.3	--	Applying	Applying
21AM3603.4	--	Applying	Applying
21AM3603.5	--	--	Understand

TEXT BOOKS:

1.	Aston Zhang, Zack C. Lipton, Mu Li, Alex J. Smola, "Dive into Deep Learning", Amazon Science, 2020.
2.	Josh Patterson and Adan Gibson, "Deep Learning a Practitioners Approach", July, 2018.



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3.	Ian Goodfellow, Yoshua Bengio, Aaron Courville, "Deep Learning", The MIT Press, 2016.
4	Forsyth and Ponce, "Computer Vision – A Modern Approach", Second Edition, Prentice Hall, 2011.
5.	Emanuele Trucco and Alessandro Verri, "Introductory Techniques for 3-D Computer Vision", Prentice Hall, 1998.

REFERENCES:

1	
2	François Chollet, "Deep Learning Python", Manning Publications, 2018
3	Olivier Faugeras, "Three Dimensional Computer Vision", MIT Press, 1993.
4	Richard Szeliski, "Computer Vision: Algorithms and Applications", Springer, 2011.

E-BOOKS / ONLINE RESOURCES:

1. <https://nptel.ac.in/courses/106106184>
2. <https://nptel.ac.in/courses/106105215>

Prepared by (Course Faculty)	Scrutinized by (Course coordinator)	Approved by Chairman
Signature: 	Signature: 	Signature: 
Name: Dr. Vinutha N	Name: Dr. Vinutha N	Name: Dr. Jayavrinda Vrindavanam

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

LESSON PLAN

Course Name: MOBILE COMPUTING AND ANDROID APPLICATION DEVELOPMENT
Course Code: 20AM4803

Faculty Name: Dr. Monika Goyal

Course Objectives: This Course will enable students to:

1. Understand the basic concepts of mobile computing
2. Learn the setup of the Android development environment
3. Illustrate the interaction of the app with the user interface and handling various activities
4. Identify the options for saving the persistent application data
5. Gain knowledge about different mobile platforms and application development

Lecture	Topics Covered	Innovative Teaching Methods	Text & Reference
MODULE – I			
1	Introduction to the course, Discussion on vision and mission, and course outcomes	• Power point presentation	T1
2	Introduction to mobile computing with real-time examples	• Board Teaching • Power point presentation	T1, R2
3	Architecture of mobile network, Introduction of each block of mobile network	• Board Teaching • Power point presentation	T1, R2
4	Generations of mobile communication with examples, mobile operating systems	• Board Teaching • Power point presentation	T1, R2
5	Application of mobile communication, Challenges of mobile communication	• Board Teaching • Power point presentation	T1
MODULE II			

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6	Introduction of Android Studio platform, Brief discussion of Android studio setup steps	• Board Teaching • Power point presentation	T1
7	Android Platform Architecture Introduction, Emulator setup, Eclipse, Android SDK tools	• Board Teaching • Power point presentation • Hands on Session	T1,R2
8	Application Framework and basic App Components Resources	• Board Teaching • Power point presentation • Hands On Session	T1, R2
9	Android studio basic component Introduction with practical	• Board Teaching • Power point presentation	T1, R2
10	Hello World Program in Android Studio	• Board Teaching • Power point presentation • Lab Exercise	T1, R2
MODULE – III			
11	Android user Interface – Layouts (Linear, Absolute, Table, Relative, Frame and Scroll),	• Board Teaching • Lab Exercise	T1, T2,R1
12	Asset XML representation, generate R.Java file, Android manifest file.	• Board Teaching • Power point presentation • Lab Exercise	T1, T2,R1
13	Activities, Intent and UI Design - activities life-cycle, Practical	• Board Teaching • Power point	T1, T2,R2

