



FATIMA JINNAH DENTAL COLLEGE HOSPITAL

STUDY GUIDE

2nd Prof BDS
2026

NAME: _____

BATCH: _____ **ROLL NO:** _____

FATIMA JINNAH DENTAL COLLEGE



Vision

Fatima Jinnah Dental College aspires to advance oral health locally and globally by cultivating compassionate, scholarly, and competent dental professionals who serve communities with purpose, uphold clinical excellence, embrace inclusivity, and improve access to care.

Mission

To educate and empower socially responsible, compassionate, and ethical dental professionals through a globally aligned and inclusive curriculum that emphasizes clinical excellence, scholarly advancement, leadership development, and purposeful community engagement.

Prof. DR. BABUR ASHRAF
B.D.S, FCPS, M ORTH (RCS)
Principal
Fatima Jinnah Dental College
Karachi-Pakistan



BDS Program Outcomes

Upon successful completion of the 4-year BDS program, the FJDC graduates will be able to:

1. **PO 1 – Clinical Excellence**
Demonstrate clinical excellence by accurately diagnosing and managing dental conditions through the integration of basic and clinical sciences, evidence-based practices, and appropriate use of technology.
2. **PO 2 – Scholarship**
Engage in scholarly inquiry by applying research methodologies to generate evidence, critically appraise literature, and contribute to the advancement of dental knowledge and clinical practice.
3. **PO 3 – Leadership, Communication, and Collaboration**
Exhibit ethical leadership, effective communication, and collaborative decision-making to enhance team-based dental care and contribute positively to professional practice.
4. **PO 4 – Community Advocacy**
Advocate for oral health promotion and disease prevention to enhance individual and community well-being.
5. **PO 5 – Professionalism, Ethics, and Cultural Sensitivity**
Demonstrate ethical practice, accountability, cultural competence, and a commitment to patient-centered care, professional development, and personal integrity.
6. **PO 6 – Technological Adaptability and Lifelong Learning**
Adapt to evolving dental technologies and innovations by embracing a mindset of lifelong learning, digital fluency, and reflective practice to continuously enhance clinical effectiveness and professional growth.

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INTRODUCTION

Study Guide: A guide book is created to facilitate learning, provide direction and point out required critical information to students to maximize the benefit each student can attain from the academic program.

This book will help you in providing:

1. Information on organization and management of the course.
2. A description of the course objectives which will you will be expected to achieve at the end of the course.
3. Information on learning methods that you will experience during the course.
4. Information on Assessment and examination policy, rules and regulations.

Courses:

Several courses of different durations will be taught in the subjects offered in third year as per the PMC guidelines. The academic year, which includes teaching, assessments, Midterms and pre- Prof Examinations comprises of approximately 40-42 weeks.

The Examining subjects for Second year by the University are:

1. Pathology
2. Pharmacology
3. Science of Dental Materials
4. Community Dentistry

Course No: Each course has a title and a number.

Learning Methods:

- Lecture (LEC)
- Small group discussion (SGD)
- Case Based Learning (CBL)
- Task Base Learning (TBL)
- Practicals (PRAC)
- Demonstrations (DEMO)

Assessments

OSCE will be conducted before the end of semesters

Four CATS (Continuous Assessment Test) for each subject throughout the year will be conducted for regular candidates and the candidates repeating the year.

Midterms will be conducted in the middle of academic year,

Pre –Prof Exams will be conducted at the end of the academic year before the final exams conducted by the University

The annual examinations will be conducted by the University.

Minimum passing marks in all the assessments are 50% of the total marks.

Internal Evaluations:

The University requires internal evaluations which are based on the overall performance throughout the year in OSPE's, CAT's and Midterms.

Total 20% weightage of OSPE and Theory will be sent to the University.

Eligibility for the Annual Examinations:

Minimum of 75% attendance is required as per the University policy and rules.

Attendance in every rotation assessment and CAT's, midterms and Pre- Professional exams is mandatory.

Clearance of all college dues is mandatory.

Rules for repeating the year:

A student who fails to clear 100% subjects of the year after the resit/ supply examinations of that year will be considered a Repeater.

Student repeating will attend all classes of the subject(s) (theory / practicals) he/ she was declared failed in. He/ She will appear in all CAT's of the subject(s) in which he/ she were declared failed in.

The repeater will pay the fees for the subject in which He/ She was declared fail, which will be not less than 25% of the total annual fee per subject to a maximum to 75% of the fee.

If for any reason a student is unable to appear in the annual examination, he or she can avail one chance for that academic year, i.e. to take the Resit/ supply examination. This will be counted as the second attempt.

Assessment Administration Rules and Regulation:

To ensure that the assessments are held according to the standard conditions and that no examinee receives unfair advantage in the assessment, students must adhere to / abide by the rules and regulations of the institution and the university.

The Following examples include misconduct but not necessarily limited to misconduct

1. Copying or attempting to copy answers from another student or allowing answers to be copied.
2. Making notes of any kind during the assessment.
3. Failure to follow the instructions of the staff present.
4. Acts of disruptive behavior such as raising one's voice, talking to others during the examination.
5. Possession of any unauthorized material such as any photographic equipment or communication device.
6. Memorizing and reproducing examination materials and any unauthorized reproduction by any means.

Students should remember:

1. Students should arrive in the lecture hall/ examination hall 10 minutes before the exam.
2. Students should wear college identification at all times.
3. Admit cards are mandatory to take the exam.

DESCRIPTION & RATIONALE

This subject introduces you to the common dental health problem in community, methods to achieve good oral hygiene & to spread health awareness in the public through organized community efforts. Besides this it has basic research methodology and biostatistics as one of its main components.

COURSE OBJECTIVES:

The student will be able to:

1. Define different concepts of Public Health Dentistry.
2. Identify various Oral health problems in community.
3. Identify pictures of diseases, signs & symptoms with diagnosis, preventive measures and management.
4. Understand epidemiology of various oral health problems.
5. Apply respective indices to measure severity of various oral conditions
6. Identify instruments, their indications, contraindications, precautions while using them.
7. Classify basic research methods.
8. Calculate simple bio-statistical measures.

Mode of Information Transfer (MIT):

- Small Group Discussion (SGD)
- Lecture, (LEC)
- Workshop (WS),
- Field Trips (FT)

COURSE NAME: Practice of Dental Public Health

COURSE CODE: FJ02-CD-01

LEARNING OBJECTIVES:

By the end of the topic the student must be able to:

- 1.1 Define: Health, Disease, Public Health, Dental Public Health, Public Health Problem, dimensions of health, Surveillance & its types
- 1.2 Discuss the evolving role/functions/issues in dental public health in recent years and planning cycle.
- 1.3 Explain the functions of public health agencies.
- 1.4 Enlist ethical principles biomedical decision making and research.
- 1.5 Compare & Contrast private & public dental practice

LEARNING STRATEGIES AND ASSESSMENT:

S:NO	TOPIC	MIT	HRS	BCQ	OSCE
1	Introduction to Practice of Dental Public Health	LEC	3	✓	✓
2	Functions of Dental Public Health	LEC	2	✓	✓
3	Professionalism, Ethics & Ethical Principles	LEC	3	✓	✓
4	Professionalism, Ethics & Ethical Principles	SGD	3	✓	✓
Total			11		

COURSE NAME: Determinants of Health

COURSE CODE: FJ02-CD-02

LEARNING OBJECTIVES:

By the end of the topic the students will be able to:

- 2.1 Describe Determinants of Health
- 2.2 Describe Common Risk Factor Approach
- 2.3 Describe the inequalities in health
- 2.4 Describe the lifestyle approach

LEARNING STRATEGIES AND ASSESSMENT

S:NO	TOPIC	MIT	HRS	BCQ	OSCE
1	Introduction to Determinants of Health	LEC	2	✓	✓
2	Common Risk Factor Approach	LEC	1	✓	✓
3	Concept of Inequalities in health	LEC	2	✓	✓
4	Lifestyle Approach	LEC	1	✓	
Total			6		

COURSE NAME: Access to Care

COURSE CODE: FJ02-CD-03

LEARNING OBJECTIVES:

By the end of the topic the students will be able to:

- 3.1 Describe Access to Care

- 3.2 Describe the five A's
- 3.3 Describe the barriers and utilization related to access
- 3.4 Oral Health needs and demand

LEARNING STRATEGIES AND ASSESSMENT

S:NO	TOPIC	MIT	HRS	BCQ	OSCE
1	Introduction to Access to Health care	LEC	3	✓	✓
2	Oral Health Needs and Demands	LEC	1	✓	✓
3	Discuss five A's	LEC	3	✓	✓
4	Barriers and utilization related to access	LEC	2		
Total			9		

COURSE NAME: Oral Health Promotion & Education

COURSE CODE: FJ02-CD-04

LEARNING OBJECTIVES:

By the end of the topic the students will be able to:

- 4.1 Define: Health promotion & Health Education
- 4.3 Describe the Ottawa Charter for Health Promotion
- 4.3 List Global goals for Oral Health in year 2000
- 4.4 Discuss knowledge & attitudes towards oral health
- 4.5 Describe principles of oral health education
- 4.6 Conduct oral health education sessions

LEARNING STRATEGIES AND ASSESSMENT

S:NO	TOPIC	MIT	HRS	BCQ	OSCE
1	Introduction to the principles of Health Promotion	LEC	3	✓	✓
2	Content of Health Education	LEC	3	✓	✓
3	Strategies & Aids to Promote Health	SGD	3	✓	✓
3	Conduct Oral Health Sessions	FT	3		
Total			12		

COURSE NAME: Determinants of Health

COURSE CODE: FJ02-CD-02

LEARNING OBJECTIVES:

By the end of the topic the students will be able to:

- 2.1 Describe Determinants of Health
- 2.2 Describe Common Risk Factor Approach
- 2.3 Describe the inequalities in health
- 2.4 Describe the lifestyle approach

S:NO	TOPIC	MIT	HRS	BCQ	OSCE
1	Introduction to Determinants of Health	LEC	2	✓	✓
2	Common Risk Factor Approach	LEC	1	✓	✓

3	Concept of Inequalities in health	LEC	2	✓	✓
4	Lifestyle Approach	LEC	1	✓	
Total			6		

COURSE NAME: Access to Care

COURSE CODE: FJ02-CD-03

LEARNING OBJECTIVES:

By the end of the topic the students will be able to:

3.1 Describe Access to Care

3.2 Describe the five A's

3.3 Describe the barriers and utilization related to access

3.4 Oral Health needs and demand

LEARNING STRATEGIES AND ASSESSMENT

S:NO	TOPIC	MIT	HRS	BCQ	OSCE
1	Introduction to Access to Health care	LEC	3	✓	✓
2	Oral Health Needs and Demands	LEC	1	✓	✓
3	Discuss five A's	LEC	3	✓	✓
4	Barriers and utilization related to access	LEC	2		
Total			9		

COURSE NAME: Oral Health Promotion & Education

COURSE CODE: FJ02-CD-04

LEARNING OBJECTIVES:

By the end of the topic the students will be able to:

4.1 Define: Health promotion & Health Education

4.4 Describe the Ottawa Charter for Health Promotion

4.3 List Global goals for Oral Health in year 2000

4.4 Discuss knowledge & attitudes towards oral health

4.5 Describe principles of oral health education

4.6 Conduct oral health education sessions

LEARNING STRATEGIES AND ASSESSMENT:

S:NO	TOPIC	MIT	HRS	BCQ	OSCE
1	Introduction to the principles of Health Promotion	LEC	3	✓	✓
2	Content of Health Education	LEC	3	✓	✓
3	Strategies & Aids to Promote Health	SGD	3	✓	✓
3	Conduct Oral Health Sessions	FT	3		
Total			12		

COURSE NAME: Primary Health Care

COURSE CODE: FJ02 -CD-05

LEARNING OBJECTIVES:

By the end of the topic the students will be able to:

- 5.1 Define: Primary Health Care, disease and illness
- 5.2 Discuss various levels of prevention
- 5.3 Enlist elements of PHC
- 5.4 Explain key concepts of PHC & Alma Ata Declaration
- 5.5 Describe Ice Berg Phenomenon
- 5.6 Identify health services available at different levels of care.