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	examples	presentation • Lab Exercise	
12	Android Components – layouts, fragments, basic views (Button, Edit Text, Check box, Toggle Button, Radio Button) with practical examples	• Board Teaching • Lab Exercise	T1, T2,R2
13	List views, picker views, adapter views, Spinner views, Menu, Action Bar with practical examples	• Board Teaching • Power point presentation • Lab Exercise	T1, T2,R2
14	Managing data using SQLite database (Database create, Read, Update and delete with practical examples	Class Assignment (Practicing Programs)	T1, T2,R2
15	Practice Session	Class Assignment (Practicing Programs)	T1, T2,R2
MODULE – IV			
16	Introduction of Messaging and Location-based services	• Board Teaching • (Practicing Programs)	T1, R2
19	Sending SMS and mail, Google Maps – Displaying Google Maps in Android application	• Board Teaching • Power point presentation	T1, R2
20	Networking – How to connect to Web using HTTP	• Board Teaching • Power point	T1, R2

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

		presentation	
21	Publishing Android Applications – how to prepare application for deployment	• Board Teaching • Power point presentation • Hands on Session	T1, R2
22	Exporting application as an APK file and signing it with new certificate	• Board Teaching • Power point presentation	T1, R2
23	How to distribute new android application and publish android application on market place	• Board Teaching • Power point presentation	T1, R2
24	How to distribute new android application and publish android application on market place	• Board Teaching • Assignment • (Practicing Programs)	T1, R2
25	Practice Session	Hands On Session	T1, R2
MODULE – V			
26	Introduction of DATA PERSISTENCE AND GOOGLE APIS FOR ANDROID	• Board Teaching • Power point presentation	T1, T2,R3
27	SQLite Databases. CROSS-PLATFORM APP DEVELOPMENT	• Board Teaching • Power point presentation	T1, T2,R3
28	Introduction to Cross platform App Development	• Board Teaching • Power point presentation	T1, T2,R3

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29	Difference to native apps, Pros and cons, Development tools	Board Teaching	T1, T2,R3
30	Difference to native apps, Pros and cons, Development tools	• Board Teaching • Power point presentation	T1, T2,R3
31	Practice Session	Board Teaching	T2,R3
32	Practice Session	Group Discussion	T2,R3

Course Outcomes and CO-PO/PSO Mapping:

CO No.	Outcomes	Bloom's Taxonomy Level	POs / PSOs
CO1	Create, test and debug Android applications by setting up the Android development environment.	L6	1,2,3,5,10,12, PSO1
CO2	Design a responsive user interface across a wide range of Android mobile devices using Android Studio.	L6	1,2,3,5,10,12, PSO1
CO3	Select appropriate techniques to store, share and retrieve data in Android applications.	L3	1,2,3,5,10,12, PSO1
CO4	Use Flutter and React Native frameworks when deploying applications using Cross-platform technology.	L3	1,2,3,5,6,10,12, PSO1

Strength of CO Mapping to PO/PSOs with Justification:

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1. Table: Mapping Levels of COs to POs / PSOs

COs	Program Outcomes (POs)												PSOs		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
	Engineering knowledge	Problem analysis	Design	Conduct investigations of complex problems	tool usage	The engineer and society	Environment and sustainability	Ethics	team work	Communication	Life-long learning	Project management and finance	Apply the principal concepts of AI Engineering	Apply the knowledge gained pertaining to data storage, data analytics and AI concepts	develop, and test principles of AI concepts on Intelligent Systems
CO 1	3	2	3		1					1		1	2		3
CO 2	3	3	2		3					1		1	2		3
CO 3	2	3	3		3					1		1	2		2
CO 4	3	3	3		3	3				1		1	3		3

3: Substantial (High)

2: Moderate (Medium)

1: Poor (Low)

CO-PO-PSO	JUSTIFICATION
CO1→PO1(3)	students will be able to gain the knowledge of mobile application development using Android development environment
CO1→PO2(3)	students will be able to analyze different method of storing, sharing and retrieving the data in Android applications
CO1→PO12(2)	students can apply their knowledge to build mobile applications
CO2 → PO2(3)	students will be able to analyze different ways of designing User Interfaces.
CO2 → PO3(2)	students will be able to do responsive user interface design.