LEARNING STRATEGIES AND ASSESSMENT:

S:NO	TOPIC	MIT	HRS	BCQ	OSCE
1	Introduction to Primary Health Care	LEC	1	✓	✓
2	Primary Health Care Facilities	LEC	1	✓	✓
3	Levels of Health Care Provision	LEC	1	✓	✓
4	Various levels of prevention	LEC	3		
Total			6		

COURSE NAME: Dental Work Force

COURSE FJ02 CD-06

LEARNING OBJECTIVES:

By the end of the topic the students will be able to:

- 6.1 Define: Dental Auxiliary
- 6.2 Classify dental auxiliary and discuss functions
- 6.3 Classify level of supervision.
- 6.4 Discuss level of supervision

LEARNING STRATEGIES AND ASSESSMENT

S:NO	TOPIC	MIT	HRS	BCQ	OSCE
1	Introduction to Dental Auxiliary	LEC	2	✓	✓
2	Classification of Dental Auxiliary	LEC	1	✓	✓
3	Discuss levels of supervision	SGD	3	✓	✓
Total			6		

COURSE NAME: Nutrition in Health and Disease

COURSE FJ02-CD-07

By the end of the topic the students will be able to:

- 7.1 Describe the macro and micro nutrients
- 7.2 Its daily requirements, sources and functions and dietary deficiency problems.
- 7.3 Nutritional problems in Public Health
- 7.4 Problems due to Malnutrition
- 7.5 Oral Manifestations associated with Malnutrition

LEARNING STRATEGIES AND ASSESSMENT:

S:NO	TOPIC	MIT	HRS	BCQ	OSCE
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1	Introduction to Macro and micro nutrients	LEC	1	✓	✓
2	Sources Function and deficiency problem	LEC	2	✓	✓
3	Nutritional Problem in Public Health	LEC	1	✓	✓
4	Oral Manifestations associated with Malnutrition	SGD	3	✓	✓
Total			7		

COURSE NAME: Behavioral Sciences

COURSE CODE: FJ02-CD-08

By the end of the topic the students will be able to:

- 8.1 Define Behavioral Sciences.
- 8.2 List seven components of Behavioral Sciences.
- 8.3 Define Social Sciences
- 8.4 List five branches of social sciences.
- 8.5 Classify types of behaviors.
- 8.6 Identify age specific behaviors
- 8.7 Explain behavior management technique
- 8.8 Discuss child psychology and its importance in dentistry
- 8.9 Discuss fear and anxiety
- 8.10 Explain fear and anxiety in pediatric patient

LEARNING STRATEGIES AND ASSESSMENT:

S:NO	TOPIC	MIT	HRS	BCQ	OSCE
1	Types of Behaviors	LEC	1	✓	
2	Behavioral Management Techniques	LEC	1	✓	
3	Child psychology	LEC	2	✓	
4	Management of fear and anxiety in pediatric patient	LEC	2	✓	
5	Behavior Management technique	SGD	3		
Total			9		

COURSE NAME: Infection Control & Mercury Safety**COURSE CODE: FJ02-CD-09****LEARNING OBJECTIVES:**

By the end of the topic the students will be able to:

- 9.1 Define: Infection control, Standard precautions, Personal Protective Equipment, Sterilization
- 9.2 Discuss the Infection control guidelines described by American Dental Association (ADA), Center of Disease Control and Prevention (CDC) and Occupational Safety and Health Administration (OSHA).
- 9.3 Identify occupational hazards associated with dentistry practice.
- 9.4 Discuss mercury toxicity and know how to prevent it.
- 9.5 Know steps to clean mercury spills.
- 9.6 Enlist blood borne infections
- 9.7 Describe Oral manifestations of HIV/AIDS, Hepatitis B and C.
- 9.8 Identify and discuss use of various sterilization equipment & techniques.
- 9.9 Know steps taken to avoid infection associated with contaminated dental unit water lines.
- 9.10 Discuss public and professional perception of infectious disease.
- 9.11 List safety and environmental issues of dental amalgam.

LEARNING STRATEGIES AND ASSESSMENT:

S:NO	TOPIC	MIT	HRS	BCQ	OSCE
1	Occupational Hazards in Dentistry	LEC	1	✓	✓
2	Infection Control Practices	LEC	2	✓	✓
3	Oral Manifestations of HIV/AIDS	SGD	3	✓	✓
4	Management of Dental Facility	LEC	3	✓	✓
Total			9		

COURSE CODE: Methods & Measurements of Oral Disease**COURSE CODE: FJ02-CD-010****LEARNING OBJECTIVES:**

By the end of the topic the students will be able to:

- 10.1 Define, Endemic, Epidemic, Pandemic, holo-endemic
- 10.2 Discuss epidemiology of oral diseases
- 10.3 Enlist & explain methods of measurement of disease.
- 10.4 Discuss scales used to measure oral conditions. Describe properties of ideal indices.
- 10.5 Differentiate between Inter & intra examiner reliability internal & external validity
- 10.6 Know importance of screening in community
- 10.7 Identify tooth numbering system and predict age on models.
- 10.8 Demonstrate basic ergonomics, history taking and examination.
- 10.9 Diagnose disease on the basis of WHO assessment form.
- 10.10 Demonstrate oral care in special group.
- 10.11 Perform screening in this group and design a dental hygiene care plan for special group.

LEARNING STRATEGIES AND ASSESSMENT:

S:NO	TOPIC	MIT	HRS	BCQ	OSCE
1	Introduction to Disease & Disease Trends	LEC	2	✓	
2	Methods of Measurement of Disease	LEC	2	✓	✓

3	Index, Types & Ideal Properties	SGD	2	✓	✓
4	Importance of screening in community	LEC	2	✓	
5	Identify tooth numbering system and predict age on models	SGD	4		✓
6	Demonstrate basic ergonomics, history taking and examination	SGD	4		✓
7	Diagnose disease on the basis of WHO assessment form	SGD	4		✓
8	Demonstrate oral care in special group Perform screening in this group Design a dental hygiene care plan for special group	FT	3		✓
9	Demonstrate oral care in Community Perform screening in this group Design a dental hygiene care plan	FT	20		✓
Total			43		

COURSE NAME: Dental Caries

COURSE CODE: FJ02-CD-011

LEARNING OBJECTIVES:

By the end of the topic the students will be able to:

11.1 Discuss the distribution & Etiology of Dental Caries

11.2 Understand the relation between diet & dental caries

11.3 Classify Dental Caries.

11.4 Discuss caries activity test.

11.5 Discuss theories and studies of caries.

11.6 List indices used to measure dental caries.

11.7 Discuss prevention of dental caries at primary, secondary & tertiary levels.

LEARNING STRATEGIES AND ASSESSMENT

S:NO	TOPIC	MIT	HRS	BCQ	OSCE
1	Etiology of Dental Caries	LEC	1	✓	✓
2	Classification of Dental Caries	SGD	2	✓	✓
3	Epidemiological Studies on dental caries	LEC	2		
4	Indices to Measure Dental Caries	SGD/FT	6	✓	✓
5	Levels of Prevention of Dental Caries	LEC	2	✓	✓
Total			13		

COURSE NAME: Pits & Fissure Sealants

COURSE CODE: FJ02-CD-12

LEARNING OBJECTIVES:

By the end of the topic the students will be able to:

12.1 Define, Pits & fissure sealants

12.2 Classify pits & fissure sealants

12.3 Explain indication & contraindication, application and retention of fissure sealants

12.4 Enlist names of materials used for pits & fissure sealants

12.5 Apply pits & fissure sealants on phantom teeth.

12.6 Discuss the issues related to the use of fissure sealants.

LEARNING STRATEGIES AND ASSESSMENT:

S:NO	TOPIC	MIT	HRS	BCQ	OSCE
1	Pits & Fissure Sealants	LEC	1	✓	✓
2	Application of Pits & Fissure Sealants	WS	3	✓	✓
3	Perform Chairside preventive dental procedure fissure sealant application	WS	3		✓
4	Demonstrate primary preventive services	WS	3		✓
Total			10		

COURSE NAME: Dental Fluoride & Fluorosis

COURSE CODE: FJ02-CD-13

LEARNING OBJECTIVES:

By the end of the topic the students will be able to:

13.1 Understand the role of Fluoride in prevention of Dental Caries (Mode of Action).

13.2 Discuss metabolism of fluoride.

13.3 Classify and describe pros & cons of methods of fluoride delivery.

13.4 Apply topical fluoride.

13.5 Remember various fluoride doses according to age.

13.6 Explain relationship between fluoride and dental caries

13.7 Differentiate between milder forms of fluorosis and non-fluoride opacities on the basis of their characteristics

13.8 Describe early studies of fluoridated water.

13.9 Define dental & skeletal fluorosis & identify toxicity signs

13.10 Diagnose dental fluorosis clinically & suggest treatment options.

13.11 Enlist & discuss names of indices used to measure dental fluorosis.

13.12 Discuss methods of De-fluoridation

LEARNING STRATEGIES AND ASSESSMENT

S:NO	TOPIC	MIT	HRS	BCQ	OSCE
1	Role of Fluoride in Caries Prevention	LEC	2	✓	✓
2	Fluoride Physiology	LEC	2	✓	✓
3	Methods of Fluoride Delivery	LEC	2	✓	✓
4	Indices to Measure Dental Fluorosis	SGD	3	✓	✓
5	Diagnosis of Dental Fluorosis	FT	3	✓	✓
6	Prevention & Treatment Modalities	SGD	3	✓	✓
7	Apply chairside preventive procedure like topical fluoride gel and varnish	SGD	3	✓	✓
Total			18		

COURSE NAME: Gingival & Periodontal Diseases

COURSE CODE: FJ02-CD-14

LEARNING OBJECTIVES:

By the end of the topic the students will be able to:

14.1 Define: Gingival diseases, Periodontal Diseases

14.2 Discuss etiology, current models, distribution & associated risk factors both local & systemic

14.3 List indices used to measure severity of periodontal disease

LEARNING STRATEGIES AND ASSESSMENT

S:NO	TOPIC	MIT	HRS	BCQ	OSCE
1	Etiology of Periodontal Disease	LEC	1	✓	✓
2	Classification of Periodontal Disease	LEC	2	✓	✓
3	Indices to Measure Severity of Periodontal Disease	SGD	3	✓	✓
4	Application of CPITN index	WS	3	✓	✓
Total			9		

COURSE NAME: Plaque Control Methods

COURSE CODE: FJ02-CD-15

LEARNING OBJECTIVES:

By the end of the topic the students will be able to:

15.1 Define: Materia Alba, plaque, calculus

15.2 Differentiate between supra & sub gingival calculus.

15.3 Enlist names of plaque disclosing agent and must be able to perform it.

15.4 Classify chemical and anti-bacterial plaque control methods.

15.5 Enlist names and demonstrate tooth brushing techniques (Bass, Modified bass, Modified Stillman's, Charters and Fones).

15.6 Identify the equipment used for mechanical plaque control.

15.7 Enlist names of indices used to measure dental plaque.

15.8 Discuss indications, advantages/disadvantages of plaque indices.

15.9 Able to apply OHI-index in field trip settings.

LEARNING STRATEGIES AND ASSESSMENT

S:NO	TOPIC	MIT		HRS	BCQ	OSCE
1	Introduction to Plaque Disclosing Agents	LEC		1	✓	✓
2	Indices to Measure Oral Hygiene	SGD		3	✓	✓
3	Chemical Plaque Control	LEC		1	✓	✓
4	Mechanical Plaque Control	LEC		2	✓	✓
5	Application of Oral Hygiene Index	FT		4		✓
6	Demonstration on Brushing Techniques	SGD		3		
Total				14		

COURSE NAME: Oral Cancer & Other Conditions of Oral Diseases

COURSE CODE: FJ02-CD-16

LEARNING OBJECTIVES:

By the end of the topic the students will be able to:

16.1 Define: Oral Cancer, Erythroplakia, Leukoplakia, Oral Sub-mucous Fibrosis

16.2 Discuss etiology of oral cancer.

16.3 Enlist signs & symptoms associated with oral cancer.

16.4 Discuss prevention of oral cancer at primary, secondary & tertiary levels.

16.5 Understand the hazards associated with tobacco products.

16.6 Discuss soft tissue lesions of the oral cavity, cleft lip and palate, malocclusion and temporomandibular joint disorders.

16.7 Discuss the role of dental professional in control of oral cancer

16.8 Must able to counsel smokers and know treatment options for oral cancer.

LEARNING STRATEGIES AND ASSESSMENT

S:NO	TOPIC	MIT	HRS	BCQ	OSCE
1	Pre-Cancerous lesions & Oral Cancer	LEC	2	✓	✓
2	Risk Factors	LEC	1	✓	✓
3	Discuss its prevention	LEC	3	✓	✓
Total			6		

COURSE NAME: Tobacco & Restrictions

COURSE CODE: FJ02-CD-17

LEARNING OBJECTIVES:

By the end of the topic the students will be able to: Discuss the following:

17.1 Prevalence of tobacco use

17.2 Discuss the types of tobacco

17.3 Pathological effects of tobacco

17.4 Laws proposed to restrict tobacco

17.5 Role of dental professionals in restricting tobacco

LEARNING STRATEGIES AND ASSESSMENT:

S:NO	TOPIC	MIT	HRS	BCQ	OSCE
1	Tobacco & its Restrictions	LEC	1	☐	☐
2	Smoking Prevention Strategies	LEC	1	☐	☐
Total			2		

COURSE NAME: Prevention of Oral Disease

COURSE CODE: FJ02-CD-18

LEARNING OBJECTIVES:

By the end of the topic the students will be able to:

18.1 Describe Sugars and Caries prevention

18.2 Describe Fluoride and Fissure Sealants

18.3 Describe Prevention of periodontal disease

18.4 Describe Oral cancer prevention

18.5 Identify public health approaches to prevention of traumatic Dental injuries

LEARNING STRATEGIES AND ASSESSMENT:

S:NO	TOPIC	MIT	HRS	BCQ	OSCE
1	Introduction to Sugars and caries prevention	LEC	1	✓	✓
2	Prevention by means of fluorides	LEC	2	✓	✓
3	Prevention of Oral Cancer	LEC	2	✓	✓
4	Prevention by means of fluorides	LEC	2	✓	✓
Total			7		

COURSE NAME: ATRAUMATIC RESTORATIONS

COURSE CODE: FJ02-CD-19

LEARNING OBJECTIVES:

By the end of the topic the students will be able to:

19.1 Discuss principles of ART

19.2 Discuss principles of ART on basis of indications, contraindications and method of application

S:NO	TOPIC	MIT	HRS	BCQ	OSCE
1	Principles of ART	LEC	1	✓	✓
2	Indications, contraindications and method of application	LEC	3	✓	✓
3	Perform ART on basis of their indications, contraindications and method of application	WS	5		✓
Total			9		

BOOKS

1. Community Dentistry by Brian Burt.
2. Community Dentistry by Soben Peter 4th Edition
3. Essential Dental Public Health by Blanaid *Daly*, Richard G. Watt, Paul Batchelor, Elizabeth T. Treasure (ISBN: 9780192629746)
4. Textbook of Preventive and *Community Dentistry* by S. S. Hiremath, 9788131225301

PHARMACOLOGY COURSES

COURSE DESCRIPTION AND RATIONALE:

This course introduces the Principles of pharmacological therapy of diseases of Autonomic nervous system, Central Nervous System, cardiovascular system, respiratory system, endocrinology, infectious diseases, rheumatology and hematology.

COURSE OUTCOMES: The student will be able to:

1. Describe about mechanism of action of therapeutic agents.
2. Describe Clinical significance of different drugs.
3. Describe effects and adverse effects of numerous therapeutic agents.
4. Classify different drugs and therapeutic agents.
5. Understand different drug interactions with other drugs as well as interactions of drugs with food and other substances.
6. Describe the routes of administration for drugs and therapeutic agents.

MODE OF INFORMATION TRANSFER (MIT):

- Small group discussion (SGD),
- case based learning (CBL),
- e-learning (e-L) and journal club (JC),
- task based learning (TBL),
- workshop (WS)

COURSE NAME: GENERAL PHARMACOLOGY

COURSE Code: FJ02-PHM-1

Learning Objectives:

- 1.1 Describe pharmacokinetic processes including absorption, distribution, metabolism and elimination of drugs
- 1.2: Discuss the nature and sources of drugs
- 1.3: Classify routes of drugs administration with examples
- 1.4: Explain advantages and disadvantages of different routes of drug administration
- 1.5: Define drug absorption and explain the factors effecting drug absorption
- 1.6: Discuss different transport system of drug permeation
- 1.7: Define bioavailability and explain different factors influencing bioavailability
- 1.8: Define drug distribution and explain the factors determining the rate of drug distribution
- 1.9: Define volume of distribution and apparent volume of distribution and explain how large volume of distribution effect the half-life of a drug
- 1.10: Calculate volume of distribution
- 1.11: Explain binding of drugs to plasma proteins, its influence on drug distribution and its clinical significance
- 1.12: Define drug metabolism and explain the phases involve in metabolism of drug
- 1.13: Discuss factors affecting drug metabolism
- 1.14: Explain the importance of liver's cytochrome P450 system in drug metabolism
- 1.15: Discuss first and zero order kinetics
- 1.16: Explain how an inducer and an inhibitor effect the blood level of CYP450 substrates
- 1.17: Define kinetics of drug excretion and list different routes of drug excretion

1.18: Define drug clearance and

explain theoretical pharmacokinetics and define half-life, loading dose and maintenance dose

1.19: Relate clinical situations resulting in changes in drug half-life

1.20: Calculate half-life, loading dose and maintenance dose

1.21: Define steady state plasma concentration and explain how steady state achieved using different dosage regimens

1.22: Describe pharmacodynamics processes

1.23: Define receptor and discuss major receptor families with examples

1.24: Define signal transduction and signal amplification

1.25: Discuss desensitization, down regulation, up-regulation

1.26: Discuss graded dose response and quantal dose response relationships

1.27: Define potency and efficacy

1.28: Define therapeutic index

1.29: Define agonists and discuss its types

1.30: Define antagonists and discuss its types

1.31: Discuss synergism and its types

1.32: Discuss adverse drug reactions with example

LEARNING STRATEGIES AND ASSESSMENT:

S:NO	TOPIC	MIT	HR	BCQ	OSCE
1	Introduction to pharmacology	LEC	1	☐	☐
2	Pharmacokinetics	LEC	4	☐	☐
3	Pharmacodynamics	LEC	4	☐	☐
4	Introduction to pharmacology (worksheets)	SGD	2.5		
	Total		11.5		

COURSE NAME: ANS PHARMACOLOGY

COURSE CODE: FJ02-PHM-2

LEARNING OBJECTIVES:

By the end of the topic the students should be able to

2.1: Discuss the distinctive anatomical and chemical characteristics of the sympathetic and parasympathetic nervous systems.

2.2: Discuss the visceral organs that are innervated by the sympathetic and parasympathetic systems and the functional responses of the organs to activation of either system

2.3: Discuss the neurotransmitters of sympathetic and parasympathetic systems

- 2.4: Discuss neurotransmission of acetylcholine
- 2.5: Discuss nicotinic and muscarinic receptors
- 2.6: Classify cholinergic agonists and discuss their mechanism of action clinical uses, pharmacokinetics, adverse effects and contra indications.
- 2.7: Classify cholinergic antagonists and discuss their mechanism of action clinical uses, pharmacokinetics, adverse effects and contra indications.
- 2.8: Classify adrenergic agonists and discuss their mechanism of action clinical uses, pharmacokinetics, adverse effects and contra indications.
- 2.9: Classify adrenergic antagonists and discuss their mechanism of action clinical uses, pharmacokinetics, adverse effects and contra indications.

LEARNING STRATEGIES AND ASSESSMENT:

S:NO	TOPIC	MIT	HR	BCQ	OSCE
1	Introduction to Autonomic Nervous System	LEC	1	☐	☐
2	Cholinergic agonists	LEC	3	☐	☐
3	Cholinergic antagonists	LEC	3	☐	☐
4	Adrenergic agonists	LEC	3	☐	☐
5	Adrenergic antagonists	LEC	3	☐	☐
6	1.Role play on the treatment of insecticide poisoning 2.Concept mapping on drugs affecting ANS	SGD	2.5		
	Total		15.5		

COURSE NAME: CNS PHARMACOLOGY

COURSECODE: FJ02-PHM-3

LEARNING OBJECTIVES:

By the end of the topic the students should be able to

- 3.1 Discuss the well-defined dopamine systems in the brain.
- 3.2: Discuss the presentation of Parkinson's disease and its underlying pathophysiology
- 3.3: Classify the drugs used for Parkinson's disease
- 3.4: Discuss the mechanism of action, pharmacokinetics, adverse effects and contraindications for the major classes of drugs used in the treatment of Parkinson's disease.
- 3.5: Discuss the type and mechanisms of alternative treatments for Parkinson's disease
- 3.6: Discuss the presentation of Alzheimer disease and its underlying pathophysiology
- 3.7: Classify the drugs used for Alzheimer disease
- 3.8: Discuss the mechanism of action, pharmacokinetics, adverse effects for the major classes of drugs used in the treatment of Alzheimer disease
- 3.9: Discuss the presentation of anxiety disorders and insomnia and its underlying pathophysiology
- 3.10: Classify the drugs for anxiety disorders and insomnia
- 3.11: Discuss the indications, mechanism of action, pharmacokinetics, adverse effects and contraindications for the major classes of drugs used in the treatment of anxiety and insomnia
- 3.12: Discuss the withdrawal symptoms of anxiolytics and hypnotics and treatment
- 3.13: Discuss the presentation of depression and mania and its underlying pathophysiology
- 3.14: Classify the major classes of antidepressants
- 3.15: Discuss the indications, mechanism of action, pharmacokinetics, adverse effects and contraindications for the major classes of antidepressants
- 3.16: Discuss the discontinuation syndrome of antidepressants

- 3.17: Classify and discuss the drugs used to treat mania
- 3.18: Discuss the presentation of Schizophrenia and its underlying pathophysiology.
- 3.19: Discuss the distinction between “typical” and “atypical” antipsychotic drugs.
- 3.20: Discuss mechanism of action, pharmacokinetics, adverse effects and contraindications of antipsychotic drugs.
- 3.21: Discuss the major opioid receptors.
- 3.22: classify the major classes of opioid analgesics.
- 3.23: Discuss the indications, mechanism of action, clinical effects, pharmacokinetics, adverse effects and contraindications of the major classes of opioid analgesics used in the management of pain.
- 3.24: Discuss the opioid-induced tolerance, physical dependence, addiction and pseudo-addiction, and how to recognize each.
- 3.25: Discuss different types of seizures
- 3.26: Classify anti-epileptics
- 3.27: Discuss the indications, mechanism of action, clinical effects, pharmacokinetics, adverse effects and contraindications of different antiepileptic drugs
- 3.28: Define general anesthesia.
- 3.29: Discuss the various stages of general anesthesia.
- 3.30: Classify and discuss different inhalational and intravenous general anesthetics.
- 3.31: Discuss how the blood gas coefficient influences the onset of action for inhaled anesthetics.
- 3.32: Discuss how the ventilation rate and pulmonary blood flow influence the onset of action for inhalation anesthetics.
- 3.33: Discuss how blood flow to a tissue influences the tension of an anesthetic’s gas in that tissue.
- 3.34: Define minimum alveolar concentration (MAC)
- 3.35: Discuss the mechanism of action, clinical uses, pharmacokinetics and adverse effects of inhalational and intravenous general anesthetics.
- 3.36: Definition local anesthetics.
- 3.37: Classify local anesthetics
- 3.38: Discuss the difference between esters and amides
- 3.39: Discuss the mechanism of action, clinical uses, pharmacokinetics, adverse effects and contraindications of local anesthetics
- 3.40: Define and classify CNS stimulants
- 3.41: Discuss the mechanism of action, clinical uses, pharmacokinetics, adverse effects and contraindications of CNS stimulant

S:NO	TOPIC	MIT	HR	BCQ	OSCE
1	Introduction to Central Nervous System	LEC	1	✓	✓ □
2	Anti-Seizures	LEC	3	✓ □	✓ □
3	Neuro-degenerative diseases	LEC	2	✓ □	✓ □
4	Anxiolytics and Hypnotics	LEC	3	✓ □	✓ □
6	Anti-Depressants	LEC	3	✓ □	✓ □
7	Anti-Psychotics	LEC	2	✓ □	✓ □
8	Opioids	LEC	3	✓ □	✓ □
9	General Anesthesia	LEC	4	✓ □	✓ □
10	Local Anesthesia	LEC	3	✓ □	✓ □
11	CNS-stimulants	LEC	2	✓ □ □ □	
12	Concept mapping on drugs affecting CNS	SGD	2.5		
	Total		28.5		

COURSE NAME: CVS PHARMACOLOGY

COURSE CODE: FJ02-PHM-4

LEARNING OBJECTIVES:

By the end of the topic the students should be able to

4.1: Define hypertension and classify its different stages.

- 4.2: Identify primary and secondary causes of hypertension
- 4.3: Discuss risk factors for hypertension, including genetic, lifestyle and environmental factor.
- 4.4: Discuss the role of autonomic nervous system in blood pressure regulation.
- 4.5: Explain renin angiotensin aldosterone system to maintain blood pressure.
- 4.6: Discuss treatment strategies to regulate blood pressure.
- 4.7: Classify of anti-hypertensive drugs
- 4.8: Discuss the mechanisms of action clinical uses and adverse effects and contraindications of diuretics, β blockers, ACE inhibitors, angiotensin II receptor blocker, renin inhibitor, calcium channel blockers, α/β blockers and vasodilators
- 4.9: Discuss resistant hypertension and its treatment.
- 4.10: Define angina and its pathophysiology
- 4.11: Discuss the three patterns of angina.
- 4.12: Discuss the treatment strategies for angina, including life modification and pharmacological therapy
- 4.13: Discuss the mechanism of action of nitrates, therapeutic uses, pharmacokinetics and adverse effects of nitrates
- 4.14: Discuss how to overcome the tolerance of nitrates.
- 4.15: Discuss the mechanism of action and pharmacokinetics of β blockers, calcium channel blocker and sodium channel blocker in angina management.
- 4.16: Discuss the adverse effects of β blockers, calcium channel blocker and sodium channel blocker in angina management.
- 4.17: Define arrhythmia
- 4.18: Identify the common causes and risk factors of arrhythmia.
- 4.19: Classify antiarrhythmic drugs.
- 4.20: Discuss the mechanism of action, therapeutic uses adverse effects, pharmacokinetics and contraindications of class I antiarrhythmic drugs
- 4.21: Define heart failure and its clinical sign and symptoms.
- 4.22: Discuss the pathophysiological basis for the development of both acute and chronic congestive heart failure.
- 4.23: Discuss the mechanism of action, pharmacokinetics and adverse effects and contraindications of ACE inhibitors, angiotensin receptor blocker and aldosterone antagonist. β blocker, diuretics and vasodilators
- 4.24: Discuss the mechanisms of action, pharmacokinetics and adverse effects of digoxin, β adrenergic agonist and phosphodiesterase inhibitors

LEARNING STRATEGIES AND ASSESSMENT:

S:NO	TOPIC	MIT	HR	BCQ	OSCE
1	Anti-hypertensive	LEC	4	✓	✓
2	Anti-anginal	LEC	2	✓	✓
3	Anti-arrhythmic	LEC	2	✓	✓
4	Drugs for congestive cardiac failure	LEC	2	✓	✓
5	diuretics	LEC	2	✓	✓
7	Concept mapping on drugs affecting CVS	SGD	2.5	✓	✓
	Total		14.5		

COURSE NAME: BLOOD PHARMACOLOGY

COURSE CODE: FJ02-PHM-5

LEARNING OBJECTIVES:

By the end of the topic the students should be able to

- 5.1: Classify anti-platelet drugs
- 5.2: Discuss the mechanism of action, clinical significance, pharmacokinetics and adverse effects of anti-platelet drugs
- 5.3: Classify anti-coagulant agents

- 5.4: Discuss the mechanism of action, clinical significance, pharmacokinetics and adverse effects of anti-coagulant drugs
- 5.5: Classify thrombolytic agents
- 5.6: Discuss mechanism of action, clinical significance, pharmacokinetics and adverse effects of thrombolytic agents
- 5.7: Classify and discuss the drugs used as antidotes to treat bleeding
- 5.8: Classify and discuss agents used in the treatment of anemia, their mechanism of action and adverse effects
- 5.9: Classify Anti Hyperlipidemic drugs.
- 5.10: Discuss the mechanism of action, clinical uses, pharmacokinetics and adverse effects of anti-hyperlipidemic drugs.