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CO2 → PO12(2)	Students can apply their knowledge to build mobile applications.
CO3 → PO1(3)	students gain the knowledge of of storing, sharing and retrieving the data in Android Application
CO3 → PO2(3)	students will be able to gain the knowledge of storing, sharing and retrieving the data in Android Application
CO4 → PO1(3)	Student will Acquire technical competency and skills in developing applications using Android and cross-platform

LIST OF ACTIVITIES (IF ANY):

- Activity which makes students to apply the concepts learned in the course to the real time applications of algorithms will be discussed in class.
- Activity provides space to students giving responsibility for their own learning to make them into independent thinkers.
- Activity that makes the students for the development of skill set in Machine Learning Algorithms.
- Activity that makes the students to have critical thinking, developing an expert mind set, problem-solving and teamwork.

LIST OF INNOVATIVE TEACHING METHODS:

- Board Teaching
- Powerpoint presentations
- Group Discussion
- Flipped Learning

ASSESSMENT PROCESSES:

- Provision for Two Internal assessments of 40 marks each of descriptive questions and reducing it to 20 marks.
- Mini Project 10 Marks
- Assignment 10 Marks

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ASSESSMENT PLAN:

Course Outcomes	Internal Test-I addresses (Cognitive Level)	Internal Test-II addresses (Cognitive Level)	Mini Project addresses (Cognitive Level)	Seminar addresses (Cognitive Level)
CO1	Applying	--	--	-
CO2	Applying/Develop	--	Applying-	-
CO3	--	Understanding	Applying-	Applying
CO4	--	Applying	Applying	Applying

TEXT BOOKS:

1.	MobileCloudComputingbyDebashisDe,CRCPress,Taylor&FrancisGroup,2016.
2.	HeadFirstAndroidDevelopmentbyJonathanSimonO'reillyPublication,2021

REFERENCES:

1	LearningAndroid byMarkoGargentaO'ReillyPublications,2011.
2	JochenH.Schiller,"MobileCommunications",SecondEdition,Pearson education,NewDelhi,2007.
3	UweHansmann,Lothar Merk,MartinS.NicklonsandThomasStober, "Principlesof Mobile Computing",Springer,2003.
4	ErikHellman,"AndroidProgramming–Pushing the Limits", 1stEdition,WileyIndia PvtLtd,2014.
5	FDiMarzio,"BeginningAndroidProgrammingwithAndroidStudio",4 th Edition,WileyIndiaPvtLtd,2016

E-BOOKS / ONLINE RESOURCES:

1. [https://www.academia.edu/33647272/MOBILE_CLOUD_COMPUTING_Architectures Algorithms and Applications](https://www.academia.edu/33647272/MOBILE_CLOUD_COMPUTING_Architectures_Algorithms_and_Applications)

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2. <https://www.asthanepal.com.np/wp-content/uploads/2018/03/Head-First-Android-Development.pdf>
3. https://yuliana.lecturer.pens.ac.id/Android/Buku/professional_android_4_application_development.pdf
4. <https://google-developer-training.github.io/android-developer-fundamentals-course-practicals/>

MOOC:

1. https://onlinecourses.swayam2.ac.in/nou21_ge41/preview
2. <https://archive.nptel.ac.in/courses/106/106/106106156/>

Prepared by (Course Faculty)	Scrutinized by (Course coordinator)	Approved by Chairman
Signature: <i>Monika</i>	Signature: <i>Monika</i>	Signature: <i>[Signature]</i> 09/11/23
Name: Dr. Monika Goyal	Name: Dr. Monika Goyal	Name: Dr. Jayavrinda Vrindavana m

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[Signature] 09/11/2023

ICT- enabled tools including online resources for effective teaching & learning processes





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 Karnataka

09/11/23

Create

Module-4,5	Posted Dec 19, 2023	⋮
Module-3Notes	Posted Nov 27, 2023	⋮
Assignment-1Case Study	Draft	⋮
Syllabus	Posted Nov 16, 2023	⋮
Module-2 PPT	Posted Oct 11, 2023	⋮
Module_1 PPT	Posted Oct 9, 2023	⋮



[Customize](#)

Machine Learning

5



Announce something to your class



Sudha D posted a new material: Module-4,5
Dec 19, 2023



Sudha D
Nov 27, 2023



Dear Students,
MSE-2 Portion
Module-2:

Motivation, estimating hypothesis accuracy, Basics of sampling theorem, General approach for deriving confidence intervals, Difference in error of two hypothesis, Comparing learning algorithms.