LEARNING STRATEGIES AND ASSESSMENT:

S:NO	TOPIC	MIT	HR	BCQ	OSCE
1	Drugs for Anemia	LEC	2	☐	☐
2	Anti-Coagulants	LEC	2	☐	☐
3	Anti-Platelets	LEC	3	☐	☐
4	Thrombolytic	LEC	1	☐	☐
5	Anti-Hyperlipidemic	LEC	2	☐	☐
	Total		10		

COURSE NAME: NON-STEROIDAL ANTI-INFLAMMATORY DRUGS

COURSE CODE: FJ02-PHM-6

LEARNING OBJECTIVES:

By the end of the topic the students should be able to

- 6.1 : Classify Anti Inflammatory Drugs.
- 6.2 Discuss mechanism of action, clinical uses, pharmacokinetics, adverse effects and contraindications of anti-inflammatory drugs
- 6.3 : Classify Anti Gout drugs and discuss the classification, MOA, pharmacokinetics and adverse effects of anti-gout drugs.
- 6.4 : Discuss mechanism of action, pharmacokinetics and adverse effects of drugs used for headache and anti-migraine drugs
- 6.5 Classify DMARDs, and discuss the mechanism of action, pharmacokinetics, adverse effects and contraindications of DMARDs
- 6.6 Classify the drugs used for rheumatoid arthritis and discuss the mechanism of action, pharmacokinetics, clinical significance and adverse effects of drugs used for rheumatoid arthritis

LEARNING STRATEGIES AND ASSESSMENT:

S:NO	TOPIC	MIT	HR	BCQ	OSCE
1	NSAIDs	LEC	4	☐	☐
2	DMARDs	LEC	2	☐	☐
3	Drugs for gout	LEC	1	☐	☐
4	Drugs for rheumatoid arthritis	LEC	1	☐	☐
6	Drugs for headache	LEC	1	☐	

7	Concept mapping on anti-inflammatory drugs	SGD	2.5		
	Total		11.5		

COURSE NAME: GASTROINTESTINAL SYSTEM PHARMACOLOGY

COURSE CODE: FJ02-PHM-7

LEARNING OBJECTIVES:

By the end of the topic the students should be able to

7.1: Classify the drugs for peptic ulcer disease and gastro esophageal reflux disease.

7.2 Discuss their mechanisms of actions, therapeutic uses, pharmacokinetics and adverse effects.

7.3: Classify and discuss drugs used to control chemotherapy-induced nausea and vomiting and discuss their mechanisms of actions, therapeutic uses and their adverse effects.

7.4: Classify antidiarrheal drugs, and discuss their mechanisms of actions, therapeutic uses and adverse effects.

7.5: Classify laxatives and discuss their mechanisms of actions, therapeutic uses, contraindications and adverse effects.

LEARNING STRATEGIES AND ASSESSMENT:

S:NO	TOPIC	MIT	HR	BCQ	OSCE
1	Peptic Ulcers	LEC	2	☐	☐
2	Anti-Emetics	LEC	2	☐	☐
3	Anti-Diarrheal	LEC	1	☐	☐
4	Laxatives	LEC	1	☐	☐
5	1.Role play on the treatment of peptic ulcer disease 2.Concept mapping on drugs used to treat peptic ulcer disease	SGD	2.5		
	Total		8.5		

COURSE NAME: RESPIRATORY SYSTEM PHARMACOLOGY

COURSE CODE: FJ02-PHM-8

LEARNING OBJECTIVES:

By the end of the topic the students should be able to

8.1: Classify the drugs used for asthma and COPD and discuss their mechanisms of actions, pharmacokinetics, contraindications and adverse effects.

8.2: Discuss appropriate inhaler techniques and the concept of spacers.

8.3: Classify and discuss drugs used to treat allergic rhinitis including their mechanisms of actions and adverse effects.

8.4: Classify drugs used to treat cough and discuss their mechanisms of actions and adverse effects.

LEARNING STRATEGIES AND ASSESSMENT:

S:NO	TOPIC	MIT	HR	BCQ	OSCE
1	Drugs for Asthma and COPD	LEC	2	☐	☐
2	Drugs for COPD	LEC	1	☐	☐
3	Anti-Tussive	LEC	1	☐	☐

4	Drugs for allergic Rhinitis	LEC	1	☐	☐
5	1.Role play on the treatment of asthma and COPD 2.Concept mapping on anti-asthmatic drugs and drugs used for the treatment of COPD	SGD	2.5		
	Total		7.5		

COURSE NAME: CHEMOTHERAPEUTIC AGENTS

COURSE CODE: FJ02-PHM-9

LEARNING OBJECTIVES:

By the end of the topic the students should be able to

9.1: Discuss empiric antimicrobial therapy

9.2: Define bacteriostatic and bactericidal drugs

9.3: Define the terms MIC and MBC

9.4: Discuss patient factors that should be considered in the antibiotic selection

9.5: Discuss concentration versus time dependent killing and post antibiotic effect.

9.6: Discuss narrow, extended and broad-spectrum antimicrobials

9.7: Discuss the advantages and disadvantages of drug combination

9.8: Discuss the mechanism of drug resistance

9.9: Discuss clinical situations which require use of antimicrobial for prevention of infection.

9.10: Classify and discuss mechanism of action, antibacterial spectrum, resistance, indications, pharmacokinetics, adverse effects and contraindications of cell wall inhibitors

9.11: Classify and discuss the mechanism of action, antibacterial spectrum, resistance, indications, pharmacokinetics, adverse effects and contraindications of protein synthesis inhibitors,

9.12: Classify and discuss the mechanism of action, antibacterial spectrum, resistance, indications, pharmacokinetics, adverse effects and contraindications of fluoroquinolones, folic acid antagonists and urinary tract antiseptics.

9.13: Classify and discuss the mechanism of action, antibacterial spectrum, resistance, indications, pharmacokinetics, adverse effects and contraindications of anti-fungal drugs.

9.14: Classify and discuss the mechanism of action, antibacterial spectrum, resistance, indications, pharmacokinetics, adverse effects and contraindications of drugs used to treat TB and leprosy.

9.15: Classify and discuss the mechanism of action, antibacterial spectrum, resistance, indications, pharmacokinetics, adverse effects and contraindications of anti-protozoal drugs.

9.16: Classify and discuss the mechanism of action, antibacterial spectrum, resistance, indications, pharmacokinetics, adverse effects and contraindications of anti-viral drugs

9.17: Classify and discuss the mechanism of action, antibacterial spectrum, resistance, indications, pharmacokinetics, adverse effects and contraindications of anti-cancer drug

LEARNING STRATEGIES AND ASSESSMENT:

S:NO	TOPIC	MIT	HR	BCQ	OSCE
1	Introduction to Chemotherapy	LEC	2	✓	✓
2	Cell wall synthesis inhibitors	LEC	3	✓	✓
3	Protein Synthesis inhibitors	LEC	3	✓	✓
4	UTI Antiseptics	LEC	3	✓	✓
5	Fluoroquinilones and Folic acid antagonists	LEC	3	✓	✓
6	Anti-Mycobacterial Drugs	LEC	2	✓	✓
7	Anti-Protozoal drugs	LEC	3	✓	✓
8	Anti-Fungal drugs	LEC	2	✓	✓
9	Anti-Viral Drugs	LEC	4	✓	✓

COURSE NAME: ENDOCRINE SYSTEM PHARMACOLOGY

COURSE CODE: FJ02-PHM-10

LEARNING OBJECTIVES:

By the end of the topic the students should be able to

10.1: The fundamental differences between type 1 and type 2 diabetes

10.2: To recognize the diagnostic criteria and therapeutic goals for the treatment of diabetes

10.3: Discuss the important role of diet and exercise in the treatment of type-2 diabetes

10.4: Explain the etiology, sign, symptoms and complication of DM 10.5: Discuss how insulin is produced in the body and its mechanism of action.

10.6: Classify insulin and discuss the pharmacodynamics of various insulin formulations used in the treatment of diabetes.

10.7: List the routes of administration of insulin and its adverse effects

10.8: Classify and discuss the indications, mechanism of action, clinical effects, pharmacokinetics, adverse effects and contraindications of oral hypoglycemic drugs commonly used in the treatment of type 2 diabetes.

10.9: Classify and discuss pharmacological actions, mechanism of action, uses, pharmacokinetics, adverse effects and contraindications of estrogen and progestin

10.10: Classify and discuss the pharmacological actions and clinical uses of selective Estrogen Receptor Modulators (SERMs) and anti-progestins

10.11: Discuss different types of hormonal contraceptives

10.12: Classify and discuss the physiological actions, pharmacological effects and mechanism of action, adverse effects, contraindications of androgens and anti-androgens.

10.13: Classify and discuss the mechanism of action, adverse effects and contraindications of drugs used to treat hypo and hyperthyroidism

LEARNING STRATEGIES AND ASSESSMENT:

S:NO	TOPIC	MIT	HR	BCQ	OSCE
1	Insulin and oral hypoglycemic	LEC	5	☐	☐
2	Pituitary Gland	LEC	2	☐	☐
3	Corticosteroids	LEC	2	☐	☐
4	Thyroid Gland	LEC	2	☐	☐

5	Estrogens and androgens	LEC	4	☐	☐
6	Drugs for diabetes overview	SGD	2.5		
7	Contraceptives	SGD	2.5		
	Total		20		

COURSE NAME: AUTOCOIDS

CODE: FJ02-PHM-11

LEARNING OBJECTIVES:

By the end of the topic the students should be able to

11.1 : Discuss prostaglandins and its analogue

11.2 : Discuss physiological actions of histamine and classify antihistamines its uses and its adverse effects

11.3 : Classify and discuss the classification, mechanism of action, clinical uses, adverse effects of serotonin and serotonin antagonist

LEARNING STRATEGIES AND ASSESSMENT:

S:NO	TOPIC	MIT	HR	BCQ	OSCE
1	Prostaglandins and its analogues	LEC	2	☐	☐
2	Serotonin agonists and antagonists)	LEC	2	☐	☐
3	Histamines and Antihistamines	SGD	2.5		
	Total		6.5		

COURSE NAME: Vitamins

COURSE CODE: FJ02-PHM-12

LEARNING OBJECTIVES:

By the end of the topic the students should be able to

12.1 : Discuss water- and fat-soluble Vitamins

12.2 : Discuss the clinical uses, adverse effects of the above therapeutic agents

LEARNING STRATEGIES AND ASSESSMENT:

S:NO	TOPIC	MIT	HR	BCQ	OSCE
1	Introduction to Vitamins	LEC	1	☐	
2	Fat- and Water-soluble vitamins	SGD	2.5		
	Total		3.5		

COURSE NAME: Dental Pharmacology

COURSE CODE: FJ02-PHM-13

Learning Objectives:

By the end of the topic the students should be able to

13.1: Define antiseptics and disinfectants

13.2: Classify antiseptics and disinfectants

13.3: Discuss properties of antiseptics and disinfectants

13.4: Discuss the mechanism of action, uses and adverse effects of antiseptics and disinfectant.

- 13.5: Discuss the role of pharmacology in the prevention and management of dental caries.
- 13.6: Discuss the mechanism of action, benefits, and potential toxicity of fluoride in caries prevention.
- 13.7: Identify the role of antimicrobial agents (chlorhexidine, silver diamine fluoride) in caries control.
- 13.8: Explain the impact of systemic medications (e.g., high-sugar content syrups, xerostomia-inducing drugs) on caries risk.
- 13.9: Evaluate the role of probiotics and emerging pharmacological treatments in caries prevention.
- 13.10: Discuss the appropriate use of demineralizing agents (casein phosphopeptide-amorphous calcium phosphate, hydroxyapatite).
- 13.11: Discuss antibiotic stewardship in the management of caries-related infections and pulpitis.
- 13.12: Discuss pharmacological strategies to manage pain and inflammation in caries-related conditions

LEARNING STRATEGIES AND ASSESSMENT:

S:NO	TOPIC	MIT	HR	BCQ	OSCE
1	Disinfectants and Antiseptics	LEC	3		
2	Agents used for the prevention of dental caries	LEC	3		
3	Dentine desensitizing agent	LEC	3		
4	Agents used in root canal therapy	LEC	3		
5					
	Total		12		

PRACTICAL PHARMACOLOGY

COURSE CODE: FJ02-PHM-14

Serial No.	TOPIC	MIT	HR
1	Introduction to Pharmaceutical preparations	SGD	2Hr 30Min
2	Sources of drug information	SGD	2Hr 30Min
3	To prepare and dispense 120ml of 1:4000 solution of Kmno4	PRACTICAL	2Hr 30Min
4	To prepare and dispense 100ml of 0.01% solution of Kmno4 from stock solution 1%	PRACTICAL	2Hr 30Min
5	To prepare and dispense 3 doses of Carminative Mixture	PRACTICAL	2Hr 30Min
6	To prepare and dispense four doses of Bismuth Kaolin	PRACTICAL	2Hr 30Min
7	To prepare and dispense 90ml of Castor Oil Emulsion, each 30ml contains 4ml of Castor Oil	PRACTICAL	2Hr 30Min
8	To prepare and dispense 90ml of Liniment Turpentine	PRACTICAL	2Hr 30Min
9	To prepare and dispense 40ml of Calamine Lotion	PRACTICAL	2Hr 30Min
10	To prepare and dispense 15grams of Sulphur Ointment	PRACTICAL	2Hr 30Min

11	To prepare Sodium Chloride compound Mouthwash	PRACTICAL	2Hr 30Min
12	To prepare and dispense 60ml of 5% Dextrose in normal solution	PRACTICAL	2Hr 30Min
13	Introduction to Prescription	SGD	2Hr 30Min

DENTAL MATERIALS SCIENCE

DESCRIPTION AND RATIONAL

This course introduces the classification, composition, manipulation, properties, clinical handling, and applications of gypsum, dental waxes, investment materials, metals and alloys, synthetic polymers, impression materials, restorative materials, dental cements, and endodontic materials.

COURSE OUTCOMES: The student will be able to:

- Describe the composition and properties of all types of dental materials.
- Discuss the manipulation and applications of different materials.
- Identify pictures of materials, equipment, and their clinical orientation.
- Identify instruments and their applications.
- Perform all types of cavity preparations on phantom teeth and fabricate partial dentures on models.

MODE OF INFORMATION TRANSFER (MIT):

Lecture (LEC), Small group discussion (SGD), Demonstration (Demo), E-learning (e-L), Workshop (WS).

COURSE NAME: Introduction To Dental Materials Science And Terminologies

COURSE CODE: FJ02-DM-1

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

1. Classify dental materials and identify different materials used in dentistry.
2. Discuss the criteria for dental material selection & evaluation in relation to the clinical problem.

LEARNING STRATEGIES AND ASSESSMENT:

COURSE NAME: Biocompatibility, Biomechanics & Biomaterials Testing

COURSE CODE: FJ02-DM-2

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

1. Define: Biocompatibility, post-operative sensitivity & hypersensitivity (Type IV).
2. Discuss: Influence of dental materials on biological systems & performance of dental materials with regard to clinical trials.
3. Discuss biomechanics of: Dental amalgam, metals, and ceramics.
4. Discuss: 3 levels of testing of dental biomaterials.
5. List the names of biomaterial quality assurance & monitoring agencies.

LEARNING STRATEGIES AND ASSESSMENT:

S. No	TOPICS	MIT	HOURS	BCQ's	OSPE
1	Biocompatibility & Biological Evaluation of Materials	LEC	3	✓	
2	Biomaterials				
3	Biomechanics				
4	Biomaterial Testing				
5	Biocompatibility & Biological Evaluation	SGD	3.5		
	Total		6.5		

COURSE NAME: Properties Used To Characterize Dental Materials

COURSE CODE: FJ02-DM-3

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

1. Describe the ideal properties of dental materials.
2. Discuss the mechanical, chemical, physical, thermal, rheological, and biological properties of different materials.

LEARNING STRATEGIES AND ASSESSMENT:

S. No	TOPICS	MIT	HOURS	BCQ's	OSPE
1	Physical Properties of Materials	LEC	1	✓	✓
2	Mechanical Properties		1	✓	
3	Thermal Properties		1	✓	
4	Rheological Properties		1	✓	
5	Biological Properties		1	✓	
6	Chemical Properties		2	✓	
7	Mechanical Properties - Wire Bending (A)	WS	3.5		
8	Mechanical Properties - Wire Bending (B) & (S)		3.5		
9	Types of Stress-Strain Graph		3.5		
	Total		17.5		

COURSE NAME: Impression Materials; Classification And Requirements

COURSE CODE: FJ02-DM-4

LEARNING OBJECTIVES:

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

1. Classify impression materials.
2. Discuss: Types of impression trays and impression techniques.
3. Describe the requirements, composition, properties, indications, and applications of impression materials.
4. Discuss and demonstrate manipulation of different impression materials.

LEARNING STRATEGIES AND ASSESSMENT:

S. No	TOPICS	MIT	HOURS	BCQ's	OSPE
1	Introduction to Impression Materials	LEC	2	✓	✓
2	Non-Elastic Impression Materials		2	✓	
3	Elastic Impression Materials		5	✓	
4	Impression Materials Classification & Requirements	WS	3.5		
5	Non-Elastic Impression Materials - Manipulation		3.5		
6	Elastic Impression Materials - Manipulation		3.5		
7	Synthetic Elastomers - Putty Impression Technique				
	Total		19.5		

COURSE NAME: Gypsum Products for Dental Cast

COURSE CODE: FJ02-DM-5

LEARNING OBJECTIVES:

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

1. Classify gypsum according to ISO standard.
2. Describe the chemical formula of dental gypsum, composition, and setting reaction of dental plaster & dental stone.
3. Manipulate materials using the correct technique and water/powder ratio.
4. Build a plaster slab following the allocated dimensional guidelines.
5. Demonstrate the technique of model pouring.

LEARNING STRATEGIES AND ASSESSMENT:

S. No	TOPICS	MIT	HOURS	BCQ's	OSPE
1	Introduction, Composition & Classification of Gypsum Products	LEC	1	✓	✓
2	Manipulative Variables, Setting Characteristics & Properties		3	✓	
3	Gypsum Products - Plaster Slab Formation	WS	3.5		
4	Gypsum Products - Plaster Slab Formation	WS	3.5		
	Total		11		

COURSE NAME: Waxes Used in Dentistry

COURSE CODE: FJ02-DM-6

LEARNING OBJECTIVES:

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

1. Classify dental waxes according to their use and origin.
2. Discuss ideal requirements for wax pattern materials and applications of different dental waxes in dentistry.
3. Analyze partial denture design on study models.
4. Demonstrate the steps of waxing up on a given model.

LEARNING STRATEGIES AND ASSESSMENT:

COURSE NAME: Polymers and Separating Media Used in Dentistry

COURSE CODE: FJ02-DM-7

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

1. Discuss stages of polymerization. Structure & properties of polymers.
2. Discuss the requirements, properties, composition, manipulation of denture base materials, and types of separating media.
3. Mix material according to ratios. Fabricate an acrylic partial denture.
4. Discuss hard relining materials, tissue conditioners, temporary soft lining materials, and permanent relining materials.

LEARNING STRATEGIES AND ASSESSMENT:

S. No	TOPICS	MIT	HOURS	BCQ's	OSPE
1	Synthetic Polymers	LEC	2	✓	✓
2	Denture Base Polymers		2	✓	
3	Denture Lining Materials		2	✓	
4	Separating Media		2	✓	
5	Synthetic Polymers - Denture Base Polymers - Flasking and Dewaxing (PD)	WS	3.5		
6	Denture Lining Materials - Packing and Curing (PD)		3.5		
7	Denture Lining Materials - Packing and Curing (PD)	WS	3.5		
	Total		18.5		

COURSE NAME: Dental Cements and Their Applications

COURSE CODE: FJ02-DM-8

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

1. Classify dental cements.
2. Discuss the requirements of dental cements for cavity lining, luting, endodontics, and orthodontics.
3. Mix zinc phosphate cement as a luting agent, glass ionomer cement as a luting agent, and calcium hydroxide as a cavity lining agent.
4. Compare the types of dental cements with respect to their use.

LEARNING STRATEGIES AND ASSESSMENT:

S. No	TOPICS	MIT	HOURS	BCQ's	OSPE
1	Introduction & Classification of Cements	LEC	1	✓	✓
2	Manipulation and Setting Characteristics		2	✓	
3	Application of Dental Cements		2	✓	
4	Dental Cements - Mixing of All Cements	WS	3.5		
5	Dental Cements - Mixing of All Cements	WS	3.5		
	Total		12		

COURSE NAME: Metals and Alloys

COURSE CODE: FJ02-DM-9

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

1. Discuss: Eutectic alloys, properties of alloys, crystallization process, and shaping of metals.
2. Compare soldering and brazing materials with regard to their properties.
3. Classify gold and alloys of noble metals and their properties.
4. Discuss different types of base metal casting alloys, their properties, and clinical indications.
5. Identify different types of wrought alloys.

6. Construct the following: Alphabets A, B, G, and S using 0.7mm S.S wire. Adams & C clasp.

LEARNING STRATEGIES AND ASSESSMENT:

S. No	TOPICS	MIT	HOURS	BCQ's	OSPE
1	Introduction, Structure, and Properties of Metals & Alloys	LEC	2	✓	✓
2	Gold and Alloys of Noble Metals		2	✓	
3	Base Metal Casting Alloys		2	✓	
4	Steel and Wrought Alloys		3	✓	
5	Metals and Alloys - Gold Alloys - Adams Clasp	WS	3.5		
6	Base Metal Alloys - Steel and Wrought Alloys - C Clasp		3.5		
7	Base Metal Alloys - Steel and Wrought Alloys - C Clasp	WS	3.5		
8	Base Metal Alloys - Steel and Wrought Alloys - C Clasp	WS	3.5		
	Total		23		

COURSE NAME: Investment Materials and Casting

COURSE CODE: FJ02-DM-10

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

1. Differentiate between different types of investment materials.
2. Discuss the composition and physicochemical properties required to manipulate investment materials.
3. Illustrate the following: Formation of investment mould & casting process / lost wax technique.
4. Correlate faults in casting with incorrect selection of materials or faulty technique.

LEARNING STRATEGIES AND ASSESSMENT:

S. No	TOPICS	MIT	HOURS	BCQ's	OSPE
1	Investment Materials	LEC	2	✓	✓
2	Casting		4	✓	
3	Investment Materials & Casting - Visit to Clinical Campus	SGD	3.5		
4	Investment Materials & Casting - Visit to Clinical Campus	SGD	3.5		
	Total		13		

COURSE NAME: Ceramics and Porcelain Fused to Metal

COURSE CODE: FJ02-DM-11

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

1. Classify the major types of ceramics.
2. Relate the composition and properties of ceramics to their clinical application and performance.
3. Discuss compaction and firing & types of ceramic restorations.
4. Describe the principles of preparation of ceramic restoration.
5. Discuss the fundamental concept behind computer-aided prosthesis design.

LEARNING STRATEGIES AND ASSESSMENT:

S. No	TOPICS	MIT	HOURS	BCQ's	OSPE
1	Introduction, Composition, and Properties	LEC	2	✓	✓

2	Preparation of Porcelain and Types of Ceramics		2	✓	
3	CAD/CAM Restoration		1	✓	
4	Dental Ceramics	SGD	3.5		
	Total		8.5		

COURSE NAME: Dental Amalgam

COURSE CODE: FJ02-DM-12

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

1. Discuss the requirements of direct restorative material.
2. Relate the importance of the role of mercury/alloy ratio and its influence on the setting reaction.
3. Discuss the role of each component & properties of dental amalgam.
4. Discuss cavity design and matrices with regard to properties of the material.
5. Describe the manipulative variables of amalgam.
6. List the hazards of incorrect handling of mercury.

LEARNING STRATEGIES AND ASSESSMENT:

S. No	TOPICS	MIT	HOURS	BCQ's	OSPE
1	Introduction, Composition & Setting Reactions	LEC	1	✓	✓
2	Properties		1	✓	
3	Clinical Handling and Manipulative Variables		2	✓	
4	Environmental Considerations - Dental Amalgam		1	✓	
5	Requirements of Dental Materials - GV Black Graham Mounts Classification	WS	3.5		
6	Dental Amalgam - Class 1 and 2		3.5		
	Total		12		

COURSE NAME: Dental Composites: Resin-Based Restorative Materials

COURSE CODE: FJ02-DM-13

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

1. Describe the components and composition of dental composite.
2. Classify dental composites and discuss their properties.
3. Describe filler particle size, setting reaction, and method of manufacture of dental composite and their uses.
4. Describe new resin-based restorative materials available in the market.

LEARNING STRATEGIES AND ASSESSMENT:

S. No	TOPICS	MIT	HOURS	BCQ's	OSPE
1	Introduction, Classification & Composition	LEC	2	✓	✓
2	Setting Characteristics and Properties		2	✓	
3	Clinical Handling and Manipulative Variables		2	✓	
4	Resin-Based Filling Materials - Class 3 and 4	WS	3.5		
5	Resin-Based Filling Materials - Class 3 and 4	WS	3.5		
	Total		13		

COURSE NAME: Adhesion

COURSE CODE: FJ02-DM-14**LEARNING OBJECTIVES:** At the end of the course, the students should be able to:

1. Illustrate the general aspects and approaches to adhesion.
2. Describe enamel and dentine bonding agents and bonding systems.
3. Discuss the importance of the smear layer for successful dental composite restoration.
4. Discuss the mechanism of dental composite adhesion to tooth structure.

LEARNING STRATEGIES AND ASSESSMENT:

S. No	TOPICS	MIT	HOURS	BCQ's	OSPE
1	Introduction	LEC		✓	✓
2	Bonding to Enamel		2	✓	
3	Bonding to Dentine		2	✓	
4	Classification of Dentine Bonding Systems		1	✓	
5	Adhesive Dentistry	WS	3.5		
6	Adhesive Dentistry	WS	3.5		
	Total		12		

COURSE NAME: Glass Ionomer Restorative Materials**COURSE CODE: FJ02-DM-15****LEARNING OBJECTIVES:** At the end of the course, the students should be able to:

1. Discuss the importance of glass ionomer cements as restorative cements.
2. Describe the composition, properties, setting reaction, and applications of GIC.
3. Discuss the development of resin-modified glass ionomers and their properties.
4. Discuss the properties and clinical indications of cermets.

LEARNING STRATEGIES AND ASSESSMENT:**COURSE NAME: Endodontic Materials****COURSE CODE: FJ02-DM-16****LEARNING OBJECTIVES:** At the end of the course, the students should be able to:

1. Describe root canal treatment.
2. List the various endodontic materials (irrigants, lubricants, intra-canal medicaments).
3. Discuss root filling materials: Ca(OH)₂, GP.

LEARNING STRATEGIES AND ASSESSMENT:

S. No	TOPICS	MIT	HOURS	BCQ's	OSPE
1	Introduction	LEC	1	✓	✓
2	Irrigants and Lubricants		1	✓	
3	Intracanal Medicaments and Endodontic Obturation Materials		1	✓	
4	Endodontic Materials and Root Canal Treatment	WS	3.5		
	Total		6.5		

COURSE NAME: Artificial Teeth**COURSE CODE: FJ02-DM-17**

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

1. Describe the requirements and techniques for manufacturing artificial teeth.
2. Differentiate between acrylic and porcelain teeth.
3. Identify the types of artificial teeth and type of wax on teeth strip.
4. Select the appropriate teeth for the given model for teeth setup.

LEARNING STRATEGIES AND ASSESSMENT:

S. No	TOPICS	MIT	HOURS	BCQ's	OSPE
1	Requirements and Properties	LEC	1	✓	✓
2	Artificial Teeth - Teeth Setup (PD)	WS	3.5		
3	Artificial Teeth - Teeth Setup (PD)	WS	3.5		
	Total		8		

COURSE NAME: Finishing and Polishing Materials

COURSE CODE: FJ02-DM-18

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

1. Describe finishing and polishing of dental prosthesis and restorative materials.
2. Identify equipment used in finishing and polishing of dental restoration.