Module-3:

Introduction to Supervised Learning, Introduction to Perceptron model and its adaptive learning algorithms (gradient Decent and Stochastic Gradient Decent), Introduction to classification, Naive Bayes classification Binary and multi class Classification, decision trees and random forest, Regression (methods of function estimation) –Linear regression and Non-linear regression, logistic regression, Introduction To Kernel Based Methods of machine learning: K-Nearest neighbourhood , kernel functions, SVM, Introduction to ensemble based learning methods.

Module-4:

Introduction to Unsupervised Learning, Clustering (hard and soft clustering) Hierarchal clustering: Kmeans.



Sudha D posted a new material: Module-3Notes
Nov 27, 2023





Stream

Classwork

People

Grades

2) ML Mini project Review is on 13/12/2023 01:45 PM to 4:00 PM (problem statement, literature review, architecture, implementation, report)



Add class comment...



Sudha D

Nov 16, 2023



List of experiments to be conducted:

- 1) Implementation of Linear and Logistic Regression
- 2) Implementation of SVM, KNN, Naive Bayes ML algorithms
- 3) Implementation of Decision trees, Random Forest Classifiers
- 4) Implement ensemble algorithms
- 5) Implementation of different clustering algorithms and PCA implementation of different neural networks



Add class comment...



Sudha D posted a new material: Syllabus

Nov 16, 2023



Sudha D

Nov 3, 2023

**CIA Component for the course**

IA Tests ----- 30

Mini Project ----- 15

Quiz ----- 5

Lab Record ----- 5

Assignment ----- 5



Add class comment...



Sudha D posted a new material: Module-2 PPT

Oct 11, 2023



Sudha D posted a new material: Module_1 PPT

Oct 9, 2023



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[Assignment](#)
[Test](#)
[Announcement](#)
COURSE DETAILS

Semester	7
Discipline	SoE
Base Dept.	Computer Science and Technology
Elective	No
Credit	3.00

[Course View](#)
[\(../Subject/SUB_Subject/SUB_SubjectView.aspx?SubjectID=letCpRqmAhs=\)](#)
[Scheme](#)
[Add Course details](#)
[\(../Subject/SUB_Subject/SUB_SubjectViewProfile.aspx?SubjectID=letCpRqmAhs=&CourseID=wye4wPU66q8=\)](#)
TEACHING SCHEME

Sr.	Teaching Scheme	Total Hrs.	Total Hrs. Unit
1	Lab	0	Week
2	Lecture	0	Week
3	Tutorial	0	Week
4	Seminar Project Hours	0	Week

EXAMINATION SCHEME

Sr.	Mark Type	Total Mark	Passing
1	CIA Theory	-	-
2	CIA Practical	60	0
3	SEE Theory	-	-
4	SEE Practical	40	0
	Total Mark	100	
5	External Theory Paper	-	-
6	Viva Voce	-	-
Exam Duration (In Minutes) : 180			

COURSE INSTRUCTORS
Dr. Danthuluri Sudha
[\(../Staff/STF_Staff/STF_StaffViewCompact.aspx?StaffID=ZydOx7zEK9c=\)](#)
[9008066539](tel:9008066539)
sudha-ct@dsu.edu.in
<mailto:sudha-ct@dsu.edu.in>
DIVISION WISE STUDENT

Sr.	Program	Division	Students
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- 🔍 Test
- 📢 Announcement

📎 ASSIGNMENT

ment (../LMS_Content/LMS_ContentAddEdit.aspx?SubjectID=letCpRqmAhs=&IsSubmission=VWIdDq1o3Tw=&LMSSeasonID=TG8CyGTwWdk=)