LEARNING STRATEGIES AND ASSESSMENT:

S. No	TOPICS	MIT	HOURS	BCQ's	OSPE
1	Introduction and General Concepts	LEC	2	✓	✓
2	Finishing & Polishing	WS	3.5		
	Total		5.5		

DENTAL KIT LIST OF INSTRUMENTS

1. Mouth Mirror	17. Rubber Bowl
2. Probe	18. Alginate Bowl
3. Tweezers	19. Alginate Spatula
4. Excavator	20. Plaster Spatula
5. Fraham's Carver	21. Plaster Knife
6. Ward's Carver	22. Wax Knife
7. Cement Spatula	23. Wax Carver
8. Dycal Applicator	24. Glass Slab
9. Condenser	25. Flask/Press
10. Burnisher	26. Flat/Straight Pliers
11. Amalgum Gun	27. Round Pliers
12. Tofflemire Retainer with Bands	28. Adams Pliers
13. Mortar & Pestle	29. Bird Beak Pliers
14. Hand piece	30. Cutting Pliers
15. Burs(Straight Fissure & Round)	31. Typhodont with skin
16. Plastic Teeth(2mandibular molars,2maxillarymolars,2 maxillary incisors)	32. Box(Kit Bag)

BOOK LIST

S. No.	TOPIC	NAMEOFBOOKS	AUTHOR
1	Text Book	Applied Dental Materials	John F. McCabe
2	Reference Book	1) Lecture notes on Dental Materials	E.C.Combe
		2)Restorative Dental Materials	Craig
4	Practical Books	1)Practical Work book	Dr Afreen
		2)Atlas of Operative Dentistry	Evans
		3)Partial Denture	Fenn

PATHOLOGY

COURSE DESCRIPTION AND RATIONALE:

Pathology over all will be studied under general and systemic divisions. General pathology course introduces the overview of cellular responses to stress, cellular adaptations, morphological and functional changes in response to noxious stimulus, cell injury, processes of inflammation, tissue repair and wound healing, hemodynamic disorders as well as neoplasia, environmental and nutritional diseases, and genetics. Systemic pathology deals with etiology, pathogenesis, signs and symptoms, of prototypical diseases of cardiovascular system, respiratory system, endocrinology, infectious diseases, rheumatology and hematology.

LEARNING OUTCOMES: By the end of the course the student will be able to:

1. Describe processes of cell injury, inflammation, wound healing, hemodynamic disorders and neoplasia.
2. Discuss genetic and environmental disorders
3. Identify diseases, their etiology, pathogenesis and investigations.
4. Describe histopathological findings of general and systemic diseases.

MODE OF INFORMATION TRANSFER (MIT):

Lectures (LEC)

Small group discussion (SGD)

E-learning (e-L)

Practicals

COURSE: CELL INJURY

CODE: FJDC-02-PAT- 1

LEARNING OBJECTIVES

By the end of the topic the student should be able to

1.1 introduction to pathology overview: cellular response to stress and adaptation of cellular growth

- Define Pathology and Pathogenesis
- Briefly discuss cellular responses to the injury and stages of the cellular response to stress and injurious stimuli
- Define adaptation, hypertrophy, hyperplasia, atrophy, and metaplasia

1.2 Overview of Cell Injury and Cell Death

- List causes of cell injury
- Briefly discuss various types of cell injury
- Discuss morphological alterations in cell injury including both reversible and irreversible injury

1.3 Necrosis

- Define necrosis
- Discuss the pathological and morphological types of necrosis

1.4 Mechanism of Cell Injury I

- Describe mechanisms of cell injury (with examples) including depletion of ATP, mitochondrial damage, influx of calcium, accumulation of oxygen derived free radicals, defects in membrane permeability, damage to DNA and proteins
- Discuss properties of the principal free radicals involved in cell injury.

1.5 Mechanism of Cell Injury II

- Discuss ischemia and reperfusion injury
- Discuss chemical and toxic injury

1.6 Apoptosis

- Discuss causes, morphological and biochemical changes, and clinic-pathologic correlations in Apoptosis.
- Briefly describe the mitochondrial and extrinsic the pathways of apoptosis
- Briefly discuss Necroptosis

1.7 Intracellular Accumulation

- Summarize the pathways of abnormal accumulation
- Discuss types of pigments (exogenous and endogenous)

- Describe hyaline changes, lipid, protein, and glycogen accumulation
- Discuss briefly pathological classification of intracellular accumulations

LEARNING STRATEGIES AND ASSESSMENT

S.No	TOPICS	MIT	HR	BCQ's	OSPE
1.	Introduction to cell injury	LEC	1	☐	☐
2.	Cellular Adaptations	LEC	1	☐	☐
3.	Process of cell injury	LEC	3	☐	☐
4.	Necrosis	LEC	1	☐	☐
5.	Apoptosis	LEC	1	☐	☐
6.	Introduction to cell injury	SGD	1.5	☐	☐
7.	Cellular Adaptations	SGD	2	☐	☐
8.	Process of cell injury	SGD	1.5	☐	☐
9.	Necrosis	SGD	1.5	☐	☐
10.	Apoptosis	SGD	2	☐	☐
11.	Intracellular accumulation	SGD	1.5	☐	☐
12.	Fatty Change	SGD	1.5	☐	☐
13.	Metastatic and dystrophic calcification	SGD	1.5	☐	☐
	TOTAL		20		

COURSE: INFLAMMATION

CODE: FJDC-02-PAT-2

LEARNING OBJECTIVES:

By the end of the topic the student should be able to

2.1 Introduction to Inflammation & Acute inflammation

- Define inflammation
- Classify inflammation
- List the causes of inflammation
- Discuss the sequence of events in acute inflammatory process

2.2 Mediators of acute inflammation

- Name the main inflammatory mediators
- Describe their role in the inflammatory process

2.3 Morphological pattern & outcomes of acute inflammation & Chronic

Inflammation.

- Explain different morphological pattern of acute inflammation
- List the outcomes of acute inflammation
- Define chronic inflammation
- List the causes and morphological features of chronic inflammation
- Describe the cells and mediators & their role in chronic inflammation
- Describe the systemic effects of acute and chronic inflammation

2.4 Granulomatous Inflammation

- Define granulomatous inflammation
- Discuss the pathogenesis of granulomatous inflammation

- List the diseases with granulomatous inflammation
- Discuss morphology of granulomatous inflammation

2.5 Tissue repair

- Define tissue repair
- Describe the mechanism involved in tissue regeneration and scar formation
- List the factors which influence the tissue repair

LEARNING STRATEGIES AND ASSESSMENT

S:NO	TOPIC	MI T	HRS	BCQ	OSCE
1	Introduction to inflammation	LEC	1	☐	☐
2	Acute inflammation	LEC	2	☐	☐
3	Chemical mediators of inflammation	LEC	2	☐	☐
4	Exudate and transudate	LEC	1	☐	☐
5	Chronic inflammation and types	LEC	1	☐	☐
6	Repair and wound healing	LEC	1	☐	☐
7	Complications of wound healing	LEC	1	☐	☐
8	Introduction to inflammation	SGD	1.5		☐
9	Acute inflammation	SGD	1.5		☐
10	Chemical mediators of inflammation	SG D	1.5		☐
11	Exudate and transudate	SGD	1.5		☐
12	Chronic inflammation and types	SGD	1.5		☐
13	Repair and wound healing (continued)	LEC	1	☐	☐
14	Complications of wound healing	SGD	1.5		☐
15	Chemical Mediator (Activity)	SGD	1.5		☐
	TOTAL		20.5		

COURSE: HEMODYNAMICS

CODE: FJDC-02-PAT-3

LEARNING OBJECTIVES

By the end of the topic the student should be able to

3.1 Edema, Effusion, Hyperemia and Congestion

- Define edema, effusion, exudate, transudate, hyperemia and congestion
- Define various terminologies according to morphology of edema & effusion
- Discuss the pathophysiologic categories of edema
- Describe the mechanism & clinical significance of edema at different sites
- Describe the morphological changes in chronic passive congestion of the lungs & liver

3.2 Hemostasis

- Define hemostasis

- Describe the sequence of events involved in primary & secondary hemostasis including the role of platelets, endothelium & coagulation cascade
Describe the defects of primary & secondary hemostasis
- Briefly discuss hemorrhagic disorders

3.3 Thrombosis

- Define thrombosis
- Discuss various types of thrombi according to their morphology
- Describe the factors that predispose to thrombosis
- Describe the morphologic features of thrombi
- List the possible fate of thrombus
- Describe the clinical features of venous, arterial & cardiac thrombosis
- Define Disseminated Intravascular Coagulation (DIC)
- Describe the pathogenesis of DIC

3.4 Embolism & Infarction

- Define embolism & infarction
- List the types of embolism
- Describe the clinical manifestations & consequences of pulmonary & systemic thromboembolism
- Discuss the clinical conditions that give rise to fat & marrow embolism, air embolism & amniotic fluid embolism
- Classify infarction
-
- Describe the morphologic features of red & white infarct
- List the factors that influence development of infarct

3.1 Shock

- Describe the mechanism of three major types of shock
- Discuss the factors involved in the pathophysiology of septic shock
- Describe the three stages of shock
- List the clinical features of shock

LEARNING STRATEGIES

S:NO	TOPIC	MIT	HRS	BCQ	OSCE	
1.	Edema	LEC	1	☐	☐	
2.	Hemorrhage Hyperemia & congestion	LEC	1	☐	☐	
3.	Thromboembolism, Embolism, infraction	LEC	1	☐	☐	
4.	DIC	LEC	1	☐	☐	
5.	Shock	LEC	2	☐	☐	
6.	Edema	LEC	1	☐	☐	
7.	Hemorrhage Hyperemia & Congestion	LEC	1	☐	☐	
8.	Thromboembolism, Embolism, infraction	LEC	1	☐	☐	
9.	DIC	SGD	1.5	☐	☐	
10.	Shock	LEC	1	☐	☐	
11.	TOTAL		11.5			

COURSE: NEOPLASIA

CODE: FJDC-02-PAT-4

LEARNING OBJECTIVES

By the end of the topic the student should be able to

4.1 Introduction to Neoplasia

- Define neoplasia

- Discuss the nomenclature of benign and malignant tumors with respect to tissues of origin
- Describe characteristic features of benign & malignant tumors

4.2 Gross & Microscopy of Benign & Malignant tumors

- Define Anaplasia, Metaplasia, Dysplasia, Metastasis
- Define cell differentiation and de-differentiation
- Discuss all the components and morphological features of anaplasia
- Discuss local invasion of tumors Discuss pathways of spread of malignant tumors
- Compare features of benign and malignant tumors factors in cancer development

4.3 Molecular Basis of cancer I &II

- List four classes of normal regulatory genes with respect to neoplasia
- Describe cellular and molecular hallmarks of cancer
- Define oncogenes, Proto-oncogenes, and Onco proteins
- Define Tumor Suppressor Genes

4.4 Grading, staging & clinical effects of Neoplasia

- Define grading and staging of tumors & cancer cachexia
- Classify paraneoplastic syndromes according to their clinical effects and association with various tumors
- Discuss different types of laboratory investigations used for diagnosis of cancer

4.5 Tumor markers & carcinogenic agents

- Define chemical carcinogenesis, radiation carcinogenesis, microbial carcinogenesis
- Classify chemical and radiation carcinogens according to their types and modes of action
- Classify microbial carcinogenesis according to the viral and bacterial involvement
- Classify Tumor Markers according to types and mode of action

LEARNING STRATEGIES AND OUTCOME

S.No	TOPICS	MIT	HR	BCQ's	OSPE
1.	Neoplasia- definition, classification, characteristics, routes of spread	LEC	2	☐	☐
2.	Histopathology of papilloma and leiomyoma	SGD	1.5	☐	☐
3.	Molecular basis and carcinogenic agents	LEC	1	☐	☐
4.	Tumor diagnosis	LEC	1	☐	☐
5.	Neoplasia- definition, classification, characteristics, routes of spread	SGD	1.5	☐	☐
6.	Molecular basis and carcinogenic agents	LEC	1	☐	☐
7.	Tumor diagnosis	SGD	1.5	☐	☐
8.	TNM staging and grading	SGD	1.5	☐	☐
9.	Cyst	SGD	1.5	☐	☐
10.	Total		12.5		

COURSE: GENETICS

CODE: FJDC-02-PAT-5

LEARNING OBJECTIVES

By the end of the topic the student should be able to

5.1 Introduction to Mendelian Disorders

- Discuss the transmission pattern of single gene disorder

- Discuss the pathogenesis of important autosomal recessive, autosomal dominant, and X-linked disorders
- List the examples of Autosomal Dominant Disorders,
- Autosomal Recessive Disorders

5.2 Mutation

- Define mutation
- Briefly discuss principles relating to the effects of gene mutation
- Distinguish between types of mutations in the coding and non-coding regions of genes

5.3 Single Gene Disorders I

- Define single-gene disorders
- Classify single-gene disorders on the molecular and biochemical basis
- List disorders associated with defects in structural proteins (Marfans syndrome)

5.4 Single Gene Disorders II

- Discuss disorders associated with defects in structural proteins (Ehlers-Danlos syndrome)
- Discuss disorders associated with defects in receptor proteins (Familial Hypercholesterolemia)
- List the types of lysosomal & glycogen storage diseases with their deficient enzymes

5.5 Chromosomal Disorders

- Define normal karyotype and common cytogenetic terminology
- Discuss structural chromosomal abnormalities
- Discuss cytogenetic disorders involving autosomes including Trisomy 21: Down Syndrome, Trisomy 18: Edwards Syndrome, Trisomy 13: Patau Syndrome
- Name diseases with deletion of genes at chromosomal locus 22q11.2 (Di George syndrome)
- Discuss cytogenetic disorders involving sex chromosomes including Klinefelter syndrome, Turner syndrome

LEARNING STRATEGIES AND OUTCOME

S:NO	TOPIC	MIT	HRS	BCQ	OSCE
1	Mutations, Transmission patterns of single gene disorders.	LEC	2	☐	☐
2	Disorders associated with Structural Proteins.	LEC	1	☐	☐
	Total		3		