Sr.	Title	Created Date	Due Date	Marks Out of	Views Rating	Published	Allocated
1	LAB RECORD (../LMS_Content/LMS_ContentView.aspx?ContentID=HQR9ICaHNWE=)	20-10-2023	02-11-2023 12:00 AM	50	👁 38 ☆ 0.00 (0)	Published	30-Students (../LMS_StudentSubmi
2	CASE STUDY -1 & 2 (../LMS_Content/LMS_ContentView.aspx?ContentID=ZGBZWLJgQPA=)	20-10-2023	30-10-2023 12:00 AM	50	👁 36 ☆ 5.00 (1)	Published	30-Students (../LMS_StudentSubmi

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ANNOUNCEMENT

ment (../LMS_StudentAnnouncement/LMS_StudentAnnouncementAddEdit.aspx?SubjectID=letCpRqmAhs=&LMSSeasonID=TG8CyGTwWdk=)

Sr.	Announcement	Announcement Date	Document	Action
1	Submit Case study two by 27th October 2023.	18-10-2023 to 27-10-2023		(../LMS_StudentAnnouncement/LMS_StudentAnnouncementView.aspx?StudentAnnouncem

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[« Back To Staff Dashboard](#)[Introduction](#) [Content](#) [Assignment](#) [Test](#) [Announcement](#)**E-Note** **CONTENT TYPE WISE CONTENT LIST**[./LMS_Content/LMS_ContentAddEdit.aspx?SubjectID=letCpRqmAhs%3d&IsSubmission=YeOMSwa2I1o=&LMSSessionID=TG8CyGTwWdk%3d\)](#)[E-Note](#) 3

Sr.	E-Note	Doc.	Updated On	Views Rating	Publ
1	Syllabus (../LMS_Content/LMS_ContentView.aspx?ContentID=ExlWnFCwVSE=)		18-10-2023	5 ☆ 5.00 (1)	Publ
2	Notes (../LMS_Content/LMS_ContentView.aspx?ContentID=0E-OKs5zCYM=)		26-09-2023	25 ☆ 5.00 (1)	Publ
3	Lesson Plan (../LMS_Content/LMS_ContentView.aspx?ContentID=f46W44m37XE=)		26-09-2023	6 ☆ 5.00 (1)	Publ



Department of Mechanical Engineering

2.3.2 Teachers use ICT enabled tools including online resources for effective teaching and learning processes during the year

The institution leverages ICT-enabled tools across all departments to enhance teaching and learning processes. Smartboards, animations, simulations, and virtual labs are actively used to create interactive and engaging classroom experiences. Lesson plans consistently incorporate ICT tools, such as Learning Management Systems (LMS), weblinks, AI/VR applications, and quiz platforms, ensuring technology-driven pedagogy.

The institution maintains a detailed list of courses hosted on the LMS integrated with the ERP system. Usage statistics for these courses, along with evidence of virtual lab sessions, reflect high engagement levels. Tools like YouTube, are widely used for lectures, assessments, and collaborative activities.