COURSE: ENVIRONMENTAL DISEASE

CODE: FJDC-02-PAT-6

LEARNING OBJECTIVES

By the end of the topic the student should be able to

6.1 Environmental Pathology I & II

- Define malnutrition
- Explain the various factors that contribute to nutritional deficiencies including dietary insufficiency, protein energy malnutrition, anorexia nervosa bulimia, vitamin deficiencies
- Discuss the general consequences of obesity
- Discuss more common adverse effects of smoking
- Discuss the adverse effects of alcohol on health
- Explain thermal injury including thermal burns, hypothermia and hyperthermia
- **LEARNING STRATEGIES AND OUTCOME**

S:NO	TOPIC	MIT	HRS	BCQ	OSCE
1	Alcohol abuse, smoking.	LEC	1	☐	-

2	Burns & Radiation,Nutritional Deficiency	LEC	1	☐	-
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SPECIAL PATHOLOGY

LEARNING STRATEGIES AND OUTCOME

COURSE: BLOOD DISORDERS

CODE: FJDC-02-PAT-7

By the end of the topic the student should be able to

7.1 Red Blood Cell Disorders I:

- Define anemia
- Classify anemia according to morphology and its underlying mechanism
- Discuss sign and symptoms of anemia
- Explain different red cell indices in detail
- Discuss anemia of acute blood loss & chronic blood loss
- Discuss anemia of chronic disease

7.2 Red Blood Cell Disorders II:

- Discuss Iron metabolism in detail
- Describe the etiology of iron deficiency anemia
- Describe the pathogenesis of iron deficiency anemia
- Explain clinical features related to iron deficiency anemia

7.3 Red Blood Cell Disorders III:

- Define thalassemia syndrome
- Discuss the molecular pathogenesis of beta thalassemia in detail
- Discuss the pathogenesis of alpha thalassemia in detail

7.4 Bleeding Disorders I:

- Discuss bleeding disorders caused by vessel wall abnormalities
- List the causes of thrombocytopenia
- Describe bleeding disorders related to reduced platelet numbers
- Explain hemorrhagic diathesis related to qualitative defects in platelets function

7.5 Bleeding Disorders II:

- Explain hemorrhagic diathesis related to abnormalities in clotting factors
- Discuss disseminated intravascular coagulation in detail

7.6 White Blood Cells Disorders:

- Discuss Leukopenia
- Explain reactive proliferations of white blood cells and lymph nodes

LEARNING STRATEGIES AND OUTCOME

S:NO	TOPIC	MIT	HRS	BCQ	OSCE
1	Anemia	LEC	3	☐	☐
2	Bleeding disorders.	LEC	2	☐	☐
3	White cell Disorders	LEC	1	☐	☐
4	Red Blood cells / White blood cells disorder (Activity)	SGD	1.5	☐	☐
	Total		7.5		

LEARNING OBJECTIVES

By the end of the topic the student should be able to

8.1 Atherosclerosis

- Explain pathogenesis of atherosclerosis
- Discuss modifiable and non-modifiable risk factors of atherosclerosis
- Discuss morphology of atherosclerosis
- Discuss consequences of atherosclerotic disease

8.2 Hypertensive Vascular Disease

- Describe the types and causes of hypertension
- Discuss blood pressure regulation
- Explain pathogenesis of hypertension
- **LEARNING STRATEGIES AND OUTCOME**

S:NO	TOPIC	MIT	HRS	BCQ	OSCE
1	Atherosclerosis.	LEC	2	☐	☐
2	Hypertension	LEC	2	☐	☐
3	Vasculitis	LEC	1	☐	☐
4	Atherosclerosis (Activity)	SGD	1.5	☐	☐
	Total		6.5		

COURSE: CARDIOVASCULAR SYSTEM**CODE: FJDC-02-PAT-9****LEARNING OBJECTIVES**

By the end of the topic the student should be able to

9.1 Ischemic Heart Disease I

- Define ischemic heart disease
- Explain the pathogenesis of ischemic heart disease

9.2 Ischemic Heart Disease II

- Define angina pectoris
- Describe different patterns of angina

9.3 Ischemic Heart Disease III

- Describe pathogenesis of myocardial infarction
- Discuss clinical features of MI

9.4 Rheumatic Heart Disease

- Define rheumatic fever
- Describe pathogenesis of rheumatic fever
- Discuss clinical features of rheumatic fever

9.5 Infective Endocarditis

- Define infective endocarditis
- Describe pathogenesis of infective endocarditis

- Discuss clinical features of infective endocarditis

LEARNING STRATEGIES AND OUTCOME

S:NO	TOPIC	MIT	HRS	BCQ	OSCE
1	Congestive heart failure, Angina and Myocardial infarction.	LEC	5	☐	☐
2	Endocarditis.	LEC	2	☐	☐
3	Myocardial Infarction (Activity)	SGD	1.5		☐
	Total		8.5		

COURSE: GASTROINTESTINAL DISEASE

CODE: FJDC-02-PAT-10

By the end of the topic the student should be able to

LEARNING OBJECTIVES

10.1 Peptic Ulcer

- Describe the pathogenesis & clinical features of acute gastritis
- Explain the pathogenesis & clinical features of chronic gastritis (with special emphasis on H. Pylori gastritis)

10.2 Complication of chronic gastritis

- Discuss risk factors, pathogenesis, clinical features & complications of peptic ulcer disease
- Define mucosal atrophy, intestinal metaplasia, dysplasia & gastritis cystica in relation to gastritis

10.3 Gastro esophageal Reflux Disease (GERD)

- Discuss the risk factors, pathogenesis and clinical features of GERD

10.4 Inflammatory Bowel Disease

- Define irritable bowel syndrome and inflammatory bowel disease
- Explain its pathogenesis & clinical features
- Describe its types (Crohn & ulcerative colitis) and their pathogenesis
- **LEARNING STRATEGIES AND OUTCOME**

S:NO	TOPIC	MIT	HRS	BCQ	OSCE
1	Dyspepsia, Gastritis, Malabsorption, Barrett's esophagus, Achalasia.	LEC	1	☐	☐
2	Inflammatory Bowel Disease.	LEC	1	☐	☐
3	Dyspepsia, Gastritis, Malabsorption, Barrett's esophagus, Achalasia.	SGD	2	☐	☐
4	Inflammatory Bowel Disease.	SGD	2	☐	☐
	Total		6		

COURSE: RESPIRATORY DISEASE**CODE: FJDC-02-PAT-11****LEARNING OBJECTIVES**

By the end of the topic the student should be able to

11.1 Chronic Obstructive Pulmonary Disease (COPD) I & II

- Define chronic bronchitis and emphysema
- Discuss clinically significant pattern of emphysema
- Discuss clinical features of emphysema & chronic bronchitis
- Define asthma
- Discuss types of asthma
- Discuss clinical features of asthma
- Define bronchiectasis

LEARNING STRATEGIES AND OUTCOME

S:NO	TOPIC	MIT	HRS	BCQ	OSCE
1	COPD (Chronic obstructive pulmonary diseases).	LEC	3	☐	☐
2	Morphological Feature of COPD	SGD	1.5		
	Total		4.5		

COURSE: ENDOCRINOLOGY**CODE: FJDC-02-PAT-12****LEARNING OBJECTIVES**

By the end of the topic the student should be able to

12. 1 Diabetes Mellitus I

- Define Diabetes Mellitus (DM)
- Classify DM
- Discuss the diagnostic criteria of type I & II Diabetes Mellitus Differentiate between salient features of type I & II Diabetes Mellitus
- Discuss glucose homeostasis & regulation of insulin release
- Explain the pathogenesis of Type I & type II diabetes, related to beta cell dysfunction, genetic susceptibility, environmental factors

12.2 Diabetes Mellitus II

- Discuss the morphology & clinical features of type I & II Diabetes including classic triad & chronic manifestations
- Elaborate the acute metabolic complications & Ketoacidosis.
- Explain the clinical features of chronic complications of Diabetes, including lesions of Pancreas diabetic macrovascular disease, diabetic microangiopathy, nephropathy, neuropathy, diabetic ocular complications & susceptibility to infections

12.3 Thyroid Disorders I

- Define hyperthyroidism & thyrotoxicosis

- Discuss hyperthyroidism, Graves' disease & Goiters
- Discuss important causes, risk factors, pathogenesis & clinical features of thyrotoxicosis
- Define Graves' disease
- Discuss the pathogenesis and clinical course of Grave's disease
- Define Goiters
- Discuss the classification, etiology, pathogenesis and clinical aspects of diffuse and multinodular goiters

12.4 Thyroid Disorders II

- Define Hypothyroidism & Thyroiditis
- Discuss congenital, autoimmune and iatrogenic hypothyroidism
- Differentiate between cretinism & myxedema with regards to etiology, pathogenesis, clinical features & lab diagnosis
- Define thyroiditis and list different types of thyroiditis
- Discuss the etiology, pathophysiology, morphology & clinical features of various types of clinically significant thyroiditis
- **LEARNING STRATEGIES AND OUTCOME**

S:NO	TOPIC	MIT	HRS	BCQ	OSCE
1	Diabetes	LEC	2	☐	☐
2	Thyroid	LEC	3	☐	☐
3	Diabetes	SGD	2	☐	☐
	Total		7		

Microbiology

COURSE DESCRIPTION AND RATIONALE:

Medical Microbiology introduces the students with microorganisms (Bacterial, Viral, Fungal and Parasitic) that causes infectious diseases. It deals with Epidemiology, Prevalence, Etiology, Pathogenesis, Laboratory Diagnosis and Treatment of all infectious diseases.

LEARNING OUTCOMES:

The student will be able to:

1. Acquire basic skills in the identification and isolation of microbial pathogens.
2. Describe the organism's virulence factors and pathogenesis.
3. Identify pathogens on the basis of Laboratory diagnosis.
4. Describe Lab reports related to different diseases and correlate it clinically.

MODE OF INFORMATION TRANSFER (MIT):

Lecture (LEC), small group discussion (SGD), e-learning (e-L). Practicals and Demonstrations.

COURSE NAME: IMMUNOLOGY

COURSE CODE: FJ02-PAT-13

LEARNING OBJECTIVES:

By the end of the topic the students should be able to:

13.1 Introduction to Immunity

- Define immunity and its types and innate immunity
- Classify types of immunity according to their function especially innate immunity
- List the components of immune system
- Discuss the functions of immune system

- Discuss the role of T cells, B cells, natural killer cells, macrophages in immunity
- Discuss the specificity of the immune response and properties, component and pattern of recognition receptors.

13.2 Adaptive Immunity (I)

- Define adaptive immunity
- Classify T cells according to its types.
- Discuss the functions of CD4 and CD8 T cells with respect to activation, co-stimulation and memory formation
- Discuss the effect of super antigens on T cells

13.3 Adaptive immunity (II)

- Define adaptive immunity, antibody and primary response and secondary responses of antibodies
- Discuss the mode of activation of B cells
- Discuss effector functions of B cells
- Discuss the structure of antibody
- Classify antibodies according to types
- Discuss the functions of antibodies

13.4 Major Histocompatibility Complex (MHC) & transplantation

- Define Major Histocompatibility Complex (MHC), transplantation & allograft rejection
- Classify MHC proteins according to its classes
- Discuss the importance of MHC in transplantation
- Classify types of transplant rejections
- Discuss HLA typing in the lab in association with transplantation

13.5 Complement System

- Define complement system
- Discuss complement system with respect to activation and regulation
- Discuss the role of complement in immunity
- Explain the clinical aspects of complement system

13.6 Hypersensitivity I & II

- Define Hypersensitivity reaction, desensitization, atopy, drug hypersensitivity
- Classify hypersensitivity according to its types
- Discuss the pathogenesis of types I & II hypersensitivity reactions

13.7 Hypersensitivity III & IV

- Define Arthus reaction, Serum Sickness, Immune Complex Disease
- Discuss the pathogenesis of type III & IV hypersensitivity
- Discuss various clinical presentations of type III & IV hypersensitivity reactions
- Explain diagnostic immunology
- Discuss briefly agglutination & precipitation reactions, and ELISA
- Describe ABO blood groups, transfusion reactions & Rh incompatibility

13.8 Tolerance and Autoimmune Disease

- Define T & B cell tolerance, and autoimmunity
- Discuss the pathogenesis of autoimmune disease
- Discuss various clinical presentations of autoimmune diseases

13.9 Immunodeficiency

- Define immunodeficiency
- Classify immunodeficiency according to its types
- Discuss various clinical presentations of immunodeficiency diseases

LEARNING STRATEGIES AND ASSESSMENT:

S.No	LECTURE TOPICS	MIT	HRS	KNOWLEDGE ASSESSMENT	
				BCQ's	OSPE
1	Introduction to immunity: Innate immunity /Natural / Acquired immunity, Active and passive immunity	LEC	4	☐	☐
2	Antigen, antibodies and complement	LEC	2	☐	☐
3	Cell mediated & antibody mediated immunity	LEC	1	☐	☐
4	MHCs/ Practical applications of immunology (Graft Rejection)	LEC	1	☐	☐
5	Hypersensitivity reactions	LEC	4	☐	☐
6	Immunodeficiency disorders	LEC	1	☐	
7	Autoimmunity disorders/ Tolerance	LEC	2	☐	
8	Serological testing	PRACTICAL	2	☐	☐
9	Passive Agglutination Test	PRACTICAL	2	☐	☐
10	Complement fixation	PRACTICAL	2	☐	☐
	Total		21		

COURSE NAME: BACTERIOLOGY

CODE: FJ02-PAT-14

By the end of the topic the student should be able to

LEARNING OBJECTIVES:

14.1 Introduction to Microbiology

- Define microbiology
- Differentiate between prokaryotes and eukaryotes
- Discuss the types of microorganisms according to shapes and staining

14.2 Bacterial Structure I

- Discuss the difference between gram-positive and gram negative bacteria
- Discuss the essential components of bacterial structure (cell wall, plasma membrane, cytoplasm, plasmid, transposons, nucleoid, mesosomes, periplasm)
- Describe the different shapes & staining procedure for bacteria