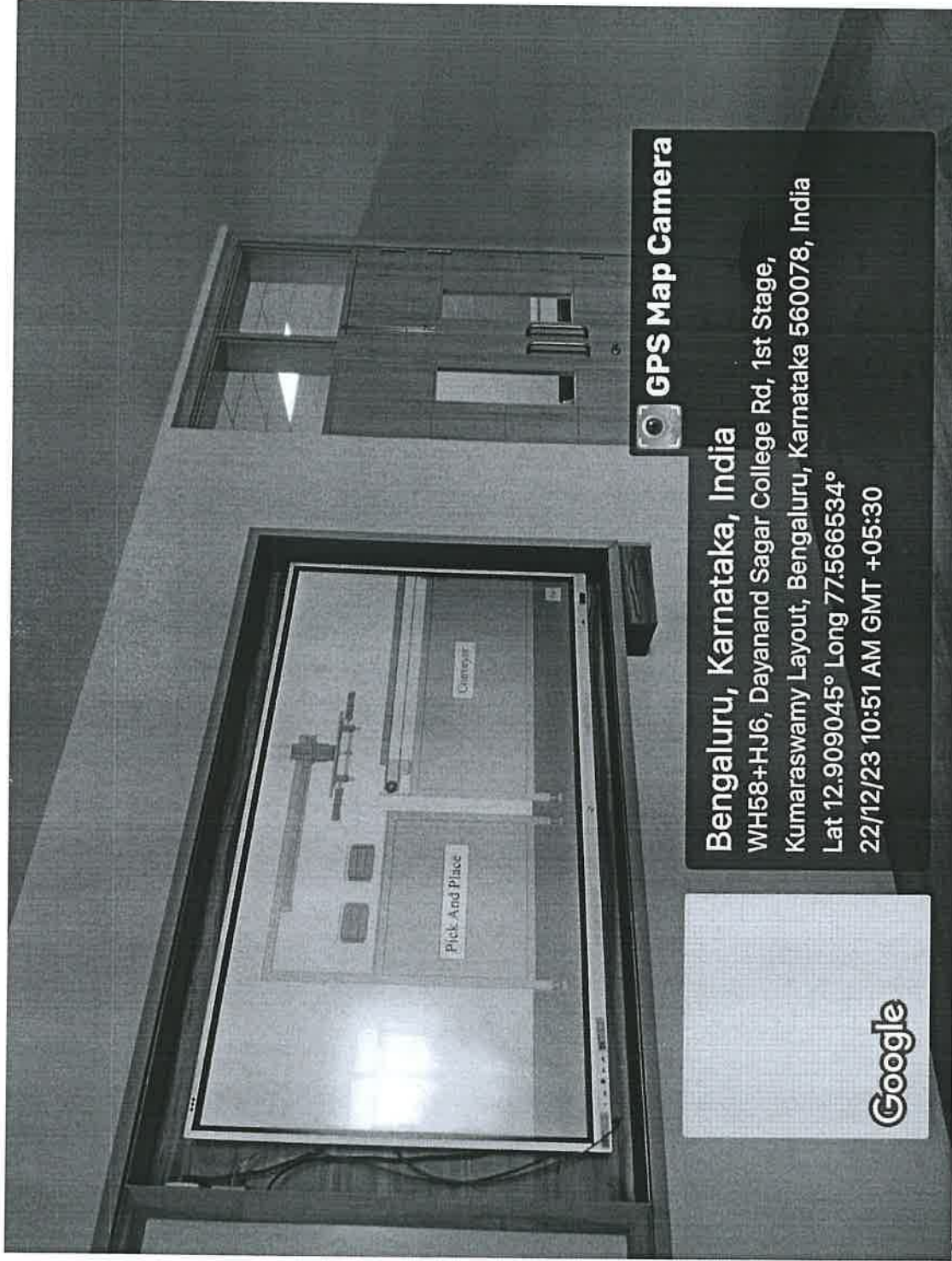
Comprehensive evidence includes LMS course listings, usage data, virtual lab reports, and records of ICT tools deployed in teaching. These initiatives demonstrate the institution's commitment to fostering innovative and effective learning environments through technology.

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Department of Mechanical Engineering, SoE, DSU			
Session : 2023-24 I, II, III, V, VII semesters			
Recordings Links			
III - Semester			
SL. No:	Course Code	Course	Recordings Folder Link
1	Introduction to Mechanical Engineering		https://youtu.be/IaPTuwKEfmA
III - Semester			
SL. No:	Course Code	Course	Recordings Folder Link
2	20ME2302	ENGINEERING MATERIALS	https://drive.google.com/drive/u/1/folders/0B2bzrfv5O6NMfnFuejQ0cXVEYV8yNzBxc1N4aFEINnRWU11c25GU0VKci0tcXhRLTdMbZQ?resourcekey=0-k5cl_aG7_enlxaPE9algfA
3	20ME2305	COMPUTER AIDED MACHINE DRAWING	https://drive.google.com/file/d/1vHHpzHVT3ltLqYC9u4YNPmb_2AaHFm/viiew?usp=sharing
V - Semester			
Sr. No:	Course Code	Course	Recordings Folder Link

4	19ME3503	DESIGN OF MACHIN ELEMENTS – I	https://drive.google.com/drive/u/1/folders/1r9CWx_hOxLsVNRN8Mepu7a6sMauNkbSzwXvIR8o15FFDPwvYoUgeCswWqV30kfdvAtRMc5E4