14.3 Bacterial Structure II and Growth Cycle

- Describe the non-essential components of the bacterial structure (capsule, spore, pili, plasmid, flagellum, granules, glycocalyx)
- Explain the growth cycle
- Differentiate between aerobic and anaerobic growth
- Describe obligate intracellular growth, fermentation of sugars, iron metabolism

14.4 Bacterial Genetics

- Discuss mutations
- Describe the process of transfer of DNA within and between bacterial cells
- Discuss the importance of recombination

14.5 Classification of Bacteria and Normal Human Microbiome

- Discuss the principles of classification of bacteria and normal human microbiome
- Classify Bacteria
- Discuss the normal microbiota of various areas of the body

14.6 Pathogenesis I

- Describe the principles of pathogenesis
- List the types of bacterial infection
- Explain the stages of bacterial pathogenesis
- Discuss the determinants of bacterial pathogenesis (transmission, adherence, invasion)

14.7 Pathogenesis II

- Discuss the determinants of bacterial pathogenesis, (toxin production e.g. exotoxin, endotoxin)
- Discuss bacterial infection associated with cancer
- Describe the stages of infectious disease
- Describe the importance of Koch's postulates

14.8 Host Defense

- Discuss the principles of host defence, innate immunity (skin and mucous membrane)
- Describe the processes of inflammatory response, phagocytosis and adaptive specific immunity

14.9 Bacterial Vaccines

- Explain the principles of bacterial vaccines
- Discuss bacterial vaccines use for active and passive immunity

14.10 Antimicrobial drugs and Resistance

- Discuss the principles of antimicrobial resistance and antimicrobial stewardship program
- Briefly discuss the mechanism of action of various antibiotics and clinical indication of antibiotics against common bacterial infections
- Discuss the concept of chemoprophylaxis and probiotics
- Discuss the principles of antibiotic resistance
- Discuss genetic and non-genetic basis of resistance

14.11 Gram-Positive Cocci I

- Discuss the diseases and important properties of Staphylococci
- Describe the transmission, pathogenesis, clinical findings and laboratory diagnosis of Staphylococci

14.12 Gram Positive Cocci II

- Discuss the diseases and important properties of Streptococci
- Describe the transmission, pathogenesis, clinical findings and laboratory diagnosis of Streptococci

14.13 Gram Negative Cocci

- Discuss the diseases and important properties of Neisseria meningitides and Neisseria gonorrhoeae
- Describe the transmission, pathogenesis, clinical findings, and laboratory diagnosis of Neisseria meningitides and Neisseria gonorrhoeae

14.14 Gram Positive Rods I

- List spore forming gram positive rods
- Describe the important properties, transmission, pathogenesis and clinical findings of *Bacillus cereus* and *Bacillus anthracis*

14.15 Gram Positive Rods ii

- Discuss the diseases and important properties of *Clostridia* species
- Describe the transmission, pathogenesis and clinical findings of *C. tetani* and *C. difficile*

14.16 Gram Positive Rods iii

- List non-spore forming gram positive rods
- Describe the important properties, transmission, pathogenesis and clinical findings of *C. diphtheriae* and *L. monocytogenes*

14.17 Gram Negative Rods Related To Enteric Tract i

- List the pathogens involved within and outside the enteric tract
- Describe the important properties, transmission, pathogenesis and clinical findings of *E. coli* and *Salmonella*

14.18 Gram Negative Rods Related To Enteric Tract ii

- List the pathogens primarily involved within enteric tract
- Describe the important properties, transmission, pathogenesis and clinical findings of *Shigella*, *Vibrio cholera*, and *Helicobacter*

14.19 Gram Negative Rods Outside The Enteric Tract

- List the pathogens involved outside only
- Describe the important properties, transmission, pathogenesis and clinical findings of *Klebsiella* and *Pseudomonas*

14.20 Gram Negative Rods Related To The Respiratory Tract

- List the pathogens associated with the respiratory tract
- Describe the important properties, transmission, pathogenesis and clinical findings of *H. influenzae* and *B. pertussis*

14.21 Gram Negative Rods Related To Animal Sources

- List gram negative rods associated with animal sources
- Describe the important properties, transmission, pathogenesis and clinical findings of *Yersenia* and *Bordetella*

14.22 Mycobacterium Tuberculosis

- Define the term acid-fast
- List medically important mycobacteria
- Discuss important properties of *Mycobacteria*
- Describe the important properties, transmission, pathogenesis and clinical findings of *M. tuberculosis*

14.23 Atypical Mycobacteria And Mycobacterium Lepae

- Define the term atypical mycobacteria
- Discuss the classification of atypical mycobacteria.
- Describe the important properties, transmission, pathogenesis and clinical findings of *M. leprae*.

LEARNING STRATEGIES AND ASSESSMENT:

S.NO	TOPICS	MIT	HR	BCQ's	OSPE
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1	Introduction to microbiology/ Anatomy and Morphology of Bacteria	LEC	2	☐	
2	Introduction of Culture medium and Different Types of Staining	SGD	2	☐	
3	Physiology of bacteria	LEC	1	☐	☐
4	Classification	SGD	1.5	☐	☐
5	Genetics	LEC	1	☐	☐
6	Normal Flora of Human	LEC	1	☐	☐
7	Sterilization/ infection control	LEC	2	☐	☐
8	Pathogenesis	LEC	1	☐	☐
9	Laboratory diagnosis and Sample Collection	LEC	1	☐	
10	Sterilization/Infection control	PRACTICAL	1.5	☐	☐
	SYSTEMIC BACTERIOLOGY				
11	Gram positive Cocci	LEC	6	☐	☐
12	Gram negative Cocci	LEC	2	☐	☐
13	Gram positive rods	LEC	5	☐	
14	Gram negative Rods (Enterobacteriaceae)	LEC	5	☐	☐
15	Anaerobes (Bacteriodes)/Mycoplasma	LEC	2	☐	
16	Mycobacteria	LEC	3	☐	☐
17	Gram negative Rods	LEC	6	☐	☐
18	Simple Staining	PRACTICAL	1.5	☐	☐
19	Gram Staining	PRACTICAL	1.5	☐	☐
20	Wet mount preparation	PRACTICAL	3	☐	☐
21	Culture media	PRACTICAL	2	☐	☐
23	Coagulase and catalase test	PRACTICAL	1.5	☐	☐
24	Biochemical Test	PRACTICAL	3	☐	☐
25	Antibacterial Susceptibility Test	PRACTICAL	1.5	☐	☐
26	Sample Collection	PRACTICAL	1.5	☐	☐
27	Ziehl Neelsen Testing	PRACTICAL	1.5	☐	☐
28	Serological Testing	PRACTICAL	2	☐	☐
29	Lab Diagnosis for Mycobacterium Tuberculosis	PRACTICAL	1.5	☐	☐
30	Microscope	PRACTICAL	1.5	☐	☐
31	Anaerobic Culture media	PRACTICAL	1.5	☐	☐
32	Antimicrobial Drug Sensitivity	PRACTICAL	1.5	☐	☐
33	Pathogenicity And Lab Diagnosis of Gram Positive Organism	SGD	2	☐	☐
34	Pathogenicity And Lab Diagnosis of Gram	SGD	2	☐	☐

	Negative Organism				
	Total		73		

COURSE NAME: VIROLOGY

CODE: FJ02-PAT-15

By the end of the topic the student should be able to

LEARNING OBJECTIVES:

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

15.1 Basic Virology & Classification

- Compare viruses and cells
- Classify viruses
- Discuss symmetry, capsid and envelope of viruses
- Discuss atypical virus like agents
- Discuss viral vaccines and their types related to active, passive and herd immunity

15.2 Replication

- Describe viral growth curve
- Describe specific events during the growth cycle
- Discuss lysogeny and its relationship in bacteria to latency in human cells

15.3 Viral Pathogenesis & host defense

- Describe transmission and portal of entry of virus
- Differentiate pathogenesis and immunopathogenesis
- Differentiate nonspecific defenses and specific defenses

15.4 Herpes Viruses i

- List herpesviruses
- Discuss the important properties of herpes viruses
- Classify herpes simplex viruses
- Describe the important properties, transmission, replication cycle, pathogenesis clinical findings and lab diagnosis of herpes simplex viruses

15.5 Herpes Viruses ii

- Describe the important properties, transmission, replication cycle, pathogenesis, clinical findings and lab diagnosis of Varicella zoster virus, Epstein-Barr virus, and cytomegalo virus

15.6 Respiratory Viruses i

- Classify medically important respiratory viruses
- Describe the important properties, transmission, replication cycle, pathogenesis clinical findings, and lab diagnosis of influenza, parainfluenza and respiratory syncytial virus.

15.7 Respiratory Viruses ii

- Describe the important properties, transmission, replication cycle, pathogenesis clinical findings and lab diagnosis of corona virus

15.8 Childhood Viruses

- Describe the important properties, transmission, replication cycle, pathogenesis, clinical findings and lab diagnosis of measles, mumps, and rubella virus

15.9 Hepatitis Viruses

- Classify hepatitis viruses
- Describe the important properties, transmission, replication cycle, pathogenesis, clinical findings and lab diagnosis of HAV, HBV, HCV and HDV.

15.10 Polio and Rabies Virus

- Describe the important properties, transmission, replication cycle, pathogenesis, clinical findings and lab diagnosis of Polio virus and Rabies virus

15.11 HIV

- Describe the important properties, transmission, replication cycle, pathogenesis, clinical findings and lab diagnosis of HIV

LEARNING STRATEGIES AND ASSESSMENT:

S.NO	LECTURE TOPICS	MIT	HRS	KNOWLEDGE ASSESSMENT	
				BCQS	OSPE
1.	Introduction to Virology	LEC	2	☐	☐
2.	Hepatitis	LEC	3	☐	☐
3.	Herpes Viruses	LEC	4	☐	☐
4.	HIV	LEC	2	☐	☐
5.	Mumps, Measles, Rubella	LEC	1	☐	☐
6.	Influenza and Para influenza Viruses	LEC	2	☐	☐
7.	Dengue, Polio, Rabies	LEC	3	☐	☐
8.	Lab Diagnosis for Hepatitis B	PRACTICAL	2	☐	☐
9.	Study Herpes Virus Family	PRACTICAL	2		☐
10.	Study Viral Vaccines (MMR)	PRACTICAL	1.5		☐
	Total		22.5		

COURSE NAME: MYCOLOGY

CODE: FJ02-PAT-16

LEARNING OBJECTIVES:

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

16.1 Basic Mycology

- Describe the structure and growth of fungi
- Explain the mechanism of pathogenesis in fungal infections
- Describe fungal toxins and allergies
- Explain laboratory diagnoses and treatment of fungal infections

16.2 Mycoses i

- Classify medical mycoses on the basis of anatomic sites
- Discuss the causative organisms, mode of transmission, clinical features, and lab diagnosis of cutaneous and sub cutaneous mycoses.

16.3 Mycoses ii

- List the important fungal genera involved in systemic diseases
- Briefly discuss the important features of systemic fungal diseases
- Describe the important properties, transmission, pathogenesis, clinical findings and lab diagnosis of Histoplasma and Blastomyces

16.4 Mycoses iii

- List the important fungal genera involved in opportunistic mycoses
- Briefly discuss the important features of opportunistic fungal diseases
- Describe the important properties, transmission, pathogenesis, clinical findings and lab diagnosis of Candida, Cryptococcus, Aspergillus, Mucor, and Rhizopus

LEARNING STRATEGIES AND ASSESSMENT:

S.No	LECTURE TOPIC	MIT	HR	BCQ	OSPE
1.	Introduction to mycology Dermatophytes	LEC	2	☐	☐
2.	Cutaneous mycosis Subcutaneous mycosis	LEC	2	☐	☐
3.	Candida Aspergillus	LEC	2		☐
4.	Mucor Rhizopus Histoplasma Blastomyces	LEC	4		☐
5	Identify the Ring Worm Fungi	PRACTICAL	2		☐
6	Isolation and Identification of Candida Albicans	PRACTICAL	2		☐
	TOTAL		14		

COURSE NAME: PARASITOLOGY

CODE: FJ02-PAT-17

LEARNING OBJECTIVES:

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

17.1 Protozoa

- Define parasites
- Briefly discuss the classification of parasites
- Describe the important properties, transmission, pathogenesis and clinical findings of E.histolytica, G.lambliia and Trichomonas

17.2 Blood and tissue protozoans i

- List medically important blood and tissue protozoans
- Describe the important properties, transmission, lifecycles, pathogenesis and clinical findings of Plasmodium

17.3 Blood and Tissue Protozoans ii

- Describe the important properties, transmission, lifecycle, pathogenesis and clinical findings of Toxoplasma and Leishmania

17.4 Cestodes

- Discuss the important properties of cestodes
- Classify medically important cestodes
- Describe the important properties, transmission, lifecycle, pathogenesis and clinical findings of Taenia species, Echinococcus and Diphyllbothrium

17.5 Trematodes

- Discuss the important properties of trematodes
- Classify medically important trematodes
- Describe the important properties, transmission, lifecycle, pathogenesis and clinical findings of Schistosoma species.

17.6 Intestinal Nematodes

- Discuss the important properties of nematodes
- Classify medically important nematodes
- Describe the important properties, transmission, lifecycle, pathogenesis and clinical findings of Ascaris and Enterobius.

17.7 Tissue Nematodes

- List tissue nematodes
- Describe the important properties, transmission, lifecycle, pathogenesis, clinical findings, and lab diagnosis of Wuchereria and loa loa

LEARNING STRATEGIES AND ASSESSMENT:

S.No	LECTURE TOPIC	MIT	HR	ASSESSMENT	
				BCQS	OSPE
1.	Introduction of Parasitology Blood and Tissue Protozoa Urogenital Protozoa	LEC	4	☐	☐
2.	Nematodes	LEC	2	☐	☐
3.	Cestodes	LEC	1	☐	☐
4.	Trematodes	LEC	1	☐	☐
5.	Stool Examination for detection of parasites	SGD	2		☐
6.	Blood Examination for Malarial Parasite	PRACTICAL	2		☐
	Total		12		