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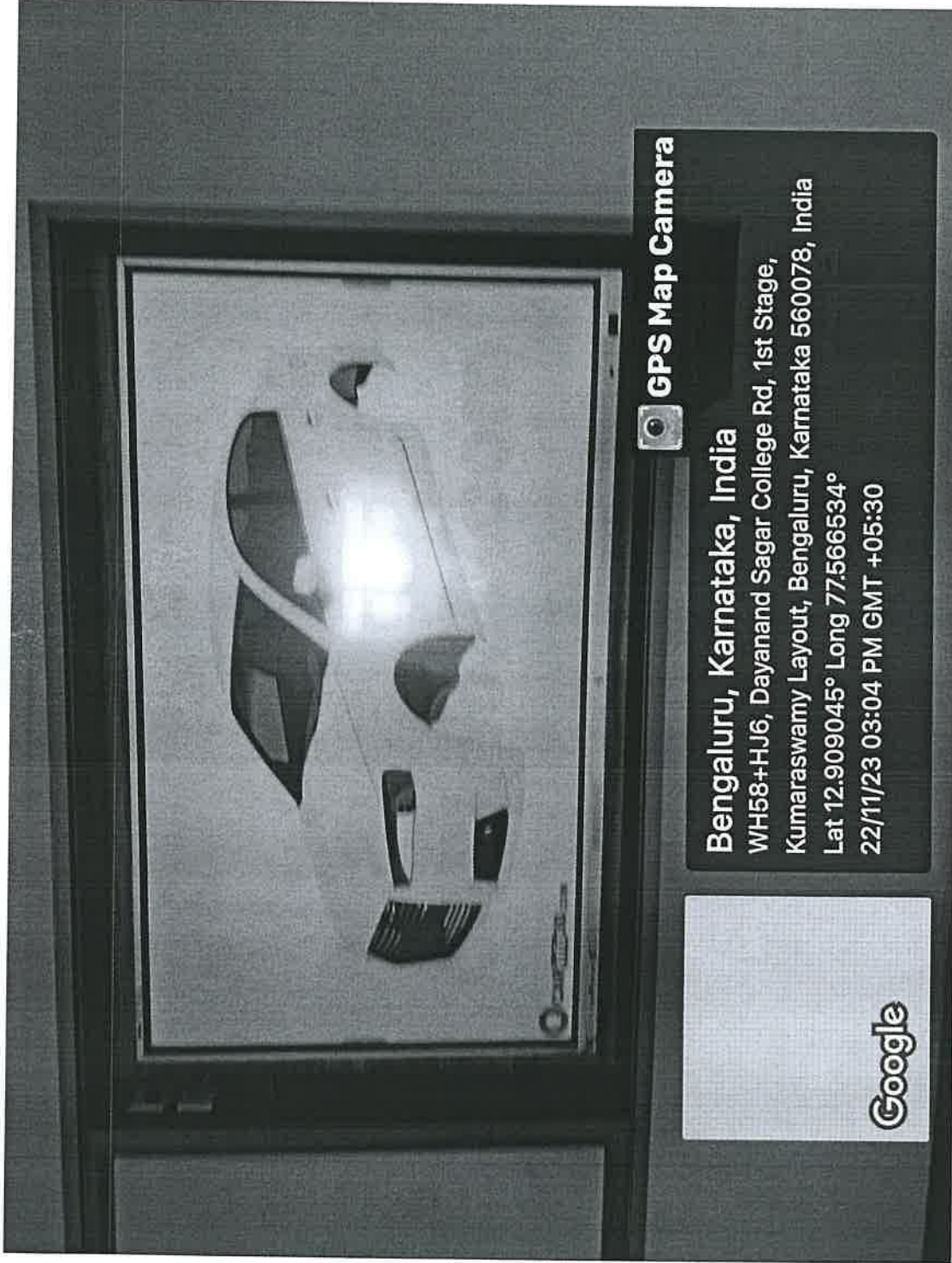
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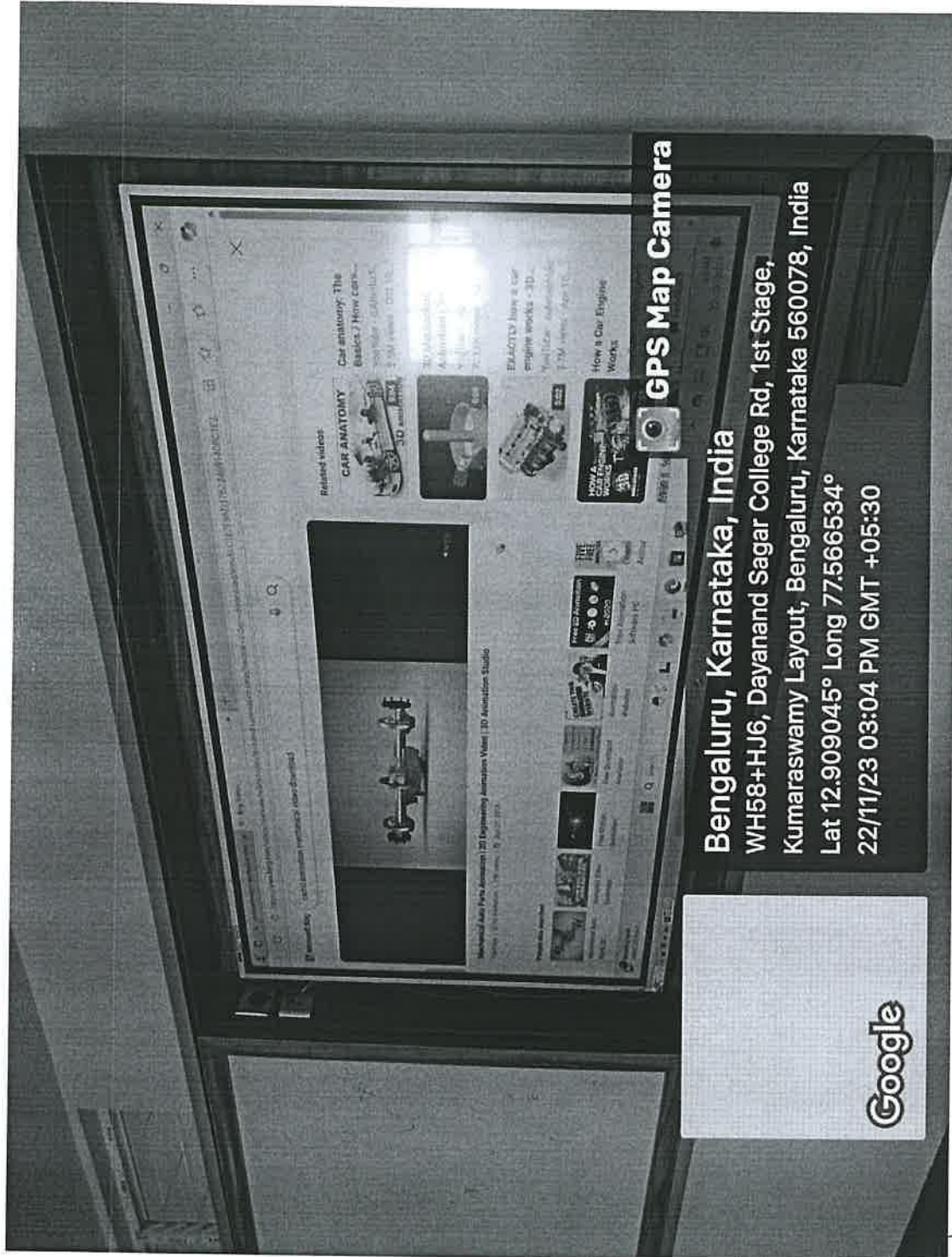
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Stream

Classwork

People

Grades



Suvarna Ghosh



Henil kotadiya



Dileep Kumar



Hitesh Kumar



Hasan Kutub



Dishali Mathur



WISHMINA MAXI



Sudha Merla



Challa mokshithchowdary



Bharat morpana



Shreedhnaya Nadig



Varsha Naidu



Sania patil



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